

A RUSH TO REGULATE—THE CONGRESSIONAL REVIEW ACT AND RECENT FEDERAL REGULATIONS

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY POLICY, NATURAL
RESOURCES AND REGULATORY AFFAIRS

OF THE

COMMITTEE ON
GOVERNMENT REFORM

HOUSE OF REPRESENTATIVES

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A RUSH TO REGULATE—THE CONGRESSIONAL REVIEW ACT AND RECENT FEDERAL REGULATIONS

TUESDAY, MARCH 27, 2001

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY POLICY, NATURAL
RESOURCES AND REGULATORY AFFAIRS,
COMMITTEE ON GOVERNMENT REFORM,
Washington, DC.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2154, Rayburn House Office Building, Hon. Doug Ose (chairman of the subcommittee) presiding.

Present: Representatives Ose, Otter, and Tierney.

Staff present: Barbara Kahlow, deputy staff director; Dan Skopec, staff director; Jonathan Tolman, professional staff member; Regina McAllister, clerk; Michelle Ash and Elizabeth Munding, minority counsels; and Jean Gosa, minority assistant clerk.

Mr. OSE. The committee will come to order. I want to welcome everybody to the meeting of the Subcommittee on Energy Policy, Natural Resources and Regulatory Affairs. This morning we're having a hearing entitled, "A Rush to Regulate—The Congressional Review Act and Recent Federal Regulations."

In the waning days of his administration, President Clinton issued a flood of new regulations. Some are surely meritorious, others raise serious concerns.

Congress has a tool to correct defective regulations. It's called the Congressional Review Act. We're going to refer to that as the CRA. The purpose of today's hearing is to examine some of the late-issued rules and to ensure that the decisionmaking process was careful and above reproach. The hearing will consider not only substantive concerns but also procedural flaws in issuance of these rulemakings.

Earlier this month, the Senate and the House passed a joint resolution of disapproval for the Department of Labor's major rule establishing a new comprehensive ergonomics standard. The reversal of the ergonomics rule is the first instance in which the CRA resulted in the nullification of a rule. This reversal demonstrated that there is at least one rule that a majority of Congress felt was not in the interest of their constituents.

On December 20, 2000, the three principal procurement agencies, the Department of Defense, the General Services Administration, and the National Aeronautics and Space Administration, issued an amendment to the existing rules governing present responsibility,

to clarify what constitutes a satisfactory record of integrity and business ethics for contracting with the government. This is commonly called the "blacklisting rule."

Since the rule changes could potentially have a significant impact on a substantial number of small businesses, the agencies mistakenly certified that the rule will not have a significant impact on a substantial number of small entities, and thus the agencies failed to prepare the required initial and final regulatory flexibility analyses. This rule is currently being litigated.

On January 12, 2001, the Department of Agriculture published a major rule prohibiting the construction of roads and banning timber harvesting on 58 million acres of national forest land, or 31 percent of all national forest land. For comparison, all of new England, that being Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont encompass only 44 million acres.

In the vast majority of the areas affected by this rule, the biggest threat does not come from timber conditions but from fire. Last year, more than 84,000 fires raged across the country, scorching nearly 7 million acres of public land. The number of acres harvested each year by comparison is roughly half a million acres. The stated goal of the rule is to preserve the forests for endangered species, recreation and maintenance of water quality. Unfortunately, a forest ravaged by serious fire is unlikely to provide any habitat for species, little in the way of recreation, and probably a degraded water quality. The rule, originally scheduled to become effective on March 13th, is being reviewed by the new administration and is also being litigated.

Two days prior to the inauguration of a new President, the Environmental Protection Agency published a major rule establishing new standards for diesel fuel. Under the rule, oil refineries must remove 97 percent of the sulfur in diesel fuel by 2006. The current standard of 50 parts per million was reduced to 15 parts per million. The reason that sulfur needs to be reduced from diesel fuel is not because sulfur itself is a major source of pollution but because it interferes with catalytic converters and other pollution control devices necessary to produce cleaner-burning diesel engines.

I support the environmental goals of the diesel sulfur rule. Diesel engines account for a substantial portion of the ozone and particulates that pollute the air of our cities. This pollution has a wide range of adverse health effects, particularly the evidence linking diesel exhaust to an increased risk of lung cancer. Dozens of studies link airborne fine particles, such as those in diesel exhaust, to increased hospital admissions for respiratory diseases, chronic obstructive lung disease, pneumonia, heart disease and up to 60,000 premature deaths annually in the United States.

Despite my support for the environmental benefits that will be achieved by this rule, I am concerned by the timing, both the timing of the rule's publication and the timing of its implementation. Economic studies have suggested that our Nation's refineries may not be able to produce enough low-sulfur diesel fuel to meet expected demand.

As a Member representing California, I can tell you first hand it is not a good thing when energy supplies fail to meet energy demands. Yet, that this rule was finalized days before the end of an

administration and just as our Nation is struggling with several energy issues is somewhat disconcerting.

I want to welcome our witnesses today. And, prior to starting testimony from them, I am reserving the right for Mr. Tierney to make an opening statement.

[The prepared statement of Hon. Doug Ose follows:]

Chairman Doug Ose
Opening Statement
A Rush to Regulate - the Congressional Review Act and Recent Federal Regulations
March 27, 2001

In the waning days of his Administration, President Clinton issued a flood of new regulations. Some are surely meritorious; others raise serious concerns.

Congress has a tool to correct defective regulations - the Congressional Review Act (CRA). The purpose of today's hearing is to examine some of the late-issued rules and to ensure that the decisionmaking process was careful and above reproach. The hearing will consider not only substantive concerns but also procedural flaws in issuance of these rulemakings.

Under law, Congress has two opportunities to review agency regulatory actions: at the proposed rule stage and at the final rule stage. Under the Administrative Procedure Act (APA), Congress can comment on agency proposed and interim rules during the public comment period. Under the CRA, Congress can disapprove an agency final rule after it is promulgated. Congressional Committees and Members Congress expressed concern regarding the rules to be discussed today.

Earlier this month, the Senate and then the House passed a joint resolution of disapproval for the Department of Labor's (DOL) major rule establishing a new comprehensive ergonomics standard. The reversal of the ergonomics rule was the first instance in which the CRA resulted in the nullification of a rule. This reversal demonstrated that there is at least one rule that a majority in Congress felt was not in the interest of their constituents.

The ergonomics rule addressed employee exposure to the risk of musculoskeletal disorders (MSDs) in jobs in general industry workplaces. DOL estimated that the rule would affect 6.1 million employers and 102 million employees. The rule held employers responsible for non-work-related injuries. Cost estimates for the rule varied, e.g., the prior Administration estimated \$4.5 billion annually but the Employment Policy Foundation estimated up to \$100 billion annually.

In January 2000, this Subcommittee submitted an 18-page comment letter objecting to DOL's proposed rule and then conducted an extensive investigation of DOL's improper use of contractors in this rulemaking. The Subcommittee questioned possible augmentation of DOL full-time equivalents by use of contractors, DOL's improper use of contractors for inherently governmental functions in the rulemaking process, DOL's use of contractors (including 28 paid "expert" witnesses) to unfairly bias this rulemaking, and a conflict-of-interest between the DOL official leading the ergonomics rulemaking and the lead ergonomics contractor. Reducing injuries on the job is a laudable goal but penalizing industry for injuries that may not be job-related is a sure way to put jobs and the nation's economy at risk. Soon after issuance, this rule was challenged in court on both procedural and substantive grounds.

On December 20, 2000, the three principal procurement agencies - the Department of Defense, the General Services Administration, and the National Aeronautics and Space Administration -

issued an amendment to the existing rules governing “present responsibility” to clarify what constitutes a “satisfactory record of integrity and business ethics” for contracting with the government (commonly called the “blacklisting” rule). This change requires the contracting officer to determine whether a potential contractor’s record is satisfactory on issues, such as their labor, environmental and consumer protection records, including unproven allegations. Agencies commenting on the proposal rule stated that it was “seriously flawed” and would: (a) add cost, time and effort to procurement; (b) result in subjective and inconsistent determinations, increased protests and disputes, and additional litigation; and (c) appear to be punitive rather than protecting the government. This rule was scheduled to become effective on January 19, 2001.

The agencies stated that, “This rule is not regarded as a significant rule,” even though Federal procurement amounts to nearly \$200 billion annually and the rule’s changes could result in redistribution of over \$100 million in awards, potentially adversely affecting competition, etc. Under the existing regulatory executive order (E.O. 12866, Sec. 6), significant rules require preparation of a regulatory impact analysis (RIA). Since the agencies and the Office of Management and Budget (OMB) improperly categorized this rule as not significant, the agencies failed to prepare a RIA. Under the CRA (5 U.S.C. §804), major rules (with an annual effect of \$100 million or more) cannot become effective until 60 days (versus 30 days under the APA) after issuance, i.e., this rule should have been available for review by the new Administration prior to becoming effective. In addition, since the rule’s changes could potentially have a significant impact on a substantial number of small businesses, the agencies mistakenly certified that the rule “will not have a significant impact on a substantial number of small entities,” and, thus, the agencies failed to prepare the required initial and final Regulatory Flexibility Analyses (5 U.S.C. §601 et seq.). This rule is currently being litigated.

On January 12, 2001, the Department of Agriculture published a major rule prohibiting the construction of roads and banning timber harvesting on 58 million acres of national Forest Service land, or 31 percent of all national forest land. For comparison, all of New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) encompasses only 44 million acres. In the vast majority of the areas affected by this rule, the biggest threat does not come from timber companies but from fire. Last year, more than 84,000 fires raged across the country, scorching nearly 7 million acres of public land. The number of acres harvested each year by comparison is roughly half a million acres. The stated goal of the rule is to preserve the forests for endangered species, recreation and maintenance of water quality. Unfortunately, a forest ravaged by a serious fire is unlikely to provide any habitat for species, little in the way of recreation, and probably degraded water quality. The rule, originally scheduled to become effective on March 13th, is being reviewed by the new Administration and is also being litigated.

Two days before the inauguration of a new President, the Environmental Protection Agency published a major rule establishing new standards for diesel fuel. Under the rule, oil refiners must remove 97 percent of the sulfur in diesel fuel by 2006. The current standard of 500 parts per million (ppm) was reduced to 15 ppm. The reason that sulfur needs to be reduced from

diesel fuel is not because sulfur itself is a major source of pollution but because it interferes with catalytic converters and other pollution control devices necessary to produce cleaner burning diesel engines.

I completely support the environmental goals of the diesel sulfur rule. Diesel engines account for a substantial portion of the ozone and particulates that pollute the air of our cities. This pollution has a wide range of adverse health affects, particularly the evidence linking diesel exhaust to an increased risk of lung cancer. Dozens of studies link airborne fine particle, such as those in diesel exhaust, to increased hospital admissions for respiratory diseases, chronic obstructive lung disease, pneumonia, heart disease and up to 60,000 premature deaths annually in the United States.

Despite my support for the environmental benefits that will be achieved by this rule, I am concerned by the timing - both the timing of the rule's publication and the timing of its implementation. Economic studies have suggested that our nation's refineries may not be able to produce enough low sulfur diesel to meet expected demand. As a Member representing California, I can tell you first hand it is not a good thing when energy supplies fail to meet energy demands. That this rule was finalized days before the end of an Administration and just as our nation is struggling with several energy issues is somewhat disconcerting.

I want to welcome our witnesses today. Panel I includes a distinguished expert in agency rulemaking: Dr. Wendy Lee Gramm, former Administrator, Office of Information and Regulatory Affairs, OMB and Director, Regulatory Studies Program, Mercatus Center, George Mason University. Panel I also includes Marshall Whitenton, Vice President, Resources, Environment and Regulation Development, National Association of Manufacturers; Dr. Robert Nelson, Professor, University of Maryland School of Public Affairs; and Ray Ory, Vice President, Baker and O'Brien, Inc. Panel II includes Terry Gestrin, Chairman, Valley County Commissioners, Cascade, Idaho; Evan Hayes, a wheat farmer from Idaho, representing the National Association of Wheat Growers; Sharon Buccino, Senior Attorney, Natural Resources Defense Council; and Thomas McGarity, W. James Kronzer Chair, University of Texas School of Law.

Mr. OSE. Mr. Otter, would you care to make an opening statement?

Mr. OTTER. Thank you, Mr. Chairman. I do have an opening statement that I would like to submit for the record. But I will be very brief in the comments that I make now.

Mr. OSE. Without objection.

Mr. OTTER. I, too, am concerned, Mr. Chairman, about the rush to judgment, the rush to regulate that we've had not only in the two agencies that are coming before us this morning and the devastating effects that they have had on our abilities to produce, to travel, to indeed carry on the commerce that needs to be carried on not only in my State but also in the entire Union. And, because of that, I am particularly happy, Mr. Chairman, that you have sought to call this hearing, and I look forward to talking to the panels that will be coming before us this morning.

But, I do want you to know that the outcome of this hearing and the results that we will be able to go forward on are extremely important to us because there's a lot of folks back home in Idaho and in the Pacific Northwest that are hoping to at least get some relief as a result of this subcommittee hearing, Mr. Chairman. So I applaud you in your efforts this morning.

Mr. OSE. Thank you, Mr. Otter.

This committee typically swears in its witnesses, so if you would all rise.

[Witnesses sworn.]

Mr. OSE. Let the record reflect the witnesses answered in the affirmative. I would like to introduce the witnesses. Joining us today on my left is Dr. Wendy Lee Gramm, the former administrator of the Office of Information and Regulatory Affairs, OMB. She's currently at the Mercatus Center, where she is a distinguished senior fellow and runs the regulatory studies program.

Next to her is Marshall Whinton who is the vice president of Resources, Environment and Regulation Department for the National Association of Manufacturers.

And sitting next to him is Dr. Robert Nelson, who is a professor in the School of Public Affairs at the University of Maryland.

And our final witness on this panel is Raymond Ory who is the vice president of Baker & O'Brien, Inc.

If you could be so kind as to summarize your testimony within the 5-minute timeframe, that would be most appreciated and we would be able to get to questions quicker.

Dr. Gramm.

STATEMENTS OF DR. WENDY LEE GRAMM, FORMER ADMINISTRATOR, OFFICE OF INFORMATION AND REGULATORY AFFAIRS, OMB, AND DIRECTOR, REGULATORY STUDIES PROGRAM & DISTINGUISHED SENIOR FELLOW, MERCATUS CENTER, GEORGE MASON UNIVERSITY; MARSHALL E. WHITENTON, VICE PRESIDENT, RESOURCES, ENVIRONMENT AND REGULATION DEPARTMENT, NATIONAL ASSOCIATION OF MANUFACTURERS; DR. ROBERT H. NELSON, PROFESSOR, SCHOOL OF PUBLIC AFFAIRS, UNIVERSITY OF MARYLAND; AND RAYMOND E. ORY, VICE PRESIDENT, BAKER AND O'BRIEN, INC.

Dr. GRAMM. Thank you for inviting me to testify on the issue of the Congressional Review Act and recent Federal regulations. Please note that this testimony reflects my own views and not that of either the Mercatus Center or George Mason University.

The objective of the Regulatory Studies Program is to advance knowledge of regulations and their impact on society. What we do is to analyze regulations and regulatory issues from the perspective of the public interest and the typically underrepresented consumer. We've long been concerned about the growing burden of regulations and recently have focused on the phenomenon of midnight regulations, or those regulations promulgated during the 3 months following a national election.

Mercatus scholar Jay Cochran analyzed the number of pages in the Federal Register in post-election quarters since 1948; although an imprecise measure of regulatory activity, it's about the best we have. Dr. Cochran found this phenomenon of midnight regulations to be systemic and nonpartisan. This year was no exception when the page count in the Federal Register jumped by 51 percent when compared with the same quarters in the preceding 3 years.

I have outlined in my written testimony some examples of regulations that were finalized during this election period. And, you, Mr. Chairman, have commented on many of them. More detailed analyses of many of these regulations are available on our Web site in the form of public interest comments that we submitted during the comment period, as required by the Administrative Procedure Act.

Our public interest comments provide independent analyses of agency proposals from the perspective of the public interest and not any special interest. Some analyses are performed by Mercatus scholars; others are done for Mercatus by outside academics and practitioners. Last year, alone we wrote 24 public interest comments covering most of the regulations being discussed today and many more.

While our public interest comments may be lengthy, we have a one-page summary with each public interest comment, along with a checklist appended to each one. In the checklist, we provide a very simple list of questions that policymakers should address when crafting a regulation, and then summarize whether or not the agency answered each question, along with a grade ranging from A to F for excellent to unsatisfactory. The kinds of questions we ask, for example, are did the agency identify a specific problem that can't be addressed by either market regulation or by other levels of government—State and local government.

We ask whether agencies examined alternative approaches to the ones they're proposing, whether they attempted to maximize net benefits, whether there is a strong scientific or technical basis for the regulation, and, finally, we ask whether or not the agencies understood and considered both the distributional effects of the regulation on different populations, but also how individual choices would be affected.

I would like to just say a few sentences on some of the important midnight regulations, some of which you have commented on. The Forest Service roadless area regulation covers biologically diverse areas, as you said in your opening comments. And, while much public attention has been paid to the impact on logging, our concern is that the Forest Service has not shown that the ban on road construction is necessary or appropriate for protecting other important values, such as water quality, wildlife, and recreation in these areas.

The agency did not consider alternatives to a complete ban, such as allowing low-impact temporary roads as needed for forest health, fire protection, or ecosystem restoration.

The Federal Acquisition Regulation Council's blacklisting rule shifts the burden of determining whether a firm meets proper ethical standards from the agencies authorized by Congress to government procurement agents. Under this regime, blacklisting replaces the formal process and firms cannot answer the charges against them and may be blacklisted for an administrative complaint even before evidence is heard.

HHS's medical privacy regulations are costly, but HHS has not identified any net social benefits that can be expected to flow from this regulation.

Arsenic is a naturally occurring substance for which health risks have not been observed at the levels found in U.S. drinking water systems. EPA justified these standards using evidence of risk from high arsenic doses in other countries, although those populations smoke more, and have poorer health in general. And actually there was a U.S. study of U.S. populations where there was no statistical arsenic risk.

The reporting thresholds for lead under the toxic release inventory would be reduced substantially, but release here means the amount transferred offsite as waste, or even recycled or retreated.

There are a number of other regulations. I see my time is running out. I would like to point out that washing machine standards and the energy efficiency standards are also very costly to consumers. For the washing machine standards, for example, the Department of Energy in their estimates would imply that these standards would reduce energy use by 0.16 percent over a 24-year period, but we think its estimates are overstated.

There are many other regulations worth reviewing, but I thank you for your interest in regulations, especially midnight regulations, because these are regulations pushed through at the end of an administration's term when congressional oversight is unavailable and can result in potentially costly mandates that may do little to solve an identified problem.

I also applaud your use of all your authorities, including the Congressional Review Act, to ensure that regulations which are a hidden tax on citizens are appropriate and advance the public interest. Thank you.

Mr. OSE. Thank you Dr. Gramm.

[The prepared statement of Dr. Gramm follows:]

**Statement of Dr. Wendy L. Gramm, Distinguished Senior Fellow
Director, Regulatory Studies Program, Mercatus Center
George Mason University, Fairfax, Virginia**

**Before the Subcommittee on
Energy Policy, Natural Resources and Regulatory Affairs
Committee on Government Reform**

March 27, 2001

Mr. Chairman and Members of the Subcommittee: Thank you for inviting me to testify on the issue of the Congressional Review Act and Recent Federal Regulations. Please note that this testimony reflects my own views and not that of the Mercatus Center or George Mason University.

The Regulatory Studies Program at the Mercatus Center aims to advance knowledge of regulations and their impact on society. We focus on analyzing regulations and regulatory issues from the perspective of the public interest and the typically underrepresented consumer. We have long been concerned over the growing burden of regulation and a rulemaking process that is less and less accountable to the public. Estimates of the total burden of regulation exceed \$700 billion per year, and until the last two months the rate of growth has been growing unchecked.

A recent focus of our Regulatory Studies Program has been midnight regulations, or those regulations promulgated during the three months following a national election. Mercatus Scholar Jay Cochran analyzed the number of pages in the federal register in post election quarters since 1948 and found that this phenomenon of increased regulatory activity is non-partisan and systemic. On average, the number of pages in the federal register, an admittedly inexact proxy for regulatory activity, was 17% larger than the same period in non-election years. In years when a whole administration turned over, that percentage jumped to 29%.

This so-called "Cinderella effect" was especially large this past year. The Federal Register page count jumped by 51% in the post election quarter as compared with the same quarters of the preceding three years. There were over 26,542 pages printed during this period, surpassing President Carter's record of 24,531 pages. During the week before President Bush's

Inauguration, Clinton appointees increased the volume of Federal Register pages by nearly 1,000 pages of fine print per day compared to a normal volume of around 200 pages.

The Mercatus study does not attempt to explain why the midnight regulation phenomenon exists. Some of these regulations have been developed carefully over many years, in a rulemaking process that happens to have culminated during the final months of the administration. Others, however, have been hurried into effect without the usual checks and balances, and may be contrary to the public interest.

A number of significant regulations were proposed and/or finalized during this period. The hurried pace for many of these precluded the opportunity for meaningful public comment. As one example, a November 4, 2000 Presidential Memorandum ordered the Pension & Welfare Benefits Administration (PWBA), to promulgate a modified patient's bill of rights. The proposed rule went final in just 17 days, in spite of the fact that the agency expects the rule to cost employers and employees more than \$400 million per year in compliance costs. By mandating that employee health care plans grant or deny coverage for non-urgent claims within 15 days (and 72 hours for urgent claims), the rule simply codifies existing practice. PWBA estimates that less than one percent of claims are not already handled within the rule's "expedited" timeframes. It is not surprising therefore, that the Department of Labor could not quantify any benefits from the rule's imposition.

In another rushed regulatory process that made a mockery of public comment requirements, the Department of Energy issued three final regulations mandating the efficiency of different appliances in January. Unlike previous energy efficiency standards, which have taken as long as 10 years to evaluate, develop, and issue, DOE's washing machine, air conditioner and heat pump standards hurtled through the regulatory process at lightning speed. The Department announced its proposals on October 4th, accepted public comment until December 4th, and, just days later, circulated a final draft among other agencies in the administration. One wonders how, in a matter of days, DOE could have complied with the APA requirement that it consider all public comments. Indeed, in the final rules issued in mid-January, public comments were dismissed, often with no discussion at all. For example, the Mercatus Center submitted results of a new survey that cast

doubt on DOE's assumptions underlying the clothes washer rule, but the final rule does not even mention this.

Other midnight rules that are expected to have a significant effect on American consumers and businesses, as well as state and local governments are EPA's drinking water standards for arsenic, its diesel rule, and new reporting requirements for lead under the Toxic Release Inventory; the Forest Service's ban on all roads in certain national forest areas; the Department of Health and Human Service's medical privacy standards; and the Federal Acquisition Regulatory Council's blacklisting rule.

I will briefly describe each of these now. Attached to this testimony is a more complete list of some of the significant regulations that were promulgated during this post election quarter; options for addressing these midnight regulations; as well as copies of the public interest comments Mercatus submitted to the rulemaking record on a number of these regulations. This information is also available on our websites (www.Mercatus.org and www.regradar.org).

EPA's Diesel Sulfur Rule

The vast majority of U.S. citizens live in areas that already comply with EPA's ozone and particulate matter (PM) ambient air standards; yet, to address the pockets of noncompliance, EPA has lowered exhaust emission standards for heavy-duty highway engines and vehicles to less than one-tenth the current standards. In addition, because the sulfur levels in fuel may harm the new engine technologies required to meet the lower standard, this rule also requires reduced sulfur levels in diesel fuel from the current cap of 500 parts per million (ppm) to a cap of 15 ppm.

These nationwide restrictions on emissions and diesel sulfur will impose large costs on American citizens without corresponding benefit. Consumers throughout the nation will face higher prices for consumer goods and public transportation—assuming EPA's requirements are even feasible. In fact, EPA had to assume that unproven emissions control technologies will develop rapidly and at low cost to make its rule even remotely feasible. Feasibility also depends critically on highly optimistic assumptions about the cost and investment behavior of the suppliers of highway diesel fuel.

Forest Service Roadless Areas Rule

This rule bans all road construction and timber harvesting on 58.5 million acres of national forest land around the country. The roadless areas covered by the rule are biologically diverse and usage varies tremendously across the nation.

The Forest Service has not shown that a universal ban on road construction is either necessary or appropriate for protecting important values—such as water quality, wildlife, and recreation—in these diverse roadless areas. In fact, in some cases, the economic and environmental benefits of prohibiting road construction are likely to be less than the economic and environmental costs of not being able to build a road. Forest Service data suggest that many roadless areas are in need of ecosystem restoration activities that will not occur without road construction.

The Forest Service did not consider alternatives to a complete ban on road construction, such as allowing low-impact temporary roads as needed for forest health or ecosystem restoration. Such alternatives could achieve environmental goals more effectively, while simultaneously minimizing economic and environmental costs.

FARC's Blacklisting Rule

The Federal Acquisition Regulatory Council (FARC) “blacklisting” rule changes the standards by which firms bidding for government contracts are judged in the area of “integrity and business ethics.” It shifts the burden of determining whether a firm meets the proper standards for business ethics from the agencies authorized by Congress, to government procurement agents. At the same time, the rule provides little guidance for judging a firm’s history of practices or even what should be judged. Vague terminology and imprecise guidelines can only lead to inconsistent and contradictory application of the rule. Furthermore, any potential contractors deemed unworthy of a contract are barred *de facto* from doing business with the government for up to three years—they become, in other words, a “blacklisted” firm.

Currently, firms whose business ethics are being questioned face a hearing and may provide evidence on their behalf before being officially barred from government contracting. Under this new regime, blacklisting takes the place of formal hearings and firms cannot answer the charges

against them. Firms may be blacklisted for violation of any federal regulation, including labor standards, but may also face blacklisting for an administrative complaint even before charges are ever filed or evidence is heard.

HHS Medical Privacy Regulations

HHS has established guidelines that health plans (insurance companies, HMOs, etc.), health care providers (doctors, hospitals, etc.) and payment clearinghouses must follow to “protect the privacy of individually identifiable health information maintained or transmitted in connection with certain [health-related] transactions.” HHS issued its final version of the rule on December 28, 2000.

HHS estimates the 10-year discounted costs of the rule at more than \$11 billion, while our estimates place the long-run costs at closer to \$25 billion – including nearly \$4 billion in start up compliance costs alone. Laying aside considerations of cost, HHS has identified no net social benefits that can be expected to flow from the rule. (Those values HHS classifies as social benefits are in fact more properly accounted for as transfers.)

EPA’s Regulation of Arsenic in Drinking Water Systems

EPA has recently announced its intention to reevaluate a final rule published on January 22, 2001, that would have lowered the allowed level of arsenic in public drinking water systems from 50 micrograms per liter ($\mu\text{g/L}$) to 10 $\mu\text{g/L}$. This is a very positive step, because, although arsenic poses acute risks at high doses, it is a naturally occurring substance for which health risks have not been observed at the levels found in U.S. drinking water systems. EPA had justified the new standards using evidence of cancer risk from high arsenic doses in Taiwan and Chile. The data from these countries, however, may significantly overstate the risk of arsenic ingestion in the U.S., particularly since U.S. studies found no statistical evidence of arsenic risks.

EPA’s Toxic Release Inventory, Lead and Lead Compounds

The Toxic Chemical Release Inventory (TRI) rule lowers reporting thresholds for lead and lead compounds from 25,000 or 10,000 lbs. down to

100 lbs. If a facility manufactures, processes or uses more than 100 lbs. of lead or lead compounds per year, it would now be subject to annual TRI reporting requirements.

Despite extensive information on these chemicals, the reporting thresholds are not based on any quantitative analysis of the magnitude of releases that will be accounted for under different thresholds, nor the risks posed by releases. EPA recognized this, but only *after* it issued the final rule did it refer the rule to its Science Advisory Board for review.

Under the rule, facilities must identify the number of pounds of lead “released” into the environment. The term “released” refers not only to chemicals that are transferred off-site as waste or routinely or accidentally released on-site into the air, land or water, but also to chemicals that are recycled or treated. A reviewer of the TRI data cannot easily ascertain whether a “release” reflects responsible management and recycling, emissions allowed by regulation, or accidental spills; so, data on pounds of chemicals released, as provided by TRI, fail to provide communities relevant data on risks that may be present.

Congress recently used its authority under the Congressional Review Act to disapprove the ergonomics regulation. This is the first time this authority has been used to overturn a regulation. One can argue that the Congressional Review Act is uniquely suited to addressing poorly reasoned rules when there has been a change in administration, since during any other circumstance, a President is more likely to veto the Resolution of Disapproval for a regulation promulgated by his own appointee.

We applaud this Committee for considering whether other midnight regulations should be overturned. Regulations are a hidden tax, where the cost of the program is imposed through mandates. The agencies proposing these mandates, and imposing this indirect tax should ensure that the program’s or regulation’s benefits as well as its costs and effects are understood, measured, and discussed. Regulations pushed through at the end of an administration’s term, when Congressional oversight is unavailable, can result in potentially costly mandates that may do little to solve an identified problem.

Attachments

A. *Average Regulatory Volumes During the Post-Election Quarter*

B. *“The Cinderella Constraint: Why Regulations Increase Significantly During Post-Election Quarters”* also found at www.regradar.org/cochran.html

C. *“Midnight Regulations: Options for Evaluation”* also found at: www.regradar.org/options.doc

D. The following Mercatus Center Public Interest Comments can be found at www.Mercatus.org:

EPA’s Heavy-Duty Engine and Vehicle Emission Standards and Highway Diesel Fuel Sulfur Control (RSP 2000-16)

USDA’s Forest Service Roadless Area Conservation Draft Environmental Impact Statement (RSP 2000-14)

HHS’s Standards for Privacy of Individually Identifiable Health Information (RSP 2000-5)

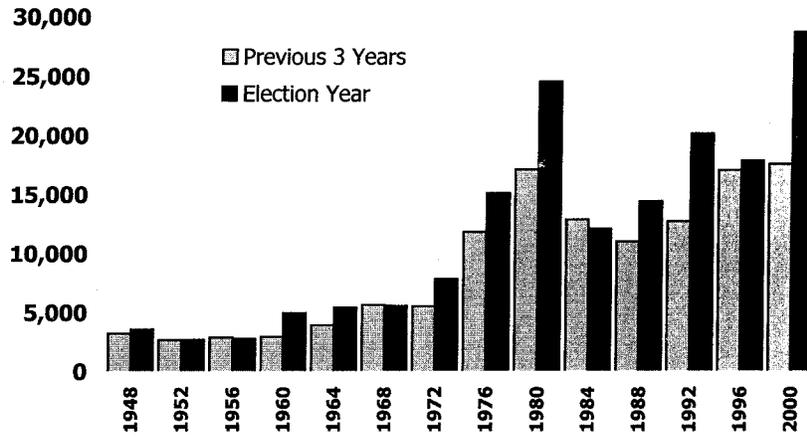
EPA’s National Primary Drinking Water Regulations: Arsenic Rule (RSP 2000-18)

EPA’s Toxic Release Inventory Reporting of Lead and Lead Compounds (RSP 1999-13)

EPA’s Proposed changes to the Total Maximum Daily Load (TMDL) Program and to the National Pollution Discharge Elimination (NPDES) and Water Quality Standards (WQS) Regulations (RSP 2000-1)

DOL/OSHA’s Proposed Ergonomics Program Standard (RSP 2000-6)

Average Regulatory Volumes During the Post-Election Quarter (Nov, Dec, Jan)



To download the complete study in Microsoft Word format, please click [here](#).

**The Cinderella Constraint:
Why Regulations Increase Significantly During Post-Election Quarters**

Jay Cochran, III
October 9, 2000

Introduction

In a 1981 series of articles, the *Washington Post* and *New York Times* reported on a phenomenon then labeled as "midnight regulations," which referred to an unusual increase in regulatory volumes during the interregnum - i.e., as the Carter Administration gave way to the Reagan Administration. The daily volume of rules during the waning days of the Carter Administration (as approximated by page counts of the *Federal Register*) was running three times higher than normal compared to the same period during non-election years. Was the Carter-Reagan transition an anomaly or was it simply a more obvious manifestation of a regulatory tendency that has existed in post-War administrations? This paper summarizes a longer study [[Microsoft Word download](#)] that develops one answer to that question.

Far from being unique, our analysis below suggests that the experience during the Carter-Reagan transition varied perhaps in magnitude but not in pattern from the norm for regulatory output during most post-election periods. Since 1948, the long-run tendency is for regulations during the post-election quarter to increase nearly 17 percent (16.8 percent) on average over the volumes prevailing during similar periods in off-election years. (A simple averaging of the raw data-without controlling for economic, election year, and partisan effects-yields the result that regulations increase during the post-election quarter between 25 and 32 percent.)

Upon first observation, one might incline toward a partisan explanation of the phenomenon; however, as will be described below, partisanship provides an insignificant contribution toward explaining midnight regulations. Therefore, if partisan differences do not explain an increased propensity to regulate, why might we expect the output of rules increase detectably during post-election quarters?

Why Do Midnight Regulations Occur?

In the study that underpins this paper, we test the straightforward hypothesis that a combination of preferences and institutional parameters (i.e., constraints) combine to produce the effect referred to as Midnight Regulations. In fact, we suggest that the periodically binding constraints in the executive branch are chief contributors to the phenomenon. That is, since Cabinet officers and agency heads often turn over even after a successful re-election, and *must* turn over after two terms in office (or following a defeat), these administrators face a limited and known term in office constraint.

In more colloquial terms, as the clock runs out on an administration's term in office, would-be Cinderellas (i.e., the President, Cabinet officers, and agency heads) work assiduously to promulgate regulations before they turn back into ordinary citizens at the stroke of midnight. Executive branch term limits in these

instances are binding constraints, which causes an individual's focus on the deadline to increase as it draws nearer. A race ensues to get regulations out the door, so as to achieve the executive's ends (or to indulge her preferences) before the deadline arrives.

Furthermore, the Cinderella constraint on the executive branch removes an implied contract (based on repeated dealings) between the Congress and the Executive. In so doing, it allows regulatory executives, if they so choose, to indulge in effective unconstrained preference maximization insofar as promulgation of regulations is concerned.

Model and Assumptions

See the companion study to this paper where the model, assumptions, and data sources are described in detail. To summarize here, however, the model suggests that regulatory output of executive branch agencies-as measured by the natural log of monthly Federal Register pages-is influenced by the following factors:

1. The Cinderella constraint, or the limitation on agency heads- terms in office (measured by monthly turnover rates of Cabinet officers and key agency heads);
2. Congressional input (measured by the number of days in session per month). Congress passes the enabling legislation for regulations and also supplies agency budgets and conducts oversight of the various rulemaking authorities.

In addition to these factors, we also control for other factors that might also have an effect on regulatory output, including:

Partisan effects (measured by the percentage of Congressional seats held by Democrats, and by the party controlling the White House); and

The general level of economic well-being (measured by the natural log of gross domestic product in 1996 dollars) to account for any wealth effects in regulation as well as longer-term secular trends in overall activity.

Findings

In the simplest model, an election year variable is positive and significant, indicating that a midnight regulations phenomenon likely exists. The estimated coefficient suggests that we can expect regulatory output to increase by 16.8 percent on average during post-election quarters, as compared to the same periods of non-election years. The coefficient on real gross domestic product indicates that for every one percent rise (or fall) in GDP, we can expect roughly a 1.3 percent rise (or fall) in regulatory output. Partisan effects for both the legislature and the executive were insignificant.

Refining the model to include variables for the number of days Congress is in session and substituting Cabinet turnover rates for the simpler, but less revealing election year dummy variable, substantiates our earlier findings. The refined results suggest that when an entire Cabinet turns over-as at the end of an administration-we can expect an increase in regulatory output of 29.1 percent. The impact of Congress, moreover, is statistically significant, and

positive, indicating that the more days Congress is in session, the greater is the regulatory output of executive branch agencies.

Based on these estimates, along with some reasonable assumptions about the number of days Congress is likely to be in session, real GDP, and the fact that the entire Cabinet is likely to turn over in January 2001, our model forecasts that the volume of regulations likely to emerge between November 2000 and January 2001 will be approximately 29,000 additional pages in the *Federal Register*.

This estimate stands in contrast to an average of 17,400 pages during the same periods in 1993-1999 and represents an increase of more than 65 percent over what has been normal for President Clinton in past years. The number of post-election pages of course is in addition to the 70,000 or so pages likely to be in print as of November 2000. Taken together therefore, we can expect nearly 100,000 pages of new regulations to emerge in the final 12 months of President Clinton's term-exceeding the old high-water mark established by the Carter Administration in 1980-1981, of more than 89,000 pages.

To download the complete study in Microsoft Word format, please click here.

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Midnight Regulations: Options for Evaluation

What are midnight regulations?

The term midnight regulation was first coined to describe the flurry of regulatory activity after the November 1980 election. As the story in Washington goes, so many regulations were issued during the waning weeks of the Carter administration that printing at the Federal Register – the official publication that prints all new regulations – was backed up for days.

Mercatus Center Research Fellow Jay Cochran set out to examine whether the Carter-Reagan transition was an anomaly or simply a more obvious manifestation of a regulatory tendency that has existed in post-War administrations. His paper, “The Cinderella Constraint: Why Regulations Increase Significantly During Post-Election Quarters,” found that sudden bursts of regulatory activity are systemic, not merely anecdotal, and that they cross party lines. Examining pages in the Federal Register back to 1948 as a proxy for regulatory activity, Cochran’s analysis reveals that the volume of regulation issued during the post-election quarter (“PEQ,” defined as the full months of November, December and January) average 17 percent higher than the volume of rules issued during the same period in non-election years.²

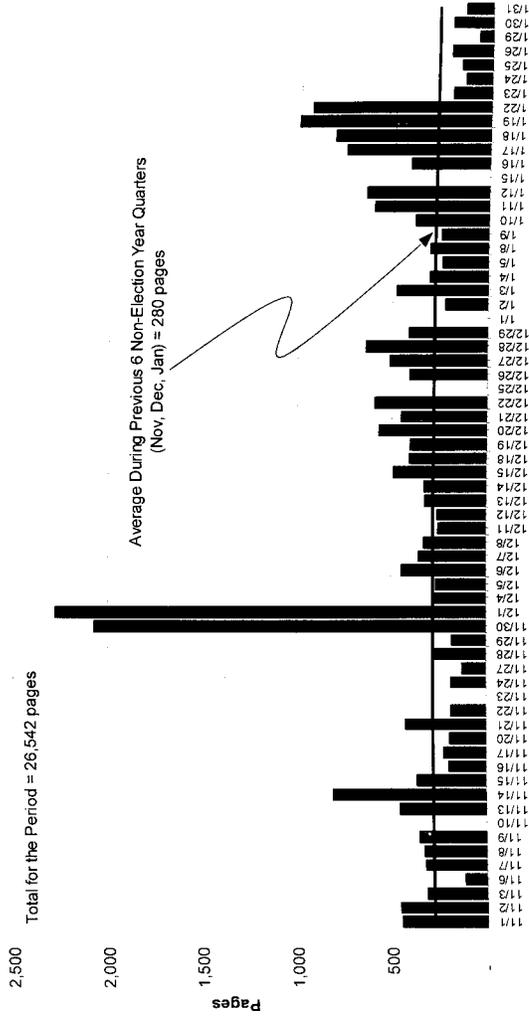
According to this analysis, the party in office does not affect this result. However, it does suggest that when an entire Cabinet turns over—as at the end of an administration—we can expect an average increase in regulatory output of 29 percent.

As of January 22, 2001, President Clinton eclipsed President Carter's 20 year record for the most pages published in the *Federal Register* during the post-election quarter. As of Wednesday January 31, 2001, President Clinton's post election page count reached 26,542 pages (compared to 24,531 pages issued during President Carter's 1980-1981 post-election quarter). President Clinton's total through the end of January represents a 51% increase over the volume of regulation issued during the same three months during 1997 to 1999. Figure 1 illustrates this increase in regulatory activity.

¹ The views expressed herein do not represent an official position of George Mason University.

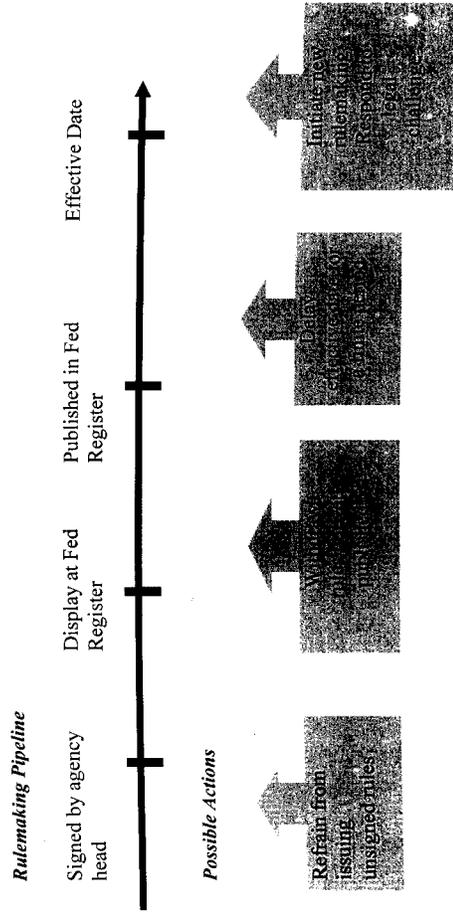
² Please visit www.RegRadar.org for more information on midnight regulations and to track upcoming regulatory activity.

Figure 1
Federal Register Pages Published Daily
 During the 2000-2001 Post-Election Quarter (Nov, Dec, Jan)



The spike on 11/30, 2000 reflects publication of the Semi-Annual Unified Agenda.

Figure 2: Administration Options



Administrative and Legislative Remedies

The Mercatus study does not attempt to explain why the midnight regulation phenomenon exists. Some of these so-called midnight regulations have been developed carefully over many years, in a rulemaking process that happens to have culminated during the final months of the administration. Others, however, have been hurried into effect without the usual checks and balances, and may be contrary to the public interest. This paper offers a brief review of options available administratively and legislatively to examine and reconsider selected midnight regulations.

Administrative Options

Depending on where regulations are in the rule development pipeline, different options are available, as Figure 2 illustrates.

For rules that are under development, and a final action has not been signed by an agency head, the administration can refrain from publishing them until new officials have examined their merits. On January 29, 1981, President Reagan issued a moratorium on regulations that were under development. This option would apply to all rules for which proposals have recently been published or are slated to be published, as well as those which have received notice and comment at the proposed stage, but for which final regulations have not yet been signed by an agency or department head. Table 1 presents an illustrative but incomplete list of such rules.

Table 1: Sample of rules initiated but not finalized by Clinton Administration officials

RIN #	Agency	Division	Regulation	Date Proposed
2060-AG63	EPA	Air & Radiation	NESHAP/NSPS: Reciprocating Internal Combustion Engine	NA
2060-AG67	EPA	Air & Radiation	NESHAP: Combustion Turbine	NA
2060-AG52	EPA	Air & Radiation	NESHAP: Plywood and Composite Wood Products	NA
2070-AC61	EPA	Prevention, Pesticides, and Toxic Substances	Toxic Substances Control Act Inventory (TSCA) Inventory Update Rule Amendments	8/26/99

2050-AB80	EPA	Solid Waste and Emergency Response	Corrective Action for Solid Waste Management Units (SWMUs) at Hazardous Waste Management Facilities	10/7/99
2040-AD19	EPA	Water	Effluent Guidelines and Standards for Feedlots Point Source Category, And NPDES Regulation for Concentrated Animal Feeding Operations (CAFOs)	1/12/01
2040-AB79	EPA	Water	Effluent Limitations Guidelines and Standards for the Metal Products and Machinery Point Source Category Phase 1 and Phase 2	NA
2040-AD02	EPA	Water	National Pollutant Discharge Elimination System Permit Requirements for Municipal Sanitary Sewer Collection Systems	NA
2040-AA94	EPA	Water	National Primary Drinking Water Regulation: Radon	11/2/99
2040-AA97	EPA	Water	National Primary Drinking Water Regulations: Ground Water Rule	5/10/00
2040-AD02	EPA	Water	Revisions to NPDES Requirements for Municipal Sanitary Sewer Collection Systems	NA
0910-AC14	HHS	Food and Drug Administration	Control Of Salmonella Enteritidis In Shell Eggs During Production And Retail	NA

Some regulations may be signed in the final week of an outgoing administration, but due to backlogs or last minute signatures, are not published at the Federal Register before a new administration takes office. President Clinton, when he took office on January 20, 1993,

In a memorandum dated January 20, 2001, Chief of Staff Andrew Card directed all agencies to withdraw regulations sent to the Federal Register but not yet published "to ensure that the President's appointees have the opportunity to review any new or pending regulations."

pulled several such regulations back from the Federal Register. These included regulations of renewable fuels (requiring that reformulated gasoline contain 30 percent renewable fuel including ethanol), methyl bromide, and corrective action management units under the Resource Conservation and Recovery Act. The withdrawal of these actions survived subsequent court challenge.

Table 2 lists proposed and final rules that were signed by Clinton Administration officials, but not published in the Federal Register as of January 22, 2001.

Table 2: Rules signed but not published in the Federal Register

RIN #	Agency	Division	Regulation	Date Proposed
1093-AA08	DOI	Secretary	Implementing Section 7 of the Wild and Scenic Rivers Act, Water, Resources Projects	12/9/98
2060-AI55	EPA	Air and Radiation	Control for Emission of HAP's Mobile Sources	8/4/00
2060-AJ31	EPA	Air and Radiation	Guidelines for Best Available Retrofit Technology (BART) Determinations Under the Regional Haze Rule	NA
2060-ZA11	EPA	Air and Radiation	NAAQS for Ozone, Response to Remand	NA
2070-AC02	EPA	Prevention, Pesticides, and Toxic Substances	Exemptions for Plant Pesticides Regulated Under FIFRA and FFDC A	11/23/94
2050-AC62	EPA	Solid Waste and Emergency Response	Oil Pollution Prevention and Response	2/17/93
2040-AD60	EPA	Water	Ocean Discharge Criteria Revisions	NA
0583-AC46	USDA	Food Safety and Inspection Service	Performance Standards for Ready-to-Eat Meat and Poultry Products (Listeria)	NA

Generally, once a final regulation has been published in the Federal Register, the only way an agency can revise it is by initiating a new rulemaking under the Administrative Procedure Act.³ Agencies cannot change existing regulations arbitrarily; they must develop a factual record that supports the change in policy. However, a new president could delay the effective date of a rule.

Under the Administrative Procedure Act, rules generally cannot become effective for at least 30 days after publication. Under the Congressional Review Act, “major”⁴ rules cannot become effective for 60 calendar days, unless exempted as “emergency” by presidential executive order.

Extending the effective date could allow time for a new administration to consider its options, and allow a period during which the rule will not be enforced while Congress consider it under the CRA. However, the effective date could not be delayed indefinitely, unless new information is presented to warrant a stay while the rulemaking record is reopened. Important rules that have been promulgated but were not yet effective as of January 20, 2001 are listed in Table 3.

Andrew Card’s memo directed agency heads to “temporarily postpone the effective date of [recently issued but not yet effective] regulations for 60 days.”

Table 3: Rules for which effective date could be extended

RIN #	Agency	Regulation	FR Date
1904-AA77	DOE	Energy Efficiency Standards for Central Air Conditioners and Heat Pumps	1/22/01
2040-AD14	EPA	Effluent Limitations Guidelines and New Source Performance Standards for the Oil and Gas Extraction Point Source Category	1/22/01
2040-AB75	EPA	National Primary Drinking Water Regulations: Arsenic	1/22/01

³ In some cases, such as ergonomics, air conditioner appliance efficiency standards, and others, private parties have challenged or are expected to challenge, the rules. The Administration could settle such litigation, and reconsider the rules.

⁴ CRA defines a “major” rule as one which has resulted in or is likely to result in (1) an annual effect on the economy of \$100 million or more; (2) a major increase in costs or prices for consumers, individual industries, government agencies, or geographic regions; or (3) significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of U.S.-based enterprises to compete with foreign-based enterprises in domestic and export markets.

2060-AH81	EPA	NESHAP: Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Industry(SOCMI) & Other Processes Subject to the Negotiated Regulation for Equipment Leaks	1/22/01
0910-AA43	HHS	Fruit and Vegetable Juices: Development of HACCP and Label Warning Statements for Juices	1/19/01
0938-A170	HHS	Medicaid Managed Care; Regulatory Program to Implement Certain Medicaid Provisions of the Balanced Budget Act of 1997 (HCFA-2001-F)	1/19/01
2060-AI69	EPA	Control of Air Pollution from New Motor Vehicles: Proposed Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements	1/18/01
1904-AA76	DOE	Energy Efficiency Standards for Water Heaters	1/17/01
2070-AD38	EPA	Lead and Lead Compounds; Lowering of Reporting Thresholds; Community Right-to-Know Toxic Chemical Release Review	1/17/01
2040-AD41	EPA	Further Revisions to Clean Water Act Definition of Discharge of Dredged Material ("Tulloch" rule)	1/17/01
1904-AA67	DOE	Energy Efficiency Standards for Clothes Washers	1/12/01
2060-AI34	EPA	NESHAP: Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite and Stand Alone Semichemical Pulp Mills	1/12/01
0596-AB77	USDA	Protection of National Forest System Roadless Areas	1/12/01
0938-AI28	HHS	State Child Health; Implementing Regulations for the State Children's Health Insurance Program	1/11/01

0583-AC26	USDA	Retained Water in Raw Meat and Poultry Products; Poultry Chilling Performance Standards	1/9/01
2070-AC63	EPA	Identification of Dangerous Levels of Lead-Based Paint Hazards	1/5/01
0991-AB08	HHS	Standards for Privacy of Individually Identifiable Health Information	12/28/00
0581-AA40	USDA	National Organic Program	12/21/00
2040-AC98	EPA	National Primary Drinking Water Regulations: Radium, Uranium, Alpha, Beta and Photon Emitters	12/7/00
0910-AB30	HHS	Shell Eggs: Warning, Notice and Safe Handling Labeling Statements and Refrigeration Requirements	12/5/00
3235-AH91	SEC	Auditors Independence	12/5/00
3235-AH95	SEC	Disclosure of Order Routing and Execution Practices	12/1/00

Legislative Options

All rules issued after mid-July 2000 are subject to Congressional disapproval under the Congressional Review Act (CRA), enacted in March 1996 as Subtitle E of the Small Business Regulatory Enforcement Fairness Act (SBREFA). Under the CRA, rules are defined broadly to include Independent as well as Cabinet agencies and all final regulations, as well as interpretive rules, statements of policy, and guidance documents.

Under the CRA, agencies submit to GAO and each house of Congress:

- The final rule
- A report describing rule
- Analysis supporting rule (including analyses required under the Regulatory Flexibility Act, the Unfunded Mandates Reform Act, EO 12866, etc.)

Within 15 days of receipt of this information, GAO must report to Congress on agency compliance with the CRA's analysis requirements.

Congress can pass a joint resolution of disapproval for 60 legislative days (House) or session days (Senate) after publication of the rule in the Federal Register. Rules sent to the Federal Register with less than 60 session/legislative days left are treated as if they were issued on the 15th session/legislative day of the new Congress. The House Parliamentarian has ruled that rules submitted to Congress after July 13, 2000 fall into this latter category.

All rules submitted to Congress on or after July 13, 2000 are subject to review and joint resolution under the CRA for 60 legislative/session days starting on February 5, 2001 (which will likely run through the middle of 2001).

Though 20,000 rules have been submitted to Congress under the CRA since it was enacted, not one has been disapproved.⁵ In large part, this is because any disapproval of an administration rule would likely have been vetoed by the President, requiring a two-thirds majority to override.

The next 5 or 6 months presents a unique opportunity for applying the CRA. During this window, the veto threat would diminish, because the regulations subject to disapproval were issued by a president no longer in office.

The new administration could facilitate congressional review of key rules by submitting a list of rules to Congress for their consideration and review. Table 4 presents an initial list of important rules issued since July 13, 2000 that may benefit from review under CRA.

⁵ Eight joint resolutions, related to 6 rules, have been introduced. While none resulted in a floor vote disapproving a rule, one did lead to a provision in an appropriations measure and another lead an agency voluntarily to suspend a rule in order to conduct further analysis. Arguably, the threat of a disapproval resolution may provide incentives for agencies to conduct better analysis supporting regulations.

Table 4: Important Rules Subject to CRA Joint Resolution of Disapproval

RIN #	Agency	Regulation	FR Date
1904-AA77	DOE	Energy Efficiency Standards for Central Air Conditioners and Heat Pumps	1/22/01
2040-AD14	EPA	Effluent Limitations Guidelines and New Source Performance Standards for the Oil and Gas Extraction Point Source Category	1/22/01
2040-AB75	EPA	National Primary Drinking Water Regulations: Arsenic	1/22/01
2060-AH81	EPA	NESHAP: Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Industry(SOCMI) & Other Processes Subject to the Negotiated Regulation for Equipment Leaks	1/22/01
0910-AA43	HHS	Fruit and Vegetable Juices: Development of HACCP and Label Warning Statements for Juices	1/19/01
0938-AI70	HHS	Medicaid Managed Care; Regulatory Program to Implement Certain Medicaid Provisions of the Balanced Budget Act of 1997 (HCFA-2001-F)	1/19/01
2060-AI69	EPA	Control of Air Pollution from New Motor Vehicles: Proposed Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements	1/18/01
1904-AA76	DOE	Energy Efficiency Standards for Water Heaters	1/17/01
2070-AD38	EPA	Lead and Lead Compounds; Lowering of Reporting Thresholds; Community Right-to-Know Toxic Chemical Release Review	1/17/01

2040-AD41	EPA	Further Revisions to the Clean Water Act Definition of Discharge of Dredged Material ("Tulloch" rule)	1/17/01
1904-AA67	DOE	Energy Efficiency Standards for Clothes Washers	1/12/01
2060-AI34	EPA	NESHAP: Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite and Stand Alone Semicheical Pulp Mills	1/12/01
0596-AB77	USDA	Protection of National Forest System Roadless Areas	1/12/01
0938-AI28	HHS	State Child Health; Implementing Regulations for the State Children's Health Insurance Program	1/11/01
0583-AC26	USDA	Retained Water in Raw Meat and Poultry Products; Poultry Chilling Performance Standards	1/9/01
2070-AC63	EPA	Identification of Dangerous Levels of Lead-Based Paint Hazards	1/5/01
0991-AB08	HHS	Standards for Privacy of Individually Identifiable Health Information	12/28/00
0581-AA40	USDA	National Organic Program	12/21/00
1215-AA99	DOL	Black Lung Benefits Act Regulations Implementing the Federal Coal Mine Safety and Health Act of 1969	12/20/00
9000-AI40	FARC	Federal Acquisition Regulation; Contractor Responsibility, Labor	12/20/00
0970-AB96	HHS	State Self-Assessment Review and Report	12/12/00

2040-AC98	EPA	National Primary Drinking Water Regulations: Radium, Uranium, Alpha, Beta and Photon Emitters	12/7/00
0910-AB30	HHS	Shell Eggs: Warning, Notice and Safe Handling Labeling Statements and Refrigeration Requirements	12/5/00
3235-AH91	SEC	Auditors Independence	12/05/00
3235-AH95	SEC	Disclosure of Order Routing and Execution Practices	12/1/00
1210-AA61	DOL	ERISA of 1974; Rules and Regulations for Administration and Enforcement; Claims Procedures	11/21/00
1215-AA94	DOL	Procedures for Predetermination of Wage Rates – 29 CFR Part 1 Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction	11/20/00
1218-AB36	DOL	Ergonomics Programs: Preventing Musculoskeletal Disorders	11/14/00
1215-AA01	DOL	Government of Contractors: Nondiscrimination and Affirmative Action Obligations, E.O. 11246 (ESA/OFCCP)	11/13/00
0596-AB20	USDA	National Forest Service Land and Resource Management Plan	11/9/00
2060-AI12	EPA	Control Emissions of Air Pollution from 2004 and Later Model Year Heavy Duty Highway Engines and Vehicles	10/6/00
1904-AA75	DOE	Energy Efficiency Standards for Lamp Ballasts	9/19/00
3235-AH82	SEC	Selective Disclosure and Insider Trading	8/24/00

2040-AD22	EPA	TMDL - Revision to the Water Quality Planning and Management Regulation & NPDES Program and Federal Antidegradation Policy	7/13/00
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Mr. OSE. Mr. Whintenton.

Mr. WHITENTON. Mr. Chairman and members of the subcommittee, on behalf of the National Association of Manufacturers, our 14,000 member companies, large, medium-sized, and small, and the 18 million people who make things in America, I want to thank you for this opportunity to testify before you today.

At the outset, it's important to remind everyone that the men and women working in the manufacturing sector share basic American environmental health and safety values and want them applied in their workplaces, their homes, and their communities. Manufacturers certainly do not oppose health, safety and environmental rules that are founded in sound science and developed in a deliberative and public process that is as cost effective as possible.

However, a number of rules that were hurried through the promulgation process in the final days of this last administration suffered from a serious deficiency in these essential qualities of responsible rulemaking. As a result, some recently finalized rules could require huge expenditures even for modest, let alone any genuine, protection of human health, the environment, and worker safety.

This hearing properly focuses on unfair or inadequate agency rulemaking that technically met the requirements, if not the spirit, of the APA as they were rushed to the Federal Register before the end of the last administration. Examples of rushed rules that have large impacts on manufacturers include the EPA's TMDL rule, arsenic rule, TRI lead rule and diesel sulfur reduction rule, OSHA's ergonomics rule, and the Department of Agriculture's roadless areas rule.

Other witnesses at this hearing are scheduled to discuss specifically the diesel sulfur reduction rule and the USDA roadless rule. With respect to the other rules I mentioned, NAM supports Administrator Whitman's recent decision to reconsider the arsenic rule and asks Congress to require the EPA to reconsider the TMDL rule and the lead TRI rule. The NAM applauds Congress for its wise and courageous decision to use the Congressional Review Act to disapprove the flawed ergonomics rule. However, Congress must look at the root of the problem. The EPA and OSHA could not have abused the public trust if they had not had such a broad delegation of authority from Congress.

Since the World War II era, Congress has established and increased the power of non-independent Federal agencies. Initially, Congress provided strong checks on the new agencies through the one-House veto. In fact, by the early 1980's, there were more than 200 statutory provisions that contained one-House or even one-committee vetoes of regulations.

With the 1983 Supreme Court decision in *INS versus Chadha*, however, the one-house veto regulation was declared unconstitutional. The court ruled that Congress cannot overrule an executive branch decision except by passage of legislation and presentment or presentation of that legislation to the President. In other words, except by passing a law.

In the mid-1990's, Congress passed the Congressional Review Act, which is simply a procedural framework for focusing and expe-

ding congressional review and, if necessary, rejecting an agency's rule. It is founded on the Chadha principle that Congress can only change an agency rule with a law.

On a personal note, I was privileged to serve with Senator Don Nickles when he devised and introduced, along with Senator Harry Reid, the Congressional Review Act legislation in 1995, and I also had the pleasure of working with the staff of this subcommittee the following year, and House Judiciary Committee, during the informal conference on that measure following its amendment and passage by the House in 1996.

In the aftermath of the Chadha decision, the CRA has given Congress another tool to oversee the implementation of its legislative delegations to the agencies. It certainly is not the only tool. The TMDL rule, for example, is outside the window of CRA review by this Congress. And, we hope it will be dealt with in other legislation.

Congress has not only every legal right to critically review agency rulemaking, but it also has a duty to do so. This is particularly true today because there are too many statutes on the books that give agencies very broad statutory authority to meet very general goals. For example, the EPA has authority under the Clean Air Act to, "protect public health with an adequate margin of safety." In this connection, the NAM was very disappointed in last month's Supreme Court decision in *Whitman v. ATA* in which the court declined to agree with the D.C. Circuit Court which had found that EPA had interpreted the broad authorities in the Clean Air Act in a way that created an unconstitutional delegation of legislative power to the executive.

Unfortunately, it seems that Congress is going to have to actively address its past broad grants of authority without judicial help, and we hope that Congress will be much more careful in the future when it is granting authority to the Federal agencies. In the meantime, we urge Congress in general to follow the example that has been set by this subcommittee of conducting frequent and meaningful oversight over the agencies.

Thank you. I would be pleased to answer any questions you might have.

Mr. OSE. Thank you Mr. Whitenton.

[The prepared statement of Mr. Whitenton follows:]



Testimony

of Marshall E. Whinton

Vice President, Resources, Environment and Regulation

on behalf of the National Association of Manufacturers

*before the Subcommittee on Energy Policy, Natural Resources and
Regulatory Affairs, Committee on Government Reform*

*on "A Rush to Regulate - the Congressional Review Act and Recent
Federal Regulations"*

March 27, 2001

**MANUFACTURING
MAKES AMERICA STRONG**



Manufacturing:

The Key to Economic Growth

- ▶ The United States was rated number one in global competitiveness by the Switzerland-based Institute for Management Development by a wide margin — almost 20 percent above its closest competition, Singapore and nearly twice as high as traditional economic rivals, Germany and Japan.
- ▶ U.S. manufacturing productivity growth averaged more than 4 percent during 1996 and 1997 — roughly one-third higher than the trend since the early 1980s and nearly three times as great as the rest of the economy.
- ▶ U.S. manufacturing's direct share of the Gross Domestic Product (GDP) has remained remarkably stable at 20 percent to 23 percent since World War II. Manufacturing's share of total economic production (GDP plus intermediate activity) is nearly one-third.
- ▶ Manufacturing is responsible for two-thirds of the increase in U.S. exports, which have grown to 12.9 percent up from 11.4 percent in 1986.
- ▶ No sector of the economy, including the government, provides health care insurance coverage to a greater percentage of its employees. Average total compensation is almost 20 percent higher in manufacturing than in the rest of the economy.
- ▶ Technological advance accounts for as much as one-third of the growth in private-sector output, and as much as two-thirds of growth in productivity. The lion's share of this comes from the manufacturing sector, which accounts for more than 70 percent of the nation's total for research and development.

TESTIMONY OF
Marshall Whinton
Vice President

Resources, Environment and Regulation
National Association of Manufacturers

Before the Subcommittee on Energy Policy,
Natural Resources and Regulatory Affairs
House Committee on Government Reform

March 27, 2001

Mr. Chairman, members of the subcommittee, on behalf of the National Association of Manufacturers, our 14,000 member companies – large, mid-sized and small – and the 18 million people who make things in America, I want to thank you for this opportunity to testify before you today.

The NAM is pleased that this subcommittee is analyzing options to deal with those instances where federal agencies chose to shortcut fact-finding, appropriate deliberation and adequate consideration of the public's comments in order to finalize rulemakings before the last Administration came to an end.

At the outset, it is important to remind everyone that the 18 million men and women working in the manufacturing sector share basic American environmental, health and safety values and want them applied in their workplaces, their homes and their communities. Manufacturers certainly do not oppose health, safety and environmental rules that are founded in sound science and developed in a deliberative and public process that is as cost-effective as possible. A number of rules that were hurried through the promulgation process in the final days of the last Administration suffered from a demonstrable deficiency in these essential qualities of responsible rulemaking. As a

result, some recently finalized rules could require huge expenditures even for modest, let alone any genuine, protection of human health, the environment and worker safety.

This subcommittee is to be commended for conducting oversight last year on the inappropriate rulemaking habits of several rogue agencies, notably the Occupational Safety and Health Administration and the Environmental Protection Agency. At a hearing on February 15, 2000, Michael Baroody of the NAM applauded the subcommittee for focusing on these agencies' use of guidances, compliance documents, enforcement actions and interpretive and opinion letters to avoid public, congressional and, often, judicial review. In Mr. Baroody's words, "the Administration, perhaps having gotten in its final year an intimation of its own mortality, is in a bit of a rush to make policy by administrative fiat where it has failed to do so by legislative means or by following the regular regulatory order." Perhaps it was this subcommittee's February 2000 hearing, but the EPA began to slow down its two largest rulemakings-by-guidance – the environmental justice guidance and the federally permitted releases guidance. Or, perhaps, it was the fact that the agency lost a major court case in April 2000, when the U.S. Court of Appeals for the D.C. Circuit vacated an EPA interpretive guidance as unenforceable because it had legal force and effect and had not been issued pursuant to the APA rulemaking procedures. For example, consider the case of *Appalachian Power v. Environmental Protection Agency* (April 14, 2000). Whatever the impetus, the EPA began to hurry up its rulemaking and place somewhat less reliance on potentially unenforceable guidances and interpretations.

The NAM shared the frustrations of the public concerning the regulatory agenda of the federal agencies as they moved into high gear last year. In an August 25, 2000,

Washington Post article, it is reported that, “[EPA] officials have listed 67 regulatory decisions looming before Clinton's second term expires in January.” The NAM tried to obtain a copy of this “listing,” but the EPA would not release the document, stating that it was not a “public” document. In response, the NAM submitted a Freedom of Information Act (FOIA) request to the EPA, calling for immediate release of the information. The EPA “lost” the FOIA request, and received a second one with a letter to the Administrator. At the time, the NAM commented that, “The fact that the EPA is teeing up dozens of proposed rules and other regulatory decisions without public discourse is irresponsible.”

The NAM obtained EPA's “Midnight” Regulatory Agenda, not from EPA's prompt compliance with the NAM's August 28 FOIA request but from the staff of this subcommittee. Then Chairman David McIntosh (R-IN) demanded the memorandum from EPA and obtained a copy of a memorandum listing 88 EPA regulatory decisions expected before the end of the Clinton Administration. The list, finally released by EPA to the NAM on October 26 (after it had been on the NAM web site for two months), included court-ordered, statutory and executive branch priorities to be acted upon by the EPA by the end of the year, but failed to include the many “guidance documents” on which the EPA was also working. The NAM believes that the Administration's aggressive rush to regulate as its term wound down signaled a reckless disdain for appropriate and fair rulemaking procedures.

Again, we applaud this subcommittee for trying to bring in some sunshine on the sometimes secretive and non-APA complaint rulemaking activities at OSHA and EPA. Having last year explored the extremes to which the agencies were trying to avoid proper

notice and comment rulemaking, this current hearing properly focuses on improper agency rulemaking that did meet the technical requirements, if not the spirit, of the APA. Examples that have large cost impacts on manufacturers include the EPA's TMDL rule (FR 7/13/00), arsenic rule (FR 1/22/01), TRI lead rule (FR 1/17/01), and diesel/sulfur rule (FR 1/18/01); OSHA's ergonomics rule (FR 11/14/00); and the Department of Agriculture's roadless areas rule (FR 1/12/01). Other witnesses at this hearing are scheduled to discuss specifically the diesel/sulfur rule and the USDA roadless areas rule, so I will briefly discuss the rashness of these other rules.

TMDL (Clean Water Act): On July 11, 2000, EPA Administrator Carol Browner signed the controversial rule regulating total maximum daily load (TMDL) limitations under Clean Water Act permits, even though on June 30, 2000, Congress sent to the White House a specific legislative statement that EPA must take a closer look at the more than 30,000 comments received and rewrite the rule. In haughty disregard of Congress, EPA rushed the rule to signature before the effective date of the congressional prohibition. Further ignoring the clear statement of Congress, EPA delayed the effective date for the rule until October 1, 2001, so that it would still become effective after the FY 2001 appropriation prohibition expired. Such callous disregard of Congress's will come at a substantial economic cost. State agencies testifying before Congress have estimated the costs to states of preparing these TMDLs (up to 40,000 comprehensive water surveys over 15 years) to be between \$1 billion and \$2 billion annually. We are greatly concerned that these costs will be passed on to manufacturers. No unelected agency, even one wrapping itself in the green flag of the environment, should be able to flaunt the will of the American people as expressed through the Congress.

Arsenic (Safe Drinking Water Act): EPA Administrator Whitman recently announced she would propose withdrawing the pending arsenic standard by notice and comment rulemaking, which will include independent reviews of both the science behind the standard and the cost estimates. The pending rule would lower the drinking water standard for arsenic from the current standard of 50 parts per billion (ppb) to 10 ppb. The rulemaking record indicates serious concerns whether the 10 ppb level is necessary to protect human health. Moreover, EPA estimates that 3,000 community water systems will have to modify their equipment to meet the new standard. According to a study conducted by the American Enterprise Institute and the Brookings Institute's Joint Center for Regulatory Studies, the arsenic rule will have a net cost (minus benefits) of \$190 million annually. The American Water Works Association accuses EPA of conducting an inadequate cost-benefit analysis and not meeting the requirements of the 1996 Safe Drinking Water Act (SDWA) Amendments. The vast majority of the affected parties agree that this rule was rushed. Lawsuits have been filed by the National Mining Association, the American Wood Preservers Institute, the Utility Water Act Group and the States of Nebraska and New Mexico.

Lead TRI Rule (EPCRA, Section 13): the final rule, issued pursuant to the Emergency Planning and Community Right-to-Know Act, lowers the Toxic Release Inventory (TRI) reporting thresholds for lead and lead compounds from 25,000 pounds per year (for those that use lead and lead compounds in manufacturing) and 10,000 pounds (for those that manufacture lead and lead compounds) to 100 pounds per year.

The final rule subjects potentially tens of thousands of new facilities to the burdens of:

1. Determining whether they “manufacture, process or otherwise use” 100 pounds of lead and lead compounds, and, if so,
2. Preparing and filing annual TRI reports.

The costs associated with these new requirements will be very substantial and may threaten the ability of certain small businesses to continue operating in the United States. The EPA’s own estimates indicate increases in overall TRI reporting costs at \$116 million in the first year, and \$60 million in years 2 and beyond. This cost increase adds a substantial burden to those small businesses already covered under other TRI reporting requirements. In fact, TRI reporting costs increased from \$65 million in 1988 (when the TRI program was established) to \$498 million in the year 2000 in actual dollar terms. The EPA estimates that an additional 35,376 facilities would need to report at the new threshold.

In its rush to the *Federal Register*, the Lead TRI rule ignored both overall cost implications and the effects on small businesses. EPA engaged in virtually no consultation with small businesses before publishing the proposed rule, which was against the spirit of SBREFA. In addition, EPA’s evaluation of overall costs and benefits of the rule was, by its own admission, weak. For example, EPA identified a variety of industries “that may be affected by the rule, but for which existing data are inadequate to make a quantitative estimate of additional reporting,” so they were not included in the cost equation. The agency also admits that its attribution of the health benefits that would be produced by the rule is uncertain. After pressure from various sectors, including the business community and Members of Congress, the EPA is finally referring the issue to

the Science Advisory Board (SAB) for review – but only after the TRI Lead rule would take effect!

Ergonomics (OHSA): Clearly this is the poster-child of a rule that should not have been issued. OSHA's massive ergonomics rule was not only flawed substantively but it was also flagrantly expedited without due regard to or respect for the many public comments that raised serious concerns about the proposed rule. Despite the size and scope of its proposed rule, OSHA provided only a relatively short comment period of 100 days (less than other major rulemakings in recent years). Nevertheless, over 200,000 pages of comments were received by the close of that comment period on August 10, 2000. These comments were overwhelmingly critical of the proposed rule. Irrespective of the public's outrage, the rule was signed on November 6, fulfilling a campaign promise in time for the election. For perspective, this election-year-shortened comment review period would have been equivalent – if the OSHA staff considered all the comments after the deadline – of reading over 3,000 pages of comments each day, considering them, deliberating the ideas put forth, and incorporating the meritorious comments into the final rule. Since the comments were overwhelmingly negative toward the proposed rule, and the final rule was significantly more burdensome than the proposed rule, it is doubtful that the public's views were given an appropriate level of consideration.

The NAM and the country applaud Congress for its wise and courageous decision to use the Congressional Review Act to disapprove this disastrous rule.

However, Congress must look at the root of the problem. EPA and OSHA could not have abused the public trust so flagrantly if they had not had such broad delegations of authority from Congress.

Since the WWII era, Congress has established and increased the power of non-independent federal agencies by giving them ever-increasing authority. Initially, Congress provided strong checks on the new agencies through the one-House veto of any agency regulations that the agency would promulgate that violated congressional intent. In other words, Congress did not intend to give unfettered authority to entities that it had created to solve complex regulatory issues. In fact, by the early 1980's, there were more than 200 statutory provisions that contained one-House, or even one-committee, vetoes.

With the 1983 Supreme Court decision in *Immigration and Naturalization Service v. Chadha*, however, the one-House veto of regulations was declared unconstitutional. The Court ruled that Congress cannot overrule an executive branch decision except by passage of legislation and presentment or presentation of that legislation to the president.

In the mid-1990's Congress passed the Congressional Review Act, which is simply a procedural framework for focusing and expediting congressional review and, if necessary, rejection of agency rules. It is founded on the *Chadha* principle that Congress can only change agency rules with a law. On a personal note, I was privileged to serve with Senator Don Nickles when he devised and introduced, along with Senator Harry Reid, the Congressional Review Act legislation in 1995. I also had the pleasure of working with the staff of this subcommittee and the House Judiciary Committee during the informal conference on the measure following its amendment and its passage by the House in 1996.

Congress not only has every legal right to critically review agency rulemaking, but also a duty. This is particularly true today, because there are too many statutes on the books that give agencies very broad authority to meet general goals. For example, the

EPA has authority under the Clean Air Act to “protect public health with an adequate margin of safety.” In this connection, the NAM was very disappointed in last month’s Supreme Court decision in *Whitman (Administrator of EPA) v. American Trucking Associations*, in which the Court declined to agree with the United States Court of Appeals for the D.C. Circuit, which had interpreted the broad authorities in the Clean Air Act in a way that created an unconstitutional delegation of legislative power to the executive. Unfortunately, it seems that Congress is going to have to tighten its broad grants of authority on its own. And surely, we hope that Congress will be much more careful in the future when it is granting authority to the federal agencies.

In the meantime, we urge Congress to follow the example that has been set by this subcommittee of conducting frequent and meaningful oversight over the agencies. We applaud you for bringing these issues to light, and for attempting to remind our Executive Branch enforcement agents of their obligation to undertake their responsibilities with care, with due consideration for the limits imposed by law and the Constitution and with a decent respect for fairness in the use of their power over the people who make things in America and the companies that employ them.

Thank you, and I will be happy to answer any questions you might have.

Mr. OSE. Dr. Nelson.

Dr. NELSON. I am pleased to be here. I am a professor of environmental policy in the School of Public Affairs of the University of Maryland, and senior fellow of the Competitive Enterprise Institute. My experiences in Federal land management include working in the Office of Policy Analysis within the Office of the Secretary of the Interior from 1975 to 1993.

In January 2001, former President Clinton set aside 58 million acres of new roadless areas on the national forests. This was adding to an existing 35 million acres of roadless areas in the national wilderness system that had previously been approved by Congress. Combined, if the Clinton action stands, congressionally approved and de facto wilderness areas would now equal 93 million acres, almost half of the total land in the national forest system. This is a vast amount of land to set aside in such a restrictive land status that precludes most management actions. Congress should now, I believe, act to apply the provisions of the Congressional Review Act to rescind these designations.

There are also procedural failings. Prior to the Clinton designations, local citizens in good faith put in countless hours in learning about, discussing and debating the land management options for the nearby national forest lands. The Clinton roadless mandates amounted to a betrayal of the trust of these citizens in the land use planning process for national forest decisionmaking.

The Clinton actions also swept aside a longstanding role of the U.S. Congress. Since the Wilderness Act of 1964, Congress has specifically approved each new permanent wilderness area. The Clinton administration simply bypassed this process to increase the total effective area of wilderness on the national forest system by 160 percent.

Most management options will automatically be precluded over the 58 million acres of roadless areas. What may be helpful for the Congress is to consider some of the many potentially desirable and even necessary management actions that would now be ruled out in the future without further consideration.

Despite the appealing public image of protecting nature little touched by prior human impact, according to the Forest Service's own figures, about 50 percent of the newly designated roadless areas in the lower 48 States actually consist of declining forests in a moderate state of ill health, ecological deterioration, and fire-prone conditions.

The principal reason for their dire condition is the previous century of the Forest Service following an active policy of suppression of forest fire. By the fall of 2000, the Forest Service had established priority areas for forest treatments to reduce excess fuels and fire hazards, including 14 million acres within the Clinton roadless areas. These treatments will largely be ruled out by the roadless designations, leaving the West to face greater forest fire hazards, as seen in the summer of 2000.

The roadless designations will also make it "harder to fight wildland fires." When intense and historically unprecedented fires burn, the Federal Government not only ends up spending huge amounts of money fighting them, more than \$1 billion in 2000, but also the fires can do significant environmental damages.

The largest economic values that would be automatically foreclosed by the roadless designations involve future losses in recreational opportunity. If the Clinton actions stand, they will leave 56 percent of the total national forest lands set aside for primitive recreation, and 44 percent will be available for all the many other forms of more developed forms of recreation. Yet, activities associated with developed recreationsites are more popular with the American public and are also the most rapidly growing. Hikers, hunters, fishermen, snowmobilers, skiers, bird watchers, and many others, will all face new limits on the ability to expand their recreation opportunities.

A total of 7.6 million acres of land with oil and gas potential are found within designated roadless areas. According to a recent study commissioned by the U.S. Department of Energy, a mean estimate of about 11 trillion cubic feet of natural gas may underlie the designated roadless areas and would largely be lost for exploration and production.

In summary, as I said, I am not arguing for any particular management in the future for any particular area of land in the national forests. Roadlessness may be appropriate in some places. But to seek to impose a single national land standard is the central error of the Clinton actions. These actions try to resolve such matters from Washington, DC. My concern is to maintain our future management options. Without any adequate justification, the Clinton roadless designations would preclude many important management actions that could offer large benefits to the American people. The Congress should act promptly to restore an element of common sense to national forest management.

Mr. OSE. Thank you Dr. Nelson.

[The prepared statement of Mr. Nelson follows:]



COMPETITIVE ENTERPRISE INSTITUTE

**RESCIND THE CLINTON 58.5 MILLION ACRE
ROADLESS DESIGNATIONS**

Testimony of Robert H. Nelson

Hearing on "A Rush to Regulate – The Congressional Review Act and
Recent Federal Regulations."

Subcommittee on Energy Policy, Natural Resources and Regulatory Affairs,
Committee on Government Reform, U.S. House of Representatives

Washington, D.C.

March 27, 2001

My name is Robert H. Nelson. I am a professor of environmental policy in the School of Public Affairs of the University of Maryland and senior fellow of the Competitive Enterprise Institute. From 1975 to 1993, I worked in the Office of Policy Analysis of the Office of the U.S. Secretary of the Interior, devoting much of my time there to policy issues relating to federal land management. I have published many articles and three books on the subject of federal land management, including most recently *A Burning Issue: A Case for Abolishing the U. S. Forest Service* (2000). As a longstanding critic of many aspects of federal land management, I find myself in the somewhat novel position today of defending the future prerogatives of professional land managers. That is a measure of the concern I have with respect to actions taken by President Bill Clinton in his last few weeks in office.

In one of those last acts in January 2001, former President Clinton set aside 58.5 million acres of new "roadless" areas on the national forests. This was adding to an existing 35 million acres of roadless areas in the national wilderness system that had previously been approved by Congress within the national forests. Combined, if the Clinton action stands, Congressionally approved and de facto wilderness areas will now equal 93 million acres, almost half of the total land in the national forest system (192 million acres).

This is a vast amount of land to set aside in such a restrictive land status that precludes most management – equal to 5 percent of the total land area of the United States. Idaho has a higher percentage of its area in national forests than any other state, 40 percent. Following the Clinton designations, 25 percent of the total area of Idaho would now be in a wilderness status.

I believe the Clinton designation of this 58.5 million acres was a reckless and misguided regulatory action, in a category with some other unfortunate actions of the final days of the Clinton administration. Congress should apply the provisions of the Congressional Review Act to rescind these roadless designations. If the Congress does not do so, the Bush administration should act on its own administratively to accomplish this result.

The Central Issue – Management or No Management

I should emphasize that the main policy issue posed by the recent Clinton designations is not one of whether there will or should be any roadless areas on the national forests. Indeed, well before the Clinton directive, local Forest Service planners had already identified 24 million acres for roadless management in local land use plans for national forests – 40 percent of the total areas subsequently designated by the Clinton actions. The same planners had also designated an additional 15 million acres for roadless management in areas that lie altogether outside the areas that Clinton designated.

Whatever happens, most of the land at issue will remain unroaded for many years to come. Over the next 20 years, and according to Forest Service projections, no more

than perhaps 5 to 10 percent of the areas designated by Clinton for a roadless status might actually become roaded, if the Clinton actions should now be rescinded.

The real issue is whether there will be adequate flexibility in the future with respect to management actions extending over about half of the total area of the national forest system. There are a host of reasons why active management may be desirable or even necessary on these lands. The Clinton roadless designations simply sweep aside any such possibilities by the imposition of a single national mandate precluding most management.

Procedural Failings

Prior to the Clinton designations, the Forest Service had been engaged for many years in the development of land use plans for the national forests in these areas. Local citizens had in good faith put in countless hours in learning about, discussing, and debating the land management options for the nearby national forest lands. For a third of the national forest system, these efforts were undermined by the roadless mandates. It amounted to a betrayal of the trust of these citizens on the part of the Forest Service.

The Forest Service recognized the violation of its own longstanding forest planning commitments, as indicated in the agency's Final Environmental Impact (FEIS) for the roadless designations, released in November 2000. As the Forest Service FEIS stated, the agency had long sought to promote "a collaborative approach between agencies, partners and the [local] public" but, as many people would now inevitably perceive, "the Roadless Rule contradicts the [past] emphasis placed on collaboration" (FEIS, p. 3-369) and instead reflects a strategy of "maximizing national prohibitions" (FEIS, p. 3-238) on the use of national forest lands. As a result, the Clinton actions were likely to "undermine local communities' trust in the [Forest Service] public involvement process over the short term," although it could be hoped that "this trust may be regained over the long term" (FEIS, p. 3-369).

The Clinton actions also swept aside the longstanding role of the U.S. Congress in determining the establishment of new wilderness areas on the federal lands. Since the Wilderness Act of 1964, Congress has specifically approved each new permanent wilderness area. This has often involved long debate and careful legislative consideration of each new area proposed for inclusion in the national wilderness system. In January 2001, in one action, the Clinton administration bypassed this process to increase the total acreage of effective wilderness areas on the national forest system by 160 percent. Although the Clinton roadless areas will not officially be wilderness areas, the combination of the regulatory management restrictions formally established by the Clinton actions, and the informal restrictions that are sure to be recognized in day-to-day management by Forest Service field employees on the ground, would make them for all practical purposes new wilderness areas. Over time, the roadless areas would be likely to become indistinguishable in management from the lands in the national wilderness

system – as was in fact probably the expectation and strategy of the Clinton decision makers.

Most management options will automatically be precluded over the 58.5 million acres of roadless areas. I do not propose to suggest that any one type of management is appropriate for such a vast area involving so many local circumstances. What may be helpful for the Congress is to consider some of the many important management actions that would now be ruled out without any further consideration, and the possible reasons why such actions may actually be needed in the future for many of the areas that would now be designated for a permanent roadless status.

The importance of maintaining future management options comes clear to any careful reviewer of the Forest Service's own Final Environmental Impact Statement for the roadless area policy. As well as any outsider could, the information and data documented at length by the Forest Service professionals themselves demonstrate clearly the folly of a single national policy that would preclude the great majority of forms of affirmative management over such a large part of the national forests.

Forest Fire and the Forest Environment

Despite the public image of protecting "nature" little touched by prior human impact, according to Forest Service figures, about 50 percent of the newly designated roadless areas in the lower 48 states actually consist of declining forests in a moderate to advanced state of ill health and ecological deterioration (FEIS, p. 3-83). The principal reason for their dire condition is a previous century of the Forest Service following an active policy of suppression of forest fire.

In ponderosa pine and other types of western forests, frequent low intensity fires historically removed the underbrush and other invasive tree species. Suppressing forest fires for decades disrupted this natural process, however, leaving many forests now with as many as 300 to 500 small and fire prone trees per acre, where 50 or so much larger trees might have been the historic norm.

During the 1990s, various national expert groups, including the National Commission on Wildfire Disasters in 1994 and the General Accounting Office in 1998 and 1999, warned that the west faced a high risk of catastrophic forest fires, if strong management actions were not taken to reduce the levels of "excess fuels" on western forests – and including prominently the national forests. Although the Clinton administration ignored these warnings and did little or nothing in response, prompted by the catastrophic fires of the summer of 2000, the administration was finally pushed to take action. By the fall of 2000, the Forest Service had established priority areas for forest treatments to reduce excess fuels and fire hazards on 89 million acres of national forest land.

Among these lands already identified as having a higher priority for fuels reductions were 14 million acres within the Clinton roadless areas -- about a third of the total lower 48 roadless areas (FEIS, p. 3-86). In about 7 million of these roadless acres, the first step required would be mechanical removal of small trees and other excess vegetation.

All this proved inconvenient for the longstanding Clinton roadless strategy -- which had been in the works well before the fires of 2000. A roadless status will effectively preclude most forest treatment actions -- such as prescribed burning or mechanical removal of the trees -- to reduce the risk of fire. Rather than accept the painful reality that its earlier roadless plans might now have to be shelved in light of the fire hazards facing the West, the Clinton administration put its wilderness ideology ahead of common sense. It simply plunged ahead with its pre-existing roadless plans with a minimal regard to the resulting potential fire hazards.

Hence, as the Forest Service FEIS states (p. 3-95), the Clinton designations will result in "more wildfires with [historically] uncharacteristic fire effects" within the 58 million acres designated for a roadless status. More generally, as compared with a more flexible management regime that maintained wider road access options, the Clinton roadless designations will "increase the likelihood of large fires in high priority areas, especially over the short- to medium term" (FEIS, p. 3-368).

There is also no assurance that the fires will remain within a roadless area; in a dry season, as tragically demonstrated in 2000 at Los Alamos, once the wind blows, anything can happen, potentially extending raging fires into roaded areas throughout a whole region. As the Forest Service found, there was a wide concern in the West that "roads are needed for fire suppression and for fuels management" (FEIS, p. 3-368). Hence, the Clinton roadless prohibitions would make it "harder to fight wildland fires" (FEIS, p. 3-368), leaving western populations exposed not only to greater forest destruction, but also to increased risks to their homes and lives. The federal government faces the prospect of spending many billions of dollars over the next decade in fighting western forest fires, if there are more repetitions of the summer of 2000.¹ The greater difficulty of fighting fires in roadless areas is suggested by that fact that, although twice as many fires are started in lower-elevation roaded areas nearer to urban centers, there are about an equal number of large fires that escape control in roaded and roadless areas (FEIS, p. 3-106).

Negative Environmental Consequences

When intense and historically unprecedented fires burn, the federal government not only ends up spending huge amounts of money (more than \$1 billion in 2000) fighting them but the fires can do significant environmental damage. In the current crowded and unhealthy condition of many western forests, the high intensity fires that

¹ The Forest Service reports that in the 1999 fire season in northern California, "the two largest and most

now burn may often become “crown” fires that consume the entire forest vegetation, including the older and larger trees. Burning at extremely high temperatures, current fires can “sterilize” the soil, later causing rapid runoff and siltation problems downstream. As former Interior Secretary Bruce Babbitt once said of an Idaho fire in an overstocked forest, it had “wiped out a population of bull trout. It vaporized soil elements critical to forest recovery; then when the rains come, floods and mudslides will pour down hardpan slopes, threatening lives and property a second time.”

For many years, an increasing share of Forest Service timber sales has been undertaken for “stewardship” purposes that have an environmentally beneficial purpose – and such sales are expected to be 60 percent of more of total timber sales in the future.² However, few of these stewardship sales will be economically or technically feasible, if road access is precluded in an area. Wildlife habitat improvements and other environmental goals that depend on active forest management to create the necessary forest conditions will suffer in these areas.

The Forest Service reports, for example, that “the Mexican spotted owl may benefit from timber harvest activities that maintain and develop large old-growth pine habitats, and alleviate risk from wildland fire, insects, and disease” (FEIS, p. 3-147). Other species that may benefit from more intensive forest management – and can suffer negative impacts from the roadless designations -- include red-cockaded woodpeckers, Kirtland’s warblers, goshawks, and snowshoe hares (a primary lynx prey species) (FEIS, p. 3-147). In the absence of the ability to pursue stewardship timber sales, negative consequences for biodiversity of a roadless status must be balanced against other biodiversity gains from a roadless status for types of species such as grizzly bears and wolves that may experience negative impacts from close human contact. The key point is that, absent the locking in of a non-management regime by the Clinton roadless mandates, there would be flexibility for local forest managers to balance these various considerations.

Active forest management is generally good for the game species that support hunting. As the Forest Service reports, properly done, “timber harvest activity that results in the creation of a mix of habitats and a variety of age classes is generally beneficial to most game species” (FEIS, p. 3-286). It is often desirable “to manage for diverse [wildlife] habitat structures using timber harvest[s]” (FEIS, p. 3-287).³

costly fires, the Kirk Fire and Big Bar Fire, burned 227,000 acres and cost more than \$176 million to suppress. They both started in unroaded, remote and extremely rugged wilderness areas” (FEIS, p. 3-106).

² According to the Forest Service, “Wildland fires that burn out of control in areas where there is a buildup of fuels tend to burn intensively, and induce more damage to sites than fires that burn less intensively. Stewardship timber harvest would make it possible to use thinning as a fuels management technique. This would help to reduce the incidence of intense fires in inventoried roadless areas” (FEIS, p. 3-235).

³ Similarly, according to the Forest Service, “stewardship timber harvest may provide some potential beneficial effects to some aquatic species. For example, careful thinning to reduce fuel loading in some areas where there is an abnormally high risk of high intensity, large-scale fires, may lower the risk of extirpation of an isolated fish population from a watershed” (3-169).

According to the Forest Service FEIS, the roadless designations would mean “fewer acres of forest health treatment . . . accomplished,” including fewer efforts in “reducing insect and disease problems” that might then spread to other parts of the forests, including roadless and non-roadless areas alike (p. 3-120, 3-121). There would be “substantially less salvage volume” in roadless areas to address forest health and other problems created also by past fire and wind blowdown damages (p. 3-202).

The advocates of the Clinton roadless rule often pose the issue as one of forest protection versus the timber industry. This creates an appealing drama of good guys versus corporate rapers of the land. But timber harvesting has been sharply curtailed on the national forests over the past decade, and there is little prospect of it being significantly revived.⁴ If more timber harvesting does take place in the future, it will be as an instrument of management for other forest stewardship purposes – including the efforts to reduce future risks of catastrophic fire and to improve biodiversity. In many places it will be the environment that will suffer if many important management options must be ruled out because they are impossible without road access.

Recreation Impacts

The potential economic values that would be automatically foreclosed by the Clinton roadless designations also involve future losses in recreation use that would be larger than the value of timber harvesting. Ninety percent of the current use of the existing roads within the national forests is for recreational access. At present, the largest part of recreation that occurs in the national forests is dependent on the access provided by the use of roads (FEIS, p. 3-219). The roadless designations would preclude future expansion of such recreation into further national forest areas, over time significantly increasing the levels of congestion in existing roadless areas (FEIS, p. 3-219). If the Clinton actions stand, they will leave 56 percent of the total national forest lands set aside for primitive recreation, and 44 percent will be available for all the many other forms of more developed forms of recreation (FEIS, p. 3-215).

Yet, activities associated with developed recreation sites tend to be more popular with the American public. A small part of the public seeks opportunities for primitive recreation in remote areas (FEIS, p. 3-271), relative to those who favor developed

⁴ It might also be noted that – even aside from the benefits of stewardship timber sales – reducing timber harvests on national forests is not necessary beneficial for the overall environment. National forest timber reductions may simply displace environmental impacts related to timber operations elsewhere.

Even as national forest timber harvests declined 41 percent from 1990 to 1995, total U.S. timber harvests were increasing 1 percent. The national forest share of total softwood timber harvests in the United States fell from 27 percent of U.S. supplies in 1988 to only 5 percent in 1999 (FEIS, 3-204). One consequence was a significant shift of timber harvesting to non-industrial private lands in the south (pp. 3-302, 3-305). Canadian timber also increased steadily through the early 1990s, and has now stabilized at about 35 percent of total U.S. softwood lumber supplies (p. 3-306). Many of the past environmental impacts of timber harvesting on national forest lands – good, bad or indifferent – have in effect been displaced to these other lands.

recreation. Moreover, according to the Forest Service, “future growth in recreation demand is projected to be greater for activities that require roaded access than for activities in more remote settings” (FEIS, p. 3-272). In 1994-1995, a total of 98 million Americans went picnicking on the national forests, as compared with 15 million backpackers. According to Forest Service figures, the single most popular type of recreation activity was making a visit to an historic or pre-historic site, as experienced by 123 million visitors to the national forests in 1994-1995 (FEIS, p. 3-271). Such visits typically depended on road access and further increases in developed heritage recreation would be foreclosed in the future to sites now located in designated roadless areas. (FEIS, p. 3-235).⁵

The preferences of minority groups for developed recreation partly explain the more rapid increases in public demands for such recreation in the United States in recent years. According to the Forest Service, “communities having a higher proportion of African American and low-income residents participated less in dispersed and winter recreation” (FEIS, p. 3-272). Moreover, “Hispanic populations prefer using developed recreation sites, and tend to regularly visit specific sites for day trips in large extended family groups.” (p. 3-271). As the recent 2000 Census emphasized, racial minorities and Hispanics are an increasing share of the total U.S. population, and thus their recreation preferences will play an increasing role in overall recreation demands.

The people with the strongest tastes for primitive recreation tend to be higher income and white. According to the Forest Service, “people who have completed college participate more in hiking and backpacking than those with high school educations” (FEIS, p. 3-272). In 1994-1995, 95 percent of the visitors to officially designated wilderness areas were white Americans (p. 3-272).

Thus, the Clinton roadless designations will set aside a vast new area of the national forests for the benefit of a decreasing part of the total population of recreational users. This is likely to exacerbate some existing tensions with respect to access to national forests. The Forest Service FEIS describes the ongoing conflict in northern New Mexico among the “Forest Service, environmental groups, and Hispanic communities [that] has become vocal, litigious and violent” (FEIS, 3-358), and predicts that the Clinton imposition of new roadless restrictions will likely “worsen this situation” (FEIS, 3-361).

Among American Indians who participated in the roadless review, some saw benefits in the future effective exclusion of most Americans from access to roadless areas where there might be, for example, important tribal sacred sites. Others, however, as the Forest Service reports, “emphasized the need for road development to increase access to lands needed for economic uses, recreation, subsistence resource harvesting, and treaty-rights activities” (FEIS, p. 3-354). Given the need for the balancing of many factors, and

⁵ For example, a one-mile new road is being planned to provide access to a newly developed heritage site in the Beaverhead-Deerlodge National Forest. Under the Clinton roadless designations, this road could not be built and the recreation development plans would have to be cancelled. (FEIS, p. 3-326)

like most other rural westerners, most native Americans rejected the Clinton “national prohibitions” and favored “local decision making regarding roadless area management” (FEIS, 3-354).

There tend to be sharp differences of opinion between those people living in the rural West who make routine use of the national forests and other people much farther away who might travel considerable distances to spend a week or two per year in the national forests on a summer vacation. Many local people expressed their discontent with the recent directions of national forest management – and natural resource management more broadly in the West – in the roadless EIS process.⁶

They also rather clearly demonstrated their views in the recent November 2000 presidential election. Al Gore, a leading national symbol of the Clinton policy approach favorable to roadless designations, received 26 percent of the vote in Utah; 28 percent in Alaska, Idaho and Wyoming; and 33 percent in Montana. Despite large immigrations of new population groups in recent years into such states, and sharp declines in numbers of people involved in traditional commodity production activities, it is fair to say that the rural West as a whole is strongly opposed to the kinds of restrictions on future national forest management and access contained in the Clinton roadless designations of January 2001.

Energy and other Minerals Impacts

People who live outside the West in fact tend to have little direct stake in the management of the federal lands. Indeed, as described below, for many of them their principle concerns are perhaps best described as “symbolic,” seeking a means of making a visible social value declaration of one kind or another. The one major exception is energy minerals; as the recent electricity crisis in the West has shown, people all across the United States can be significantly affected by actions that encourage or limit production of oil, natural gas, and coal.

Federally owned coal, for example, represents about one-third of the total coal reserves in the United States, and is at present about 30 percent of total U.S. coal production. Federal resources provide nationally significant amounts of oil and natural gas as well.

⁶ As described by the Forest Service, there was a widespread view encountered in the roadless planning process that “identifies with the land through forest product-dependent industries, motorized recreation (either by preference or need, based on age or disability), or through the public land management profession. They express the view that these ecosystems, with active and prudent management, can provide many benefits for humans and wildlife.” (FEIS, p. 1-8). Another vocal group – the group that prevailed in the Clinton administration -- was characterized by the view that “they often distrust local level management more than national level management,” and thus “only a national directive will adequately protect these lands” against the wishes of hunters, fishermen, grazers, timber harvesters and other local publics. (FEIS, p. 1-9).

A total of 7.6 million acres of land with oil and gas potential are found within designated roadless areas and could be excluded from future energy production by the Clinton actions (oil and gas are not specifically excluded by the roadless designations but in most areas exploration and production would be impossible without building roads) (FEIS, p. 3-259). The Forest Service was not able to estimate gas reserves specifically within the boundaries of the designated roadless areas. However, it did calculate in its FEIS that there could be \$96 billion of reserves of natural gas (including the reserves underlying all land ownerships) in western U.S. provinces that have at least some part of the land in the province designated for a roadless status.

This result is broadly consistent with a recent study commissioned by the U.S. Department of Energy (DOE). According to this study by the Advanced Resources International Corp., a mean estimate of about 11 trillion cubic feet of natural gas (about half of one year of U.S. consumption) may underly the 58.5 million acres designated by President Clinton for a roadless status. These lands include parts of the “overthrust belt,” long considered one of the prime oil and gas exploration areas in the United States. Besides the outer continental shelf, the Rocky Mountain area – including large areas of federally owned land -- is considered among the leading prospects in the United States for major new natural gas discoveries. The Clinton roadless designations are simply one part of a strong trend in recent years to close off public lands to energy and mineral exploration and development.

There are about 2.5 million acres of lands with underlying coal reserves included within the roadless areas designated in January 2001. Little of this land is under production at present (FEIS, p. 3-257). Nevertheless, the Clinton restrictions have the potential to limit future coal development. Indeed, they could result in the curtailment of production of at one existing major underground mine that requires new reserves in a roadless area for its expansion. Although there would be no surface disruption due to mining, it would be necessary to have surface access in order to delineate the coal seams and develop the engineering plans. Significant coal development – as well as phosphate development -- in other local areas could also be precluded by roadless designations.⁷

Although legally it might be possible to obtain access to gold, silver and other “locatable” mineral deposits for the purpose of exploration and development, the lands in an area designated for a roadless status would probably be precluded for most such mineral activity. If the lands are effectively in a wilderness status, Forest Service managers have many ways of discouraging potential users, and mineral companies would not want to face the prospect of extensive litigation and protracted delays.

“Intrinsic Value” Considerations

⁷ The Forest Service reports that on the Caribou-Targhee National Forest in Idaho, “because development of new phosphate mines or expansion of existing phosphate surface mines would require road construction or reconstruction in inventoried roadless areas, leasing would probably be denied, thus precluding development of an estimated 873 million tons of phosphate resource” (FEIS, p. 3-260).

By the historic standards of professional land management, President Clinton's designation of 58.5 million acres of roadless area is difficult to comprehend. It seems to deliberately forego the multiple uses and associated major benefits from the national forests. In order to make sense of the Clinton actions, it is necessary to recognize that there may be new social values, and a new mindset, that are being invoked to shape the management of the national forests. The Forest Service in its roadless area planning and consultations did seek to address such considerations of "intrinsic value" (FEIS, p. 3-17) that fall largely outside the traditional past norms of professional land management.

From such a newer value perspective, sound forest management does not focus on achieving a high level of human benefits that result from direct uses of the forest. As the Forest Service stated, "many people believe that forests and wildlife have inherent worth in and of themselves, independent of their usefulness to humans, and should therefore be protected" from most human intrusions for their own sake (FEIS, 3-268). These forest values are sometimes designated as "passive-use" values because they do not necessarily involve any direct presence in, interaction with or contact of a person with the forest. It is enough that a person have the knowledge of a particular condition existing in the forest that generates the "passive-use" value, in distinction to the "active-use" values that depend on a direct presence and consumption of forest benefits and have been the traditional concern of professional land management. A large literature has developed in the economics profession that seeks to study such "existence values."⁸

In practice, the forest condition to be sought for its own sake is one that can be described as a "natural" condition of the forest. The Clinton roadless designations then might be seen as maximizing the total area of the national forests in which "natural" conditions exist. Indeed, from this perspective, there may be a fundamental moral obligation in American society to pursue such naturalness outcomes on the forests.⁹ From this point of view, "inventoried roadless areas are remnants of vast landscapes substantially unmodified by high-intensity management activities (e.g, timber harvesting, mineral extraction, developed recreation)" (FEIS, 3-208), and thus valuable in themselves for this reason and deserving of comprehensive protection.

The existence values of "naturalness" are also closely related to the "spiritual" (FEIS, p. 3-267) values that seemingly motivate many visitors to the wilderness areas and other remote wild areas of the national forests, according to the analysis of the Forest Service. As the agency described their experiences and perceptions of the remote areas of national forests:

⁸ The Forest Service declares the importance of "existence values [which] are things, places or conditions that people value simply because they exist, without any intent or expectation of using them" (FEIS, p. 3-268).

⁹ And this sense of moral obligation often produces a strong sense of moral righteousness. Among the people who may not share the same value perception, they often "express resentment over a perceived condescending attitude by environmental groups" (FEIS, p. 1-8).

“Many people visit inventoried roadless areas to interact with the natural world and experience solitude, and spiritual and psychological renewal. This includes visiting American Indian and Alaska Native sacred sites. Some would argue that interaction with the natural world is crucial for the human spirit and for emotional and psychological well being. Undeveloped natural areas can be viewed as a spiritual and psychological resource in this regard. One public commentator noted that protecting inventoried roadless areas is necessary for the soul of the nation. As more and more Americans spend most of their lives in urban and suburban environments, public lands increase in importance as places people can go to experience natural solitude, and personal renewal. There is substantial evidence that doing so has a positive effect on the quality of life.” (FEIS, p. 3-267)

Disneyland Management

There is in fact little doubt, as the Forest Service itself finds, that existence values, the deep symbolic importance of “nature,” “spiritual” values and other such nontraditional motives played a major role in the Clinton roadless designations. For those people who live in the rural West, and may have to make large economic sacrifices to accommodate these values, it may be disconcerting, however, to realize that many of these values involve a large element of self deception. The images that evoke such strong value feelings with respect to the natural qualities of forests are typically more fantasy than real. It is truly a radical step in public land management when major policy decisions might be made on the basis of images in people’s minds, even when these images may have little factual basis or other connection to reality.

Indeed, the likelihood of public management based on fantasy becomes all the greater as people live further from the national forests – the kinds of people who generally expressed the strongest support for the roadless designations. They have little direct experience with the forests and thus are freer to develop whatever image in their mind holds the greatest emotional appeal.

The idea that a wilderness area is a primitive area free of past human intervention is contradicted, for example, by the past role of American Indians in aggressively managing forests throughout the North American continent. Prior to the arrival of Europeans and then the Forest Service on the scene, native Americans had actively managed the forests – often more skillfully, as it now appears than the Forest Service would later do – for thousands of years, using the tool of fire. Then, as the leading American historian of forest fire, professor Steven Pyne writes, to call these pre-European forests “natural” is to put Indians in the same category as grizzly bears, an act that is “tantamount to dismissing their humanity.”

The image that a roadless area is “natural” also ignores the impact of the Forest Service policy of suppression of fire through much of the twentieth century, including in many of those areas now being designated for a roadless status. As noted above, many of the existing forests in roadless areas are in a diseased and fire prone condition, filled with

large numbers of small trees, and showing little relationship to the historic forest conditions in these areas. To think that avoiding management now will achieve, and preserve, a “natural” forest condition is a virtual Disneyland fantasy. As a visit to Disneyland can in fact create many strong positive feelings, it may make many Americans feel good that they are upholding moral values in the world, but it would seem a problem if their strong feelings have little actual basis in forest facts on the ground.

Professor Daniel Botkin sought not long ago in *Discordant Harmonies* to help the American public understand that the natural world does not really have any tendencies toward a state of “nature.” As a philosopher would put it, the very concept of nature as widely used today in ordinary public discourse is a “teleological” construct rather than a scientific one. Scientifically speaking, the local public garden is equally as natural as any western natural forest.

In reality, the great appeal among ordinary Americans of the ideal of rediscovering – and one day perhaps themselves visiting -- true nature seems to have more to do with ideas of the Garden of Eden, rather than with any scientific realities. Confronted with the seeming coldness of a strictly scientific worldview, ordinary people apply pre-scientific ways of thinking to try to make sense of the natural world. The search for wilderness in our own time is really in part a renewed search for Paradise Lost, following in the path of Milton and many others.

It may seem cruel – like telling a six year old that Santa Claus does not exist – to try to disabuse so many Americans of such powerfully appealing images of a secular salvation in this world – the kind of “spiritual” values that the Forest Service finds so many people seeking in their visits to the national forests. Indeed, from a “post-modern” perspective, the discussion perhaps could end right here. If many people subscribe to basic illusions about roadlessness and wilderness, and yet this makes them feel good, perhaps the illusions themselves are the “real” reality. In post-modernism, it is not the book as written by the author but the perceptions of the readers that represent the fundamental reality.

From such a “post-modern” perspective, it is difficult to raise any decisive objections to the Clinton roadless designations. However, for those who may still be committed to a large role for fact and consequence in public policy debate –who have not yet embraced the post-modern world -- the Clinton roadless actions represent a reckless abuse of federal authority. With only the flimsiest of reasons, the federal government seemingly now proposes to advance a revolution in federal land management extending over half the total area of the national forests, forcing this revolution from Washington, D.C. on rural westerners who would find themselves pawns in fantasies that provide emotional fulfillment for others engaged in new quests for spiritual satisfaction.

Conclusion

Traditional public land management has shown many major failings, as I have argued elsewhere. I believe it is necessary to make basic changes in the institutional framework of public land management. However, these changes should be grounded in accurate perceptions of fact and consequence, not the fantasies of people who are often so far removed in physical distance from the national forests that they have little basis for experiencing any contradiction. The Congress should rescind the Clinton roadless designations and begin anew the process of seeking better solutions to the policy issues of proper management and use of the national forests.

Mr. OSE. Mr. Ory.

Mr. ORY. My name is Raymond Ory and I am vice president of Baker & O'Brien, an independent consulting firm serving the domestic and international petroleum processing industries.

For more than 26 years, I have consulted to the petroleum industry on matters involving commercial, strategic, and technical issues. In September 2000, I coauthored a study for the American Petroleum Institute, assessing the impact of sulfur regulation on the supply and price of diesel fuels in the United States. The new regulation was driven by the need for future diesel fuel vehicles that employ new, emerging low emissions technology. In general terms, this new law applies to all refiners and importers and requires that sulfur levels in at least 80 percent of the diesel fuel produced for on-road use be 15 parts per million or less by June 1, 2006. This represents a reduction of 97 percent from the currently mandated levels of 500 parts per million. On May 31, 2010, 100 percent compliance is mandated.

This new law is but one of a number of recent and emerging rules that will impact the refining industry during this decade. While each is a cause for concern, collectively they present a formidable challenge for even the most financially capable within the industry. These regulations give rise to a number of concerns. Refiners will need to make significant capital investments, and compliance will tend to further reduce capacity and invariably strain the volume of products being produced.

Some refiners will be unable to support the level of defensive investment necessary to comply and will seek to divert product to export markets or withdraw from certain domestic product markets. In some instances, the financial inability to comply will result in the company exiting from the refining business.

In forming its rule, the EPA believes that the industry will respond in such a manner as to provide adequate domestic supply, at a relatively low cost, and with little disruption and little difficulty within the pipeline and distribution systems. While we believe that the industry will, as it always has, engage in investment and infrastructure change consistent with the law, we also believe that the cost will be greater, the difficulties more onerous, and a high potential for supply disruption and price spikes will exist during the transition period. This will be the result of insufficient regional supplies necessary to satisfy demand.

We believe that this new law will have a dramatic consequence to the overall business of refining, distribution and marketing of petroleum products in the United States. It is capital-intensive within the refining structure and will also require investment and change in much of the national infrastructure, some of which will be redundant after 2010. The range of capital investments necessitated by the law is arguably between \$5 and \$8 billion, or between \$40 million and \$60 million for the average refinery.

In the past year, regions of the United States have experienced price spikes in gasoline and heating oil, natural gas and electricity. Despite the impact of such occurrences on the consumer and local economies, we believe that this is evidence that fundamental economics are at work. When supply is insufficient to satisfy demand

for any reason, market prices will rise to levels sufficient either to decrease demand or to attract additional supply.

In the short term, this can represent significant price increases. I believe that under the provisions of the current rule there is a high probability that such conditions will exist in the 2006 to 2007 period that could cause regional supply shortfalls and price spikes in ultra-low sulfur diesel as well as 500 parts per million diesel. Thank you.

[The prepared statement of Mr. Ory follows:]

POTENTIAL IMPACTS OF SULFUR REGULATION ON COST AND SUPPLY OF
DIESEL FUELS IN THE UNITED STATES

*Testimony before the Subcommittee on Energy Policy, Natural Resources and
Regulatory Affairs*

March 27, 2001

Raymond E. Ory, Jr.
Vice President
Baker & O'Brien, Inc.
Houston, Texas

Introduction

On December 21, 2000, the United States Environmental Protection Agency (EPA) issued its final rule on the requirements for ultra low sulfur diesel (ULSD) for use in on-road vehicles. The new regulation was driven by a need for future diesel fueled vehicles that will employ new, emerging low emissions technology. This new law applies to all refiners and importers and requires that sulfur levels in diesel¹ for on-road use be 15 ppm or less by June 1, 2006, representing a reduction of 97% from regulated current level of 500 ppm. As evidenced by the more than 1,000 pages of documentation, the elements of this law are complex and may change in the coming months as industry responses are received, additional impact studies are completed, and legal challenges result in further clarification. However, it appears that the essential elements of the new rule have been established and it will be up to the industry to initiate its response. We believe that compliance will be difficult and costly and could result in shortages of supply and relatively high prices in the period following implementation. A review of the primary components of the rule, a perspective on the cost to the industry and the possible consequences to supply form the basis of this presentation.

It is important to recognize that this new diesel law is but one of a number of recent and emerging rules that will impact the refining industry during this decade. The imposition of Tier 2 gasoline sulfur reduction, removal of MTBE from gasoline, New Source Review (NSR) regulation and benzene reductions are some of the issues facing our industry. Their respective timing and compliance costs will strain the financial and human resources of the industry and will impact consumer price. These regulations give rise to a number of concerns. Refiners will need to make significant investments, and compliance will tend to reduce capacity and invariably shrink the volume of products being produced. Some refiners will be unable to support the level of defensive investment necessary to comply and will likely exit certain product markets. In some

¹ The term "diesel" in this paper refers specifically to "on-road diesel" unless specified.

instances, the financial inability to comply will result in an exit from the refining business. The issue of refinery viability arises, at least in part, from the history of an industry that has experienced chronic over capacity, with prices driven down to levels that do not provide an adequate return on investment. This is especially true for defensive environmental capital investment. The repetition of this experience becomes a key concern of refiners in evaluating the likely consequences of the new diesel rule.

Proposed Rule

The new law is complex and each individual company must determine how it impacts them specifically. Refiners and importers will generally be required to supply ULSD at 15 ppm or less on the following schedule:

- Production at the refinery by June 1, 2006
- Availability at terminals by July 15, 2006
- Availability at retail stations and wholesalers by September 1, 2006

The implementation timing is driven by the need to provide fuel for the 2007 model year diesel vehicles that will become available in September 2006. It is recognized that the vast majority of diesel vehicles on the road at that time, and for many years after that date, will still represent the older technology and will not benefit significantly from ULSD use. Access to ULSD must be reasonably available however for those new vehicles sold after 2006. The law appears to be structured to accommodate this transition.

Many components of the law still remain to be fully interpreted. However, a number of transition provisions are critical to understanding its impact upon specific situations. Some of the more important provisions are:

- A "temporary compliance option" allows a refiner to produce up to 20% of its total diesel at 500 ppm. The remaining 80% of diesel production must comply with the law, unless producers can buy or trade credits with other refineries located within the PADD.
- An intra-PADD "averaging, banking and trading" (ABT) program allows for refiners that produce more than 80% of their diesel as ULSD to receive credits that can be traded with other refiners, in the same PADD, that do not produce 80% of their diesel as ULSD. Under certain circumstances, starting June 1, 2005, refiners can start to accrue credits for early compliance. The trading program will end on May 31, 2010, at which time all refiners must produce 100% of their diesel as ULSD. The ABT program does not include refineries in

states that have state-approved diesel programs such as California, Hawaii and Alaska.

- Special provisions are granted to refiners in the Geographical Phase-in Area (GPA). The GPA includes Colorado, Idaho, Montana, New Mexico, North Dakota, Utah, Wyoming, and parts of Alaska. Refiners in these states have been given an additional year to meet Tier 2 gasoline sulfur standards (30 ppm maximum). Refiners in the rest of the country must all be in compliance with Tier 2 regulations by January 1, 2006. Under the new diesel regulation, refiners that meet the standard by June 1, 2006, for their entire diesel production may receive an extension on compliance with Tier 2 regulations to December 31, 2008.
- Hardship provisions are allowed for "small" refiners. Small refiners are defined as those with up to 1,500 employees corporate-wide, and with a corporate crude oil refining capacity of less than 155,000 barrels per calendar day in 1999. Small refiner provisions include:
 - Production of 500 ppm diesel until May 31, 2010
 - Credits to be acquired for producing ULSD prior to June 1, 2010
 - Similar to refiners in the GPA, a two year extension of its applicable interim gasoline standards (Tier 2) if all of its diesel is produced as ULSD beginning June 1, 2006

In forming its rule, the EPA believes that the industry will respond in such a manner as to provide adequate domestic supply, at a relatively low cost and with little disruption and difficulty with the pipeline and distribution systems. They cite the 1991 - 1992 transition from high sulfur diesel to 500 ppm diesel as evidence of the industry's response and, in fact, "over response". While we believe that the industry will, as it always has, engage in investment and infrastructure change consistent with the law, we also believe that the cost will be greater, the difficulties more onerous, and a high potential for supply disruption and price spikes will exist during the transition period.

To place these impacts into perspective, it is instructive to examine the distillate demand pattern in the United States. According to the Annual Energy Outlook 2000 issued by the EIA, diesel demand is forecast to grow at 3.3% per year through 2007, reaching over 2.7 million barrels per day. This growth rate is higher than growth in total petroleum. In 1999, diesel represented about 56% of distillate consumption. In 2007, on-road is expected to represent over 65% of distillate consumption.

Compliance Options

All refineries have options in adapting to regulations. These options can, and will, vary greatly depending upon many factors including location, status of existing

technology, commitment to the diesel market, available alternative product markets, corporate objectives and most importantly, financial capability to support the capital required and expectation of return. Defensive capital investments such as those associated with regulatory compliance have historically demonstrated little or no economic return. Moreover, the industry in general has been a relatively poor economic performer. Given this precedent, and the capital-intensive nature of compliance by many refiners, we believe that some refiners will retract from diesel markets rather than invest. Others will choose to significantly reduce hydrotreater (HDT) feed rate in an effort to maintain some presence in on-road markets. Others will choose to invest new capital to retrofit existing units or to build new grass roots facilities.

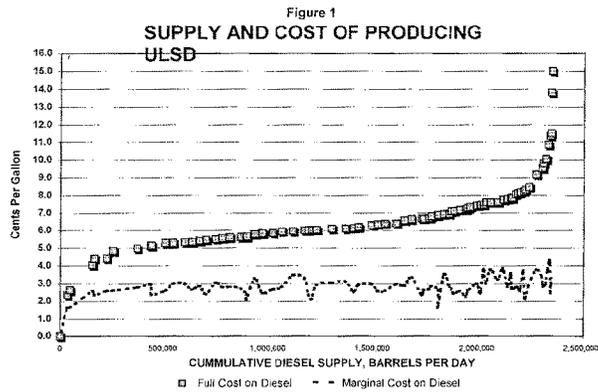
In August 2000, Baker & O'Brien in conjunction with Charles River Associates and on behalf of the American Petroleum Institute (API), conducted a study (the "API study") that introduced an innovative approach to analyzing the impact of the (then) proposed regulation on the supply of diesel. The use of Baker & O'Brien's *PRISM* modeling methodology examined each refinery individually, and attempted to accommodate its unique operating, technical and commercial characteristics in deriving its potential compliance cost. This methodology contrasted with the "notional refinery" approach utilized by most other studies, which constructs a composite regional or notional refinery and applies a linear programming optimization to arrive at optimum results. This notional refinery approach does not: (1) recognize the non-optimum reality of refinery operations, (2) distinguish between average and marginal costs for the industry as a whole, (3) analyze the regional supply/demand effects and (4) capture the variations in compliance costs among individual refiners. More importantly, the notional refinery approach does not define the cost pressures on market price either in the short or long term. In competitive markets, the market price will be set by the cost of the most "expensive" increment of supply required to meet demand, not the average cost.

Since the study was conducted, the EPA has issued its final rule, which is different than their Notice of Proposed Rulemaking (NPRM) of May 17, 2000, and therefore some of the conclusions and observations of the API study may no longer apply. However, several important observations remain valid:

- In 1992, many refineries did not construct the capability to produce 500 ppm diesel and made the commercial and economic decision to exit this market. History has proven this to be a good economic decision. It is unlikely that these same refiners will choose to engage in an even more capital intensive, high risk compliance investment while no longer having possession of any diesel market position.
- Despite the ABT provisions of the law, we believe that between 15 - 20 refineries currently producing 500 ppm diesel will likely exit the market as a consequence of their inability to justify investment or to purchase credits. Obviously, the ability of a refiner to seek alternative off-road,

heating oil or export markets for distillate stocks will be a function of location.

- Costs will vary considerably among those refineries that will produce ULSD. Represented in Figure 1 are those refineries that we believe currently produce 500 ppm diesel and are likely to continue in the ULSD market. Illustrated is their cost to produce 5 - 7 ppm ULSD above the cost to produce 500 ppm diesel.



In some refineries lower cost compliance can be accomplished by revamping existing high-pressure hydrotreaters, processing a higher percentage of straight run stocks, and/or reducing rates. Such lower cost producers are predominantly those that installed new grass roots units consequent to the 1992 regulation. Other potential low cost producers include those that have hydrocrackers and need only to install secondary reactors on the distillate cut to produce ULSD. High cost producers are those having smaller units and a high percentage of cracked stocks as a feed source. Our assessment indicates that, of those refineries currently producing 500 ppm diesel, 43% will install new grass roots units, 38% will engage in revamps or reduced thruput, and 19% will exit the on-road diesel business. New units and revamps represent 54% and 46% respectively of June 1, 2006, ULSD capacity. We expect that the cost of compliance for the median refinery will average \$60 MM for new facilities and \$40 MM for revamps.

- Should domestic supply capability exactly match demand, as noted in Figure 1, market prices could approach the cost of producing the last barrel, inclusive of economic return, or about 8 - 10 cents per gallon above current cost of production. If supply capability exceeds demand, market prices would only cover the variable cost of production (3.0 - 3.5 cents per gallon), as was the situation with 500 ppm diesel. *However, if a sufficient number of refiners decide not to invest, or reduce output in the interest of minimizing cost, a shortfall in supply could result. The consequence may be price spikes of such a magnitude as to either reduce demand, encourage expensive incremental supplies, or cause a change in the enforcement of the regulation. This is essentially the same condition that identifies with the current markets for electricity and natural gas in some parts of the country. In the past year, similar market conditions existed in gasoline in the Midwest, and heating oil in the Northeast.*
- Although other world areas (such as the European Union) are embarking upon stricter gasoline and diesel sulfur regulations, it is unlikely that they will represent significant sources of imports of ULSD into the United States. There is no reason to believe that those refiners will find it any less costly to add the capacity to produce ULSD than those refineries in the U.S. In addition, as noted in the March 2000 study by the National Petroleum Council, "If the United States implements product specifications more stringent or earlier than Europe, import availability will likely be lower than historical levels".

In the past year, regions of the United States experienced price spikes in both gasoline and heating oil. Despite the impact of such occurrences on the consumer and local economies, we believe that this is evidence that fundamental economics are at work. When supply is insufficient to satisfy demand, for any reason, market prices will rise to levels sufficient to either decrease demand or to attract additional supply. In the short-term, this can represent significant price increases. We believe that there is a high probability that conditions will exist in 2006 that may cause regional supply shortfalls and price spikes in ULSD as well as 500 ppm diesel. This potential for supply disruption could be enhanced as a consequence of the mandated phase-in period. To ensure the availability of adequate supplies in all locations for a relatively few new technology trucks, refineries will be required to produce more ULSD than is actually needed. At the same time, there would be an "undersupply" of current highway diesel, the product in use by virtually all other trucks. The result of this "forced" supply and demand condition would normally result in a low market price differential between ULSD and 500 ppm diesel, therefore severely limiting the ability of refiners to realize a return on their ULSD investment compared to those refiners who are not bound by the 80/20 rule. This prospect could further influence the decision of refineries to either delay investment, or exit the diesel business, causing a shortage condition on all diesel

fuels during the phase-in period and a resultant increase in diesel pricing. Investments in ULSD equipment during the transition period will therefore achieve a return based only on the overall shortage of diesel supply (both ULSD and 500 ppm) relative to the alternative dispositions for distillate stocks, rather than any price differential between ULSD and 500 ppm diesel.

Conventional, proven technology is currently available to produce ULSD. In order to be "on-stream" by June 1, 2006, those refineries contemplating new construction have about 18 - 24 months to make a technology selection decision. It will take about 42 months to engineer, permit, procure, and construct and startup a new unit to be on-stream in time for compliance. While there are technologies under development that may provide cost advantages over HDT, it is unlikely that these will be commercial in time to be selected. However, those refiners that wait until the end of the phase-in period to construct ULSD facilities may have lower cost technology available.

Impacts On the Distribution System

Maintaining the integrity of ULSD quality throughout the distribution system will be challenging and potentially costly. In order to certify that ULSD at the point of use is 15 ppm or less, refineries will have to produce at levels as low as 5 - 7 ppm sulfur. When compared to the sulfur level in all other refined products, there is little room for potential contamination. The law also introduces an additional grade of diesel, so that between 2006 and 2010, the distribution system must accommodate ULSD (<15 ppm), 500 ppm on-road diesel, and off-road diesel and heating oil (2,000 – 5,000 ppm). The consequences to the system are numerous, and include:

- The volume of pipeline interface and transmix that must be accommodated will increase. Interface volumes may be downgraded to either 500 ppm, off-road distillate or heating oil. Downgrading can be costly, and in some instances may not be possible. Other specifications such as flash point may prevent diesel/kerosene jet fuel interfaces from being sold as diesel or heating oil. Estimates of downgrade as a percentage of demand range from 2.2% (EPA) to over 17% (Turner Mason & Company). The implication of downgrades is that the volume of ULSD produced by the refining industry must equal demand plus downgrade. Consequently, refinery units must be sized accordingly.
- Other potential sources of sulfur contamination include pipeline dead legs, line fill, tank heels, tank manifolds, and the fact that some valves designed to facilitate batch changes take a long time (e.g., 10 - 30 seconds) to close.

- Additional tankage at terminals may be necessary to deal with certain pipeline interface volumes.
- Additional tankage will be required at refineries, terminals, bulk plants, truck stops, and fleet storage to handle two grades of diesel between the period 2006 and 2010. This represents stranded investment after 2010 when the system reverts back to one grade (i.e., ULSD). As with current diesel fuels, all terminals may not handle two grades.
- Additional testing and certification procedures must be instituted to ensure compliance at all steps in the distribution process.
- It is unlikely that investment will be made in tankage and retail pumps to handle two grades at most truck stops and other retail outlets, especially since such investment will be redundant after 2010. Handling only one grade (either ULSD or 500 ppm diesel) will cause problems for the vast majority of the trucking industry. Either the trucker will have to pay the price for ULSD because it's the only fuel available, or he will have to search for sites handling 500 ppm diesel.

Conclusion

Over the next decade, the refining industry will be required to adapt to a continuing series of regulations. The essential elimination of sulfur from on-road diesel is one of these requirements. Unlike some of the other issues, we believe that this new law will have dramatic consequences to the overall business of refining, distribution and marketing whether a refinery chooses to be in the diesel business or not. It is capital intensive within the refining structure and will also require investment and change in much of the infrastructure, some of which will be redundant after 2010. The range of capital investments necessitated by the law is arguably between \$5 billion and \$8 billion.

The regulation is complex and each refiner must determine a course of action that matches its unique objectives and capabilities. Poor historical returns on total investment combined with the expectation of no return on compliance capital will result in some refineries withdrawing from the diesel market altogether, or delaying investment. Refineries deciding to invest in new facilities must face permitting issues (e.g., New Source Review) and technology risk. Not all industry participants will survive, and markets will undergo transitional disruptions in price and availability of potentially both ULSD and 500 ppm diesel until 2010.

Statement

My name is Raymond E. Ory and I am Vice President of Baker & O'Brien, Inc., an independent consulting firm serving the domestic and international hydrocarbon processing industries. For more than 26 years, I have consulted to the petroleum refining industry on matters involving commercial, strategic and technical issues. I recently co-authored a study for the American Petroleum Institute assessing the impact of sulfur regulation on the supply and price of diesel fuels in the United States.

The new regulation was driven by a need for future diesel fueled vehicles that will employ new, emerging low emissions technology. In general terms, this new law applies to all refiners and importers and requires that sulfur levels in at least 80% of diesel fuel produced for on-road use be 15 ppm or less by June 1, 2006. This represents a reduction of 97% from current regulated current levels of 500 ppm. By May 31, 2010 100% compliance is mandated.

This new diesel law is but one of a number of recent and emerging rules that will impact the refining industry during this decade. While each is a cause for concern, collectively they present a formidable challenge for even the most financially capable within the industry. These regulations give rise to a number of concerns. Refiners will need to make significant capital investments, and compliance will tend to further reduce capacity and invariably shrink the volume of products being produced. Some refiners will be unable to support the level of defensive investment necessary to comply and will seek to divert product to export markets, or withdraw from certain domestic product markets. In some instances, the financial inability to comply will result in the company exiting from the refining business.

In forming its rule, the EPA believes that the industry will respond in such a manner as to provide adequate domestic supply, at a relatively low cost and with little disruption and little difficulty with the pipeline and distribution systems. While we believe that the industry will, as it always has, engage in investment and infrastructure change consistent with the law, we also believe that the cost will be greater, the difficulties more onerous, and a high potential for supply disruption and price spikes will exist during the transition period. This will be the result of insufficient regional supplies necessary to satisfy demand. We believe that this new law will have dramatic consequences to the overall business of refining, distribution and marketing of petroleum products. It is capital intensive within the refining structure and will also require investment and change in much of the national infrastructure, some of which will be redundant after 2010. The range of capital investments necessitated by the law is arguably between \$5 billion and \$8 billion, or between \$40 million and \$60 million for the average refinery.

In the past year, regions of the United States experienced price spikes in gasoline and heating oil, natural gas and electricity. Despite the impact of such

occurrences on the consumer and local economies, we believe that this is evidence that fundamental economics are at work. When supply is insufficient to satisfy demand, for any reason, market prices will rise to levels sufficient to either decrease demand or to attract additional supply. In the short-term, this can represent significant price increases. I believe that, under the provisions of the current rule, there is a high probability that such conditions will exist in 2006-2007 that could cause regional supply shortfalls and price spikes in ULSD as well as 500 ppm diesel.

Mr. OSE. I want to thank the witnesses for their testimony. For the record, I want to enter into the record a memorandum dated September 25, 2000 from Michael Sipple regarding the blacklisting, proposed blacklisting rule at that time.
[The information referred to follows:]



OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

SEP 25 2000

DP (DAR)

MEMORANDUM FOR DIRECTOR OF DEFENSE PROCUREMENT

SUBJECT: Contractor Responsibility, Labor Relations Costs, and
Costs Relating to Legal and Other Proceedings

The DAR Council recommends that the FAR Council withdraw the proposed rule published in the Federal Register on June 30, 2000, and close FAR Case 99-010 without further action. We make this recommendation following review of more than 300 public comments and the two Committee reports that analyzed those comments (Debarment, Suspension, and Business Ethics Committee report (Atch 1) and the Cost Principles Committee report (Atch 2), both dated September 18, 2000).

The DAR Council is particularly concerned about the adverse effect of these proposed revisions on the ability of contracting officers to meet mission requirements. Contracting officers are not generally experts in the field of tax, labor, employment, environmental, antitrust, or consumer protections laws. The time required to analyze the necessary information will slow down the procurement process. The inevitable inconsistencies between the decisions of different contracting officers will lead to increased protests and disputes, which will further impede the process. Therefore, the DAR Council recommends that determining legal compliance with complex laws, such as those identified, should be left to the agencies responsible for enforcing those laws and the courts. The current procedures of suspension and debarment should be used to determine that a contractor has committed offenses indicating a lack of business integrity and business honesty that seriously and directly affects the present responsibility of that contractor. The contracting officer should be allowed to concentrate on the business aspects of effective and efficient acquisition of supplies and services.

Michael E. Sipple
Acting Director, Defense
Acquisition Regulations Council

Attachments:
As stated

¹ The Acting Director of the DAR Council (OSD(DP)), and the Army, AF, DLA, DCGA, and NSA policy members of the DAR Council support this position. The Navy supports the proposed rule in principle but does not believe that the rule should be finalized in its current form due to implementation concerns.



Mr. OSE. I will recognize the gentleman from Idaho for 5 minutes for questions.

Mr. OTTER. Thank you very much, Mr. Chairman. I would like to start off by asking Dr. Gramm if the study, the U.S. study that you referred to relative to the arsenic levels, do you have that report? Is that available?

Dr. GRAMM. I believe that's available. It was a study of the Mormon population. And it is probably in the record as well. It would be in EPA's docket. Would you like me to get it for you?

Mr. OTTER. I would like very much, Mr. Chairman, not only to have Dr. Gramm provide that for the committee, but also make that an official part of this committee hearing record.

Mr. OSE. Without objection.

Mr. OTTER. Thank you very much Mr. Chairman.

Dr. Gramm, in the Mercatus Center checklist, will these rules and regulations make it better off for the people, and is it a good thing for us to do? Would you run through that checklist—the 7 points right quick for me?

Dr. GRAMM. Yes. And, what we do I'll show to you. And I have appended to this record in my testimony a list of all the comments we've done on specific rules so you can look at these checklists.

But, we ask the question, has the agency identified a significant market failure or a systemic problem? Has the agency identified an appropriate Federal role? Has the agency examined alternative approaches? Does the agency attempt to maximize net benefits? Does the proposal have a strong scientific or technical basis? Are the distributional effects clearly understood? And, No. 7, are individual choices and property impacts understood?

Mr. OTTER. Would you then, Dr. Gramm, using that checklist, describe for me the school's—your checklist in grading on the Forest Service's roadless rule?

Dr. GRAMM. Under whether or not the agency has identified a significant market failure: we've given them an unsatisfactory.

Mr. OTTER. Was that the same as an F?

Dr. GRAMM. As an F, that's right. As a matter of fact, we have shifted from verbal—satisfactory, etc.—to just letter grades.

Mr. OTTER. That may be great for elementary school kids but trust me, Dr. Gramm, we need F's and A's in Congress.

Dr. GRAMM. F. F. Unsatisfactory, F.

And has the agency identified appropriate Federal role? C.

Alternative approaches, have they considered alternative approaches? F.

Do they attempt to maximize net benefits? F.

Does the proposal have a strong scientific or technical basis? F.

Are the distributional effects clearly understood? F.

And, are the individual choices and property impacts understood? F.

And, what we also do is we put a sentence in explaining the agency approach, and then our comments.

Mr. OTTER. Thank you very much, Dr. Gramm.

I would like to now move to the next witness. Sir, I was particularly interested in your historical review of what has happened with the Administrative Procedure Act in Congress. And, specifically, I do know that, when Congress entertains to pass a piece of

legislation, even though this is my first term here, I'm already well aware of the "power to enforce clause" and I'm sure you know that, too. But, just to remind us both that we're both speaking from the same page, the final clause, the enacting clause says, "and the director shall promulgate such rules and regulations necessary to carry out the provisions of this Act."

Do we agree that's the delegation of authority then to the agency or the Secretary?

Mr. WHITENTON. As I understand what you're asking, do we agree with the Constitution? And, yes, of course we would. The Congress does have the power to delegate. Hopefully—we believe it also has the obligation to keep track of what the agencies do with that delegation and to keeping—setting the course right when the agencies fail.

Mr. OTTER. Yet, in three of the court cases that you mentioned in your discussion, in your opening statement, that power to enforce clause was in fact absent from two of those, wasn't it?

Mr. WHITENTON. I'm not sure, sir, what you're saying.

Mr. OTTER. One of the questions before the court in the 1983 case, wasn't it whether or not the Congress had delegated its authority to promulgate rules and regulations in that instance?

Mr. WHITENTON. It's my understanding that Congress had delegated, but it was reserving too much, so therefore it was not delegating properly.

Mr. OTTER. Then it was a question of extent; is that right?

Mr. WHITENTON. Yes, sir.

Mr. OTTER. Would it be the only way for Congress to regain its proper role to not put that clause in?

Mr. WHITENTON. To not put the one-House veto in?

Mr. OTTER. No, to not put the power to enforce clause in that suggests that the Secretary or the department shall promulgate such rules and regulations necessary to carry out the provisions of the act?

Mr. WHITENTON. We certainly believe that the proper approach would be for Congress to take a much tighter view on what it delegates in the first place so we do not get into the problem, and be a little more specific and be much more reluctant to give the power to agencies, and give more guidance to the agencies in the promulgation of rules.

Mr. OTTER. Thank you very much.

Dr. Nelson, in your testimony you suggested that not only was the Clinton administration, as we have suggested, in a rush to regulate and a rush to judgment, would, in your estimation of environmental studies, the roadless rule do more harm than good or more good than harm?

Dr. NELSON. I think it would be more damaging. Environmentally it would be more damaging on the whole. Basically it precludes taking a whole host of actions that could be environmentally beneficial. As I mentioned, the Clinton administration and the Forest Service had developed plans for fuels treatments on Western national forests because of the stressed, diseased condition of these forests. Many of them are fire-prone and unhealthy, they include about a third of the roadless areas in the lower 48 designated by the Clinton roadless rule. Those would be largely precluded from

future management. So those areas would then be left in their current unhealthy and fire-prone condition. If fires break out, as we've seen, and especially in the current highly overstocked condition of Western forests, they can do a lot of environmental damage as well as threaten lives and property, and cost \$1 billion for the Federal Government to try to suppress.

Mr. OTTER. I thank you very much, Doctor. Thank you, Mr. Chairman.

Mr. OSE. We'll have another round if you have additional questions.

Dr. Nelson, I represent a district that has significant forests in and around it, and the people who live in my district use the forests for recreation, vacation time, family time and the like. The thing I'm curious about is that, in addition to the environmental benefits, the roadless rule seeks to preserve recreation values which would be very important to the people in my district.

The question I have is—I actually have a couple of questions. Does the rule, as crafted, maximize the recreation opportunities within our national forests or does it favor certain types of recreation over others or certain recreation users over others?

Dr. NELSON. Well, I think it clearly favors what we might call the 20-year-old backpacker or anyone else who has the energy to hike 10 or 20 miles at a time and is interested in camping in the back country. It definitely is going to impede the future opportunities to expand recreation for a host of other kinds of people—hunters, fishermen, snowmobilers, ordinary hikers who may want to walk 3 miles, as is more the style of the average person, 3 miles in and 3 miles out. That doesn't get you very far into a lot of wilderness areas.

As I mentioned, 56 percent of the total national forest lands would now be left in a status basically suited for primitive recreation. Primitive recreation is a relatively small part of the total recreational base. There were something over 90 million picnickers in the national forests in 1994 and 1995, and about 15 million backpackers. And, there were similar results in all the other numbers that you look at. The use of developed recreationsites is vastly greater than the levels of primitive recreation on the national forests.

Mr. OSE. Before we leave that point, you're suggesting that the use by general recreation is 6 times that, at least by your numbers, the 90 and the 15 of primitive recreation users?

Dr. NELSON. I was actually saying picnickers. But yes, I think that's reasonable. There are other areas of more intensive recreational activity which have numbers approaching 100 million per year. As I say, backpackers are the more primitive forms of recreation—you might be looking at 10, 20 million per year.

Mr. OSE. Let me ask this question very directly, then. To the extent that we have a roadless policy, it's your opinion there will be certain areas that will then be off limits to the picnickers or general recreational users just by the nature of having no ability to get there?

Dr. NELSON. Basically people drive to get at least within a reasonably short distance to get to these areas. Ninety percent of the use of forest service roads right now is for recreational purposes.

Now, of course, where you have the existing road network, that is still going to be there. So what we're talking about is roadless areas which hold the opportunities for expanded future recreation use to meet increasing recreation demands on the part of the American public. Especially if you look at the areas where recreation demands are increasing most rapidly, it's for the developed forms of recreation. Unfortunately, some of the baby-boomers and so forth are getting older and don't want to walk as far.

Mr. OSE. It happens.

Dr. NELSON. It also turns out that if you start looking at the statistics, it's quite interesting. Minority groups—Blacks, Hispanics, and so forth—have quite strong preferences for developed recreation relative to these primitive forms of recreations. Actually, primitive forms of recreation are the particular domain of college-educated, relatively wealthier portions of the population.

Mr. OSE. So you have been able to draw a connection between the availability of some of these roadless areas and the ability of some of our lower-income or other groups to access recreational lands?

Dr. NELSON. As part of my preparation for this testimony, I did look fairly exhaustively at the Forest Service's own environmental study. And it's quite clear about these matters. So I'm not simply basing it on my opinion, I'm using the existing documented record prepared by the Forest Service.

Mr. OSE. My time has expired.

Mr. Otter for 5 minutes.

Mr. OTTER. Thank you, Mr. Chairman. I would like to go back to the question with Mr. Ory on the diesel fuel. During your testimony you referred to a shortage of diesel fuel. Does your study attempt to discuss or figure out how much of a shortage there is going to be?

Mr. ORY. The study that we conducted was, as I indicated, really as an assessment of the notice of proposed rulemaking. And it was conducted in September, approximately September of last year. And given those criteria and the provisions of the notice, the shortage was approximately 15 percent nationally.

There were certain regions of the country that were more exposed than others; in particular, the mountain States.

Mr. OTTER. How much was the shortage going to be in the mountain States, in the Pacific Northwest?

Mr. ORY. I don't remember the numbers specifically, but higher; 30 percent, 25 or 30 percent.

Mr. OTTER. My sources tell me that 37 percent is probably pretty close. So I would be willing to halve that with you and go with 34 percent if that's all right with you.

Mr. ORY. You have my permission.

Mr. OTTER. What in your estimation would that do to the price?

Mr. ORY. Well, I think we have a very valid example of what those kinds of shortages or conditions, I should say, can do to price. And, looking at the situation in California on incremental power costs and natural gas, and certainly looking at some of the regional shortages that occurred in the upper Midwest in the middle of last year, in the summer of last year, and there is expectation that a similar condition will occur in the summer of this year, the price

can go as high as it takes to do one of two things: to either discourage demand, or to cause very expensive increments of supply to occur.

Mr. OTTER. What was your estimate that the shortage was going to be in California?

Mr. ORY. From an ultra-low sulfur diesel standpoint, the State of California is actually balanced. We didn't see a particular condition existing in that part of the country. And, the reason for that is that the State of California has already spent their big dollars in reaching their so-called carb diesel rule back in 1995, so they have to spend incremental dollars to only take out the sulfur. So they will be the least affected. We didn't foresee any shortage there.

Mr. OTTER. And, those trucks that would be bringing products and services, products into the U.S. economy, say, from Mexico and from Canada, would they have that—the same impairment on their use of diesel?

Mr. ORY. No, not to my knowledge.

Mr. OTTER. Only for the diesel that they purchased while they were in the United States?

Mr. ORY. That's correct.

Mr. OTTER. And, also, Mr. Ory, the use of nonroad diesel, did you make—did your study include nonroad uses?

Mr. ORY. No, it didn't. That's an issue yet to be decided, I understand, by the EPA.

Mr. OTTER. OK. So, we could have the trucks that are actually taking the gas to market that would be regulated, and they're moving around, so there's a certain displacement of their "pollutants," right?

Mr. ORY. That's right.

Mr. OTTER. Yet the energy-producing, the electrical-producing generator that may be sitting just off my backyard, which would be sitting in one place and not going anywhere, its pollution could be concentrated just in that area. So, we have one area that is being regulated and another not.

Mr. ORY. That's correct. Diesel in stationary uses or off-road uses, as the definition may be, has yet to be regulated.

Mr. OTTER. Does your study divide up the quantity use between the two? What percentage is used that would be regulated and what percentage not?

Mr. ORY. When we look at—and not to get overly technical here—of the fuel that goes into combustion engines, let's say of any type and nature, some of which are in heavy trucks, we're all familiar with those. Those are called on-road uses, and they represent approximately 55, 56 percent of that part of the petroleum barrel that is generically called distillate fuel oils. Approximately another 30 percent to 35 percent is off-road uses, and the rest is heating oil.

Mr. OTTER. One last question, Mr. Chairman, 45 percent then is not regulated?

Mr. ORY. That's correct.

Mr. OTTER. Thank you very much.

Mr. OSE. I want to come back to Dr. Nelson, if I could. The Forest Service put out an environmental document on the roadless pol-

icy. I mean, they're required to do that. They released it in November 2000. If I understand your written testimony on page 2, the actual document that the Forest Service put out in the form of the final EIS noted a change in the procedure by which the Forest Service promulgated this rule. That is, they went away from a historical collaborative approach toward one that was almost top-down, if you will. Could you expand on that, please?

Dr. NELSON. Well, the Forest Service, based on a mandate from the Congress which goes back to the National Forest Management Act of 1976, is directed to, and in fact has been preparing land use plans for each national forest. These land use plans are a continuing process. It involves extensive local involvement of the citizenry. The people who are requested to participate in this process do so with the expectation that the land use planning process is, in fact, going to govern the future uses, as the Congress seemingly directed, of the lands in these particular national forests.

Essentially this Clinton roadless process bypassed and superseded that land use planning process in which local people had invested their time, their energy, and their trust. And, so in that sense, I believe that there may even be some legal questions raised, but certainly it was a violation of the trust that the citizens had put in the Forest Service. The expectations had been created by the Forest Service that land use planning would drive the outcomes on these forests.

Instead, now a third of the national forest system, a national dictate from Washington, DC, superseded all that land use planning effort.

Mr. OSE. I think the operative thing I would like to emphasize, I'd like to repeat it for the record, is on page 2 of your testimony you cite the Forest Service's final EIS, "The roadless rule contradicts the past emphasis placed on collaboration, and instead reflects a strategy of maximizing national prohibitions on the use of National Forest lands," which is exactly what you've just said. So I appreciate your highlighting that in your testimony.

Now, Mr. Whitenton on page 2 of your testimony, in the—let's see, 1, 2, 3, 4, 5, 6, 7th line from the bottom, I don't quite understand something. Where you're talking about the U.S. Court of Appeals of the D.C. Circuit vacating the EPA interpretive guidance as unenforceable. Is there a word left out there? Shouldn't it have the word—between "had" and "legal," shouldn't the word "no" legal force and effect be in there?

Mr. WHITENTON. That is certainly correct. Yes, sir.

Mr. OSE. OK. I struggled with that last night.

Finally, I want to ask Dr. Gramm a couple questions on the blacklisting. As I understand the blacklisting rule—we worked on this last session of Congress—there is a duty or an option on the part of the contracting officer to entertain allegations of behavior that might not comply with someone's standards, and that those allegations can be used as rationale for disqualification of a bidder. Am I correct on that?

Dr. GRAMM. That is correct. Indeed, if there is a complaint brought by an administrative agency, that could immediately cause you to be blacklisted, even before you've provided evidence to the contrary or allowed a hearing.

Mr. OSE. Why would—I mean, in a sense that's almost being judged guilty before you're proven innocent, which is seemingly a little bit backward.

Dr. GRAMM. I believe you have it right, because it does shift the burden of proof.

Mr. OSE. To the potential contractor.

Dr. GRAMM. That's correct. To prove himself innocent if a complaint is brought, but before he goes through the proceedings. And, indeed, and again, this is a regulation we actually did not do a large public interest comment on, but it was a regulation we focused on during the midnight period. And, there are some procedural issues. For example, it appears that this authority that might have been delegated, for example, to the National Labor Relations Board on some labor issues or differences that might come up. In fact the blacklisting rule would abrogate and supersede what Congress had given to the National Labor Relations Board and those procedures.

Mr. OSE. My time has expired. I may come back to this with you.

The gentleman from Massachusetts.

The gentleman from Idaho for 5 minutes.

Mr. OTTER. Thank you once again, Mr. Chairman. I would like to go now back to Dr. Nelson relative to the study that was made by the Forest Service. In the reports on the roadless area, the Forest Service said that they had received 1.1 million comments. Would you agree—is that what the study said?

Dr. NELSON. I believe that's correct, something of that magnitude.

Mr. OTTER. Do you feel like the citizens of the United States, the citizens of the affected areas, had an adequate opportunity to testify?

Dr. NELSON. I think that they were given adequate opportunity to comment on the roadless rule. But, the end result was always going to be this single national determination. And, I believe also that the Forest Service, as in fact it has documented in its own materials, ran into many strenuous objections in its planning and its hearings and the consultation process that it engaged in. But, yes, it did give people quite a bit of opportunity to comment.

Mr. OTTER. The actual scoping process was 120 days, was it not?

Dr. NELSON. I believe so. I'm not sure.

Mr. OTTER. We had 1.1 million comments that they took 120 days to gather and then analyze. So, roughly, you wouldn't have any idea would you, Doctor, how many people were involved in this process?

Dr. NELSON. I really—no, I don't know. But they did issue it as a draft and then it was another 5 months from the draft to the final.

Mr. OTTER. During that time period, there should have been some analysis of the input that was made during the scope of the hearings.

Dr. NELSON. You would assume so.

Mr. OTTER. And, try to reflect that.

Dr. NELSON. Yes.

Mr. OTTER. By my calculations, if we took that entire time for the analysis, it would have taken about 8,000 comments per day

or roughly 1,000 analyses per hour in order to—by however many people were involved—in order to come up with the final result and, if that final result was truly going to represent the input that was received during that scoping hearing. Would you agree with that?

Dr. NELSON. Yes, I'm sure that they had a huge volume of material to deal with, there is no doubt about that.

Mr. OTTER. As a professor of environmental studies, what would you instruct to your students during their process of trying to arrive at a proper program or, let's say, a proper rule in the future? Would you suggest that they could take and analyze 8,000 comments a day and, in the process, come out with a rule which would be representative of what was necessary? Or—

Dr. NELSON. Well, I'm sure that the Forest Service found that there were certain common themes through a lot of these comments. So, although they did receive a million, there obviously weren't a million separate issues. I do think, however, that there was a great deal of selection, especially in the selection of the alternatives for the final environmental statement, which were very narrowly construed. There were four alternatives. Three of them were all versions of the roadless policy and the other one was no action.

There were a host of other possibilities that could have been raised, and not only could have but should have been raised. They include various forest fuels treatment alternatives, different forms of timber harvesting, different forms of use of roads. I don't know whether it was specifically due to their failure to take account of the comments. It probably was to some extent, but whatever the explanation, I would definitely fault the Forest Service for a failure to consider an adequate range of alternatives.

However, I would say that, despite all the failures, if you actually read the EIS document rather closely and you discount for some of the rhetorical flourishes that are there because the administration is obviously defending its own policy, I believe the document actually makes a rather strong case against this policy. So, I have tried in my written testimony to show some of the reasons why, if you actually read the document, I think a fair-minded reader could only come away with a conclusion that this is a significant mistake to pursue this roadless policy in the manner proposed.

Mr. OTTER. Thank you very much, Mr. Nelson.

Mr. WHITENTON. Mr. Chairman, I want to apologize. When you asked me the question about whether the word "not" should be inserted on page 2, I do want to explain that it was accurately, if inartfully drafted, as written. The court in *Appalachia Power v. EPA* had vacated the EPA guidance because it had forced an effect of law and because they hadn't followed APA procedures. If the EPA had followed the proper rulemaking procedures, then the court would not have vacated the guidance.

Mr. OSE. I understand your point. It was inartfully read also, so I want to make that clear. I appreciate the clarification.

Dr. Gramm, if I might, I want to go back to the blacklisting issue. We talked a few moments ago about allegations being disqualifiers if the contracting officer found them sufficient. The concern I have is the compounding effect of that. If we had a contrac-

tor who is in front or before the government seeking to provide a service, allegations surface that its behavior or its standards are unacceptable to some third party, how do you ever stop or resolve such a process?

Dr. GRAMM. I think that's the very great difficulty. You could inflict great harm for what may be a complaint for which there isn't strong evidence—that that complaint should go forward. And, this would supersede and abrogate a number of the formal procedures and safeguards that are already in place to deal with those kinds of complaints. For this reason the members of that FARC council have opposed this particular regulation.

Mr. OSE. So the FARC council itself opposed the regulation?

Dr. GRAMM. That's right. General Services Administration, the Environmental Protection Agency, NASA, and the Defense Acquisition Regulation Council oppose the regulation. The FARC council that proposed the regulations included some of these members, DOD, GSA and NASA, but yet the members also oppose the regulation.

Mr. OSE. All right.

Dr. GRAMM. If I could raise another issue on some of the issues—

Mr. OSE. If I may, I do want to go back to an earlier part of your testimony. You offered testimony about the grades on some of the rules in terms of compliance with standards or procedures. Would you be willing to submit for the record the grades that you have with you for the various rules that are the subject of our concerns?

Dr. GRAMM. Yes. As a matter of fact, I would like to include the whole public interest comment, when we have a written public interest comment, which will be more amplified.

Mr. OSE. Without objection, we will accept that.

So go ahead.

Dr. GRAMM. May I raise a few issues that have been raised on some of the other issues? I rather rushed through my oral statement, trying to keep under the time. But, on the roadless rule, I by and large agree with what Dr. Nelson has said, and I raise one question. I believe that in the proposed rule the Forest Service was going to exclude Tongass, but in the final rule they included Tongass, and that is a very major change that perhaps should have gone out for further comment.

On TMDLs, which Mr. Whintenton has discussed, I wanted to say that EPA's approach to water quality management in the TMDL rule would attempt to address water bodies that are not meeting standards, but its approach is very procedural, very prescriptive, and would create a program for water that is much like the State implementation program that we have for air. And I would argue that has some severe issues especially as it relates to unfunded mandates.

With regard to the diesel rule, which we again have information that I didn't go into here, I would point out that the diesel rule aims at reducing the amounts of emissions, but, in fact, most of the areas are already in compliance with the Clean Air Act. So, you have all these costs imposed in areas where they are already in compliance with the Clean Air Act.

Finally, on energy efficiency standards, which I rushed quickly through, I would point out that the air-conditioning and the heating efficiency standards would particularly adversely affect consumers in the Pacific Northwest and other areas where they do not use these machines as much as what the Department of Energy has assumed.

Mr. OSE. Thank you. I want to thank our witnesses, Dr. Gramm, Mr. Whitenon, Dr. Nelson, Mr. Ory, for joining us this morning. I appreciate your testimony.

Dr. GRAMM. Thank you.

Mr. OSE. We will now ask the second panel to join us. That would be Terry Gestrin, Evan Hayes, Sharon Buccino, and Thomas McGarity, please.

As with the first panel, I would ask these witnesses please rise to be sworn in.

[Witnesses sworn.]

Mr. OSE. Let the record show the witnesses answered in the affirmative. I would like to recognize the gentleman from Massachusetts for the purposes of an opening statement.

Mr. TIERNEY. Thank you, Mr. Chairman. I apologize for making this statement at this point in time but one of our deregulated agencies, the airlines, doesn't seem to do its job very well these days and we were delayed considerably getting in.

Mr. Chairman, I thank you for holding this hearing and I have no objection to you having discussion and conversation about whether or not the Clinton administration rushed through regulations before going through necessary checks and balances. However, I think we also have to look at the actions taken by the Bush administration and Congress in its recent rush to deregulate.

Near the end of the Clinton administration, many important environmental, labor, and health protections were issued. Many were the result of years of thorough analysis of numerous scientific and economic studies and volumes of public comment. For instance, Mr. Chairman, before issuing the rule that protects inventories of roadless areas in our national forests from roads and logging, the Clinton administration received a recordbreaking 1.6 million comments; 95 percent of those comments urged the adoption of stronger protection for roadless areas. The Forest Service also held over 600 public meetings where it heard from the communities that would be directly affected by the rule.

Congress held a number of hearings on this rule and 165 Members of Congress wrote a letter asking that roadless areas be protected from roads for logging and mining. There are opponents to the roadless rule, as you would expect from any regulation. However, I don't see how they can claim that this was rushed when it was issued or it was issued without adequate public participation.

In another instance, the EPA issued its new stricter standard for arsenic in drinking water. Under the old standard, the National Academy of Sciences estimated that 1 out of 100 people would get bladder, lung, skin, kidney, or liver cancer. This risk is about 100,000 times greater than the cancer risk that we allow for food.

It was long past time to update the standard and, in fact, Congress should have required the revision of the standard over 25 years ago. The EPA issued a proposed Rule 18 years ago, and again

in June 2000. After reviewing over 1,000 comments and numerous scientific and economic analyses, the EPA issued its final rule. Again, the public had plenty of opportunity to express its views and any rush was the result of congressional mandates.

Similarly, rules protecting the confidentiality of our medical records, setting new emission limits for diesel trucks and buses, and ensuring that lawbreakers are not rewarded with Federal contracts were the result of a lengthy, thorough public process. They are not "midnight regulations" that were rushed through the process without public input or thorough review of scientific and economic studies.

However, the same cannot be said for the actions recently taken for those opposed to rules. In its rush to undermine the roadless rule, the arsenic standard, and the contractor responsibility rule, the Bush administration has suspended these rules without giving the public notice and an opportunity to comment on suspension. And, as some witnesses will explain, these suspensions may well have been illegal.

I am also concerned about the use of the Congressional Review Act to disapprove these labor, environmental and health protections. The procedures for disapproval leave very little opportunity for debating these issues. When Congress disapproved the ergonomics rule, debate in the House and Senate combined was limited to 12 hours, only 2 of those in the House, with little or any notice given to the public to share their concerns about disapproval. It would be unfair to the public to undo the final result of a thorough public process in such a rushed manner.

Furthermore, congressional disapproval is a harsh remedy that severely limits the opportunity to enact a similar rule in the future. Thus, we ought to take great care in deciding to use this drastic measure to undo rules that were enacted pursuant to a thorough public process.

Mr. Chairman, there are very serious questions behind the current rush to deregulate. Sunday's Washington Post indicated that the coal industry, which has provided over \$12 million to Republicans, is the primary beneficiary of many of the proposed revisions and repeals. The new arsenic standard makes it harder for mining companies to pollute our drinking water. The roadless rule would make it more difficult for the mining industry to destroy pristine areas in our national forests. And another threatened rule strengthens environmental protections applicable to the mining industry and makes it harder for the mining industry to escape liability for environmental violations.

All of these rules have been targeted for repeal by the Bush administration and the Republican Majority in Congress. The Post article entitled, "Coal Scores With Wager on Bush," reports that "Few businesses placed as big a bet on the Republicans in the last election as the coal industry which gave 88 cents out of every dollar in campaign contributions to GOP candidates or organizations. Two months into the Bush Administration, that wager has begun to pay off."

The article lists the close connection between coal lobbyists and the administration. It reports "Among them were Irl Engelhardt, chairman of the Peabody Group, the Nation's largest coal enter-

prise, whose holding company contributed \$250,000 to the Republican National Committee in July. Engelhardt himself served as an energy advisor to the Bush-Cheney transition team. The Bush-Cheney transition team was sprinkled with industry officials.”

The article also reports, “The coal industry may enjoy even better connections in Congress.” I ask unanimous consent, Mr. Chairman, that this article and other materials relevant to the hearing be included for the record.

Mr. OSE. Without objection.

Mr. TIERNEY. Thank you. Mr. Chairman, there are a lot of concerns regarding the rush to deregulate. I share your concern that Presidents and Congress may rush regulatory decisions without going through the public rulemaking process with its important checks and balances. Implementation, repeals, suspensions, and other modifications of rules are important decisions that should not be taken lightly. I look forward to hearing from the witnesses on these issues. Thank you.

Mr. OSE. I thank the gentleman.

I would like to call Mr. Otter to introduce some folks.

Mr. OTTER. Thank you Mr. Chairman. I bring before the committee this morning the chairman of the Valley County, ID County Commissioners, Mr. Terry Gestrin, who will talk to us this morning about the effects of this rush to regulate in terms of locking up 9.7 million acres in Idaho alone for roadless use.

I also at this time, Mr. Chairman, would like to invite my old friend, Evan Hayes, who will be here to talk to us about the diesel and the low sulphur diesel ruling by the EPA. Mr. Hayes does represent the National Association of Wheat Growers, and Mr. Hayes and I have served on many committees in the State of Idaho. I can tell you this is a gentleman that has been working at ground zero for most of these regulations. I welcome both of you to the U.S. Congress.

Mr. OSE. Thank you, Mr. Otter. I want to welcome all the witnesses and please confine your summary of your remarks to 5 minutes so we can have the questions accordingly. Mr. Gestrin.

STATEMENTS OF TERRY E. GESTRIN, CHAIRMAN, VALLEY COUNTY COMMISSIONERS, CASCADE, ID; EVAN HAYES, WHEAT FARMER, AMERICAN FALLS, ID, REPRESENTING THE NATIONAL ASSOCIATION OF WHEAT GROWERS; SHARON BUCCINO, SENIOR ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL; AND THOMAS O. McGARITY, W. JAMES KORNZER CHAIR, UNIVERSITY OF TEXAS SCHOOL OF LAW

Mr. GESTRIN. Thank you, Mr. Chairman. I appreciate the invitation to testify today. Outside of Tongass, with over 9 million acres of roadless areas, Idaho will suffer the greatest impact. Of the 44 counties in Idaho, it appears that Valley County is the most affected county in the Nation. This is hard to determine because we were never supplied with definitive maps to tell us exactly where these acreages are. Valley County has a little over 2.2 million acres; 88 percent of that, or over 2 million acres, is Federal public lands. Our static population in our county is 8,000 people. It swells to over 30,000 in the summer. Most of these people come to recreate on national forest lands.

The roadless initiative will affect that. The Payette National Forest, with over 2.3 million acres, and the Boise National Forest, with almost the same acreage, comprise the majority of the forestlands located in Valley County. Between the wilderness and the new roadless area management program, we are left with only 17 percent of the Payette and 27 percent of the Boise National Forest available for active management. Valley County recently had an economic study completed by the University of Idaho, which I would also like to enter into the record today.

Mr. OSE. Without objection.

Mr. GESTRIN. This shows the effect of losing the timber industry brought about by many, many regulations of which the roadless initiative is just a last nail in our coffin. Direct loss by the loss of our sawmill creates an economic loss of \$27 million, with over 225 front-line jobs potentially at stake. Combine this with secondary jobs, the loss of economy to Valley County alone is over \$43 million, according to the University of Idaho study.

I would suggest, if we are going to promote economic development, we would want to make policies or promote activities with local benefits. Our local school district with an enrollment of about 400 students in Cascade is going to lose 75 children whose parents are going to be without work come June when the sawmill closes. The superintendent of that district estimates its economic loss to the school in hard dollars of \$200,000.

We are facing the worst forest health crisis in history. It is inconceivable to me that we could even consider implementing a roadless initiative in its present form; 67 million acres of national forest is classified by the Forest Service as high to moderate-risk to catastrophic fire, insect infestation and disease. Last year, more than 7 million acres of public lands burned to the ground in the worst fire season in 90 years. I assure you that we've had the mildest winter in 40 years. With current tests by the Forest Service indicating the timber is at about 14 percent moisture content. So look out, folks, we are facing the worst-case scenario of burning what hasn't burned.

Incidentally, I understand that kiln-dried lumber is between 12 to 16 percent moisture.

We need to engage in policies that allow local management, not adding another strand of barbed wire to the existing fence created by regulations that eliminate the ability to manage our natural resources.

I have talked on some of the economic impacts. Time restraints will limit my comments on social impacts, but there are many. Could you imagine for a moment telling your spouse and children when you come home with the news that you don't have a job, your way of life is in imminent danger? Divorce rates are going to increase, spousal abuse, child abuse, and all the other things that go with that.

We are losing our rural and national resource heritage. I would like to comment on what I understood our NEPA process guaranteed for us. NEPA to me meant that we are guaranteed a true and meaningful process to provide public comment that will be given due consideration prior to the decision being made. The Interior Columbia Region Basin project has taken in excess of 6 years for

the NEPA process and a Record of Decision is yet to be made. This project is only for one watershed in the West. It's a huge watershed, by the way. Now we are expected to have this decision on the roadless initiative, and this was completed in 1 year and 3 months.

I realize that NEPA does not guarantee a good decision but it certainly is intended to guarantee a good process.

I'll sum up with one statement. In 1887, the Purpose of National Forests was enacted to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows and to furnish a continuous supply of timber for the use and necessities of the citizens of the United States.

In conclusion, I would ask that we're not fenced out. Local government needs to be involved in the decisionmaking process which will ultimately lead to the improvement of our local forest health, economy, and social health of our own local communities. Please realize that the best decisions that can possibly be made are at the local level. This ensures that accountability is at the highest level.

Thank you Mr. Chairman.

Mr. OSE. Thank you Mr. Gestrin.

[The prepared statement of Mr. Gestrin follows:]

Testimony of Terry F. Gestrin
 Chairman
 Valley County Board of Commissioners
 Before the Subcommittee on Energy Policy, Natural Resources and Regulatory Affairs
 U.S. House of Representatives

March 27, 2001

“A Rush to Regulate – the Congressional Review Act and Recent Federal Regulations.”

Chairman and Members of this Subcommittee:

I appreciate the invitation you extended to me to testify. This is an extremely important issue to our County. My name is Terry Gestrin. I currently am the Chairman of the Board of Commissioners of Valley County, Idaho.

Of all 50 States, Idaho with over 9.2 million acres of inventoried Roadless areas will suffer by far the greatest impact from the proposed rules. Of the 44 counties in Idaho, it appears that Valley County may suffer the greatest impact. We cannot definitely determine this because we have not yet been furnished with maps for Valley County, the State of Idaho nor anywhere in the Nation.

Valley County has a little less than 2.5 million acres of which 88% or a little over 2 million acres are public federal lands. Our population is about 8,000, which swells in the summer months to approximately 30,000. Most of this population is people who come to recreate on National Forest lands that this Roadless Initiative will curtail.

The Payette National Forest (2,333,000 acres) and the Boise National Forest (2,277,000 acres) comprise the majority of forest lands located within Valley County. The Roadless Area Management Program affects about 40% of the Payette and 47% of the Boise National Forests. With all other Management Acts that dictate various forms of management, only 17% of the Payette and 27% of the Boise National Forests have lands available and identified as tentatively suited for timber management.

Valley County recently had an economic study completed by the University of Idaho, which shows the effects of losing the timber industry brought about by the reduction of timber harvest and the Roadless Initiative. Direct loss of the Boise Cascade Mill creates an economic loss of \$27,300,000 with 225 front-line jobs potentially at stake. Combined with indirect or secondary jobs, Valley County’s economy will lose \$43.3 million.

I would suggest that if you are going to promote economic development you want to make policies that will promote activities with local benefits. Our local Cascade School District has a total enrollment of about 400 students, K through 12, of which currently 75 are children whose parents have lost their jobs and in all probability will have to move. The Superintendent of this District has told me he could lose up to \$200,000 in revenues from the State if these students leave.

We are facing the worst forest health crisis in history and it is inconceivable to me that you could even consider implementing this Roadless Initiative in its present form. 67 million acres of the National Forest system is classified by the Forest Service as “high

risk” to catastrophic fire, insect infestation, and disease. Last year more than 7 million acres of public lands burned to the ground in the worst fire season in 90 years. And I assure you, we’ve had the mildest winter in 40 years, with current tests by the Forest Service indicating the timber is currently at about 14% moisture content coming through the winter, so look out folks, we are facing a worst-case scenario of burning what wasn’t burned last year in Valley County. Incidentally, I understand that kiln dried lumber is between 12 to 16% moisture content. According to GAO Report 99-65, the Forest Service in 1997 announced the goal of resolving the problem of uncontrollable, catastrophic wild fires on National Forests by the end of fiscal year 2015. We need to be encouraging policies that allow local management, not adding another strand of barbwire to the existing fence created by regulations that eliminate the ability to manage our natural resources.

I have talked of some of the economic impacts, but time limitations restrict my comments on the social implications. Wealth can only be generated from natural resources, i.e. timber, mining, and agriculture. Just imagine, committee members, what would you tell your spouse and your children when you come home with the news that you don’t have a job and their way of life is in imminent danger. Low paying service jobs are not the answer. Recreation is only a partial answer. Divorce rates will increase; spousal abuse, child abuse, substance abuse, and the list can go on and on. We are losing our rural and natural resource heritage. Please, hear my plea!

I would also like to comment on what I understood our NEPA process guaranteed for us. NEPA to me meant that we are guaranteed a true and meaningful process to provide public comment that will be given due consideration prior to a decision being made. The Interior Columbia Region Basin Project has taken in excess of 6 years for the NEPA process and a Record of Decision is yet to be made, and this is a project for just one watershed area in the West. Now we are expected to have a decision made on the Roadless Initiative that involves over one-third of our National Forests nationwide, almost every local county in the United States is affected, and this process took only one year and three months.

I realize that NEPA does not guarantee a “good” decision, but it certainly is intended to guarantee a good process. I submit to you, that the Nation has not been given a good process. I fear that if you recognize the NEPA process as being correct for the Roadless Initiative, then you will have set a precedent that will have negated the true meaning of your previous legislation.

Your predecessors did establish meaningful legislation. In 1887 the Purpose of National Forests was enacted “to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of the citizens of the United States.”

In The 1905 Transfer Act, one of the mainstream requirements passed by this body, said “in the management of each reserve, local questions would be decided upon local grounds.” I could cite additional acts that have given direction to the management of our National Forest lands, but I will rely upon your judgment to research these additional legislative acts except for the recent enactment of HB2389, the “Secure Rural Schools and Community Self-Determination Act of 2000.”

Please refresh your memories that we are talking about 192,000,000 acres of federal lands. One of the purposes of HB 2389 was to make additional investments in, and create additional employment opportunities through, projects that improve the maintenance of existing infrastructure, implement stewardship objectives that enhance forest ecosystems, and restore and improve land health and water quality.

I would submit to you, that if the Roadless Initiative is enacted in its present form, you will have violated numerous previous legislative actions. You will have violated the NEPA process and, in addition, you will have taken away the ability of local communities to assist in deciding their future. House Bill 2389 will be destined for failure.

In conclusion, I would ask that you please don't "fence us out", local governments need to be involved in the decision making process that ultimately will lead to the improvement of our local forest health, economic health, and social health of our "own" local communities. Please realize that the best decisions that can possibly be made are at the local level. This ensures that accountability is at the highest level.

Your attention and cooperation in correcting this grievous error in our public policy decision-making process is appreciated. We in the Nation and Valley County do in fact need your assistance to prevent further destruction of our natural resources and ask you to refrain from enacting the Roadless Initiative in its present form.

Respectfully Submitted,

Terry F. Gestrin, Chairman
Valley County Board of Commissioners

Mr. OSE. Mr. Hayes.

Mr. HAYES. Mr. Chairman, Ranking Member——

Mr. OSE. Pull that mic next to you.

Mr. HAYES. Mr. Chairman, Ranking Member, Congressman Otter, thank you for your kind words. Congressman Otter has been an extremely good friend to us——

Mr. OSE. Mr. Hayes, is that microphone turned on?

Mr. HAYES. Is that better?

I will just start over again so we can do it right.

Mr. Chairman, Ranking Member, sorry about not knowing how to run the microphone. I am just a farmer. Congressman Otter, thank you for your kind words. I want you all to know that Congressman Otter has been an extremely good friend to us in Idaho as Lieutenant Governor and as a Congressman. We are tickled to death to have him back here to represent our great State.

Today, I would like to visit with you just for a few moments about the diesel fuel regulations and the possibilities or the effects it would have on agriculture. Let me begin and tell you a little story about a farmer. This was a story that President Kennedy told years ago. He talked about our ability to market as farmers. He said, you know, farmers are a rare group. He said, they buy retail, sell wholesale, and pay the transportation both ways.

That's what we are folks. We are extremely poor marketers. But we are a very unique group of marketers because of the fact that we do not go to the marketplace and say, we want X dollars for our product. We go to the marketplace and say, how much money will you give us for our product? This makes us completely different than the rest of the economy. And so this regulation is going to affect us considerably differently because we don't have the option to add fuel surcharges and things of this nature.

Supply and demand is a tremendous item for us in agriculture. Last year, I got a real shock. I was hauling malting barley to Idaho Falls, 125 mile haul. As the so-called shortage on oil became more apparent and the concerns of a shortage of oil, we saw our diesel fuel prices skyrocket. What a sticker shock it is when you put the nozzle in your tank and fill the tank on your truck that holds 200 gallons of fuel. You turn around and you look at the pump and it says you owe them \$400. That is 50 cents a mile, because we run it 4 miles to the gallon in the mountains of Idaho. That is a real sticker shock to you.

We need to really take a long look at this new EPA regulation on how much money this is going to cost us. How much money is it going to cost us to run our tractors and trucks. Can we afford to do that?

Agriculture has the largest trucking fleet in the world. Now, farmers didn't become farmers because they wanted to become truckers. Farmers owned trucks because they are a mandatory part of our operation. We have to be able to take fertilizer, fuel, grain, etc., to our drills in the spring of the year. Then we have to be able to at harvest time take our commodity from the combine to our first part of storage, or to our bins. Then it comes marketing time. We have to be able to haul this product on to the market. We don't do this because we like to be truckers. We do this because it's necessary for our farm use. Now, we can't afford to run new trucks,

so, therefore, we buy used over-the-road trucks. Currently, I own one that I consider to be a road truck. It's a 1984 Peterbilt which I bought for \$9,000. I have run this truck in the 9 or 10 years that I have owned it about 70,000 miles. So, in other words, I'm running this truck at about 7,000 miles a year.

Now, under the new regulations, if I understand them correctly, by 2006, 50 percent of these trucks are going to have to meet the new emissions standards, and by 2010 we are all going to have to meet the emissions standards. This means we're either going to have to retrofit our engines, replace our engines, or buy new trucks. Now, it doesn't make a lot of sense to me to put a \$10,000 or \$15,000 engine to meet the emissions standards in a \$10,000 truck. Somehow that just doesn't balance in my baseline. Also it doesn't balance in my books to pay \$80,000 for a new truck to haul a commodity that I run 7,000 miles a year.

The next item I need to discuss with you is our tractor fleet. Our tractor fleet, as you know, is also the largest tractor fleet in the world. Presently, I am running a tractor on my farm that my father purchased in 1960 when I was a freshman at Idaho State University. I am still using that tractor. We have to maintain our tractors. We have to make sure that we run them as long as we possibly can.

My concerns under the new diesel fuel regulation is that can we burn the fuel in these old tractors? If we can't burn this new fuel—and I am not sure we can because I am only being speculative on this—but can we burn this fuel? If we can't, we will have some awfully expensive mailbox holders out there. That's the only thing we will be able to use these tractors for is to hang our mailbox on them, because we're certainly not going to be able to use them in the farm.

Mr. OSE. Mr. Hayes you will have to wrap up.

Mr. HAYES. I will.

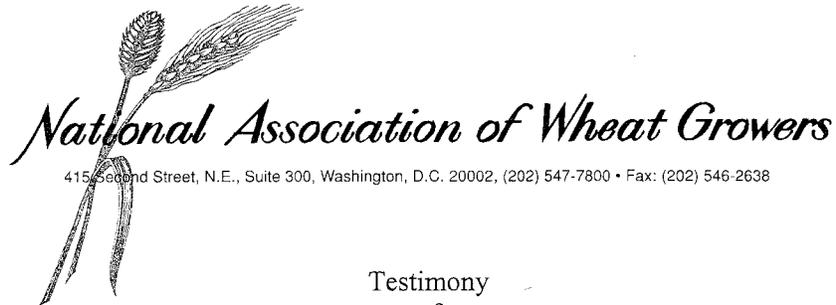
Mr. OSE. We will give you 30 seconds to wrap up.

Mr. HAYES. Thirty seconds to wrap up. I would recommend that the committee do one thing as quickly as possible, that is that this committee introduce legislation under the Congressional Review Act to repeal the recent diesel fuel emissions standard by the EPA and then to rework these standards to something that will protect the environment and at the same time be economically feasible for us in agriculture.

Thank you, Mr. Chairman. I will stand for questions.

Mr. OSE. Thank you Mr. Hayes.

[The prepared statement of Mr. Hayes follows:]



Testimony
of
Mr. Evan Hayes

On the behalf of
The National Association of Wheat Growers

Subcommittee on Energy Policy, Natural Resources and
Regulatory Affairs
Committee on Government Reform
U.S. House of Representatives

March 27, 2001

Let me begin by thanking the Chairman, Ranking Member and the rest of the Subcommittee for the opportunity to appear before you today. My name is Evan Hayes and together with my family I operate a family farming operation in southeastern Idaho. We produce mostly barley and other small grains such as wheat. It is an honor for me to appear before you today on the behalf of the National Association of Wheat Growers, or NAWG as most farmers refer to it.

NAWG is a nationwide federation of 23 state wheat grower organizations that represent every class of wheat produced in every region and climate of the United States. While producers in my part of the country grow mostly white wheat, red wheat is the predominant product of wheat growers in the Chairman's home state of California. NAWG strives to represent both regions, and all others, equally.

"WHEAT DOLLARS ARE IMPORTANT TO THE NATIONAL ECONOMY AND YOUR BUSINESS"

NAWG, its individual grower members and farmers across the nation fear that the implementation of the U.S. Environmental Protection Agency's (EPA) proposal to lower sulfur in on-road diesel to 15 parts per million could potentially impact rural America in unanticipated ways.

While not the primary target to the proposal, agricultural users of diesel fuels could face severe supply disruptions, dramatic price increases and other problems as the impact of the proposal drifts from highway users to all those dependent upon diesel fuel. In addition to these indirect implications, the farm truck fleet, essential in moving our products to market, would be directly impacted. Either way, implementation of the EPA's proposal could devastate the nation's farm economy.

Supply

Agriculture's fear of supply disruptions associated with the proposal is highlighted in a recent analysis conducted by Charles River Associates that found a potential diesel supply shortfall of twelve percent nationally. The impact to farmers would be even more troublesome since rural markets are often the last serviced and enjoy the smallest margin of profit for suppliers due to higher transportation costs and lower sales volumes.

While agricultural users would be, at least on the surface, exempt from the proposal, NAWG and most agricultural organizations believe that the outcome of the proposal's adoption would be the refinement of only one class of diesel fuel. Farm users would then be forced into compliance along with on-road users. The possibility of this occurring was outlined in a letter from the National Petrochemical and Refiners Association (NPRA) to the EPA on August 14, 2000. NPRA wrote that the proposal would "sharply reduce available fuel supplies, leading to higher prices and increased market volatility that could have devastating consequences making recent price spikes seem minor in comparison."

At the same time, demand for diesel fuel continues to rise in other sectors of the economy. According to the U.S. Department of Energy's Energy Information Administration, forecasted demand for transportation fuels is expected to increase by six-

and-a-half percent between now and 2007. In addition, given that the domestic refinery industry has been operating at over ninety-five percent of capacity for some time, the fuel supply crunch awaiting rural America continues to grow.

Even if two classes of fuel were produced, there is currently no method of supplying the agricultural grade fuel to rural areas or storing it separate from on-road fuel once it reaches farm country. A recent study by the National Council of Farmer Cooperatives estimates that only an insignificant number of rural diesel suppliers have the capacity to store and sell two types of diesel fuel.

In addition, since forty percent of all on-farm diesel is purchased from farmer-owned cooperatives, which make up only two percent of the total domestic petroleum refining industry, farmers are especially concerned that the proposal may force small coop refineries out of business, thus further limiting the supply of fuel.

Price

With rising demand and shrinking supplies, agricultural users of diesel fuel are bracing themselves for increased prices. EPA's proposal will, undoubtedly, only add to what has already been a time of rising fuel prices for farmers. According to the U.S. Department of Agriculture's Economic Research Service's (ERS) latest Agricultural Outlook Report (March 2001), fuel prices paid by farmers have risen forty-three percent above the 1990-1992 average. This figure compares to a rise of only nineteen percent for all production items, including fuel.

Likewise, farm income, apart from emergency government payments, continues to decline. The same ERS report indicates a four percent reduction in prices received by farmers and a 79 percent ration between income and expenses. Congress has addressed these pressures each of the last three years by passing emergency spending measures to help make up the difference. NAWG and other agricultural organizations have called for an additional \$9 billion in emergency spending this year.

Rising fuel costs will only add to the economic crisis facing rural America.

Likewise, increased transportation costs will make U.S. agricultural products more expensive and put further pressure downward pressure on farm income.

Other Problems

NAWG is equally concerned with other problems that arise from the EPA's proposal, especially the impact it would have on allied industries important to our members.

First, increase fuel prices would directly impact the U.S. domestic grain harvester industry, without which \$14 billion worth of our product would not be harvested in a timely, efficient manner. Harvesters, who typically work all summer harvesting crops, moving north with the harvest of wheat, feed grains and forage crops, have been operating in the red the last few years, as have many agricultural related industries. Rising fuel prices could drive many custom harvesting families out of business and, in turn, force farmers to either purchase expensive equipment themselves – which most cannot afford – or miss important harvesting timetables. Either way, the impact of the rule on harvesters will directly impact producers as well.

Second, increased fuel prices would directly impact the shipment of farm products to market or export. With U.S. agricultural exports still below where they were just five years ago, we can ill afford giving our over seas competitors – many of which benefit from government transportation subsidies – another advantage. Of course decreasing exports reduce farm gate prices even further.

Third, costs associated with implementing the proposal by equipment manufacturers will, undoubtedly, be passed on to farmers and other consumers. With farm equipment purchases continuing to lag behind historic levels, farmers will soon have to replace much of the nation's aging farm machinery. Doing so would be impossible should the proposal price new equipment out of the reach of most farmers.

Fourth, in anticipation of only one class of diesel fuel available to all users, farmers and their suppliers have started to examine how to retrofit existing farm equipment to operate on the new fuel. While still in the preliminary stages, this work has raised serious concerns and many unanswered questions. For example, will some form of fuel converter be necessary and if so who will manufacture it and will one converter function on all makes, models and years of equipment? Will such retrofitting result in lost fuel efficiency and will the new engines produce the high levels of power to operate heavy farm equipment? These and other questions should be more fully examined before any action is taken to implement the EPA's proposal.

Conclusion

NAWG strongly believes that the impact of the EPA's proposal on the nation's farmers would be unbearable. The excessive costs and problems created by the proposal would send the farm economy into further decline and spark the need for even larger amounts of government aide to producers.

NAWG recommends that members of this committee should introduce the necessary legislation to ensure that Congress employs the tools available to it under the Congressional Review Act to repeal the proposal as soon as possible. In addition, NAWG supports work to establish a more realistic and less costly plan to reduce the sulfur content of diesel fuel.

I appreciate the opportunity to present our views on this very important matter and would welcome any questions you might have.

Mr. OSE. I now have the pleasure of introducing Mrs. Sharon Buccino who is a senior attorney for Natural Resources Defense Council. I want to welcome you. I appreciate you for forwarding your testimony. I did have the pleasure of reading it last night and it was quite informative. So, if you can summarize, thank you.

Ms. BUCCINO. Good morning. My name is Sharon Buccino. I am a senior attorney at the Natural Resources Defense Council.

Mr. OSE. Can you move that closer?

Ms. BUCCINO. NRDC is a national membership organization. NRDC is a nonprofit organization with over 400,000 members across the country. NRDC members value the public health, safety and environmental protections put in place by Federal agencies, such as the Environmental Protection Agency.

The protections issued in the last few months of the Clinton administration have been attacked by some, but this regulatory activity is neither unique to the previous administration nor cause for dramatic reversal by the current one or Congress. The protections that have come under attack, like the plan to protect the few remaining wild areas in our national forests and efforts to reduce cancer-causing arsenic in our drinking water, promise to deliver tremendous benefits to the American public. They enjoy broad public support and, in some cases, have explicitly been mandated by Congress. These protections are the law of the land and should be expeditiously implemented, not delayed or rescinded.

The allegation that these protections were rushed through at the last minute and lacked substantial support is completely indefensible. The protections are all the product of a lengthy, deliberative, public process, a process established by law pursuant to the Administrative Procedure Act. Those who wish to change the important public protections recently enacted should engage in the same deliberative process rather than circumvent the process through the Congressional Review Act or suspending the effective dates of the rules.

I would like to address four of the specific environmental protections that have come under attack. First, the plan to protect our remaining wild forests. It is simply incorrect to characterize this rule as a "midnight regulation" rushed through at the last minute. The public input that went into the development of this forest protection plan is perhaps the most of any rulemaking effort ever.

I would also like to address the issue that was raised by one of the earlier witnesses about access. This plan protects the last and best of America's rapidly shrinking pristine forests for public access and recreation, including hiking, hunting and fishing. It is incorrect to equate these areas with wilderness designation. The main characteristic of wilderness areas is a prohibition on motorized use. And motorized use like snowmobiles, all-terrain vehicles, are allowed in roadless areas so they are very different from wilderness areas.

Far from excluding timber companies from our national forests, the plan simply channels industrial uses to more than half of our national forests that have already been impacted by logging and other extractive industries.

I would also like to address the issue of fire. The new protection plan does not foreclose addressing fire. I question Dr. Nelson's

characterization of the problem being focused on roadless areas. Just recently, the Forest Service told the House Resources Committee that only 14 percent of high-risk fire conditions in the national forest land occur on roadless areas. The problem is not in remote areas, but in fact in the urban forest interface, and this is where just last year Senator Domenici directed significant new funding.

Dr. Nelson has also ignored that tree removal is in fact allowed in roadless areas to address the fire threat.

I am going to run out of time here quickly so I will leave my remarks on arsenic and diesel to what's in my written testimony. I will be happy to answer any questions.

I would like to address the appliance efficiency standards because there has been a lot of discussion this morning about the energy shortage the Nation faces. A key component of the solution is reducing demand through more efficient appliances. In January, the Department of Energy issued new efficiency standards for air-conditioners, clothes washers, and water heaters. These standards were explicitly mandated by Congress and they are all more than 5 years late.

And, contrary to what Dr. Gramm suggested earlier, these rules actually save consumers significant money. Consumers and businesses are projected to save over \$22 billion during the next 25 years due to the new standards. And, by 2020, more efficient appliances are expected to save 54,000 megawatts and that's almost enough to power all of California.

It makes little sense to talk about delaying these standards at precisely the time our Nation is facing an energy shortage.

In conclusion, I urge members not to use the Congressional Review Act to block important public health, safety and environmental protections. As I discussed, these rules, like protecting the last remaining wild areas in our national forests, were issued after a lengthy public process over several years. Discarding all the effort and public involvement that went into important public health and environmental protections with one rushed vote in Congress is a disservice to the American people. Rescinding environmental protections or delaying their implementation denies the public benefits they rightfully expect from their government and hopefully neither Congress nor the new administration will let them down. Thank you.

Mr. OSE. Thank you, Ms. Buccino.

[The prepared statement of Ms. Buccino follows:]

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Testimony of Sharon Buccino

**Senior Attorney
Natural Resources Defense Council**

Federal Environmental Protections and the Congressional Review Act

**Subcommittee on Energy, Policy, Natural Resources and Regulatory
Affairs**

**Committee on Government Reform
U.S. House of Representatives**

March 27, 2001

My name is Sharon Buccino. I am a Senior Attorney with the Natural Resources Defense Council. NRDC is a non-profit organization with over 400,000 members across the country. NRDC members value the important public health, safety and environmental protections put in place by federal agencies such the Environmental Protection Agency (EPA). The protections issued in the last few months of the Clinton Administration have been attacked by some. But this regulatory activity is neither unique to the previous administration nor cause for dramatic reversal by the current one or Congress.

Some have attacked the recent protections, such as the plan to protect the few remaining wild areas in our national forests and efforts to reduce cancer-causing arsenic in our drinking water. These protections promise to deliver tremendous benefits to the American public. They enjoy broad public support and in some cases were explicitly mandated by Congress. These protections are the law of the land and should be expeditiously implemented, not delayed or rescinded.

The allegation that these protections were rushed through at the last minute and lack substantial support is indefensible. The protections are all the product of a lengthy, deliberative public process, a process established by law pursuant to the Administrative Procedure Act (APA). Those who wish to change the important public health, safety and environmental protections recently promulgated should engage in the same deliberative process, rather than circumvent the process through precipitous action under the Congressional Review Act (CRA) or suspending the effective dates of the rules.

I. The Administrative Procedure Act Ensures Deliberative, Public Process

The APA, passed by Congress in 1946, is intended to ensure a deliberative and publicly accountable process for agency decision-making. Section 553 of the APA requires that agencies, with limited exceptions, provide notice of proposed rulemaking through publication in the Federal Register and give interested parties an opportunity to participate in the rulemaking through the submission of comments. 5 U.S.C. § 553 (b) & (c). “Rulemaking” is broadly defined under the APA as “formulating, amending or repealing a rule.” *Id.* § 551(5). The important public health, safety and environmental protections now under attack all underwent the process set out in the APA.

II. Recent Environmental Protections are the Product of a Lengthy, Public Process and Provide Important Benefits

A. Reducing Arsenic in America’s Drinking Water

On January 22, 2001, EPA issued a revised standard for arsenic in drinking water, reducing the allowable level to 10 parts per billion (ppb) from 50 ppb. Despite Congressional direction to review and update the standard every three years according to the latest available scientific information, the standard for arsenic had not been updated

since 1942. According to the National Academy of Sciences (NAS), arsenic in drinking water causes bladder, lung and skin cancer, and may cause kidney and liver cancer. It may also cause birth defects and reproductive problems. Under the old standard of 50 ppb, the NAS estimated that one out of 100 people will get cancer (based on drinking two liters of water per day over the course of a lifetime). This is about 10,000 times greater than the cancer risk EPA would allow for carcinogens in food.

Far from something done at the last minute, the new 10 ppb arsenic standard is the product of decades of debate. Congress first required EPA to update the standard over 25 years ago in 1974. EPA issued an advanced notice of proposed rulemaking regarding updating the arsenic standard in 1983. In 1993, EPA's Science Advisory Board concluded that current data support an association between high levels of arsenic and cancer in humans. In 1996, Congress authorized \$2.5 million per year from 1997-2000 for arsenic research. Between 1997 and 2000, EPA held five formal meetings to solicit input on the arsenic standard from stakeholders. The agency proposed a new standard of 5 ppb on June 22, 2000. Before issuing the final standard, EPA evaluated over 6,500 pages of comments from 1,100 commenters. EPA also completed and evaluated detailed cost/benefit analysis, studies of occurrence and available treatment technologies, plus peer-reviewed health effects research.

The final standard of 10 ppb represents a compromise among the various interests. It is twice as much as EPA originally proposed, and more than three times the 3 ppb standard advocated by the public health community. The new standard delivers long overdue protections from cancer to the American public and should not be undone. Efforts by either Congress to use the CRA or the new administration to withdraw the standard would run afoul of Congress's previous explicit direction to finalize a new arsenic standard by June 22, 2001.

B. Conserving America's Remaining Wild Forests

Another important environmental protection under attack is limits on logging and roadbuilding in our nation's last wild forests. After three years of extensive debate, President Clinton announced a plan to protect 58 million acres of the wildest remaining national forest lands in 39 states from logging, roadbuilding, and mining. The plan protects the last and best of America's rapidly shrinking pristine forests for public access and recreation including hiking, hunting, and fishing. The plan channels industrial uses to the more than half of our national forests that have already been impacted by logging or other extractive industries.

The public input that went into the development of this forest protection plan is perhaps the most of any rulemaking effort ever. The Forest Service held 600 public hearings across the country on the proposal and received 1.7 million public comments. According to the Forest Service, 95 percent of the comments received favored the protection of roadless areas. Formal public comment was first solicited in January 1998 and then again in October 1999 and May 2000. In June 1999, 300 religious leaders wrote

to President Clinton citing a “holy obligation” to protect God’s forests. A joint letter from 168 members of Congress also supported protection of wild forests from logging, mining and other destructive activities.

The public overwhelmingly demanded a wild forest protection plan. It is now the law of the land and should be implemented expeditiously by the new administration rather than delayed or repealed.

C. Reducing Energy Demand through Appliance Efficiency Standards

Recent appliance efficiency standards issued by the Department of Energy (DOE) in January 2001 for air conditioners, clothes washers, and water heaters have also come under attack. Not only were these standards the product of years of debate, they are critical to solving the energy shortages the nation now faces.

Congress mandated that new efficiency standards be issued over 6 years ago for clothes washers, over 7 years ago for air conditioners, and over 9 years ago for water heaters. Part of the reason the standards only came out in the final days of the Clinton Administration was because so much effort was put into ensuring full consideration of public comment. Lengthy administrative records support the standards. The process began with Advance Notices of Proposed Rulemaking more or less on time and extend through a range of both legally required and optional public hearings and meetings, supplementary Notices, revised Notices and the like. Public participation was enhanced by a 1996 process rule issued by DOE that pledged the Department to provide enhanced opportunities for public notice and for dialogue between DOE staff and interested parties. The Clinton Administration provided more involvement than the process followed by the first Bush Administration in issuing efficiency standards for dish washers and refrigerators in 1989 and 1990.

The new appliance efficiency standards promise tremendous environmental benefits, as well as consumer savings. They are based on currently available technology. Consumers and businesses are projected to save over \$22 billion during 2004-2030 due to the new standards. The three standards, plus the 2000 standard for fluorescent lighting ballast, are expected to reduce peak electric demand by 54,000 megawatts by 2020. The air conditioner standard alone will save 10 million metric tons of carbon per year by the time it takes full effect; the other rules should provide for a total effect more than twice this big.

D. Reducing Harmful Diesel Emissions

Still another important public health protection, new diesel standards, has been attacked recently. In December, the Clinton Administration announced new emission limits on diesel trucks and buses, as well as limits on the sulfur content of diesel highway fuel. EPA estimates that the new standards will prevent 8,300 premature deaths, 5,500 cases of chronic bronchitis, and 17,600 cases of acute bronchitis in children. The

standards will also prevent 1.5 million lost work days, 7,100 hospital admissions and 2,400 emergency room visits for asthma every year.

The standards are the product of a lengthy process begun with the issuance of an Advanced Notice of Proposed Rulemaking in May 1999. EPA issued a proposed rule in June 2000. The agency held five public hearings in New York, Chicago, Atlanta, Los Angeles, and Denver. EPA received and responded to over 50,000 public comments.

Recognizing the harm that would result from delaying implementation of the new standards, EPA Administrator Whitman recently announced that the agency would move forward on schedule with its rule to make heavy-duty trucks and buses run cleaner. Congress should support, not hinder, EPA's efforts to deliver cleaner, healthier air to the American public.

III. Neither Congress nor Federal Agencies Should Short-Circuit the APA's Deliberative Process Requirements

Those who believe that certain public health, safety and environmental protections are inappropriate should follow the process set out in the Administrative Procedure Act for making changes to regulations. Unfortunately, instead of going through a deliberative, public process, the new administration has suspended important public health, safety and environmental protections without following the APA's process. Such efforts are both misguided and unlawful.

Suspending final rules without first going through a notice and comment process is unlawful. Changing the effective date of a rule constitutes a change to the rule. NRDC v. EPA, 683 F.2d 752, 761-62 (3d Cir. 1982) ("an effective date is . . . an essential part of any rule"). Changing or amending a rule is defined as rulemaking under the APA and requires an agency to follow formal notice and comment procedures except under very limited circumstances. 5 U.S.C. §§ 551(5), 553(b), 553(c).

The courts struck down efforts by the Reagan Administration in 1981 to postpone or ignore final regulations. In one case, a court invalidated postponement of an EPA rule limiting the discharge of toxic pollutants into publicly owned treatment works. NRDC v. EPA, 683 F.2d 752. In another case, the court held unlawful EPA's decision not to call in hazardous waste permits under a final rule. Environmental Defense Fund v. Gorsuch, 713 F.2d 802 (D.C. Cir. 1983).

The actions taken by the new Bush Administration to block public health, safety and environmental protections are quite different from the approach the Clinton Administration took when it came into office in 1993. While President Clinton took action to review rules that were still in the pipeline, he did not postpone the effective dates of any rules that had been published in the Federal Register. 58 Fed. Reg. 6074 (Jan. 25, 1993) (memorandum from Leon Panetta, Director of OMB, to heads and acting heads of agencies). In contrast, the new Bush Administration has suspended the effective

dates of numerous public health, safety and environmental protections that were finalized and published. These rules were not merely in the pipeline, but had become law. The Bush Administration is shirking its responsibility to the public to implement and execute the law.

The regulatory activity in the post-election period is not extreme, but the Bush reaction to it is. President Clinton faced the same flurry of regulatory activity in the few months preceding his inauguration as President Bush now does. The number of pages published in the Federal Register from November 1992 to January 1993 was over 36 percent greater than the number for the same period the previous year. Comparing the Federal Register from November 2000 to January 2001 to the same period the previous year reveals a 32 percent increase in the number of pages. It is not surprising that all Presidents and their agency heads, regardless of party, would wish to wrap up long-standing rulemaking processes before leaving office. Having a looming deadline of the inauguration of a new President focuses one's efforts on getting things finished.

The exceptions to the APA's notice and comment procedures are extremely narrow. In enacting the APA, Congress valued the deliberative, public process provided by formal notice and comment rulemaking. Only extraordinary circumstances justify an agency decision to bypass this process. Courts have held that the exemptions from notice and comment rulemaking are "narrowly construed and only reluctantly countenanced." Action on Smoking and Health v. CAB, 713 F.2d 795, 800 (D.C. Cir. 1983). Accord, United States v. Picciotto, 875 F.2d 345, 347 (D.C. Cir. 1989).

None of the actions the Bush Administration has taken to block important public, health, safety and environmental protections can be justified under any of the exemptions from the APA's notice and comment procedures. The APA provides two exemptions from notice and comment rulemaking: (1) for interpretative rules, policy statements, and rules of agency organization, procedure, or practice; and (2) good cause. 5 U.S.C. § 553(b)(3)(A) & (B). An agency cannot merely assert one of the exemptions, but must offer a reasoned explanation of why the exemption applies which courts will carefully scrutinize. Action on Smoking, 713 F.2d at 800; NRDC v. EPA, 683 F.2d at 765; Council of the Southern Mountains v. Donovan, 653 F.2d 573, 580 (D.C. Cir. 1981).

The actions by the new administration to block important public, health, safety and environmental protections do not fall within the good cause exemption. Courts have limited the use of the good cause exemption to "emergency situations." Associated Builders & Contractors v. Herman, 976 F.Supp. 1, 5-6 (D.D.C. 1997) (citing AFGE v. Block, 655 F.2d 1153, 1156 (D.C. Cir. 1981)). The mere existence of deadlines is not good cause to avoid rulemaking. See Action on Smoking and Health, 713 F.2d at 800; Council of Southern Mountains, 653 F.2d at 581 (citations omitted) (imminence of statutory deadlines good cause "only in exceptional circumstances"); see also NRDC v. EPA, 683 F.2d at 765. The pending effective date of a rule is an insufficient excuse under the APA to bypass the rulemaking procedures. The new administration can always review issued rules while the rules are in effect.

Likewise, actions by the new administration to block important public health, safety and environmental protections do not fall within the exemption for interpretative rules, policy statements, and rules of agency organization, procedure, or practice. Interpretative rules clarify existing law. In contrast, postponing an effective date changes the prior rule. See, e.g., Council of Southern Mountains, 653 F.2d at 580 n. 28 (deferral of implementation of a rule does not constitute an “interpretative rule”). Likewise, postponement of a rule’s effective date is not a statement of policy because it “do[es] more than express, without force of law,” the [agency’s] . . . tentative intentions for the future.” Thomas v. State of New York, 802 F.2d 1443, 1447 (D.C. Cir. 1986). There is nothing tentative about the actions the Bush administration has taken to suspend various rules; the postponement of the rules is “determinative of issues or rights.” Environmental Defense Fund, 713 F.2d at 817 (rejecting argument that deferral of regulations was a “policy statement”). Finally, postponement of the effective date of a substantive regulation aimed at private parties does not relate to agency procedures or operations. Any action that alters the rights or interests of private parties, as does delaying the effective date of a rule, cannot be considered a procedural rule. See Chamber of Commerce v. USDOL, 174 F.3d 206, 211 (D.C. Cir. 1999).

Even if an agency follows the required process, the agency must justify its action. While the Department of Interior has initiated a comment period on the new environmental standards put in place for mining companies using public lands, the agency has indicated its clear intent to weaken the standards. Similarly, EPA has announced that it will withdraw the new arsenic standards. Going through the procedural motions is not enough. An agency must provide a reasoned explanation for any reversal in course and the change must be consistent with the underlying statute. Motor Vehicle Manufacturers Assoc. v. State Farm Mutual Ins. Co. et al., 463 U.S. 29 (1983). Changing or even delaying the implementation of important public health, safety and environmental protections seems particularly difficult to justify when they were issued in response to explicit Congressional direction to do so, as were the arsenic standards.

Using the Congressional Review Act (CRA) to block important public health, safety and environmental protections is also misguided. As discussed above, rules like those protecting the last remaining wild areas in our national forests and protecting our drinking water from harmful levels of arsenic, were issued after a lengthy, public process over several years. Discarding all this effort and public involvement with one, rushed vote in Congress is a disservice to the American people. The result of disapproval of a rule under the CRA is particularly severe because it prohibits an agency from issuing any rule that is “substantially the same.” 5 U.S.C. § 801(b)(2). If there are problems with a rule, changes to the troublesome parts should be considered rather than throwing out the whole rule and precluding consideration of a modified version. The Congressional Review Act is a blunt tool with drastic consequences and should be used sparingly, if at all.

IV. Conclusion

The rules that some are complaining so vigorously about are important public health, safety and environmental protections. They may come at some cost, but they deliver tremendous benefits such as decreased risk of cancer, wild forests untouched by chainsaws, and energy savings. These protections are the product of several years of extensive public input and deliberation. Delaying implementation of the rules or rescinding them denies the public benefits they rightfully expect from their government. Hopefully, neither Congress nor the new administration will let the American public down.

Mr. OSE. I would like to welcome Thomas McGarity. He holds the W. James Kronzer Chair in law at the University of Texas School of Law, and is an expert in administrative law procedures and the like. Thank you for coming.

Mr. MCGARITY. Thank you, Mr. Chairman. My name is Tom McGarity, and I do teach and have taught for 20 years at the University of Texas School of Law, environmental law and administrative law. I will say I do not speak for the University of Texas. I speak for myself here in this capacity.

As is typically the case during the transition between one administration and another, the volume of proposed and final regulations issued by many executive branch agencies increased during the last few weeks of the Clinton administration. Some were significant and controversial rules that the agencies had been deliberating over for many years. The same thing happened at the end of the Carter administration and at the end of the Bush administration. It is, of course, not at all unusual for decisionmaking institutions like executive branch agencies, courts, the Supreme Court of the United States, to increase its workload or output at the end, and even this institution increases substantially output toward the end of a designated term.

On January 20th, Chief of Staff Andrew Card issued a memorandum to the heads of the executive branch agencies. Subject to limited exceptions, it required them to withdraw proposed or final regulations that had gone to the Office of the Federal Register but had not been published in the Federal Register. With respect to final regulations that had been published but had not taken effect, agency heads were to temporarily postpone those regulations for 60 days. The executive branch agencies complied by publishing notices in the Federal Register, most of which contained pretty much boilerplate for those actions.

The law is clear that the postponement of the effective date of a final rule is "rulemaking" and is subject to the Administrative Procedure Act's notice and comment procedures. The Federal Register notices for the 60-day delay contain boilerplate explanations that I think were not even remotely plausible under the existing case law. They spoke of rules of procedure. They spoke of a good cause exception. The rules of procedure exception is inapplicable because these regulations did, or most of them jeopardize or substantially affect the rights and interests of parties; that is, the withdrawal of the regulations did.

The boilerplate explanations did not demonstrate good cause because a change of administrations is not the sort of emergency situation that justifies the invocation of that exemption.

The Card memo implicitly contemplated that agencies would rescind regulations, having considered them, and on March 23, 2001, EPA did that with respect to the final rule for arsenic where it extended indefinitely the effective date for the rule for arsenic in drinking water. And I would correct my testimony on page 15, line 3. It should say, "extend indefinitely the effective date," not "extends indefinitely the rule," if that confused anyone.

Any rescission or modification of a published final rule must be accomplished through notice-and-comment rulemaking procedures. Furthermore, any such action must be supported with data and

analysis sufficient to pass judicial scrutiny under the “arbitrary and capricious” test.

One alternative to unlawful postponement or withdrawal of a published rule is action under the Congressional Review Act to rescind the major rule. Because it has been—because it has the effect, rather, of undoing the work of agencies and private parties, all the work they have put into the rule, this relatively blunt tool has the potential to waste large amounts of public and private resources.

In my view, Congress should not hastily exercise its power to undo the legitimate products of deliberative—of the deliberative rulemaking process. In general, neither the offices of individual Congresspersons or the committee staffs or really any institution within Congress, now with the demise of the Office of Technology Assessment, is populated with persons with the technical expertise to second-guess the conclusions of agency staff and upper-level agency decisionmakers. The primary determinants of congressional decisions under the Congressional Review Act are likely to be political and not technical considerations. The fate of individual regulations long in the making should not turn on a hasty and unprincipled exercise of raw political power. Congress has wisely refrained in the past from using the Congressional Review Act to reward political beneficiaries and punish political enemies. It should continue to do so in the future.

Thank you Mr. Chairman.

Mr. OSE. Thank you Mr. McGarity.

[The prepared statement of Mr. McGarity follows:]

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TESTIMONY OF

THOMAS O. MCGARITY
W. James Kronzer Chair in Law
University of Texas School of Law

on

Congressional Review Act and Recent Federal Regulations

Subcommittee on Energy, Policy, Natural Resources and Regulatory Affairs

Committee on Government Reform

United States House of Representatives

March 27, 2001

My name is Tom McGarity. I hold the W. James Kronzer Chair in Law at the University of Texas School of Law, where I have for the last 20 years taught courses in Administrative Law and Environmental Law. As my attached Curriculum Vitae indicates, I have published many articles and two books in the area of Administrative Law and Regulatory Reform. I am, therefore, pleased to testify today on the regulations issued at the end of the Clinton Administration and the the Bush Administration's response to those regulations.

Rulemaking Activities at the End of the Clinton Administration.

As is typically the case during the transition between one Administration and the following Administration, the volume of proposed and final regulations issued by many Executive Branch agencies increased during the last few weeks of the Clinton Administration. Although many of the regulations were garden variety rules of the sort that agencies issue on a routine basis throughout the year, some were significant and controversial rules over which the relevant agencies had been deliberating for many years. The same thing happened at the end of the Carter and Bush Administrations when a president from a different political party was elected.

It is, of course, not at all unusual for a decisionmaking institution to increase its output substantially at the end of its appointed term. The volume of Supreme Court opinions invariably increases dramatically in June and July as the October term comes to an end. Legislative bodies, including this body, typically pick up the legislative pace and enact a disproportionate number of laws at the end of a legislative session. It is in the nature of a deliberative law-making body to deliberate longer and harder over difficult decisions and, consequently, to leave them to the end of the deliberations.

Thus, although it is clear that the executive branch agencies proposed and finalized many more regulations during the last month of the Clinton Administration than during the first month or during any given intervening month, this by no means represented an unprecedented abuse of executive power. The rulemaking process is by its very nature open-ended, and rules that are promulgated during one administration may be rescinded and replaced during another, if the relevant agency statutes give the agencies discretion to do so. The agencies' substantive statutes are the determinants of the legitimacy of the regulations and of their amendment or repeal.

It might further be noted that the regulations issued at the end of the Clinton Administration were not ill-conceived rules resulting from a hasty decisionmaking process. Many of the rules that have been stayed at the request of President Bush's Chief of Staff were promulgated only after the agencies over a period of years had gathered and analyzed scientific and economic data, provided for broad public comment, extensively analyzed public comments, and prepared lengthy and comprehensive background documents to support the particular requirements. Many of the rules provided important protections against invidious discrimination, against fraud and deceit, and against significant risks to health and the environment. Nevertheless, many federal agencies have at the behest of the White House Chief of Staff, postponed the effective date of many of the most important of these regulations.

A postponed Health and Human Services regulation would have provided "additional protections for pregnant women and human fetuses involved in research, and pertaining to human in vitro fertilization."¹ A postponed Mine Safety and Health Administration rule would have protected underground miners from toxic particulate

¹ Department of Health and Human Services, Protection of Human Research Subjects: Delay of Effective Date, 66 Fed. Reg. 15352 (2001).

emissions from diesel burning engines.² A regulation promulgated by three Departments would have provided protections to participants in group health plans against discrimination based upon certain health factors.³ A delayed Federal Railroad Administration regulation would have amended the requirements for power braking systems and equipment used in operating freight and other non-passenger trains "to achieve safety by better adapting those regulations to the needs of contemporary railroad operations and better facilitating the use of advanced technologies."⁴ A Coast Guard regulation would have reduced the allowable blood alcohol levels for recreational boat operators to provide greater safety to other boaters.⁵ A postponed Department of Transportation rule would have required operators of hazardous liquid pipelines to "establish and implement plans to assess the integrity of pipeline in areas in which a failure could impact certain populated and environmentally sensitive areas."⁶ All of the regulations were promulgated to implement statutes enacted by Congress, and most of them are subject to judicial review for arbitrariness.

² Department of Labor, Mine Safety and Health Administration, Diesel Particulate Matter Exposure of Underground Metal and Nonmetal Miners; Delay of Effective Dates, 66 Fed. Reg. 15032 (2001).

³ Department of Labor, Department of Health and Human Services, Department of the Treasury, Interim Final Rules for Nondiscrimination in Health Coverage in the Group Market, 66 Fed. Reg. 14076 (2001).

⁴ Department of Transportation, Federal Railroad Administration, Brake System Safety Standards for Freight and Other Non-Passenger Trains and Equipment; End-of-Train Devices; Final Rule: Delay of Effective Date, 66 Fed. Reg. 9906 (2001).

⁵ Department of Transportation, United States Coast Guard, Revision to Federal Blood Alcohol Concentration (BAC) Standard for Recreational Vessel Operators: Delay of Effective Date, 66 Fed. Reg. 9658 (2001).

⁶ Department of Transportation, Research and Special Programs Administration, Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Hazardous Liquid Operators With 500 or More Miles of Pipelines), 66 Fed. Reg. 9532 (2001).

Any decision to repeal, withdraw, defer, or amend those regulations should be accomplished with the same degree of study, analysis and deliberation that went into the promulgation of those regulations. Anything less would represent a disservice to the intended beneficiaries of the protections that the rules provided. Legal considerations aside, it is bad public policy cavalierly to throw out important consumer and environmental protections solely because they were promulgated during a previous administration. It makes no more sense to erect a presumption against retaining regulations promulgated near the end of a presidential administration than it would make to erect a presumption against the wisdom or legitimacy of legislation enacted during the end of a congressional session.

The Card Memorandum and Subsequent Agency Activities.

On January 20, 2001, White House Chief of Staff, Andrew Card, wrote a memorandum to the heads and acting heads of all Executive Branch agencies to communicate to them President Bush's "plan for managing the Federal regulatory process at the outset of his Administration."⁷ Subject to some limited exceptions for emergencies and urgent situations relating to public health and safety, the memorandum asked the agency heads to "withdraw" any regulation that had been sent to the Office of the Federal Register, but had not been published in the *Federal Register*. The regulation was not to be published in the *Federal Register* "unless and until a department or agency head appointed by the President after noon on January 20, 2001, reviews and approves the regulatory action."⁸ With respect to final regulations that had been published in the

⁷ Memorandum for the Heads and Acting Heads of Executive Departments and Agencies from Andrew H. Card, Jr., dated January 20, 2001, 66 Fed. Reg. 7702 (2001) [hereinafter cited as Card memo].

⁸ Id.

Federal Register but had not taken effect, the agency heads were asked to "temporarily postpone the effective date of the regulations for 60 days."⁹ The memorandum defined the term "regulation" to mean "any substantive action by an agency (normally published in the *Federal Register*) that promulgates or is expected to lead to the promulgation of a final rule or regulation, including notices of inquiry, advance notices of proposed rulemaking, and notices of proposed rulemaking."¹⁰ Many executive branch agencies complied with the Card Memorandum by publishing Notices in the *Federal Register* delaying for 60 days the effective date of previously published regulations "in accordance with" the Card memorandum.¹¹

Legal and Policy Analysis of the Rule Withdrawals.

Withdrawal of Unpublished Proposed Rules.

Under the Card memorandum, proposed rules (and even advance notices of proposed rulemaking) are considered regulations subject to the withdrawal requirements. Thus, the agencies were supposed to "withdraw" all notices of proposed rulemaking that they had sent to the *Federal Register*, but which had not yet been published. I have not seen any information on the extent to which the agencies complied with this request, but such withdrawals were probably lawful in most cases. Until a notice of proposed

⁹ Id.

¹⁰ Id.

¹¹ See, e.g., Department of Health and Human Services, Health Care Financing Administration, Medicare Program; Use of Restraint and Seclusion in Residential Treatment Facilities Providing Inpatient Psychiatric Services to Individuals Under Age 21: Delay of Effective Date, 66 Fed. Reg. 15800 (2001).

rulemaking has been published in the *Federal Register*, an agency is generally free to withdraw it and replace it with a different notice. As a practical matter, most rulemaking proceedings are not commenced until a notice of proposed rulemaking is published in accordance with section 553 of the APA.

Whether such an across-the-board withdrawal of all unpublished notices of proposed rulemaking constitute sound public policy is another matter. Many of the submitted notices were undoubtedly garden variety notices proposing noncontroversial regulations that were needed to facilitate commerce or to empower agency employees to make resources available to the beneficiaries of various entitlement programs. The process of re-evaluating such notices will consume scarce agency resources for no good reason. Nevertheless, to the extent that an incoming agency head desires an opportunity to draw his or her own conclusions regarding the desirability of proposing the regulation, the resource decision is a generally a matter within the discretion of the agency head.

Withdrawal of Published Proposed Rules.

The Card memo also requested agency heads to withdraw proposed rules that had been published in the *Federal Register*. Again, there is probably no legal impediment to withdrawing a published notice of proposed rulemaking. Agencies frequently decide to change the terms and conditions of a proposed rule or decide to refrain from promulgating it altogether in response to public comments or pressures from interest groups or other agencies in the Executive Branch. In general, an agency may withdraw a notice of proposed rulemaking without violating the law. In general, no person or group has a vested interest in the final promulgation of a proposed rule. When a statute requires the agency to engage in an informal rulemaking exercise, however, there is generally a legal requirement to complete the rulemaking exercise by a statutory deadline or within a

reasonable time. The agency may not frustrate the congressional will by publishing and then withdrawing proposed rules.

It appears that the Card memorandum at least partially recognizes this point when it exempts from the withdrawal request "any regulations promulgated pursuant to statutory or judicial deadlines." The exemption, however, does not reach regulations that are required by statute, but are not subject to a statutory or judicial deadline. Under the Administrative Procedure Act, a person may request a court to compel agency action "unlawfully withheld or unreasonably delayed." 5 U.S.C. § 706(1). An indefinite withdrawal of a regulation required by statute could constitute the unlawful withholding or unreasonable delay of required agency action and thereby be unlawful.

Withdrawal of Unpublished Final Rules.

The Card memo asked the agency heads to "withdraw" from the Office of the Federal Register all final rules that had been sent to that office, but not published in the *Federal Register*. Although the matter is not entirely free from doubt, it appears that so long as a signed rule has not been published in the *Federal Register*, it is legally permissible for the agency that sent the rule to the Office of the Federal Register to withdraw the submission. In the only case directly in point, the Department of Interior at the change of administrations in 1993 withdrew a signed final regulation that it had previously submitted to the Office of the Federal Register prior to its publication in the *Federal Register*. The court rejected the petitioners' contention that the decision to withdraw the submitted regulation was itself a rule subject to notice-and-comment procedures under the APA.¹² Distinguishing two cases in which the agency had

¹² *Kennecott Utah Copper Corp. v. Dept. of Interior*, 88 F.3d 1191, 1200-01 (D.C. Cir. 1996).

effectively postponed the effective date of rules that had been published in the *Federal Register*. the court held that "the agency's decision to withdraw the document did not constitute a "regulation" within the meaning of the statute empowering the agency to act.¹³ While it is always possible that one of the agency statutes involved in the recent withdrawals does characterize the withdrawal as a "regulation," it is not very likely. Thus, it was probably not unlawful for the agency heads to withdraw submitted, but not published final rules pursuant to the Card memo.

As a matter of sound governmental policymaking, however, the precipitous across-the-board withdrawal of regulations that were final in every sense but the purely ministerial act of publication in the *Federal Register* was an unwise action that will squander limited governmental resources and will in many cases prove grossly unfair to the participants in the completed rulemaking processes. A submitted rule and its associated supporting documents represents the culmination of a structured, and often quite lengthy and resource-intensive, deliberative process dictated by federal statutes, agency procedural regulations, and numerous executive orders. With the exception of those regulations that are immediately re-submitted to the Office of Federal Register, the withdrawal will result in delays in implementation and in many, if not most, cases a complete failure to implement regulations to which a great deal of time and energy, both public and private, have already been devoted. In a time in which both governmental and private resources are increasingly scarce, this exercise seems especially ill-advised.

Postponement of Effective Date of Published Final Rules.

¹³ 88 F.3d at 1207.

Once a rule has been published in the *Federal Register*, it is a final rule for purposes of the APA, even if the effective date of one or more of its legally binding requirements occurs some time in the future.¹⁴ The agency may not modify the rule except through the section 553 notice-and-comment rulemaking procedures.¹⁵ The Card memo requested the executive branch agencies to "temporarily postpone the effective date" of the already published regulations for 60 days to allow newly appointed agency heads to review and approve those regulations.¹⁶ Many federal agencies complied by postponing the effective date of dozens of previously promulgated regulations.

The law is clear that the postponement of the effective date of a rule is "rulemaking" within the meaning of the APA.¹⁷ The court in the leading case on the subject observed that "it makes sense to scrutinize the procedures employed by the agency all the more closely where the agency has acted, within a compressed time frame, to reverse itself by the procedure under challenge."¹⁸ In "postponing the effective date" of the rule, the agency in that case had "reversed its course of action up to the postponement," and it had done so "without notice and an opportunity for comment, and

¹⁴ Indeed, under section 553(d) of the APA, the effective date of a regulation is ordinarily at least 30 days after promulgation in the *Federal Register*.

¹⁵ See *Alaska Professional Hunters Association, Inc. v. FAA*, 177 F.3d 1030 (D.C. Cir. 1999) (the term "litigation" in the APA "includes not only the agency's process of formulating a rule, but also the agency's process of modifying a rule").

¹⁶ Card memo, *supra*, at 7702.

¹⁷ See *Natural Resources Defense Council, Inc. v. EPA*, 683 F.2d 752 (3d. Cir. 1982) (indefinite suspension of a published regulation is rulemaking that must follow notice-and-comment rulemaking procedures). See also *Environmental Defense Fund, Inc. v. Environmental Protection Agency*, 716 F.2d 915 (D.C. Cir. 1983) (attorney fee recovery case in which court noted that "[t]he suspension or delayed implementation of a final regulation normally constitutes substantive rulemaking under the APA"); *Environmental Defense Fund, Inc. v. Gorsuch*, 713 F.2d 802, 816 (D.C. Cir. 1983) ("an agency action which has the effect of suspending a duly promulgated regulation is normally subject to APA rulemaking requirements").

¹⁸ 683 F.2d at 760.

without any statement . . . on the impact of that postponement."¹⁹ The indefinite postponement of the regulations was a "rule" within the meaning of the APA that could lawfully be promulgated only through the procedures provided for in the APA.

So long as the action postponing the regulation does not come within one of the exceptions listed in section 553 of the APA, the postponement may legally be accomplished only through the notice-and-comment rulemaking procedures provided for in section 553. The exemptions, in turn, are quite narrow. As the D.C. Circuit Court of Appeals has noted: "it should be clear beyond contradiction or cavil that Congress expected, and the courts have held, that the various exceptions to the notice-and-comment provisions of section 553 will be narrowly construed and only reluctantly countenanced."²⁰

The Federal Register notices for the 60-day delays contained boilerplate explanations for why the withdrawals were either "rules of procedure" within the Administrative Procedure Act exemption for such rules from the notice and comment rulemaking requirements or were subject to the "good cause" exception.²¹ In relevant part, the boilerplate reads as follows:

To the extent that 5 U.S.C. section 553 applies to this action, it is exempt from notice and comment because it constitutes a rule of procedure under 5 U.S.C. section 553(b)(A). Alternatively, the Department's implementation of this rule without opportunity for public comment, effective immediately upon publication

¹⁹ *Id.*

²⁰ *New Jersey v. United States Environmental Protection Agency*, 626 F.2d 1038, 1045 (D.C. Cir. 1980).

²¹ The agencies did not claim that the suspensions constituted an "interpretative rule" or a "statement of policy," both of which may be promulgated without full notice and comment procedures. That route was foreclosed by judicial opinions rejecting such contentions in other contexts. See *Environmental Defense Fund, Inc. v. Gorsuch*, 713 F.2d 802, 816-17 (D.C. Cir. 1983).

today in the Federal Register, is based on the good cause exceptions in 5 U.S.C. section 553(b)(B) and 553(b)(3). Seeking public comment is impracticable, unnecessary and contrary to the public interest. The temporary 60-day delay in effective date is necessary to give Department officials the opportunity for further review and consideration of new regulations, consistent with the Assistant to the President's memorandum of January 20, 2001. Given the imminence of the effective date, seeking prior public comment on this temporary delay would have been impractical, as well as contrary to the public interest in the orderly promulgation and implementation of regulations.²²

The boilerplate explanation for neither exemption is at all convincing.

The 60-day suspensions of effective dates issued in response to the Card memo cannot reasonably be characterized as "procedural rules" within the meaning of the APA. The effective date of a substantive rule is a substantive, not a procedural component of that rule. Procedural rules are rules that govern the procedures under which an agency exercises its powers or under which private parties interact with the agency. They address how the agency goes about its substantive work.²³ They do not affirmatively implement the agency's substantive responsibilities. Delaying the effective date of a substantive regulation relieves a regulated entity of the substantive requirements of the rule for a

²² Department of Health and Human Services, Public Health Service, Alcohol, Drug Abuse and Mental Health Administration (ADAMHA) Substance Abuse and Mental Health Services Administration (SAMHSA), Opioid Drugs in Maintenance and Detoxification Treatment of Opiate Addiction; Repeal of Current Regulations and Issuance of New Regulations: Delay of Effective Date and Resultant Amendments to the Final Rule, 66 Fed. Reg. 15347 (2001); Department of Labor, Mine Safety and Health Administration, Diesel Particulate Matter Exposure of Underground Metal and Nonmetal Miners; Delay of Effective Dates, 66 Fed. Reg. 15032 (2001).

²³ A possible example of a true procedural rule for which an agency legitimately extended a deadline pursuant to the Card memorandum is the revision of the Department of Housing and Urban Development's regulations for implementing the Freedom of Information Act. Department of Housing and Urban Development, Revision of Freedom of Information Act Regulations; Delay of Effective Date, 66 Fed. Reg. 8175 (2001).

period of time. It does not affect how the agency goes about implementing its substantive responsibilities. This is the stuff of substance, not procedure.

The law is well established that "[a] procedural rule is one that does not itself alter the rights or interests of parties, although it may alter the manner in which the parties present themselves or their viewpoints to the agency."²⁴ Agency actions that "jeopardize or substantially effect the rights and interests of private parties" are not procedural rules.²⁵

The postponement of the effective date of substantive regulations pursuant to the Card memo substantially alters the rights and interests of the beneficiaries of those rules, perhaps in profound ways. Underground miners will not receive the protections from diesel emissions to which they are entitled under the Mine Safety and Health Administration regulation described above from the previously applicable effective date of March 20, 2001 until the end of the 60 day postponement and any additional period of time that the agency takes to decide whether to amend the rule or allow it to go into effect.²⁶ Similarly, the beneficiaries of the "Interim Final Rules for Nondiscrimination in Health Coverage in the Group Market," which were promulgated to "implement statutory provisions prohibiting discrimination based on a health factor by group health plans and issuers offering health insurance coverage in connection with a group health plan," will not receive the protections afforded by that rule during the time extending from its original effective date of March 9, 2001 until such time as the agency allows the rule to

²⁴ Chamber of Commerce v. Department of Labor, 174 F.3d 206 (D.C. Cir. 1999).

²⁵ Thomas v. State of New York, 802 F.2d 1443, 1447 (D.C. Cir. 1986).

²⁶ Department of Labor, Mine Safety and Health Administration, Diesel Particulate Matter Exposure of Underground Metal and Nonmetal Miners; Delay of Effective Dates. 66 Fed. Reg. 15032 (2001).

go into effect.²⁷ Likewise, boaters will not receive the protections of the postponed Coast Guard regulation lowering allowable blood alcohol levels in operators of recreational vessels.²⁸

Just as clearly, the suspensions did not come within section 553's "good cause" exemption. An agency may rely upon that exemption when it "for good cause finds . . . that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest."²⁹ The courts have repeatedly held that the "good cause" exemption is to be "narrowly construed and only reluctantly countenanced . . . [and] should be limited to emergency situations."³⁰ In particular, "the mere existence of deadlines for agency action . . . [can]not in itself constitute good cause for a § 553(b)(B) exception."³¹ Otherwise the "good cause" exception could easily swallow the rule that regulations must

²⁷ Department of Labor, Department of Health and Human Services, Department of the Treasury, Interim Final Rules for Nondiscrimination in Health Coverage in the Group Market, 66 Fed. Reg. 14076 (2001).

²⁸ Department of Transportation, United States Coast Guard, Revision to Federal Blood Alcohol Concentration (BAC) Standard for Recreational Vessel Operators: Delay of Effective Date, 66 Fed. Reg. 9658 (2001).

²⁹ 5 U.S.C. § 553(b)(B).

³⁰ *Environmental Defense Fund, Inc. v. EPA*, 716 F.2d 915, 920 (D.C. Cir. 1983).

³¹ *United States Steel Corp. v. United States Environmental Protection Agency*, 595 F.2d 207, 213 (5th Cir. 1979).

be promulgated through notice-and-comment procedures.³² The good cause exemption is not an "'escape clause' that may be arbitrarily utilized at the agency's whim."³³

The boilerplate rationale that the agencies universally provided in the *Federal Register* notices promulgating the immediately effective rule suspensions was that the "temporary 60-day delay in effective date is necessary to give Department officials the opportunity for further review and consideration of new regulations, consistent with the Assistant to the President's memorandum of January 20, 2001." An agency's desire to reconsider a regulation that it has already considered, in some cases for many years, cannot conceivably be considered the sort of emergency that is required to support the "good cause" showing under section 553. An agency is free to reconsider a previously promulgated regulation while it remains in effect by issuing a notice of proposed rulemaking, inviting public comment on any changes the agency has in mind, and either withdrawing the previously promulgated rule or promulgating an amended rule. The omnibus action by many federal agencies postponing the effective date of dozens of final regulations cannot possibly fit within the intentionally narrow "good cause" exemption to section 553's notice and comment procedural requirements.

Withdrawal of Published Final Rules.

³² See *Council of the Southern Mountains v. Donovan*, 653 F.2d 573 (D.C. Cir. 1981) (finding good cause in the "possibly unique" situation in which: (1) the forces requiring the rule postponement were beyond the agency's control; (2) the agency acted diligently to overcome the hurdles erected by other parties; (3) the record strongly indicated that the agency intended to implement the regulations on schedule; (4) the agency deferred the implementation date for only a short time; and (5) government counsel assured the court that the regulations would be fully implemented by a date certain).

³³ *American Federation of Gov't Employees, AFL-CIO v. Block*, 655 F.2d 1153, 1156 (D.C. Cir. 1981) (quoting S. Rept. No. 752, 79th Cong., 1st Sess. (1945)).

The Card memo contemplated that agency heads would "review and approve" postponed published final rules. Although not made explicit, it no doubt also contemplated that the agencies would rescind regulations that did not receive the approval of the agency heads. At least one agency has done just that. On March 23, 2001, EPA published a notice of proposed rulemaking to extend indefinitely the final rule for arsenic in drinking water.³⁴ An agency press release says that the agency will at some point propose to withdraw the arsenic rule and that it expects to release a timetable for review within the next few weeks.³⁵

Any rescission or modification of a published final rule must be accomplished through notice-and-comment rulemaking procedures. Furthermore, any such action must be supported with data and analysis capable of demonstrating that the rescission or modification is not "arbitrary and capricious."³⁶ In the leading Supreme Court opinion on this question, the Court held that courts should review agency rule rescissions with the same degree of scrutiny as they reviewed initial rule promulgations, and it explicitly rejected the claim that the courts should review the repeal of a regulation as a decision declining to promulgate regulation in the first place.³⁷ The Court then articulated the test for "substantive" judicial review of agency action under the arbitrary and capricious

³⁴ Environmental Protection Agency, National Primary Drinking Water Regulations; Arsenic and Clarifications to Compliance and New Source Contaminants Monitoring: Delay of Effective Date, 66 Fed. Reg. 16134 (2001).

³⁵ Environmental Protection Agency, Headquarters Press Release, EPA to Propose Withdrawal of Arsenic in Drinking water Standard; Seeks Independent Reviews, March 20, 2001.

³⁶ 5 U.S.C. § 706.

³⁷ Motor Vehicle Manufacturers Ass'n v. State Farm Mutual Automobile Insurance Co., 463 U.S. 29, 41-42 (1983).

test.³⁸ The same standard applies to the indefinite suspension of a previously promulgated rule.³⁹

Repealing Rules under the Congressional Review Act.

One alternative to the unlawful postponement or withdrawal of a published final rule is action under the Congressional Review Act to rescind a major rule. When Congress takes this rather extreme step, however, the rescinded regulation cannot be promulgated in "substantially the same form" without explicit authorizing legislation.⁴⁰ Because it has the effect of undoing all of the work that the agency has put into the rule, this relatively blunt tool has the potential to waste huge amounts of public and private resources. In some cases, the agency has deliberated over a rule for years and has conducted extensive analyses of the protections that the rule will afford and the costs that it will impose on the regulated entities. The congressional review process is not likely to devote nearly the same degree of care and analysis to the regulation.

Congress should not hastily exercise its power to undo the legitimate products of a deliberative rulemaking process. In general, neither the offices of individual congresspersons nor the committee staffs are populated with persons who have the technical expertise to second-guess the technical conclusions of agency staff and upper-

38 *Id.*, at 43. The test prescribed by the court is as follows:
Normally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

Id.

39 *Public Citizen v. Steed*, 733 F.2d 93 (D.C. Cir. 1984).

40 Congress has exercised its power under the Congressional Review Act, enacted in 1996, on only one occasion -- the recently rescinded OSHA Ergonomics standard.

level agency decisionmakers. With the demise of the Office of Technology Assessment in 1995, Congress lost its institutional capacity to elicit the technical advice of experts in particular subject areas relevant to federal regulation. The primary determinants of congressional decisions under the Congressional Review Act are likely to be political, not technical considerations. While I have taken the position in many published articles that scientific rulemaking must necessarily be a policy-dominated exercise, the policies that should determine the outcomes of individual rulemaking initiatives should be the policies of the substantive statutes that Congress, after due deliberation, enacted to empower agencies to promulgate rules. The fate of individual regulations, long in the making, should not turn on a hasty and unprincipled exercise of raw political power. In the years since it enacted the Congressional Review Act, Congress has wisely refrained from using that statute to reward political benefactors and punish political enemies. It should continue to do so in the future.

Conclusion.

Like the Bush Administration before it, the Clinton Administration issued a comparatively large number of rules and proposed rules during its last few weeks. There is no reason *per se* to question the legitimacy of these proposed and final regulations, and there is every reason to believe that the reconsideration demanded by the Card memo will waste valuable governmental resources. When Chief of Staff Card, at the President's request, asked agencies to postpone the effective date of published final regulations, he was asking them to take an action that was unlawful under the Administrative Procedure Act. The fact that it may be impossible, as a practical matter, for an affected citizen to challenge the unlawful conduct of the agencies in court does not render that conduct any less unlawful. Federal agencies should obey the law, just as they expect ordinary citizens

to obey the law. The Chief of Staff, in asking the agencies to engage in unlawful conduct, sent a message to ordinary citizens that it is acceptable to circumvent legally binding procedural requirements in pursuit of political ends. Congress should not reinforce that message by arbitrarily rescinding, at the behest of a few special interests, protective regulations that have been years in the making.

Mr. OSE. I would like to recognize Mr. Otter for 5 minutes.

Mr. OTTER. Thank you very much, Mr. Chairman. I appreciate all the comments from the panel members. I would like to go first to Terry, to Mr. Gestrin. Would you reiterate one more time the impact that the roadless rule has had thus far, even though we are just entering the phase on the roadless rule, would you reiterate the impact it has had on the economy within Valley County?

Mr. GESTRIN. Yes, Mr. Chairman, Congressman Otter. As indicated by our economic analysis, the loss of our timber industry in Valley County is going to be a \$43 million hit to the economic viability of our community, but it is also a complete change in our social structure. It is just one more regulation on top of ESA and everything else that just finally drives industry out. Plus, we also have the devastations created by fires.

As you can see, an example of last summer's forest fire burning, it is a very social and economic impact. But, we also have areas that were inventoried recently as roadless but they're already roaded. So there's confusion sometimes that we're talking about areas that have never had a road, because if you go to the Forest Service definition it states nonsystem roads. Well, a system road is a road on their map that they maintain, which are their system roads. The other roads, the work roads, the nonsystem roads, are now being considered roadless areas. We have a new designation of 5,000 acres just inventoried last year that has had management, active management in the past, that, in fact, has work roads in it. So it just adds more de facto wilderness, if you will, to what we have. Idaho already has the largest wilderness in the lower 48.

Mr. OTTER. Terry, you have mentioned in your testimony that I guess by the first of June, Boise Cascade is going to shut down the last lumber mill they have in Valley County. They have already shut down the one they have in Linn County, another county in Idaho. My apologies to the other members, folks here, that don't know the geography as well as Terry and I do. That will bring the total then to a total of 33 lumber mills, in excess of 3,000 folks that have lost their jobs in economies within those communities within the last 8 years. With the roadless area added to what we consider the mismanagement of the last 8 years of our national forest in Idaho, can you foresee what's going to take the place of those lumber mill jobs or those wood products jobs?

Mr. GESTRIN. We are looking at every aspect we possibly can to bring in broadbands or anything else, but in these remote locations we don't have the infrastructure, the transportation, the things necessary to actually have other types of economic activities, if you will. So we will be relying somewhat on the Internet and broadband aspect. However, those jobs have historically not paid as well as the national resource jobs do. Our real basis of our wealth in this country comes from national resources.

I think lately we have watched the stock market and what happens when we put our faith in information. Our real wealth comes from resources. On the map, if you want to look at geography, all those parts from here, it's a dark color, that's where I am from. That's what I am talking about that is the most affected place in the lower 48.

Mr. OTTER. Mr. Chairman, I think my time is about out.

Mr. OSE. Mr. Otter, if I might inquire, is it your desire to enter the map into the public record?

Mr. OTTER. Yes, it is. Thank you for reminding me.

Mr. OSE. Without objection.

The gentleman from Massachusetts for 5 minutes.

Mr. TIERNEY. Thank you, Mr. Chairman. Mr. McGarity, I agree with you, I think. Your premise, if I am correct in stating it, is that you cannot legally suspend or postpone a regulation without first going through a notice and a whole process.

Mr. MCGARITY. That's right. To rescind or postpone one, you need to go through the same sort of process you went through to promulgate it in the first place.

Mr. TIERNEY. The underlying theory is that you are making just a dramatic change in people's lives and the effect on their lives doing the suspension or postponement and the rescission as you were in implementing the rule in the first place.

Mr. MCGARITY. That's right. Presumably the rule has beneficiaries who will be harmed by its rescission.

Mr. TIERNEY. Now, in at least one instance, the administration suspended a final rule that is already in effect. That was on January 19, 2001, the contractor responsibility rule went into effect, providing that when awarding a Federal contract, the government must ensure that the company receiving the contract has a satisfactory record of complying with Federal laws, including tax, labor, employment, environmental, antitrust, and consumer protection laws.

On January 31st, though, the current administration, the chairman of the Civilian Agency Acquisition Council, issued a memorandum to civilian agencies authorizing a 6-month suspension of the rule. Morton Rosenberg, a specialist in American public law at the Congressional Research Service, analyzed the issue and found that that memo is likely illegal. Do you agree with that?

Mr. MCGARITY. Yes. In fact, I read that memorandum and I do agree with its analysis. Yes, sir.

Mr. TIERNEY. Mrs. Buccino, you started to talk about a couple of other areas and you didn't get a chance to finish because of time constraints. But we've listened to people testify about the arsenic rule, and have criticized it. Will you tell me what your concerns are with the statements that were made by the Bush administration and others concerning the suspension and the repeal?

Ms. BUCCINO. Yes, I would be happy to. What was done in issuing a new arsenic standard was to change the standard from 50 parts per billion to 10 parts per billion. The 50 parts per billion had been based on data from the 1940's. And Congress, in fact, has directed three different times to EPA to revise that standard. Now, just recently, the administration announced that they were going to withdraw the revised standard and reconsider it. We believe that action is both potentially unlawful and inappropriate because the new standard delivers long overdue protections from cancer to the American public, and we believe that it should not be undone.

Mr. TIERNEY. The new standards are also in effect in the European Union and the World Trade Organization.

Ms. BUCCINO. That's correct.

Mr. TIERNEY. So it wouldn't be anything novel to this global environment we find ourselves in.

Ms. BUCCINO. That's correct.

Mr. TIERNEY. Now, I listened to others of the witnesses who made the case for the phasing in of the diesel regulations, and I would only imagine that those same arguments or contentions were made during the rulemaking process on diesel, and apparently adjustments were made for those contentions or they just weren't agreed with. Will you tell us a little bit about that situation, your views on that?

Ms. BUCCINO. Yes. The diesel rule was also a product of a very lengthy process. It was initiated in May 1999, so several years ago, and there was extensive both information and scientific studies regarding the health effects and cost-benefit analysis that were collected and evaluated by EPA. And, all the various stakeholders had extensive formal and informal opportunities to comment and have input on that. Now this rule, in fact, the administration has decided is so important that they were moving forward with implementation of it.

Mr. TIERNEY. So far.

Ms. BUCCINO. That is correct. And I would also like to point out that in response to some of the concerns about the shortages in supply, there is a very lengthy time for compliance. It is not until 2006 that new trucks have to comply with it, and it is a much longer period of time for existing engines.

Mr. TIERNEY. Much longer time for existing engines. So the 2006 only applies to new vehicles.

Ms. BUCCINO. That's right.

Mr. TIERNEY. Mr. McGarity, I agree with your observation that the CRA is essentially a political tool providing no opportunity for expert testimony or for a more technical view of things. In your view, is that law? Is CRA legal? Is it constitutional?

Mr. MCGARITY. The CRA, in my view, is constitutional. My published writings are very much on record as being a proponent of Congress when it comes institutionally between Congress and the executive branch and Congress and the judicial branch. I think Congress is the institution in which power should rightly be lodged.

At the same time, certainly the legislative vetoes of past years were unconstitutional. What makes the CRA constitutional, if sometimes conceivably unwise and certainly exercised in an unwise way, is that it is presented—the joint resolution is presented to the President. It's the presentment, I think, that's the key point there. That being said, one does hate to see it being used very frequently for really purely political reasons.

Mr. TIERNEY. Thank you.

Mr. OSE. I want to make sure that Mr. McGarity understands that those of us in Congress appreciate his appreciation for our influence. It's a roundabout way of saying we probably agree with you on that.

Mr. MCGARITY, if I might, I want to go back to the Administrative Procedure Act, the Congressional Review Act. Now if I understand correctly, it was Congress that passed the Administrative Procedure Act. It's not a rule, it's an actual statute.

Mr. MCGARITY. The Administrative Procedure Act was enacted after a long period of sort of struggle and deliberations in 1946.

Mr. OSE. Something passed by Congress.

Mr. MCGARITY. Oh yes, absolutely.

Mr. OSE. So it is an actual statute.

Mr. MCGARITY. Yes.

Mr. OSE. And, the Congressional Review Act was passed in 1996. If I recall correctly, it had significant support on both sides of the aisle. And President Clinton signed it.

Mr. MCGARITY. That is correct, sir.

Mr. OSE. The difference between the Congressional Review Act and the legislative vetoes that have been previously attempted, you have characterized as the Congressional Review Act, requires the President's participation, if you will, in the final determination.

Mr. MCGARITY. Right. It's the presentment to the President which is required by the Constitution.

Mr. OSE. So there is nothing in your testimony that we might construe as being adverse to the existence of the Congressional Review Act. There might be differences of opinion as to when and how to use it, but you are not suggesting any challenges to its underlying merit or authenticity.

Mr. MCGARITY. I certainly don't challenge its authenticity. I think it is a constitutional statute.

Mr. OSE. I want to ask you about the temporary suspension issue of a rule. In a previous case before the court of appeals in D.C., that being *Public Citizen v. Department of Health and Human Services*, the court upheld a trial court's findings that FDA's Food and Drug Administration temporary suspension of the rule's effective date pursuant to President Reagan's regulatory Executive Order 12291, which was announced without notice and public comment, that the temporary suspension does not violate the Administrative Procedure Act because it was temporary and allowed the new FDA commissioner an opportunity to review a pilot program. Are you familiar with this?

Mr. MCGARITY. Yes, I know the case. I don't have it before me, but I am familiar with it.

Mr. OSE. From your recollection, do you concur or disagree that the temporary suspension of a rule is allowed?

Mr. MCGARITY. A temporary suspension of a final rule is a rule itself and must be accomplished through rulemaking. It is allowed if one goes through the proper procedures.

Mr. OSE. Which would be the exemptions and what have you?

Mr. MCGARITY. Either one can be exempted from section 553 or one needs to go through notice and comment, yes.

Mr. OSE. So under this case before the D.C. Court of Appeals, apparently the court made a determination that the exemption was valid. As I read your written testimony last night, the boilerplate language, that is your language, your words, I should say, is not sufficient to merit an exemption under this case law.

Mr. MCGARITY. That's right. What we have is boilerplate, literally the same language for 60 regulations, and it's hard for me to believe that's a considered analysis in the case of each regulation that there's good cause, which I think is the exemption that is involved in *Public Citizen*.

Mr. OSE. OK. I found your written testimony highly informative and I want to thank you for that. I may agree with it or disagree with it, but I appreciated your presentation of your remarks and I was much more knowledgeable after having read it than I was before, and I appreciate that.

Mr. MCGARITY. Thank you very much.

Mr. OSE. However, I do want to go back to one of your initial statements to Mr. Tierney, and that is your respect for congressional discretion in setting policy. Going back to I think the Federalist Papers, or even before that, I think you will find wide agreement here that it is Congress that should set policy and the executive branch implement it.

Mr. MCGARITY. That's not always the case among my colleagues in academia who sometimes think the courts ought to be having more than that. But I was a constituent of Mr. Brooks up here for many years.

Mr. OSE. We struggle with it here.

Mr. Otter for 5 minutes.

Mr. OTTER. Thank you very much, Mr. Chairman.

Mr. Hayes, would you tell me what is the cheapest transportation for your farm products? What's the cheapest transportation other than throwing it? What is the cheapest transportation to get your product to the world marketplace?

Mr. HAYES. For the entire State of Idaho, I would have to say the cheapest transportation is our barge network on the river.

Mr. OTTER. Why is that?

Mr. HAYES. I think it's because they can move large volumes of grain in an expedient manner and be able to reach the Portland market as economically sound as they can.

Now, we have a little problem with that from southeastern Idaho, hitting the port of Lewiston. However, 30 percent of our grain out of southeastern Idaho goes down the river through the port of Lewiston.

Mr. OTTER. What is 30 percent of the grain? Give me that tonnage.

Mr. HAYES. I can't do that, I'm sorry. The figure is not in my mind.

Mr. OTTER. Would 168,000 of soft white wheat be reasonable that goes through?

Mr. HAYES. Oh, I'm sure, yes.

Mr. OTTER. All right.

Ms. Buccino, in your organization—you are here for your organization?

Ms. BUCCINO. Yes.

Mr. OTTER. What is your organization's position on the removal of the dams in the four upper Snake River dams?

Ms. BUCCINO. That, I'm personally not aware of. There are people in our West Coast offices that work on that issue, so I am afraid I will not be able to answer that question directly.

Mr. OTTER. So you are normally not familiar with what happens out on the West Coast.

Ms. BUCCINO. That's not true, but there are different substantive areas that we each work in, and we are working in a lot of different

areas and there has been plenty to keep me busy here in Washington, so that's what I have been focusing on recently.

Mr. OTTER. For the record, let me state that your organization does support the removal of the four Snake River dams on the lower Snake. And the reason I bring this up is because it seems to me that your position on the diesel fuel and your organization's position on the diesel fuel is inconsistent with your position on the removal of the dams, as testified by Mr. Hayes.

In fact, I know the figures pretty well, but I want them for a matter of record. In order to take 1 ton of wheat from Lewiston, ID 514 miles down river to Vancouver, WA and then load it onto an ocean-going vessel for shipment to Taipei, it takes 1 gallon of diesel fuel. Now, to get that same ton of wheat or grain down river on a train, you would only get it 202 miles. But worst off, on a truck, the very target of this whole diesel rule, you would only get it 59 miles. One ton of wheat 59 miles, not 514 as is the case.

The other question I would have relative to your organization's position, do you suppose that there is any connection in your testimony here today in your position and your organization's position on these issues relative to funding that was received by your organization from the Federal Government for those very issues?

Ms. BUCCINO. I disagree with that contention. We're a nonprofit organization. We represent our membership, which is over 400,000 across the country; and we advocate positions that we believe are in the public interest based on the science regarding health effects and also the various cost-effectiveness analyses.

I would actually like to take this opportunity to introduce into the record a document related to the wild forest protection plan which people have referred to as the roadless rule. This is a report by NRDC called End of the Road, but it actually is a summary of the scientific—independent scientific research that's been done on the adverse ecological impacts of logging and road building in the national forests.

I actually would urge members, when you're evaluating the rules that have been discussed today, not just to look at the limited amount of material you've collected today, whether it's the public interest comments submitted by the Mercatus Center or NRDC's documents but to evaluate the administrative—the complete administrative records that were collected over the years of rule-making that went into these protections.

Mr. OTTER. Thank you very much, Ms. Buccino; and thank you, Mr. Chairman.

I just would close in stating that the same organization, the National Resources Defense Council, has taken a pretty firm position in favor of campaign reform; and it did receive—because they believe that votes follow money. And, they did receive \$2.5 million in Federal contract awards from 1998 to 2000 for supporting and spreading the success story for the Department of Energy on refrigerators, washing machines and air conditioners and heat pumps, is now saying that \$2.5 million does not color the testimony that we've received here today. I would suggest that the organization can't have it both ways.

Thank you, Mr. Chairman.

Mr. OSE. The document you held up we will enter into the record without objection.

Ms. BUCCINO. Yes. Thank you.

Mr. OSE. I think we're close to the end here. I do have one question.

Ms. Buccino, we had earlier testimony I think from Dr. Nelson about the process that the Forest Service used in finalizing its Environmental Impact Statement on the roadless policy. Embedded in the document were comments about the roadless rule process contradicting past emphasis on collaboration, and I'm trying to reconcile that. Because your comments have been somewhat different. Can you provide some feedback on that?

Ms. BUCCINO. I think what that reference is to the collaborative process is referring to the Forest Service management plans that are developed for each individual national forest. Nothing in the new forest protection plan does away with that process or—those plans are moving forward. The idea is that the guidance and the protections that are in this recent protection plan are to guide development of those forest plans. It's important to remember the extensive public process that I emphasized, and I do think it's fair to characterize it as the most ever for a rulemaking process that went into the new forest protection plan that was recently announced.

Mr. OSE. If I might just—I don't want to argue with you and debate about it. I want to think about what you have to say. I'm just trying to reconcile what the Forest Service imbedded in its environmental document with what may have happened, and I'm frankly a little bit confused, given the testimony.

Mr. Tierney, do you have anything to add?

Mr. TIERNEY. I don't.

Mr. OSE. I want to thank the witnesses for appearing today. We appreciate your testimony both written and oral. It was highly educational. And with that—one other thing. We're going to leave the record open for 10 days. So if you have something you want to submit that would be fine.

Again, thank you for coming. We're adjourned.

[Whereupon, at 12:03 p.m., the subcommittee was adjourned.]

[NOTE.—Various publications from the "Journal of Labor Research, Volume XXII, No. 1, Winter 2001," may be found in subcommittee files.]

[Additional information submitted for the hearing record follows:]

Statement of U.S. Representative C.L. "Butch" Otter
House Subcommittee on Energy Policy, Natural Resources & Regulatory Affairs
Hearing on Congressional Review Act
March 27, 2001

Mr. OTTER. Thank you, Mr. Chairman, for moving quickly to call this important hearing, which affects so many of my constituents in Idaho, as well as the rest of the nation. One of the reasons I ran for Congress is that I believe strongly that too many of the previous Administration's regulations and rulemaking were having a devastating impact over the lives of millions of American citizens. Congress does more than pass new laws. Congress also has oversight responsibility--it is the only "check" when one of the other branches of the federal government oversteps its legal authority. The Congressional Review Act is an important tool to safeguard against unelected federal bureaucrats who have agendas to pass rules without regard to their costs or benefits.

I joined a bipartisan majority in the House several weeks ago in affirming the importance of the Congressional Review Act. We voted to disapprove of the Clinton Administration's proposed ergonomics rule--a rule that would have established stringent new requirements on businesses, regardless of their size or the nature of their work. This regulation would have forced employers to pay 90 percent of workers' pay in the event of repetitive stress, regardless of whether they had been reassigned to different duties or were not working at all. The new unemployment benefits provided by the regulation would have harmed numerous businesses and slowed our vulnerable economy. It would have particularly hurt small businesses in Idaho. Laborers who harvest potatoes, apples or other commodities would have lost their jobs.

I am very disturbed by many other "midnight" regulations that the Clinton Administration enacted into law just before leaving office--particularly the Environmental Protection Agency's diesel sulfur standards and the U.S. Forest Service's forest roadless policy. The EPA diesel rule would require a 97 percent reduction in sulfur from today's level in less than five years. The rule was enacted without any analysis of how it would impact the supply of diesel fuel that is necessary to operate farm equipment, power trucks or trains to haul grain, or even power generators that are required to operate facilities during electricity shortages. Enacting this rule would mean that northeastern states could face shortages of diesel fuel up to 12 percent, and in Idaho and other western states, shortages as much as 37 percent.

Diesel shortages should be of particular concern to our friends in California, who have faced a spate of rolling blackouts and electricity rate increases, and water shortages. I am dismayed that the California Trucking Association would express any support for such a rule. They are a lonely voice. Some 280 national and state organizations, including the Motor Transport Association of Connecticut, the Massachusetts Oil and Heat Council, the New York State Motor Truck Association, the Ohio Trucking Association, the Chicago Trucking Association, have voiced strong concerns about their ability to transport people, distribute goods, and provide other services across our great nation.

The National Resources Defense Council is here today testifying in favor of this rule. They and numerous other environmental groups are also on record supporting the removal of four hydroelectric dams on the Snake River. Proponents of dam removal claim that the millions of tons of grain now transported by barge along the Columbia and Snake Rivers each year would be replaced by diesel trucks or rail transportation. Perhaps they can help me and Mr. Evan Hayes, a southeastern Idaho wheat farmer understand how these two policies can be reconciled when river navigation is the least expensive, most fuel efficient, and environmentally cleanest mode of transportation for wheat and grain commodities. Forcing more diesel trucks onto the road would consume nearly ten times the amount of gasoline currently used by river barges in the region. One ton of cargo can be transported 514 miles by barge on just one gallon of fuel. By comparison, one ton of cargo can be moved only 59 miles on one gallon of fuel by truck. It would accomplish the opposite of our goals to improve the environment and become more energy efficient--particularly in a time of energy crisis in the West.

Finally, I am deeply concerned about the devastating impacts that the Clinton forest roadless policy has had and will continue to have on my constituents in Idaho. Valley County Commissioner Terry Gestrin is here today to represent how devastating the forest roadless rule is for people in Idaho. The Payette and Boise National Forests comprise over 4.5 million acres, a large share of which is in Valley County. Of that land, there are significant portions that the Forest Service has classified as "high risk" to catastrophic fire, insect infestation and disease. This is on top of the 7 million acres of public and private land that burned last summer and fall. The roadless initiative has caused a significant reduction of timber harvest and the relocation of major economic industries in Idaho and other states. The roadless initiative will close schools, shut down mills, eliminate access for recreational activities and prevent efforts to keep communities safe from future devastating fires.

Ironically, those who favor the roadless rule often point to it as a necessary policy to protect endangered species. Yet, entire watersheds and land where endangered species live were destroyed by fires--fires that could have been prevented through better management and access. The roadless initiative would also prevent efforts to explore potentially rich sources of oil and natural gas supplies needed to decrease dependence on foreign oil and ease our nation's growing energy crisis. The rule is currently being challenged in court by the State of Idaho and other entities, and I am hopeful that the testimony today will lay a further record of the problems created by the proposal.

I look forward to hearing from the witnesses here today and appreciate the opportunity to review the questionable substance of these rules, as well as how they were enacted.

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 GEORGE MASON UNIVERSITY

April 4, 2001

Barbara Kahlow
 Assistant Staff Director
 Subcommittee on Regulatory Affairs
 House Government Reform Committee
 B-377 Rayburn House Office Building
 Wash., DC 20515.

Barbara:

As requested by Congressman Ose, please accept this supplemental information for the record of the hearing on Tuesday, March 27, 2001, entitled "*A Rush to Regulate – the Congressional Review Act and Recent Federal Regulation.*"

A. Mercatus Center Public Interest Comments and two page summaries:

- EPA's Heavy-Duty Engine and Vehicle Emission Standards and Highway Diesel Fuel Sulfur Control (RSP 2000-16)
- USDA's Forest Service Roadless Area Conservation Draft Environmental Impact Statement (RSP 2000-14)
- HHS's Standards for Privacy of Individually Identifiable Health Information (RSP 2000-5)
- EPA's National Primary Drinking Water Regulations: Arsenic Rule (RSP 2000-18)
- EPA's Toxic Release Inventory Reporting of Lead and Lead Compounds (RSP 1999-13)
- EPA's Proposed changes to the Total Maximum Daily Load (TMDL) Program and to the National Pollution Discharge Elimination (NPDES) and Water Quality Standards (WQS) Regulations (RSP 2000-1)
- DOL/OSHA's Proposed Ergonomics Program Standard (RSP 2000-6)
- DOE's Clothes Washer Energy Conservation Standards (RSP 2000-22)
- DOE's Clothes Washer Energy Conservation Standards-Addendum (RSP 2000-23)
- DOE's Energy Conservation Standards for Residential Central Air Conditioners and Heat Pumps (RSP 2000-24)
- Changes to Federal Acquisition Regulation and Blacklisting: Regulation of the Week

B. Dudley, Susan and Diana Rowen. "*Overstressing Business: OSHA and Ergonomics.*" National Legal Center for the Public Interest, Volume 3, Number 10, October 1999.

C. Lewis, Denise Riedel, et. al. "*Drinking Water Arsenic in Utah: A Cohort Mortality Study.*" Environmental Health Perspectives. Volume 107, Number 5, May 1999.

D. Off prints from the Journal of Labor Research. Volume XXII, Number 1, Winter 2001

Thank you again for the invitation to testify before your subcommittee and your interest in the subject. If we can be of any further assistance, please contact us.

A handwritten signature in cursive script that reads "Wendy Lee Gramm". The signature is written in black ink and is positioned above the typed name and title.

Dr. Wendy Lee Gramm
Director, Regulatory Studies Program and
Distinguished Senior Fellow
Mercatus Center, George Mason University

Regulation of the Week: OSHA's Ergonomics Program Rule

Rule Summary:

The Occupational Safety and Health Administration is poised to issue a rule that would mandate the establishment of ergonomics programs to attempt to eliminate or control musculoskeletal disorder (MSD) hazards. OSHA defines MSDs as "disorders of the muscles, nerves, tendons, ligaments, joints, cartilage, blood vessels, and spinal discs, in the following areas of the body: neck, shoulder, elbow, forearm, wrist, hand, abdomen (hernia only), back, knee, ankle, and foot," including tendonitis and low back pain.

Employers would be responsible for a variety of symptoms that may or may not be caused by the workplace. For example, if shoveling snow on a weekend caused some pain or stiffness, those symptoms would be an "MSD incident" for which employers would be responsible if a job "significantly aggravated" them and they resulted in restricted work activity. Employers (with the exception of those in the maritime, construction, agriculture, and railroad industries) must implement a six-element "ergonomics program," which could require unlimited attempts to "control" or "eliminate" the MSD hazard, as well as paid leave for up to ninety days.

Facts:

- Despite the comprehensive requirements the rules would impose, OSHA's approach fails to address the fundamental problem of MSDs in the workplace: lack of information on causation and on viable, cost-effective solutions.
- OSHA's proposal mandates elaborate procedures and employer obligations without contributing to the body of knowledge about the causes of and solutions to work-related MSDs.
- OSHA's definitions of MSDs and ergonomic risks are so broad that employers are likely to be held liable for injuries or symptoms outside their control, such as muscle aches or injuries resulting from non-work-related activities.
- MSDs have declined in recent years, as high worker's compensation claims and a growing awareness among employees and employers have fueled ergonomics programs at many companies. Government data indicate that reported MSDs have fallen by 4 percent per year since 1994.
- The Mercatus Center at George Mason University conservatively estimates that the rule will cost Americans (as consumers and workers) \$5.8 billion every year without offering benefits over and above those that would be achieved in the absence of the standard. Based on new data from OSHA, the Employment Policy Foundation suggests that compliance with the rule could cost over \$125 billion per year.
- OSHA has received more public comment on this proposal (over 19,000 separate documents) than on any prior rule in OSHA's history. Yet OSHA has allowed the least amount of time from proposal to final rule of any rulemaking issued over the last 12 years (with the

exception of a revision to the non-controversial dip tank standard). Though required by law to review the entire docket and consider public comment, OSHA issued the final rule just three months after the docket for public comment closed.

- OSHA's preliminary economic analysis estimated huge benefits—over \$9 billion per year—from the imposition of these requirements, but its estimates are fraught with problems, including the unrealistic assumption that MSDs would not decline in the absence of the rule. In fact, MSDs have declined at a faster rate (an average of 4 percent per year) since 1994, driven purely by market forces, than OSHA predicts they will decline over the next decade (an average of 3 percent per year) with its extensive rule. If present trends continue, market forces are likely to produce better results than OSHA's proposal.
- The costs associated with MSDs are real, but the private sector already internalizes those costs. OSHA has offered no evidence that employers and employees do not have adequate incentives to provide the appropriate level of workplace protection against MSD hazards. On the contrary, OSHA provides evidence that (1) MSDs impose significant costs on employers, which should offer ample incentives to reduce their occurrence, (2) employers currently are, in fact, developing programs and other initiatives to reduce MSDs, and (3) MSDs began declining in 1994, and have fallen an average of 4 percent per year since then.
- The federal Small Business Administration estimated that businesses will incur \$8.45 billion or more just to establish OSHA's basic program. (This is in sharp contrast to OSHA's estimate of \$107 million per year for the basic program.) They will likely have to pay expensive ergonomic and legal consultants to help them comply. The hazard identification and medical management requirements are likely to be particularly burdensome, since changing job characteristics or granting up to 90 days of paid leave to a single employee can have significant impacts on a small company's viability.
- Employers already have strong incentives to reduce MSDs, so OSHA's mandates to do so are, at best, redundant. More likely, the procedural requirements and hierarchy of control measures will discourage individual responsibility and hinder development of creative solutions.
- Rather than mandating that all workplaces adopt a specified, generic framework, OSHA could do more to reduce the risk of MSDs by facilitating continued research and disseminating the results of that research and experience to all employers.
- OSHA should collect information on the nature and extent of MSDs, including a baseline of the current level of MSDs (work- and non-work-related) and the amount and types of ergonomic activity, including remedies, currently being undertaken by employers. Such a database could offer valuable insights into the causes of, and effectiveness of solutions to, MSDs, and provide valuable information about how to remedy problems. It would also allow OSHA and employers to target real workplace problems, rather than attempt to address the all-encompassing list of symptoms covered by the definition in the proposal.

For more information, contact Laura Hill at 703-993-4945 or loquinn@gmu.edu. Download the Mercatus Center public interest comments at www.mercatus.org.

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REGULATORY STUDIES PROGRAM

Comments on:

OSHA's Proposed Ergonomics Program Standard

Submitted to:

*Department of Labor
Occupational Safety and Health Administration*

February 25, 2000

"A wise and frugal government, which shall restrain men from injuring one another, which shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government."

Thomas Jefferson, from his "First Annual Message," 1801

RSP 2000-6

MERCATUS CENTER
REGULATORY STUDIES PROGRAM

Public Interest Comment Series:

OSHA's Proposed Ergonomics Program Standard

Agency:	Department of Labor, Occupational Safety and Health Administration
Rulemaking:	29 CFR 1910 – Ergonomics Program; Proposed Rule
Stated Purpose:	“[T]o address the significant risk of work-related musculo-skeletal disorders (MSDs) confronting employees in various jobs in general industry workplaces.”
Submitted February 25, 2000	RSP 2000-6

Summary of RSP Comment:

Recognizing that work-related musculo-skeletal disorders (MSDs) impose real costs on employers and employees, OSHA proposes to mandate the establishment of ergonomics programs to eliminate or control MSD hazards. However, OSHA's approach fails to address the fundamental cause of MSDs in the workplace – lack of information on viable, cost-effective solutions. OSHA has offered no evidence that employers and employees do not have adequate incentives to provide the optimal level of workplace protection against MSD hazards. On the contrary, OSHA provides evidence that (1) MSDs impose significant costs on employers (which should offer ample incentives to reduce their occurrence), (2) employers are, in fact, developing programs and other initiatives to reduce MSDs, and (3) MSDs are declining.

OSHA's estimate that its proposed program rule will offer net social benefits of \$4.9 billion per year is based on faulty analysis and assumptions, and significantly overstates the likely benefits of the proposal. Our sensitivity analysis suggests that the rule would produce annualized benefits ranging from \$0 to \$2.3 billion, and that annualized costs, conservatively estimated, could range from \$3.0 billion to \$11.0 billion. Even these ranges are likely to overstate benefits and understate costs because they rely on OSHA's framework and assumptions and may understate the effect of the job control and work restriction provisions, in particular. Our conservative best (or most likely) estimate is that the rule will impose annualized net costs (over and above benefits) of \$5.8 billion.

Not only are OSHA's mandates costly and unnecessary, given private incentives, but the procedural requirements and hierarchy of control measures are likely to discourage individual responsibility and hinder innovation into creative solutions. Rather than mandating that all workplaces adopt a framework that is not yet demonstrated, OSHA could do more to reduce the risk of MSDs by facilitating continued research and disseminating the results of that research and experience to employers.

Public Interest Comment

**The Occupational Safety And Health Administration's
Proposed Ergonomics Program Standard¹**

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of regulations and their impacts on society. As part of its mission, RSP produces careful and independent analyses of agency rulemaking proposals from the perspective of the public interest. Thus, the program's comments on the Occupational Safety and Health Administration's proposed ergonomics program standard do not represent the views of any particular affected party or special interest group, but are designed to protect the interests of American citizens.

RSP analyzed OSHA's draft standard in June 1999. That analysis formed the basis for a monograph, published by the National Legal Center for the Public Interest, which reviewed the proposed standard that OSHA published in November 1999.² Rather than repeating the important issues raised there, we have enclosed the monograph, and urge OSHA to consider the recommendations made therein. The analysis provided here is intended to supplement our earlier comments. It focuses on the economic analysis OSHA prepared for the proposal and the benefits and costs the rule may be expected to confer on American citizens.

This comment first summarizes OSHA's proposed ergonomics program standard, and reviews the concerns raised in RSP's earlier work, that neither scientific knowledge nor market experience support the proposed approach. Sections III and IV examine OSHA's estimates of the benefits and costs of the proposal and highlight key assumptions underlying those estimates. These sections also examine the sensitivity of OSHA's benefits and costs to these key assumptions to develop a range of plausible benefit and cost estimates. This analysis reveals that key OSHA assumptions are seriously flawed. The resulting estimated net benefit figure of \$4.9 billion per year is very sensitive to the assumptions in OSHA's economic analysis, and plausible alternative assumptions suggest that the rule would actually impose significant net *costs* on Americans of as much as \$11.9 billion per year. Based on this analysis, RSP recommends that OSHA reject its proposed approach in favor of alternatives that address the fundamental reasons for MSDs in the workplace – lack of information on their causes and remedies.

I. OSHA's Proposed Standard Would Require a Six-Element Ergonomics Program.

The goal of OSHA's proposed ergonomics program rule is to "address the significant risk of work-related musculoskeletal disorders (MSDs) confronting employees in various jobs in general

¹ Prepared by Susan E. Dudley, Senior Research Fellow, and Hayden G. Bryan, Consulting Economist, Regulatory Studies Program, Mercatus Center, George Mason University.

² Regulatory Studies Program, Mercatus Center, George Mason University, Susan E. Dudley and Diana Rowen, "Overstressing Business: OSHA and Ergonomics," *Briefly... Perspectives on Legislation, Regulation, and Litigation*, James V. DeLong, ed. National Legal Center for the Public Interest. Vol. 3, Number 10. (1999).

industry workplaces.”³ It would apply to all industries except the construction, agriculture, and maritime industries. OSHA proposes a “tiered” approach, which would require employers whose employees are engaged in manual handling or manufacturing operations to implement a “basic program.” If an “OSHA recordable MSD” were identified at any establishment (whether or not it involves manual handling or manufacturing jobs), it would trigger a “full program.”

The full ergonomics program comprises six elements, as described in Table 1.

For establishments with manual handling or manufacturing jobs that have not experienced an OSHA recordable MSD, the basic program entails only the first two of these six elements. The proposal also offers a “quick fix” exception to the full program requirement, if an employer can “eliminate MSD hazards” by implementing controls that are effective within 120 days after the MSD is identified, and remain effective for 36 months. If the quick fix controls are effective, the employer would not have to implement a full ergonomics program.

OSHA defines MSDs as “[i]njuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs.” It lists 12 examples of MSDs:

- | | |
|----------------------------|----------------------------|
| 1. Carpal tunnel syndrome; | 7. Epicondylitis; |
| 2. Rotator cuff syndrome; | 8. Tendinitis; |
| 3. De Quervain’s disease; | 9. Raynaud’s phenomenon; |
| 4. Trigger finger; | 10. Carpet layers knee; |
| 5. Tarsal tunnel syndrome; | 11. Herniated spinal disc; |
| 6. Sciatica; | 12. Low back pain. |

Inquiries to OSHA reveal that it has no description or definition of these conditions. Nonetheless, Appendix 2 of the enclosed monograph attempts to identify and describe common MSDs, and offer possible causes, and commonly recommended preventive measures and treatments.

OSHA also lists the following symptoms that indicate an employee may be developing an MSD. These include:

- | | |
|--------------|------------------|
| 1. Numbness; | 4. Tingling; |
| 2. Burning; | 5. Cramping; and |
| 3. Pain; | 6. Stiffness. |

An MSD is an OSHA recordable MSD when “exposure at work caused or contributed to the MSD or aggravated a pre-existing MSD,” and results in either a diagnosis by a health care practitioner, a positive physical finding, or a symptom (as listed above) combined with medical treatment, lost work day, restricted work activity, or transfer or rotation to another job.

³ Preamble to proposed rule, 64 FR 65768.

Table 1: OSHA's Six-Element Ergonomics Program

Management leadership and employee participation:	Employees must have means to report problems, and must be involved in hazard analysis and control. Managers must be informed that they have responsibilities. Someone must be the point person to respond to problems. Communications with employees must be established.
Hazard identification and information:	There must be a system for employees to report signs and symptoms of MSDs. Reports must be checked. Records must be reviewed for indications of hazards. Employees must be informed of hazards.
Job hazard analysis and control:	Problem jobs must be analyzed and MSD hazards eliminated or controlled to the extent feasible. ⁴ Jobs that are similar to the problem job must also be analyzed, and the ergonomics program extended to them. In controlling the hazards, engineering controls are the preferred method, followed by work practice and administrative controls. Any combination may be used. Personal protective equipment may be used to supplement other controls. It may not be used alone unless other approaches are not feasible. Engineering controls include modifications in work stations, tools, equipment, materials, or processes. Administrative controls include employee rotation, changing the task, or changing the pace. The definition of work practice controls is "procedures and methods for safe work," as exemplified by training in proper postures or appropriate tools, or "employer-authorized micro breaks."
Training:	Employees in problem jobs and their supervisors must receive training at least every three years.
MSD management:	Any employee with an MSD must be provided with access to prompt and effective evaluation, treatment and follow-up by health care providers. MSD management also includes any work restrictions recommended by the health care provider. All must be supplied at no cost to the employee. Work restrictions must be provided until the employee recovers, the job is re-engineered, or six months have passed. Workers on restricted duty must receive full pay; workers removed from the workplace must receive 90 percent of full pay. Both must get full benefits. Workers' compensation payments can be deducted.
Program evaluation:	The program must be evaluated at least every three years, based on specific measures of activities and outcomes.

⁴ The meaning of "feasible" in OSHA rules is *not* necessarily "practical" or "reasonable." In previous rulings, the word has been interpreted to mean all measures short of actually bankrupting the employer. *See, e.g., International Union, UAW v. OSHA*, 938 F.2d 1310, 1317 (D.C. Cir. 1991).

II. Neither Scientific Knowledge nor Market Experience Justify the Proposed Approach.

As discussed in the enclosed monograph, OSHA's evidence supports the conclusion that employers and employees already have strong incentives to provide protection against MSD hazards. OSHA's analysis suggests that MSDs impose very large costs on employers and workers. It also notes that many employers are taking voluntary initiatives to reduce MSDs, and in fact—BLS statistics reveal that MSDs are declining, lending empirical support to the expectation that market incentives will drive a decline in these disorders. The great hindrance to employer efforts to reduce MSDs is not lack of motivation or willingness, but lack of knowledge about the causes of and solutions to MSDs. Yet, lack of knowledge is not addressed at all by OSHA's regulatory approach. Instead, the proposal would mandate certain procedural activities without either contributing to the body of knowledge about the causes and solutions for MSDs or reducing the uncertainties that permeate the field.⁵

Ergonomic injuries have been declining since 1994, primarily due to reforms in state workers' compensation programs and industry initiatives (driven by accident costs, and better information on workplace remedies).⁶ In its notice of proposed rulemaking, for example, OSHA relies upon a report from a U.S. General Accounting Office study of voluntary programs to bolster its case for regulation:

The General Accounting Office found that successful programs were based on a core set of elements: management commitment and employee involvement, identification of problem jobs, development of solutions, training and education, and medical management. Programs based on these elements showed reductions in injuries, illnesses, lost work days, and associated worker compensation costs. Qualitative evidence from these case studies showed improvements in worker morale, productivity and product quality.⁷

While the GAO report offers evidence that *voluntary* programs are rational and cost-effective, it does not follow that mandatory requirements on all of general industry will be cost-effective. In fact, the GAO concludes:

Our work also found that these facilities' programs included all of the core elements highlighted in the literature and by experts as key to an effective program—management commitment, employee involvement, identification of problem jobs, analyzing and developing controls for problem jobs, training and education, and medical management—with the elements customized to account for local conditions. Uncertainties continue to exist about particular aspects of MSDs that may complicate regulatory action

⁵ See enclosed NLCPI *Briefly...* for a fuller discussion.

⁶ Hugh Conway & Jens Svenson, "Occupational Injury and Illness Rates, 1992-1996: Why They Fell, *Monthly Labor Review*, Nov. 1996, at 36-58.

⁷ 64 FR 65874.

by OSHA, and *our analysis does not allow us to draw any conclusions about whether a standard for MSDs is merited* [emphasis added].⁸

In drafting its notice of rulemaking, OSHA has cited many cases of successful ergonomic interventions for MSD injuries in the private sector. These too, however, are examples of voluntary initiatives in cases where specific types of interventions made economic sense at that site and at that time given the information available to management, workers, and their consultants. These same interventions may not be practical under all circumstances.

Mistakenly, OSHA relies on examples of voluntary programs “customized to local conditions” to support the need for centrally directed solutions. The agency uses proof of the functioning of the market in producing economically sound and cost-effective solutions to support a regulation that may not be economically feasible for all firms in general industry.

Cost as well as effectiveness will dictate a variety of solutions for problem jobs, yet variety is not fostered in a regulatory or legalistic environment. The need for conformity will eventually drive the ergonomics rule to limited numbers of solutions. In fact, OSHA has already previewed its concerns in this regard. In discussing the possibility of other programs approved outside the proposed rule, OSHA notes:

[Not permitting them] will also avoid the administrative and compliance problems that would arise if OSHA permitted employers to establish programs that differ from the one in the standard even after the effective date.⁹

Moreover, this tendency toward on-size-fits-all, no doubt, eventually will affect even those ergonomics programs grandfathered-in by the proposed rule.

III. OSHA’s Benefit Estimates Benefits are Very Sensitive to Key Assumptions and Significantly Overstate Most Likely Benefits.

OSHA has prepared a preliminary economic analysis (EA) to estimate the benefits and costs of implementing the proposed ergonomics program rule. The EA provides a point estimate of the average annual benefits (\$9.1 billion) and costs (\$4.2 billion) of the proposal over the next ten years. These estimates are based on assumptions about the number of cases expected over the period and the benefits and costs of controlling those cases.

To test the sensitivity of those point estimates presented by OSHA, we have carefully reviewed the underlying analysis and assumptions. Where available information permitted, we have substituted what we consider more plausible assumptions, and we conducted sensitivity analysis on those assumptions. This evaluation and sensitivity analysis has produced a range for both costs and benefits, as well as best estimates¹⁰ of the benefits and costs of implementing the ergonomics program standard which differ significantly from OSHA’s.

⁸ GAO, p. 41.

⁹ 64 FR 65792.

¹⁰ “Best estimate” refers to the most likely outcome.

A. Review of OSHA's approach

OSHA assumes that the annualized benefits of its proposed ergonomics program standard over the next 10 years will be \$9.1 billion per year.¹¹ This benefit estimate actually reflects OSHA's estimates of MSD-related *costs* that would be avoided by the rule. OSHA does not estimate the benefits (or avoided costs) associated with individual program elements required by the rule, but rather assumes that the rule will eliminate over 3 million MSDs over 10 years at an avoided cost of \$22,546 per MSD.¹²

Thus, the two key components of OSHA's benefit estimate are (1) number of workplace MSDs avoided by the rule and (2) the value per MSD avoided. To estimate the potential effectiveness of an ergonomics regulation at eliminating workplace MSDs, OSHA has relied on case studies and success rates from actual ergonomics programs and workplace interventions. Its benefits analysis assumes approximately 1.9 million workplace MSDs per year in the absence of the rule. This figure would decline each year as a result of the rule, giving a 26 percent reduction in cases (or over 3 million MSDs) over 10 years of implementation.

OSHA derives the \$22,546 per MSD figure by summing four categories of avoided cost: lost production, medical costs, insurance administration costs, and indirect costs. Each of these four components is based on an estimate that the average workers' compensation claim for an MSD is \$8,000.¹³

- OSHA's estimate of the **lost production category** of benefits from the proposed regulation includes
 - (1) the value of workers' compensation indemnity payments (61.5 percent of the \$8,000);
 - (2) the difference between the value of the indemnity payments and the worker's after-tax income, based on studies comparing workers' compensation payments with after-tax income;
 - (3) the estimated value of taxes, based on the typical value of taxes as a percentage of after-tax income (30 percent); and

¹¹ OSHA estimates \$69.6 billion over 10 years by simply summing expected annual avoided costs in each year. It then calculates an annualized cost (\$9.1 billion) using a discount factor that it reports is based on a discount rate of 7 percent per year.

¹² A more informative approach would be to examine the incremental benefits of each component of the rule, because that would identify for policy-makers and the public which components are expected to offer net benefits, and which are not.

¹³ OSHA, "Preliminary Economic and Regulatory Flexibility Analysis," (EA) Chapter IV. OSHA bases this \$8,000 figure on Webster and Snook, 1994, who used data from 1989 for both low back pain-related injuries and upper extremity repetitive strain injuries. Barbara S. Webster, BSPT, and Stover H. Snook, Ph.D., "The Cost of Compensable Upper Extremity Cumulative Trauma Disorders," JOM 36, Number 7, July 1994. (OSHA Docket No. S777, Ex. 26-1286).

(4) the value of fringe benefits, based on data on employer costs for employee compensation (39 percent of pre-tax income).¹⁴ OSHA estimates lost productivity to be \$14,763 per MSD.

- **Medical costs** are the medical share of payments paid out by workers' compensation, which OSHA estimates at 31.5 percent of \$8,000, or \$3,080 per MSD claim.
- The agency estimates the **administrative cost** for insurers to administer claims would be 23.4 percent of the total value of claims, or \$1,872 per MSD claim.
- **Indirect costs** are the costs of work-related injuries that are borne by employers but not included in workers' compensation costs, including sick leave for periods shorter than the workers' compensation waiting period, losses in productivity for other workers, losses in production associated with the injured worker's return to work, and administrative costs other than those borne directly by the workers' compensation insurer. Based on a study of the indirect costs of injuries in the construction industry, OSHA estimates that these costs constitute 35.4 percent of the value of workers' compensation claims or \$2,832 per MSD.

B. RSP's lower bound estimate recognizes that MSDs are declining in the absence of OSHA's ergonomics program requirements.

A key variable in OSHA's estimate is the number of MSDs prevented by the rule, which depends on OSHA's assumptions regarding the baseline rate of MSDs in each SIC group, and the effectiveness of the proposed program rule at reducing those MSDs. OSHA implicitly assumes that, in the absence of its mandatory program standard, employers would undertake no further actions to reduce MSDs, and the level of MSDs would remain at the level reflected in 1996 BLS statistics. Yet, this contradicts the evidence OSHA presents throughout the preamble that voluntary efforts have reduced, and continue to reduce, MSDs in the workplace.

It also contradicts Bureau of Labor Statistics (BLS) data, which reveal that reported MSDs (using "repeat motion and over-exertion illness and injuries" as a proxy) have declined from 705,800 in 1994 to 626,000 in 1997 – an average decline of close to 4 percent per year. This decline probably reflects an increased attention on the part of employers to MSDs, as well as increased awareness as to their possible causes and remedies. As more information on ergonomic solutions becomes available, we would expect to see a continued decline in reported MSDs in the absence of the proposed rule.

Because it ignores the declining trend in MSDs, OSHA's baseline for the benefits analysis is likely to overstate the incidence of future MSDs in the absence of a standard.

Interestingly, OSHA predicts that the rule will reduce MSDs at an average rate of less than 3 percent per year (ranging from 7 percent in the first year to 1 percent in later years). This is a slower rate of decline than the historic trend. Reported MSDs have declined on average 4 percent per year since 1994, and they declined 3.2 percent between 1996 and 1997. If we assume that the market-induced decline in MSDs continues at 3 percent per year, which is slower

¹⁴ OSHA, "Preliminary Economic and Regulatory Flexibility Analysis," Chapter IV, p. 11.

than the rate observed since 1994, the market-based solution to resolving MSDs appears *more* effective than OSHA's regulatory solution.

These statistics reinforce our earlier observation that market forces are more likely to respond effectively to the legitimate and real costs of MSDs than OSHA's proposed program rule. They suggest that, while the program rule could impose significant costs (discussed in the next section), it is unlikely to produce any benefits beyond those that will occur without the rule, as employers and employees respond to market incentives.

Therefore, our lower bound, and best estimate, of the gross benefits of the program rule (over and above the benefits one would observe in the absence of the rule) is zero.

C. RSP's upper bound estimate reflects sensitivity analysis on the number of MSDs and value per case.

Projecting a decline in the rate of MSDs absent OSHA intervention is admittedly uncertain (though no more uncertain than predicting a decline with OSHA intervention). While our assumption that current trends will continue (at a slower rate) is more realistic than OSHA's assumption that we would see no further progress at reducing the incidence of MSDs absent the rule, for the upper bound of our sensitivity analysis we have accepted OSHA's assumption that baseline rates will remain at 1996 levels. However, OSHA's benefit estimate is still sensitive to other assumptions, which we address in this section.

OSHA estimates that for every MSD avoided by the rule, society will save \$22,546. This figure is OSHA's estimate of the full cost of MSDs that are serious enough to warrant workers' compensation benefits. It then applies the \$22,546 figure to an estimated number of MSDs that is three times the number of MSDs actually reported as resulting in a lost day of work in 1996.

Because OSHA's benefit estimate depends on its assumptions regarding (1) number of cases that will be avoided, and (2) the costs avoided per case, we examine its sensitivity to those assumptions.

1. Increased reporting under the rule could reflect two situations.

OSHA assumes for both its benefit and cost analyses that the reported incidence of MSDs that result in lost days of work (as reported in BLS surveys – 647,000 in 1996 and 626,000 in 1997) understates the actual rate of MSDs in the workplace. It adjusts the 1996 rate by a factor of three, which reflects the ratio of total workplace illnesses and injuries to workplace illnesses and injuries that result in a lost day of work. In making this adjustment, OSHA recognizes that the number of MSDs affected by the rule will be greater than the figure reported to BLS for several reasons. MSDs that do not result in any lost work will be reported and monitored. Also, OSHA believes that MSDs are currently underreported,¹⁵ and that the rule will encourage reporting.

¹⁵ OSHA's support for the notion that MSDs are underreported, however, depends heavily on data from the early 1980s, and the reporting of MSDs has increased exponentially since then.

In our cost and benefit estimates, we assume that OSHA's estimate of approximately 1.9 million MSDs is correct. We distinguish between two types of errors in MSD reporting, however. The first type, which we will call "false negative reports," occurs currently, when legitimate workplace MSDs go unreported. The second type, which we will call "false positive reports," occur when non-workplace MSDs or non-MSDs are reported as workplace MSDs.

For its benefit-cost analysis, OSHA implicitly assumes that current reporting of workplace MSDs (as captured in BLS statistics) reflects a significant amount of the first type of error, false negatives. Its benefit and cost analyses implicitly assume that false negative reports are the reason that BLS statistics are under-reported by a factor of 3. It also predicts that the proposed ergonomics rule, which will facilitate and encourage action to reduce MSDs (regardless of whether they are reported as having lost days of work), will correct for this error.

What OSHA does not consider in its analysis is that the program standard will also increase the other type of reporting errors – false positives. The increase in false positive reports could also be significant, due to the language of the rule:

- The rule defines OSHA-recordable MSDs broadly. For example, if shoveling snow on a weekend caused some pain or stiffness, those symptoms would be an OSHA recordable MSD if a job "aggravated" them and they resulted in restricted work activity.¹⁶
- The current checks on fraudulent reports (implicit in the workers' compensation system) will be largely eliminated. Employers, faced with a broad definition of MSDs, and a prohibition against "policies or practices that discourage employees from reporting MSDs signs or symptoms,"¹⁷ would find it difficult to distinguish legitimate MSDs from false claims.
- As the economic consequences of developing an MSD are reduced, employees may become more careless and take less individual responsibility to avoid motions and activities that could lead to lost days of work and (in the absence of the rule) lost pay.

The concept of different types of errors has implications for both the costs and benefits of the proposal. On the cost side, if false positive reports are as significant as false negative reports (and OSHA's estimate of the percentage of false negative errors is correct), we would expect to see an additional 67 percent increase in the costs of the proposal. On the other hand, while correcting for false negatives will result in social benefits (because previously unreported workplace MSDs will be addressed), expenditures on false positives will not. (At best, they would result in transfers from employers and consumers to the employees who receive the benefits required by the rule.)

We attempt to correct for OSHA's neglect of the possibility of false positives in our benefit and cost estimates. We have no information on the likely magnitude of each type of error. It is possible that the 1.2 million MSDs that OSHA assumes currently go unreported in the BLS data all reflect false negative reports, or that some of them reflect false positives. If they all reflected false negatives (i.e., they are real workplace MSDs that, for various reasons discussed in the preamble and RIA, have not to date been reported as resulting in at least one lost day of work),

¹⁶ Proposed rule, 64 FR 66077.

¹⁷ *Ibid.* 64 FR 66070.

then we would expect an additional increase in reporting as a result of false positive reports elicited by the rule. This would increase the cost of the rule.

For our sensitivity analysis, we assume that OSHA's estimated three-fold increase in reporting reflects both a correction of false negative reporting errors and an increase in false positive reporting errors. We have no data with which to distinguish between the two in our benefits analysis.¹⁸ For simplicity, we assume that half of OSHA's estimated 200 percent increase reflects reporting of workplace MSDs (as opposed to non-workplace MSDs or non-MSDs). In other words, we estimate a 100 percent increase in reporting of MSDs (over 1996 BLS statistics) upon implementation of the rule, due to correction of false negatives. This would suggest 1.2 million reported cases per year.

It is this 1.2 million figure that we use to derive our upper bound estimate of benefits. We assume that OSHA's prediction that reported MSDs will increase by a factor of three is correct, and that this factor reflects both (1) a reduction in false negatives and (2) an increase in false positives, in equal amounts. We do not attribute benefits to what we have labeled false positive reporting errors.

2. OSHA's value per case overstates average values.

The expected value per case avoided depends on the number and severity of cases that will be controlled under the rule. While there is no doubt that finding and fixing MSDs that have previously gone unreported has value, it is unlikely that the average value of those previously unknown MSDs is \$22,546 per case, as OSHA assumes. Indeed, this value per case is about equal to average annual income in the United States.¹⁹ Thus, OSHA suggests that experiencing an MSD (which, as defined, could be muscle pain or stiffness) is equivalent to losing a whole year of work. To understand why OSHA's estimated value per case seems so high, we examined the assumptions and data behind it.

OSHA's approach of estimating the gross income of employees who cannot work due to an MSD as a proxy for lost productivity appears reasonable. This value, as well as the other values

¹⁸ We did examine a study OSHA cites of workers' compensation claims, which found that for every ten percent increase in benefits, the number of workers' compensation claims increased by seven percent and the duration of claims increased by 16.8 percent. (Alan B. Krueger, "Incentive Effects on Workers' Compensation Insurance," *Journal of Public Economics*, 41 (1990), pp. 73-99.) One could assume that, due to the checks and balances implicit in the workers' compensation system, and based on OSHA's review of studies that indicate a small degree of fraudulent reporting on the part of employees in such claims, this percentage increase reflects a correction for false negatives. Data in OSHA's cost analysis suggest that the work restriction protection benefits offered by the rule would provide a 37 percent increase in wages over the indemnity portion of workers' compensation programs. Applying the 0.7 elasticity figure to this percentage increase implies that 26 percent more MSDs would be reported as a result of the increased compensation offered by the rule. If this reflects the universe of false negative reporting errors that would be eliminated by the proposal, it suggests a total universe of 815 thousand MSDs per year. This approach to distinguishing between workplace MSDs and non-workplace MSDs or non-MSDs is appealing because it is based on observed behavior in the workplace, however it may understate the frequency of false negative errors in the current system.

¹⁹ The \$22,546 is based on a 1989 study of workers' compensation claims. Mean income (total wages and salaries divided by total employed) in 1989 was roughly \$25,200 (i.e., \$2.65 trillion in 1989 wages and salaries payments divided by 105.2 million employed in 1989).

OSHA combines to estimate total costs of \$22,546 per MSD, all hinge on an average worker compensation claim of \$8,000. This figure is from a 1994 study by Webster and Snook.²⁰ Webster and Snook examined claims handled by Liberty Mutual Insurance Company in 45 states for upper extremity cumulative trauma disorders in 1989. They excluded claims not requiring medical or indemnity payments. They found that the mean cost per case for these upper extremity cumulative trauma disorders was \$8,070, however, they noted that the median cost per case was only \$824. They observe:

The large discrepancy between the mean and median indicates that upper extremity cumulative trauma costs are not evenly distributed, i.e., a few cases account for most of the costs. In this study, 25% of the cases accounted for 89% of the costs.²¹

The workers' compensation system currently focuses on the more severe workplace injuries, and these data illustrate that of those, the \$8,000 mean is dominated by the few most expensive cases. Seventy-five percent of the claims in the sample had mean costs of \$2,690 – or one-third of the mean OSHA uses, and fifty percent of the claims cost less than \$824 – one tenth of OSHA's estimate.

Even if the 6,067 workers' compensation cases covered by the study accurately reflect the distribution of costs associated with the 626,000 cases that are currently reported to BLS, the mean cost of one end of the distribution would not accurately reflect the mean costs associated with the larger number of MSDs that would benefit from the rule.²² Extrapolating the Webster and Snook distribution to the larger number of MSDs suggests that the mean will likely be even lower than the median observed in the sample. Because the ultimate distribution of MSDs that may benefit from the rule is uncertain, however, we conservatively use a mean of \$3,000 (which is higher than the mean of 75 percent of the Webster and Snook sample) for our sensitivity analysis.

3. RSP's Upper Bound Benefit Estimate

To be conservative in our benefits estimate, we substitute the \$3,000 per case mean workers' compensation figure in OSHA's calculations, to estimate a value per MSD avoided of \$8,455. Note that this figure accepts all of OSHA's other assumptions with which we might take issue in a more detailed analysis.²³ Applying this to our estimate of 1.2 million MSDs per year, and

²⁰ Webster & Snook, *ibid*.

²¹ *Ibid*, p. 714.

²² Two-thirds of OSHA's estimated cases, and one-half of ours, are not currently reported as missing a single day of work. It is not plausible that avoiding these cases will offer the same benefits as avoiding cases serious enough to receive the highest workers' compensation claims.

²³ To calculate the \$22,546 figure, OSHA assumes that indirect costs to employers associated with filing workers' compensation claims and insurance and public costs of administering contribute 35.4 percent and 23.4 percent, respectively to the avoided costs. OSHA's assumption that indirect costs add another 35.4 percent is based on a study conducted of the construction industry, which is not subject to this rule. One might expect very different estimates of indirect costs, particularly in percentage terms, if workers' compensation claims in the construction industry are higher or lower than the claims expected due to MSDs, or if productivity and other indirect costs are not comparable across industries. We have no basis for altering these percentage figures; however, we question

relying on OSHA's assumptions regarding the effectiveness of the program at reducing those MSDs, we derive an annualized upper bound benefit estimate of \$2.3 billion.

D. Conclusion—OSHA's Estimate Overstates Likely Benefits.

Our adjustments reveal that OSHA's estimate of \$9.1 billion per year in benefits is very sensitive to two questionable assumptions. Simply recognizing that current trends induced by market forces will continue to reduce MSDs in the absence of this program rule suggests no incremental benefits from the rule. Thus, our best estimate of the benefits for the proposed program rule is zero. For our upper bound estimate, we accept OSHA's assumption of no further decline in MSDs in the absence of OSHA rulemaking, but alter assumptions regarding the nature of increased reporting, and the appropriate value per case, to derive an annualized benefit of \$2.3 billion, or less than one-third of OSHA's estimate.

OSHA notes that its benefit estimate does not take into account the avoided pain and suffering that reducing workplace MSDs would achieve. This is true; however, other variables are also missing from this analysis. Not factored into this sensitivity analysis, and not considered by OSHA, are the opportunity costs of the regulation. The rule requirements will divert capital expenditures and management skills and time to dealing with regulators and away from productivity-enhancing endeavors, including controlling costs and effectively managing injuries of all types. For example, considering that OSHA will require fixes for "same jobs" in the same establishment once an MSD occurs (on an average of six for one injury), the use of the "one MSD trigger" under the full program essentially means the correction of problems that do not exist for many workers. This requirement alone will reduce the net benefits ascribed by OSHA simply through the diversion of resources from other uses and thereby reduce productivity.

IV. OSHA's Estimates of the Costs of the Proposal are Very Sensitive to Key Assumptions and Likely to Understate True Social Costs.

OSHA estimates that 5.9 million establishments, employing 93 million workers, would potentially be covered by the rule. Of these 93 million workers, 11.7 million are engaged in manufacturing and 10.4 million perform manual handling operations. OSHA estimates that 1.9 million establishments would be required to implement the full program in the first year that the standard is in effect, and address 7.7 million jobs. It estimates annual compliance costs to employers to be \$4.2 billion, or \$900 per establishment and \$150 per job fixed. OSHA's estimated total annualized cost to society is \$3.4 billion. The difference between social cost and employer cost is that OSHA estimates that \$875 million in costs would be transferred from employees, who are currently paying for injuries in the form of lost wages, to employers, who would pay under the work restriction protection provision of the standard.

This section first summarizes OSHA's approach to estimating the costs of the proposed ergonomics program rule, examines the assumptions behind OSHA's element-by-element cost analysis, and offers plausible alternative assumptions to determine the sensitivity of OSHA's

their validity, and note that these two components comprise over 20 percent of the total benefits OSHA attributes to the proposed rule.

total cost estimate to key variables. We provide a range of costs, and our own best estimate of the likely costs of the proposal.

A. Summary of OSHA's Element-by-Element Approach.

OSHA estimates the total costs of the proposal by calculating the cost of each provision on an industry-by-industry basis for over 300 three-digit SIC industry groups. This involves four steps: (1) determining the applicability of different components of the rule to different portions of general industry; (2) determining the number of employees and/or establishments in each portion of the industry to which each component of the rule would apply; (3) estimating the unit costs of each provision of the rule per affected establishment or employee; and (4) multiplying the estimated unit costs of each provision by the number of affected employees or establishments to which the provision would apply.

The agency assumes (1) employers required to do so will implement full programs (including the job control provisions of the proposal) by the end of year one; (2) employers will continue to implement full programs for two years instead of the three years required by the proposed standard before they can resume the basic program; and (3) all covered establishments will fully comply with the standard but will not implement programs that go beyond the program required by the proposal. OSHA makes these simplifications for both its cost and benefit calculation.

OSHA's cost estimates reflect annualized costs over a ten-year period, reported in real 1996 dollars.²⁴ Both costs and benefits are measured assuming that the affected industries are as they are today: OSHA notes that the analysis does not account for any changes in the economy over time, possible adjustments in the demand and supply of goods, changes in production methods, investment effects, or the macroeconomic effects of the standard.

The analysis also assumes that the number of MSDs occurring in the absence of the rule would remain at 1996 levels (which OSHA assumes is roughly three times the BLS figure of 647,000) over the next ten years.²⁵ OSHA assumes that 25 percent of problem jobs could be addressed using what the rule calls a "quick fix." The quick fix estimate was based on the judgement of the OSHA ergonomics advisory panel based on their experience with voluntary programs.

OSHA relies on responses from a 1993 OSHA ergonomics survey of thousands of general industry employers to estimate the extent to which establishments within the scope of the standard already have implemented ergonomics programs involving the control of jobs. This current industry baseline was taken into account in calculating industry-by-industry cost estimates. Costs were calculated at the 3-digit SIC code level for all industries in order to account for differences among industries in terms of wage rates, turnover, baseline rates of compliance, and MSD rates.

²⁴ This annualized figure is calculated using the standard OMB discount rate of 7 percent.

²⁵ While OSHA had access to 1997 figures that showed a three percent decline from 1996, its analysis uses 1996 figures because the detailed breakdown necessary for the analysis was not available for the 1997 data.

B. OSHA's Cost Estimate is Sensitive to Key Assumptions.

OSHA's cost estimates are sensitive to assumptions regarding the unit costs of individual provisions of the rule, and the number of MSDs or establishments to which each provision would apply. To examine how sensitive the total cost estimate is to key assumptions, we substitute plausible alternative assumptions regarding the resource requirements reasonably expected under the circumstances faced by the establishments being regulated.

The following sections review the types of costs identified by OSHA and then measure how sensitive those costs are to changes in assumptions. This sensitivity analysis substitutes plausible assumptions in an attempt to reflect not only what we know about markets in general but also the other information currently available in the government statistics. We assume, as OSHA does, that firms will comply with the requirements imposed by the rule. For each element, we present our conservative best estimate of likely costs, as well as lower and upper bounds. Table 3 of this comment presents a table, patterned after Table V-1 of OSHA's Preliminary Economic Analysis, which compares OSHA's and RSP's assumptions and results.

1. Baseline MSDs and Quick Fixes

As it does in the benefit analysis, OSHA assumes that, in the absence of this regulation, employers would undertake no actions to reduce MSDs, and the level of MSDs would remain at the level reflected in 1996 BLS statistics (increased by a factor of three to account for those that go unreported as lost-workday injuries to BLS). This assumption regarding the baseline level of MSDs is inconsistent with observed historical trends and the evidence OSHA has presented on successful voluntary efforts to reduce workplace MSDs. As more information on ergonomic solutions to workplace becomes available, we would expect to see a continued decline in reported MSDs in the absence of the proposed rule.

By ignoring the declining trend in MSDs, OSHA's baseline is likely to overstate the incidence of future MSDs in the absence of a standard, and overstate the costs of the standard. Assuming a continued decline of 3 percent per year over the 10-year time frame used in OSHA's analysis, as we did in our benefit analysis, results in a 24 percent decline in MSDs in the absence of the rule. Interestingly, this is consistent with OSHA's estimate that 25 percent of problem jobs can be remedied at little or no cost, under the "quick fix" option allowed by the rule. It is reasonable to assume that these obvious fixes would be made voluntarily without OSHA requirements.

As we did in our benefit calculations, therefore, our lower bound and best estimates of the cost of the ergonomics program rule reflect a continued decline in workplace MSDs of 3 percent per year. This is consistent with OSHA's assumption that addressing one-quarter of all problem jobs will impose little, if any, costs attributable to the rule.²⁶

²⁶ OSHA assumes that employers will avoid employee training and program evaluation costs for MSDs that can be eliminated with the quick fix option.

2. Familiarization with the OSHA Requirement

OSHA assumes that all establishments in general industry would have to understand the standard's requirements, and determine whether they applied. It estimates this category as the time (labor costs) required to review the standard and determine whether any jobs could be classified by the rule as a "job with a musculoskeletal disorder." The agency estimates that each establishment (5.9 million) would invest one hour to become familiar with the rule, and determine whether the requirements of the rule apply. OSHA's "Preliminary Economic Analysis" puts those costs at \$25 million dollars on an annualized basis.

The rule proposed by OSHA covers 20 pages of fine print in the *Federal Register*, and the full notice occupies 312 pages. Even at a relatively fast pace of three minutes per page, reading just the rule would take a full hour. Reading the whole notice would take over 15 hours. If our own efforts to read and understand the proposed standard are any indication, the amount of time required would be closer to 32 hours. This does not include the time required to review the workplace to determine whether any potential MSDs were present. Furthermore, outside legal or ergonomic advice might be required at a cost of at least \$125 per hour.²⁷ The participants in the advisory panel jointly established by OSHA and the U.S. Small Business Administration suggested that 40-60 hours would be needed for familiarization.²⁸

For our sensitivity analysis, we assume that, on average, establishments would invest at least 4 hours (for our lower bound) and as much as 32 hours (for our upper bound) to understand the requirements of the rule and determine their applicability. To be conservative, our best estimate is 8 hours per establishment. This results in a range for the familiarization requirement of between \$100 million and \$800 million. Our best estimate is \$200 million on an annualized basis.²⁹

3. Investigate Whether MSDs are Covered by Standards

OSHA's cost estimate also includes the requirement that establishments with manufacturing or manual handling jobs, and other general industry establishments that have identified an MSD evaluate MSDs to determine whether they are covered MSDs, as defined by the standard. It assumes this investigation will require 15 minutes of manager time, and 15 minutes of employee time per *recordable* MSD, and that the total annualized cost will be \$83 million.

²⁷ The SBREFA panel created by OSHA and the Small Business Administration (SBA) raised the need for outside consultants. "Report of the Small Business Advocacy Review Panel on the Draft Proposed Ergonomics Program Rule," April 1999, p. 10. The hourly cost figure for a consultant is from OSHA, "Preliminary Economic Analysis," Chapter 5, p. 9.

²⁸ OSHA has made clarifications to the rule in response to the panel's concerns, which OSHA believes "will make the extensive review envisioned unnecessary. The Agency also plans to have expert system software available on-line to aid employers in following the standard when it becomes effective." EA, Chapter 5, p. 6.

²⁹ Note that this, like all OSHA's costs, is an annualized cost. The actual first year cost would be significantly higher. For example, reading and understanding the rule in-house at 8 hours per firm alone would cost \$2.8 billion the first year.

This may understate the frequency of the investigation, if the universe of MSDs that require examination is larger than the universe that is recordable under OSHA's definition. Also, while there may be some MSDs that require no more than 15 minutes of attention to determine whether they are recordable MSDs, there may be many that take more than that. For our sensitivity analysis, we attempt to account for both these uncertainties by using OSHA's estimate of 15 minutes for each recordable MSD as the lower bound cost; 30 minutes per MSD as a best estimate; and 1 hour per MSD as an upper bound. Our resulting cost estimates for the approximately 2 million establishments that OSHA predicts will be subject to this requirement range from \$83 million to \$332 million, with a best estimate of \$166 million.

4. Establishing the Basic Program

All general industry establishments with manufacturing operations or manual handling jobs, and all general industry establishments in which an MSD is reported would be required to implement at least the basic program. The basic program would involve management and employee time for program implementation, including allocation of resources, establishing an employee reporting system, and providing employees with information on MSD symptoms and hazards.

OSHA assumes that the basic program will only involve internal personnel costs. The Economic Analysis assumes that implementing the basic program will involve minimal effort for each firm; initially only one hour would be needed to assign responsibilities and provide basic instructions, two hours for managerial training, one hour for developing an MSD reporting system, and one-half hour each for a manager and employee to provide information on MSD hazards and symptoms. OSHA assigns no costs for training materials, outside expert opinion or consultation within the establishment.³⁰

The agency estimates the aggregate cost for this phase would be \$107 million on an annualized basis. In contrast, the U.S. Small Business Administration estimates that the cost of establishing OSHA's basic program would be \$8.45 billion (or higher).³¹

We expect that the rule would involve more resources for establishing the new program, enlisting outside expertise, and acquiring materials, as detailed below. Our low estimate reflects no costs for ergonomics expertise in the basic program, but our best estimate assumes that 20 percent of firms with manufacturing and manual handling will engage an outside consultant. Our upper bound assumes that half of firms with MSDs will engage an outside consultant. The resulting cost for the basic program ranges from \$142 million to \$526 million, with a best estimate of \$264 million, on an annualized basis.

³⁰ The report of the *Small Business Regulatory Enforcement Fairness Act* advisory panel constituted from the business community suggested that outside consultants might be required at all phases of the process of complying with the standard. Small Business Administration (SBA), "Report of the Small Business Advocacy Review Panel on the Draft Ergonomics Program Rule," April 1999, p. 10.

³¹ Small Business Administration, "Analysis of OSHA's Data Underlying the Proposed Ergonomics Standard and Possible Alternatives Discussed by the SBREFA Panel," Prepared by Policy Planning & Evaluation, Inc. September 22, 1999, p. 14.

Table 2: Basic Program Sensitivity analysis

Provision	Resource Required	RSP Sensitivity Analysis		
		Low	Best	High
Implement initial program	1 manager-hour	1 manager-hr	1 manager-hr	2 manager-hr
Provide Manager Training	2 manager-hours	2 manager-hr	3 manager-hr	4 manager-hr
Set up Reporting System	1 manager-hour	2 manager-hr	4 manager-hr	6 manager-hr
Provide Employee Information	.5 employee hour .5 manager-hour	.5 emp-hr .5 mgr-hr	.5 emp-hr .5 mgr-hr	.5 emp-hr .5 mgr-hr
Engage Ergonomist	0	0	20% mfrg. & manual handling	50% firms w/ MSDs
Training materials	0	\$10/firm	\$10/firm	\$10/firm

5. Full Program

An employee report of an OSHA-recordable MSD triggers implementation of a “full program.” If exposure at work either causes or contributes to an MSD, or if exposure at work aggravates a pre-existing MSD, then the MSD is as an OSHA-recordable MSD under the proposed rules.³² The full program includes training for managers, training for employees, job hazard analysis, evaluation of appropriate job controls, management of MSDs, record keeping, program evaluation, and work restriction protection to prevent further injury.

We discuss OSHA’s assumptions and our sensitivity for each element of the full program below. As discussed earlier, our lower bound and best cost estimates assume a declining rate of MSDs in the absence of the rule, which would lower costs relative to OSHA’s baseline. Over the ten-year period, this is equivalent to OSHA’s assumption that 25 percent of problem jobs would be addressed using what the rule calls “quick fixes.” In other words, we assume that these obvious fixes are reflected in the declining baseline, and recognize that they would occur in the absence of the rule. For our upper bound, however, we accept OSHA’s assumption that no MSDs would be reduced absent the rule, but we reject its assumption that quick fixes would eliminate 25 percent of cases as a result of the rule.³³

a) Training for Managers

OSHA assumes that each affected establishment would provide one manager with 16 hours of training that would enable this person to understand the key elements of an ergonomics program. It estimates this training will cost \$121 million on an annualized basis.

Given the complexity of understanding the causes of and cures for MSDs, managers may require more than 2 days of training. In addition, ergonomics experts and training materials are likely to

³² CFR Part 1904.

³³ Specifically, for our upper bound, we adjust our estimates upward to reflect the lack of quick fixes in the employee training and program evaluation elements.

be required to train the managers, and OSHA has included no costs for these.³⁴ For purposes of our sensitivity analysis, we accept OSHA's estimate of 16 hours for one manager as the lower bound. For our best estimate and upper bound we assume that trainers and/or training materials will add 50 percent to the cost of training managers. This suggests that the cost of this component could range from \$121 million to \$182 million, with a best estimate of \$182 million.

b) Training for Employees

The OSHA analysis estimates that employee training can be accomplished in one hour. Such training would be required for all employees working in problem jobs. To estimate the costs of employee training, the agency multiplies the cost of one hour of employee time by the number of affected employees. It assumes that one manager would provide the necessary training to all employees in the establishment's problem jobs in a single class, and that two hours of the manager's time would be required. The agency's aggregate annualized estimate for the employees' time cost of training is \$136 million. The estimate for the manager's time is \$11 million.

OSHA's estimate for the actual time spent in training may be reasonable, but some firms have difficulties in halting operations for training, multiple locations, multiple languages, or several shifts; and many will experience lost productivity surrounding training sessions. For our sensitivity analysis, we assume employees would incur an additional quarter-hour to account for movement to training and other sources of unproductive time associated with the training. It is also very plausible that managers' time to conduct the training would exceed two hours. For our lower bound, we assume that for every two hours devoted to training, managers incur an additional half-hour in unproductive time. For our best and upper bound estimates we assume managers must spend four hours in training, to account for multiple training sessions, etc. We have not added any costs for training materials, though they may be required. Under these alternative assumptions, employee training costs are \$170 million in our lower bound and best case, and \$227 in our upper bound.³⁵ The manager costs range from \$14 million to \$22 million, with a best estimate of \$22 million (annualized).

c) Job Hazard Analysis and Job Control Evaluation

Job hazard analysis involves identifying the activities and conditions in problem jobs and determining the elements in that job that may cause, contribute to, or aggravate an MSD. This portion of the standard's requirements does not include the cost of remediating the condition that may be causing the problem. OSHA's cost estimate for job hazard analysis and job control evaluation is \$454 million.³⁶ This assumes that 50 percent of all problem jobs would require four hours of employee time and two hours of supervisor time. Another 25 percent would require 16 hours of employee time, eight hours of supervisor's time, and eight hours of an ergonomics manager's time. The most difficult 15 percent would require the expertise of an

³⁴ SBA, *ibid*.

³⁵ The upper bound employee training cost assumes no declining baseline, and no quick fixes.

³⁶ Though OSHA separates the job hazard analysis element from the job control evaluation element in its assumptions table (V-1 of the EA), it does not present separate cost estimates for these.

ergonomics consultant, and involve 32 hours of employee time, 16 hours each from a supervisor and ergonomics manager, and 16 hours from an ergonomics consultant. This 15 percent estimate is the mid-point of a range provided by one of OSHA's ergonomic consultants, who estimated that professional ergonomists would be required for 5 to 25 percent of problem jobs.

OSHA's reliance on the mid-point of a range offered by one consultant makes the validity of the resulting estimate highly uncertain. There are several reasons to expect that OSHA's assumptions regarding the time and expertise involved in job hazard analysis and control may be underestimated. The Small Entity Representative (SERs) on the SBREFA panel suggested that some level of ergonomic expertise would be required at all phases of the program including the job hazard analysis and control process. According to the SBREFA report:

“Many SERs were concerned that small firms would need to make use of expensive outside consultants in all phases of the program, from program set-up to hazard analysis to control.”³⁷

Further, the more difficult problem jobs will likely be the focus under the proposed standard. The experience of firms in voluntary programs and that of consulting ergonomists with voluntary programs are likely to understate costs in a mandatory program. In estimating costs for the mandatory MSD-reducing investments, whether labor or capital outlays, it is important to recognize that the easy solutions have been adopted already. Individual employees, their supervisors, and management in general will have found the easy solutions, whatever they may be, given the circumstances faced by each job and by each firm, simply because firms and their employees have economic and personal incentives to do so.

Thus, it is reasonable to expect that the cost of job hazard analysis and controls evaluation would include a greater participation by ergonomic specialists than the scenario posited by OSHA's consultant.³⁸ For our sensitivity analysis, we accept OSHA's estimates of the amount of time required to respond to easy, moderate, and difficult jobs, but we adjust the percentages of jobs that would fall into each category. Our lower bound is identical to OSHA's assumption (i.e., 50, 35 and 15 percent of jobs falling into the easy, moderate, and difficult control categories, respectively). For our upper bound, we assume that the upper bound of the consultant's range (25 percent of firms) must hire an ergonomist, and that 25 percent fall in OSHA's easy category, and 50 percent in the moderate category. For our best estimate we use percentages of 30 percent, 50 percent, and 20 percent, respectively, for the easy, moderate, and difficult job categories.³⁹

The resulting cost for job hazard analysis and job control evaluation ranges from \$454 million to \$924 million, with a best estimate of \$597 million.

³⁷ Small Business Administration (SBA), “Report of the Small Business Advocacy Review Panel on the Draft Ergonomics Program Rule,” April 1999, p. 10.

³⁸ On a related issue, the cost of consultants has been estimated by OSHA to be about \$2000 for 16 hours. While past experience is the basis for this estimate, no analysis should assume that the price for certified ergonomists would remain the same given the increased demand for their skills should the OSHA rule be adopted.

³⁹ Table V-5 of the EA presents the portion of OSHA's estimated \$454 million attributable to ergonomists, ergonomics program managers, supervisors and employees. From this, and the hours assumed for each in Table V-7, we backed out the average per hour cost assumed for each of these, and used these to derive our estimates.

d) MSD Management

OSHA assumes that one hour of managerial time (ergonomist, team leader, safety or health professional) will be required to manage each individual MSD covered by the rule. Since most managers are already familiar with MSD management issues, OSHA believes that the actual administrative and managerial work associated with current MSDs will be one hour per MSD. OSHA puts the annualized national cost at \$83 million.

The rule requires that managers, supervisors and employees be “held accountable for meeting their responsibilities,” and “communicate periodically with employees about the program and their concerns with MSDs.” This is an open-ended requirement, which would require managers to be responsive to employees concerns, and not “discourage employees from participating in the program or from reporting MSD signs or symptoms.” As a result, it is unlikely that one hour of managerial time per MSD would protect an employer from charges that it was not adequately responsive or from litigation over whether it had met its obligations under the “management leadership and employee participation” element of the rule.

We accept OSHA’s one-hour estimate for our lower bound, but substitute 1.5 hours and 2 hours of a manager’s time per MSD for our best estimate and upper bound. This suggests a range of \$83 million to \$166 million, with a best estimate of \$125 million.

e) Record Keeping

Firms larger than ten employees must keep the following records:

1. employee reports of MSDs, episodes of persistent symptoms and responses to those reports;
2. results of job hazard analyses;
3. hazard control records;
4. quick fix records;
5. ergonomic program evaluations; and
6. MSD management records.

OSHA assumes that it will take 15 minutes of a supervisory worker’s time to handle these various records for each covered MSD reported. We test the sensitivity of this assumption by substituting 10 minutes for our lower bound estimate, accepting OSHA’s 15 minutes in our best estimate, and substituting 30 minutes in our upper bound. Thus, our best estimate of \$7 million is the same as OSHA’s, but our lower bound estimate is \$5 million, and our upper bound is \$14 million.

f) Program Review

Workplaces with full programs are required to review their programs periodically (at least every three years) to ensure compliance with the standard. OSHA believes that this will take four hours of management time every year in establishments whose problem jobs cannot be fixed

through the quick fix option, and impose an annualized cost of \$16 million. Our sensitivity analysis uses these assumptions.

g) Job Interventions

“Job interventions” must eliminate or materially reduce MSD hazards identified in the workplace. These may involve administrative changes or investments in new equipment or tools. Examples include use of power tools, lift tables, or wrist rests; movement of work surfaces closer to the worker; enlargement of jobs to increase variation in tasks; and providing short breaks. Establishments whose employees experience MSDs that are covered by the standard are required to institute controls for the problem job held by the injured employee as well as for other jobs in the establishment that involve the same physical activities or conditions, and to implement all feasible controls until the hazard is materially reduced.

OSHA anticipates general industry would incur \$2.3 billion in annualized costs to comply with the job control requirement. This is a net cost, because OSHA assumes employers will achieve improved productivity with job controls that will provide offsetting savings to the costs of job control. The agency estimates productivity improvements from the job will amount to approximately \$1.3 billion in annualized savings. OSHA argues that many ergonomic interventions improve productivity by relieving employee pain or because they involve automating portions of jobs in ways that can be expected to improve productivity.

A panel of three ergonomics consultants estimated the cost of implementing controls for problem jobs for each of 26 occupational groups. OSHA’s economic analysis relies on the average of the three estimates for each group, multiplied by the number of MSDs expected in each group. Its estimate of gross annualized job control costs (without taking into account the offsetting effects of increased productivity) is \$3.6 billion.

OSHA recognizes in the EA that “the job control cost estimates made by individual ergonomists sometimes varied substantially for the specific groups.” In fact, EA Table V-11 reveals that estimates for some occupational groups were as low as 35 percent of OSHA’s reported mean, or as high as 190 percent of the reported mean (used in OSHA’s analysis). While OSHA notes that the individual consultant estimates averaged across all groups “were within 31 percent of each other,” this is somewhat misleading.⁴⁰ It hides the fact that, on average, the lowest consultant estimate was 63 percent of the OSHA-reported average, and the high estimate was 145 percent. Our sensitivity analysis explicitly incorporates the range of estimates offered by OSHA’s consultants, so that while our best estimate of job control cost matches OSHA’s, our lower bound reflects only 63 percent of those costs, and our upper bound reflects 145 percent.

Neither OSHA’s rule nor supporting documents make clear whether the costs estimated by the panel reflect just one control per problem job or several, although it appears that the costs reflect

⁴⁰ OSHA’s 31 percent was derived by averaging each consultants estimates across all groups first, and comparing those averages across consultants. Because each consultant estimated higher than average costs in some groups and lower than average costs for others, this mathematical approach understates the variance in the estimates. We estimate an 82 percent range by first calculating the difference between the high and low consultant estimate and the mean, and then averaging those differences.

an assumption that one control will suffice to fix each problem job. The language of the proposed rule implies an open-ended requirement to experiment with controls until a job is fixed. If the first job fix doesn't work, an employer "must implement additional feasible controls to materially reduce the hazard further," and "must continue this incremental abatement process" as long as "other feasible controls are available" (1910.922). Such a requirement would be particularly costly in view of the need to control an average of 6.5 jobs for every MSD that develops. Some industries that have significant amounts of manual handling, for example, could be making repetitive fixes in large numbers.⁴¹ Because the assumptions underlying OSHA's cost estimate are not transparent, we do not attempt to correct for the possibility that OSHA assumed only one job control per MSD in our lower bound or best estimate. We conservatively assume that 1.4 job controls are required to fix a problem job, on average, in our upper bound. Thus, we estimate that gross job control costs could range from \$2.3 billion to \$7.3 billion.

OSHA cites case studies of voluntary programs as evidence that job controls will result in significant productivity savings. To quantify these savings for each of the 26 occupation groups, it relies on scenarios prepared by OSHA as part of its technological feasibility analysis. However, OSHA's expert ergonomics panel rejected the controls in those scenarios as being more high-tech and expensive than would be necessary to fix job hazards, so OSHA has not used the cost estimates from this analysis. OSHA does use the *cost savings* from these high-tech controls to estimate productivity savings, which are then used to offset the *lower* costs developed by the expert panel of the low-tech controls assumed in this analysis. Specifically, OSHA uses the ratio of productivity savings to control cost (for the controls it rejected as too expensive) to estimate the productivity savings attributable to simpler controls. This ratio suggests that on average, OSHA expects that 36 percent of the costs of implementing job controls would be offset by increased productivity.

It seems doubtful that lower-cost, lower-technology job interventions will be as productivity-enhancing as more expensive, higher-technology controls which might involve more automation, etc. In fact, many of the controls envisioned by OSHA (carrying less heavy loads, and increasing the duration or frequency of break time) are more likely to decrease than increase productivity. We, therefore, conduct some sensitivity analysis on these estimated productivity savings. For our lower bound estimate, we apply OSHA's estimate of 36 percent productivity savings to our lower bound gross control cost of \$2.3 billion to derive an estimate of \$1.45 billion. For our best estimate, we assume that productivity gains would, on average, be offset by productivity losses, and assign a zero value to productivity savings to derive an annualized net cost of \$3.6 billion. Our upper bound estimate of \$7.3 billion also attributes no productivity savings to job controls.

⁴¹ One industry group, Food Distributors International, asked for a consulting report on the cost of modifying its member's 800 distribution centers. The consultant's report provided cost estimates ranging from \$1.2 to \$26 billion. The most likely cost was estimated to be \$5 billion for the membership of this trade association that represents only a small portion of one three-digit SIC group. Despite multiple fixes projected for this industry, the industry itself does not believe that the technology to totally eliminate MSDs is currently available. See Prime Consulting Group, inc., "The Economics of Compliance with the Proposed OSHA Ergonomics Program Standards: An Industry Analysis for Food Distributors," Food Distributors International, Government Relations Department, November 1999.

h) Work Restriction Protection (WRP)

Under the proposed standard, OSHA requires employers to provide temporary work restrictions for workers with MSD injuries when they are deemed necessary by management or are recommended by a health care professional. While on the WRP program, the employer must maintain the employee's current net take-home pay (90 percent of net take-home pay if the worker is absent from work) and benefits for a maximum of six months. OSHA states that although the costs of WRP are a cost to employers, they are not an additional cost to society, since employees are already bearing these costs. Thus, it does not include the estimated \$876 million for WRP in the total costs to society of the rule.

OSHA bases its estimate of the cost of WRP on the average value of workers' compensation claims for MSDs from Webster and Snook. As discussed in the benefits section of this comment, the mean figure of \$8,000, on which benefits and WRP costs are based, is likely to overstate the mean workers' compensation cost for the broader range of MSDs addressed by the rule. As in our benefits calculations, therefore, we adjust this figure to \$3,000 to reflect a more likely mean for the larger distribution of cases.

OSHA adjusts its workers' compensation figure to account for the portion of the \$8,000 that provides for indemnity (versus medical payments), and the fraction of workers' compensation claims that cover temporary disability for 6 months or more. It then adjusts this amount upward to reflect the fact that, under WRP, unlike some workers' compensation, employees would be eligible for up to 90 percent salary and full benefits. This results in an estimate of WRP costs of \$1,884 per case. Substituting the lower workers' compensation figure of \$3,000, but accepting all of OSHA's other assumptions, this would be \$707 per case.

OSHA assumes that "most cases requiring WRP will be covered by workers' compensation"⁴² and that individuals receiving WRP payments will be compensated first by workers' compensation. Thus employers will have to pay only the increment over and above workers' compensation payments necessary to offer the employee 90 percent of wages and full benefits. The economic analysis attributes no cost to the workers' compensation portion of WRP payments, implicitly assuming no increase in workers' compensation costs due to an increase in "OSHA recordable injuries" caused by the rule. Thus, it derives an average cost per WRP of \$877 per case.

We conduct some sensitivity analysis on OSHA's implicit assumption that all WRP cases would be receiving workers' compensation benefits in the absence of the rule. Based on our lower value of \$707 per case, we use OSHA's ratios and estimate a workers' compensation share of \$469 per case, and an employer share of \$238 per case. OSHA reports that 69 percent of OSHA recordable injuries receive workers' compensation.⁴³ For our lower bound estimate, we apply that 69 percent to OSHA's total estimated number of MSDs resulting in WRP (998 thousand cases), and assume the cost for that fraction of cases is only the employee share of \$238. The remaining 31 percent of cases would either be new to the workers' compensation system or

⁴² EA Chapter 5.

⁴³ This is based on one study of workers' compensation in the state of Wisconsin, and may not be robust nationwide.

would not receive workers' compensation payments, and thus the incremental cost attributable to this rule would be the full \$707 per case.

For our best estimate, we assume that only those cases reported as having lost at least one day of work would be eligible for workers' compensation indemnity payments in the absence of the rule. We apply the 69 percent to the 626,000 reported lost-workday MSDs reported to the BLS in 1997.⁴⁴ That fraction of total cases would cost \$238 per case, while the remainder would cost \$707 per case. While it is very possible that even fewer of these currently-reported 626,000 MSDs are currently receiving workers' compensation, we have no data on which to base further sensitivity analysis, so we use the same assumption for the upper bound. Thus, our estimated annualized cost for WRP ranges from \$383 million to \$500 million, with a best estimate of \$500 million. Due to our correction of OSHA's extrapolation of the statistical mean from the Webster and Snook study, this range is less than OSHA's estimate of \$876 million.

C. OSHA's Cost Estimate Is Likely to Understate True Social Costs.

Substituting alternative plausible assumptions for those relied on by OSHA, our sensitivity analysis suggests that the annualized total cost for the ergonomics program rule is likely to range from \$3.0 billion to \$11.0 billion. Our best estimate of the annualized cost of the rule is \$5.8 billion. OSHA estimates total employer costs at \$4.2 billion (which is within this range, though at the lower end) but argues that the cost of the work restriction program would simply be transfers from employers and consumers to employees, and thus, not a social cost. In fact, there are likely to be some real, dead-weight losses even in the WRP costs, particularly if false positives are significant. Nevertheless, if we accept OSHA's suggestion that the WRP costs all reflect transfers, we estimate social costs ranging from \$2.6 billion to \$10.3 billion with a best estimate of \$5.3 billion. Since this estimate takes as given the framework and many of the assumptions inherent in OSHA's methodology, it should still be considered a rough estimate of expected actual costs.

Certain industries have attempted to estimate costs by examining the types of responses the rule would elicit, including the job controls that would have to be implemented to meet OSHA's goal of eliminating or materially reducing MSDs. The most notable of these studies was conducted by members of the food distribution industry, which estimated that costs would range from \$1.2 billion, just to analyze job hazards in the industry, to \$26 billion, if changes in equipment were necessitated for compliance.⁴⁵ This range is in sharp contrast to OSHA's estimated \$72 million in annualized cost for the SIC code of which these establishments represent a small component.

⁴⁴ These injuries are not defined as MSDs, per se, but as "repeat motion and over-exertion illness and injuries."

⁴⁵ Food Distributors International, *ibid*.

Table 3: Comparison of OSHA and RSP Cost Estimates

Element	Sensitivity	OSHA's Estimate (\$mil)			RSP Estimate (\$mil)		
		Estimate	Lower Bound	Upper Bound	Estimate	Lower Bound	Upper Bound
Baseline	For lower and best, assume 3% decline in MSDs without rule. No quick fixes caused by rule.	\$ 25	\$ 100	\$ 800	\$ 200	\$ 200	\$ 800
Familiarization	More time required.	\$ 83	\$ 83	\$ 332	\$ 166	\$ 166	\$ 332
Investigate MSDs	More time required.	\$ 107	\$ 142	\$ 526	\$ 264	\$ 264	\$ 526
BASIC PROGRAM							
Initial Program	More time required (U.B. only)	\$ 15	\$ 15	\$ 30	\$ 15	\$ 15	\$ 30
Manager Training	More time required.	\$ 30	\$ 30	\$ 60	\$ 45	\$ 45	\$ 60
Set up Reporting	More time required.	\$ 15	\$ 30	\$ 90	\$ 60	\$ 60	\$ 90
Employee Information	No change.	\$ 47	\$ 47	\$ 47	\$ 47	\$ 47	\$ 47
Engage Ergonomist	20% of manufacturing & manual handling firms (Best) and 50% of firms with MSDs (U.B.)	\$ -	\$ -	\$ 279	\$ 77	\$ 77	\$ 279
Training Materials	\$10 per establishment	\$ -	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20
FULL PROGRAM							
Manager Training	Non-labor costs (U.B. only)	\$ 4,008	\$ 2,697	\$ 9,358	\$ 5,218	\$ 9,358	\$ 9,358
Employee Training	More time required.	\$ 121	\$ 121	\$ 182	\$ 182	\$ 182	\$ 182
Mgr. Trainer	More time required.	\$ 136	\$ 170	\$ 227	\$ 170	\$ 170	\$ 227
Job Hazard Analysis & Evaluation	Adjust percentages of "easy," "moderate," and "difficult" evaluations	\$ 11	\$ 14	\$ 22	\$ 22	\$ 22	\$ 22
MSD Management	More time required.	\$ 454	\$ 454	\$ 924	\$ 597	\$ 597	\$ 924
Record Keeping	Less time required.	\$ 83	\$ 83	\$ 166	\$ 125	\$ 125	\$ 166
Program Evaluation	No change.	\$ 7	\$ 5	\$ 14	\$ 7	\$ 7	\$ 14
Gross Job Controls	Use range of OSHA's consultants.	\$ 16	\$ 16	\$ 16	\$ 16	\$ 16	\$ 16
Productivity savings	Use OSHA's percentage for L.B., half percentage for best case, and no savings for U.B.	\$ 3,600	\$ 2,268	\$ 7,308	\$ 3,600	\$ 3,600	\$ 7,308
Work Restriction	Reduce mean worker's comp. cost. Explicitly account for employer and workers' comp. shares.	\$(1,296)	\$ (816)	-	-	-	-
TOTAL COSTS		\$ 876	\$ 383	\$ 500	\$ 500	\$ 500	\$ 500
		\$ 4,223	\$ 3,022	\$ 5,848	\$ 5,848	\$ 5,848	\$ 11,016

V. OSHA Should Address Key Questions Before Proceeding.

Our public interest comment on the draft program rule posed seven key questions that OSHA should address before proceeding with the rulemaking. We repeat those questions here, and strongly encourage OSHA to address them explicitly before moving forward with a final ergonomics program regulation.

1. What Market Failure Is OSHA Attempting to Remedy?

Regulatory actions that do not explicitly address market failures or systematic problems underlying the need for action, are bound to be less effective than actions that do. In the absence of a significant and generalized market failure that affects all firms within the ambit of the regulatory proposal, private solutions are likely to be more effective and socially beneficial than government actions. Therefore, OSHA must address the following questions:

- Why would private markets not be expected to respond appropriately to ergonomic hazards in the workplace?
- What significant externalities prevent profit-maximizing employers and utility-maximizing employees from achieving a socially optimal level of ergonomics protection?

2. Why Is a Federal Role Preferable to Private or State Actions?

Another axiom of our governmental system is that, except when necessary to guarantee rights of national citizenship or to avoid significant burdens on interstate commerce, effective public policy is most likely to evolve when individual states and communities are free to experiment with a variety of approaches than from a federal mandate that assumes that there is one best way. OSHA should have the information to answer the following:

- What role do state workers' compensation programs play in providing employers' incentives to mitigate ergonomic hazards?
- How will federal involvement affect those incentives?
- Since information on the causes and most effective remedies for MSDs is limited and sometimes conflicting, can state and private actions better target specific circumstances?
- What net benefits can federal actions offer over private and more local government initiatives?

3. What Alternative Approaches Could Meet OSHA's Goals?

Considering the above questions:

- What alternatives to OSHA’s one-size-fits-all approach would provide more flexibility, be more adaptive to changing information, and encourage innovation to meet OSHA’s objective of reducing the number and severity of MSDs?
- Which alternatives most effectively target the fundamental market cause of the problem? For example, if employer lack of knowledge on the cause of MSDs and how to address them inhibits remedies, what alternatives might facilitate the sharing of successful experiences and dissemination of new research?
- Could OSHA do more to reduce the risk of MSDs by facilitating continued research and disseminating the results of that research and experience to all employers?
- Would non-binding guidance targeted to sectors where certain MSDs are prevalent achieve the desired goals?
- How would “feasible” be defined—would cost-effectiveness criteria be more appropriate?

4. Do Reliable Estimates of Benefits and Costs Justify the Proposed Approach?

- How sensitive are estimated costs and benefits to key assumptions?
- What are the costs and benefits of viable alternatives?
- How does recognizing that MSDs will decline without the rule, if employers and employees are allowed to respond to existing incentives, such as workers’ compensation costs and lost productivity affect OSHA’s cost and benefit estimates?

5. Does Available Science and Technical Information Support the Proposal?

- What information does OSHA have on the prevalence of MSDs, as defined by the proposal?
- Is the definition supported by research that distinguishes work-related MSDs from non-work-related MSDs?
- Does available information support OSHA’s hierarchy of control measures for all MSDs?
- Are the medical management provisions in the proposal justified by available information for all the symptoms covered by the draft?

6. What Are the Distributional Effects of the Proposal?

- Could the rule lead to discrimination against workers perceived to be more likely to have or to report an MSD, as the Small Business Advocacy Review Panel suggested?
- Would small businesses bear a greater proportionate burden associated with hazard identification and work restrictions?

- Would lower-wage workers suffer at the expense of high-wage workers?

7. How Will the Proposal Affect Employer and Employee Incentives and Individual Responsibility?

- What incentives do different elements provide employers and employees?
- Would the program trigger false reports of MSDs? How will it influence individuals' incentives to avoid non-workplace activities that might result in MSDs?
- How will employers distinguish legitimate work-related injuries from non-work-related injuries?
- How might the standard influence individual responsibility for safety in the workplace?
- Could the requirement that all known hazards trigger an ergonomics program reduce employer incentives to study and identify hazards in advance of an employee report?

VI. Conclusions and Recommendations

A. Private Incentives Are Driving Employer Efforts to Reduce MSDs.

Recognizing that MSDs impose real costs on employers and employees, OSHA has proposed a rule that would mandate the establishment of ergonomics programs to eliminate or control MSD hazards. However, OSHA's approach fails to address the fundamental problem of MSDs in the workplace, lack of information on causation and on viable, cost-effective solutions.

As discussed extensively in the enclosed Mercatus monograph, the costs associated with MSDs are real, but they are already being internalized by the private sector. OSHA offers no evidence that employers and employees do not have adequate incentives to provide the optimal level of workplace protection against MSD hazards. On the contrary, OSHA provides evidence that (1) MSDs impose significant costs on employers, which should offer ample incentives to reduce their occurrence, (2) employers are, in fact, developing programs and other initiatives to reduce MSDs, and (3) MSDs are declining.

Lack of knowledge on the causes of and remedies for MSDs, not lack of motivation, has hindered efforts to reduce MSDs. Yet, lack of information is not addressed at all by OSHA's regulatory approach. Instead, OSHA's proposal mandates certain procedural activities without contributing to the body of knowledge about the causes of and solutions to work-related MSDs. This improper targeting of federal regulatory efforts is aggravated by OSHA's definitions of MSDs and ergonomic risks. They are so broad that employers are likely to be held liable for injuries or symptoms that are out of their control, such as muscle aches or injuries resulting from non-work-related activities.

B. OSHA's Proposal is Likely to Impose Significant Net Costs on Employers, Workers, and Society.

OSHA estimates that its proposed ergonomics program rule will produce net benefits of \$4.9 billion per year. This is based on an annualized cost estimate of \$4.2 billion, and an annualized benefit estimate of \$9.1 billion. Our sensitivity analysis suggests that the rule would produce annualized benefits ranging from \$0 to \$2.3 billion, and that annualized costs, conservatively estimated, could range from \$3.0 billion to \$11.0 billion. This suggests that the rule is likely to impose annualized net costs of \$3 billion to \$8.7 billion.⁴⁶ Our best (or most likely) estimate is that the rule will impose annualized net costs of \$5.8 billion.

OSHA's benefit estimates assume, unrealistically, that market incentives will not encourage any further progress in reducing MSDs in the absence of the rule. In fact, MSDs, as reported in BLS statistics, have declined at a faster rate since 1994, driven purely by market forces, than OSHA predicts they will decline over the next decade with its extensive rule. If present trends continue, market forces are likely to produce better results than OSHA's proposal. Thus, our best estimate of the benefits of the rule over and above market forces is zero. Our upper bound estimate assumes that OSHA is correct that, in the absence of the rule, MSDs will remain at present levels, but adjusts the basis for OSHA's valuation of avoided MSDs and distinguishes between false negative and false positive reports of MSDs.

Our analysis reveals that OSHA's cost estimates are also very sensitive to key assumptions OSHA used. While we make no claim to precision in our range of between \$3.0 billion and \$11.0 billion in costs, we believe a range better reflects the uncertainty in expected costs than OSHA's point estimate. Further, this range relies on OSHA's methodology, and offers transparent, careful, and conservative modifications to OSHA's assumptions. Even this range is likely to understate true social costs, particularly the costs associated with the job control and worker restriction program elements of the proposed program standard. Our conservative best estimate of \$5.8 billion in *net* social costs is more robust than OSHA's because it takes into account the effect of market forces, and more accurately interprets available evidence and statistics.

It is important to recognize that these costs are over and above any benefits expected from the rule, and that regulatory costs themselves affect public health. Implementation of these rules will make goods and services more expensive, causing disposable family income to decline. A mounting body of research indicates that serious health problems arise when a family's living standards decline. Whenever government actions reduce real family income levels, noted Supreme Court Justice Stephen Breyer, "that deprivation of real income itself has adverse health

⁴⁶ We estimate the range of net benefits by subtracting upper bound costs from upper bound benefits, and lower bound costs from lower bound benefits, because the assumptions for the upper and lower bound scenarios differ. (In other words, it would not be appropriate to deduct upper bound costs from lower bound benefits, since the baseline assumptions underlying those estimates are not comparable.)

effects, in the form of poorer diet, more heart attacks, ..."⁴⁷ Costly government regulations adversely affect productivity, which in turn dampens real income.⁴⁸

Studies linking income and mortality find that every \$15 million decline in income induces one statistical death.⁴⁹ Using this \$15 million income-health relationship, OSHA's estimate (of \$3.2 billion in social costs) would imply an increase in mortality of over 213 deaths each year. Our estimates suggest that the effect of this costly program could be as high as 733 deaths per year.

The result that the proposal will impose net costs is not surprising given the evidence that market forces already offer ample motivation to employers and employees to respond effectively to MSD hazards, and the fact that OSHA's proposal would not address the remaining problem of insufficient information on the causes and remedies for some disorders. Several considerations suggest that the net costs of this rule could be even greater than our revised estimates predict: (1) much of the effort required by this rule would go toward fixing problems that do not exist at individual workstations; (2) the benefits lost from the misdirection of talent and money will be considerable in view of the large number of establishments affected; (3) the number of jobs eliminated through substitution of capital for labor, or the closing of firms unable to comply, are not considered in the OSHA benefits calculation; (4) in some cases, MSD injuries would not be eliminated as rapidly as under the voluntary scenario due to the focus on the centralized direction implied by this regulation; and (5) many of the solutions implemented under centralized direction would be inappropriate and lacking benefits given the current understanding of the causes of MSD injuries.

C. OSHA Would Do More to Reduce the Risk of MSDs by Facilitating Research and Disseminating Knowledge.

Employers already have strong incentives to reduce MSDs, so OSHA's mandates to do so are, at best, redundant. More likely, the procedural requirements and hierarchy of control measures will discourage individual responsibility and hinder innovation into creative solutions. MSDs have declined in recent years, as high worker's compensation claims and a growing awareness among employees and employers have fueled ergonomics programs at many companies.⁵⁰ This is, in turn, stimulating research into the causes of MSDs, as well as leading to an explosion of ergonomic consultants.

Rather than mandating that all workplaces adopt a specified, generic framework, OSHA could do more to reduce the risk of MSDs by facilitating continued research and disseminating the results

⁴⁷ Stephen Breyer, *Breaking the Vicious Circle--Toward Effective Risk Regulation* (Cambridge, Mass: Harvard University Press, 1993), p. 23.

⁴⁸ See, for example, estimates of the adverse effect on GDP attributable to the 1990 Clean Air Act amendments in Dale Jorgenson and Peter J. Wilcoxon, "Impact of Environmental Legislation on U.S. Economic Growth, Investment, and Capital Costs," in *U.S. Environmental Policy and Economic Growth: How Do We Fare?* (Washington, DC: American Council for Capital Formation, 1992).

⁴⁹ Randall Lutter, John F. Morrall, III, and W. Kip Viscusi, "The Cost-Per-Life-Saved Cutoff for Safety-Enhancing Regulations", *Economic Inquiry*, Vol. 37, No. 4. 599-608, (October 1999). See also, Lutter & Morrall, *Journal of Risk and Uncertainty*, 8:43-66 (1994) and Keeney, "Mortality Risks Induced by Economic Expenditures," *Risk Analysis* 10(1), 147-159 (1990).

⁵⁰ Conway & Svenson, *Ibid.* at 36-58.

of that research and experience to all employers. Several states are experimenting with guidelines and standards to address these injuries, and OSHA could track and, possibly, report on those efforts.

OSHA could also make valuable contributions to the state of knowledge by developing a more reliable database on the nature and extent of MSDs, including a baseline of the current level of MSDs (work- and non-work-related) and the amount and types of ergonomic activity, including remedies, currently being undertaken by employers. Such a database could offer valuable insights into the causes of, and effectiveness of solutions to, MSDs, and provide valuable information about how to remedy problems. It would also allow OSHA and employers to target real workplace problems, rather than attempt to address the all-encompassing list of symptoms covered by the definition in the proposal.

Appendix I
RSP Checklist
OSHA's Proposed Ergonomics Program Standard

Element	Agency Approach	RSP Comments
1. Has the agency identified a significant market failure?	<p>OSHA objective is "to address the significant risk of work-related musculo-skeletal disorders (MSDs) confronting employees in various jobs in general industry workplaces."⁷</p> <p>Unsatisfactory</p>	<p>OSHA offers no evidence that employers and employees do not have adequate incentives to provide workplace protection against MSD hazards. In response to high costs (workers compensation costs and lost productivity), employers are taking initiatives to reduce MSDs.</p>
2. Has the agency identified an appropriate federal role?	<p>The proposed standard defines ergonomics program elements that all affected companies would have to incorporate in their ergonomics programs.</p> <p>Unsatisfactory</p>	<p>Lack of knowledge, not lack of motivation, has hindered employer efforts to reduce MSDs. OSHA's ergonomics program standard (which adds a stick to the carrot that the market already offers) would, at best, be redundant with private initiatives. It could also undermine current state efforts to address MSDs with other approaches.</p>
3. Has the agency examined alternative approaches?	<p>The preamble to the proposed rule does not discuss alternative approaches other than small modifications to the coverage or design of certain elements.</p> <p>Unsatisfactory</p>	<p>OSHA should consider a wider range of approaches before settling on the procedural requirements and hierarchy of control measures in the draft standard. It should consider approaches that seek to remedy the fundamental problem of lack of knowledge on the causes of, and solutions to, MSDs.</p>

Element	Agency Approach	RSP Comments
<p>4. Does the agency attempt to maximize net benefits?</p>	<p>The standard would not allow employers and employees to consider costs or benefits when establishing programs or selecting control measures. OSHA's benefit-cost analysis suggests annualized net social benefits of \$5.7 billion. Unsatisfactory</p>	<p>OSHA's benefit-cost analysis contains fundamental flaws and assumptions that understate costs and overstate benefits. The proposed standard could have significant social costs that would be borne not only by employers, but employees and consumers as well. RSP's conservative estimate is that the proposed program rule will likely impose annualized net costs of \$5.8 billion, over and above any benefits that will be gained.</p>
<p>5. Does the proposal have a strong scientific or technical basis?</p>	<p>Ergonomics programs are supported by anecdotal evidence from companies that adopted them voluntarily in response to private costs. A National Academy of Sciences report concluded that further research is needed on the causes of and interventions for MSDs. Unsatisfactory</p>	<p>OSHA's program elements and hierarchy of controls are not supported by scientific literature. Given the wide variations in MSDs, and the dearth of information on the most effective solutions to many of them, OSHA's standard could constrain innovation in a science still in its infancy.</p>
<p>6. Are distributional effects clearly understood?</p>	<p>OSHA conducted an analysis of the potential impacts on small businesses. Unsatisfactory</p>	<p>Larger companies may find the requirements easy to implement, while smaller companies could face heavier burdens associated with the hazard identification and medical management requirements. Employers may have incentives to discriminate against individuals perceived to be more likely to have or to report an MSD.</p>
<p>7. Are individual choices understood?</p>	<p>OSHA does not discuss the impact on property or individual decisions. Unsatisfactory</p>	<p>The proposal confers new rights on employees which could have a significant impact on some establishments. Several aspects of the standard reduce individual responsibility for safety in the workplace, and limit choices with respect to remedies for different symptoms.</p>

Regulation of the Week:
Changes to Federal Acquisition Regulation and Blacklisting

Rule Summary:

New “blacklisting regulations” expected soon from the Federal Acquisition Regulations Council claim to clarify the standard for businesses that are vying for federal government contracts. Blacklisting precludes a business from signing any contract with the federal government for the supply of goods and services.

The rule states that contracting entities should not have any felony convictions, civil procedure rulings, or complaints against them for failure to comply with federal tax, labor and employment, environmental, antitrust, or consumer protection law. Additionally, this new rule shifts the responsibility for determination of debarment from federal debarment officers to contracting officers whose primary duty is awarding contracts based on cost and value judgments. Finally, there is a provision to prevent companies from reclaiming costs they incur protecting themselves from unfair labor practice complaints as business expenses.

Currently, when a federal government contractor is found to be deficient in the area of business ethics, they face “debarment” and are placed on the GSA List of Parties Excluded from Procurement and Nonprocurement Programs. The FAR Council is administered and maintained jointly by the Department of Defense (DoD), General Services Administration (GSA), and National Aeronautics and Space Administration (NASA).

Facts:

- The General Services Agency (GSA), Environmental Protection Agency (EPA), NASA and Defense Acquisition Regulation Council opposed the rule, recommending that it not be undertaken as it is a step backwards from the status quo. The Federal Acquisitions Regulations already provide procedures for determination of whether a company has a satisfactory record of adherence to labor and workplace laws.
- The regulation provides very broad and open-ended guidelines as to what constitutes a “satisfactory record of integrity and business ethics.” In the rule, contracting officers are advised to look most seriously at “felony convictions” then “civil procedure rulings against” on down to “complaints against” for any number of federal crimes and regulatory violations. However, there is no metric to determine a threshold as to the level of offense that would constitute blacklisting. This shortcoming opens the door to uneven and capricious application of the law, possibly for political advantage.
- The proposals would nullify the government's expressed procurement policy of remaining neutral in labor-management disputes, and, most significantly, effectively amend the penalty provisions of every federal labor and employment law without any

consideration by Congress. By allowing contracting officers to deny contracts to bidders and bar them from contracts for a period of three years, this proposed rule places the power to punish offenders and alleged offenders of various federal regulations in the hands of the contracting officer. Under current law this power resides only with the agency that is granted the authority to enforce regulatory law by legislative act.

- The proposed rule grants authority to GSA contracting officers to issue remedies for transgressions of federal regulations even though Congress has explicitly delegated this authority exclusively to other agencies. The most egregious of these encroachments is that upon the National Labor Relations Board (NLRB), which is granted sole authority in labor and industrial relations disputes by the National Labor Relations Act. The proposed rule requires GSA officers to act in the place of the NLRB to debar or blacklist transgressors or alleged transgressors of federal labor law.
- By transferring authority to enforce and punish federal regulatory laws to GSA contracting officers, the proposed rule violates due process considerations. Accused parties may have no chance to respond to charges against them before punishment (i.e. denial of contract) is carried out. A finding of “non-responsibility” by a contracting officer causes the bidder to be denied the contract under consideration and “blacklisted” for a period of three years, thus resulting in *de facto* debarment without going through the formal debarment procedures already in place and judicially sanctioned.
- By any reasonable interpretation of the rule the federal government would be forced to deny itself contracts due to literally thousands of complaints and grievances filed each year against the government by federal worker unions.
- The FAR Council ignores legal requirements by failing to perform a proper Regulatory Flexibility Analysis or cost-benefit analysis as mandated by Executive Order 12866. FAR Council summarily dismissed the need to perform these analyses, stating with no proof or explanation that the proposed rule was not “economically significant” or a “major rule.” Even if this rule added as little as one half of one percent to the cost of government contracts the total cost would exceed the \$100 million threshold for “economic significance.” Furthermore, by its own Paperwork Reduction Act analysis FAR Council shows that the rule imposes 10 million hours of new paperwork at a cost of \$500 million on private industry and an additional 2.5 million hours of government procurement workers’ time at a cost of \$100 million to taxpayers.

For more information, contact Laura Hill at 703-993-4945 or loquinn@gmu.edu.
Download the Mercatus Center public interest comments at www.mercatus.org.

Regulation of the Week: EPA's Diesel and Heavy Duty Trucks

Rule Summary:

To help certain areas of the nation meet national ambient air quality standards (NAAQS) for particulate matter (PM) and ozone, EPA would set (1) new exhaust emission standards for heavy-duty highway engines and vehicles; and (2) new low-sulfur standards for highway diesel fuel.

The new truck engine emission standards would be less than one-tenth the current standards. In addition, because the sulfur levels in fuel may harm the new engine technologies required to meet the lower standard, EPA would reduce sulfur levels in diesel fuel from the current cap of 500 ppm to a cap of 15 ppm.

Facts:

- Emissions of particulate matter and nitrogen oxides from diesel and gasoline truck engines contribute to levels of particulate matter and ozone in the air. These emissions have been restricted and significantly reduced through prior federal regulations and technological innovation, so that, even without these standards, EPA observes that new engines “emit only a fraction of the NO_x, hydrocarbons, and PM produced by engines manufactured just a decade ago.”
- The vast majority of U.S. citizens live in areas that comply with the ozone and PM ambient air standards without these new regulations. EPA's nationwide restrictions on emissions and diesel sulfur would impose large costs on these citizens without corresponding benefit.
- EPA's application of a nationwide fuel standard is based on the presumed extreme sulfur intolerance of the expected emissions control technologies, coupled with the mobility of trucks and buses. EPA has not shown that the emissions control technologies require sulfur in diesel fuel to be reduced as much as required by the rule.
- While EPA asserts the rule will provide health and environmental benefits, it has not quantified, or even justified qualitatively, these claims. They are not supported by available evidence or EPA's own science advisors. Particularly given that the majority of citizens live in areas that meet federal air quality standards, claims of important health and environmental benefits are unlikely.
- President Clinton made a commitment, in a July 16, 1997 memorandum to EPA Administrator Browner, that the costs of achieving ambient air standards would not exceed \$10,000 per ton. Yet the costs of reducing diesel sulfur to the levels required

by this rule would exceed \$80,000 per ton – more than 10 times the President’s commitment.

- Consumers throughout the nation will face higher prices for consumer goods and public transportation. The requirements of this rule will raise the cost of trucking, increasing the price of consumer goods. In addition, public buses will face higher engine and fuel costs, which will be born by American taxpayers and users of public transportation.
- Whether the requirements are even feasible is uncertain. To suggest they will be, EPA had to assume that unproven emissions control technologies develop rapidly and at low cost. Feasibility also depends on highly optimistic assumptions about the cost and investment behavior of the suppliers of highway diesel fuel.
- EPA does not consider the subpopulations that may be disadvantaged by the proposed rule, including the majority of Americans who live in areas expected to be able to comply with air quality standards without the new rules.

For more information, contact Laura Hill at 703-993-4945 or loquinn@gmu.edu.
Download the Mercatus Center public interest comments at www.mercatus.org.

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GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

Comments on:

EPA Heavy-Duty Engine and Diesel Rule

Submitted to:

Environmental Protection Agency

August 11, 2000

"A wise and frugal government, which shall restrain men from injuring one another, which shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government."

Thomas Jefferson, from his "First Annual Message," 1801

RSP 2000-16

MERCATUS CENTER
REGULATORY STUDIES PROGRAM

Public Interest Comment Series:

EPA Heavy-Duty Engine and Diesel Rule

Agency:	Environmental Protection Agency
Rulemaking:	Heavy-Duty Engine and Vehicle Emission Standards and Highway Diesel Fuel Sulfur Control Requirements
Stated Purpose:	“Protect the public health and the environment of all Americans by reducing the sulfur content in diesel fuel by 97 percent to provide for the cleanest-running heavy-duty trucks and buses in history.”
Submitted: August 11, 2000	RSP 2000-16

Summary of RSP Comment:

EPA has not justified the need, feasibility or cost-effectiveness of its proposed rule to set nationwide (1) new exhaust emission standards for heavy-duty engines and vehicles (trucks and buses); and, (2) new low-sulfur requirements for highway diesel fuel—the fuel used by most trucks and buses.

EPA claims that the rule is needed to reduce levels of ozone and particulate matter (PM). However, most American citizens are expected to live in areas that meet current national ambient air quality standards (NAAQS) for both ozone and PM under current regulatory programs; and EPA does not show that the proposed rule would significantly reduce pollution levels in areas expected to fail one or both standards.

EPA’s rationale for the “system” approach of tying together the engine emission controls and the diesel sulfur limits presumes that fuel sulfur will irreversibly damage the ability of engines to reduce emissions. Yet, EPA does not substantiate this assertion, and certainly has insufficient evidence to support the dramatic sulfur levels reductions it proposes (from a current cap of 500 ppm to a cap of 15 ppm). EPA’s own analysis indicates that tightening the sulfur cap all the way to 15 ppm will have a relatively tiny impact on PM emissions and no impact on NO_x emissions.

EPA has not conducted a benefit-cost analysis of the proposal, but its cost-effectiveness analysis is based on faulty analysis and biased assumptions. Making some straightforward adjustments, the cost-per-ton of PM removed by the proposed approach goes from EPA’s estimate of \$1,850 to over \$80,000 (for going from 25 ppm to 15 ppm). This is far greater than the \$10,000 per ton ceiling that President Clinton committed to for implementing NAAQS rules.

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REGULATORY STUDIES PROGRAM

EPA's Proposed Heavy-Duty Engine and Vehicle Emission Standards and Highway Diesel Fuel Sulfur Control Requirements¹

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of regulations and their impacts on society. As part of its mission, RSP produces careful and independent analyses of agency rulemaking proposals from the perspective of the public interest. Thus, the program's comments on EPA's proposed heavy-duty engine and vehicle emission standards and highway diesel fuel sulfur control requirements do not represent the views of any particular affected party or special interest group, but are designed to protect the interests of American citizens.

The first section of these comments summarizes EPA's May 17, 2000 proposal. Section II discusses economic principles useful for evaluating EPA's proposal. Section III shows that EPA has not justified its proposal under the requirements of President Clinton's Executive Order 12866 and the Clean Air Act. Section IV explains why EPA has failed to show that its proposal will make American citizens better off. Section V presents RSP's recommendations on how EPA can better serve the interests of Americans in addressing heavy-duty vehicle emissions and diesel fuel sulfur requirements.

I. EPA Proposes to Reduce Heavy Duty Vehicle Emissions and Reduce the Sulfur Content of Diesel Fuel.

The proposed rule contains two basic parts: (1) new exhaust emission standards for heavy-duty highway engines and vehicles; and (2) new low-sulfur standards for highway diesel fuel. EPA is taking this action to help certain areas of the nation meet national ambient air quality standards (NAAQS) for particulate matter (PM) and ozone.

A. EPA's Proposal Would Phase in Emission Standards by 2010 and Impose Diesel-Sulfur Limits by 2006 .

Under the proposed emission standards, new heavy-duty engines (HDEs) would have to meet a PM emissions standard of 0.01 grams per brake-horsepower-hour (g/bhp-hr) by the 2007 HDE model year. New heavy-duty engines would also have to meet emission standards for nitrogen oxides (NOx) and non-methane hydrocarbons (NMHC) – both ozone precursors—of 0.20 g/bhp-hr and 0.14 g/bhp-hr respectively. In addition, new

¹ Prepared by Garrett Vaughn, Ph.D. economist. This comment is one in a series of Public Interest Comments from Mercatus Center's Regulatory Studies Program and does not represent an official position of George Mason University.

heavy-duty engines would have to meet an emissions standard for formaldehyde—an air toxic—of 0.016 g/bhp-hr. For new diesel engines, these emission standards phase in together between 2007 and 2010 on a percent-of-sales basis: 25 percent in 2007; 50 percent in 2008; 75 percent in 2009 and 100 percent in 2010. No phase-in period would apply to gasoline engines and vehicles. As proposed, fully 100 percent would have to meet the new emission standards by the 2007 model year because “of the more advanced state of gasoline engine emissions control technology...although we request comment on phasing these standards in.”²

Under the proposed fuel standards, diesel fuel sold for use on highways would be limited in sulfur content to a level of 15 parts per million (ppm), beginning June 1, 2006. Currently, highway diesel fuel cannot have more than 500 ppm sulfur.

Table 1 summarizes the proposed engine/vehicle emission standards. Table 2 summarizes the proposed fuel standards.

Table 1. Proposed Engine Emission Standards

		Standard (g/bhp-hr)	Phase-In by Model Year			
			2007	2008	2009	2010
Diesel	NO _x	0.20	25%	50%	75%	100%
	NMHC	0.14				
	Formaldehyde	0.016				
Gasoline	NO _x	0.20	100%			
	NMHC	0.14				
	Formaldehyde	0.016				
Diesel & Gasoline	PM	0.01	100%			

² EPA, Draft Regulatory Impact Analysis, May 2000 p. I-3. Subsequent references to this source identify it as “Draft RIA.”

Table 2. Proposed Fuel Standards

Location	Implementation Date	Current Sulfur Level	Proposed Sulfur Level
Refinery (or Import)	April 1, 2006	500 ppm cap	15 ppm cap
Terminal	May 1, 2006		
Retail	June 1, 2006		

B. EPA’s Proposal is the Second of Two Phases for Controlling Emissions from Heavy-Duty Engines and Vehicles.

Last October, the EPA proposed the first phase of a two-phase strategy for reducing nitrogen oxide (NO_x) and hydrocarbon (HC) emissions from on-highway heavy-duty vehicles (vehicles with gross weight rating 8,500 pounds and above).³ Vehicles weighing up to 8,500 pounds were covered under the tailpipe emission standards that EPA proposed in May 1999, often referred to as “Tier 2” standards.⁴ The first-phase emission standards for heavy-duty vehicles would take effect starting with the 2004 model year and are summarized in Tables 3 and 4.

Table 3. Diesel Heavy-Duty Vehicle “Phase 1” Emission Standards

Gross Vehicle Weight	Combined Standard: NO _x and HC*
8,500 pounds and above	2.4 g/bhp-hr

*The current NO_x standard is 4.0 g/bhp-hr. The current HC standard is 1.3 g/bhp-hr.

³ EPA, “Proposed Strategy to Reduce Emissions from Heavy Duty Vehicles,” October 1999.

⁴ RSP’s comments on the Tier 2 standards are available at www.mercatus.org.

Table 4. Gasoline Heavy-Duty Vehicle “Phase 1” Emission Standards

Gross Vehicle Weight	NO _x *	HC**
8,500 – 10,000 pounds	0.9 grams per mile	0.28 grams per mile
10,001 – 14,000 pounds	1.0 grams per mile	0.33 grams per mile
14,001 pounds and above	1.0 g/bhp-hr (combined NO _x and HC)	

* The current NO_x standard is 4.0 g/bhp-hr. **The current HC standard is 1.1 g/bhp-hr.

The second phase of EPA’s strategy “looks beyond 2004” and is “based on the use of high-efficiency exhaust control devices and the consideration of the vehicle and its fuel as a single system.”⁵ The first phase does not impose standards on fuel (beyond the reduction in gasoline sulfur content already specified in the May 1999 “Tier 2” rulemaking.) The second phase—in addition to further tightening the emission standards for heavy-duty vehicles—would also require that the maximum allowable sulfur content of on-highway diesel fuel be reduced from the current 500 parts per million (ppm) to 15 ppm.⁶

C. EPA’s “Single System” Rationale Ties Together Regulations on Engine/Vehicle Emissions and Fuel Sulfur Content.

EPA argues that, unless it adopts more stringent “tailpipe” controls on NO_x, NMHC, and PM emissions from heavy-duty vehicles, many areas of the country will violate the NAAQS for ozone, PM, or both. Most heavy-duty vehicles (trucks and buses) covered by the proposal use diesel fuel.

EPA predicts that new technologies—NO_x adsorbers and PM traps—needed to control NO_x (the principal ozone precursor targeted by the proposed rule) and PM emissions from heavy-duty diesel vehicles can be developed successfully by 2007. However, it predicts that, to be effective, these new technologies will require extremely low sulfur diesel fuel, because sulfur could irreversibly damage the new pollution control devices.⁷ Thus, the proposed requirement for national, year-round standards for both vehicles and diesel fuel hinges on the presumption that sulfur will permanently damage emission control devices in heavy-duty engines.

⁵ Draft RIA, p. 1-2.

⁶ Draft RIA, p. 1-3.

⁷ EPA states in the draft RIA: “The systems approach of combining the engine and fuel standards into a single program is critical to the success of our overall efforts to reduce emissions, because the emission standards would not be feasible without the fuel change. This is because the emission standards, if promulgated, are expected to result in the use of high-efficiency exhaust emission control devices that would be damaged by sulfur in the fuel.” See: EPA, Draft RIA, p. 1-2.

1. EPA argues that a national standard is necessary to address air quality issues in a few areas.

EPA proposes to impose nationwide restrictions on emissions and diesel sulfur even though most U.S. citizens live in areas able to attain the ozone and PM NAAQS under existing regulatory programs. This is because trucks and buses travel long distances through many regions of the country, including areas facing air pollution problems. If these vehicles could use current diesel fuel without irreversibly poisoning their emission control equipment, then in principle only those areas of the country violating ozone or PM NAAQS may need to use very low sulfur diesel fuel—just as only those areas facing more stubborn air pollution problems must use cleaner-burning reformulated gasoline (RFG). However, EPA argues that the mobility of these vehicles, coupled with sulfur's irreversible effects on emissions control equipment, require that the fuel sulfur standard apply nationwide in order to improve air quality in those areas facing pollution problems.

2. EPA proposes year-round regulations even though ozone problems occur primarily in the warmer months.

Areas of the country facing ozone, but not PM, problems would need the benefits of extremely low sulfur diesel fuel only during the warmer months. (Heat promotes the formation of ozone.) However, EPA argues that, unless the fuel regulations apply nationwide throughout the year, sulfur would irreversibly poison the emissions control equipment during the cooler months, leading to unacceptable ozone pollution during warmer weather.

II. EPA's Proposal Must be Evaluated Using Economic Principles.

A. Why Regulations Should Pass a Benefit-Cost Test.

EPA's proposal seeks to provide Americans with the benefits associated with cleaner air: better health, fewer premature deaths and an improved environment. The proposal, however, will also impose costs that will be passed on to Americans as higher prices and lower wages. Hence, EPA's proposal will—besides providing benefits—also restrict Americans' ability to spend on the goods and services that contribute to healthier lifestyles: better diet, more frequent visits to the doctor, safer cars, more smoke detectors and the like.

In order to make Americans better rather than worse off, EPA's proposal needs to pass a benefit-cost "test". The "costs" in this test measure the alternative dollar benefits that Americans would have without the new rule. A regulation failing such a test harms Americans by taking from them more in alternative benefits than it returns in direct benefits.

EPA also needs to show that no other method—no other regulatory alternative—can deliver equivalent benefits at less cost since more than one regulatory approach may be able to pass a benefit-cost test. Indeed, this simply calls for EPA to follow President Clinton's Executive Order No. 12866, which states:

“In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider.”

B. Why Some Regulations May Pass a Benefit-Cost Test while Others Fail.

EPA’s proposed rule could, in principle, give to Americans more benefits than it takes from them in costs. The marketplace may not always “internalize” all of the costs imposed by air pollutants and, so, excessive amounts of these pollutants can be generated. A government regulation can, in principle, lessen that “market failure” by limiting pollution.

However, EPA’s proposed regulation—by greatly extending its “end of the tailpipe” strategy—may impose more costs than it delivers in benefits by ignoring the economic laws of diminishing marginal returns and increasing costs. Squeezing out the last few molecules of pollution from engine exhaust or the last few ppm of sulfur from diesel fuel (or gasoline) tends to be much more expensive than removing the first several molecules.⁸ Often, removing the first 90 percent of pollutants costs less than removing the last 10 percent. Indeed, removing the very last bit of pollution often exceeds what technology can accomplish at any cost.⁹

C. Evaluating Regulations That Impose Costs Before Providing Benefits.

EPA’s proposed rule will require the engine, vehicle, and petroleum industries to invest considerable sums of money during the next few years in order to meet the deadlines that begin in 2006 (for fuel) and 2007 (for engines and vehicles). However, the bulk of clean air benefits will not appear until decades later, after people replace a large portion of current trucks and buses with the less-polluting vehicles EPA envisions, a process that may take as long as 30 years after the rule becomes final.

Just as a dollar today is worth more than a dollar a year from now, the costs and benefits must be expressed in terms of their “present value” through use of a discount rate. Once expressed in the same unit of measure, the more distant benefits can be compared to the

⁸ EPA asserts that its proposed rule will reduce “the sulfur content in diesel fuel by 97 percent.” See: EPA’s May 17, 2000 press release, “EPA Proposes Reduced Sulfur Content in Diesel Fuel to Ensure Clean Heavy-duty Trucks and Buses.” This required sulfur reduction is incremental to the reduction in sulfur content required to meet the current cap. Hence, EPA’s proposed rule with respect to diesel sulfur appears to raise the question of much higher costs because of the economic law of diminishing marginal returns.

⁹ Supreme Court Justice Stephen Breyer highlighted this problem in his 1993 book, *Breaking the Vicious Circle: Toward Effective Risk Regulation* (Harvard University Press), labeling it the problem of “the last 10 percent.” He observed “removing that last little bit can involve limited technological choice, high cost, devotion of considerable agency resources, large legal fees, and endless argument.” (p. 11)

costs and a judgment made about the true cost-effectiveness of the proposed rule; i.e., whether the benefits will be worth the costs.

III. Has EPA Justified its Proposal Under the Requirements of the CAA and Executive Order 12866?

EPA bases the proposed rule on Section 202(a)(1) of the Clean Air Act (CAA) which directs the Agency to “regulate the emission of any air pollutant from any class or classes of new motor vehicles or engines that, in the Administrator’s judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare.” However, EPA does not mention, except in a *pro forma* section at the end of the Preamble, President Clinton’s Executive Order 12866 that directs: “in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.”¹⁰

The CAA does not require a different regulatory approach. Indeed, that law contains language specifically encouraging EPA to consider both the benefits and the costs of regulations. Section 202(a)(3) of the CAA requires the EPA, when regulating vehicle emissions, “to give appropriate consideration to cost, energy, and safety.” Section 312(e) of the CAA requires the EPA to report to Congress every 24 months on “expected costs, benefits, and other effects of compliance with standards,” including standards issued for “emissions from mobile sources.”

EPA has not given appropriate consideration to cost under the requirements of the Clean Air Act nor has it complied with the requirements of E.O. 12866 to select a regulatory approach that will maximize net benefits for American citizens.

A. EPA Has Not Demonstrated that the Proposed Rule Can Provide Substantial Benefits.

EPA implies—but does not demonstrate—that its proposed rule would provide substantial benefits by significantly reducing the harmful impacts that heavy-duty vehicle emissions allegedly have on air quality and human health. In the Preamble and Draft RIA for the proposed rule, however, EPA does not quantify any of these benefits in terms of dollars although it does quantify many of the expected costs.¹¹ Hence, EPA has yet to demonstrate that the proposed rule is truly cost-effective—that it will give to American citizens more in benefits than it will take from them in costs.

At this stage of the rulemaking, EPA has offered a limited numerical accounting of the rule’s benefits—estimated reductions in the national emissions of PM and the two ozone

¹⁰ E.O. 12866, section I (a).

¹¹ EPA promises to quantify benefits in terms of dollars—and provide a true benefit-cost test—at the time the rule becomes final. Subsection IV.A of these comments discusses the methodology that EPA intends to follow in conducting this benefit-cost calculation.

precursors, NO_x and NMHC, measured in tons. EPA implies that substantial human health benefits would follow from these emission reductions through: (1) improving compliance with PM and ozone NAAQS; (2) preventing cancers caused by exposure to diesel exhaust; and, (3) reducing emissions of several air toxics along with reductions in haze, acid deposition, eutrophication and nitrification, and POM (polycyclic organic matter) deposition.¹² However, in each of the three basic categories, the factual evidence offered by EPA does not adequately support its claim of substantial benefits.

1. EPA does not predict that implementation of this proposal will yield significant national reductions in PM and ozone precursors.

a) PM.

Most areas of the United States are expected to meet the PM standard under existing regulatory programs, limiting the potential ability of the proposed rule to increase compliance. According to EPA, six areas with a 1990 population of 19.1 million in portions of four states (California, Nevada, Texas and Arizona) currently fail to meet the PM standard. Another four areas with a 1990 population of 8.2 million in portions of four states (New York, Ohio, Texas and California) are within 10 percent of failing the PM standard.¹³ Even assuming that economic growth will push the latter four areas into PM nonattainment by 2030 (when annual benefits from the proposed rule would approach their maximum), as EPA suggests, approximately 90 percent of the U.S. population will live in areas that meet the PM standard. Furthermore, 44 of the 50 states will have no areas failing to meet the PM standard under existing regulatory programs. Hence, PM attainment is a regional, rather than national problem.

b) Ozone precursors: NO_x and NMHC.

EPA predicts that—in the absence of these standards—28 metropolitan areas, concentrated in the eastern United States with a combined 1996 population of 83.7 million people, would violate the ozone NAAQS by 2030 under current regulatory programs—a slight improvement over the 32 areas predicted to be out of attainment in

¹² EPA states: “The information regarding air quality and the contribution of heavy-duty engines to air pollution in Section II [of the Preamble] and the Draft RIA provides strong evidence that emissions from such engines significantly and adversely impact public health and welfare. First, there is a significant risk that several areas will fail to attain or maintain compliance with the NAAQS for 1-hour ozone concentrations or PM₁₀ concentrations during the period that these proposed new vehicle and engine standards would be phased into the vehicle population, and that heavy-duty engines contribute to such concentrations, as well as to concentrations of other NAAQS-related pollutants. Second, EPA currently believes that diesel exhaust is a likely human carcinogen. The risk associated with exposure to diesel exhaust includes the particulate and gaseous components. Some of the air toxic air pollutants associated with emissions from heavy-duty vehicles and engines include benzene, formaldehyde, acetaldehyde, dioxin, acrolein, and 1,3-butadiene. Third, emissions from heavy-duty engines contribute to regional haze and impaired visibility across the nation, as well as acid deposition, POM deposition, eutrophication and nitrification, all of which are serious environmental welfare problems.” See: EPA, Preamble, May 2000, pp. 34-35. Subsequent references to this source identify it as “Preamble.”

¹³ Draft RIA, p. II-65.

2007.¹⁴ Although ozone is a more widespread, stubborn form of pollution than PM, it too can be characterized as a regional, rather than a truly national problem. EPA's modeling predicts that more than half of the total population—and most Americans living west of the Mississippi River—will live in ozone attainment areas for the foreseeable future under existing programs.

Furthermore, EPA fails to demonstrate (though it does suggest) that the proposed rule would substantially reduce ozone levels in any of the areas it predicts to be out of attainment in 2030. Instead, EPA claims that the estimated *national* reductions in the two ozone precursors will help reduce ozone levels for the areas predicted to be out of compliance with the ozone NAAQS, without quantifying the degree of help any particular area can expect.¹⁵

Yet, national reductions in NO_x and NMHC may not yield comparable reductions in ozone for specific areas. EPA states that “the change in ozone levels from the expected NO_x reduction is relatively small compared to the effects of variations in ozone due to meteorology.”¹⁶ Furthermore, reductions in NO_x emissions (the principal ozone precursor targeted by the proposed rule) can actually *increase* ozone levels, especially in those urban areas that are “VOC limited.”¹⁷

In addition, EPA's proposed rule may reduce the sulfur content of highway diesel fuel well beyond the level that can reduce national emissions of the ozone precursors. For instance, EPA estimates that tightening the cap on highway diesel from 25 ppm to the proposed 15 ppm would reduce PM emissions slightly but not change total NO_x + NMHC emissions.¹⁸

In brief, EPA has not demonstrated that its strategy for reducing national emissions of two ozone *precursors* under the proposed rule can deliver significant reductions in *ozone levels* for those areas predicted to violate the ozone NAAQS under existing regulatory programs.

¹⁴ Draft RIA, Table II.A-3, pp. II-23-II-24.

¹⁵ EPA concludes “without these reductions, there is a significant risk that an appreciable number” of areas “would violate the 1-hour ozone standard during the time period when these proposed standards would apply to heavy-duty vehicles.” Yet, EPA does not show what the risk of violating the standard would be *with* the emission reductions. Instead, EPA states that “the new standards in this new proposal are an integral part” of the efforts that these areas need to make to reach compliance. The wording—“integral part”—suggests, but does not actually quantify, a significant reduction in ozone levels for the areas predicted to be out of attainment under existing programs. See: Draft RIA, p. II-35.

¹⁶ Draft RIA, p. II-21.

¹⁷ According to EPA: “When NO_x levels are high and VOC [volatile organic compound] levels relatively low, NO_x forms inorganic nitrates but little ozone. Such conditions are called ‘VOC limited.’ Under these conditions, VOC reductions are effective in reducing ozone, but NO_x reductions can actually increase local ozone.... Rural areas are almost always NO_x limited.... Urban areas can be either VOC or NO_x limited, or a mixture of both, in which ozone levels exhibit moderate sensitivity to changes in either pollutant.” Draft RIA, p. II-2. Words in brackets are added.

¹⁸ Draft RIA, Table VI-11, p. VI-16 and Table IX.A-12, p. IX-28.

2. A causal link between diesel exhaust and cancer has not been established.

EPA suggests that the proposed rule will provide substantial dollar benefits by reducing the incidence of human cancers, primarily lung cancer. However, comments by EPA's Clean Air Scientific Advisory Committee (CASAC) indicate that claims of substantial benefits are not yet adequately supported by scientific evidence.

EPA states:

“The current Agency position under review by CASAC is that diesel exhaust is a likely human carcinogen and that the hazard observed at occupational exposures is believed to be present at environmental levels of exposure.”¹⁹

However, in its February 4, 2000 report on EPA's *Health Assessment Document for Diesel Emissions*, CASAC questioned the scientific basis for claiming a causal link between human cancer and diesel particulate matter (DPM) at ambient levels of PM. CASAC concluded that EPA's “discussion of the linkages between health hazards from DPM and the combination of DPM and other ambient PM still needs strengthening.”²⁰ In response, EPA's August 8, 2000 assessment document contains a significantly higher “inhalation reference concentration” (RfC) for diesel exhaust than the 1999 version.²¹

EPA itself has stated that “the absence of quantitative estimates of the lung cancer unit risk for diesel exhaust limits our ability to quantify with confidence the actual magnitude of the cancer risk.”²²

Without reliable quantitative risk estimates and no established causal link between cancer and diesel exhaust PM at ambient levels of exposure, EPA's inference of substantial cancer-reduction benefits appears premature.

3. EPA does not support its claim of additional environmental benefits from reducing other emissions.

EPA claims that the proposed rule will provide significant environmental benefits in addition to those that would be derived from reducing levels of PM and ozone. However, as with PM and the two ozone precursors, EPA does not quantify benefits in terms of human illness prevented or environmental damage averted, either for the nation or for particular regions. Hence, EPA does not substantiate its claim that the estimated emission reductions would provide substantial benefits.

¹⁹ Draft RIA, p. II-97.

²⁰ CASAC Report *re* EPA's *Health Assessment Document for Diesel Emissions*, February 4, 2000, p. 8.

²¹ 2000 Page A-29 “EPA Raises Diesel Concentration Level Associated With Increased Health Effects,” *Regulation, Law & Economics* No. 155, Bureau of National Affairs. (Thursday August 10).

²² Preamble, p. 77.

a) **CO, SO_x and air toxics.**

EPA states that “although we are not including stringent standards for these pollutants in our proposed standards, we believe the proposed standards would result in reductions in CO [carbon monoxide], SO_x, and air toxics.”²³

However, several of the emission reductions would appear to have limited potential for providing benefits because ambient levels of the respective pollutants are already at low levels.

- **CO.** EPA suggests substantial benefits when it states that “although it does not propose new CO emission standards, today’s proposal would nevertheless be expected to result in a considerable reduction in CO emissions from heavy-duty vehicles.”²⁴ Yet, EPA also states that “in 1997 only 6 of 537 monitoring sites reported ambient CO levels in excess of the CO NAAQS” and that “the broad trends indicate that ambient levels of CO are declining.”²⁵
- **SO_x.** Sulfur dioxide (SO₂)—a NAAQS criteria pollutant—is the most important component of SO_x. Yet, according to EPA, “As of 1997, only one area (Buchanan County, Missouri) did not meet the primary SO₂ short-term standard, due to emissions from the local power plant.”²⁶
- **Air toxics.** EPA claims that the proposed rule would reduce the emissions of several air toxics and of which the EPA discusses six in some detail: benzene, acetaldehyde, formaldehyde, 1,3-butadiene, acrolein and dioxin. For the first four of these, EPA estimates the proposed rule’s impact on ambient national exposures in 2020. EPA estimates that ambient exposures for all four air toxics would fall substantially between 1996 and 2020 under existing regulatory programs. EPA predicts that the proposed rule would make further reductions in 2020 ambient exposures to formaldehyde, acetaldehyde and benzene (but not to 1,3-butadiene). However, EPA does not quantify the impacts on health or the environment that the incremental reductions would make, beyond the improvement that would occur anyway.²⁷

²³ Preamble, p. 124.

²⁴ Preamble, p. 124.

²⁵ Preamble, p. 93.

²⁶ Preamble, p. 93.

²⁷ The following table summarizes the reductions in national ambient exposures for the three air toxics and is based on Table II.A-24 of the Draft RIA (p. II-109).

Modeled Average 50-State Ambient Exposure to Highway Motor Vehicle Toxics (µg/m³) In 1996 and 2020 Without 2007 HDV Standards and for 2020 With 2007 HDV Standards.

Toxic/Year	1996	2020	2020 ^a
Benzene	0.68	0.27	0.26
Acetaldehyde	0.36	0.18	0.15
Formaldehyde	0.34	0.14	0.10
1,3-Butadiene	0.07	0.03	0.03

^aExposure estimates with the 2007 heavy-duty vehicle standards.

b) Visibility/haze, acid deposition, eutrophication/nitrification and POM deposition.

EPA suggests that the proposed rule would provide substantial benefits by reducing these environmental problems but in each case does not quantify precisely how much help the rule would provide, either for the nation as a whole or for any particular region.

- **Visibility/haze.** EPA indicates only the direction of change—not the magnitude of change—that the proposed rule would make in reducing haze. EPA states that, “Visibility impairment is the haze that obscures what we see, and is caused by the presence of tiny particles in the air....The reduction in ambient PM_{2.5} from the standards proposed in this rulemaking are expected to contribute to visibility improvements across the U.S.”²⁸
- **Acid deposition.** Again, EPA indicates the direction of change from the proposed rule but offers little guidance on how great the change would be for any particular region of the country. According to EPA: “The SO_x and NO_x reductions from today’s proposal would help reduce acid rain and acid deposition....While the reductions in sulfur and nitrogen acid deposition would be roughly proportional to the reductions in SO_x and NO_x emissions, respectively, the precise impact of today’s proposal would differ across different areas.”²⁹
- **Eutrophication/nitrification.** Again, the EPA suggests that the proposed rule should help reduce this environmental problem without offering any measure of the degree of help to be expected. EPA states: “The NO_x reductions from the proposed standards for heavy-duty vehicles should reduce the eutrophication problems associated with atmospheric depositions of nitrogen into watersheds and onto bodies of water, particularly in aquatic systems where atmospheric deposition of nitrogen represents a significant portion of total nitrogen loadings.”³⁰
- **POM deposition.** As with the three other environmental problems, EPA indicates only that the proposed rule should help ease POM deposition without offering any measure for the degree of help to be expected. EPA states: “The particulate reductions from today’s proposal would help reduce not only the particulate emissions from highway diesel engines but also the depositions of the POM adhered to the particles.”³¹

²⁸ Draft RIA, pp. II-109 – II-111.

²⁹ Draft RIA, pp. II-111–II-112.

³⁰ Draft RIA, p. II-113.

³¹ Draft RIA, p. II-114.

B. EPA Has Not Demonstrated the Technological Feasibility of its Proposal.

EPA makes several assumptions about the availability and cost of emerging technologies in its determination that its proposed combination of engine and fuel standards is feasible. Under EPA's "system" approach, the proposed rule would be feasible *only if* the emissions control technologies develop as EPA predicts *and* the petroleum industry can meet EPA's expectations of providing very low sulfur diesel fuel at a reasonable cost.³² The *combined* probability of both technologies turning out as EPA predicts is less than the probability for success of each considered in isolation. However, the feasibility of the emissions control technologies and the cost of providing very low sulfur diesel fuel are each highly uncertain, leaving the feasibility of the overall system even more uncertain. For example, if there's only a 50 percent chance that the emissions control technologies will be available on time and cost-effectively, and only a 50 percent chance that low-sulfur fuel will be available on time and cost-effectively, then the "system's" probability of success is just 25 percent.

1. The emissions control equipment needed to meet the standard are not commercially available.

EPA has identified two prospective technologies that may be able to achieve the proposed standards—NO_x adsorbers and PM traps. EPA's proposed rule assumes that *both* emissions control technologies will develop rapidly enough to permit its proposed rule to begin taking effect by 2007 for engines and vehicles. However, neither technology is assured—nor even likely—to meet such a tight schedule.

a) NO_x adsorbers.

EPA predicts that NO_x adsorbers will emerge as the technology that enables makers of heavy-duty engines and vehicles to meet the proposed emission standard by 2007. EPA makes this prediction even though it states:

- "NO_x adsorbers were first introduced in the power generation market less than five years ago."³³
- "Although diesel vehicle manufacturers have not yet announced production plans for NO_x adsorber-based systems, they are known to have development efforts underway to demonstrate its potential."³⁴
- "The NO_x adsorber concept works well in the gasoline direct injection engine because these engines can quite easily force fuel rich, high temperature operation necessary to

³² A "reasonable cost" would allow Americans to be better off under EPA's proposed rule than without it; i.e., the cost would not be so high that the proposed rule fails to pass a benefit-cost test.

³³ Draft RIA, p. III-12. Note that application of NO_x adsorbers to heavy-duty vehicles—rather than to stationary sources—is even more recent.

³⁴ Draft RIA, p. III-12.

regenerate. Such rich operation is difficult for diesel engines, which makes the application of NO_x adsorber technology to diesel engines a challenge.”³⁵

- “NO_x regeneration algorithms also need to be developed that minimize fuel economy and emissions penalties.”³⁶
- “NO_x adsorber technology is relatively new.”³⁷

A study done for the American Petroleum Institute by AVL List GmbH indicates that the NO_x adsorber has not been demonstrated to enable heavy-duty diesel engines to meet EPA’s proposed NO_x emissions standards at *any* sulfur level, including near zero.³⁸

EPA explicitly acknowledged that “our proposed NO_x standard represents an ambitious target for this technology” and therefore is “evaluating whether or not the proposed program could benefit from a future reassessment of the control effectiveness of diesel NO_x exhaust emission control technologies and associated fuel sulfur requirements.”³⁹

b) PM trap.

EPA asserts that the PM standard is feasible, even though a technology clearly capable of meeting the proposed standard has yet to become commercially available on a large scale. EPA notes that “several exhaust aftertreatment devices have been developed to control diesel PM constituents—the diesel oxidation catalyst (DOC), and the many forms of particulate filters or traps.” In EPA’s judgment, the DOC is reliable but not acceptable because it controls only about 10 percent to 30 percent of total PM.

EPA states that, “At this time, only the PM trap is capable” of meeting the proposed PM standards. Two basic types of PM traps have been developed to deal with the “serious challenge” of burning off the collected PM (to keep the trap from being plugged)—a process referred to as “regeneration.” One type of trap burns off the collected PM “on a periodic basis by using base metal catalysts or an active regeneration system such as an electrical heater, a fuel burner, or a microwave heater.” The second type of trap burns off the collected PM “on a continuous basis by using precious metal catalysts.”⁴⁰

EPA predicts that industry will choose the second type of trap, largely because the Agency expects this trap’s avoidance of extra burners or heaters will outweigh the disadvantage of needing expensive precious metals in the catalyst.

However, real world experience with PM traps that use precious metal catalysts has yet to move beyond field trials. EPA states that “more than one aftertreatment manufacturer is

³⁵ Draft RIA, p. III-13.

³⁶ Draft RIA, p. III-16.

³⁷ Draft RIA, p. III-18.

³⁸ “Evaluation of Future Diesel Engine Technologies Including Exhaust Gas Aftertreatment for the US Market,” a study by AVL List GmbH for the American Petroleum Institute.

³⁹ Preamble, pp. 205 - 206.

⁴⁰ Draft RIA, p. III-5.

developing these precious metal catalyzed, passively regenerating PM traps.” and that these traps “have demonstrated highly efficient PM control and promising durability” in field trials.⁴¹ EPA also points to the experience gained with traps retrofitted on preexisting diesel engines in parts of Europe where extremely low sulfur diesel fuel is available. EPA claims that “more than 3,000 catalyzed diesel particulate filters have been introduced into retrofit applications without a single failure.”⁴²

However, promising performance in a limited number of field tests does not guarantee that effective PM traps will be available in time for engine manufacturers to meet the proposed emission standard. EPA claims that “much development effort is underway worldwide to bring PM aftertreatment to market.”⁴³ Nonetheless, the fact remains that the PM traps needed to meet the proposed standards are not yet commercially available.

2. Engine/vehicle costs for NO_x adsorbers and PM traps are optimistic.

EPA estimates the “hardware” costs (in 1999 dollars) for NO_x adsorbers and PM traps at between a low of \$982 for a light heavy-duty truck to a high of \$1,572 for a heavy heavy-duty truck.⁴⁴ However, these are engineering cost estimates based on the assumption that the technologies will develop as quickly and as favorably as EPA predicts. The Agency does not provide estimates of how a less favorable development of the technologies would affect ultimate hardware costs, even though it notes that the NO_x emissions standard “represents an ambitious target for this technology.” Furthermore, EPA’s cost estimates assume that supply of the emissions control devices will be infinitely elastic beginning in 2007 when the emissions standards start phasing in. However, unless several firms rapidly acquire the ability to produce the needed emissions control equipment, supply will not be perfectly elastic. Hence, the sudden appearance of demand for the technologies—created by the proposed rule—may drive market prices for the equipment above the equipment’s long-run average cost for the first few years of implementation. Furthermore, prices above average cost may persist for several years should some of the firms now developing the technologies patent key discoveries and thus gain market power. In addition, EPA’s cost estimates assume that the long-run supply of key resources, such as precious metals used in catalysts, is infinitely elastic; i.e., that the increased demand for those resources created by the proposed rule will not drive up resource prices.

3. Meeting EPA’s proposed sulfur cap on highway diesel fuel will be very expensive.

Unlike the emission control technologies for NO_x and PM, the technologies needed to provide very low sulfur fuel already exist. However, the cost of applying these technologies to meet EPA’s proposed 15 ppm sulfur cap for highway diesel fuel remains

⁴¹ Draft RIA, p. III-6.

⁴² Draft RIA, pp. III-6, III-7.

⁴³ Draft RIA, p. III-7.

⁴⁴ Draft RIA, p. iv.

controversial. EPA estimates that the fuel component of the standard will comprise 75 percent of the total cost of the proposal. Hence, feasibility of the fuel standard revolves around cost.

EPA estimates that collectively petroleum companies—refineries, pipelines, wholesalers and retailers—can deliver the new diesel fuel to the pump at an increased average cost of about 4.3¢ a gallon, with all but 0.3¢ of that amount accounted for by higher refining costs.⁴⁵ In making this estimate, EPA predicts: (1) refineries will be able to meet the standard largely through retrofitting existing facilities; and (2) pipelines (and other companies that help transport refined petroleum products from the refinery to final users) will be able to prevent sulfur contamination of highway diesel⁴⁶ through exercising greater care, employee education and other relatively inexpensive methods, thus avoiding the need to invest in new facilities dedicated to diesel fuel.

However, the National Petroleum Council (NPC) and the American Petroleum Institute (API) indicate that EPA's cost-per-gallon estimates are much too optimistic.⁴⁷ They believe that many refineries and other companies in the supply chain would have to make major new investments to meet the standard and that several of these companies will not be able to recover their cost of capital and, so, will not make the investments.

a) Refining costs.

EPA bases its estimate of additional refining costs on information provided by “two licensors of conventional distillate desulfurization technology.”⁴⁸ According to EPA, “the most significant cost involved in meeting a more stringent diesel sulfur standard would be the cost of constructing and operating the distillate desulfurization unit.”⁴⁹ The expense of that unit varies directly with the heat and pressure that must be applied to produce low sulfur diesel fuel. EPA notes:

“API has indicated that they believe that very high hydrotreating pressures (e.g., 1200 psi or more) will be necessary to reduce sulfur below 30 ppm on average” and thus require considerable new investment. The National Petrochemical and

⁴⁵ Draft RIA, p. V-93.

⁴⁶ For instance, about 70 percent of highway diesel fuel travels through pipelines. Pipelines also transport substantial portions of other refined petroleum products; e.g., jet fuel, heating oil, gasoline, off-highway diesel fuel and kerosene. Sulfur left behind in the pipeline by these other products could contaminate very low sulfur highway diesel fuel. The petroleum industry believes that preventing such contamination could be quite costly; the EPA believes that this cost per gallon will be no more than a tenth or two tenths of a cent.

⁴⁷ National Petroleum Council, *U.S. Petroleum Refining: Assuring the Adequacy and Affordability of Cleaner Fuels*, June 20, 2000, pp. 26-27; American Petroleum Institute, “Diesel Sulfur Regulations,” July 2000.

⁴⁸ Draft RIA, p. V-60. EPA adds: “In addition, information obtained from two other vendors of diesel desulfurization technology further corroborated the information provided by the first two vendors.”

⁴⁹ Draft RIA, p. V-64.

Refiners Association (NPRA) has stated that “many refiners will be unable to bear the heavy costs of reducing sulfur to the unrealistic level chosen by EPA.”⁵⁰

EPA dismissed the concerns expressed by API and NPRA by stating; “none of the vendors projected that pressures more than 900 psi would be necessary and most of the vendors projected that 600 psi would be sufficient. Likewise, a number of refiners have indicated that pressures well below 1000 psi would be sufficient.” “Thus,” concluded EPA, “we based our estimate of capital cost on low to moderate pressure requirements.”⁵¹

EPA expressed confidence in the vendors’ estimates even though it noted, “According to participants of the current NPC [National Petroleum Council] study, vendors of refinery processing units typically underestimate their capital costs and utility demands for their refining processes, presumably for marketing reasons.”⁵² EPA counters this possibility by stating, “Even if vendors’ costs were underestimated now, between now and when this program would begin these same vendors will be making improvements in their desulfurization technology.”⁵³ If self-interest motivates vendors to underestimate costs – and perhaps motivates API and NPRA to overestimate costs (on behalf of their dues-paying company members), then neither set of estimates can be considered truly reliable. Adjusting an unreliable set of estimates with unspecified “improvements” in desulfurization technology does not provide credible evidence of the likely increase in average refinery costs. (If such improvements can be predicted reliably, their impact should be included in EPA’s original cost estimate.)

Finally, EPA’s cost estimate assumes that the supply of new desulfurization equipment can respond quickly to the rapid increase in demand to be expected from the proposed diesel fuel sulfur standard. A rapid increase in demand would be expected to result, temporarily at least, in price increases that exceed the change in long-term average cost – even in a competitive market where new firms face no barriers to entry. Furthermore, existing firms that supply desulfurization equipment to refiners may possess market power because of patents or exclusive knowledge of crucial technical processes. If so, price increases charged refiners may be substantially higher—for an extended period—than the costs incurred by vendors for supplying the desulfurization equipment.

b) Transportation costs.

According to EPA, the proposed 15 ppm sulfur cap would increase distribution costs for pipeline operators and terminal operators by a total of 0.2¢ a gallon.⁵⁴ EPA, thus, essentially dismisses the claim by the American Petroleum Institute that “pipeline companies have said it is impossible to ship the ultra-low sulfur fuel proposed through the nation’s pipelines without picking up additional levels of sulfur from other fuels

⁵⁰ National Petrochemical & Refiners Association, “EPA’s Diesel Sulfur Proposal Has Adverse Supply Implications,” press release, May 17, 2000.

⁵¹ Draft RIA, p. V-65.

⁵² Draft RIA, pp. V-86-7.

⁵³ Draft RIA, p. V-87.

⁵⁴ Draft RIA, pp. V-89, V-90.

shipped through those pipelines. That fuel would then not meet the regulatory specifications of a 15 ppm sulfur level for on-highway diesel.”⁵⁵ API and pipeline companies may have a financial motive to overestimate the difficulties of transporting very low sulfur highway diesel in pipelines; but, if so, EPA does not explain the reasons why (and by how much) such claims are exaggerated.

Instead, EPA asserts that the only significant source of sulfur contamination in pipelines occurs at the interface between fuels; e.g., the interface between shipments of low sulfur diesel fuel and, say, higher sulfur home heating oil. EPA stated, based on information provided by “one industry representative” that “the increase in the cost of shipping highway diesel by pipeline was estimated to be below 0.1 cents per gallon”⁵⁶ because of contamination at the interface between fuel shipments. EPA does not discuss the possibility that highway diesel may pick up sulfur clinging to the inner surface of pipelines—sulfur left behind by the transport of home heating oil and other fuels.

EPA also cites Sweden’s experience in distributing very low sulfur diesel fuel, observing that its ability to maintain low sulfur levels throughout the distribution system has been “quite good.”⁵⁷ Yet, EPA also observes that “the potential for contamination is significantly less in Sweden” than it is in the United States because extremely low sulfur diesel fuel comprises a much smaller share of total fuel shipments.⁵⁸

In short, no country yet has experience shipping significant quantities of extremely-low sulfur diesel fuel in the same distribution system that also handles other, higher-sulfur refined petroleum products. Since real world experience does not yet provide evidence on the magnitude of transportation costs, the American people are left with the conflicting estimates made by EPA and the petroleum industry. EPA does not offer sufficient evidence to justify its claim that the proposed rule will increase transportation costs for highway diesel by an average of only 0.2¢ a gallon.

C. EPA Has Not Shown Cost-Effectiveness.

The EPA’s draft Regulatory Impact Analysis (RIA) provides dollar estimates for the costs that its proposed rule would impose but not for the benefits that the rule would provide. Instead, it measures cost-effectiveness, and uses tons of pollutants removed as a proxy for how “effective” the proposed restrictions will be. In place of a true benefit-cost test of its proposed rule, EPA offers estimates of how many dollars Americans will spend meeting the standard in return for tons of emission reductions (with both dollars of cost and tons of emission reductions discounted at a rate of 7 percent to provide net present values). By dividing total cost by total tons of emission reductions, EPA arrives at average cost-per-ton estimates; e.g., the estimated average cost of preventing the emission of a ton of NO_x or a ton of PM. EPA concludes that the proposed rule is cost-

⁵⁵ American Petroleum Institute, “API Statement on Reducing Diesel Fuel Sulfur Levels,” May 17, 2000.

⁵⁶ Draft RIA, pp. V-90, V-91.

⁵⁷ Draft RIA, p. IV-52.

⁵⁸ Draft RIA, p. IV-52.

effective because the estimated average cost-per-ton figures fall within the range of cost-per-ton figures estimated for other pollution control programs.

This methodology assumes: (1) the other programs pass a benefit-cost test; and, (2) the emission reductions of the proposed diesel engine/sulfur rule will have comparable health and environmental benefits. However, EPA does not establish that the other programs do (or would) pass a benefit-cost test. Furthermore, EPA counts *all* emission reductions as if each ton will produce similar health and environmental benefits. However, clearly, many tons will produce *no* benefits (e.g., NO_x reductions in clean air regions and/or cooler months when ozone is not a problem) or even cause harm (e.g., NO_x reductions that increase ozone pollution because of the complex interaction among ozone precursors). By including all emission reductions—when only a fraction of those reductions are expected to provide benefits⁵⁹—EPA artificially reduces its cost-per-ton estimates, making the rule's costs appear more reasonable.

1. EPA's optimistic assumptions about investment behavior may bias downward cost-per-ton-estimates.

The prices paid for extremely low sulfur highway diesel will be affected by the impact of EPA's proposed rule on the investments that refiners, pipelines, wholesalers and retailers will have to make in order to provide lawful supplies to their respective customers. As described in the discussion of feasibility above, EPA makes a series of optimistic assumptions about these investment requirements that may bias downward the Agency's cost estimates.

EPA also uses faulty economic reasoning to predict that most refiners (and, by inference, other petroleum companies) will choose to make the needed investments, and hence that diesel fuel supplies (and delivered prices) will be little affected. The Draft RIA states:

“The belief that some refiners may reduce or eliminate production of highway diesel fuel would present an opportunity to higher profits for those refiners more willing to invest and stay in the market. Thus, we do not believe that refiners would give up on the on-highway diesel fuel market easily.”⁶⁰

A refiner (or other company) will not make an investment simply to deny rivals an opportunity to make higher profits. Instead, a refiner will only make an investment if it expects to make at least a competitive rate of return on that investment. Even assuming that current diesel fuel prices now permit refiners to make a competitive return on their existing capital investment, the proposed rule—along with the previous rule on gasoline

⁵⁹ In effect, EPA treats ton reductions as surrogate benefits. Counting tons that have no benefits amounts to inflating total benefits, just as adding extraneous dollars would inflate a traditional estimate of total benefits measured in dollars (rather than tons).

⁶⁰ Draft RIA, p. IV-28.

sulfur—will tend to reduce that return below a competitive rate of return.⁶¹ Hence, economic reasoning would indicate some refiners will choose not to make the investments needed to supply lawful highway diesel fuel. The exit of refiners from the market will put upward pressure on retail prices, a process that would continue until prospective prices rise high enough to offer remaining refiners a competitive rate of return.

Furthermore, EPA assumes in its analysis that U.S. refiners will accept their historical rate of return of 6.0 percent that is “indicative of the economic performance of the refining industry for the past 10-15 years.”⁶² EPA neglects to mention that average annual rates of return for U.S. manufacturing have been well above 10 percent during the past 10-15 years. No industry can retain capital resources—let alone attract substantial amounts of new investment capital—by offering below average rates of return. Had EPA assumed that refiners would have to offer at least a 10 percent rate of return to attract the necessary financial resources, it would have arrived at a cost estimate higher than 4.0¢ a gallon. Stated differently, EPA’s assumption of a 6 percent rate of return leads to an overestimate of the number of refiners who can make the investments needed to supply lawful diesel fuel.

According to NPRA and API, the proposed rule may drive enough refiners out of the diesel fuel market to restrict domestic supplies by 20 percent to 30 percent.⁶³ If so, and assuming a long-run demand price elasticity for diesel fuel of -0.5 ,⁶⁴ average retail prices could increase between 40 percent and 60 percent. That is, a price increase for highway diesel fuel of between 40 percent and 60 percent would be just great enough to allow surviving refiners to receive a competitive return on the investments they would need to make in order to supply lawful diesel fuel under the proposed rule.

2. EPA’s average-cost focus does not address the impact of its restrictions on marginal cost and the possibility of “price spikes.”

EPA’s cost estimates only address the proposed rule’s impact on long-run average cost.⁶⁵ Those estimates do not consider how short-run marginal cost may be affected; i.e., how costly it will be to replace quickly the loss of a portion of supply due to occasional disruptions caused by accidents or inclement weather that temporarily disables industry facilities. For instance, a pipeline interruption may suddenly reduce supplies of highway diesel arriving at retail outlets. Even though this interruption will not change world crude oil prices or the average cost of operating a refinery’s desulfurization unit (or any other

⁶¹ Table V.D-15 in EPA’s draft RIA estimates that the average refinery cost of the proposed rule at 4.0 cents a gallon—consistent with EPA’s overall estimate of 4.3¢ a gallon, with the remaining 0.3¢ accounted for by other portions of the petroleum industry.

⁶² Draft RIA, p. V-86.

⁶³ National Petrochemical & Refiners Association, “NPRA Tells EPA Diesel Supplies Could Be Jeopardized,” June 19, 2000; American Petroleum Institute, “Refiners Support Feasible, Cost-Effective Reductions in Diesel Fuel Sulfur,” May 2000.

⁶⁴ Carol Dahl, “A Survey of Energy Demand Elasticities in Support of the Development of the NEMS,” Department of Mineral Economics, Colorado School of Mines (October 19, 1993), pp. 122-123.

⁶⁵ EPA’s cost analysis also assumes infinite supply elasticity at the new, higher average cost.

cost factor considered by EPA), the sudden drop in effective pipeline capacity puts upward pressure on retail prices.

The severity of the price increase depends on how easily and cheaply alternative supplies of lawful fuel can be obtained, during the interruption. As retail prices begin to increase, financial incentives will attract alternative ways of transporting diesel fuel from refineries (such as by tanker trucks) and partially replace the temporary loss of pipeline capacity, moderating the net short-run increase in retail prices. However, if few alternative transportation methods can prevent sulfur contamination of the diesel fuel, then little of the lost pipeline capacity can be replaced in the short run. Higher retail prices (and/or actual shortages accompanied by lines) will bear most of the burden of equating demand with remaining supply. Short-run demand for diesel fuel is highly price inelastic (i.e., a relatively small percentage change in supply causes a much larger percentage change in price). In more common parlance, a “price spike” (often incorrectly labeled “price gouging”)⁶⁶ occurs because of pipeline interruptions, even though the environmental requirement may cause a relatively modest increase in long-run average cost for refineries.⁶⁷

3. The RIA’s methodology for allocating costs among pollutants bias downward its cost-per-ton estimates for PM.

EPA’s cost-effectiveness analysis focuses on the costs per tons of NOx and NMHC (ozone precursors) and PM removed. EPA’s cost-per-ton estimates for PM are highly sensitive to the methodology chosen to allocate implementation costs among pollutants. EPA appears to make special effort to allocate as much cost as possible to the ozone precursors instead of to PM. For instance, (as discussed in greater detail below) EPA attributes some of the cost of tightening a 25 ppm cap alternative to its proposed 15 ppm cap to the ozone precursors, even though such tightening only affects PM reductions (and even then by only a relatively tiny amount).⁶⁸ Had EPA allocated costs among the pollutants differently, it could just as easily have found its proposed rule to be an unusually expensive way to reduce PM emissions.

a) EPA’s “SO₂ credit” illustrates the importance of cost allocation.

EPA itself illustrates the importance of cost allocation by “adjusting” the cost-per-ton estimates for PM to take into account the side benefit of reducing sulfur dioxide (SO₂)

⁶⁶ The “price gouging” hypothesis does not explain why retail outlets—if they possess the power to sharply increase prices—do not establish these much higher prices on a continuous basis.

⁶⁷ Note that, in this example, a shortage in refinery capacity never occurs. Rather, the shortage—or, rather, reduction in supply—occurs in pipeline capacity, a different link in the supply chain connecting refineries and the ultimate consumers of diesel fuel.

⁶⁸ EPA estimates total costs of \$37.7 billion for the proposed 15 ppm sulfur cap and \$34.4 billion for the alternative 25 ppm sulfur cap, a difference of \$3.3 billion. Even though the 15 ppm cap would have no impact on NO_x + NMHC emissions, compared to the 25 ppm cap, EPA allocates most of the additional \$3.3 billion – \$2.5 billion—to the ozone precursors and only \$0.8 billion to PM. Compare Table VI-11 (p. VI-16) and Table IX.A-12 (p. IX-12) in the Draft RIA.

emissions. Even though—as already noted in subsection III.A.3.a, virtually the entire nation is in attainment with the SO₂ NAAQS under current regulatory programs—EPA claims that “reductions in emissions of SO₂ are beneficial and represent a true value of our proposed program, we believe it is appropriate to account for them in our cost-effectiveness analysis.”⁶⁹

EPA allocates all of the SO₂ “credit” to PM (and none to the ozone precursors) because “the primary benefit of reductions in SO₂ emissions is a reduction in secondary PM formed when SO₂ reacts with water and ammonia in the atmosphere to form ammonium sulfate.”⁷⁰ To estimate the amount of money credited per ton of SO₂, EPA chose eight SO₂ control programs “used in the modeling of ambient concentrations of PM based on their contribution to secondary PM (sulfate) levels in PM nonattainment areas.” According to EPA, the cost-effectiveness of the eight SO₂ programs ranged from \$1,600/ton to \$111,500/ton, with an average value of \$4,800 a ton as the value selected by EPA for “simplicity’s sake.” EPA claims that \$4,800 a ton “represents a conservative valuation of SO₂.”⁷¹

Interestingly, SO₂ is unique in that it trades in an established market, thus negating the need to estimate its value based on models. Under the SO₂ allowance trading program, electric utilities and other parties buy and sell the right to emit tons of SO₂. Prices for these allowances have ranged from a low of around \$70 per ton, to a high of just over \$200 per ton, with recent prices (as of June 2000) under \$150. These prices reflect a truer market-based valuation of SO₂, and stand in sharp contrast to EPA’s “conservative estimate” of \$4,800 per ton.⁷²

Table VI-11 of EPA’s draft RIA,⁷³ summarizing the PM per-ton cost estimates, is reproduced here. By allocating 84 percent of PM’s cost to SO₂ (\$7.8 billion of \$8.8 billion), EPA also adjusts PM’s per-ton cost downward by 84 percent, from \$11,248 to a seemingly more reasonable \$1,850.

However, since virtually the entire nation now meets the SO₂ NAAQS standard, the reduction in SO₂ emissions under the proposed rule would appear to provide relatively few benefits in terms of reducing adverse impacts on human health or the environment. Therefore, it is not at all clear why any “credit” should be made for SO₂, let alone a credit of \$4,800 per ton, which reduces the cost-per-ton estimate for PM by 84 percent. Whatever the merits of the SO₂ credit, however, the credit illustrates how cost allocation can drastically affect cost-per-ton estimates.

⁶⁹ Draft RIA, p. VI-6.

⁷⁰ Draft RIA, p. VI-6.

⁷¹ Draft RIA, p. VI-7. EPA infers that \$4,800 a ton is conservative because “in concept, we would consider the most expensive program needed to reach attainment to be a good representation of the ultimate value of SO₂.” [Draft RIA, p. VI-7] However, since the \$4,800 per ton credit reduces the per-ton-cost for PM 84 percent of the way to \$0, then a credit for SO₂ above \$100,000 a ton—from the most expensive program—would have driven the PM cost under \$0 per ton, an implausible result.

⁷² Market trend and price data from 1994 to the present are available at EPA’s web site: <http://www.epa.gov/acidrain/ats/prices.html>.

⁷³ Draft RIA, p. VI-16.

**EPA's Table VI-II.
30-year Net Present Value Cost-effectiveness of the Proposed Standards**

Pollutants	30-year n.p.v. engine, vehicle & fuel costs	30-year n.p.v. reduction (tons)	30-year n.p.v. cost-effectiveness per ton	30-year n.p.v. cost effectiveness per ton with SO ₂ credit ^a
NO _x + NMHC	\$28.9 billion	18.9 million	\$1,531	\$1,531
PM	\$8.8 billion	0.79 million	\$11,248	\$1,850

^a\$7.4 billion credited to SO₂ (at \$4800/ton)

b) EPA's allocation of costs for PM and NO_x + NMHC may bias its results.

Though EPA does not discuss it in the RIA, its method for allocating costs between PM and the two ozone precursors, NO_x and NMHC, also has an enormous impact on its cost-per-ton estimates for reducing PM, aside from any "SO₂ credit." An alternative, and arguably more reasonable, method for allocating costs between PM and the two ozone precursors approximately doubles the 30-year net value cost per ton of PM.

EPA first divides the fuel costs equally between the NO_x adsorber and the PM trap "since the fuel sulfur standard applies equally to both aftertreatment devices."⁷⁴ EPA then splits PM's fuel costs in half yet again (leaving but a quarter with PM), applying the other half (of a half) to NMHC, on the grounds that "the trap will produce reductions in both PM and NMHC."⁷⁵ EPA states:

As a result, 25 percent of total fuel costs would apply to the calculation of PM cost-effectiveness, while the remaining 75 percent would apply to the calculation of cost-effectiveness for NO_x+NMHC. Likewise, half of the hardware costs for the PM trap would be included in the calculation of cost-effectiveness for NO_x+NMHC.⁷⁶

For fuel costs, we allocated half—instead of EPA's one-quarter—to the PM trap because the proposed rule targets two, not four, pollution problems: ozone and PM. Furthermore, EPA allocates precisely half of diesel fuel costs to PM under the less ambitious 50 ppm cap alternative.⁷⁷ Since tightening the sulfur cap below 50 ppm has proportionately greater impact on PM emissions, and affects only PM emissions below 25 ppm, it appears reasonable to allocate at least half of the fuel costs to PM.⁷⁸ For development costs, we

⁷⁴ Draft RIA, p. VI-6.

⁷⁵ Draft RIA, p. VI-6.

⁷⁶ Draft RIA, p. VI-6.

⁷⁷ Draft RIA, Table IX.C-11, p. IX-27.

⁷⁸ Based on Table IX.C-12 (p. IX-28) and Table IX.A-12 (p. IX-12) in the Draft RIA, reducing the cap on diesel sulfur from 50 ppm to 25 ppm would multiply the reduction in the ozone precursors by 3.78 times

allocated 75 percent—instead of EPA’s 50 percent—to PM since the trap is designed for PM. EPA allocates 50 percent of the PM trap’s development costs to NO_x and NMHC even though the trap would account for less than 10 percent of the proposed rule’s net reduction in the ozone precursors.

Table 5 illustrates how sensitive EPA’s cost per ton estimates are to the method chosen to allocate costs between PM and the ozone precursors. Changing only the cost allocation methodology,⁷⁹ RSP estimates the 30-year cost-effectiveness per ton of PM at \$21,450, nearly twice EPA’s estimate of \$11,248 (no SO₂ credit for either estimate).

Table 5: Alternative Net Present Value Cost-Per-Ton Estimates

Emissions	30-Year N.P.V. EPA Estimate	30-Year N.P.V. RSP Estimate	15-Year N.P.V. EPA Estimate*	15-Year N.P.V. RSP Estimate
NO _x + NMHC	\$1,531	\$1,130	\$2,250	\$1,630
PM	\$11,248	\$21,450	\$14,430	\$27,030

*Prepared by RSP, using EPA’s cost allocation methodology and the Agency’s annual cost and emission estimates for 2006-2020.

Allocating less of the energy and development costs to the ozone precursors reduces their 30-year cost estimates for the ozone precursors by about 30 percent. RSP estimates the 30-year net present value cost per ton of NO_x + NMHC at \$1,130, about \$400 less than EPA’s estimate of \$1,531.

c) EPA’s lengthy time horizon may bias downward net present value cost-per-ton estimates for both PM and NO_x and NMHC.

EPA’s use of 30-year net present value cost estimates assumes that annual costs and emission reductions can be estimated reliably long into the future. However, the Office of Management and Budget (OMB)—in its review of the proposed rule—advised EPA that when the Agency later measures benefits in dollars (rather than tons) “it should use a less distant year than 2030 to assess effects of the rule. This year is too distant to allow a meaningful evaluation of the proposed program.” OMB added that “to provide a better

and multiply PM reductions by 4.17 times. Reducing the sulfur cap from 25 ppm to 15 ppm only reduces PM emissions. [See: Draft RIA, Table IX.A-12 (p. IX-12) and Table VI-11 (p. VI-16).] Hence, all of the additional 30-year net present value costs incurred by tightening the sulfur cap from 25 ppm to 15 ppm – \$3.3 billion—should be allocated to PM. [Compare total costs in Table IX.A-12 and Table VI-11 of the Draft RIA.]

⁷⁹ RSP’s calculations use the data in EPA’s draft RIA, Table Appendix VI-B (“Costs used in 30-year Net Present Value Cost Effectiveness (\$millions)”, p. VI-20 and Table Appendix VI-C: “Emission Reductions in 30-year Net Present Value Cost Effectiveness Analysis (thousand tons),” p. VI-21.

sense of the long-term benefits, EPA may also wish to model the effects of the rule in 2020.”⁸⁰

RSP found that OMB’s recommendation of a 15-year time horizon increases the per-ton cost estimates for both PM and the ozone precursors significantly under both cost allocation methodologies (see Table 5). Using EPA’s cost allocation methodology yields a \$14,430 cost per ton of PM for 15 years, compared to EPA’s estimate of \$11,248 for 30 years.

d) The proposed rule may be a relatively expensive way to reduce PM emissions.

EPA concluded that the proposed rule “overlaps the cost-effectiveness of past programs for PM.”⁸¹ The cost-per-ton figures for PM cited by EPA range from a low of \$511 (“Marine CI engines”) to a high of \$29,600 (“Urban bus retrofit/rebuild”).⁸² The estimates shown in Table 5 indicate that EPA would have found the proposed rule to fall within the higher end of that range, had it allocated costs among the pollutants differently and estimated a 15-year net present value instead of a 30-year net present value. RSP estimates the 15-year net present value cost per ton of PM at \$27,030 under this alternative methodology.

It is worth noting, too, that both the EPA and RSP 30-year cost-per-ton estimates for the ozone precursors shown in Table 5 fall well within the range of alternative programs cited by EPA. That range extends from a low of \$23 (“Marine CI engines”) to a high of \$2,732 (“Tier 1 vehicle”).⁸³ Hence, EPA’s decision to allocate costs toward the ozone precursors and away from PM gives the appearance of “buying” a lower value for PM at the expense of modestly higher values for ozone precursors that will still remain well within the middle of their range.

e) The proposed rule would reduce PM at extremely high incremental cost.

The estimates in Table 5 show *average* costs (i.e., total costs divided by tons of emission reductions). However, EPA’s cost comparison between its proposed 15 ppm sulfur cap for highway diesel fuel and an alternative—and less expensive but still ambitious—25 ppm sulfur cap would reduce incremental PM emissions at extremely high cost. According to EPA, the 15 ppm sulfur cap, compared to the 25 ppm cap, would not change the emissions of NO_x + NMHC while providing an incremental reduction in PM of 0.04 million tons (0.79 million tons instead of 0.75 million tons) at an additional 30-year net present value cost of \$3.3 billion.⁸⁴ An incremental reduction in PM emissions

⁸⁰ Memo of April 28, 2000 from Eric Haxthausen of OMB to Karl Simon of EPA.

⁸¹ Draft RIA, p. VI-17.

⁸² Draft RIA, Table VI-13, p. VI-17. Costs expressed in 1998 dollars.

⁸³ Draft RIA, p. VI-17.

⁸⁴ Draft RIA, Table VI-11, p. VI-16 and Table IX.A-12, p. IX-28.

of 0.04 million tons at a cost of \$3.3 billion represents a cost per ton of \$82,500—far higher than any of the average cost-per-ton estimates shown in Table 5.

f) The cost-per-ton of PM removed under this proposal greatly exceeds the upper limit promised by President Clinton.

In a July 16, 1997 memorandum to EPA Administrator Browner on implementation of the ozone and PM NAAQS, President Clinton committed to keep compliance costs under \$10,000 per ton:

It was agreed that \$10,000 per ton of emission reduction is the high end of the range of reasonable cost to impose on sources. Consistent with the State's ultimate responsibility to attain the standards, the EPA will encourage the States to design strategies for attaining the PM and ozone standards that focus on getting low cost reductions and limiting the cost of control to under \$10,000 per ton for all sources.⁸⁵

EPA's own estimate of cost per ton, corrected for the inappropriate sulfur credit, is \$11,248. The marginal cost of going from a 25 ppm sulfur cap to a 15 ppm sulfur cap is \$82,500. EPA has not reconciled these figures with the President's commitment that costs of implementing NAAQS will not exceed \$10,000 per ton.

4. EPA has not demonstrated that its proposed rule is superior to alternatives.

EPA considers three other diesel fuel sulfur caps (at 5 ppm, 25 ppm and 50 ppm⁸⁶) and compares them to the proposed 15 ppm cap in terms of impact on emissions control technology, vehicle and fuel costs, emission standards and reductions, and cost-effectiveness.⁸⁷ Hence, EPA gives serious consideration only to variations on a single approach applied nationwide: tighter heavy-duty vehicle emissions standards coupled with much lower sulfur levels in diesel fuel (compared to the current 500 ppm sulfur cap).

Of these variations, EPA devotes most attention to the 50 ppm cap (and the 30 ppm average) for highway diesel fuel that is very similar to the 50 ppm cap alternative proposed by several factions of the petroleum and agricultural industries.⁸⁸ EPA

⁸⁵ White House memorandum dated July 16, 1997, "Memorandum For The Administrator Of The Environmental Protection Agency, Implementation of Revised Air Quality Standards for Ozone and Particulate Matter."

⁸⁶ The 25 ppm cap and 50 ppm cap alternatives also have limits on average sulfur content—15 ppm and 30 ppm respectively.

⁸⁷ Draft RIA, p. IX-1.

⁸⁸ The American Petroleum Institute has proposed that EPA adopt a 50 ppm cap on sulfur content in highway diesel fuel instead of a more stringent standard. A May 9, 2000 letter to EPA Administrator Carol Browner urging adoption of a 50 ppm cap sulfur standard for diesel fuel was signed by: the American Petroleum Institute, the Agricultural Retailers Association; the American Crop Protection

concludes that the 50 ppm cap alternative is less cost-effective than its proposed 15 ppm cap.

However, EPA's analysis underlying this conclusion appears seriously flawed since it violates the economic law of increasing costs in several places. According to EPA, the 30-year net present value for the costs of the 50 ppm cap (for diesel engines and diesel fuel) total \$34.4 billion.⁸⁹ Yet, the more stringent 25 ppm cap (and 15 ppm average) alternative has a 30-year net present value cost of but \$33.4 billion,⁹⁰ or \$1 billion less! Under the law of increasing costs, a stricter standard must cost *more* than a less stringent standard. In other words, EPA's analysis asserts that choosing the 25 ppm cap over the 50 ppm cap would provide additional clean air benefits *and* save Americans \$1 billion. This is implausible.

EPA's analysis also shows a 30-year net present value of \$8.8 billion for the cost of reducing PM under the 15 ppm cap proposal⁹¹ but \$17.2 billion for the less restrictive 50 ppm cap alternative.⁹² Furthermore, the 30-year net present value for the cost of diesel fuel over both NO_x + NMHC and PM totals \$29.2 billion for the less restrictive 50 ppm cap, \$6 billion more than for the more restrictive 25 ppm cap. These findings also violate the law of increasing costs. Total costs for reducing pollutants must rise as standards become stricter.

Unfortunately, EPA does not provide cost estimates for the 50 ppm cap based on the same engine emissions standards as for the other three fuel standards it considers. EPA asserts that it would have to set less stringent emissions standards with a 50 ppm cap for diesel sulfur⁹³ and provides cost estimates on that basis. Hence, it is not possible to estimate the incremental cost of meeting the same set of emissions standards under a 50 ppm cap as for the other three alternatives.

However, the relatively small incremental reductions in PM achieved by the 15 ppm cap compared to the 25 ppm cap (with no difference on the ozone precursors) suggests that a less ambitious sulfur cap standard could be more cost-effective than the 15 ppm cap proposed by EPA.

Association; the American Farm Bureau Federation; the American Feed Industry Association; the American Soybean Association; Cenex Harvest States Cooperatives; Cooperative Refining; Country Energy, LLC; Farmland Industries, Inc.; GROWMARK, Inc.; the Institute of Shortening and Edible Oils; the National Association of Wheat Growers; the National Corn Growers Association; the National Council of Farmer Cooperatives; the National Farmers Union; the National Grain and Feed Association; the National Grange; the National Private Truck Council; the North American Equipment Dealers Association; the Pacific Northwest Grain and Feed Association; the Society of American Florists; Southern States Cooperative, Inc.; The Fertilizer Institute; and, U.S. Custom Harvesters, Inc.

⁸⁹ Draft RIA, Table IX.C-11, p. IX-27.

⁹⁰ Draft RIA, Table IX.A-12, p. IX-12.

⁹¹ Draft RIA, Table VI-11, p. VI-16.

⁹² Draft RIA, Table IX.C-12, p. IX-28.

⁹³ Draft RIA, pp. IX-18 – IX-20.

Furthermore, EPA may be unduly pessimistic about the European experience with 50 ppm sulfur diesel compared to the more limited experience with extremely low sulfur highway diesel. According to EPA:

In Sweden and some European city centers where below 10 ppm diesel fuel sulfur is readily available, more than 3,000 catalyzed diesel particulate filters have been introduced into retrofit applications without a single failure. The field experience in areas where sulfur is capped at 50 ppm has been less definitive. In regions without extended periods of cold ambient conditions, such as the United Kingdom, field tests on 50 ppm cap low sulfur fuel have been extremely positive, matching the success at 10 ppm. However, field tests in Finland where colder winter conditions are sometimes encountered (similar to northern parts of the United States) have revealed a failure rate of 10 percent. This 10 percent failure rate has been attributed to insufficient trap regeneration due to fuel sulfur in combination with low ambient temperatures. As the ambient conditions in Sweden are expected to be no less harsh than Finland, we are left to conclude that the increased failure rates noted here are due to the higher fuel sulfur level in a 50 ppm cap fuel versus a 10 ppm cap fuel.⁹⁴

The different failure rates in just two northern European countries—Finland and Sweden—are insufficient grounds to base a fuel sulfur standard for the United States, given its diverse geography and climate. A number of factors, besides cold ambient temperatures, may account for the differing experience observed in the limited number of field tests conducted in Finland and Sweden. EPA should inquire more deeply into the reasons for the positive results experienced by the United Kingdom (and Europe generally), especially since some portions of the United Kingdom (and elsewhere in Europe) experience cold temperatures. Furthermore, research in this country by DECSE and MECA shows that 30 ppm average sulfur—which would accompany a 50 ppm cap—is considerably below the level needed to meet EPA’s proposed PM emission standard.⁹⁵

IV. Would Proposed Restrictions Make American Citizens Better Off?

The Draft RIA’s focus on cost-per-ton of pollutant removed does not and cannot show that the proposal will be worth its costs. Tons of emissions removed are a poor proxy for either ozone or PM concentrations, and they are even less well correlated with health benefits that may be achieved from reduced exposure to ozone and PM.⁹⁶

⁹⁴ Preamble, p. 159.

⁹⁵ Diesel Emission Control – Sulfur Effects (DECSE) Program, Phase I Interim Data, Report No. 1, August 1999, U.S. Department of Energy, Engine Manufacturers Association, Manufacturers of Emission Controls Association and Demonstration of Advance Emission Control Technologies Enabling Diesel-Powered Heavy-Duty Engines to Achieve Low Emissions Levels, Final Report, Manufacturers of Emissions Control Association (MECA), June 1999.

⁹⁶ For a fuller discussion, see RSP’s public interest comments on EPA’s Tier 2 Standards for Vehicle Emissions and Gasoline Sulfur Content (RSP 1999-7) and Ozone Transport (RSP 1998-1)

A. EPA's Promised Benefit-Cost Analysis Will Not Accurately Portray the Effects of the Proposal.

The EPA promises to provide a dollar quantification of the benefits for the final rule⁹⁷—too late for public comment on the benefit-cost analysis to have any practical impact on shaping the regulations Americans will have to meet. Furthermore, EPA's promised benefit-cost analysis will follow a methodology that appears designed to produce a result favorable for a rule that imposes costs before providing benefits. According to EPA:

To develop a benefit-cost number that is representative of a fleet of heavy-duty vehicles, we need to have a stable set of cost and emission reductions to use. This means using a future year where the fleet is fully turned over and there is a consistent annual cost and annual emission reduction. For the proposed rule for heavy-duty vehicles and diesel fuel, this stability would not occur until well into the future. For this analysis, we selected the year 2030. The resulting analysis will represent a snapshot of benefits and costs in a future year in which the heavy-duty fleet consists almost entirely of heavy-duty vehicles meeting the proposed standards. As such, it depicts the maximum emission reductions (and resultant benefits) and among the lowest costs that would be achieved in any one year by the program on a 'per mile' basis.... Thus, based on the long-term costs for a fully turned over fleet, the resulting benefit-cost ratio will be close to its maximum point (for those benefits which we have been able to value).⁹⁸ [Note: EPA's proposed "snapshot" for 2030 should not be confused with the 30-year net present value per-ton cost estimates shown in Table 5. The "snapshot" compares dollar (not ton) benefits and costs for a single year, 2030, and not consider dollar benefits and costs for previous years.]

By using a benefit-cost "snapshot" for a single, distant year, 2030, EPA ignores all of the development and start-up costs. An accurate benefit-cost analysis considers all years for which reliable dollar estimates of benefits and costs can be made. By ignoring costs incurred during the first quarter century of the rule's implementation, the "snapshot" provides a biased picture of a proposal that the Agency's own data show will impose costs long before providing benefits.

A snapshot for 2030—after EPA expects vehicle turnover to be virtually complete—also prevents any useful analysis of how the magnitude of development and start-up costs may affect the pace at which clean air benefits are delivered to American citizens. Those costs will affect the prices for new trucks and buses and hence affect buying decisions. The higher the up-front costs are, the slower vehicle turnover will be, and, therefore the more distant (in time) the delivery of clean air benefits. An alternative rule that would provide a smaller annual "maximum" dollar benefit, but provide that maximum more quickly, could better serve American citizens.

⁹⁷ EPA, Preamble, p. 289.

⁹⁸ EPA, Preamble, p. 295.

The delivery of clean air benefits is especially important to the elderly. However, they cannot expect to receive much in the way of clean air benefits from the proposed rule, based on life expectancies, but will nevertheless have to help pay the program's costs. True benefit-cost analysis would help reveal alternative approaches that could offer today's elderly a greater net benefit.

Use of true benefit-cost analysis, in place of a nationwide snapshot in 2030, could also reveal how the proposed rule might help other subpopulations, in addition to the elderly. A majority of U.S. citizens are expected to live in areas that already meet the PM and ozone NAAQS standards under existing regulatory programs. Hence, it appears that the proposed rule might force these Americans to pay more in costs than they will receive in clean air benefits. This would be especially true for those areas that may suffer an *increase* in ozone under the proposed rule, because of the complex interaction among ozone precursors. Proper use of benefit-cost analysis will help to show that the gains in those areas needing help meeting the NAAQS standards would at least be comparable to those other areas that do not need additional help.

B. EPA's Analysis Does Not Recognize the Impact of Regulatory Costs on Public Health.

EPA's analysis supporting its proposed rule also does not recognize that regulatory costs themselves affect public health. It is widely recognized that health improves as family incomes rise. Empirical evidence indicates that regulatory programs can harm health indirectly by reducing incomes. As described in the Regulatory Program of the United States:

Health-health analysis computes the unintended risk increase attributable to the decline in spending on other risk reduction efforts that results when resources are shifted to comply with a regulation aimed at specific risks. Regulations have these unintended risk-increasing effects because families and other entities spend less on such items as health care, nutritious diets, and home and auto safety devices when their incomes decline.⁹⁹

Recent empirical work suggests that every \$15 million in additional regulatory costs results in one additional statistical death.¹⁰⁰ By implication, then, EPA's proposed rule through its impact on incomes could cause approximately 2,500 fatalities, since the agency estimates the rule's cost (in terms of a 30-year net present value) at \$37.7 billion.¹⁰¹ Unless EPA's proposed rule can save at least 2,500 lives through its direct effects, the rule may cost more lives than it saves.

⁹⁹ *Regulatory Program of the United States Government*, April 1, 1992 – March 31, 1993, p. 19.

¹⁰⁰ Lutter, Morrall and Viscusi, "The Cost-per-Life-Saved Cutoff for Safety-Enhancing Regulations," 37 *Economic Inquiry*, 599 (October 1999)

¹⁰¹ Draft RIA, Table VI-11, p. VI-16.

V. Conclusion and Recommendations.

EPA has not adequately justified its proposed rule. Most American citizens live in areas that will meet the ozone and PM NAAQS under existing programs. EPA has demonstrated neither the feasibility of the two principal emission control technologies—NO_x adsorbers and PM traps—nor the cost-effectiveness of its “system” approach.

EPA has not justified the need for, nor the feasibility of, its “system” approach. The rationale for the system approach of tying together the engine emission controls and the diesel sulfur limits presumes that fuel sulfur will irreversibly damage the ability of engines to reduce emissions. Yet, EPA does not substantiate this assertion, and certainly has insufficient evidence to support the dramatic sulfur levels reductions it proposes (from a current cap of 500 ppm to a cap of 15 ppm). Furthermore, the feasibility of the systems approach is much less certain than the feasibility of each of the individual components. For example, if there’s only a 50 percent chance that the emissions control technologies will be available on time and cost-effectively, and only a 50 percent chance that low-sulfur fuel will be available on time and cost-effectively, then the “system’s” probability of success is just 25 percent.

EPA has not demonstrated that the rule will provide health or environmental benefits. While EPA asserts the rule will provide health and environmental benefits, it has not quantified, or even justified qualitatively these claims. Indeed, EPA expects that most American citizens will live in areas that meet the national ambient air quality standards for both ozone and PM under current regulatory programs; and EPA does not show that the proposed rule would significantly reduce pollution levels in areas expected to fail one or both standards. Furthermore, EPA’s suggestion that the rule will provide health (lung cancer) and environmental benefits is not supported by available evidence or its own science advisors.

EPA’s cost-per-ton measure does not and cannot show that the proposal will be worth its costs. Rather than estimating the benefits expected from the proposal, the draft RIA focuses on the cost-per-ton of pollutant removed. Tons of emissions removed are a poor proxy for either ozone or PM concentrations, and they are even less well correlated with health benefits that may be achieved from reduced exposure to ozone and PM. EPA promises to conduct a cost-benefit analysis in time for the final rule. Not only will that be too late for public comment, but, based on EPA’s planned approach, it will not accurately portray the benefits of the proposal.

Costs per ton of PM emissions removed will be dramatically higher than EPA’s estimate, and between 2 and 8 times higher than what EPA considers acceptable. EPA’s cost-per-ton measure relies on assumptions that artificially reduce the estimate to \$1,850 per ton of PM emissions removed. This low figure, however, does not include 84 percent of the costs of achieving the PM reductions, attributing them instead to sulfur dioxide emission reductions (which are excluded from its cost-effectiveness calculations). Correcting for this increases the cost-per-ton figure to \$11,248. Even this higher figure understates costs by half, because it attributes much of the costs of achieving PM reductions to NO_x and NMHC cost-per-ton figure. Thus, a more accurate estimate of the

average cost of removing one ton of PM is \$21,450, compared to EPA's estimate of \$1,850. Significantly, EPA data reveal that the *incremental* cost of reducing sulfur from a 25 ppm level to the proposed 15 ppm level is \$82,500. EPA has not reconciled these figures with President Clinton's commitment, in a July 16, 1997 memorandum to EPA Administrator Browner, that the costs of implementing NAAQS will not exceed \$10,000 per ton.

Consumers throughout the nation will face higher prices for consumer goods and public transportation. The requirements of this rule will raise the cost of trucking, increasing the price of consumer goods. In addition, public buses will face higher engine and fuel costs, which will be born by American taxpayers and users of public transportation.

EPA should not go forward with the proposed rule until the Agency can justify it adequately. No court-ordered or statutory deadline requires the Agency to finalize the rule before it has a fuller understanding of the benefits, commercial feasibility of the emissions control technologies, and the impact on energy costs. To obtain that fuller understanding, the Agency should complete a true benefit-cost analysis and allow time for public comment and input. To the extent possible, EPA should quantify the dollar value of the proposal's benefits. At the very least, EPA should examine the impact of the proposal on ozone and PM concentrations and actual health effects—rather than focusing just on tons of pollutants removed, regardless of location or probability of providing health benefits. A focus on actual benefits will eliminate the need to allocate costs arbitrarily among tons of NO_x, NMHC, and PM emission reductions.

EPA should also consider how higher engine and vehicle costs may affect the rate at which companies "turn over" existing vehicle fleets, and therefore how quickly American citizens will receive clean air benefits. As part of this analysis, EPA should consider how the cost-effectiveness of the proposed rule would change if the emissions control technologies prove to be more expensive than EPA expects or are unavailable on the time schedule EPA anticipates.

EPA should also take into account how its proposed rule will affect various population subgroups. Since most American citizens live in areas of the United States that already meet ozone and PM standards under existing programs, EPA's proposal would seem to harm more Americans than it will help. A majority of Americans will have to help pay the costs of a program they do not need to meet ozone and PM standards. Furthermore, the proposed rule will disadvantage people living in those regions that will suffer from an increase in ozone levels (because of the complex interaction between ozone precursors). In addition, because clean air benefits will not peak until approximately a quarter century after EPA intends the rule to become final (and start imposing costs), today's elderly are disadvantaged by the rule. They will have to share in paying the costs but—given their life expectancies—cannot expect to receive much in the way of clean air benefits.

At the very least, EPA should reconsider tightening the sulfur cap on highway diesel fuel all the way to 15 ppm instead of to 50 ppm as proposed by the petroleum and agricultural industries. EPA estimates that the 50 ppm sulfur cap would be far less cost-effective in

reducing PM and NO_x + NMHC emissions than either a 25 ppm cap or a 15 ppm cap. However, those estimates of cost-effectiveness are based largely on the Agency's prediction that the sulfur intolerance of the emissions control technologies would force it to scale back its proposed engine/vehicle emission standards for both PM and NO_x + NMHC. Yet, EPA's own analysis suggests that those technologies are no more sulfur-intolerant under a sulfur cap of 25 ppm than under its proposed 15 ppm cap. Indeed, EPA's own analysis shows the 25 ppm cap to be *more* cost-effective in reducing both PM and NO_x + NMHC than under its proposed 15 ppm cap.¹⁰² Furthermore, the experience in Europe with 50 ppm sulfur diesel in reducing PM emissions has been more positive than characterized by EPA. Should a 50 ppm sulfur cap decrease emissions by nearly as much as a 15 ppm cap, the much lower costs of the 50 ppm standard could dramatically improve the cost-effectiveness of the proposed rule.

Finally, EPA should consider how its proposed rule may aggravate the tendency for fuel "price spikes" to appear whenever a temporary disruption occurs at a point in the supply chain. EPA's analysis addresses principally the change in long-term average cost for refiners, absent any disruptions or problems. EPA's analysis does not consider how readily alternative sources of supply can respond to the temporary loss of capacity in the supply chain.

¹⁰² Draft RIA, Table IX.A-12 (p. IX-12) and Table VI-11 (p. VI-16). EPA estimates that the 25 ppm sulfur cap would reduce NO_x + NMHC emissions at \$1,400/ton compared to \$1,531/ton under the proposed 15 ppm cap. The Agency's cost-per-ton estimates for PM are \$10,700 under the 25 ppm cap and \$11,248 under its proposed 15 ppm cap.

Appendix I
RSP Checklist
EPA's Proposed Heavy-Duty Engine and Vehicle Emission Standards
and Highway Diesel Fuel Sulfur Control Requirements

Element	Agency Approach	RSP Comments
1. Has the agency identified a significant market failure?	<p>EPA bases its proposal on a need for further reductions in certain pollutants in order to meet National Ambient Air Quality Standards (NAAQS) for ozone.</p> <p>F: Unsatisfactory</p>	<p>The agency has not identified a market failure that warrants regulation, especially given the progress states and regions have made toward attainment.</p>
2. Has the agency identified an appropriate federal role?	<p>EPA proposes nationwide diesel vehicle emission and diesel fuel standards to help a minority of areas reduce levels of ozone and PM in the atmosphere.</p> <p>F: Unsatisfactory</p>	<p>Most U.S. citizens live in areas able to meet air quality standards for ozone and PM under existing programs. EPA's application of a nationwide fuel standard is based on the presumed extreme sulfur intolerance of the expected emissions control technologies, coupled with the mobility of trucks and buses. EPA has not shown that the emissions control technologies require sulfur in diesel fuel to be reduced as much as required by the proposed rule.</p>
3. Has the agency examined alternative approaches?	<p>The proposed rule presents one basic approach: tightened vehicle emission standards coupled with tighter restrictions on sulfur content in high-way diesel fuel.</p> <p>F: Unsatisfactory</p>	<p>EPA considers four alternative caps on diesel sulfur, but all are variations on the same basic approach. Furthermore, EPA's analysis of the alternative, a 50 ppm cap proposed by the petroleum and agricultural industries, is seriously flawed. That alternative may be far more cost-effective than the 15 ppm sulfur cap proposed by EPA.</p>

Element	Agency Approach	RSP Comments
4. Does the agency attempt to maximize net benefits?	<p>EPA does not attempt to maximize net benefits but instead attempts to show that the proposed rule would reduce emissions at per-ton costs that do not exceed the per-ton costs under other programs.</p> <p>F: Unsatisfactory</p>	<p>EPA should conduct a genuine benefit-cost analysis where, to the extent possible, benefits are measured in dollars rather than in tons of emission reductions. Where measurements cannot be done in dollars, benefits should be quantified in terms of specific health outcomes (e.g., number of deaths averted) and air quality improvements (e.g., quantitative change in ozone and PM levels in specific areas).</p>
5. Does the proposal have a strong scientific or technical basis?	<p>EPA relies on technical information gathered from a relatively few studies and vendors.</p> <p>F: Unsatisfactory</p>	<p>The feasibility of EPA's "system" approach requires that unproven emissions control technologies develop rapidly and at low cost. The approach also requires highly optimistic assumptions about the cost and investment behavior of the suppliers of highway diesel fuel. EPA should conduct a "sensitivity analysis" to see how the cost-effectiveness of its proposed rule would be affected if one or more of its basic assumptions do not work out as well as it expects.</p>
6. Are distributional effects clearly understood?	<p>EPA tallies the populations living in areas it expects may be out of attainment with the ozone and PM NAAQS.</p> <p>F: Unsatisfactory</p>	<p>EPA does not consider the subpopulations that may be disadvantaged by the proposed rule; e.g., today's elderly who will have to help pay the program's costs but receive few clean air benefits, nor the Americans who live in areas expected to be in PM and ozone NAAQS attainment under existing programs.</p>
7. Are individual choices and property impacts understood?	<p>The proposal does not address these issues.</p> <p>F: Unsatisfactory</p>	<p>The increased cost of transportation caused by this rule could have far reaching effects on consumer prices.</p>

Regulation of the Week: USDA - Forest Service's Roadless Area Rule

Rule Summary:

On Friday January 5, 2001, President Clinton announced a final regulation to ban all road construction and timber harvesting in inventoried roadless areas in national forests around the country. This new rule will affect 58.5 million acres of roadless areas or 31 percent of the Forest Service land base.

This rule is the result of an October 1999 Presidential directive to the Forest Service to "provide appropriate long-term protection" for inventoried roadless areas in the national forests. Though the Forest Service had proposed to defer a decision on Alaska's Tongass National Forest, the ban announced Friday includes that 8 million acre forest, as well.

Facts:

- This rule covers tens of millions of biologically diverse acres of land located in thirty-eight states and Puerto Rico. From the deserts of Arizona to the rainforests of Washington, from mixed hardwood forests of Georgia to the nearly pure Douglas-fir forests of Oregon, roadless areas vary tremendously across the nation.
- The Forest Service has not shown that a universal ban on road construction is neither necessary nor appropriate for protecting important values—such as water quality, wildlife, and recreation—in these diverse roadless areas.
- In some cases, the economic and environmental benefits of prohibiting road construction are likely to be less than the economic and environmental costs of not being able to build a road.
- Forest Service data suggest that many roadless areas are in need of ecosystem restoration activities that will require road construction.
- The Forest Service did not consider alternatives to a complete ban on road construction, such as allowing low-impact temporary roads as needed for forest health or ecosystem restoration. Such alternatives could achieve environmental goals more effectively, while simultaneously minimizing economic and environmental costs.
- Unless managers can build temporary roads to access and treat the build up of flammable, fine materials, such as insect-killed trees, the cost of preventing forest fires in roadless areas may often be prohibitive and future forest fires are more likely to become uncontrollable.

- While most roadless areas in the National Forest System are “wild” in the sense that they have never seen roads, logging, or mining, they cannot be considered “natural,” because they are ecologically very different from the way they were when the Forest Service began managing them in 1905. This is due to four main factors:
 1. The Forest Service’s fire suppression policy;
 2. The removal, largely by federal agents, of large predators such as wolves and grizzly bear;
 3. The introduction of exotic species such as plants and diseases; and
 4. Roads and logging activities outside of the roadless areas, whose ecological effects often penetrate deep into the roadless areas.
- Polls show that, given a choice between wilderness vs. high-impact roads and clear-cutting, most Americans would choose wilderness. But it is not so clear that, given a choice between wildness and naturalness, most Americans would choose unnatural wildness.
- Certain management practices such as prescribed fires, pesticides to remove exotic plants, intensive hunting of selected species, and even selection cutting of timber will help more to make an area *natural*—that is, more like its pre-1900 condition—than leaving it alone. All of these practices could be aided by, and some may require, temporary low-impact roads that the Forest Service rule would prohibit.

For more information, contact Laura Hill at 703-993-4945 or loquinn@gmu.edu. Download the Mercatus Center public interest comments at www.mercatus.org.

MERCATUS CENTER
GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

Comments on:

The Forest Service Roadless Area Conservation
Draft Environmental Impact Statement

Submitted to:

U. S. Department of Agriculture Forest Service

July 17, 2000

"A wise and frugal government, which shall restrain men from injuring one another, which shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government."

Thomas Jefferson, from his "First Annual Message," 1801

RSP 2000-14

MERCATUS CENTER
REGULATORY STUDIES PROGRAM

Public Interest Comment Series:

Forest Service Roadless Area Proposal

Agency:	U.S. Department of Agriculture Forest Service
Rulemaking:	Roadless Area Conservation Draft Environmental Impact Statement
Stated Purpose:	“Provide appropriate long-term protection for most or all ... currently inventoried ‘roadless’ areas, and to determine whether such protection is warranted for any smaller ‘roadless’ areas not yet inventoried.”
Submitted July 14, 2000	RSP 2000-14

Summary of RSP Comment:

The draft environmental impact statement for roadless area conservation is deficient in several respects. It fails to show that a blanket, nationwide prescription is needed for roadless lands. It provides little data and what data it does provide indicate that a blanket, no-roads rule will cost more than it will benefit in at least some roadless areas. And it fails to consider important alternatives, including alternatives built around incentives rather than proscriptions and alternatives that would allow temporary, low-impact roads in roadless areas when needed for forest health or ecosystem restoration.

Reflecting these deficiencies, the proposed rule will impose unnecessary economic and environmental costs on the national forests. The economic cost will be high because a ban on roads will increase the cost of improving forest health or restoring ecosystems in some roadless areas. The environmental cost will be high because, without such improvements, many roadless area ecosystems will continue to deteriorate and may even suffer unnaturally catastrophic fires and other ecological problems.

The roadless area rulemaking makes no attempt to identify the source of past mistakes, which include poor incentives on the part of local forest managers. A roadless area rule is not the best way to prevent future errors. Instead, what is needed is a major reform of the Forest Service’s budgetary process. Such a reform would improve management and reduce environmental and economic costs on both roadless and roaded lands.

Short of such a major reform, the Forest Service should consider an alternative that would ban permanent roads but allow temporary, low-impact roads in certain areas for forest health or ecosystem restoration. This would eliminate most of the objections to the proposed rule while retaining most, if not all, of the benefits.

MERCATUS CENTER

REGULATORY STUDIES PROGRAM

Public Interest Comment on
The Forest Service Roadless Area Conservation
Draft Environmental Impact Statement¹

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of regulations and their impacts on society. As part of its mission, RSP produces careful and independent analyses of agency rulemaking proposals from the perspective of the public interest. Thus, the program's comments on the Forest Service's proposed roadless area conservation rule and the accompanying *Roadless Area Conservation Draft Environmental Impact Statement* (DEIS) do not represent the views of any particular affected party or special interest group, but are designed to protect the interests of American citizens.

In October, 1999, President Clinton directed the Forest Service to "provide appropriate long-term protection" for inventoried roadless areas in the national forests. Clinton added that the agency should "determine whether such protection is warranted for any smaller 'roadless' areas not yet inventoried," an unknown number of areas smaller than 5,000 acres.

The Forest Service has responded to Clinton's order by publishing a three-and-one-half page draft roadless area rule accompanied by a 700-page draft environmental impact statement (DEIS). The Forest Service's proposed action is to ban all roads in the 43 million acres of inventoried roadless areas outside of the Tongass National Forest while deferring decisions about the Tongass and uninventoried roadless areas to local Forest Service managers.

The stated purpose of the proposed rulemaking is to protect water quality, biological diversity, wildlife habitat, forest health, dispersed recreation opportunities, and other public benefits, as well as to save money on road construction.

The proposed rulemaking process began last fall, when the Forest Service asked for public comments on the scope of analysis that should be conducted for the environmental impact statement supporting proposed rules. The Regulatory Studies Program offered comments in December 1999.² Although these comments included a detailed alternative, there is no indication in the DEIS that RSP's comments and suggestions were considered.

Despite the impressive length of the DEIS, the Forest Service has failed to justify its proposal in three major ways. First, it has failed to show why a blanket, nationwide rule is needed to protect important values in roadless areas. In some cases, the economic and

¹Comments prepared by Randal O'Toole, Senior Economist, the Thoreau Institute.

²See Public Interest Comment RSP 1999-14, available at www.mercatus.org.

environmental benefits of such a rule are likely to be less than the economic and environmental costs of not being able to build a road.

Second, it has failed to provide any data indicating that all 51 million acres of roadless lands require the proposed levels of protection. Indeed, some of the few quantitative data in the DEIS suggest that many roadless areas are in need of ecosystem restoration activities that will require some level of construction.

Third, the DEIS fails to consider alternatives that could comply with President Clinton's directive without the high environmental risks or economic costs associated with the proposed action. One such alternative would be to prohibit permanent roads but allow low-impact temporary roads needed for forest health or ecosystem restoration. Such roads could be closed when no longer needed, thus minimizing economic and environmental costs.

I. Decades of controversial debates

The Forest Service's draft environmental impact statement (DEIS) for roadless area conservation is the most recent step in a decades-old debate about the fate of relatively undeveloped lands in the 192-million acre National Forest System.³ The debate began in the 1920s when a few Forest Service employees suggested that the best use of some national forest lands might be to leave them alone.

In the 1930s, a Forest Service official and wilderness advocate named Bob Marshall convinced national forest managers across the country to declare millions of acres of land as "wilderness" or "primitive" areas. But in the 1950s, surging demand for national forest timber led managers to declassify many wilderness and primitive areas so they could build roads and harvest the trees. This led wilderness proponents to convince Congress to pass the 1964 Wilderness Act, which set aside some areas and directed the Forest Service to evaluate other roadless areas for their wilderness suitability.

Spurred by environmentalists, the Forest Service went through a roadless area review and evaluation (RARE) process in the early 1970s. But the courts ruled that this national review was inadequate to comply with the National Environmental Policy Act's requirement that environmental impacts be fully disclosed. So the Forest Service rolled roadless area reviews into a land-use planning process it was undertaking on each national forest. But environmentalists were often able to persuade the Chief of the Forest Service that the local plans were poorly written and biased against roadless area protection.

In response to increasing controversies over roadless areas, the Carter Administration initiated a new review process, known as RARE II. But decisions made by this process remained controversial and the courts again ruled that the national document was legally inadequate.

³For a fuller discussion of the history of the controversy over roadless areas, please refer to RSP's December 1999 public interest comment, authored by Randal O'Toole.

During the 1980s, Congress passed new wilderness legislation on a state-by-state basis. Such legislation typically specified that most roadless lands not designated as wilderness would be available, without further analysis, for roads or other developments. The legislation also typically stated that these remaining roadless areas were not to be considered for wilderness during forest planning, but could be considered in later forest plan updates.

The 1980s wilderness legislation seemed to put the roadless area debate to rest. Yet the debate simply continued on other terms, as environmentalists continued to challenge national forest roads and timber cutting on other grounds, such as that undeveloped forests were needed for habitat by threatened or endangered species. These challenges plus internal changes within the Forest Service led to a dramatic, 70-percent decline in national forest timber sales after 1990.⁴

Through most of the 1990s, the term “roadless areas” has pretty much been replaced by more sophisticated debates over wildlife habitats, watershed, and other issues. But in October, 1999, President Clinton reopened the roadless area question by directing the Forest Service to “provide appropriate long-term protection for most or all of these currently inventoried ‘roadless’ areas, and to determine whether such protection is warranted for any smaller ‘roadless’ areas not yet inventoried.”

The term “inventoried roadless areas” refers to areas that were considered roadless during the RARE II process or, in a few instances, in other plans written shortly before or after RARE II. Generally, these areas are either larger than 5,000 acres or they are contiguous to Congressionally designated wilderness or other protected areas. The phrase “any smaller roadless areas not yet inventoried” generally refers to areas that are smaller than the 5,000-acre limit used in RARE II but still may have valuable roadless characteristics.

The inventoried roadless areas cover about 54 million acres of the 192-million acre National Forest System. About 2.8 million acres have been roaded since the inventory, so President Clinton’s directive applies to the remaining 51 million acres. These 51 million acres, about 8 million of which are in the Tongass National Forest, range from deep, dark old-growth forests to tall grass prairie; from Rocky Mountain alpine meadows to the Great Basin. Indeed, other than the fact that they haven’t had roads built in them, these areas have little in common.

President Clinton’s directive is widely considered to be partly due to his desire to leave conservation “legacy.” But it may also be a recognition that the Forest Service is beginning to review and revise many national forest plans written ten to fifteen years ago. Under the terms of the state wilderness laws passed during the 1980s, as part of these plans, the Forest Service would be required to once again consider any remaining roadless lands for wilderness. The proposed rule would transform the nature of such decisions since managers would no longer have the option to propose uses that require roads.

⁴Randal O’Toole, “Memo to President Clinton: The Forest Service Has Already Been Reinvented,” *Different Drummer*, Spring, 1995, pp. 39–53.

While most national forest planning is done under the 1976 National Forest Management Act (NFMA), Congress treated the Tongass National Forest a little differently. The 1980 Alaska National Interest Lands Conservation Act exempted the Tongass from some of NFMA's requirements and the 1990 Tongass Timber Reform Act imposed other special requirements on the Alaska forest. As a result, Tongass forest planning has always been a little different from planning for other forests.

II. Three different actions for three different types of areas

The DEIS actually contains three different proposals for three different types of roadless areas: inventoried roadless lands outside the Tongass, inventoried roadless lands in the Tongass, and roadless lands in areas that are not yet inventoried.

1. For *roadless portions of inventoried roadless areas outside of the Tongass National Forest*, an estimated 43 million acres, the DEIS proposes to ban new road construction, with limited exceptions if roads are needed to protect public health and safety or in certain other cases.
2. For *roadless portions of inventoried roadless areas in the Tongass National Forest*, an estimated 8 million acres, the DEIS proposes to defer any decision until 2004 and let that decision be made as a part of the forest planning review process. Because Tongass timber sales have fallen to very low levels, the agency expects that few new roads will be built in roadless areas before this decision is made.
3. For *unroaded areas that are not inventoried as roadless*, an unestimated amount of land, the plan proposes to allow local Forest Service managers to decide how to manage such areas in the course of forest and project planning.⁵ The proposal sets no minimum size limit on such roadless lands but leaves this to the local forest managers' discretion.

The second and third proposals are not significantly different from the current direction; at most, they direct planners to give recognition to roadless areas whose fate would be decided in forest planning anyway. The first proposal represents the biggest change in policy and is the subject of most of these comments.

The actual rule that covers all three proposals fills about three-and-one-half pages of the draft environmental impact statement (pp. A-25 through A-28). The rest of the DEIS fills more than 700 pages, including 200 pages of maps. The other 500 pages are filled mostly with qualitative and subjective prose. Indeed, though covering a subject that has been studied for decades, the document has surprisingly little quantified information.

⁵A *forest plan* is a comprehensive land-use and resource management plan written for each national forest and updated every ten to fifteen years. A *project plan* is a plan for an on-the-ground action such as a timber sale or a recreation development. While project plans are supposed to comply with forest plans, paradoxically the Forest Service holds—and the Supreme Court has agreed—that forest plans make no real decisions.

III. Is a blanket proscription appropriate?

This proposal covers hundreds of different roadless areas covering tens of millions of acres located in thirty-eight states and Puerto Rico.⁶ From the cactus deserts of Arizona to the rainforests of the Olympic Peninsula, from the mixed hardwood forests of Georgia to the nearly pure Douglas-fir forests of western Oregon, roadless areas vary tremendously across the nation. Clearly, the roadless areas contain a wide range of ecological types.

Wide variations can exist within just a short distance. Many people crossing the Cascade Mountain crest will note an abrupt change from the Douglas-fir-western hemlock forests on the west side to the ponderosa pine-true fir forests on the east side. Cove hardwoods of the south differ from the upland hardwoods. Scrawny lodgepole pine forests in the interior West may grow just a few miles away from awe-inspiring giant ponderosas.

Given this wide geographic range and ecological diversity, it is difficult to imagine how a blanket, nationwide prescription for roadless area management can make any sense. The failure of RARE I and RARE II taught that it is not possible for decision-makers located in Washington, DC, to know with certainty the best prescription for every single roadless area. Yet the current DEIS and proposal do not even attempt to identify the most appropriate prescription for each roadless area. Instead, the proposal and most of the alternatives considered contemplate a single blanket prescription for all inventoried roadless areas outside of the Tongass Forest.

A. Why is a blanket prohibition on roadless areas appropriate?

The DEIS says that such a prescription is needed because:

- Road construction, reconstruction, and timber harvest activities in inventoried roadless and other unroaded areas can directly threaten their fundamental characteristics through the alteration of natural landscapes and fragmentation of forest lands;
- Budget constraints permit only a small portion of the agency road system to be effectively managed; and
- National concern over roadless area management continues to generate controversy, including costly and time-consuming appeals and litigation (DEIS p. 1-10).

These statements may all be true, but they do not explain why a nationwide regulation is needed. One-size-fits-all prescriptions cannot recognize the different needs of the ecologically diverse National Forest System. Furthermore, regional and national forest managers are acutely aware of all of these considerations. Thus, given the right incentives, they are certain to take these factors into account when reevaluating roadless

⁶Forest Service, "Where are the Roadless Areas located? http://roadless.fs.fed.us/where_located.shtml.

areas in forest planning. When planning on-the-ground projects, national forest officials and district rangers are more likely to find the best prescription for an individual roadless area than could be found in a three-and-one-half page rule written in Washington, DC.

The DEIS also makes such points as:

- Activities that pollute water “are minimal in roadless areas” (p. 1-1);
- Roadless areas “are often associated with healthier fish populations” (p. 1-1);
- “Many important wildlife populations are also heavily dependent on roadless areas” (p. 1-1);
- “Roadless areas are more likely to have intact native plant and animal communities” (p. 1-1); and
- They provide “unique recreation opportunities”(p. 1-3).

These statements may be true, but they do not prove the need for a blanket national regulation. As with the previous claims, national forest and ranger district managers are fully aware of watershed, fish, wildlife, and recreation values. Moreover, even though these statements are often true, they are not necessarily true for every single roadless area in the National Forest System. It is easily possible that, in some roadless areas, a new road could enhance economic and social values by more than its environmental and economic cost.

B. Why now?

Of the 54 million acres of inventoried roadless areas, the forest plans of the 1980s placed 20.5 million acres in categories that forbid any road construction (DEIS p. B-4). Most forest plans were completed more than a decade ago, yet roads have been built in only 8 percent of the 33.8 million acres where roads are allowed (DEIS p. 2-3). This indicates that roadless areas that are available for development have been developed at the rate of less than 1 percent per year.

A decline of less than 1 percent per year can be worrisome over the long term, but not over four or five years. Yet, even without the proposed policy, the future of all remaining roadless areas would be re-evaluated in the course of forest plan reviews that are scheduled to take place over the next four or five years.

During that time, the regional and national forest managers who are acutely aware of the environmental and social values of roadless areas, the cost of building and maintaining roads, and the controversies over road construction would have an opportunity to withdraw from potential development all roadless lands where road construction is inappropriate.

So why is a national blanket prescription against roads needed now? The DEIS says that “The national decision process would reduce the time, expense, and controversy

associated with making case-by-case decisions at the local level” (p. A-5). By the same logic, the federal government might as well tell every American what to eat to save them from the time, expense, and debate of having to make such decisions themselves. Naturally, everyone would be required to eat the same things even if some were diabetics and others were lactose intolerant.

Just as ordering everyone to eat exactly the same food could have dangerous and costly consequences for some people, applying the same prescription to all roadless areas carries a high risk that the results for some of the roadless areas will be wrong. While the construction of permanent roads may well be the wrong prescription for most roadless areas, the DEIS falls far short of providing enough information to justify a mandate that *all* roads should be excluded from *all* inventoried roadless areas.

C. Why preempt local forest manager judgment?

The DEIS offers no valid scientific or ecological need for a blanket roadless area rule. In the absence of such scientific or ecological support, why would the administration and Forest Service consider such a blanket rule? One possible reason is that Washington officials do not trust the judgment of regional and national forest managers who might decide to build roads if the option is available.

The Forest Service’s history suggests that there is good reason not to trust local forest managers to make the best decisions about the future of roadless lands. From about 1950 to 1990, national forest officials often decided to road and harvest timber in roadless areas despite high road costs, high environmental costs, and low timber values that often could not cover basic operating costs, much less the environmental costs or capital investments in roads.

A close analysis reveals, however, that the problem is not with the judgment of national forest managers but with the incentives they face. Under the historic Forest Service budgeting process, national forest managers were:

- Rewarded for building expensive, heavily-engineered roads which have high environmental impacts when low-cost temporary roads with minimal environmental effects are all that may be needed;
- Rewarded for clearcutting when selection cutting might be more ecologically appropriate, not to mention politically popular and aesthetically appealing;
- Rewarded for losing money on timber sales;
- Penalized for returning profits from timber sales to the U.S. Treasury.⁷

The current administration is aware of these misincentives and has taken small, though inadequate, steps to address them. One of the road misincentives, for example, had to do

⁷Randal O’Toole, *Reforming the Forest Service* (Covelo, CA: Island Press, 1988).

with the system of purchaser road credits that Congress recently repealed at the administration's request.

The purchaser credit system in the National Forest Roads and Trails Act of 1964 combined with Congress' willingness to provide funding for timber sales, promoted high-cost, high-impact roads. Road engineering and design was traditionally done by Forest Service engineers funded out of Congressional appropriations. Timber purchasers who were able to credit the road costs against the price they bid for timber did much of the actual road construction work.

The Forest Service was thus able to stretch appropriated dollars with purchaser credits. Forest managers responded by over engineering roads. The agency sometimes spent nearly as much money on the engineering and design as on the road construction itself. For example, in 1985 the agency spent \$105 million on engineering for \$117 million worth of purchaser-built roads.⁸ Managers also responded to this system by requiring purchasers to build high-cost permanent roads when temporary roads that could be built for far less money would have a far lower environmental impact.

Timber purchasers and environmentalists have long agreed that the Forest Service should emphasize low-impact, temporary roads and then put them to bed when no longer needed. Forest Service officials ignored such suggestions. Such low-cost, low-impact, temporary roads would have prevented many of the problems with road maintenance now identified in the notice of intent, and may still be helpful to carry out certain management techniques in some roadless areas such as prescribed burning, thinning of overstocked stands, and watershed restoration work.

One artifact of this system is that the quality and type of roads on any given national forest do not reflect the needs of that forest for roads. Instead, they reflect the value of timber found on that forest. In western Oregon and Washington, where national forest timber values are highest, many of the roads are paved. Even when unpaved, roads in forests with high timber values were typically fairly wide and often required huge cuts and fills. On forests with much lower timber values, roads tended to be narrower and avoided steep (and expensive) slopes.

In most cases, wide permanent roads greatly exceeded the needs of the national forests. Although forest managers argued that such roads were valuable for multiple purposes, such as recreation, Forest Service studies have clearly shown that the supply of roaded recreation on the national forests greatly exceeds the demand even at a zero price, which is all that most recreationists are charged.

Congress recently changed the purchaser credits program.⁹ But the revision was an accounting change only; purchasers may still build roads, they just won't credit the cost

⁸Forest Service, *1987 Budget Explanatory Notes for Committee on Appropriations* (Washington, DC: Forest Service, 1986), p. 236.

⁹Forest Service, *2000 Budget Explanatory Notes for Committee on Appropriations* (Washington, DC: Forest Service, 1999).

against the price they bid for timber. Instead, they will bid less for timber. The incentives for the Forest Service remain unchanged.

Prohibiting roads in roadless areas does not change the incentive to build high-cost, high-impact roads. It can be expected that the agency will continue to build such roads outside of roadless areas. The environmental impact statement should consider an alternative that reduces the incentives to build high-standard roads and allows temporary roads instead.

Another misincentive was created by the Knutson-Vandenberg Act of 1930, which allowed the Forest Service to keep an unlimited share of timber receipts for reforestation and other sale area improvements. This encouraged managers to think of returns to the Treasury as “losses” because they lose control over them. As a result, they tended to choose cutting methods that required the most costly reforestation techniques and to find other ways to keep most timber receipts for themselves rather than compensating the Treasury for funds spent to arrange the timber sales.

The administration has proposed that Congress repeal this law. In its place, the administration wants Congress to provide a large fund that could be used for a wide range of activities. But Congress has historically directed that such appropriated funds be used for roads, timber sales, and other activities. Such a fund is not likely to result in significantly better incentives.

Nevertheless, it is clear that the administration is aware of the problems with incentives and wants to do something about them. The current proposal, however, undermines any efforts at improving incentives in favor of a one-size-fits-all prohibition that precludes scientifically credible decision-making in response to proper incentives. It may also be that the administration does not think that new incentives are enough to produce the results it wants for roadless areas. So it is relying on heavy-handed, top-down direction in place of scientifically credible decision-making.

IV. The proposal is not supported by Forest Service data

Despite its length, most of the 700-page DEIS is largely devoid of analyses. For example, the 200-page volume 2 is devoted to maps of inventoried roadless areas, while appendix B presents the number of acres of those inventoried roadless areas by state, Forest Service region, and national forest. But the main proposal applies only to the *unroaded portions* of inventoried roadless areas, which are neither mapped nor broken down by region, state, or forest.

A. Why were roads built in some roadless areas?

As previously noted, roads have been built in about 2.8 million acres of inventoried roadless areas. Though not included in the proposal, and not mentioned in any of the discussion, they are not deleted from the maps or region, state, or national forest tallies of roadless area acres.

Information about these 2.8 million acres would be very useful in assessing the proposed rule. For example, why did local managers decide to build roads into these 2.8 million acres? The answer to this question would help readers, including the decision makers and the public, judge whether the proposed rule is necessary and how costly it might be.

If the decision to road some roadless area appears to be a mistake, it would be useful to know why that mistake was made and whether the proposed rule is the best way to prevent such mistakes. On the other hand, if the decision to road some roadless area appears to make sense, it would be useful to know what cost would have been imposed if the proposed rule had prevented the road from being built.

Another important question is: When were these 2.8 million acres roaded? If most were roaded in the late 1980s, when national forest timber sales were considerably higher than they have been in the 1990s, then the need to pass the blanket rule is even less than would be suggested by the previous calculation that roads have been built in roadless areas at the rate of less than 1 percent per year.

The DEIS fails to include any such analyses. Nor does it disclose which 2.8 million acres have been roaded.

B. What are the benefits and costs of a blanket prohibition?

The DEIS also purports to account for the benefits and costs of the proposed rule. Yet, as shown in table 2 on page A-21, seven of the eight identified benefits plus seven of the eleven identified costs are explicitly “qualitative.”

Even the few quantitative estimates in the DEIS are mostly general. For example, although the DEIS says that the roadless area rule is needed to protect watershed, fisheries, wildlife, plant and animal communities, and recreation opportunities, the DEIS:

- Presents virtually no roadless-area specific data on watersheds or water quality (pp. 3-22 to 3-27);
- Includes no fisheries data other than the number of acres of inventoried roadless areas within the range of Pacific salmon species (table 3-16);
- Counts the number of threatened or endangered species whose habitat is found within roadless areas (table 3-17), but not the number or acreage of roadless areas that do or do not provide such habitat;
- Includes no data on plant and animal communities other than the number of acres of inventoried roadless areas within large-scale ecoregions (table 3-9); and
- Presents no roadless-area specific recreation data (pp. 3-117 to 3-133).

These deficiencies greatly weaken the case for a blanket, nationwide roadless-area rule. It is easily possible that some roadless areas do not provide critical fish or wildlife habitat or watersheds. It is also possible that low-impact roads in other roadless areas could be

built without seriously degrading water quality or critical habitat. If either is true, then there is no need for a blanket rule.

C. Will a blanket roadless policy protect ecosystem health?

The roadless area question is often portrayed by the media as pitting nature vs. development. In fact, many of the undeveloped roadless areas are just as unnatural today as the clearcuts that dot the National Forest System. While most roadless areas have never been roaded, logged, or mined, they are ecologically very different from the way they were when the Forest Service began managing them in 1905. Many who might have hiked through them a century ago would not recognize them today.

At least four factors have led to ecological changes within many of the roadless areas that are as significant as the road construction and clearcutting that has taken place outside of the roadless areas:

1. The Forest Service's fire suppression policy;
2. The removal, largely by federal agents, of large predators such as wolves and grizzly bear;
3. The introduction of exotic species such as plants and diseases; and
4. Roads and logging activities outside of the roadless areas, whose ecological effects often penetrate deep into the roadless areas.

The Forest Service's fire suppression policy has completely altered plant communities and wildlife habitat. People living in the 1920s could recall driving through the ponderosa pine forests of eastern Oregon and Washington or the mixed conifer forests of the Sierra Nevada. Now the vegetation is so thick that people have a hard time walking through them. Photos on pages 3-101 and 3-102 of the DEIS contrast such open and dense forests.

Natural and aboriginal fires played different roles and occurred with different frequencies in different forest types. In general, however, fires kept forest stocking levels down, favored some species of plants and animals over others, and minimized the highly flammable fine materials. Some trees, including giant sequoia and lodgepole pine, are fire dependent across much of their ranges, meaning that they rely on fire to germinate their seeds and suppress competition.

Fire suppression led to increased stocking of trees and vegetation. Trees that previously would have been killed by fire remained alive but lacked vigor due to competition from other vegetation. As a result, the weakened trees were susceptible to insect and disease problems. This sometimes led to insect epidemics spreading to other lands, both public and private.

Fire exclusion also led to major changes in species composition in many ecosystems. Species that were favored by fire lost out to other species that were previously less

profuse. This sometimes created conditions for more insect problems as well as altered wildlife habitat.

Finally, fire suppression allowed a build up of flammable, fine materials. Increased stocking and increased numbers of insect-killed trees created a “ladder of fire” allowing fires on the forest floor quickly to become crown fires. Fires that previously might have been minor turned into catastrophic stand-killing fires.

In addition to fire suppression, roadless areas have been ecologically changed by the federal government’s policy of removing large predators, such as wolves and grizzly bear, from much of the landscape. Another factor is the introduction of exotic species, often by federal actions such as the construction of roads along the boundaries of the roadless areas. In southwestern Oregon, for example, road construction is responsible for the spread of a non-native fungus that is killing most of the area’s Port-Orford-cedar, which is the most valuable softwood in North America.

To describe such areas as “natural,” in the sense that they are uninfluenced by modern civilization, is factually incorrect. Roadless areas do continue to produce higher quality water than most roaded areas, but from a vegetation or wildlife viewpoint they have been completely transformed. Though they may be “wild,” most roadless areas are far from natural.

Polls show that, given a choice between wilderness vs. high-impact roads and clearcutting, most Americans would choose wilderness. But it is not so clear that, given a choice between wildness and naturalness, most Americans would choose unnatural wildness.

For more than a decade, scientists and other professionals have debated the question of wilderness vs. naturalness. An area that is left alone may be described as *wild*. But certain management practices such as prescribed fires, pesticides to remove exotic plants, intensive hunting of selected species, and even selection cutting of timber will help more to make an area *natural*—that is, more like its pre-1900 condition—than leaving it alone. All of these practices could be aided by, and some may require, temporary low-impact roads that the proposed rule would prohibit.

The DEIS completely ignores this question, making no reference to important works by biologist Daniel Botkin¹⁰ and historian William Cronon¹¹ on the question of wildness vs. naturalness. In essence, the DEIS presents the over-simplified view that the debate is between nature vs. development.

The proposal to ban all roads in inventoried roadless areas outside of the Tongass National Forest merely exacerbates the problems caused by past policies such as fire

¹⁰Daniel Botkin, *Discordant Harmonies: A New Ecology for the Twenty-First Century* (New York, NY: Oxford, 1990).

¹¹William Cronon, “The Trouble With Wilderness; or, Getting Back to the Wrong Nature,” in William Cronon, ed., *Uncommon Ground: Toward Reinventing Nature* (New York, NY: W. W. Norton & Company, 1995), 69-90.

suppression and predator removal. Due to those policies, future forest fires are more likely to become uncontrollable. Unless managers can build temporary roads to access and treat fuel build-ups in roadless areas, the cost of preventing fires may often be prohibitive.

Ecological restoration aimed at both reducing fire hazards and at restoring vegetation to something more closely resembling pre-Forest Service conditions may require a variety of tools, including thinnings, prescribed burnings, creation of openings, pesticides to kill exotic plants, and plantings to restore natural diversity. Any of these tools can be applied without temporary roads, but their cost will often be greater, which means that fewer areas will be restored.

According to table 3-20 of the DEIS, two-thirds or more of the roadless acres in Arizona, Montana, New Mexico, Oregon, South Dakota, and Washington are at “moderate to high risk of catastrophic fire,” and a third or more of the roadless acres in Arizona, Nevada, New Mexico, Oregon, and Utah “need treatment” to reduce such fire hazards. The proposed roadless area rule will make such treatments more expensive, which means that the risk of more Los Alamos-like fires will be higher.

The proposed roadless area rule allows road construction only “to protect public health and safety in cases of an imminent threat of flood, fire, or other catastrophic event.” In other words, a road can be built to suppress a fire that should not have happened, but not to take the actions needed to prevent it.

D. What are the effects on timber outputs?

Perhaps the most detailed data in the DEIS relate to the potential effects of the roadless area rule on national forest timber cuttings. The document presents estimates of timber harvest reductions by Forest Service region. Yet these estimates are crude even by traditional Forest Service standards.

The estimates are based on the volume of national forest timber that was planned for cutting in roadless areas in the next five years (p. 3-185). However, a roadless areas’ true contribution is not based on cutting schedules over the next five years but the roadless areas’ role in the calculation of the *annual sale quantity* (sometimes known as the *allowable cut*). This calculation is complicated by the Forest Service’s need to comply with long-term sustained yield requirements.

It is likely that, in some forests, roadless areas make a larger contribution to the annual sale quantity than can be measured by the next five-year sale schedule. Suppose, for example, that half of the timber in a forest is in roadless areas but that only 10 percent of the timber to be cut in the next five years is in roadless areas. Managers are cutting 90 percent of the timber outside of roadless areas but expecting to eventually cut more in the roadless areas. In what is known as an *allowable cut effect*, if the roadless areas are withdrawn, timber sale levels must decline by half, not by 10 percent. The DEIS explicitly fails to analyze or account for this possibility (p. 3-188).

V. None of the proposed alternatives would address the inherent problems

A. Prescriptive alternatives

Although the DEIS has failed to show that a blanket, nationwide rule is needed for inventoried roadless areas outside of the Tongass Forest, the only alternatives considered to this rule—other than the “no-action” alternative—are different blanket, nationwide prescriptions. Specifically:

- The preferred alternative: prohibit roads in these areas;
- Alternative: prohibit roads and commercial timber cutting;
- Alternative: prohibit roads and all timber cutting.

The DEIS also says that the Forest Service “considered but eliminated from detailed study” several other alternatives. Yet these too are prescriptive in nature, including:

- Withdrawal of roadless areas from mineral entry;
- Prohibition of other activities such as grazing (p. 2-18).

While considering alternatives that were more prohibitive than the preferred alternative, the Forest Service failed to consider any alternatives less prohibitive (other than no action). Many national forest visitors used to the Forest Service’s typical high-cost, high-impact roads may not realize that it is possible to build low-cost temporary roads that have minimal environmental effects.

One important alternative would forbid permanent roads but allow national forests to build temporary roads into roadless areas to use in forest health or ecosystem restoration activities, including salvage sales, thinnings, prescribed fires, removal of exotic pests, streamside restoration, and wildlife habitat improvements, provided such roads were closed and restored to a natural condition after use.

Temporary roads can be built at a much lower cost than permanent roads. Since the landscape can be restored after they are closed, they have much lower maintenance and environmental costs than permanent roads. Were it not for the incentives created by the Forest Service budgeting process, it is likely that most of the nearly 400,000 miles of national forest roads today would have been temporary and would be closed today.

This alternative would comply with President Clinton’s directive to provide greater protection to roadless areas. Yet it would allow forest managers to do effective ecosystem restoration activities at a much lower cost than would be imposed by the proposed ban on all roads. Like any blanket prescription, it carries with it a risk that some roadless area somewhere would be better off if it had a permanent road instead of just a temporary one. But this risk is much lower than under the proposed rule, which

would ban all roads. In sum, a ban on permanent, but not temporary, roads would provide nearly all, if not all, of the environmental benefits of the proposed action with less risk lower economic costs, and without imposing new barriers to ecosystem restoration

B. Procedural alternatives

The DEIS also contains so-called “procedural” alternatives. These are limited to centralized procedures at the Washington level, such as an executive order, Congressional legislation (p. 2-16), or designating all roadless areas as national monuments (p. 2-17). Nowhere does the DEIS consider the incentive-based alternative which was proposed by the Mercatus Center in its earlier comments.¹²

As noted above, the real problem with the Forest Service is that on-the-ground managers face incentives to build unnecessary roads, to build permanent roads when temporary roads would be sufficient, and to cut timber or extract other national forest resources even when—or especially when—those actions lost money. As suggested in earlier comments on scope submitted by the Mercatus Center, the DEIS should have considered an alternative that would change those incentives instead of make blanket prescriptions.

Finding alternative funding sources that provide checks and balances so that local managers make decisions based on the latest scientific information, would be a more efficient way of solving national forest problems.

The alternative proposed in Mercatus’ earlier comments recommended:

- Letting managers charge fair market value for a wider variety of renewable resources instead of just timber;
- Funding forest management out of a fixed share of receipts instead of out of appropriations plus receipts. The EIS should examine how various ways of calculating this share would influence forest incentives.
- Dedicating some receipts to a special fund that can only be spent on truly non-market values such as biological diversity or to assist in ecosystem restoration.
- Managing the forests as a trust, similar to state trust lands, with the dual objective of producing revenues for a beneficiary and preserving the corpus of the trust.

If, as previously suggested, the purpose of the proposed roadless area rule is to preempt bad decisions by national forest managers, then changing the incentives would have the

¹²Randal O’Toole, “Comments on the Forest Service’s Notice of Intent to Prepare an Environmental Impact Statement on National Forest System Roadless Areas,” Mercatus Center, Public Interest Comment RSP 1999-14, December 17, 1999.

same effect at a much lower cost. Moreover, changing the incentives would have the added benefit of improving management of lands not designated as roadless as well.

The DEIS's exclusive focus on centrally mandated blanket proscriptions against activity in roadless areas could reduce environmental and economic costs in some roadless areas. But it will almost certainly increase costs on other areas and do nothing at all for areas in which roads have been built. New incentives will help to insure that all national forests, whether or not they are designated as "roadless," are managed at a lower economic cost and with greater sensitivity to the environment.

VI. Conclusions

The draft environmental impact statement for roadless area conservation is deficient in several respects. It fails to show that a blanket, nationwide prescription is needed for roadless lands. It provides little data and what data it does provide indicate that a blanket, no-roads rule will cost more than it will benefit in at least some roadless areas. And it fails to consider important alternatives, including alternatives built around incentives rather than proscriptions, and alternatives that would allow temporary, low-impact roads in roadless areas when needed for forest health or ecosystem restoration.

Reflecting these deficiencies, the proposed rule will impose unnecessary economic and environmental costs on the national forests. The economic cost will be high because a ban on roads will increase the cost of improving forest health or restoring ecosystems in some roadless areas. The environmental cost will be high because, without such improvements, many roadless area ecosystems will continue to deteriorate and may even suffer unnaturally catastrophic fires.

These problems reflect several inadequacies with the roadless area rulemaking. First, the proposal is not based on science, and the ecological variety and unique needs of individual forests are ignored. Second, the proposal suffers from an inside-the-beltway mentality, which assumes that the only way to manage a 192-million acre estate is through central direction from the top down. Finally, the proposal ignores the important debate over wildness vs. naturalness.

There is no doubt that the Forest Service may have made many mistakes in the past, which may include building too many roads at too high an economic and environmental cost. But the roadless area rulemaking makes no attempt to identify the source of these mistakes. Instead, it simply attempts to preempt further mistakes at potentially high cost – the preemption of the construction of roads that might be necessary or useful for national forest management.

A roadless area rule is not the best way to prevent future errors. Instead, what is needed is a major reform of the Forest Service's budgetary process. Such a reform would improve management and reduce environmental and economic costs on all Forest Service lands whether or not they are designated as "roadless."

Short of such a major reform, the roadless area EIS should consider an alternative that would ban permanent roads but allow temporary, low-impact roads in certain areas for forest health or ecosystem restoration. This would eliminate most of the objections to the proposed rule while retaining most, if not all, of the benefits.

Appendix I

RSP Checklist

Forest Service's Roadless Area EIS Notice

Element	Agency Approach	RSP Comments
1. Has the agency identified a significant market failure?	<p>The Forest Service has not framed its decision in terms of markets.</p> <p>F – Unsatisfactory</p>	<p>The debate over roadless areas is a result of significant government failure. Incentives built into the Forest Service budget rewarded national forest managers for building high-cost, high-impact roads and selling timber at an economic loss to taxpayers. Without those incentives, far fewer roads would have been built on the national forests.</p>
2. Has the agency identified an appropriate federal role?	<p>National forests are, by statute, under federal control.</p> <p>C – Fair</p>	<p>The proposal to issue a blanket rule against road construction and possibly commercial timber cutting in roadless areas denies discretionary authority to local managers. The ecology of national forests varies dramatically across the nation. Given the right incentives, local managers would be in a far better position to make decisions that are in the best interests of the public.</p>
3. Has the agency examined alternative approaches?	<p>The Forest Service described several alternative approaches, but they are all blanket prescriptions, and none address the fundamental issue of incentives.</p> <p>F – Unsatisfactory</p>	<p>The Forest Service should consider alternatives that focus on incentives rather than one-size-fits all prescriptions. It should also consider an alternative that allows construction of temporary roads if needed for ecosystem restoration.</p>

Element	Agency Approach	RSP Comments
<p>4. Does the agency attempt to maximize net benefits?</p>	<p>The DEIS also purports to account for the benefits and costs of the proposed rule, yet most of these are explicitly qualitative. F – Unsatisfactory</p>	<p>The environmental impact statement and proposed rule provide little data and what data they do provide indicate that a blanket, no-roads rule will cost more than it will benefit in at least some roadless areas. Not only will the economic cost be high because a ban on roads will increase the cost of improving forest health or restoring ecosystems in some roadless areas. The environmental cost will also be high because, without such improvements, many roadless area ecosystems will continue to deteriorate and may even suffer unnaturally catastrophic fires.</p>
<p>5. Does the proposal have a strong scientific or technical basis?</p>	<p>The notice of intent states that the proposal is based mainly on public opinion, not ecological needs. F – Unsatisfactory</p>	<p>There is no scientific basis for issuing a blanket proscription against timber cutting or road construction on millions of acres of land just because they happen to be roadless at the moment. The proposal ignores the ecological variety and unique needs of the individual forests that make up the national forest system.</p>
<p>6. Are distributional effects clearly understood?</p>	<p>The proposal does not indicate any awareness of the distributional effects of the proposed rule. F – Unsatisfactory</p>	<p>The EIS, and proposal should consider the impact of blanket proscriptions on road building on the accessibility of these natural areas. It should also examine who will bear the costs.</p>
<p>7. Are individual choices and property impacts understood?</p>	<p>The notice does not appreciate the effect incentives have on individual decisions. F – Unsatisfactory</p>	<p>Forest Service controversies largely result because national forest managers have no incentives to act as owners. Instead, they try to shift the costs of managing the forests to taxpayers. The proposed rule would not change this in any way.</p>

Regulation of the Week: DOE's Clothes Washer Efficiency Standards

Rule Summary:

On October 5, 2000, the Department of Energy (DOE) proposed new regulations that would require clothes washing machines to use less water and energy. Public comments are due by December 4, 2000, and DOE expects to issue final clothes washer efficiency standards before January 20, 2000.

The standards are based on the recommendation of a group of manufacturers and energy conservation advocates. DOE expects that the new standards would eliminate standard vertical axis washers from the market, in favor of horizontal axis washers, which tend to be front-loading (rather than top-loading).

Facts:

- DOE estimates that this rule will increase the cost of washing machines by 50 percent.
- The new standards would take away consumer choices – DOE predicts it will eliminate the most popular washing machine models. Manufacturers currently offer energy- and water-efficient washing machines that would meet the new standards, but consumers are not buying them.
- DOE assumes that consumers' preference for less efficient washers is due to ignorance about cost tradeoffs (more energy-efficient machines cost more up-front, but less to operate). DOE does not entertain the possibility that consumers actually prefer the features of the less-efficient machines (such as loading clothes at the top, rather than kneeling or stooping to load them in the front of the machine.)
- Both market experience, and DOE focus groups reveal that consumers prefer top-loading machines to front-loading machines. Top-loading machines require less bending or kneeling to insert or remove clothes, carry less risk of leakage around doors, and are less accessible to toddlers. Though the horizontal-axis machines that would be required by the standard are available in top-loading models, they are significantly more expensive.
- DOE concludes that the more efficient models required by the rule would save consumers money, but this conclusion is based on an assumption that users would operate the machine 392 times a year – more than 7½ loads of laundry per week. Using DOE's data and analytical framework, the Mercatus Center at George Mason University found that consumers who washed less than 5 loads per week would face higher costs, in addition to foregoing the desirable features of their existing washing machines.

- DOE asserts that low income consumers, because they tend to have larger families and may do more loads of laundry, will receive the greatest benefit from efficient machines. However, its analysis reveals that low income families are actually less likely to be able to afford the higher purchase price of the new machine, and thus will continue to use older, less-efficient machines longer under the rule than they would otherwise.
- DOE has based this rule on recommendations of washing machine manufacturers and energy conservation advocates, and has ignored the preferences of consumers who will have to buy the new machines. In fact, DOE discounts consumer preferences (as revealed by buying habits and focus group statements) on the paternalistic assumption that Washington bureaucrats know better what is good for consumers.
- DOE justifies the standards on a narrowly-focused accounting of purchase cost compared to operating cost, using unreliable assumptions about energy prices and consumer preferences. A similar analysis led it to mandate low-flow toilets, which consumers are now constrained to purchase. Low-flow toilets in practice reveal the error of DOE's calculations – while less water is used per flush, consumers find they must often flush twice to get the toilet bowl clean. The washing machine standards are likely to be similarly flawed because DOE excludes from its actuarial calculations many of the washer attributes that consumers value.
- DOE is rushing this standard at an unusually fast pace. If it succeeds in meeting its goal of issuing a final rule by January 20, 2001, the rule will have taken less than four months from the time it was first proposed in the Federal Register until it becomes final. In contrast, over the last five years, DOE's Office of Energy Efficiency and Renewable Energy has taken an average of almost four years (from proposed to final) to issue a regulation. This accelerated process is not justified by any energy crisis or legal or congressional mandate. It not only truncates the public's ability to comment on the proposal, but undermines thoughtful consideration of that comment by DOE.

For more information, contact Laura Hill at 703-993-4945 or loquinn@gmu.edu.
Download the Mercatus Center public interest comments at www.mercatus.org.

MERCATUS CENTER
GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

Comments on:

***Clothes Washer Energy Conservation Standards
Addendum to RSP 2000-22***

Submitted to:

U. S. Department of Energy

December 4, 2000

"A wise and frugal government, which shall restrain men from injuring one another, which shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government."

Thomas Jefferson, from his "First Annual Message," 1801

RSP 2000-23

REGULATORY STUDIES PROGRAM

*Public Interest Comment Series:***DOE Clothes Washer Addendum – Poll Results**

Agency:	Department of Energy, Office of Energy Efficiency and Renewable Energy
Rulemaking:	Energy Conservation Program for Consumer Products: Clothes Washer Energy Conservation Standards
Stated Purpose:	“Washing Machines to Become More Energy Efficient: Agreement Will Yield Big Savings for Consumers and the Environment”
Submitted December 4, 2000	RSP 2000-23

Summary of RSP Comment:

One observation offered in RSP’s November 27, 2000 comment on DOE’s clothes washer energy conservation standards was that the rule was based on a recommendation of manufacturers and energy conservation advocates, and the process not conducive to consumer input. While RSP does not believe that all public matters are best decided by polls or referenda, we believe it is a useful exercise to put regulatory decisions into language that the average citizen can understand, and to listen to their views. To this end, Mercatus commissioned a survey of consumers to provide DOE a better understanding of their preferences with respect to washing machine attributes and the standard established in the proposed rule.

The telephone survey, conducted by Rasmussen Research on Tuesday, November 28, 2000, posed five questions related to washing habits and preferences. With a sample size of 2000, and a margin of error of +/- 3 percent with a 95 percent level of confidence, the poll yielded some interesting results.

When faced with the simple question of whether they would favor or oppose a regulation that effectively eliminated top-loading washer models, consumers expressed opposition by a ratio of six to one. Even when informed that the mandated machines would have lower operating costs and greater energy efficiency, respondents still opposed the regulation by a margin of 2.6 to one. When asked whether the savings predicted by DOE would be a “good deal,” respondents replied in the negative by a ratio of almost two to one.

DOE bases its estimated operating savings on an assumption that a household will operate a washer 392 times a year, however, less than 15 percent of survey respondents operate their clothes washer that frequently. More than two-thirds of households surveyed wash 5 or fewer loads a week, which DOE’s data reveal would not be enough to recoup the higher purchase price of the mandated washing machines.

MERCATUS CENTER

REGULATORY STUDIES PROGRAM

**Addendum to Public Interest Comment on
the Department of Energy's
Proposed Clothes Washer Efficiency Standards**

Docket No. EE-RM-94-403

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of the impact of regulation on society. As part of its mission, RSP conducts careful and independent analyses employing contemporary economic scholarship to assess rulemaking proposals from the perspective of the public interest. On November 27, 2000, RSP submitted comments on the Department of Energy's proposed clothes washer efficiency standards.

One observation offered by that comment was that the Department's regulatory development process was not amenable to consumer input. According to DOE, the proposed regulations were "based on a 'Joint Stakeholders Comment recommendation submitted to the Department by clothes washer manufacturers and energy conservation advocates.'"¹ DOE recognized that consumers, unlike these organized stakeholders, would have difficulty participating in the rulemaking process.²

One premise of the Regulatory Studies Program is that regulatory decisions are too often made on the basis of an incomplete record – one that reflects the views of the agency and of those who have a parochial interest in the outcome, but that contains little input from the public at large. Our comments generally are intended to provide a broader public interest perspective. On occasion we will supplement those comments with polling data intended to elicit the views of a random sample of citizens.

¹ DOE, *Federal Register*, p. 59551. DOE added: "The Joint Stakeholders consist of the following: Alliance Laundry Systems LLC; Amana Appliances; Asko Incorporated; Frigidaire Home Products; General Electric Appliances (GEA); Maytag Corporation; Miele, Inc.; Fisher & Paykel Ltd; Whirlpool Corporation; Alliance to Save Energy; American Council for an Energy Efficient Economy (ACEEE); Appliance Standards Awareness Project; California Energy Commission (CEC); City of Austin, Texas; Natural Resources Defense Council (NRDC); Northwest Power Planning Council; and Pacific Gas and Electric (PG&E).

² In an August 31, 2000 letter to DOE Secretary Bill Richardson, the Advisory Committee on Appliance Energy Efficiency Standards wrote that DOE's rulemakings on appliance standards are too ponderous to be useful to the lay consumer even when written to meet the requirement that rulemakings be in "plain language." The Committee recommended that DOE make rulemakings more "consumer friendly." DOE responded to the Committee:

"The Department is experimenting with a Consumer Overview section in the Notice of Proposed Rulemaking...Unfortunately, legal counsel has instructed that this overview may not appear at the beginning or end of the document, but must be relegated to the summary section, well-buried in the middle of the notice."

We do not believe that all public matters are best decided by polls or referenda. In our representative federal democracy, the power of majorities to coerce minorities must be filtered through the established institutions, with their checks and balances. Furthermore, regulatory agencies must bring scientific, economic, and other technical expertise to bear on the complicated decisions that are entrusted to them. It is not always possible to describe these decisions accurately to a poll respondent.

At the same time, we believe it is a useful exercise to put regulatory decisions into language that the average citizen can understand, and to listen to their views. To this end, Mercatus commissioned a survey of consumers to provide DOE a better understanding of their preferences with respect to washing machine attributes and the standard established in the proposed rule.

Tables 1-5 below present the results of the Mercatus Center telephone survey conducted by Rasmussen Research on Tuesday, November 28, 2000. The survey posed five questions related to washing habits and preferences. The sample size is 1,997, and the margin of sampling error is 3 percent with a 95 percent level of confidence.³

Question 1: *Suppose you were going to purchase a new washing machine. What would be the most important factor in deciding which machine you would purchase? Would it be a low purchase price, low operating costs, reliability, capacity, ease of use, or some other feature?*

Table 1: Most important purchase factor

Low price	12.6
Low operating costs	8.8
Reliability	65.2
Capacity	5.4
Ease of use	2.3
Some other feature	2.6
Not sure	3.1

Note that reliability seems to be the single most important factor (by over five times) in consumer clothes washer purchase decisions. Low initial purchase price is the second most-frequently cited factor, and low operating costs is third.

³ These results are also highlighted, with visitor comments, on Rasmussen Research's web site at www.rasmussenresearch.com/html/poll-1547.html.

Question 2: *The U.S. government has proposed a regulation that would effectively eliminate top-loading washing machines and require consumers to purchase side-loading machines. Do you favor or oppose this regulation?*

Table 2: View on regulation that eliminates top-loading model.

Favor	10.3
Oppose	62.1
Not Sure	27.6

When faced with the simple question of whether they would favor or oppose a regulation that effectively eliminated the top-loading washer models, consumers expressed opposition by a ratio of six to one. Sixty-two percent responded that they would oppose the regulation, 10 percent indicated that they would favor such a regulation, and almost 30 percent were not sure.

Question 3: *The Department of Energy says that the new regulation would make washing machines more expensive to purchase. However, the government agency also predicts that most consumers would save money over time because of lower operating costs and greater energy efficiency. Knowing this do you favor or oppose a new regulation to eliminate top-loading washing machines?*

Table 3: View on regulation if it saves energy costs

Favor	22.4
Oppose	58.3
Not Sure	19.3

Question 3 informs respondents that the regulation would serve to eliminate top-loading washers in favor of machines with lower operating costs and greater energy efficiency. Opposition to the regulation fell slightly from 62 percent to 58 percent. More respondents responded favorably, from 10 percent to 22 percent, and fewer respondents were unsure (19 percent). This further detail appears to have led some of the respondents who were unsure in response to the simpler question to favor the regulation. It is worth noting that, despite the increase in favorable responses, survey respondents were still overwhelmingly opposed to a regulation, by a ratio of 2.6 to 1.

Question 4. *Suppose that you had to pay an extra \$240 to purchase a side-loading washing machine. Then, over 14 years, you could save a total of \$500 in operating costs. Would that be a good deal?*

Table 4: \$500 savings a good deal?

Yes	27.8
No	53.9
Not Sure	18.3

Question 4 provides more information on the expected tradeoffs between purchase price and operating costs. Rather than ask again whether respondents would favor the regulation, however, it asks whether they would find the tradeoff to be worthwhile. When faced with the tradeoff of paying \$240 more to purchase a washing machine, but saving \$500 in operating costs over the 14-year life of the machine, 54 percent indicated they would not find that tradeoff worthwhile. Twenty-eight percent would consider that tradeoff a good deal, while 18 percent were unsure. Thus, setting the question of whether DOE should mandate such a purchase decision, respondents still indicate a preference not to purchase the more expensive but more energy efficient machine by a ratio of almost 2 to 1.

Question 5. *In a typical week, how many loads of laundry do you wash?*

Table 5: Loads of laundry per week

You don't do the laundry	14.8
1 to 3 loads	29.1
4 to 5 loads	25.5
6 to 7 loads	14.3
8 loads or more	14.6
Not sure	1.7

DOE bases the proposed standard on an assumption that a household will operate its washer 392 times a year.⁴ This derives an annual savings in operating costs of about

⁴ DOE bases this estimate on a survey of washing habits by Proctor & Gamble and RECS data. DOE, *Federal Register*, p. 59561. However, DOE itself suggests that this estimate may not be firmly grounded. In the TSD DOE states: "The DOE test procedure assumes 392 cycles per year. In actuality, the number of loads of laundry per household per year depends on the number of persons in the household, and probably on other factors." DOE, TSD, p. 10-6. DOE does not attempt to discern either what these "other factors" may be or the magnitude of their influence on the number of washes per year per household.

\$30.³ Using DOE's methodology, Mercatus found that a household must operate its washer about 300 times a year—or 5.8 times week—to recover the higher purchase price commanded by the washer that meets the standard. Any household operating its washer less frequently would clearly lose under the proposed standard, according to DOE's methodology, price and cost estimates.

Less than 15 percent of survey respondents operate their clothes washer as frequently as DOE assumes on average. Moreover, over 69 percent of respondents wash 5 or fewer loads a week. Thus more than two-thirds of households surveyed would not be able to recoup the higher purchase price of the mandated washing machines.

Tables 6 through 10 present results demographically by respondents reported age, race, gender, income, household size, and whether there are children at home.

We highlight a few results from these tables.

Age. From Table 6, it is clear that the frequency of clothes washer use is correlated with respondent age, with younger and older respondents doing less laundry than those between 30 and 50. (This is probably due to the fact that this age group is more likely to live in larger households with children.) Interestingly, the age group that does the most laundry (24.3 percent of the respondents aged 30-39 wash 8 or more loads per week) places less emphasis on operating costs than does the whole sample (5.9 percent compared to 8.8 percent), but relatively greater emphasis on capacity (10.4 percent vs. 5.4 percent).

Older respondents were less likely to favor regulations that eliminated top-loading washer models, even if the side-loading models are more energy efficient. In general, the older the respondent, the less likely they were to favor, and the more likely to oppose, the proposal as described in questions 2 and 3. Older respondents were also less likely to think the \$500 savings posited in question 4 was a “good deal.”

Race. Table 7 reveals that respondents who called themselves white or other tend to do more laundry (31.4 percent and 28.6 percent wash six or more loads per week) than those who called themselves black (13.0 percent wash six or more loads per week). Black and

³ DOE, “Consumer Overview,” p. 2. However, DOE uses different saving estimates at various points. In the graph entitled “Price vs. Savings” on p. 9-28 of the TSD, an annual savings of nearly \$50 appears associated with a washer price that exceeds \$650 [the grid lines on the graph do not permit precise numerical readings.] Yet, on p. J-3 of the TSD, DOE mentions a \$650 high efficiency machine offering 40 percent improvement in safety and annual savings of \$50. Since the proposed standard for January 1, 2007 would increase efficiency by 35 percent, or less than 40 percent, the annual savings would also appear to be less; i.e., less than \$50. DOE's payback period analysis offers another way to infer the annual savings. That analysis uses a discount rate of zero percent; i.e., DOE simply divides the price increase through by the annual savings to solve for the number of years needed to “payback” the higher purchase price. According to page 7-4 of the TSD, the 35 percent more efficient washer will cost an additional \$239. The mean payback period is 6.8 years (TSD, p. 7-36), which would indicate an annual savings of \$35.15 ($\$35.15 \times 6.8 = \239). The payback period for the 50th percentile of households is 5.0; i.e., the 50th percentile of households has a payback period of 5.0 or less. Using the 5.0 figure indicates annual savings of \$47.80 ($\$47.80 \times 5.0 = \239).

other respondents were more likely to favor the proposed regulations, as described in questions 2 and 3. Black respondents were more likely to rank low purchase price (23.5 percent) and low operating costs (12.6 percent) as the most important purchase factors than white or other respondents.

Income. Table 8 presents results by income category. Respondents earning under \$20,000 per year listed low purchase price and low operating cost as the most important purchase factor more than higher income counterparts. While 12.6 percent of all respondents listed purchase price as the most important factor, 23.0 percent of respondents making less than \$20,000 considered purchase price most important.

DOE's analysis in support of the rule concludes that low-income households would derive greater benefit because they operate their washers more intensively (410 times a year versus 392 times for the general population) and, so receive a greater reduction in operating savings.⁶ As noted in our comment submitted on November 22, 2000, DOE also predicts that the standards will lead to a sharp drop in the percentage of low-income families who buy new machines (it predicts that only one low income household in eight would buy a new machine under the proposed standard) and thus take advantage of those operating savings. Table 8 does not support DOE's assumption that lower income families wash more laundry. Of the respondents who earn less than \$20,000 per year, 82.3 percent report that they wash less than 6 loads per week (compared to 69.4 percent of all respondents), and only 15.2 percent report washing 6 or more loads per week (compared to 28.9 percent of all respondents). Since the Mercatus analysis indicates that households washing under 6 loads per week are not likely to recoup the increased purchase price, these data suggests that even those low-income households that do choose to buy a new machine will lose money.

Tables 9 and 10 generally support the intuition that the larger households and households with children under 18 wash more loads of laundry per week. Interestingly, the largest households (more than 8) listed purchase price as the most important purchase factor more than twice as often as respondents generally (37.7 percent compared to 14.3 percent), and identified low operating costs and reliability less than half as frequently as respondents generally.

* * *

We recognize that the results of this survey may not accurately reflect consumer behavior when actually faced with decisions to purchase a new clothes washer, and we do not believe that survey results alone should dictate policy decisions. However, DOE actions that affect the types of appliances consumers can purchase, and the attributes and prices of those appliances should be based on a full understanding of consequences and preferences. Clothes washer efficiency standards will certainly limit consumer choice in purchasing new machines. It is imperative that DOE openly weigh the expected social benefits of this proposal against the constraints and costs imposed on American

⁶ DOE, *Federal Register*, p. 59573.

consumers. DOE must also understand the distributional impacts of its proposal, and not focus purely on what it perceives to be the average consumer. As discussed more fully in the Mercatus public interest comment, consumers bear both the costs and the benefits of individual decisions to purchase certain machines, and any DOE mandate as to clothes washer attributes will harm consumers who do not match DOE's profile, without benefiting those that do.

Table 6: Results by age of respondent

Survey Question		Total	18-29	30-39	40-49	50-64	65+
Most important purchase factor	Low price	12.6	18.9	12.1	14.7	5.3	8.2
	Low operating costs	8.8	11.1	5.9	9.7	8.1	8.7
	Reliability	65.2	55.7	66.2	64.6	75.3	69.0
	Capacity	5.4	3.7	10.4	5.1	4.8	2.0
	Ease of use	2.3	3.6	1.1	1.7	2.0	3.3
	Some other feature	2.6	2.8	3.2	1.5	2.6	2.8
	Not sure	3.1	4.1	1.2	2.6	1.9	6.0
Proposal to eliminate top-loading washer	Favor	10.3	11.9	10.5	12.6	6.1	9.2
	Oppose	62.1	48.8	56.0	68.3	74.5	70.6
	Not Sure	27.6	39.3	33.5	19.1	19.4	20.1
View of regulation if it saves energy costs	Favor	22.4	31.8	21.4	20.7	15.0	18.4
	Oppose	58.3	43.6	54.4	65.2	69.8	66.7
	Not Sure	19.3	24.6	24.1	14.1	15.2	14.9
\$500 savings a good deal?	Yes	27.8	36.1	26.5	27.1	22.7	22.6
	No	53.9	46.5	55.9	57.0	58.5	54.2
	Not Sure	18.3	17.4	17.6	15.9	18.8	23.2
Loads per week	Don't do laundry	14.8	18.2	10.0	10.8	16.6	19.0
	1 to 3 loads	29.1	33.5	16.0	25.8	27.8	45.8
	4 to 5 loads	25.5	24.5	25.8	28.2	28.6	19.9
	6 to 7 loads	14.3	11.0	23.2	15.7	12.7	7.2
	8 loads or more	14.6	10.6	24.3	18.1	13.7	4.1
	Not sure	1.7	2.3	0.6	1.3	0.5	4.0

Table 7: Results by race and gender

		Total	White	Black	Other	Men	Women
Most important purchase factor	Low price	12.6	10.5	23.5	15.0	11.7	13.5
	Low operating costs	8.8	8.5	12.6	7.5	9.0	8.7
	Reliability	65.2	68.9	46.4	60.2	67.5	63.0
	Capacity	5.4	5.3	6.6	4.4	3.6	7.0
	Ease of use	2.3	1.9	5.2	2.2	3.0	1.7
	Some other feature	2.6	2.1	3.2	4.8	2.5	2.7
	Not sure	3.1	2.7	2.6	5.9	2.7	3.4
Proposal to eliminate top-loading washer	Favor	10.3	8.9	14.8	14.4	11.2	9.5
	Oppose	62.1	65.5	50.0	52.5	65.0	59.4
	Not Sure	27.6	25.5	35.2	33.0	23.8	31.1
View of regulation if it saves energy costs	Favor	22.4	20.6	23.8	31.5	22.2	22.6
	Oppose	58.3	61.4	52.3	45.8	60.8	56.1
	Not Sure	19.3	18.0	23.9	22.7	17.1	21.3
\$500 savings a good deal?	Yes	27.8	27.1	27.9	32.0	28.7	27.1
	No	53.9	55.1	48.6	51.8	54.9	53.0
	Not Sure	18.3	17.8	23.5	16.2	16.4	20.0
Loads per week	Don't do laundry	14.8	13.9	17.1	18.0	24.7	5.7
	1 to 3 loads	29.1	26.2	43.7	32.4	32.8	25.6
	4 to 5 loads	25.5	26.7	24.6	19.6	20.1	30.5
	6 to 7 loads	14.3	16.1	4.7	12.4	10.0	18.3
	8 loads or more	14.6	15.3	8.3	16.2	10.1	18.8
	Not sure	1.7	1.8	1.5	1.3	2.3	1.1

Table 8: Results by income

		Under 20k	20k-40k	40k-60k	60k-74k	75k+	n/a
Most important purchase factor	Low price	23.0	14.1	11.0	2.1	7.9	7.5
	Low operating costs	13.4	10.0	5.7	7.7	6.9	7.6
	Reliability	49.4	64.6	72.4	77.6	67.4	66.0
	Capacity	4.3	5.1	5.7	4.4	7.4	7.0
	Ease of use	1.6	2.2	2.6	2.4	4.7	1.0
	Some other feature	3.7	1.6	1.1	2.1	4.1	5.6
	Not sure	4.7	2.4	1.6	3.6	1.5	5.3
Proposal to eliminate top- loading washer	Favor	9.0	8.0	8.9	12.9	21.1	6.1
	Oppose	59.5	65.8	66.6	61.0	53.4	59.0
	Not Sure	31.6	26.1	24.6	26.2	25.6	34.9
View of regulation if it saves energy costs	Favor	26.7	19.7	17.6	22.0	31.8	20.3
	Oppose	48.4	63.1	62.9	64.5	52.8	56.0
	Not Sure	24.9	17.2	19.5	13.5	15.4	23.7
\$500 savings a good deal?	Yes	33.3	25.6	22.9	21.4	35.9	33.2
	No	45.7	56.4	58.6	62.1	54.5	42.4
	Not Sure	20.9	18.0	18.5	16.5	9.6	24.4
Loads per week	Don't do laundry	15.7	13.8	14.1	12.5	15.5	14.7
	1 to 3 loads	40.0	32.6	25.2	16.3	22.2	29.3
	4 to 5 loads	26.6	25.8	23.7	23.4	28.8	24.0
	6 to 7 loads	5.4	11.9	19.6	28.8	13.7	17.1
	8 loads or more	9.8	14.1	16.8	18.2	18.8	11.6
	Not sure	2.6	1.8	.7	.8	1.1	3.3

Table 9: Results by household size

		Live alone	2 people	3 to 4 people	5 to 6 people	7 to 8 people	More than 8
Most important purchase factor	Low price	14.3	8.0	13.7	16.2	13.8	37.7
	Low operating costs	9.1	8.0	8.9	10.8	14.6	4.1
	Reliability	67.4	69.0	65.9	57.6	45.7	30.0
	Capacity	2.5	4.9	5.0	10.0	13.7	8.9
	Ease of use	2.1	2.8	2.2	1.8	4.7	.0
	Some other feature	1.9	2.7	1.7	2.6	7.5	16.9
	Not sure	2.8	4.5	2.7	1.0	.0	2.3
Proposal to eliminate top-loading washer	Favor	11.7	7.9	9.9	14.7	13.1	22.4
	Oppose	60.9	65.8	59.8	59.5	72.7	50.5
	Not Sure	27.4	26.3	30.2	25.8	14.2	27.0
View of regulation if it saves energy costs	Favor	23.4	21.3	22.5	24.5	26.4	16.4
	Oppose	55.4	62.0	59.1	51.9	56.3	42.0
	Not Sure	21.2	16.7	18.5	23.5	17.4	41.5
\$500 savings a good deal?	Yes	26.3	28.2	25.7	30.7	50.6	33.9
	No	53.1	51.9	58.0	53.0	34.7	44.1
	Not Sure	20.5	19.9	16.2	16.4	14.7	22.0
Loads per week	Don't do laundry	13.1	16.5	14.8	9.7	24.0	17.7
	1 to 3 loads	64.4	34.2	16.8	5.6	12.5	25.4
	4 to 5 loads	14.7	31.2	29.3	18.1	10.4	2.3
	6 to 7 loads	3.7	12.0	18.4	23.9	22.7	4.3
	8 loads or more	1.1	4.3	19.5	42.9	29.4	43.8
	Not sure	3.1	1.9	1.2	.0	1.0	6.5

Table 10: Results by whether respondent has children under 18

		Total	Yes	No
Most important purchase factor	Low price	12.6	15.9	10.6
	Low operating costs	8.8	8.5	9.0
	Reliability	65.2	61.5	67.4
	Capacity	5.4	7.4	4.1
	Ease of use	2.3	2.5	2.3
	Some other feature	2.6	2.9	2.4
	Not sure	3.1	1.4	4.2
Proposal to eliminate top-loading washer	Favor	10.3	11.8	9.4
	Oppose	62.1	59.3	63.8
	Not Sure	27.6	28.9	26.8
View of regulation if it saves energy costs	Favor	22.4	23.8	21.5
	Oppose	58.3	55.8	59.9
	Not Sure	19.3	20.4	18.6
\$500 savings a good deal?	Yes	27.8	28.1	27.7
	No	53.9	57.2	51.9
	Not Sure	18.3	14.7	20.5
Loads per week	Don't do laundry	14.8	12.9	16.0
	1 to 3 loads	29.1	10.9	40.2
	4 to 5 loads	25.5	25.3	25.7
	6 to 7 loads	14.3	21.3	10.0
	8 loads or more	14.6	29.1	5.7
	Not sure	1.7	.6	2.4

MERCATUS CENTER

GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

Comments on:

Clothes Washer Energy Conservation Standards

Submitted to:

U. S. Department of Energy

November 27, 2000

"A wise and frugal government, which shall restrain men from injuring one another, which shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government."

Thomas Jefferson, from his "First Annual Message," 1801

RSP 2000-22

MERCATUS CENTER
REGULATORY STUDIES PROGRAM

Public Interest Comment Series:

DOE's Clothes Washer Efficiency Standards

Agency:	Department of Energy, Office of Energy Efficiency and Renewable Energy
Rulemaking:	Energy Conservation Program for Consumer Products: Clothes Washer Energy Conservation Standards
Stated Purpose:	"Washing Machines to Become More Energy Efficient: Agreement Will Yield Big Savings for Consumers and the Environment"
Submitted November 27, 2000	RSP 2000-22

Summary of RSP Comment:

DOE's proposed standards for clothes washers would take away consumer choice by eliminating the most popular (vertical-axis) washing machine models. The standards would force Americans to buy washing machines that DOE estimates will be 57 percent more expensive than machines today, with fewer of the attributes consumers seek. DOE claims that mandating washing machine specifications is necessary to save consumers money through lower operating costs over the life of the machine. Yet, manufacturers currently offer energy- and water-efficient washing machines that would meet the new standards (and, by DOE's calculus, save consumers money), but only five percent of consumers choose to buy them.

Rather than respect (or try to understand) consumers' revealed and expressed preferences, DOE assumes they are either misinformed or irrational, and that DOE knows more than consumers do about the tradeoffs that are important to them. Its analysis focuses purely on potential cost savings over the life of the machine, without considering the value consumers place on the convenience or other attributes that vertical-axis machines offer over horizontal-axis machines. (In particular, H-axis machines tend to load from the side, rather than the top, which consumers prefer.) Furthermore, DOE's conclusion that more energy-efficient machines will save operating costs assumes the machine will wash 392 loads of laundry per year over more than 14 years. Our analysis suggests that consumers who wash under six loads per week would actually lose money, as well as convenience, if DOE imposes the proposed mandate.

If DOE believes that consumers pass up energy efficient washers because they are "misinformed" about operating costs, the only logical solution is to provide consumers with information to make a more informed decision. Cost is only one factor influencing consumer preferences for clothes washers, and eliminating the machines that 95 percent of consumers prefer will not make consumers better off.

MERCATUS CENTER
REGULATORY STUDIES PROGRAM
Public Interest Comment on

DOE's Proposed Clothes Washer Efficiency Standards¹

Docket No. EE-RM-94-403

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of regulations and their impacts on society. As part of its mission, RSP produces careful and independent analyses of agency rulemaking proposals from the perspective of the public interest. Thus, the program's comments on the Department of Energy's (DOE's) proposed efficiency standards for clothes washers do not represent the views of any particular affected party or special interest group, but are designed to protect the interests of American citizens.

Section I summarizes the proposed standards and places them in historical context. Section II discusses whether DOE has established the economic justification for the proposed standards. Section III discusses whether DOE has adequately considered less coercive policy options. Section IV summarizes the conclusions reached by these comments and offers recommendations for a better policy approach.

I. DOE Proposes to Tighten the Energy Efficiency Standards for Clothes Washers

The proposed rule contains two separate, but related, parts. First, it would require standard clothes washers to be more energy efficient. Second, the proposed rule would change DOE's method for measuring energy use by clothes washers.

The proposed rule would change current efficiency standards for standard class clothes washers in two stages. By January 1, 2004, new clothes washers would be required to meet a 1.04 modified energy factor (MEF).² By January 1, 2007, new washing machines would have to meet a 1.26 MEF. The MEF measures the water and energy usage of the machine and differs from the existing energy factor (EF) in that it takes into account the remaining moisture content (RMC) of clothes leaving the clothes washer and the energy needed by clothes dryers to remove the moisture. According to DOE, the 1.04 MEF and

¹ Prepared by Garrett Vaughn, Ph.D. The views expressed herein do not reflect an official position of George Mason University.

² The modified energy factor (MEF) replaces the current energy factor (EF) that defines the current energy efficiency standard for clothes washers. EF measures overall washer efficiency in terms of cubic feet per kilowatt-hour per cycle, and is determined by the DOE test procedure: 10 CFR Part 430, Subpart B, Appendix J. The MEF descriptor incorporates clothes dryer energy use by consideration of the remaining moisture content (RMC) of clothes leaving the clothes washer. The greater the RMC, the more energy the consumer is likely to use drying the clothes. The EF descriptor does not consider the RMC.

1.26 MEF standards represent a 22 percent reduction and a 35 percent reduction, respectively, in energy consumption by a standard clothes washer³ over the current standard.⁴

A. Legal basis under the Energy Policy and Conservation Act (EPCA)

The Energy Policy and Conservation Act (EPCA), as amended, prescribes energy conservation standards for clothes washers and several other major appliances. The Act requires DOE to administer an energy conservation program for these products. According to DOE, “EPCA, as amended, specifies that any new or amended energy standard shall be designed to ‘achieve the maximum improvement in energy efficiency... which the Secretary determines is technologically feasible and economically justified.’ Section 325(o)(2)(A), 42 U.S.C. 6295(o)(2)(A).”⁵

Under the statute, DOE can determine “economic justification” for a proposed standard in either of two ways.

Section 325(o)(2)(B)(i) provides that – after soliciting and reviewing comments – “DOE must then determine that the benefits of the standard exceed its burdens, based, to the greatest extent practicable, on a weighing of the following seven factors:

1. The economic impact of the standard on the manufacturers and on the consumers;
2. The savings in operating costs throughout the estimated average life of the covered product in the type (or class) compared to any increase in the price, initial charges, or maintenance expenses;
3. The total projected amount of energy, or as applicable, water, savings likely to result from the standard;
4. Any lessening of the utility or the performance of the covered products likely to result from the standard;
5. The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the standard;
6. The need for national energy and water conservation; and
7. Other factors the Secretary considers relevant.⁶

³ Department of Energy, Office of Energy Efficiency and Renewable Energy, “Energy Conservation Program for Consumer Products: Clothes Washer Energy Conservation Standards,” notice of proposed rulemaking and public hearing, *Federal Register*, October 5, 2000, p. 59551. Subsequent references to this source identify it as: DOE, *Federal Register*.

⁴ The current efficiency standard for clothes washers is 0.9 EF. According to DOE, “Since no mathematical translation [of EF into MEF] is possible, we have estimated this value using engineering calculations and assumptions which are detailed in the TSD [Technical Support Document]. This value is estimated to be an MEF of 0.65.” See: DOE, *Federal Register*, p. 59558. Words in brackets are added.

⁵ DOE, *Federal Register*, p. 59551.

⁶ DOE, *Federal Register*, p. 59553.

Alternatively, DOE can establish a “rebuttable presumption of economic justification” by showing that “the additional cost to the consumer of purchasing a product complying with an energy conservation standard level will be less than three times the value of the energy, and as applicable, water, savings during the first year that the consumer will receive as a result of the standard, as calculated under the applicable test procedure.” Section 323(o)(2)(B)(iii), 42 U.S.C. 6295(o)(2)(b)(iii).⁷

DOE points to Section 323 of EPCA to justify its revision of the test procedure for measuring energy use by clothes washers. According to DOE, “a test procedure promulgated under Section 323 of the Act must be reasonably designed to produce test results which measure energy efficiency, energy use, water use (in the case of shower heads, faucets, water closets and urinals), or estimated annual operating cost of a covered period of use, and must not be unduly burdensome to conduct.”⁸

B. Current and proposed washer standards

The existing clothes washer efficiency standards have been in effect since 1994 and apply to five classes of clothes washers as follows:

1. Top loading, compact (less than 1.6 cubic feet capacity), $EF^9 = 0.90$
2. Top loading, standard (1.6 cubic feet or greater capacity), $EF = 1.18$.
3. Top loading, semi-automatic, no current energy efficiency standard but must have an unheated rinse option.
4. Front loading, no current energy efficiency standard but must have an unheated rinse option.
5. Suds saving, no current energy efficiency standard but must have an unheated rinse option.¹⁰

In the proposed rulemaking, DOE would maintain the current definitions of the five classes and not impose efficiency standards on classes 3 (top loading, semi-automatic) and 5 (suds saving) (but still require these two classes to have an unheated rinse water option).¹¹ The new, more stringent efficiency standards proposed by DOE would apply to classes 1, 2 and 4: top loading, compact; top loading, standard; and front loading.

⁷ DOE, *Federal Register*, p. 59553. According to DOE, “The rebuttable presumption test is an alternative path to establishing economic justification. (p. 59553).

⁸ DOE, *Federal Register*, p. 59553.

⁹ Energy factor (EF) measures overall clothes washer efficiency in terms of cubic feet per kilowatt-hour per cycle, and is determined by the DOE test procedure. 10 CFR Part 430, Subpart B, Appendix J.

¹⁰ DOE, *Federal Register*, p. 59554.

¹¹ DOE justifies this by stating, “These classes were not subject to minimum energy conservation standards because they represented a small portion of the market, and due to a lack of adequate information to analyze them.” DOE, *Federal Register*, p. 59556.

II. Has DOE adequately established the economic justification for the proposed standards?

DOE does not show that the benefits of the proposed standard will exceed its burdens. Contrary to the claims by DOE that the proposed standard “will yield big savings for consumers,”¹² consumers will be made worse off. DOE’s own methodology indicates that many consumers would be harmed. In addition, DOE’s own analytical results show that the increase in washer price (expected from imposition of the new standards) will be more than three times the reduction in the first year’s operating costs provided by the new standards. Hence, DOE does not establish “economic justification” for the proposed standards under either criterion specified under EPCA.

Furthermore, the DOE’s procedure for writing the proposed standards made it difficult for individual consumers to participate effectively. The proposed standards are “based on a ‘Joint Stakeholders Comment recommendation submitted to the Department by clothes washer manufacturers and energy conservation advocates.’”¹³ None of the “stakeholders” have the same interests as consumers.

In an August 31, 2000 letter to DOE Secretary Bill Richardson, the Advisory Committee on Appliance Energy Efficiency Standards wrote that DOE’s rulemakings on appliance standards are too ponderous to be useful to the lay consumer even when written to meet the requirement that rulemakings be in “plain language.” The Committee recommended that DOE make rulemakings more “consumer friendly.” DOE responded to the Committee:

“The Department is experimenting with a Consumer Overview section in the Notice of Proposed Rulemaking...Unfortunately, legal counsel has instructed that this overview may not appear at the beginning or end of the document, but must be relegated to the summary section, well-buried in the middle of the notice.”¹⁴

¹² DOE, “Washing Machines to Become More Energy Efficient: Agreement Will Yield Big Savings for Consumers and the Environment,” May 23, 2000.

¹³ DOE, *Federal Register*, p. 59551. DOE added: “The Joint Stakeholders consist of the following: Alliance Laundry Systems LLC; Amana Appliances; Asko Incorporated; Frigidaire Home Products; General Electric Appliances (GEA); Maytag Corporation; Miele, Inc.; Fisher & Paykel Ltd; Whirlpool Corporation; Alliance to Save Energy; American Council for an Energy Efficient Economy (ACEEE); Appliance Standards Awareness Project; California Energy Commission (CEC); City of Austin, Texas; Natural Resources Defense Council (NRDC); Northwest Power Planning Council; and Pacific Gas and Electric (PG&E).”

¹⁴ A copy of DOE’s response to the Advisory Committee (which paraphrases many of the Committee’s recommendations in the Committee’s August 31, 2000 letter) can be found in the docket for DOE’s proposed energy efficiency standards for central air conditioners and heat pumps [Docket Number EE-RM-97-500] RIN: 1904-AA77. DOE responded to this recommendation: “The Department is experimenting with a Consumer Overview section in the Notice of Proposed Rulemaking...Unfortunately, legal counsel has instructed that this overview may not appear at the beginning or end of the document, but must be relegated to the summary section, well-buried in the middle of the notice. We regret the rigidity of the Federal Register format requirements. But there are other actions we intend to take to compensate for this...” Unfortunately for consumers of clothes washers, whatever these “other actions” may be, they will come too late to better inform them on this proposed rulemaking.

A. Consumers will have fewer choices and face price increases exceeding 50 percent

The proposed standard will not expand consumer choice. As DOE notes, efficient clothes washers are already offered for sale in the marketplace.¹⁵ However, these more energy efficient machines have captured only about 5 percent to 6 percent of the market.¹⁶ Those consumers that have already bought—or would buy—more efficient clothes washers already receive the benefits of lower operating costs. According to DOE, in the absence of the proposed rule, the market share of more efficient washers would slowly increase to approximately 15 percent and level off.¹⁷ Therefore, these consumers neither will benefit nor be harmed by the proposed rule.

The 85 percent of consumers who would otherwise buy less energy efficient clothes washers are the ones who stand to either gain or lose from the proposed rule. DOE suggests that such consumers make poor purchase decisions because they “are unaware of how much water costs contribute to operating expense.”¹⁸ (Water costs include both the water and the energy needed to heat the water.) DOE estimates that the more stringent efficiency standard to take effect on January 1, 2007 would increase average clothes washer prices by \$239 from a base of \$421,¹⁹ an increase of 57 percent. DOE claims that the operating savings will exceed the \$239 price increase and, therefore, “consumers will save \$260, on average, compared to today’s baseline clothes washing machines.”²⁰

Yet, if consumers really are “unaware” of operating costs for clothes washers, then it would appear that energy labeling or an education program informing consumers about these costs could yield appreciable energy and water savings. This approach would avoid an obvious, serious flaw of the proposed efficiency standards. By eliminating less costly

¹⁵ According to DOE: “There are or have been clothes washers in the market at all of the efficiency levels analyzed in today’s notice. Therefore, the Department believes all of the efficiency levels discussed in today’s notice are technologically feasible.” DOE, *Federal Register*, p. 59555.

¹⁶ DOE, *Federal Register*, p. 59568.

¹⁷ DOE states that “without a standard, we’d expect a leveling off at around 15% saturation.” DOE, *Federal Register*, p. 59567.

¹⁸ DOE, *Federal Register*, p. 59567.

¹⁹ DOE, *Technical Support Document*, “Chapter 7: Life-Cycle Costs and Payback Period,” p. 7-4. At another point in the TSD, DOE mentions slightly different numbers. For instance, in Appendix J, DOE states: “The purchase scenarios were run assuming a standard efficiency machine as the base case and comparing that with a medium efficiency machine and a high efficiency machine. The standard efficiency option assumes a price of \$400, no energy and water savings, and a top-loading machine. The medium efficiency washer has a price of \$450 and energy and water savings of \$10 annually, and is a top loading machine. This is consistent with an approximately 20 percent improvement in efficiency. The high efficiency equipment options have a price of \$650, annual savings of \$50, and are either front loading machines with hot water wash capability or top loading machines with no hot water capability. These high efficiency options were designed to coincide with an approximately 40 percent improvement in efficiency.” P. J-3. [Recall that, according to DOE, the intermediate efficiency standard to take effect on January 1, 2004 will reduce energy consumption by 22 percent and the final standard to take effect on January 1, 2007 will reduce energy consumption by 35 percent.]

²⁰ DOE, “Consumer Overview,” October 5, 2000, p. 2.

machines from the marketplace, the standards will harm all consumers who do not operate their clothes washers often enough to recover the higher purchase price in lower operating costs.²¹ However, DOE dismisses an “Enhanced Public Education and Information” alternative based on its estimates of relatively tiny savings of energy and water,²² which in turn are based on the expectation that most consumers will continue to purchase inefficient clothes washers even when fully informed. However, DOE offers no credible explanation why it believes that informed consumers would continue to make poor decisions when buying clothes washers.

B. Many consumers may prefer the options offered by “less efficient” clothes washers.

Those consumers who appear to DOE to be passing up substantial savings by stubbornly insisting on purchasing less energy efficient washing machines, may actually be making quite rational decisions based on other attributes offered by these machines.

Many attributes important to consumers depend on whether washing machines possess a vertical-axis (V-axis) or horizontal-axis (H-axis) design. In general, V-axis machines are both less expensive to purchase but also less energy efficient than H-axis washing machines. However, purchase price and energy efficiency are only two of the attributes important to consumers.

Most clothes washers bought by consumers are V-axis, top-loading machines. The majority of H-axis washers are front loading. Many consumers prefer the top-loading option because they find it requires less bending or kneeling to enter and remove clothes. Furthermore, many consumers believe that a top-loading machine carries less risk of a catastrophic leak during operation (as could occur if water leaked around the door on a front-loading machine).

DOE argues that the proposed standard will not restrict consumer choice on door placement because top-loading, H-axis clothes washers are offered in the marketplace. However, V-axis machines offer the top-loading option at a substantially lower cost and, hence, consumers who desire this option would be harmed by an energy efficiency standard that would make a top-loading clothes washer more expensive.

DOE’s analysis assumes that a high efficiency (H-axis) washer that offers top loading would cost an additional \$250 but lack hot water wash. Consumers wanting hot water wash for the additional \$250 could not get the top-loading feature. In other words, consumers buying the more efficient H-axis washer would have to sacrifice both \$250 *and* hot water wash to get the top-loading feature.²³

²¹ As is discussed later, DOE’s analysis assumes that the average consumer operates a washing machine 392 times a year—more than once a day, on average. Even if such an estimate is accurate for average usage, many households certainly operate their washing machines far less often. The less often a household operates its clothes washer, the fewer savings in operating costs a proposed standard can deliver.

²² DOE, *Federal Register*, p. 59582.

²³ DOE, TSD, Appendix J, p. J-3.

A July 1991 report by Arthur D. Little for washing machine manufacturers found that “many consumers significantly desire the features of V-axis, top-loading washing machines” and “washing machine price is the major determinant of consumer utility or satisfaction.”²⁴

DOE sponsored research into consumer preferences about clothes washers using focus groups and conjoint analysis. According to DOE, the key conclusions reached from this research echoed those of the Arthur D. Little study, and showed that *price is the most important clothes washer attribute* [emphasis in original].²⁵ A proposed standard that would increase the average price of a clothes washer by more than half would appear to run counter to consumer preferences.

Besides price, the proposed standard would affect several other attributes important to consumers, according to the focus groups referenced by DOE. DOE stated:

“Of the most important attributes from the focus groups, the ones that are most likely to be affected by an efficiency standard are price, energy and water costs, door placement, capacity, and water temperatures... These five attributes placed in the top seven attributes in terms of importance in the focus groups.”²⁶

However, some of the focus group results do not appear to rank energy and water savings among “the very most important attributes.” For instance, one of the major focus group studies referenced by DOE found that participants “rarely mentioned energy and water efficiency as key buying criteria.” This same study also reported that participants “viewed top-loading H-axis washers as a confusing hybrid. They also had concerns about specific features (e.g., double door entry; the hatch always rotating to the top.)”²⁷ As already noted, top-loading H-axis washers may lack other attributes important to many consumers; e.g., hot water wash.

Another focus group study considered the reactions of participants to a front-loading and a top-loading H-axis washer. Responses to the front-loading H-axis washer included concerns about “bending to load and unload, fear of leaks, accessibility of controls to children, and dispenser spills.” After being shown the H-axis top-loading washer, participants “said they preferred the top-loading H-axis washer in theory but preferred the front-loading H-axis washer because they felt the overall design was more logical, more familiar from laundromat experiences and more user-friendly.” Yet, “the majority of respondents who said they preferred a top loader said they would never buy Washer B [the top-loading H-axis washer].”²⁸

²⁴ DOE, TSD, Appendix I, p. I-19.

²⁵ DOE, TSD, Appendix J, “Clothes Washer Consumer Analysis,” p. J-3.

²⁶ DOE, TSD, Appendix J, “Clothes Washer Consumer Analysis,” p. J-19.

²⁷ DOE, TSD, Appendix I, p. I-4.

²⁸ DOE, TSD, Appendix I, p. I-6. Words in brackets are added.

C. DOE's analysis ignores factors important to consumers

Despite the considerable evidence showing consumers value a variety of attributes in addition to (and perhaps *more than*) operating costs, DOE's analysis presumes that only these costs along with purchase price matter to consumers. In addressing "lessening of utility or performance of products," (the fourth of the seven factors EPCA specifies for establishing "economic justification") DOE asserts, "this factor cannot be quantified."²⁹ DOE goes on to assure U.S. citizens that "in establishing classes of products, the Department tries to eliminate any degradation of utility or performance in the products under consideration in this rulemaking."³⁰ DOE states that it "addressed" the issue of "consumer utility of V-axis and H-axis machines" through "focus groups and a conjoint analysis."³¹ Yet, DOE ignores the findings of that very same consumer research: price and operating costs are *not* the only attributes that matter to consumers purchasing clothes washers. (By ignoring such findings, DOE is able to "justify" proposing standards that it predicts will *eliminate* V-axis washers from the market even though DOE's own projections show that—absent the standards—90 percent of consumers would prefer to buy V-axis washers in 2007. This point is discussed in detail below.)

Had DOE seriously entertained the hypothesis that consumers are rational—rather than misinformed—decision-makers, then it would have arrived at much different conclusions from its own consumer research. DOE states:

"The results of the Clothes Washer Consumer Analysis (in Appendix J of the TSD) indicate that when consumers have complete information, the effective market discount rate for the purchase of a higher efficiency washer is 20%. This means that consumers are willing to accept a 20% return on additional purchase expenses when they trade off purchase price and operating savings, or for each dollar in annual savings consumers might be willing to pay up to five dollars in increased purchase price."³²

By claiming that consumers apply a 20 percent discount rate to operating savings, DOE implies that consumers are less than rational. DOE estimated life cycle costs of clothes washers based on "a distribution of discount rates averaging 6.1%."³³ In effect, DOE presumes that the average consumer would choose to invest his or her last \$100 in (say) a CD offering a return of \$6.10 a year instead of a new washing machine that could offer as much as a \$19.99 return on that marginal \$100. The consumer assumed by DOE would choose to lose nearly \$14 instead of making the "rational" choice.

DOE could have interpreted its research findings much differently had it seriously considered the possibility that attributes important to consumers are *correlated* with operating costs. For instance, if lower operating costs are correlated with less utility from

²⁹ DOE, *Federal Register*, p. 59957.

³⁰ DOE, *Federal Register*, p. 59957.

³¹ DOE, *Federal Register*, p. 59957.

³² DOE, "Regulatory Impact Analysis," October 5, 2000, p. RIA-3.

³³ DOE, *Federal Register*, p. 59556.

door placement or (and) greater risk of water leakage, then an appreciable portion of the alleged 20% discount rate applies to those other attributes. It may be that a savings of \$20 on operating costs comes at the (unseen by DOE) loss of \$7 worth of door placement and \$6 greater risk of leaks. After adjusting for the loss of utility from these other factors, the reduction in operating costs offers the same approximate return of \$6 per \$100 that consumers apply to all other things.

Despite its own research results that indicate price and operating costs are not the only attributes important to consumers, DOE proposes efficiency standards that it expects will *eliminate* V-axis machines from the marketplace. According to DOE estimates, V-axis machines now have a 93 percent market share, with H-axis machines having the remaining 7 percent. Without the standard, DOE predicts that V-axis machines will have a 90 percent market share in 2007 (the year when the second stage of the proposed standards would become effective). With the standard, DOE estimates that the sales of V-axis machines will drop to zero and H-axis machines will capture 100 percent of the market.³⁴

In short, DOE expects that the proposed standard will literally force 90 percent of all consumers to buy H-axis washing machines (and the attributes offered by such machines) when these consumers would otherwise have chosen V-axis machines (and the attributes offered by those machines).

DOE's claims of "substantial savings" from its proposed standards are based on the proposition that most consumers are misinformed about the energy and water savings offered by H-axis machines. Yet, even when consumers become fully informed in focus group settings, the evidence gathered by DOE shows that most consumers continue to prefer V-axis machines. Such evidence—coupled with the preference for V-axis machines by more than 90 percent of consumers who actually part with their money (as the participants of focus groups do not)—clearly suggests that consumers value attributes other than energy and water savings. Even if manufacturers can engineer H-axis machines to offer all of the attributes that consumers value in V-axis machines, such H-axis machines will cost hundreds of dollars more to purchase.³⁵ Hence, the proposed standards will harm the vast majority of consumers.

³⁴ DOE, TSD, Table 11.12, pp. 11-18, 11-19. These forecasts are for the "medium price/medium income elasticity shipment scenario." Other scenarios considered by DOE—"high price elasticity shipment scenario" and "medium price elasticity shipment scenario"—also show the elimination of V-axis machines from the marketplace by 2007.

³⁵ For instance, DOE states in Appendix J ("Clothes Washer Consumer Analysis") of the TSD: "The high efficiency equipment options [assumed in the purchase scenarios] have a price of \$560, annual savings of \$50, and are either front loading machines with hot water wash capability or top loading machines with no hot water capability. These high efficiency options were designed to coincide with an approximately 40 percent improvement in efficiency." DOE, RIA, p. J-3. Presumably, if a consumer desires *both* top loading *and* "hot water wash capability" in an H-axis machine, that consumer will have to pay more than \$650. Such a consumer would probably not be pleased with an energy efficiency standard that eliminates a \$400 V-axis machine that offers both of those attributes.

D. DOE's own "payback" analysis indicates that many consumers will be harmed

By considering only purchase price and operating costs—and effectively ignoring other attributes—DOE biases its analysis toward arriving at a finding of “economic justification” for the proposed standards. Even so, DOE's analysis indicates that many consumers would be harmed by the proposed standards.

1. Life cycle costs require subjective forecasts about energy prices and consumer rates of time preference.

DOE defines “life cycle costs” (LCC) to be the sum of the change in purchase price (usually positive in direction) and the (net present value of the) change in operating costs (usually negative in direction) expected from the proposed standard. A net change of zero indicates that operating savings equal (in absolute value) the increase in purchase price. Under the logic of LCC analysis, a result of zero leaves the consumers unaffected (even if it causes the consumer to buy an H-axis washer instead of a V-axis washer). The burden of a higher purchase price is exactly offset by the benefit of lower operating costs. A positive value for LCC indicates that the proposed standard would harm consumers because the reduction in operating costs do not fully offset the increase in purchase price. A negative value for LCC indicates that the proposed standard would benefit consumers by returning more in operating cost savings than subtracted from the consumer's wallet by the increase in purchase price.

To begin with, estimating LCC's is more art than science. To do so, DOE had to forecast numerous prices—for natural gas, electricity and water—that are difficult to predict accurately over long periods. Since washing machines have an average useful life of approximately 14 to 15 years³⁶ and the more stringent standard would take effect on January 1, 2007, DOE must forecast prices more than two decades beyond 2000. Energy prices are notoriously difficult to predict more than a year or so into the future. In addition, because LCC estimates express future operating costs in terms of net present value, a discount rate must be selected. As DOE notes, consumers face a variety of interest rates depending on their economic circumstances. For instance, a homeowner may be able—through a home equity line of credit—to finance the purchase of a new washing machine at a substantially lower (after tax) interest rate than can a renter. One discount rate can reflect the best interest rate available to one—but not both—of these consumers.

2. The “test cloth” used to measure energy efficiency cannot reflect performance with all fabrics.

DOE introduces another uncertainty into the estimation of LCCs with its proposed change in the test procedure used to measure energy efficiency. According to DOE, during the standards rulemaking “it was discovered that the test cloth to be used for

³⁶ DOE assumes that the lifetime of clothes washers averages 14.1 years. DOE, TSD, p. 7-4.

determining the RMC [remaining moisture content] was giving inconsistent results.³⁷ The inconsistent results can have a substantial lowering effect on the measured MEF (modified energy factor), “particularly for washers which are more efficient with respect to electrical consumption and use of hot water.”³⁸ RMC affects energy consumption by influencing the amount of energy that consumers will use in their clothes dryers.

However, finding a “test cloth” that gives “consistent results” in a DOE laboratory may have little resemblance to the mix of clothes a consumer puts into a washing machine and then into a clothes dryer. DOE states, “A wide variety of articles and fabrics are machine washed by consumers, including: cotton knit goods, denim, towels; cotton/polyester blends in shirts, sheets, tablecloths; various synthetics in a wide variety of articles.” However, “it is clear” that all of these fabrics “could not be evaluated in the revised procedures that include moisture content.” DOE found, The relationship that can be discerned between measurable, specifiable properties of the cloth and the resulting moisture absorption/retention specifiable characteristics—fiber content, weight, etc. to RMC characteristics is compounded by the wide tolerances to allow for the variability of cotton and synthetic fibers, as well as process control variability. Based on discussions with textile industry marketing and manufacturing managers, special manufacture to tighter specifications is probably not available; based on the laboratory testing to date, tight specifications alone will not necessarily lead to a comparably consistent RMC characteristic.³⁹

Despite these difficulties, DOE arrived at a test procedure to determine RMC using a test cloth based on a “single type of fabric that is produced frequently by one mill to a consistent set of specifications.”⁴⁰ Consumers that possess clothes than on average absorb less moisture than DOE’s approved “test cloth” (synthetics absorb less moisture than cotton, for instance) will tend to use less energy drying their clothes than predicted by DOE; and, hence, will tend to receive fewer benefits from being forced to buy more energy-efficient washers.

It should also be noted that consumers may receive less—rather than more—information about the energy needed to wash and dry the particular types of clothing they use, once the test procedure becomes final. DOE states:

“One hundred and eighty days after a test procedure for a product is adopted, no manufacturer may make representations with respect to energy use, efficiency or water use of such product, or the cost of energy consumed by such product,

³⁷ DOE, *Federal Register*, p. 59555.

³⁸ DOE, *Federal Register*, p. 59555. “The following scenario illustrates: for a high efficiency horizontal axis washer, an 18% increase in RMC (54.5% - 64.5%) will result in a 13% decrease in MEF (1.52—1.33). For a lower efficiency washer, a 17% increase in RMC (57.7% - 67.7%) will result in only a 6% decrease in MEF (0.82 - 0.77).”

³⁹ DOE, TSD, Appendix C, p. 5-1.

⁴⁰ DOE, TSD, Appendix C, p. 5-1.

except as reflected in tests conducted according to the DOE procedure. EPCA, Section 323(c)(2)."⁴¹

Hence, it would appear that manufacturers could not inform those consumers who prefer synthetics that their operating savings are likely to be less than advertised.

3. Consumer benefits depend on assumptions about how frequently washing is done.

In general, the more often that consumers are presumed to operate their washing machines—and the higher the rates for energy and water—the higher will be the estimates of operating cost savings for a consumer (and a more negative—beneficial—LCC) under the proposed standard. By the same token, the lower the discount rate selected for the analysis, the greater will be the net present value of future operating cost savings.

DOE estimates that a household will operate its washer 392 times a year⁴² and receive an annual savings in operating costs of about \$30⁴³—or about 7.7 cents a wash. The Mercatus Center used these figures (\$30 annual savings, 392 washes a year and a 6.1 percent discount rate) and found that net present value of the reduction in operating costs over 14.5 years⁴⁴ amounts to approximately \$300, leaving consumers with a net gain of about \$70 after paying the additional \$239 for the more efficient washer.

⁴¹ DOE, *Federal Register*, p. 59553.

⁴² DOE bases this estimate on a survey of washing habits by Proctor & Gamble and RECS data. DOE, *Federal Register*, p. 59561. However, DOE itself suggests that this estimate may not be firmly grounded. In the TSD DOE states: "The DOE test procedure assumes 392 cycles per year. In actuality, the number of loads of laundry per household per year depends on the number of persons in the household, and probably on other factors." DOE, TSD, p. 10-6. DOE does not attempt to discern either what these "other factors" may be or the magnitude of their influence on the number of washes per year per household.

⁴³ DOE, "Consumer Overview," p. 2. However, DOE uses different saving estimates at various points. In the graph entitled "Price vs. Savings" on p. 9-28 of the TSD, an annual savings of nearly \$50 appears associated with a washer price that exceeds \$650 [the grid lines on the graph do not permit precise numerical readings.] Yet, on p. J-3 of the TSD, DOE mentions a \$650 high efficiency machine offering 40 percent improvement in safety and annual savings of \$50. Since the proposed standard for January 1, 2007 would increase efficiency by 35 percent, or less than 40 percent, the annual savings would also appear to be less; i.e., less than \$50. DOE's payback period analysis offers another way to infer the annual savings. That analysis uses a discount rate of zero percent; i.e., DOE simply divides the price increase through by the annual savings to solve for the number of years needed to "payback" the higher purchase price. According to page 7-4 of the TSD, the 35 percent more efficient washer will cost an additional \$239. The mean payback period is 6.8 years (TSD, p. 7-36), which would indicate an annual savings of \$35.15 ($\$35.15 \times 6.8 = \239). The payback period for the 50th percentile of households is 5.0; i.e., the 50th percentile of households has a payback period of 5.0 or less. Using the 5.0 figure indicates annual savings of \$47.80 ($\$47.80 \times 5.0 = \239).

⁴⁴ DOE, TSD, pp. 9-36. "An extra repair extends the life a 14 year old machine by at most six years. At trial standard level 6 less than 10% of machines receive extra repairs that extend the machine life [according to the analysis]. This implies that the lifetime of washers is increased by at most one half year by the imposition of a standard." Words in brackets are added. Note that the proposed standard to take effect on January 1, 2007 is at trial standard level three (less stringent than trial standard level six). Elsewhere, DOE assumes an average life of 14.1 years (DOE, TSD, p. 7-4). Mercatus used 14.5 years since that was more conservative; i.e., produces a higher value for operating savings.

DOE's estimate that consumers would receive a net gain of \$260 appears to be taken from Table 7.6 on p. 7-30 of the TSD where \$260 is the mean net gain.⁴⁵ Annual savings of about \$50.55—far more than \$30—would be needed to produce a net gain of \$260. DOE's payback analysis indicates that the mean annual savings could be as high as \$47.80, but not \$50.55 (see the discussion in footnote 43).

Furthermore, DOE's analysis indicates that fewer than half of all households would receive a net gain as large as \$260. Table 7.6 also shows that the net gain for the 50th percentile of all households to be \$208; i.e., 50 percent of all households receive net savings greater than \$208 while the other 50 percent receive savings less than \$208. Furthermore, approximately 20 percent of all households appear to *lose* money under the proposed standard, according to Table 7.6. The maximum loss would be \$126.

Using DOE's methodology, Mercatus found with annual savings of \$30 that, a household must operate its washer about 300 times a year—or about five or six washes a week—to recover the higher purchase of a new washer under the standard. Any household operating its washer less frequently—up to five loads per week—would clearly lose under the proposed standard, according to DOE's own methodology. If annual savings are as high \$50.55, then households would have to do more than 180 loads of laundry a year to recover the higher purchase price. In that case, any household averaging fewer than 3.5 loads of wash per week would lose money under the standard.

Mercatus also found that the “break-even” level for annual operating savings is \$24; i.e., any consumer running 392 loads of laundry per year who saves less than \$24 annually in operating costs will be unable to recover the higher purchase price. This consumer, therefore, would be clearly harmed by the proposed standard.

4. Other assumptions used in the benefit cost analysis may not represent conditions faced by all consumers.

Approximately half of all consumers finance their purchases of clothes washers using either a retail loan or a credit card with a mean finance charge of 10.5 percent, according to DOE.⁴⁶ Using a discount rate of 10.5 percent—instead of the 6.1 percent used by DOE—reduces the net present value of operating savings (at \$30 annually) to about \$242, only a few dollars more than the price increase of \$239. Consumers who must pay more than 10.5 percent to finance the purchase of major appliances would lose money under the proposed standards, according to DOE's methodology.

Rural residents are less likely to pay water costs, since water from groundwater wells is essentially free. Thus the one-size-fits all standard may harm them disproportionately.

⁴⁵ “When these [\$30 a year] savings are summed over the lifetime of the high efficiency machine, consumers will save \$260, on average, compared to today's baseline clothes washing machines.” DOE, “Consumer Overview,” p. 2.

⁴⁶ DOE, TSD, p. 7-22.

5. DOE's results do not pass the three-times payback test set by statute.

Obviously, annual savings of \$30 require more than seven years to pay back a higher purchase price of \$239 after discounting. Hence, the proposed standard would appear not to meet the "less than three times" criterion for "economic justification."

However, the payback periods that consumers can expect may not have much in common with the DOE's calculation of "rebuttable payback" periods (PBP). RBPs are a special case of payback periods and, as with DOE's more conventional payback analysis, "a discount rate is not required" for the calculation of PBPs.⁴⁷ Furthermore, the estimate of energy use is "based on the DOE clothes washer test procedure assumptions."⁴⁸ The test procedure selects an amount of energy use that need not bear much relationship to the amounts of energy consumers actually use. For instance, the PBPs estimated by DOE for its proposed efficiency standards for air conditioners and heat pumps presume annual energy use that "is significantly greater than what is indicated by RECS [DOE's Residential Energy Consumption Survey]."⁴⁹ Dispensing with a discount rate and assuming energy use that significantly exceeds actual use reduce the payback estimates. Even so, the PBP for the proposed standard to take effect on January 1, 2007 fails the "less than three times" test by a considerable margin.⁵⁰

6. DOE has inaccurately characterized the impact on low-income families.

A particularly bizarre feature of DOE's analysis is its finding that low income families will benefit more from the proposed standards than the average household, even though the higher purchase price will make it less likely that a low income family can afford a new washing machine in the first place. According to DOE, low-income households would derive greater benefit because they operate their washers more intensively (410 times a year versus 392 times for the general population) and, so, receive a greater reduction in operating savings.⁵¹ (DOE estimates cycle frequency based on family size; and low-income families have more members, on average, than the general population.) However, to receive these "greater benefits," a family must actually purchase a new machine. Yet, DOE also found that, "At a price of \$650 [the approximate price of a new washer made on or after January 1, 2007 under the standard], most (70 percent) of lower income respondents choose to fix the old machine, 12 percent would purchase the new machine. At this price, 9 percent state they would choose to do laundry someplace else."⁵² Without the standards, DOE estimates that 54.5 percent of lower income households would buy a new machine.⁵³ Hence, even though DOE claims that low-

⁴⁷ DOE, TSD, p. 7-40.

⁴⁸ DOE, *Federal Register*, p. 59572.

⁴⁹ DOE, "Energy Conservation Program for Consumer Products, Central Air Conditioners and Heat Pumps Energy Conservation Standards," *op. cit.*, p. 59603.

⁵⁰ DOE, *Federal Register*, Table 9, p. 59573.

⁵¹ DOE, *Federal Register*, p. 59573.

⁵² DOE, TSD, Appendix J, p. j-27. Words in brackets are added.

⁵³ DOE, TSD, Appendix J, p. j-27.

income families stand to gain more from the proposed standards than the general population, DOE also predicts that the standards will lead to a sharp drop in the percentage of low-income families who buy new machines, and thus take advantage of those same benefits. Since only one low income household in eight would buy a new machine under the proposed standard, seven out of eight such households would view themselves as either harmed or—at best—no worse off.

DOE's analysis implies that the Department views low-income people as somewhat more misinformed or (and) irrational than the general population. Even though the standard raises the purchase price by \$239, the operating costs fall by more than \$300 for the relatively few low-income families who would buy new machines—a literal windfall of more than \$70 (after paying the higher purchase price) according to those who conducted DOE's analysis. (If annual savings average \$50.50 for the general population, rather than \$30.00, the windfall ignored by low-income people exceeds \$260.) By implication, the seven out of eight low-income households who fail to accept this substantial windfall must be misinformed or irrational (or both)—just as only a misinformed or irrational person would fail to pick up the proverbial \$5 bill lying on the sidewalk, free for the taking. (The misinformed person, perhaps walking along lost in thought, does not spot the \$5 bill on the sidewalk and, so, is unaware of its existence.)

However, DOE's analytical results can be interpreted without implying that most households of any income level are either misinformed or irrational: most low income people – like most (but not all) of the general population—prefer the collection of attributes offered by V-axis machines to the \$70 savings offered by H-axis machines.

Under this interpretation, the proposed standards will harm 90 percent of all households—encompassing all income levels—by forcing them to accept operating savings that will be worth less to them than the attributes offered by (the soon-to-be extinct) V-axis machines. The remaining 10 percent of all households will not gain from the proposed standards because they would buy H-axis machines anyway.

III. Has DOE Given Adequate Consideration to Policy Alternatives?

DOE considered 10 alternatives to the proposed standards, including an alternative it describes as “Enhanced Public Education & Information.”⁵⁴ Since DOE claims that consumers are largely unaware of energy and water costs when purchasing clothes washers, one might expect that this policy alternative would offer promising results. However, DOE estimates that this alternative would save but one-half of one percent as much energy and water as the proposed standards.⁵⁵

⁵⁴ The other nine policy alternatives are: Consumer Tax Credits, Consumers Rebates High Efficiency, Low Income and Seniors Subsidy, Manufacturer Tax Credits, Voluntary Efficiency Target (5 year delay), Voluntary Efficiency Target (10 year delay), Mass Government Purchases, Early Replacement Program (w/Current Eff.), and Early Replacement Program (w/H-axis). See: DOE, *Federal Register*, Table 23, p. 59582.

⁵⁵ DOE, *Federal Register*, Table 23, p. 59582.

DOE arrives at such meager results by assuming that even most well informed consumers refuse to purchase more efficient washers. DOE states that “to model this possibility, we assumed that the effective market discount rates change from 75% to 47% for purchases of clothes washers.”⁵⁶ DOE bases the 75% estimate on a study conducted by the Northwest Energy Efficiency Alliance.⁵⁷ The 75% estimate means that a consumer requires a 75-cent reduction in operating costs for every additional dollar spent on a new clothes washer; i.e., the consumer insists on a “payback” period of less than two years. DOE then simply *assumes* that the typical consumer—after being exposed to “enhanced public education”—will insist on a payback period of slightly more than two years. Since high efficiency washing markets are already on the market, this change in the payback period will cause some consumers who are at the margin of buying an efficient model to switch from buying a V-axis machine to an H-axis machine, but the impact is modest. Because DOE arrives at the 47% figure by assumption rather than by examination of any evidence, the Department does not appear to seriously consider enhanced public education and information.⁵⁸

The policy alternative that comes closest to the proposed standard in terms of saving the most energy and water is “Voluntary Efficiency Target (5 year delay).” However, despite the word “voluntary” in the policy description, this policy alternative assumes that the efficiency goals would be made mandatory if those goals were not met within a specified period.⁵⁹

The next best option, according to DOE, is the “Voluntary Efficiency Target (10 year delay).” DOE rejects this option based on the *assumption* that the time needed to reach the efficiency targets will be “considerable” and because of the “uncertainties about future consumer demand for energy-efficiency products.”⁶⁰

⁵⁶ DOE, *Federal Register*, Table 23, p. 59582.

⁵⁷ DOE, RIA, p. RIA-3.

⁵⁸ DOE equates the education program with a \$37 price discount. “The results of the Clothes Washer Consumer Analysis (in Appendix J of the TSD) indicates that when consumers have complete information, the effective market discount rate for the purchase of a higher efficiency washer is 20%...In contrast, an intercept survey conducted by Northwest Energy Efficiency Alliance indicates that the actual market discount rate is closer to 75% when consumers are shopping for their clothes washer...We can translate the impact of a public education and information campaign is 50% effective then the effective market discount rate for consumer purchase decisions would change from 75% to $(0.5*75\%+0.5*20\%)=47\%$. And this change in the consumer market discount rate can be changed into an effective market incentive. In the base case, high efficiency machines save approximately \$50 per year per household. [Note: in the “Consumer Overview,” DOE states that the saving per household are approximately \$30 per year per household.]...The net effect of an approximately 50% effective public education program would be about the same as a \$39 discount.” DOE, RIA, p. RIA-3, words in brackets are added.

⁵⁹ “A voluntary program that is made mandatory if the goals are not met is assumed to achieve the energy efficiencies of the performance standards with a 5-year delay.” DOE, RIA, p. RIA-9.

⁶⁰ DOE states: “Although it is possible that voluntary targets might have been as effective as mandated performance targets in achieving the energy savings goals, there probably would have been a considerable time lag because of the many uncertainties associated with a program requiring the concurrence from so many participants as well as uncertainties about future consumer demand for energy-efficient products.” DOE, RIA, p. RIA-9.

In brief, DOE does not evaluate policy alternatives because it assumes their effects rather than estimates them based on any credible data or evidence.

IV. Conclusion and Recommendations

DOE has not established that the proposed standards are economically justified. Indeed, the evidence collected by DOE suggests that the proposed standards will harm the vast majority of consumers without helping the remainder.

DOE's proposed standards for clothes washers would take away consumer choice by eliminating the most popular (V-axis) washing machine models. The standards would force Americans to buy washing machines that DOE estimates will be 57 percent more expensive than machines today, with fewer of the attributes consumers seek. DOE claims that mandating washing machine specifications is necessary to save consumers money through lower operating costs over the life of the machine. Yet, manufacturers currently offer energy- and water-efficient washing machines that would meet the new standards (and, by DOE's calculus, save consumers money), but only seven percent of consumers choose to buy them.

Rather than respect (or try to understand) consumers' revealed and expressed preferences, DOE assumes they are either misinformed or irrational. Its analysis is premised on the assumption that DOE knows more than consumers do about the tradeoffs that are important to individuals. It focuses purely on the cost savings, without considering the value consumers place on the convenience or other attributes that V-axis machines offer over H-axis machines. It estimates annual operating savings of \$30 over the lifetime of a machine, but this is based on washing 392 loads per year, or 7.5 loads per week. Consumers who use the machine less frequently will achieve much lower benefits. According to our analysis, a household that washed 5 or fewer loads per week would lose money, as well as convenience, if DOE imposes the proposed mandate. Even if annual savings were as high as \$50.55, households running fewer than 3.5 loads of laundry per week would lose money. Thus, the evidence collected by DOE suggests that the proposed standards will harm the vast majority of consumers without helping the remainder. Even under its own methodology (which ignores factors important to consumers), reserving the market option of V-axis washing machines will clearly benefit many consumers.

DOE should not go forward with the proposed standards. Since DOE believes that consumers pass up energy efficient washers because they are "misinformed" about operating costs, the Department should seriously consider constructing a program to correct this deficiency (instead of simply assuming a relatively small reduction in consumers' implied market discount rate for energy-efficient products). Consumers do not need to be coerced into saving money.

Appendix I

RSP Checklist

DOE's Clothes Washer Appliance Standards

Element	Agency Approach	RSP Comments
1. Has the agency identified a significant market failure?	DOE implies market failure by suggesting consumers lack adequate knowledge about clothes washer operating costs. Grade: F	DOE does not seriously consider the possibility that consumers value attributes in addition to price and operating costs when purchasing clothes washers. Adjusting for other attributes could reveal consumers to be well informed.
2. Has the agency identified an appropriate federal role?	DOE justifies the proposed standards under EPCA but does not establish "economic justification" for the standards as required by EPCA. Grade: F	The proposed federal one-size-fits-all standards will harm the majority of consumers by eliminating the basic model of clothes washer that 94 percent of consumers now purchase. The other 6 percent of consumers would not gain because they already buy the basic model preferred by DOE.
3. Has the agency examined alternative approaches?	DOE gives cursory attention to 10 policy alternatives. The Department estimates the effects of these alternatives on the basis of assumptions rather than on data or evidence. Grade: D	Even though DOE suggests that many consumers lack adequate information about washer operating costs, the Department claims that education programs would have negligible impact on consumer purchases. However, the Department reaches that conclusion through assumption, not evidence. DOE should reassess this option based on credible data and evidence.

Element	Agency Approach	RSP Comments
<p>4. Does the agency attempt to maximize net benefits?</p>	<p>DOE examines benefits and costs, but ignores important factors that consumers value. Grade: D</p>	<p>DOE considers only two attributes: price and operating costs. Other attributes – door placement, risk of leaks, child safety – are effectively ignored because they “cannot be quantified.” Moreover, even based on these narrow cost considerations, DOE’s analysis shows that its proposed standards would harm several consumer subgroups.</p>
<p>5. Does the proposal have a strong scientific or technical basis?</p>	<p>DOE has conducted focus groups and surveyed consumers in an effort to understand consumer preferences. Grade: C</p>	<p>DOE’s own evidence shows that low purchase price and such attributes as door placement, risk of leaks and child safety are important. However, it justifies the proposal without regard to these values. Instead, projected operating cost savings, driven by uncertain estimates of energy prices 20 years into the future, form the basis of the rule.</p>
<p>6. Are distributional effects clearly understood?</p>	<p>DOE claims that low-income households would receive greater gains than average from the proposed standards because they operate their washers more intensively than households generally. Grade: F</p>	<p>DOE surveys and consumer studies indicate purchase price is even more important for low-income households than for consumers generally, and that only one in eight would purchase a more efficient washer at the higher price. It disregards this evidence, however, in asserting that low-income households will benefit from the mandates.</p>
<p>7. Are individual choices and property impacts understood?</p>	<p>Despite its accumulated evidence regarding consumers’ revealed and expressed preference, DOE’s approach presumes that the Department can make better choices than consumers about which clothes washers best suit household needs. Grade: F</p>	<p>DOE does not recognize that, by eliminating the most popular and least expensive model of clothes washer from the market, the proposed standards would substantially limit the choices available to consumers. DOE’s application of EPCA presumes that the policy goal of minimizing energy consumption supercedes the right of consumers to select the major energy-using appliances that best suit their needs.</p>

**Regulation of the Week: DOE's Air Conditioner and Heat Pump
Efficiency Standards**

Rule Summary:

The Department of Energy proposed on October 5, 2000 to require all central residential air conditioners and heat pumps sold after January 1, 2006 to consume less energy (between 13 and 30 percent less, depending on the model) than its current standards (set in 1992) require.

DOE has requested public comment on these standards by December 4, 2000, and expects to issue final standards for air conditioners and heat pumps by January 20, 2000.

Facts:

- DOE estimates that these new standards will increase the installed cost of new air conditioners and heat pumps by \$274 to \$687, but that the average consumer would save enough in energy costs over the 18-year life of the unit to achieve a net savings of \$45.
- DOE's exclusive focus on the static cost savings to the average consumer does not adequately consider different usage patterns, the value consumers place on reliability, performance, or esthetics, or the fact once the initial investment is made, lower operating costs will encourage more usage of the unit, possibly leading to increased energy use (less conservation).
- DOE'S one-size-fits-all standard appears to ignore that consumers in different regions of the country face different weather conditions and have different usage patterns for air conditioners and heat pumps. DOE presents evidence that Florida residents, for example, would have temperature conditions (as measured by cooling degree days) that required air conditioning five times more frequently than New England residents. Clearly, the most economical air conditioner to operate in Massachusetts or Vermont would be less energy efficient than its counterpart in Florida.
- Although DOE suggests that the proposed standards will yield modest average net savings for those consumers who buy a new appliance in 2006 when the standard becomes effective, DOE's estimates also show that a majority of these consumers would *lose* money on each of the four product classes. For instance, DOE estimates \$45 in average net savings for each household that purchases a split system air conditioner. Yet, DOE also estimates that 73 percent of all households would *lose* an average of between \$17 and \$188 on their new air conditioners. A relatively few households – 27 percent – would average net savings of \$457, an amount high enough to produce the net savings of \$45 averaged over all households.
- The proposed standards would apply uniformly throughout all 50 states, from Maine to California and from Alaska to Hawaii. The air conditioner standard would require consumers in northern states to purchase high cost air conditioners, even though they would not likely recoup those up-front costs in lower energy bills over the life of the unit. Similarly, the heat pump efficiency mandate would require residents of southern states to purchase high-cost

heat pumps even though they are not likely to operate them intensively enough in winter to recover those costs.

- More than likely, fewer residents in regions of the country where air conditioners or heat pumps are marginally used would choose to purchase them. This in itself could have negative – even deadly – consequences. During the summer heat waves of 1995 and 1999 in the Midwest, the majority of heat-related deaths occurred among the elderly living alone in inner city regions, who lacked either air conditioning or the funds to pay for continuous operation of their units. This rule could exacerbate that effect.
- The Mercatus Center at George Mason University's analysis of DOE's data reveals that low-income consumers will be the hardest hit by the new standards, and the least likely to be able to afford to purchase new units. DOE's data indicate that the average savings for low-income households would average only \$3 (compared to \$45 for households generally) and that 80 percent of low-income households would lose money.
- Manufacturers currently offer air conditioners and heat pumps that meet DOE's proposed specifications, but consumers prefer models with lower up-front costs. DOE discounts revealed consumer preferences, however, on the presumption that consumers choose to purchase inefficient models, even though they are less costly over their useful life, because they are either misinformed or irrational.
- The analysis supporting the proposal is premised on the assumption that DOE knows more than consumers do about the tradeoffs that are important to individuals. Yet, it focuses purely on the cost savings to the average consumer, without adequately considering either different usage patterns, or the value consumers place on reliability, performance (especially dehumidification), or esthetics. Its static comparison of up-front costs to operating costs also ignores the fact that once the initial investment is made, lower operating costs will encourage more usage of the unit, possibly leading to increased energy use (less conservation) and, in extreme conditions, system-wide black outs or brown outs.

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Download the Mercatus Center public interest comments at www.mercatus.org.

MERCATUS CENTER

GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

Comments on:

***Energy Conservation Standards for
Residential Central Air Conditioners and
Heat Pumps***

Submitted to:

U. S. Department of Energy

December 4, 2000

"A wise and frugal government, which shall restrain men from injuring one another, which shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government."

Thomas Jefferson, from his "First Annual Message," 1801

RSP 2000-24

MERCATUS CENTER
REGULATORY STUDIES PROGRAM

Public Interest Comment Series:

DOE's Efficiency Standards for Central Air Conditioners and Heat Pumps

Agency:	Department of Energy, Office of Energy Efficiency and Renewable Energy
Rulemaking:	Energy Conservation Program for Consumer Products: Central Air Conditioners and Heat Pumps Energy Conservation Standards
Stated Purpose:	Require residential central air conditioners and heat pumps to be more energy efficient, reducing needed production of electricity and thereby resulting in a cleaner environment.
Submitted December 4, 2000	RSP 2000-24

Summary of RSP Comment:

DOE's proposal would require all central residential air conditioners and heat pumps sold after January 1, 2006 to consume less energy. It estimates that these new standards will increase the installed cost of new air conditioners and heat pumps by \$274 to \$687, or between 11 and 19 percent. Despite these higher up-front prices, DOE estimates that the average consumer would save enough in energy costs over the 18-year life of the unit to achieve a net savings of \$45.

DOE's one-size-fits-all standards would apply uniformly throughout all 50 states, from Maine to Oregon and from Alaska to Hawaii. They appear to ignore that consumers in different regions of the country face different weather conditions and have different usage patterns for air conditioners and heat pumps. The standards would require consumers in the northern states to purchase high-cost air conditioners, and residents of southern states to purchase high-cost heat pumps, even though they would not likely recoup those up-front costs in lower energy bills over the life of the unit. More than likely, fewer residents in regions of the country where air conditioners or heat pumps are marginally used would choose to purchase them. Low-income consumers will be the hardest hit by the new standards, and the least likely to be able to afford to purchase new units.

Manufacturers currently offer air conditioners and heat pumps that meet DOE's proposed specifications, but most consumers prefer models with lower up-front costs. DOE discounts revealed consumer preferences, however, on the presumption that consumers choose to purchase inefficient models, even though they are less costly over their useful life, because they are either misinformed or irrational. Yet, DOE's analysis focuses purely on the cost savings to the average consumer, without adequately considering either different usage patterns, or the value consumers place on reliability, performance (especially dehumidification), or esthetics. Its static comparison of up-front costs to operating costs also ignores the fact that once the initial investment is made, lower operating costs will encourage more usage of the unit, possibly leading to increased energy use (less conservation).

MERCATUS CENTER
REGULATORY STUDIES PROGRAM

Public Interest Comment on

**DOE's Proposed Energy Conservation Standards for Residential
Central Air Conditioners and Heat Pumps¹**

Docket Number: EE-RM/STD-97-500

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of regulations and their impacts on society. As part of its mission, RSP produces careful and independent analyses of agency rulemaking proposals from the perspective of the public interest. Thus, the program's comments on the Department of Energy's (DOE's) proposed efficiency standards for air conditioners and heat pumps do not represent the views of any particular affected party or special interest group, but are designed to protect the interests of American citizens.

Section I summarizes the proposed standards and places them in historical context. Section II discusses whether DOE has established the economic justification for the proposed standards. Section III discusses whether DOE has adequately considered less coercive policy options. Section IV summarizes the conclusions reached by these comments and offers recommendations for a better policy approach.

**I. DOE Proposes to Tighten the Energy Conservation Standards for
Residential Central Air Conditioners and Heat Pumps**

DOE currently prescribes the maximum amount of energy that residential central air conditioners and central air conditioning heat pumps (hereafter referred to as "heat pumps") may utilize with two metrics. The Seasonal Energy Efficiency Ratio (SEER) measures the energy efficiency for the seasonal cooling performance of central air conditioners and heat pumps. The Heating Seasonal Performance Factor (HSPF) measures the energy efficiency for the seasonal heating performance of heat pumps

Under this proposal, DOE would tighten the energy efficiency standards for residential air conditioners to 12 SEER and for heat pumps to 13 SEER/7.7 HSPF.² The proposed standards would apply to all covered new products offered for sale in the United States, effective on January 1, 2006.

¹ Prepared by Garrett A. Vaughn, Ph.D. The views expressed herein do not represent an official position of George Mason University.

² Table 1 of this comment compares current and proposed standards for both air conditioners and heat pumps.

According to DOE, “the proposed standard for split system air conditioners,³ the most common type of residential air conditioning equipment, represents a 20% improvement in energy efficiency. For split system heat pumps, the new standards would represent a 30% improvement in cooling efficiency and a 13% improvement in heating efficiency. The proposed standards would also increase the efficiency of packaged air conditioners and packaged heat pumps by 24% and 17% respectively.”⁴

A. Legal basis under the Energy Policy and Conservation Act (EPCA)

The Energy Policy and Conservation Act (EPCA), as amended, prescribes energy conservation standards for air conditioners, heat pumps and several other major appliances (except automobiles).⁵ The Act requires DOE to administer an energy conservation program for these products and allows—but does not require—the Department to propose new standards. According to DOE, “Any new or amended

³ According to DOE the rulemaking affects air conditioners and heat pumps: “Air conditioners and heat pumps may consist of split systems and packaged products. A split system consists of an outdoor unit containing a compressor and condenser coil and a connected indoor unit containing an evaporator coil. The indoor unit may also include an electric, gas or oil heating section, an indoor blower system and associated controls. A packaged product is a single, self-contained unit with compressor, condenser, evaporator, blower and associated controls. Packaged equipment may also contain an electric, gas or oil heating section. They are typically installed on rooftops or beside a structure. Ducted air conditioners and heat pumps distribute conditioned air throughout building structures with ductwork connected to the system’s blower, whereas ductless installations provide conditioned air directly from indoor blowers without the use of ductwork.” Department of Energy, Assistant Secretary, Energy Efficiency & Renewable Energy, Office of Building Research and Standards, “Technical Support Document: Energy Efficiency Standards for Consumer Products: Residential Central Air Conditioners and Heat Pumps,” Washington, DC (October 2000), p. 8-4. Subsequent references to this source identify it as: DOE, TSD.

⁴ Department of Energy, Office of Energy Efficiency and Renewable Energy, “Energy Conservation Program for Consumer Products: Central Air Conditioners and Heat Pumps Energy Conservation Standards,” 10 CFR Part 430, Docket Number EE-RM-500, RIN: 1904-AA77, *Federal Register*, October 5, 2000, p. 59591. Subsequent references to this source identify it as: DOE, *Federal Register*.

⁵ According to DOE: “Part B of Title III of the Energy Policy and Conservation Act (EPCA), Pub. L. 94—163, as amended by the National Energy Conservation Policy Act of 1978, Pub. L. 100—12, the National Appliance Conservation Amendments of 1988, Pub. L. 100—357, and the Energy Policy Act of 1992, Pub. L. 102—486 created the Energy Conservation Program for Consumer Products other than Automobiles. The consumer products subject to this program (often referred to hereafter as ‘covered products’) include central air conditioners and heat pumps. EPCA section 322(a)(4), 42 U.S.C. 6292(a)4.” DOE, *Federal Register*, p. 59591.

standard must be designed so as to achieve the maximum improvement in energy efficiency that is technologically feasible and economically justified.”⁶

Economic justification can be established in either of two ways under EPCA.

1. Weighing of seven factors. Section 325(o)(2)(B)(i) provides that “DOE must determine whether a standard is economically justified, after receiving comments on the proposed standard, and whether the benefits of the standard exceed its burdens, based, to the greatest extent practicable, on a weighing of the following seven factors:

1. “The economic impact of the standard on the manufacturers and on the consumers of the products subject to such standard;
2. “The savings in operating costs throughout the estimated average life of the covered product in the type (or class) compared to any increase in the price, initial charges for, or maintenance expenses of; the covered products which are likely to result from the imposition of the standard;
3. “The total projected amount of energy...savings likely to result directly from the imposition of the standard;
4. “Any lessening of the utility or the performance of the covered products likely to result from imposition of the standard;
5. “The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from imposition of the standard;
6. “The need for national energy and water conservation; and
7. “Other factors the Secretary considers relevant.”⁷

2. Rebuttable payback period of less than three years. EPCA (Section 323(o)(2)(B)(iii), 42 U.S.C. 6295(o)(2)(b)(iii)) “establishes a rebuttable presumption that a standard is economically justified if the Secretary finds that ‘the additional cost to the consumer of purchasing a product complying with an energy conservation standard level will be less than three times the value of the energy...savings during the first year that the consumer will receive as a result of the standard, as calculated under the applicable test procedure.’”⁸

⁶ DOE, *Federal Register*, p. 59592.

⁷ DOE, *Federal Register*, p. 59592.

⁸ DOE, *Federal Register*, p. 59592. According to DOE, “The rebuttable presumption test is an alternative path to establishing economic justification.” (p. 59592).

B. Current and proposed energy conservation standards

The existing energy conservation standards for residential air conditioners and heat pumps have been in effect since 1992. Table 1 summarizes the existing and proposed standards.

Table 1: Existing and Proposed Energy Conservation Standards⁹

Covered Product	Existing Standard	Proposed Standard
Air Conditioners		
Split System	10 SEER	12 SEER
Packaged	9.7 SEER	12 SEER
Heat Pumps		
Split System	10 SEER/6.8 HPSF	13 SEER/7.7HPSF
Packaged	9.7 SEER/6.6 HPSF	13 SEER/7.7 HPSF

II. Has DOE adequately established the economic justification for the proposed standards?

DOE does not show that the benefits of the proposed standard will exceed its burdens. Indeed, DOE's own analysis estimates that the proposed standard would *decrease* the country's economic wealth by \$2 billion¹⁰ and impose \$1 of cost for every \$0.82 of benefit.¹¹ By way of contrast, DOE claims that its proposed efficiency standards for clothes washers would increase economic wealth by \$14.3 billion¹² and provide benefits that exceed costs by thirty times.¹³

⁹ DOE, *Federal Register*, pp. 59591, 59592.

¹⁰ DOE, *Federal Register*, Table VII.1, p. 59628.

¹¹ DOE, TSD, p. 7-44. DOE used a 3 percent discount rate to make this calculation. Had the Department used the 5.6 percent discount rate to model consumer behavior – or the (approximately) 6 percent rate for a riskless 30-year Treasury bond – the estimated cost-benefit ratio would have been substantially below 0.82.

¹² Department of Energy, Office of Energy Efficiency and Renewable Energy, "Energy Conservation Programs for Consumer Products: Clothes Washer Energy Conservation Standards," 10 CFR Part 430, Docket No. EE—RM—94—403, RIN 1904—AA67, *Federal Register*, October 5, 2000, Table 23, p. 59582.

¹³ Department of Energy, Office of Energy Efficiency and Renewable Energy, "Energy Conservation Programs for Consumer Products: Clothes Washer Energy Conservation Standards," 10 CFR Part 430, Docket No. EE—RM—94—403, RIN 1904—AA67, *Federal Register*, October 5, 2000, p. 595551. The Mercatus Center has filed comments on the proposed standards for clothes washers and shows that, contrary to DOE's claims, the standards will harm most consumers without providing much—if any—net benefits for remaining consumers. See www.Mercatus.org

Although DOE suggests that the proposed standards will yield modest average net savings for those consumers who buy a new appliance in 2006 when the standard becomes effective, DOE's estimates also show that a majority of these consumers would *lose* money on each of the four product classes. For instance, DOE estimates \$45 in average net savings for each household that purchases a split system air conditioner. Yet, DOE also estimates that 73 percent of all households would *lose* an average of between \$17 and \$188 on their new air conditioners. A relatively few households—27 percent—would average net savings of \$457, an amount high enough to produce the net savings of \$45 averaged over all households.¹⁴ Furthermore, DOE's data indicate that the average savings for low-income households would average only \$3 (compared to \$45 for households generally) and that 80 percent of low-income households would lose money.¹⁵

In addition, DOE's estimate of \$457 average savings for 27 percent of households appears to include "savings" that would occur *without* the proposed standards. By doing so, DOE exaggerates both average net savings and the percentage of households that would gain from the proposed standards. For instance, DOE states that today "a large fraction of consumers are willing to purchase 12 SEER equipment."¹⁶ Therefore, energy savings from new air conditioners bought by these households should not be credited to the proposed standards. Yet, the "shipments" model used by DOE to estimate future purchases of energy efficient air conditioners and heat pumps considers price, income, age of existing unit (if any) and other factors—but not the likelihood of households to buy more efficient appliances absent the proposed standards.

Furthermore, DOE's savings estimates for consumers do not mean positive net savings for the nation as a whole. DOE's estimates of consumer savings presume purchase of a new appliance in 2006, the year when the standards would become effective. However, a relatively small minority of all households would actually buy a new air conditioner or heat pump in 2006. Most would continue to operate existing units for several more years and thereby defer any operating savings. According to DOE, air conditioners and heat pumps have an average useful life of about 18 years. Hence, energy savings across the nation would build up relatively slowly after 2006, as households gradually replace existing units.¹⁷

In contrast, manufacturers of air conditioners and heat pumps would bear many of the costs for meeting the standards before 2006; e.g., costs for design, retooling of factories,

¹⁴ DOE, TSD, p. 5-89. Also see pp. 5-90 – 5-92 for LCC estimates on split system heat pumps, single package air conditioners and single package heat pumps respectively.

¹⁵ DOE, *Federal Register*, Table VI.27, p. 59624, p. 55591.

¹⁶ DOE, TSD, p. 8-35. The proposed standards raise the efficiency standard for air conditioners from 10 SEER to 12 SEER.

¹⁷ Purchases of air conditioners and heat pumps for new homes represent net additions to the stock of these appliances. However, replacements of existing units exceed net additions.

training of workers. Hence, costs will tend to appear long before benefits—a principal reason why DOE estimates that the proposed standards would burden the economy with a net cost of \$2 billion even though the (relatively few) “average” households buying a new appliance in 2006 would receive modest net savings.¹⁸

Though DOE’s notice of proposed rulemaking emphasizes energy cost savings for consumers, the Department recognizes that individual consumers could not easily participate in the formulation of the proposed standards. DOE’s Advisory Committee on Appliance Energy Efficiency Standards, in an August 31, 2000 letter to Secretary Bill Richardson, described the Department’s rulemakings as too ponderous to be useful to the lay consumer even when written to meet the requirement that rulemakings be in “plain language.” DOE responded to the Committee’s letter:

“The Department is experimenting with a Consumer Overview section in the Noticed of Proposed Rulemaking...Unfortunately, legal counsel has instructed that this overview may not appear at the beginning or end of the document, but must be relegated to the summary section, well-buried in the middle of the notice.”¹⁹

Instead, DOE consulted with organizations possessing the time, resources and expertise needed to participate effectively in proposed rulemakings: “energy efficiency groups, manufacturers, trade associations, state agencies, utilities and other interested parties.”²⁰ None of the parties listed by DOE has the same interests as consumers.

¹⁸ DOE’s estimates of life-cycle costs for a single, “average” consumer are separate from the Department’s estimate of the impact the proposed standards would have on the economy as a whole. DOE estimated the national impact by using a model that, among other things, predicts if and when—over the two decades following imposition of the standards – households will replace existing appliances with new, more efficient units. The LCC estimates do not attempt to predict how many consumers will be driven out of the market for new units by higher installation costs or project how quickly the appliance stock will “turn over.” Instead, the LCC estimates apply only for the consumer who decides to pay the higher installation costs in 2006 when the standards become effective.

¹⁹ A copy of DOE’s response to the Advisory Committee (which paraphrases many of the Committee’s recommendations in the Committee’s August 31, 2000 letter) can be found in the TSD, Chapter 6. DOE responded to this recommendation: “The Department is experimenting with a Consumer Overview section in the Notice of Proposed Rulemaking...Unfortunately, legal counsel has instructed that this overview may not appear at the beginning or end of the document, but must be relegated to the summary section, well-buried in the middle of the notice. We regret the rigidity of the Federal Register format requirements. But there are other actions we intend to take to compensate for this...” Unfortunately for consumers of air conditioners and heat pumps, whatever these “other actions” may be, they will come too late to better inform them on this proposed rulemaking.

²⁰ DOE, *Federal Register*, p. 59592.

A. Consumers will have fewer choices and face higher prices.

The proposed standards will not expand consumer choice. As DOE notes, the marketplace already offers such appliances. Indeed, DOE points to the existence of such appliances in the marketplace as proof that the proposed standards are “technologically feasible.”²¹ However, according to DOE, “more than 75% of consumers in today’s market purchase units at minimum efficiency.”²² Of course, “minimum efficiency” appliances still meet the standards that became effective in 1992.²³

It is these 75 percent of consumers who stand to either gain or lose from the proposed standard, forcing them to purchase more efficient appliances than they would otherwise buy. The remaining 25 percent would not be affected by the proposed standard because they already receive the reduction in operating expenses such units provide.

According to DOE, the price of a “typical (split system) air conditioner... would increase by \$122 to \$153 or about 10 - 12%.”²⁴ However, that price increase represents less than half of the increase in the installation cost—the total “up front” cost—that the consumer would face. DOE’s Technical Support Document indicates that the increase in installed cost of a split system air conditioner would be \$274 on a base of \$2,236²⁵—about 12.25 percent. DOE estimates the installation cost increases for the other product classes at: \$487 for split system heat pumps on a base of \$3,668 (13.28 percent); \$296 for single package air conditioners on a base of \$2,607 (11.35 percent); and, \$687 for single package heat pumps on a base of \$3,599 (19.09 percent).²⁶ Hence, consumers face increases in installed cost ranging from \$274 to \$687 and would lose the option of purchasing less expensive, less energy efficient air conditioners or heat pumps.

A consumer could have a good reason not to buy a more efficient air conditioner or heat pump if that consumer lives in a northern climate that has a relatively short “cooling season.” Such a consumer may not expect to operate an air conditioner often enough to recover several hundred dollars of additional equipment expense in reduced operating costs.

²¹ According to DOE: “There are central air conditioners and heat pumps in the market at all of the efficiency levels analyzed in today’s notice. The Department, therefore, believes all of the efficiency levels discussed in today’s notice are technologically feasible.” DOE, *Federal Register*, p. 59593.

²² DOE, TSD, p. 628.

²³ This suggests that even the existing standard has reduced consumer welfare, and that choices are truncated, such that some of those 75 percent would prefer less efficient air conditioners than are available for purchase.

²⁴ DOE, *Federal Register*, p. 59591.

²⁵ DOE, TSD, Table 5.56, p. 5-110.

²⁶ DOE, TSD, Tables 5.57, 5.58, 5.59, p. 5-111.

According to DOE, annual cooling degree days (CDD)²⁷ vary considerably across the United States, with a low of 587 (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut) to a high of 3,179 (Florida). The space-cooling energy used by households with an air conditioner surveyed in the DOE's Residential Energy Consumption Survey (RECS) ranged from 57kWh/yr to 16,286kWh/yr with a weighted-average value of 2,132 kWh/yr.²⁸ The most economical air conditioner to operate in Massachusetts or Vermont almost certainly possesses a lower SEER than its counterpart in Florida.

Indeed, analysis by DOE indicates that 80 percent of households in New England and *all* households in the Pacific Northwest would lose money on 12 SEER split system air conditioners.²⁹ In California, Oregon, Washington State, Montana, Idaho, Wyoming, Nevada, Utah, Colorado, Arizona and New Mexico, more than 60 percent of all households would lose money on 13 SEER split system heat pumps.³⁰ Even in Florida, about 40 percent of households would lose money. Despite these variations, the proposed standards "would apply to all covered products offered for sale in the United States."³¹

In a similar fashion, tightening the heating standards for heat pumps (which operate both as air conditioners in warm weather and sources of heat in cooler months) may force many consumers to purchase more powerful units than would make economic sense. These consumers may not expect to operate their heat pumps intensively enough in winter to recover the additional installation cost in reduced operating costs.

According to DOE, annual average heating degree days (HDD)³² range from a low of 961 (Florida) to a high of 6,187 (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut). The space heating energy use ranges from a minimum value of

²⁷ "Cooling degree days are based on the day's average [temperature] minus 65. They relate the day's temperature to the energy demands of air conditioning. For example, if the day's high is 90 and the day's low is 70, the day's average is 80. 80 minus 65 is 15 cooling degree days." Jack Williams, "Understanding Heating, Cooling Degree Days," *USA Today*, April 17, 2000.

²⁸ DOE, TSD, p. 5-26.

²⁹ U.S. Department of Energy, "Life-Cycle Cost Sensitivities and Regional Analyses Performed for Split System Central Air Conditioners and Heat Pumps," January 2000, Figure 14, p. 11.

³⁰ *Ibid.*, Figure 22, p. 13.

³¹ DOE, *Federal Register*, p. 59591.

³² The heating degree days for a particular day—relating the day's temperatures to the demand for heating—is the average of the day's high and low temperature subtracted from 65. If the day's average is 65 or higher, there are no heating degree days for that day. The lower the day's average temperature falls below 65, the larger the day's degree days. "For example, if the day's high temperature is 60 and the low is 40, the average temperature is 50 degrees. 65 minus 50 is 15 heating degree days." Jack Williams, "Understanding Heating, Cooling Degree Days," *USA Today*, April 17, 2000.

174 kWh/yr to a maximum value of 17,272 kWh/yr with a weighted-average of 3921 kWh/yr.³³ The most economical heat pump for Florida almost certainly has a lower value for HPSF [heating seasonal performance factor] than the New England states. Nonetheless, the proposed standards would apply uniformly throughout all 50 states, from Maine to California and from Alaska to Hawaii.

In calculating the benefits (to judge “economic justification”) of its proposed standards, DOE considers only the estimated reduction in operating costs. DOE effectively ignores the fourth of the seven factors—“Lessening, if Any, of Utility or Performance.” DOE claims that “this factor cannot be quantified” and asserts that “none of the proposed trial standard levels reduces the performance of central air conditioners and heat pumps.”³⁴ Yet, DOE’s own analysis suggests that the proposed standards may harm performance.

- **Reliability.** DOE states that “compared to low-SEER products, high-SEER products have more components, many of which have a relatively short history. Reliability patterns of these new components are less known, so warranty accruals may be significantly higher for these products....A product that is less reliable or contains more expensive components will have a higher cost of repair over its lifetime.”³⁵
- **Dehumidification.** In response to some comments that increased efficiency affects a unit’s ability to dehumidify properly, DOE stated, “we recognize the humidity control problems that exist in the southern region of the United States. For the excessive humidity control conditions commonly experienced in the South, the equipment may very likely not provide adequate dehumidification.” Yet, DOE dismisses this concern by noting that other factors (proper installation, maintenance, building shell characteristics, the duct system) affect dehumidification. “To lay blame only on the efficiency of the equipment ignores how other factors contribute to the system’s ability to properly dehumidify.”³⁶ However, DOE never considers how equipment

³³ DOE, TSD, p. 5-41.

³⁴ DOE, *Federal Register*, p. 59594.

³⁵ DOE, *Federal Register*, p. 59600. DOE dismisses this concern by stating “the average consumer always incurs the cost of higher repair costs” which can be approximated “in the form of slightly higher warranty costs.” However, DOE offers no evidence why the possibility of significantly higher repair costs would result in only “slightly higher warranty costs.” Furthermore, DOE does not take into account the damage that could be done to consumers if their air conditioners fail during a protracted heat wave. During such periods, demand for repair services peaks and consumers may have to wait several days before repairs are made on their units. For the elderly or people in poor health, such intervals can be life-threatening. Yet, DOE’s benefit-cost calculus ignores such eventualities. “Since our analysis considers the present value of consumer life cycle costs on the average consumer, incremental repair costs and incremental warranty costs are the same, and interchangeable.” Taken to its logical extreme, DOE’s “analysis” would count the energy savings from a malfunctioning air conditioner in the midst of a heat wave as a “benefit.”

³⁶ DOE, *Federal Register*, pp. 59611-59612.

efficiency may contribute to this problem, taking into account the contributions from the other factors it mentions.

- **Niche uses.** DOE notes that several air conditioners and heat pumps serve “niche markets” where these appliances “are used in particular or unusual applications and have features that differ from those of the vast majority of products available in the marketplace.”³⁷ In response to concerns expressed by some manufacturers that niche products “would not be viable if required to meet higher efficiency standards,” DOE states that it believes niche products can meet the standards even though this may mean some loss of “esthetics.” In such cases, however, the consumer would be “compensated by higher efficiency and lower cost of operation.”³⁸ DOE appears oblivious to the possibility that some consumers may actually prefer greater esthetics to a lower operating cost.
- **Reliability of the electrical power grid.** Mass use of air conditioners can contribute, not only to average demand for electricity, but also to peak demand during hot weather and increase the risk of brownouts and blackouts. DOE notes that “there have been several well-publicized blackouts and brownouts following, or in the midst of, hot periods.”³⁹ DOE assumes that the proposed standards, by reducing average electricity demand, will also reduce peak demand.⁴⁰ However, once a consumer has bought a more efficient air conditioner, the marginal cost of keeping the thermostat at 70°F or below during a heat wave (rather than putting the setting up a few degrees) falls. DOE notes this possibility by stating, “because of lower operating costs, consumers may change thermostat settings and/or operate the systems for longer hours to achieve greater comfort. Direct evidence of the magnitude of this effect is limited and the Department is interested in receiving comments.”⁴¹ The proposed standard will force millions of people to buy air conditioners with lower operating costs. People usually react to lower costs by purchasing a larger quantity. During a

³⁷ DOE, *Federal Register*, p. 59608.

³⁸ DOE, *Federal Register*, p. 59609. DOE elaborates on this point: “Some of the reasons for high production costs are: low volumes in the United States, the indoor unit is a ‘finished’ product fully visible to the customer so it requires additional cosmetic expenses, and the unit must be small, so complex design of coils is necessary....The constraints on increasing the size of the indoor fan coil units are primarily esthetic, and the Department is unaware of technological limitations to increasing minimum efficiency standards for these products. The esthetic disadvantage of larger cabinet size would be compensated by higher efficiency and lower cost of operation. While the claim that the small capacities make increased efficiencies difficult is a reasonable one, the Department is aware that systems with capacities of up to 44,000 Btu/h are available and believes that providing an exemption for all systems because of difficulty with smaller systems is not justified.”

³⁹ DOE, *Federal Register*, p. 59607

⁴⁰ “We assume that peak demand savings would accompany any seasonal energy savings.” DOE, *Federal Register*, p. 59607.

⁴¹ DOE, *Federal Register*, p. 59603.

heat wave, such actions of millions of people could increase peak demand and the risk of a blackout, leaving everyone without air conditioning.

While it may not be possible to estimate precisely how much more air conditioning consumers will demand when the marginal cost is reduced by the standard, the fact that consumers will demand more cannot be ignored. The National Highway Transportation and Safety Administration examined, retrospectively, the costs and benefits of its rule requiring center high-mounted stop lamps in passenger vehicles, which illustrates the importance of consumer response to imposed mandates. It found that the regulatory impact analysis prepared in support of the rule had underestimated costs by more than a factor of two and overstated effectiveness by a factor of more than seven. NHTSA had projected effectiveness (in terms of fewer rear-end collisions) without appreciating that, with the more visible brake lights, drivers would feel comfortable driving closer to the vehicle in front.

B. DOE assumes consumers are inconsistent, misinformed, or irrational.

DOE suggests that 75 percent of consumers make poor purchase decisions because these consumers apply as much as a 75 percent market discount rate when buying energy-using appliances.⁴² (The fact that the market share of “minimally efficient” units and the market rate are both around 75 percent is largely a coincidence, although a high market discount rate would tend to cause a large market share for “inefficient” appliances.) The claim of a 75 percent market discount rate implies that consumers are inconsistent, misinformed, irrational or all three. Such a rate means that consumers will not spend an extra \$135 (about the increase in price of an air conditioner under the proposed standard) unless the annual reduction in operating costs exceeds \$100 (75 percent of \$135). Yet, (as is discussed below) the DOE also estimates that consumers can finance the purchase of major consumer appliances at a median interest rate of 5.6 percent. Among the financing methods considered by the DOE are the sale of mutual funds and savings bonds. According to DOE, the mean rate of return on mutual funds is 4.5 percent and 1.8 percent on savings bonds.⁴³ A 4.5 percent return on \$135 amounts to about \$6 and a 1.8 percent amounts to less than \$2.50. Hence, the DOE analysis presumes that the typical consumer—even consumers wealthy enough to own bonds and mutual funds—would choose returns of \$6 or \$2.50⁴⁴ over the \$100 return offered by more efficient appliances.

⁴² DOE states, “We do not have concrete, precise data on the market discount rate for consumer decisions for air conditioning products. The one piece of information that we have is that more than 75% of consumers in today’s market purchase units at minimum efficiency, and that this implies that the implicit consumer discount rate for consumer decisions is fairly large. We assume a discount rate for consumer decisions half way between a one and two year payback which corresponds to 75%.” DOE, TSD, p. 6-28.

⁴³ DOE, TSD, Table 5.31, p. 5-74.

⁴⁴ In other words, a consumer who applies a 75 percent discount rate to appliance purchases would hold on to the bonds or mutual funds rather than sell some shares to finance the additional \$135 purchase price.

Therefore, the DOE's analysis implies that three-fourths of consumers are inconsistent, misinformed, irrational or all three.

In the analysis supporting the efficiency standards for clothes washers, which DOE also announced on October 5, 2000, the Department reported consumers possessing complete information apply a market discount rate of 20 percent instead of 75 percent.

“The results of the Clothes Washer Consumer Analysis (in Appendix J of the TSD) indicate that when consumers have complete information, the effective market discount rate for the purchase of a higher efficiency washer is 20%. This means that consumers are willing to accept a 20% return on additional purchase expenses when they trade off purchase price and operating savings, or for each dollar in annual savings consumers might be willing to pay up to five dollars in increased purchase price.”⁴⁵

Presumably, providing consumers with complete information about air conditioners and heat pumps would lower their apparent discount rate from 75 percent to 20 percent for these appliances, just as it appears to do for clothes washers. If so, consumers would lower their “requirement” of operating savings before buying the more efficient air conditioner and paying the additional \$135. These consumers would need only \$27 (20 percent of \$135) in operating savings to have them sell \$135 of bonds (giving up a \$2.50 return) or mutual funds (giving up a \$6.00 return) to finance the additional \$135.

Consumers who apply a market discount rate of 20 percent appear somewhat less inconsistent, irrational or misinformed than consumers who apply a 75 percent discount rate. However, if “informed” consumers also place a monetary value on reducing the risk of malfunction, improving dehumidification and greater esthetics, then their market discount rate for operating savings would be less—perhaps substantially less—than the 20 percent estimated by DOE. DOE, by claiming that such factors “cannot be quantified,” effectively ignores their value and assigns that value to a single attribute: operating costs.

C. DOE's own life-cycle and payback analyses indicates low, even negative, returns.

DOE's mention of consumers with 75 percent—or even 20 percent—market percent discount rates suggests that more efficient air conditioners and heat pumps offer high rates of return. However, DOE's own payback analysis suggests that the proposed standards will yield modest returns and will actually leave many consumers with less money (provide a negative return). Even many consumers who apply “rational” discount rates to their appliance purchases would find these returns too low to justify investing in the air conditioners and heat pumps favored by DOE.

⁴⁵ DOE, “Regulatory Impact Analysis,” October 5, 2000, p. RIA-3.

DOE defines “life cycle costs” (LCC) to be the sum of the change in purchase price (usually positive in direction) and the net present value of the change in operating costs (usually negative in direction) expected from the proposed standard. A net change of zero indicates that the “payback” in operating savings equals (in absolute value) the increase in purchase price. Under the logic of LCC analysis, a result of zero leaves the consumers unaffected (even if it forces the consumer to buy a different air conditioner or heat pump). The benefit of lower operating costs exactly offsets the burden of a higher purchase price. A positive value for LCC indicates that the proposed standard would harm consumers because the reduction in operating costs does not fully offset the increase in purchase price. A negative value for LCC indicates that the proposed standard would benefit consumers by returning more in operating cost savings than the increase in purchase price.⁴⁶

For instance, DOE claims that the LCC value for a split system air conditioner (the most common type of air conditioning equipment) under the proposed standard would be \$45. Hence, the (implied) net present value of the operating savings from the air conditioner, expected to last 18 years and using a 5.6 percent finance (discount) rate, must be \$182.50—\$45 more than the \$137.50 increase in purchase price⁴⁷ caused by the standard. An annual reduction in operating cost of about \$15.49 yields a LCC of a negative (beneficial) \$45 under those circumstances.

However, estimating LCC’s is inexact. It requires DOE to forecast numerous prices—for electricity, natural gas, heating oil—that are difficult to predict accurately over long periods. (Air conditioners and heat pumps run on electricity but furnaces—competitors to heat pumps in winter – can run on natural gas or heating oil. Raising the price of heat pumps will cause some consumers to buy air conditioners for summer and furnaces for winter. Also, electric rates depend to a considerable extent on the prices of fuel—including natural gas and coal—used by utilities for generation.) Since air conditioners and heat pumps have an average useful life of approximately 18 years and the stringent

⁴⁶ According to DOE (TSD, p. 5-1):

- “**Life-cycle cost** (LCC) captures the tradeoff between purchase price and operating expenses for appliances.
- “**Payback period** (PBP) measures the amount of time it takes consumers to recover the assumed higher purchase price of more energy-efficient equipment through lower operating costs.
- “**Rebuttable Payback Period** is a special case of PBP. Where LCC and PBP are estimated over a range of inputs reflecting actual conditions, Rebuttable Payback Period is based on laboratory conditions, specifically, DOE test procedure inputs.”

⁴⁷ DOE states that the increase in price for this type of air conditioner will range from \$122 to \$153. The midpoint of that range is \$137.50. DOE, *Federal Register*, p. 59591. However, elsewhere DOE indicates that the increase in the installation cost of a split system air conditioner would be \$274. DOE, TSD, Table 5.56, p. 5-110. (Compare “installed consumer cost” of \$2,236 for SEER 10 (existing standard) and \$2,510 for SEER 12 (proposed standard).)

standard would take effect on January 1, 2006, DOE must forecast prices more than two decades beyond 2000. Energy prices are notoriously difficult to predict more than a year or so into the future. In addition, because LCC estimates express future operating costs in terms of net present value, a discount rate must be selected. As DOE notes, consumers face a variety of interest rates depending on their economic circumstances. For instance, a homeowner may be able—through a home equity line of credit—to finance the purchase of a major appliance at a substantially lower (after tax) interest rate than can a renter. One discount rate can reflect the best interest rate available to one—but not both—of these consumers.

Even with all of these difficulties, DOE's analysis also shows that many consumers would lose money under the proposed standard (have an arithmetically positive value for LCC, indicating that the reduction in operating costs is not great enough to pay back the increase in purchase price). For the split system air conditioner, 73 percent of all consumers – nearly three fourths – would on average lose money.⁴⁸ The negative impact on low-income households would be even more severe; 80 percent—four fifths—would on average lose money.⁴⁹

The average LCC for low-income households is (negative, beneficial) \$3 for split system air conditioners and (negative, beneficial) \$17 for split system heat pumps—the two most likely units that low-income households would purchase.⁵⁰ For split system air conditioners, according to DOE, only 20 percent of low-income households would receive significant net savings. The remaining 80 percent would suffer an average net loss. For split system heat pumps, 25 percent of low-income households would receive a substantial net savings; the other 75 percent would suffer an average net loss.⁵¹

⁴⁸ DOE, TSD, Figure 5.48, p. 5-89.

⁴⁹ DOE, TSD, Table 10.3, p. 10-3..

⁵⁰ On October 5, 2000 DOE also proposed more stringent efficiency standards for clothes washers. In the analysis supporting that rulemaking, the Department estimated the mean discount rate at 6.1 percent. Had DOE applied 6.1 percent in this rulemaking, the split air conditioner LCC value for low-income households would have been (positive) \$5 instead of (negative) \$3. The split heat pump LCC value for low-income households would be (negative) \$0.68 instead of (negative) \$17.

⁵¹ DOE, TSD, Tables 10.3 and 10.4, p. 10-3.

Table 2. Average LCC's and Implied Annual Savings in Operating Costs

Consumer Group	Product	Mean Payback Period (years at 5.6%)	Avg. LCC (Savings) Costs [at 5.6%]	Implied Annual Savings in Operating Costs [at 5.6%]	Avg LCC (Savings) Costs [at 7.6%]
All Households	Split Air Conditioner	14.1	(\$45)	\$22.82	(\$12.65)
Low Income	Split Air Conditioner	17.4	(\$3)	\$19.27	\$24.17
All Households	Split Heat Pump	10.5	(\$215)	\$59.56	(\$130.65)
Low Income	Split Heat Pump	16.9	(\$17)	\$42.77	\$43.47
All Households	Package Air Conditioner	15.5	(\$29)	\$27.58	\$9.99
Low Income	Package Air Conditioner	Exceeds expected life of unit	\$14	\$23.93	\$47.84
All Households	Package Heat Pump	14.3	(\$112)	\$67.80	(\$16.10)
Low Income	Package Heat Pump	17.7	(\$4)	\$58.63	\$79.00

Notes: Avg LCC's at 5.6% taken from DOE, TSD, Tables 10.3, 10.4, 10.5, 10.6, pp. 10-3 – 10-4. Installed consumer cost taken from DOE, TSD, Tables 5.56, 5.57, 5.58, 5.59, pp. 5-110 – 5-111. Implied operating cost savings – estimated by RSP – is the annual value that yields the net LCC as reported by DOE, after taking into account the installed consumer cost (also reported by DOE). All units are assumed to last 18 years. [DOE assumes a 18.4-year lifetime with a compressor replacement at 14 years. See: DOE, *Federal Register*, p. 59614]. RSP estimated the LCC's under a 7.6% finance rate using the installation costs and implied annual operating cost savings (on the assumption that a higher finance rate would not affect annual operating costs).

However, if low-income households must pay finance rates only a few percentage points above the mean rate of 5.6 percent assumed by DOE, then most low-income households would suffer a net loss from the standards. DOE bases the 5.6 percent finance rate—below that offered by a riskless 30-year Treasury bond—on the assumption that consumers can select from among the following: new home mortgages (after tax), second mortgages (after tax), credit cards, transaction (checking and saving) accounts, certificates of deposit, savings bonds, bonds, stocks and mutual funds.⁵² Lower-income

⁵² DOE, TSD, Table 5.31, p. 5-74.

people possess less wealth in financial assets than the general population; are less likely to own homes (and therefore have first or second mortgages); tend to pay a higher after-tax return on any first or second mortgages they do possess; and, tend to pay higher rates for credit card debt. Personal loans from banks or finance companies are not to be found on DOE's list but many low-income households—lacking extensive financial portfolios—take out loans to finance major purchases. On October 5, 2000—when DOE published the proposed standards in the *Federal Register*—the prime interest rate⁵³ was approximately 9 percent. Rates charged on personal loans are usually higher than prime. Hence, low-income households almost certainly face paying several percentage points above 5.6 percent to finance household appliances.

Table 2 illustrates the impact that finance rates (or discount rates) can have on the estimated LCC's periods for different consumer groups.

Low-income households *never* recover their installation in lower operating costs at a finance rate of 7.6 percent; i.e., low-income households, on average, *always* lose money under the proposed standards if they face finance rates of 7.6 percent or higher. For a given finance rate—whether 5.6 percent or 7.6 percent—low-income households face a substantially longer payback period than do all households. Furthermore, neither consumer group can expect to recover its higher installation cost in less than a decade, even at a finance rate as low as 5.6 percent. Hence, even consumers who apply single-digit discount rates to their appliance purchases—let alone 75 percent—are apt to find the proposed standards to be money-losing propositions.

III. Has DOE Given Adequate Consideration to Policy Alternatives?

DOE considered ten alternatives to the proposed standards, including two alternatives it describes as “Consumer Product Labeling” and “Consumer Education.”⁵⁴ Since DOE claims that consumers are largely unaware of operating costs when purchasing major energy-using appliances, one might expect that these policy alternatives would offer promising results. However, DOE estimates that both alternatives would save 2.3 percent as much energy as the proposed standards. Significantly, though, unlike the \$2 billion loss estimated for the proposed standards, these two alternatives would not reduce the country's economic wealth.⁵⁵

DOE estimates such meager energy savings largely by *assuming* few consumers will permanently change their purchasing behavior, even when given complete information. Furthermore, DOE assumes that both programs would last only six years, whereas the

⁵³ Commercial banks charge their best, most credit-worthy loan customers a rate of interest at or near prime.

⁵⁴ DOE, *Federal Register*, p. 59628. The other policy alternatives considered are: “Prescriptive Standards,” “Consumer Tax Credits,” “Consumer Rebates,” “Manufacturer Tax Credits,” “Voluntary Efficiency Target (5 year delay),” “Voluntary Efficiency Target (10 year delay),” “Low Income Subsidy” and “Mass Government Purchases.”

⁵⁵ DOE, *Federal Register*, p. 59628.

prospective standards would last indefinitely.⁵⁶ DOE also assumes that the following policy options would last only six years: “Consumer Tax Credits,” “Consumer Rebates,” “Manufacturer Tax Credits,” and “Low Income Subsidy.”⁵⁷

According to DOE, only two policy alternatives would save appreciable amounts of energy: “Voluntary Efficiency Target (5 year delay)” and “Voluntary Efficiency Target (10 year delay).” The 5 year delay option would save an estimated 3.1 Quads and reduce NPV by \$1 billion while the 10 year delay option would save an estimated 1.9 Quads and also reduce NPV by \$1 billion. In both options, DOE assumed that that “there would be universal voluntary adoption of the energy conservation standards by these appliance manufacturers, an assumption for which there is no assurance.”⁵⁸ DOE does not explain why the energy savings would not be comparable to mandatory standards if all manufacturers comply. Possibly, the difference in savings results from the delays. In any case, DOE rejects both options because they save less energy than the proposed standard. However, DOE’s estimates do show the “Voluntary Efficiency Target (5 year delay)” to save energy at a lower average cost than the proposed standard—\$322,000,000 per Quad compared to \$455,000,000 per Quad for the proposed standard.

In brief, DOE does not evaluate policy alternatives adequately because it assumes their effects rather than estimates them based on any credible data or evidence. Furthermore, DOE treats many of the policy alternatives as temporary programs even though the proposed standards would last indefinitely. Finally, DOE proposes that the nation adopt the single most expensive policy alternative for saving energy used by air conditioners and heat pumps. All of the other ten policy alternatives considered by DOE would cost substantially less than the \$2 billion estimated for the proposed standards.

⁵⁶ DOE, *Federal Register*, p. 59628. “Both of these alternatives are already mandated by, and are being implemented under EPCA....One base case alternative would be to estimate the energy conservation potential of enhancing consumer product labeling. To model this possibility, the Department estimated that 5% of the consumers purchasing SEER equipment and 5% of the consumers purchasing 12 SEER equipment would change their decisions and purchase 12 SEER and 13 SEER systems, respectively. It is assumed that the program would last six years and upon its expiration consumers would revert back to their prior purchase decisions. The consumer product labeling alternative resulted in 0.1 Quad of energy savings with no impact on the NPV [net present value]. Another approach, called consumer education, is to consider an Energy Star® program for 12 SEER and 13 SEER central air conditioners and heat pumps. We assume, under this program, there would be a 20% increase in the sale of both 12 SEER and 13 SEER systems. As with the consumer product labeling program, it is assumed that the education program would last six years and upon its expiration sales would drop back to their market share levels prior to the program’s implementation. This consumer education program results in energy savings equal to 0.1 Quad with no impact on the NPV.”

⁵⁷ DOE, *Federal Register*, p. 59628.

⁵⁸ DOE, *Federal Register*, p. 59629.

IV. Conclusion and Recommendations

DOE's proposal would require all residential air conditioners and heat pumps sold after January 1, 2006 to consume less energy (between 13 and 30 percent less, depending on the model) than its current standards (set in 1992) require. It estimates that these new standards will increase the installed cost of new air conditioners and heat pumps by \$274 to \$687, or between 11 and 19 percent. Despite these higher up-front prices, DOE estimates that the average consumer would save enough in energy costs over the life of the unit to achieve a net savings of \$45.

DOE'S one-size-fits-all standard appears to ignore that consumers in different regions of the country face different weather conditions and have different usage patterns for air conditioners and heat pumps. DOE presents evidence that all households in the Pacific Northwest, and a large majority of those in New England would lose money on a more efficient air conditioner while a majority (though not all) Florida residents would benefit financially. Those findings are consistent with the fact that temperature conditions (as measured by cooling degree days) require substantially less air conditioning in the Pacific Northwest and New England than in Florida. DOE's own analysis indicates that the most economical air conditioner to operate in northern climates would be less energy efficient (possesses a lower SEER) than its counterpart in warmer climates.

Nonetheless, the proposed standards would apply uniformly throughout all 50 states, from Maine to Oregon and from Alaska to Hawaii. The air conditioner standard would require consumers in the Pacific Northwest to purchase high cost air conditioners, even though they would never recoup those up-front costs in lower energy bills over the life of the unit. Similarly, the heat pump efficiency mandate would force residents of Idaho and Colorado to choose among high-cost heat pumps that during periods of severe cold are inefficient (compared to resistance heating).

More than likely, fewer residents in regions of the country where air conditioners or heat pumps are marginally used would choose to purchase them. This in itself could have negative—even deadly—consequences. During the summer heat waves of 1995 and 1999 in the Midwest, the majority of heat-related deaths occurred among the elderly living alone in inner city regions, who lacked either air conditioning or the funds to pay for continuous operation of their units.⁵⁹ Making air conditioners more expensive would decrease the proportion of elderly able to afford them. Furthermore, the lengthy payback periods for the more efficient air conditioners and heat pumps preferred by DOE

⁵⁹ Michael A. Palecki and Stanley A. Changnon, "The Nature and Impacts of the July 1999 Heat Wave in the Midwest," *Midwestern Climate Center*, August 23, 1999. According to Palecki and Changnon, 323 heat-related deaths occurred in the Midwest during July 1999. According to the National Oceanic and Atmospheric Administration (NOAA), more than 1,000 heat-related deaths occurred in the Midwest and cities along the East Coast during the 1995 heat wave. Of those deaths, 465 occurred in Chicago and 85 in Milwaukee. See: NOAA, "Many of the 1995 Heat Wave Deaths Were Preventable According to NOAA Report," April 11, 1996.

discriminate against elderly consumers who possess limited life expectancies. Our analysis of DOE's data reveals that low-income consumers will be the hardest hit by the new standards, and the least likely to be able to afford to purchase new units.

Manufacturers currently offer air conditioners and heat pumps that meet DOE's proposed specifications, but consumers prefer models with lower up-front costs. DOE discounts revealed consumer preferences, however, on the presumption that consumers choose to purchase inefficient models, even though they are less costly over their useful life, because they are either misinformed or irrational. The analysis supporting the proposal is premised on the assumption that DOE knows more than consumers do about the tradeoffs that are important to individuals. Yet, it focuses purely on the cost savings to the average consumer, without adequately considering either different usage patterns, or the value consumers place on reliability, performance (especially dehumidification), or esthetics. Its static comparison of up-front costs to operating costs also ignores the fact that once the initial investment is made, lower operating costs will encourage more usage of the unit, possibly leading to increased energy use (less conservation) and, in extreme conditions, system-wide black outs or brown outs.

DOE should not go forward with the proposed standards. Since DOE believes that consumers pass up energy efficient appliances because they are "misinformed" about operating costs, the Department should seriously consider constructing a permanent program that can correct this deficiency. Consumers do not need to be coerced into saving money, when they perceive the cost savings to be worth the other sacrifices they must make in terms of reliability, esthetics and other attributes.

Preserving the market option of less expensive air conditioners and heat pumps that meet the existing (1992) standards will clearly benefit those consumers who would lose under the proposed standards. The consumers who would benefit from the more efficient air conditioners and heat pumps do not need the proposed standards to reap the benefits. Manufacturers already offer such products for sale.

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Appendix I

RSP Checklist

DOE'S AIR CONDITIONER AND HEAT PUMP EFFICIENCY STANDARDS

Element	Agency Approach	RSP Comments
1. Has the agency identified a significant market failure?	DOE implies market failure by suggesting consumers are uninformed about operating costs over the life of air conditioners and heat pumps. Grade: F	Consumers preferences for lower cost, less efficient air conditioners and heat pumps do not necessarily reflect a market failure. Indeed, DOE estimates that, even if informed about energy savings, most consumers would still prefer units with lower up front costs.
2. Has the agency identified an appropriate federal role?	The Energy Policy and Conservation Act authorizes DOE to issue efficiency standards if it finds they are "technologically feasible and economically justified." Grade: F	DOE's data and analysis illustrate clearly that a federal mandate covering all appliances purchased by all households in all regions of the nation is not economically justified. Weather conditions vary significantly across the nation, and the same air conditioner or heat pump will not meet the needs of residents in both warmer climates and cooler climates. For example, DOE's analysis shows that <i>all</i> households in the Pacific Northwest would lose money if they were required to purchase the mandated, more energy-efficient, units.
3. Has the agency examined alternative approaches?	DOE gives cursory attention to 10 policy alternatives. The Department estimates the effects of these alternatives on the basis of assumptions rather than on data or evidence. Grade: D	Even though DOE suggests that many consumers lack adequate information about the operating costs of prospective air conditioning and heat pump units, it does not seriously evaluate the impact of education programs. Instead, the Department makes unsupported assumptions to conclude that information provision would have negligible impact on consumer purchases. DOE should reassess this option based on credible data and evidence.

Element	Agency Approach	RSP Comments
4. Does the agency attempt to maximize net benefits?	DOE examines benefits and costs, but bases the proposed standards on average life-cycle costs and payback periods. Grade: D	DOE estimates that the mandate would impose net present value costs of \$2 billion. It bases its proposal, however, on average life-cycle costs (purchase price minus operating costs) which suggest the average household would save \$45 over the lifetime of the more efficient appliance. Not only does this approach not reflect social costs and benefits, but it obscures the wide range of effects on households with different heating and cooling needs across the country.
5. Does the proposal have a strong scientific or technical basis?	DOE prepared a technical support document to determine that the proposed standards are "technologically feasible and economically justified." Grade: D	While DOE addresses issues such as availability, differences in performance, etc., its decision appears to depend exclusively on operating cost savings.
6. Are distributional effects clearly understood?	DOE bases its proposal on the average consumer. Grade: F	DOE data indicate that while the "average" (mean) consumer would save \$45 over the life of the more efficient air conditioning or heat pump unit, most consumers would lose money. Low-income consumers would be harmed the most, particularly those in climates where heat pumps or air conditioners are not intensively used throughout the year.
7. Are individual choices and property impacts understood?	DOE's approach presumes that the Department can make better choices than consumers about which air conditioners or heat pumps best suit household needs. F: Unsatisfactory	Existing air conditioner efficiency standards have already truncated consumer choices. The proposed standards would further limit consumers' ability to choose a heat pump or air conditioner that best met their climate control needs. DOE's application of EPCA presumes that the policy goal of minimizing energy consumption supersedes the right of consumers to select the major energy-using appliances that best suit their needs.

Regulation of the Week: HHS's Medical Privacy - Standards for Privacy of Individually Identifiable Health Information

Rule Summary:

On November 3, 1999, the Department of Health & Human Services (HHS) proposed rules to protect the confidentiality of individually identifiable health records. Authority for the rule making exists in the 1996 *Health Insurance Portability and Accountability Act*.

Under the rule, HHS established guidelines that health plans (insurance companies, HMOs, etc.), health care providers (doctors, hospitals, etc.) and payment clearinghouses must follow to “protect the privacy of individually identifiable health information maintained or transmitted in connection with certain [health-related] transactions.” Patients must be given access to and copies of their records, as well as the ability to correct those records. Plans and providers must also ensure that business partners institute and follow required privacy protections.

Individually identifiable records may be released if the patient provides “informed consent”. Transmission of individually identifiable records in connection with payment and/or treatment does *not* require the informed consent. The rule also provides three principal exemptions to non-consensual release: (1) Law enforcement access to private medical records is made available under a probable cause/safe harbor provision; (2) non-profit medical research and development may access individually identifiable records; and (3) transmission of individual medical data to federally maintained databases of medical records is also exempted for individual consent requirements.

Facts:

- The HHS rule overrides state-level protections that in some cases are more stringent.
- The facilitation of the nationwide database and the ostensive privacy protections afforded under the rule will help to pave the way for a national medical identification number
- HHS estimates the one-time start up costs at \$613 million; Mercatus estimates that this figure would be \$1,963 million.
- HHS estimates recurring annual costs of compliance at \$674 million; Mercatus estimates these costs at \$987 million.
- None of the recurring cost estimates contains the cost of ensuring business partner compliance.

- No cost estimates include the increased risks of litigation that may occur under the rule.
- HHS loosely attempts to quantify the benefits of the rule by suggesting that if patients perceive a more private medical environment, they may incline more toward early treatment and therefore lower overall medical costs. On this reasoning, the Department estimates that benefits stemming from the rule's increased privacy protections may range from \$200 million per year to possibly as much as \$1.6 billion per year.

For more information, contact Laura Hill at 703-993-4945 or loquinn@gmu.edu. Download the Mercatus Center public interest comments at www.mercatus.org.

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GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

Comments on:

*Standards for Privacy of Individually
Identifiable Health Information*

Submitted to:

Department of Health and Human Services

February 17, 2000

"A wise and frugal government, which shall restrain men from injuring one another, which shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government."

Thomas Jefferson, from his "First Annual Message," 1801

RSP 2000-5

MERCATUS CENTER
REGULATORY STUDIES PROGRAM

Public Interest Comment Series:

Medical Privacy

Agency:	Department of Health & Human Services	
Rulemaking:	<i>Standards for Privacy of Individually Identifiable Health Information</i>	
Stated Purpose:	“This rule proposes a standard to protect the privacy of individually identifiable health information maintained or transmitted in connection with certain administrative and financial transactions.”	
Submitted	February 17, 2000	RSP 2000-5

Summary of RSP Comment:

Our analysis suggests that the proposed rule could cost American health care consumers roughly one billion dollars per year. If the rule conferred tangible benefits in the form of increased privacy, as its preamble suggests, these costs might be worth incurring. However, the rule in its currently proposed form, offers limited tangible benefits for medical privacy protection, and in fact erodes the few protections that do exist.

Given limited benefits and high costs, in its currently proposed form, this rule may ultimately damage the long-term health of Americans. Indeed, it is quite possible that the rule may generate the perverse result of *less* privacy—owing to the pervasive availability of medical information combined with increased access by government agencies to that information. A less healthy citizenry may be one consequence, as individuals reduce prevention and treatment visits because of increased costs and reduced levels of medical privacy.

A more constructive approach may rest in clearly delineating ownership rights in the information and then clearly protecting those rights (including the use and disposal of that information). In this way, the Department could avoid imposing a costly, one-size-fits-all approach to medical privacy protections, while at the same time allowing individuals to seek—and plans and providers to offer—privacy protections that more closely parallel the desires and budgets of those concerned.

**Public Interest Comment on
The Department of Health and Human Services'
Standards for Privacy of Individually Identifiable
Health Information¹**

Whatsoever things I see or hear concerning the life of men, in my attendance on the sick or even apart therefrom, which ought not be noised abroad, I will keep silence thereon, counting such things to be as sacred secrets.

— Oath of Hippocrates
4th Century BC

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of regulations and their impacts on society. As part of its mission, RSP produces careful and independent analyses of agency rulemaking proposals from the perspective of the public interest. Thus, the program's comments on the Department of Health and Human Service's (HHS) proposed *Standards for Privacy of Individually Identifiable Health Information* do not represent the views of any particular affected party or special interest group, but are designed to protect the interests of American citizens. This comment extends and supersedes our comments of December 31, 1999.

I. Introduction

HHS has proposed rules to protect individually identifiable health information that is electronically stored or communicated.² Authority for the rule-making stems from the 1996 *Health Insurance Portability and Accountability Act*.³ As HHS states in its proposal,

This rule proposes a standard to protect the privacy of individually identifiable health information maintained or transmitted in connection with certain administrative and financial transactions. The rules...would apply to health plans, health care clearinghouses, and certain health care providers, propose standards with respect to the rights individuals who are the subject of this

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² "Standards for Privacy of Individually Identifiable Health Information; Proposed Rule," 45 CFR Parts 160 Through 164. As found in the *Federal Register*, Vol. 64, No. 212, Wednesday, November 3, 1999, pp. 59918–60065. Hereinafter referred to as the "Proposed Rule." The proposed rule covers only electronic information. Paper records that have never been in electronic form would not be subject to the proposed rule's requirements.

³ Public Law 104-191, *Health Insurance Portability and Accountability Act*, enacted August 21, 1996.

information should have, procedures for the exercise of those rights, and the authorized and required uses and disclosures of this information.⁴

HHS identifies a growing threat to patient privacy stemming from the increased usage of electronic systems by health care providers and plan administrators to collect, process, and distribute patient information. In proposing the rule, the Department attempts to strike a balance between the need for this information to provide efficient delivery of health care and related services, and the rights of patients to have this information remain private. HHS worries however, that erosion of medical records privacy may damage public health in the long run as patients, who fear having that confidentiality violated, take steps to avoid that possibility by delaying treatment or refusing it altogether.

The rule seeks to protect individuals from encroachment by other individuals and firms on their private health records to an extent. For instance, under the rule, health care providers cannot arbitrarily disclose patient information to unauthorized parties without the patient's written consent.⁵ Pharmaceutical manufacturers, to cite one example, may not cull hospital patient records without the individuals' consent to conduct biomedical research.⁶ Beyond the three principal exceptions,⁷ health care plans,⁸ may not disclose individually identifiable health information to others.

The rule also attempts to make patient consent voluntary, informed, and revocable. Under the rule, a patient may not be denied treatment or payment on his/her behalf for failure to sign a consent form. In addition, the form itself must clearly spell out the patient's rights to privacy and the provider's obligations to respect those rights. Finally, under the rule the patient may revoke his/her consent to release protected health information at any time.

Suppliers of health care, who are covered under the rule, must take positive steps to ensure that patient records remain confidential in most circumstances. Importantly, the rule also allows the patient to take some degree of control over his/her records by allowing the patient to inspect, copy, and in some cases amend those records if he/she finds an error upon inspection. Providers and plans also may reserve the option of refusing a patient's amendment request under certain circumstances.

⁴ Proposed Rule, p. 59918.

⁵ The prohibition however, comes with myriad exceptions, caveats, and explanations, discussed below under "Strengths and Weaknesses of the Proposed Rule."

⁶ Interestingly however, university and non-profit research institutions may continue to do so under the rule. The purpose for such discrimination is not clearly expressed in the proposed rule. No compelling evidence is offered to suggest that university researchers are more disposed to guard confidential information than for-profit research firms would be. HHS needs to clarify the reasons for what seems to be an arbitrary prejudice.

⁷ "Under this rule, covered entities with limited exceptions would be permitted to use and disclose protected health information without individual authorization for treatment and payment purposes, and for related purposes that we have defined as health care operations." (Proposed Rule, p. 59925.)

⁸ "Health plan means an individual or group plan that provides, or pays for the cost of, medical care." (Proposed Rule, p. 60050) This definition includes employee welfare benefit programs, health insurance companies, health maintenance organizations, and government administered plans.

II. Background

Samuel Warren and Louis Brandeis suggested more than a century ago that a right to privacy was the right to be let alone.⁹ Importantly, then as now, the preservation of a right to be let alone hinged crucially on the state of technology. A century ago, advances in photography and printing gave journalists the means to invade what had previously been private domain. Today, advances in electronics and communications are lowering the cost of invading another's privacy through easy access to on-line medical, financial, and other personal information.

Historically, ownership rights have tended to go unspecified until the costs of a continued lack of specification rose sufficiently. Advances in the 19th century photography and journalism have already been mentioned. In the 20th century, air rights over land parcels went largely unspecified until the advent of modern aviation. In addition, Harold Demsetz refers to the aboriginal people of the Labrador Peninsula who held rights to indigenous game in common.¹⁰ Game was plentiful enough that further specification of property rights would have meant costs beyond any potential benefits. The appearance of European settlers, however, changed the conditions of scarcity on Labrador such that property rights in land and game become important considerations. Similarly now, private information is at the Labradorian crossroads.

In recent information privacy cases, the US Supreme Court has ruled that the concept of "practical obscurity" effectively protects individual privacy.¹¹ That is, the high costs of assembling disparate pieces of information from scattered sources have allowed the individual subject of the information to remain practically obscure. However, the cost advantages of electronically storing and processing medical records have resulted in increasing volumes of medical records being stored (and accessible) on-line. Thus, the protections once afforded by practical obscurity are fading apace with the adoption of modern computers and communications in the medical field. Changing technology in other words, has once again induced the need for an elaboration of property rights, this time with respect to information.

⁹ Warren, Samuel D., and Louis D. Brandeis (1890), "The Right to Privacy," *Harvard Law Review* 5 (4), pp. 193-220. In their article, the authors trace the right to privacy—the right to be let alone—to Thomas M. Cooley's, *A Treatise on the Law of Torts*, (Chicago: Callaghan, 1880), p. 29. Thus, formal recognition of the right to privacy is at least 120 years old.

¹⁰ Demsetz, Harold (1967), "Toward a Theory of Property Rights," *American Economic Review* 57 (2), pp. 347-359.

¹¹ An important case is *United States Department of Justice, et. al, v. Reporters Committee for Freedom of the Press*, 489 US 749. The Court did not deal directly with the privacy of medical records, but rather limited journalists' *Freedom of Information Act* access to government "rap" sheets collected on suspects and criminals from a variety of obscure sources. "When the subject of such a rap sheet is a private citizen and when the information is in the Government's control as a compilation, rather than as a record of 'what the government is up to,' the privacy interest...is...at its apex while the...public interest in disclosure is at its nadir." (p. 780).

Putting the matter in economic terms, the cost of potentially invading another person's medical privacy (or financial, or personal privacy for that matter) has fallen as advances in technology have risen. Other things being equal therefore, we would expect a rise in the number of privacy intrusions. Moreover, as privacy intrusions increase and previously private information becomes public, the sphere of what remains private necessarily diminishes. The obverse of falling costs to privacy invasion therefore is that the cost of maintaining any given level of privacy is increasing—i.e., the marginal cost curve of privacy is shifting to the left.

As the value of privacy rises, owing to its increased scarcity, it becomes increasingly attractive for individuals to specify the conditions under which such privacy will be protected. For example, one might expect to see the emergence of ratings services that evaluate and publish the performances of plans and providers regarding how well they protect individual patient privacy. One might also expect to see the emergence of health plan offerings tailored to different privacy preferences.¹² We might also expect to see the emergence of legislation and regulations as individuals seek to describe and protect their rights in law. The important point of the foregoing is that as a right (in this case medical privacy) becomes more valuable, individuals will likely take steps among themselves (contractually), and collectively (through the political process) to specify and defend those rights.

We suggest that a clearer delineation of property ownership rights, including the control and disposition of information, would preclude the need for a complex rule with its attendant bureaucracy and costs. Given the variety of preferences for privacy—not to mention the different prices individuals face to maintain those preferences—it is difficult to imagine a set of blanket protections that could be fashioned that would still protect each individual's privacy (yet remain commensurate with their preferences and budgets). In our increasingly custom-tailored world—itself in no small part attributable to advances in technology—it is ironic that HHS has attempted to graft a one-size-fits-all mandate onto the medical privacy needs and rights of Americans. We therefore urge the Department to give more careful and thoughtful consideration to the implications of privacy and of property rights so that HHS and the federal government can strike the appropriate balance between access and privacy.

The protections HHS is attempting to set up take preliminary steps toward achieving the important end of protecting patient privacy (including records kept by the federal government). The rule for example puts those who collect and distribute patient information on notice that cavalier treatment of this confidential information is not acceptable. In spite of valiant attempts however, the proposed rule suffers from a number of crucial weaknesses that may end up bringing about precisely the consequences HHS is ostensibly trying to prevent.

¹² For example, individuals might be induced to make their private health information public in return for health insurance discounts, as the insurer resells the information to say, a pharmaceutical research firm.

III. Strengths and Weaknesses of the Proposed Rule

In this section, we focus on the strengths and weaknesses of the proposed rule (i.e., those most likely to generate unintended or adverse consequences). We begin with the fact that the rule eliminates current routine collection of patient authorizations at the point of service and instead places a complex rule in the place of individualized control. Second, the rule affords only limited protections against law enforcement officials' access to health records. Third, the rule paves the way for imposition of a national identity card for every citizen and an associated national database of individually identifiable health information. Fourth, the rule overrides state-level protections with a one-size-fits-all federal rule. Lastly, the rule does not address the ambiguity regarding property rights in the data once they are collected.

A. Removes Authorization for Payment, Treatment, and Operations

The proposed rule seeks to prohibit collection of medical release forms that are now routinely gathered at the point of service. Hospitals for example, may no longer obtain signed authorizations for treatment and the related release of information, since the proposed rule provides blanket exemptions for release of information related to payment, treatment, and other health care operations. The Department claims that the signatures obtained on current forms constitute neither informed nor voluntary consent and should therefore be eliminated.

In claiming that the existing authorizations are coercive, HHS suggests that patients are compelled to sign traditional releases or risk having treatment withheld. However, HHS offers no substantiation of this claim in the proposed rule. Treatment is not withheld even when a patient refuses to sign. To illustrate this fact, consider that unconscious individuals (or those who for some other reason cannot tender legal consent) routinely receive treatment in hospital emergency rooms.

Another critical aspect of the current regime, even given its claimed weaknesses, is the implicit protection afforded to physicians insofar as their Hippocratic Oath is concerned. On their oath, doctors have sworn to protect the confidentiality of a patient's medical records as well as the conversations patients have with them. This is not an arbitrarily chosen obligation. Without the patient's trust that disclosures will be treated confidentially, patients may not be entirely honest with their physicians, and therefore, incorrect or incomplete courses of treatment may be prescribed as a result. By signing the waiver, the patient releases the physician (at least implicitly) from his/her oath, and permits the doctor to provide information relevant for treatment and other purposes. Without the release, one can imagine that a rational course for a physician to follow might be to continue requiring patients' signatures on pro forma releases, and absent such signature, to refuse to release any information to any other person for any reason.¹³

¹³ The proposed rule anticipates this eventuality by making even voluntarily signed releases for purposes of treatment, payment, or other health care operations illegal. "We also propose to prohibit covered entities from seeking individual authorization for uses and disclosures for treatment, payment, and health care operations unless required by State or other applicable law." Proposed Rule, p. 59941.

It is unclear what the advantages are of *not* obtaining routine releases in connection with payment, treatment, and health care operations, especially since such releases are already obtained today, and the procedures and policies are already well understood. HHS has not argued that paperwork burdens will be reduced significantly by the proposed change. Nor has it argued that current policy impedes the flow of medical services. HHS may be right that “such authorizations could not provide meaningful privacy protections or individual control and could in fact cultivate in individuals erroneous understandings of their rights and protections.” However, as noted above, the proposed rule offers little to address this problem either and, in fact, it makes matters worse in some respects.

The proposed rule seeks as a general principle to protect and enhance doctor-patient confidentiality, but at the same time, it takes contradictory positions in this regard. As the proposed rules states, “Health information is considered relatively ‘safe’ today, not because it is secure, but because it is difficult to access. These standards improve access and establish strict privacy protections.”¹⁴ This statement seems to recognize that providing improved access to patient health care records without other safeguards would mean degraded privacy. However, whether the protections proposed by HHS are sufficient to protect privacy from this greater access is unclear, given the blanket provisions for information release under the rule.

B. Exceptions for Law Enforcement

The proposed blanket exception allowing law enforcement access to medical records may pose particular problems for protecting patient privacy. Under an urgency standard, an officer of the law need merely *represent* that disclosure of protected health information is necessary if “an individual ... is or is suspected to be a victim of a crime, *abuse, or other harm*, if the law enforcement official represents that: (i) [protected health information] is needed to determine whether a violation of the law by a person other than the victim has occurred; and (ii) immediate law enforcement activity that depends upon obtaining such information may be necessary.”¹⁵ [Emphasis supplied.]

The idea of good faith disclosures by health care providers raises another major concern regarding law enforcement.

Because the regulation applies to covered entities, and not to the law enforcement officials seeking the protected health information, the covered entity would not be in a position to determine with any certainty whether the underlying requirements for the process have been met. ...In light of this difficulty facing covered entities, the proposed rule would include a good faith provision.¹⁶

¹⁴ *Ibid.*, p. 59928. This is the Court’s “practical obscurity” protection surfacing again.

¹⁵ *Ibid.*, p. 60057.

¹⁶ *Ibid.*, p. 59963.

In other words, the good faith exclusion is an attempt to relieve health care providers from damages arising from the release of confidential health care information under misrepresented circumstances. That is, the good faith exclusion attempts to remedy one defect (the potential for unlawful access to medical records) with yet another qualification to the general rule protecting privacy.

Doubtless, there are circumstances where the urgent needs of law enforcement may take precedence over rights to privacy. The questions at issue however, are (a) whether such emergency circumstances are clearly proscribed so that the potential for official abuse and misjudgment are minimized, and (b) whether, in our zeal to capture lawbreakers we trample the rights of the law-abiding. The Constitutional protections afforded by the Fourth Amendment and elsewhere exist mainly to protect citizens from the state and its agents. Yet, it is the government that is given substantial discretion to peruse private medical records. To the extent enforcement officials require access to medical records, HHS has failed to show why due process, including an impartial review by a competent judicial authority to check for probable cause, should not be followed.

C. Exceptions for National Health Care Data Collection (§ 164.510 [g])

HHS proposes to permit disclosure of protected health information without an individual's authorization "when such disclosures are authorized by State or other law in support of policy, planning, regulatory, or management function."¹⁷ These last four broadly drawn categories could encompass nearly any governmental function one might care to name.

No doubt, *generalized* data (or personally unidentifiable information) concerning rates of admission, treatment, discharges, and so on can be valuable to governmental officials in policy analysis. However, HHS does not offer justification for allowing detailed patient-level data collection by state and federal authorities, other than the observation:

The data are an important resource that can be used for multiple policy evaluations. The collection of health care information by governmental health data systems often occurs without specification of the particular analyses that could be conducted with the information.¹⁸

While the data may be important for policy evaluations, the research importance must be more carefully weighed against the interests of individuals to keep their health care records private. In addition, symmetry would imply that records used in non-profit research be afforded the same level of protection as records used in for-profit research.

¹⁷ *Ibid.*, p. 59964.

¹⁸ *Ibid.*, p. 59964

D. Paves the Way for a National Medical Records System and the Unique Health Identifier

To facilitate implementation of a national medical records database and its associated unique health identifier, strong privacy protections must first be in place. The proposed rule, by attempting to preserve privacy, helps to pave the way for the imposition of a national identity system and database. Unfortunately, it is our belief that individual medical records may not be protected, and in any event will be easily accessible by government officials.

Inquisitive or meddlesome government officials may be inclined to search medical records of celebrities, neighbors, or even enemies. While the proposed rule carries penalties for such behavior, it is well to recall that there are penalties against IRS employees who inappropriately access or use private tax data. However, violations persist, perhaps indicating that for sanctions to be effective, they must be set higher than they are in the present rule.

A nationwide database of medical information would doubtless have many advantages. Infectious disease control, drug research and development, and cost control are but a few of the uses to which such an information set could be put. However, our concern is that without adequate privacy safeguards, the value of that database will diminish as the accuracy of its data diminishes.

E. Overrides State-level Protections

The proposed rule negates state-level protections of medical privacy. Every state currently affords some level of affirmative protection of patients' rights to privacy and protection for their medical records.¹⁹ The protections vary from state to state and HHS argues that state-to-state inconsistencies make medical privacy uneven across the US. While this is true, the Department does not provide adequate analysis of the benefits from uniformity.

Among the benefits of a uniform federal approach is the fact that federal rules will provide a consistent, *de minimus* standard no matter where one obtains medical care in the US. Certainly, some states with stronger privacy protections may see diminishment in their standards, but importantly, states with weak protections will be advanced. In addition, plans and providers who operate across multiple jurisdictions should see lower costs from application of a single rule.

A federal standard does not necessarily offer a uniformly better approach to protecting medical privacy. In fact, under the present system, if privacy were an overriding concern for a given patient, the patient today at least has the *opportunity* to seek out states and localities where privacy protections more closely comport with his/her preferences. Under a one-size-fits-all approach however, HHS forecloses even this limited opportunity, leaving no other option except to conform to the federal government's idea of what is best in the area of privacy.

¹⁹ See Tomes, Jonathan, *Healthcare Privacy and Confidentiality: The Complete Legal Guide*, (Chicago: Probus Publishing, 1994), pp. 1-6 and *passim*.

Uniformity also forecloses the opportunity to innovate at the margins with respect to privacy. It is important to recognize that there are also patients to whom medical privacy is unimportant, but who will be bearing the cost of privacy protections that they do not value. In addition, for those consumers to whom medical privacy is of paramount concern, it is entirely possible that the minimum standards proposed by HHS may, in effect, become maximum standards.

F. Does Not Adequately Address Property Rights in Information

One of the chief difficulties associated with protecting health care privacy stems from ambiguity over who owns the property rights to individual health care information, once it is collected.²⁰ If the property rights belong to the patient, any misuse or misappropriation of the information would constitute an actionable offense to the aggrieved individual. Conversely, if the plans and providers who collect it owned the information, then a different set of outcomes and recourse emerge. Unfortunately, HHS does not address this central issue.

Rather than developing an entire complex of new rules and official enforcers to protect the privacy of patients' medical records, HHS would do better to examine whether property rights over those records have been adequately defined. Based on such an analysis, it could then design policy that aligns with those property rights such that medical privacy is optimally protected. In the following section, we suggest one means of coming to grips with the issue of who owns medical information and consider the likely consequences of different ownership patterns.

IV. Ownership of Medical Information

Who *owns* individually identifiable medical information? HHS never asks this question in the 150 pages of its proposed rule. The answer to the question however is crucial because depending in whom such rights are vested determines both the level of privacy that can reasonably be expected, as well as the care that individuals can be expected to demand given a certain level of privacy protection. In this section, we sketch one approach to evaluating different property rights (i.e., ownership) patterns in medical information.

In our estimation, there are essentially three distinct patterns of ownership of individually identifiable medical information: (a) individual patient ownership (i.e., the subjects or generators of the information); (b) plan or provider ownership (i.e., the collectors of the information); and (c) government ownership. Table 1 below suggests one possible framework for analyzing these three main ownership assignments in medical information. The dimensions we consider include

²⁰ As stated above, in many states, the plans and providers who collect medical information are the actual owners of this information. The proposed rule could have benefited from making ownership by someone—either plans and providers or the individual patients—explicit.

- Transactions costs (i.e., the costs of executing and enforcing contracts associated with a particular rights assignment);
- Rule specificity (i.e., whether detailed rules are required to protect the information owner);
- The number of checks and balances available to protect against promiscuous disclosures;
- Whether or not an assignment automatically aligns incentives to protect with preferences for protection; and
- The likely consequences of a particular assignment on the health of the population.

TABLE 1
SUMMARY OF ALTERNATIVE OWNERSHIP PATTERNS IN MEDICAL INFORMATION

Owner	Transactions Costs	Rule Specificity	Number of Checks?	Built-in Incentives to Protect?	Health Care Consequence
Individual	Medium	General	(3) Individual, Market, Government	Yes	Status Quo or Slight Degradation
Plan/Provider	Low	General	(3) Individual, Market, Government	Yes	Status Quo
Government	High	Detailed	(1) Government	No	Degradation

A. Individual Ownership

One could imagine the simplest case of individual ownership of medical information as the case where an individual takes physical possession of those records previously in the possession of her doctor and/or insurance plan.²¹ In the simplest case, every time an individual sought medical care, the individual would need to bring his/her records when he/she encountered the health care system. The potential for loss and incomplete information makes this arrangement—given the present state of technology—a more costly alternative than the current state of affairs.²² Thus, transactions costs may tend to be higher than if

²¹ An alternative arrangement of course consists of establishing a bailment or fiduciary relationship wherein the individual owns the information but the health care plans and providers continue to collect and maintain acting as an agent on behalf of the individual.

²² The current state of affairs with respect to ownership of individually identifiable health information is closest to the plan/provider arrangement; wherein the collector of the information is the de facto owner of that information even though that information is of a deeply personal nature about someone else.

ownership were assigned to plan and providers. (This may not be the case however if a fiduciary arrangement were established.)

An advantage of the individual ownership arrangement is that detailed rules and regulations governing privacy protection are not required since existing rules of property, contract, and tort can be called into service by the individual as well as by health care plans and providers to work out mutually satisfactory agreements. Also, since individuals (including regulators) are not omniscient, a non-regulatory approach offers the advantage of flexibility. That is, a rule typically must be designed to foresee as many permutations and interpretations as possible if it is to achieve the outcomes sought by the legislators and their regulatory agents. Such a process necessarily begets complex rule, but a complex rule begs the question of who is in a better position to determine one's privacy requirements: a regulator or the individual himself?

An individual can implicitly rely on himself to protect his own property to the degree he wishes. Importantly, the individual can also rely on market forces of competition for profit (and the prospect of potential losses) to ensure that he receives the degree of privacy protection commensurate with his preferences and willingness to pay. In addition, the government, in its judicial capacity, operates as a backstop in this arrangement to adjudicate among individuals, plans, and providers when disputes over information ownership emerge. Thus, three different checks operate independently to ensure that an individual receives the level of privacy he or she wishes. With the exception of adjudication, the incentives to protect privacy operate more or less automatically.

Since individual ownership entails transactions costs beyond the status quo however, a likely consequence may be a slight degradation in health care to the individual as resources are diverted to ensuring privacy protection rather than to the provision of health care. This degradation should be slight, and in any case will likely be offset by those reentering the health care system who value privacy highly once it is seen that the system affords clear and defensible ownership in individually identifiable health information.

B. Plan/Provider Information Ownership

As we stated above, plan/provider ownership of individually identifiable health information is the current *de facto* arrangement—although it is not clearly recognized as such by HHS. Inasmuch as plans and providers go the expense of collecting and maintaining patient level information, plans and providers are customarily treated as the owners of the information—subject to limitations they may agree to with the individual subjects of the information. Explicit legislative recognition of the existing pattern, therefore, would entail little in the way of incremental transactions costs compared to the current mode of operation.

As in the case of individual ownership, plan/provider ownership obviates detailed rules and regulations since the preexisting rules of property, contract, and tort can be employed. In addition, the number of checks and balances would be the same, and would be operating in both the individual's as well as the plan's favor. That is, not only could individuals seek the plans offering the privacy protections commensurate with their preferences for privacy, but

also plans and providers could tailor their offerings to appeal to those patients whose privacy requirements comport with the plan's.²³ Privacy ratings agencies will emerge (as they already have on the Internet) to evaluate the privacy protection afforded by different plans and providers.

The consequences of plan/provider ownership in terms of societal health would be similar to the current state of affairs, but with the likely addition of those currently avoiding health care because of privacy concerns. In other words, once it becomes known that privacy protection is an important business consideration (i.e., that violating privacy has cost consequences for businesses) one can expect plans and providers to tailor their privacy offering more closely with those desired by their customers.

C. Government Health Information Ownership

The underlying theme and tone of the proposed rule seems to suggest that HHS is attempting to establish *de facto* government ownership of private medical information, with little regard for the potential consequences. However, this is unlikely to result in a superior outcome to the preceding arrangements, nor will it comport with the ostensibly desired outcome stated in the supporting documentation for the proposed rule of improving privacy and therefore access to medical services.

The proposed HHS rule entails an incremental establishment and compliance cost that plans and providers must incur in order to obey the law. These costs are discussed in the Costs and Benefits section below; however, for purposes here, we estimate additional incremental costs approximately nearly one billion dollars per year. Our analysis indicates that the transactions costs of engaging the US health care system will be higher under a centralized rule than without one.

In addition, since the rule cannot possibly anticipate every avenue of "innovation" within the letter of the law, we can reasonably expect individuals, plans, and providers to find ways at the margin to circumvent the rule if it impedes delivery of health care. For example, physicians may become less inclined to note detailed patient conditions if they view such notations as possible avenues for privacy invasion. Patients might actually take additional steps (even more than they do presently) to avoid the traditional health care system if they realize their health care information might be collected in a centralized government database. In other words, the rule may generate precisely the opposite effect of that which is ostensibly intended.

It is important to note that if government were to assume ownership and control of this information (as HIPAA requires through implementation of a nationwide medical records database), individuals who are the subject of this information will have little recourse in the event of a violation. Sovereign immunity will preclude attempts to seek civil redress for aggrieved individuals. Indeed, the only check on promiscuous disclosure of private health

²³ One could imagine a scenario for instance, where a health insurance plan might offer a discount if the individual participant were willing to release his/her information for purposes of pharmaceutical research, say.

care information will be the government itself. That is, the safety of the information will depend vitally on the goodwill and conscientiousness of government officials who design the database as well as those who administer it. Market and individual checks on promiscuous disclosure will be conspicuous by their absence.

If health care data were eventually centralized in a government owned and controlled database, the chances for improper disclosure increase radically (as HHS implicitly seems to understand). Even if the chances for improper disclosure are identical to those where records remain privately owned and maintained, the potential for damage is necessarily greater when government owns and controls the data inasmuch as an entire nation's worth of data can potentially be disclosed at once rather than the limited (albeit still damaging) disclosure that is possible under present circumstances. The important fact to bear in mind with respect to privacy invasions is that once data are released into the public domain, the damage is done. That is, once the bell rings, it cannot be unring, and the crucial point is that the bell has the potential to ring much louder under government control than under private control.

This digression on ownership and property rights suggests that a complex regulation may not be the best or even only solution to a knotty problem like privacy. The first premise when considering potentially intrusive and complex regulations might well be an explicit recognition that individual adults are at least as competent as regulators to determine their own needs for privacy and are in fact quite capable of effectively lodging those demands with providers.

V. Costs & Benefits of the Proposed Rule

In spite of the detailed work on costs and benefits contained in the proposed rule, the estimates and estimating procedures fall short of the mark of providing an accurate assessment of the rule's potential costs and benefits. Perhaps an indication of the difficulties and contradictory findings HHS encountered was apparent to the rule's drafters early on. On page 59922 of the proposed rule for example, HHS states in part, "Thus, even if the rules proposed below were to impose net costs, which we believe they do not do, they would still be 'consistent with' the objective of reducing administrative costs for the health care system as a whole." It is unclear what HHS means by this contradictory statement.

Our own analysis of costs and benefits suggests that, on balance, the rule in its currently proposed form may in fact increase health care costs. Moreover, in light of the limited protections afforded by the rule, and of the unsubstantiated benefits the rule's authors suggest will accrue from its imposition, the proposed protections, while desirable in principle, do not in fact confer net benefits. The proposed rule may lead to diversion of resources away from actual health care services, and in the final analysis, the rule may lead to less privacy not more and therefore to poorer overall health for Americans.

In the following sections, we summarize our cost estimate findings. More extensive documentation of our estimates appears in Appendix II. Following the lead of HHS, we have divided our cost estimates into those which may be classified as (a) one time or start up costs

and (b) ongoing costs. Start up costs are of course those costs incurred in order for health care plans and providers to initiate compliance with the proposed regulations initially. Ongoing costs are those costs that recur with some frequency by virtue of the imposition of the proposed regulation.

It is important to note that HHS does not furnish cost estimates for a number of requirements that will be imposed by the new rule.

The areas for which explicit cost estimates have not been made are: The principle of minimum necessary disclosure; the requirement that entities monitor business partners with whom they share PHI [private health information]; creation of de-identified information; internal complaint processes; sanctions; compliance and enforcement; the designation of a privacy official and creation of a privacy board; and additional requirements on research/optional disclosures that will be imposed by the regulations.²⁴

One potentially important cost that HHS does not consider in its analysis is the regulation's requirement that covered entities monitor compliance among their business partners.²⁵ We include estimates of the cost of this aspect of the proposed rule in the one-time cost section below.

In developing our estimates below, we rely on the HHS assumption that there are 18,225 health care plans in the US, and 871,294 US health care providers who would fall under the proposed rule.²⁶ "Health care plans" include insurance companies, HMOs, or group plans that provide or pay the cost of medical care.²⁷ A "health care provider" on the other hand, is one "who furnishes, bills, or is paid for health care services or supplies in the normal course of business."²⁸

A. One-time or Start Up Costs

We consider the following one time or start up costs of bringing a plan or provider into compliance. These parallel the cost categories for which HHS provides estimates with the exception of item 6, business partner contract review.²⁹

- (1) Analysis of the significance of the federal regulations on covered entity operations;

²⁴ Proposed Rule, p. 60015.

²⁵ §164.506 (e) (1) (ii) of the proposed rule states that "a covered entity must take reasonable steps to ensure that each business partner complies with the requirements of this subpart with respect to any task or other activity it performs on behalf of the entity, to the extent that the covered entity would be required to comply with such requirements." *Ibid.*, p. 60054.

²⁶ The number of plans and providers appears in Table 1 of the Proposed Rule, p. 60007.

²⁷ *Ibid.*, p. 60050. §160.103, "Definitions."

²⁸ *loc. cit.*

²⁹ *Ibid.*, p. 60015 and *passim*.

- (2) Development and documentation of policies and procedures;
- (3) Dissemination of such policies and procedures both inside and outside the organization;
- (4) Changing existing records management systems or developing new systems;
- (5) Training personnel on new policies and systems changes; and
- (6) Business partner contract review.

Table 1 below summarizes both the HHS start up cost estimates as well as those developed by the Mercatus Center's Regulatory Studies Program (RSP). (To reiterate, our previous submission contains the details of our estimating procedure.)

TABLE 1
SUMMARY OF ONE-TIME COSTS OF THE PROPOSED REGULATIONS ON MEDICAL PRIVACY
(*\$ Millions*)

Cost Category	HHS Estimates	RSP Estimates
Initial Legal Analysis of Applicability	\$ 395.0	\$ 686.0
Policy Development & Documentation		609.9
Policy Dissemination	105.9	67.9
Update Electronic Records Management Systems	90.0	393.3
Initial Training in Privacy Policies	22.0	116.9
Business Partner Contracting	N/E	89.0
TOTAL One-Time Cost Estimates	\$ 612.9	\$ 1,963.0

HHS estimates these costs at \$613 million. Our estimates by comparison place this burden at **\$1,963 million**. The major differences in the estimated results owe to a more careful consideration of the actual opportunity costs (both in terms of time and money) involved in start up compliance, as well as from our explicit consideration of business partner oversight. HHS estimates a weighted average start up cost per provider cost of \$375 and an average per plan cost of \$3,050. Our estimates by contrast place this average burden at \$1,960 and \$16,100 respectively.

B. Ongoing Costs of Compliance

A partial list of the ongoing costs of implementing the proposed rule include:

- (1) Patient requests for access and copying of their own records;
- (2) Patient Requests to Amend or Correct Records;

- (3) The need for covered entities to obtain patient authorization for uses of protected information that had not previously required an authorization;
- (4) Dissemination and implementation both internally and externally of changes in privacy policies and system changes;
- (5) Periodic re-training of personnel on policies; and
- (6) Periodic review and oversight of business partners.

Table 2 below summarizes both the HHS ongoing cost estimates as well as those estimates developed by the Mercatus Center's Regulatory Studies Program (RSP).

TABLE 2
SUMMARY OF ONGOING COSTS OF THE PROPOSED REGULATIONS ON MEDICAL PRIVACY
(*\$ Millions*)

Cost Category	HHS Estimates	RSP Estimates
Records Inspections and Copying	\$ 81.0	\$ 49.4
Amendment and Correction Requests	407.0	405.0
Patient Authorizations	54.0	477.0
Periodic Policy Disseminations	83.4	17.0
Periodic Re-Training of Personnel	22.0	39.0
Periodic Business Partner Compliance Review	N/E	0.0
TOTAL Ongoing Cost Estimates	\$ 674.4	\$ 987.4

The major areas of estimate disagreement hinge on "Patient Authorizations," and "Business Partner Oversight." In the former category, we accepted the HHS assertion that roughly one in six people are currently taking some steps (including treatment avoidance) to preserve their privacy. Therefore, this ratio seems a logical starting place to estimate the number of persons who might actively try to prevent disclosure of their health information through authorizations.

C. Some Comments on Business Partner Compliance Oversight (§164.506 [e])

HHS did not furnish estimates for the ongoing costs of monitoring business partner compliance with respect to protected health information. However, the proposed rule requires that, "a covered entity would be responsible for assuring the each such implementation standard [for ensuring privacy of protected health information] is met by the business partner. ... We are proposing that covered entities be accountable for the uses and disclosures of protected health information by their business partners. A covered entity would be in violation of this rule if [it] knew or reasonably should have known of a material

breach of the contract by a business partner and it failed to take reasonable steps to cure the breach or terminate the contract.”³⁰

This aspect of the proposed rule shifts the burden of law enforcement from HHS to the plans and providers. To evaluate a range of costs of this burden shift, assume that in order to prevent potential liability, at a minimum, covered entities request letters from business partners certifying the partners’ compliance with the contract terms regarding privacy. Such an approach could be relatively inexpensive for the covered entity. However, since a letter may prove insufficient to insulate a plan or provider from proving “it did not know or could not have known” that a breach had taken place among its partners, this approach also poses potential liability risks, with associated costs (which we have not attempted to estimate).

D. HHS Benefit Estimates Overstated

HHS estimates on the benefits of the proposed regulation rely heavily on anecdote and unsubstantiated inferences. At bottom, the estimates rely on postulated, but largely unsubstantiated causal linkages between increased privacy and earlier diagnosis and medical treatment.

To be sure, early disease detection and treatment offer significant health benefits, and this is clearest in the cases of cancer and HIV that HHS uses to illustrate its point. However, it is an improper inference to suggest that loss of doctor patient confidentiality is the critical component leading to delayed treatment without any supporting evidence to support such a claim.³¹ In the cases of breast and ovarian cancers for example that HHS cites, “early detection of these cancers could have a significant impact on reducing loss due to disability and death.”³² This is no doubt true, but one cannot logically make the jump to the inference that impaired privacy is the principal cause of delayed testing and treatment.

Loss of privacy clearly plays some part in delayed treatment, but the crucial question is how much? With respect to mental health, HHS makes a more controlled attempt to estimate the benefits owing to the relationship between increased privacy and increased early treatment. “Given the existing data on the annual economic costs of mental illness and the rate of treatment effectiveness for these disorders, coupled with assumptions regarding the percentage of individuals who might seek mental health treatment under conditions of greater

³⁰ *Ibid.*, p. 59949.

³¹ In the proposed rule (p. 60020), HHS states, “Thus, despite the potential benefits that early identification of cancer may yield, many researchers find that patient concerns regarding the confidentiality of cancer screening may prevent them from requesting the test, and result in disability or loss of life.” This vague statement immediately begs the questions: how “many researchers find that,” and to what degree is early detection attributable to loss of confidence versus other, confounding factors? HHS does not indicate answers to these important qualifying questions.

³² *Ibid.*, p. 60020.

privacy protections, the potential additional economic benefit in this one treatment area could range from approximately \$208 million to \$1.67 billion annually.”³³

An important consideration when viewing the benefits of the proposed regulation is that the numerous exceptions we examined above in connection with the rule’s weaknesses will operate to negate any potential benefits by actually undermining citizen confidence that the proposed rule will increase privacy. If patients know for example that their medical records may enter a national database that is accessible by government agents and others for listed purposes, the tendency may be to avoid contact with the health care system if privacy is a significant concern.

E. Net Costs and Benefits

HHS has provided only one area where increased privacy may result in significant benefit, mental health. Therefore, in order to balance costs and benefits, let us consider the ongoing costs that we calculated earlier (plus the initial up-front costs of compliance) as the basis against which any supposed benefits must exceed in order to justify imposition of the rule.

Using the OMB standard seven percent discount rate, and assuming that ongoing costs will recur year in and year out, the discounted present value of the ongoing costs is approximately \$9.25 billion based on HHS estimates, and \$14.1 billion based on RSP estimates. Add to these figures the one-time start up costs above, and a present value of all costs obtains totaling \$9.86 billion using HHS estimates, and \$16.1 billion using the RSP estimates.

To put these costs into some perspective, in 1996, a kidney transplant was one of the five most expensive hospital procedures, at \$66,000 (excluding follow up procedures).³⁴ Let us assume that follow up care and rehabilitation drive the average cost of a kidney transplant to \$200,000. If the entire burden of privacy costs were to fall on these procedures, it would imply that more than 80,500 kidney transplant operations would be foregone over the next several decades, as money is redirected instead toward implementing privacy protections. Given that in 1996 there were 12,080 kidney transplants performed in the United States, the cost of the privacy rules equate to more than six and a half years worth of kidney transplants potentially foregone if the burden fell on them alone.

The burden however, does not fall on one aspect of health care alone, but rather diffuses throughout the economy. Therefore, looking at the costs somewhat differently, our estimates suggest that the average American household will incur additional annual health-related

³³ *Ibid.*, p. 60021.

³⁴ Source: *Hospital Inpatient Statistics* (1996), Agency for Health Care Policy Research, AHCPR Publication No. 99-0034.

expenses of roughly \$160 over the next several years in order to safeguard their medical records.³⁵

While such costs, when viewed in isolation, may not seem extraordinary, when balanced against the vague benefits the rule confers, the costs seem quite high indeed. In fact, when the costs are then balanced against the potential erosions that the rule may bring in its train (i.e., through the establishment of national records database, the unique health identifier, and the removal of authorizations for payment, treatment, and health operations, and so on), and the fact the above estimates omitted the costs of several features of the proposed rule, the costs grow larger still.

One last means of assessing regulatory costs in human terms is offered in a study by Lutter, Morrall, and Viscusi, which indicated that for every \$15 million of increased regulatory costs, on average, one statistical life is lost.³⁶ The HHS estimate of costs suggests that (statistically) perhaps 650 persons may lose their lives because of the imposition of these rules. The RSP estimates on the other hand, suggest statistically that about 1,075 persons may lose their lives over the course of the proposed rule's existence.

VI. Conclusion: Less Privacy, Higher Costs, and Lives Lost

We estimate that the proposed rule may cost nearly a billion dollars a year for the aspects of the rule we can reliably estimate, plus another two billion dollars in up front costs. If the rule conferred tangible privacy benefits, as its preamble suggests, these costs might be worth incurring. However, the rule in its currently proposed form offers limited tangible privacy benefits, and in fact erodes current protections, while it significantly raises health care costs in the US at the same time.

Given the limited benefits and high costs, in its currently proposed form this rule may ultimately damage the long-term health of Americans. Indeed, it is altogether likely that the rule may generate perverse results such as *less* privacy—owing to the pervasive availability of information and increased access by government agencies to the private medical records of individuals. A less healthy citizenry may be the consequence as individuals reduce prevention and treatment visits owing to increased costs and decreased privacy.

Inasmuch as the most important rule of sound medical care is to first do no harm, we urge the Department of Health and Human Services to modify these rules with an eye toward reducing their cost impact, and constraining law enforcement access to private health information without following due process. We also urge the Department to examine whether property rights over private medical records are clearly and adequately defined.

³⁵ The number of US households is a 1997 estimate (101,018,000) taken from the *Statistical Abstract of the United States* (1998) and is based on Table No. 69, "Households, Families, Subfamilies, and Married Couples: 1970 to 1997." US Census Bureau, "Current Population Survey."

³⁶ Lutter, Morrall, and Viscusi (1999), "The Cost per Life Saved Cutoff for Safety-Enhancing Regulations," *Economic Inquiry* 37 (4), pp. 599-608.

Appendix I
RSP Checklist
HHS Health Care Privacy Regulations

Element	Agency Approach	RSP Comment
1. Has the Agency identified a significant market failure?	HHS proposes a national rule to protect private health information. Satisfactory	Property rights in health information are ambiguously defined and defended. While HHS implicitly recognizes this, it would do better to examine the root cause of this problem, and address the definition of property rights directly.
2. Has the Agency identified an appropriate federal role?	HHS simply asserts a federal role without substantiation or consideration of state-level achievements Unsatisfactory	HHS is seeking to impose a regimented national rule that ignores local circumstances. The proposal includes a number of blanket exceptions and qualifications to address different circumstances, when a more targeted or tailored approach, consistent with federalism principles, would be more appropriate.
3. Has the agency examined alternative approaches?	HHS has considered alternatives within the rubric of a federally imposed rule. Fair	HHS excluded non-federal alternatives from active consideration. It also failed to consider market-based approaches and the establishment of clearer property rights to private medical information.

<p>4. Does the Agency attempt to maximize net benefits?</p>	<p>Within the confines of the cost benefit HHS makes, it does attempt to balance them. Fair</p>	<p>HHS cost estimates contain omissions and inconsistencies. Benefits mostly remain unquantified. The agency does however net the two against each other.</p>
<p>5. Does the proposal have a strong scientific or technical basis?</p>	<p>HHS does not providing substantiation and documentation for its rule justification and cost estimates. Unsatisfactory</p>	<p>HHS relies on undocumented polls to justify imposition of the rule. Also, plausible alternative assumptions significantly increase the estimated costs of the proposed rule.</p>
<p>6. Are distributional effects clearly understood?</p>	<p>The preamble does not address the unintended consequences likely to emerge. Unsatisfactory</p>	<p>The blanket permission for law enforcement access to private records in particular could have disproportionate effects on some individuals' willingness to undergo medical treatment. Furthermore, to the extent the rule increases health care costs, low income and uninsured individuals would be most harmed.</p>
<p>7. Are individual choices and property impacts clearly understood?</p>	<p>The proposal does not focus on the key issue of property rights to private medical information, nor does it recognize the effect different regulatory approaches would have on individual choices. Unsatisfactory</p>	<p>HHS should examine whether property rights over private medical records are adequately defined. Based on such an analysis, it could design a policy that aligned those property rights such that medical privacy is optimally protected. It should also consider unintended actions the rule could facilitate, by law enforcement agencies for example.</p>

Appendix II
 Estimating Techniques and Data Sources
Proposed HHS Health Information Privacy Rule

I. Compliance Start-Up Costs

A. Analysis of Applicability (§164.522 and *passim*)

Here we are concerned with an initial analysis of the regulation's applicability to a particular health care enterprise. Few covered entities are likely to introduce new policies and programs—even those offered by their respective professional associations—without first seeking competent legal advice. As the privacy rules constitute a new area of regulation, and the risks from non-compliance are high (as indicated by the high sanctions per violation³⁷), legal oversight of applicability is simply prudent.

Currently, 62 percent of the 871,294 providers would seek legal advice as to how best comply with the rules. This percentage corresponds to the number of providers who currently maintain medical records electronically.³⁸ Assume legal advice to providers takes eight hours on average, at a national average cost of \$125.00 per hour for outside legal counsel, or \$1,000 per establishment. Of the 18,225 health care plans that fall under this regulation, assume all of them use electronic record keeping and are therefore covered by the rule. Plans would obtain legal advice from in-house legal staff at an average opportunity cost of \$100.00 per hour. HHS estimates that plans might be expected to spend roughly ten times more than providers reviewing the regulations owing to the larger scope of their operations as well as the myriad differing state laws to which many are subject.³⁹

Based on the above considerations, the cost of determining the initial applicability of the proposed privacy regulations for both plans and providers is estimated at **\$686.0 million**. HHS does not make a separate cost determination for this aspect of start up costs, but rather includes it in their estimate of policy development and documentation costs, which we consider next.

B. Policy Development and Documentation (§164.520)

HHS suggests that national and/or state professional associations may assume the burden of providing standardized policies and procedures with respect to privacy protection. It is certainly possible that such associations may provide policy “boilerplate” policies, however, it does not necessarily follow from this observation that the exercise will therefore be cost-

³⁷ Unlawful disclosure of protected health information for purposes of commercial gain for example, under the proposed rule, may be subject to a fine of \$250,000 and 10 years in prison. *Ibid.*, p. 59921.

³⁸ *Ibid.*, 60005-60006.

³⁹ See p. 60015 for additional justification of the ten times relationship.

free, or that covered entities will not incur costs separate from those of the professional associations to customize policies and compliance documentation.

Health care providers may spend an average of one business day (8 hours) developing privacy policies, and health care plans may spend an average of two business weeks (80 hours) owing to the larger scope and complexity of their operations.

To develop a unit cost estimate, we considered two different cases. In Case I, assume that an entity principal (e.g., a doctor in a private practice, or an executive of a health care plan) takes responsibility for developing and documenting privacy policies. For health care providers therefore, we estimated an hourly opportunity cost of a physician's time at roughly \$129/hour.⁴⁰ This hourly rate yields a total cost estimate of \$898.0 million for health care providers. For health plan executives, we assumed an hourly opportunity cost rate of \$75.00,⁴¹ which yields a cost estimate of \$109.0 million for plans. Under Case I assumptions, development and documentation totals \$1,007.6 million.

In Case II, assume that an "average" entity employee undertakes the development and documentation of privacy policies. In the case of health care providers, this reduces the average hourly opportunity cost to \$26.41, and gives a total cost for providers of \$184.0 million. For health care plans the average employee opportunity cost drops to \$19.32, giving a total cost for plans of \$28.0 million. The total cost of developing and documenting health care privacy plans, under Case II assumptions, is \$198.0 million. While it may be unrealistic to assume that an "average" employee would undertake this difficult and risky responsibility, the Case II estimate nevertheless provides a lower bound to the development and documentation aspect of the proposed rule.

It seems likely that a mixture of principals and employees may work to develop and document privacy policies. We therefore report here and in the summary tables, a mid-point estimate of **\$609.9 million** to develop and document privacy policies. Taken together, the analysis of applicability and the development and documentation of policies and procedures give a combined cost estimate of \$1,295.9 million. These figures compare with HHS estimates for the both categories of just \$395.0 million for both categories.

C. Policy Dissemination (§164.512)

To raise patient awareness of their rights to privacy, the proposed rules require that notice must be furnished at the next patient visit in the case of a health care provider, or through an initial mailing in the case of health care plans. Subsequent notifications will continue to be in person in the case of providers, and, in the case of plans, will be an additional component of other plan correspondence such as bills, or renewal notices. (The cost estimates of

⁴⁰ This figure is derived by dividing total Offices of Doctors of Medicine Revenues (SIC Code 8010) by 724,000 practicing physicians and assuming a 2,000 hour standard work year.

⁴¹ This assumes a fully loaded labor cost for the executive of \$150,000/year.

disseminating privacy policies internally—to plan and provider employees—falls under our training cost estimates.)

Assume that the cost of printing, stocking, and handling the privacy rights notices is \$0.029 each. If these notices must be mailed, then additional costs of envelopes, labels, labor associated with inserting, stamping, and so on, as well as first class (bulk rate) postage are incurred too. The extra mailing costs add another \$0.295 to each notice. Assuming 397 million health care encounters per year,⁴² health care providers may be expected to incur costs of \$11.5 million in connection with initially notifying patients of their rights under the proposed rule. Furthermore, the fact that there are 174,100,000 Americans covered by private insurance plans⁴³ suggests that costs of notification for health care plans will initially be \$56.4 million.

Our start up estimates compare to HHS estimates of \$59.7 million for providers in year one, and \$46.2 million for plans in the same period. Interestingly, providers must furnish notification with each service rendered, even though multiple providers may see a given individual in a given year. Some individuals therefore may receive multiple notices of their privacy rights in a single year resulting in duplication, waste, and potentially reducing the effectiveness of the message.

After the initial notification in year one, assuming similar patterns of insurance and system encounters—and assuming 3% annual growth in each category—yields an ongoing cost estimate of notification of \$17.0 million in year two. Under the conservative estimates above, our five-year estimate of policy dissemination therefore is \$139.0 million. This compares to an HHS estimate of \$231.0 million over the same five-year period.⁴⁴

D. Changing Records Management Systems (§164.515 and 164.518[c])

We conducted a “bottom up” estimate of the requirements to modify existing computer systems required to accommodate the changes proposed in the privacy rules. First, we estimated the cost of including encryption software to ensure security of data during transmission to business partners and others. Such security may already be required for other HIPAA-related requirements, and so our inclusion of it here may constitute double counting. However, in the interests of completeness (and because it represents only 3% of our computer cost estimate) we include it here. Therefore, assuming again that 62% of providers require computer upgrades, and that the encryption software average \$50.00 per plan and provider installed, the total estimated cost of encryption security software is \$27.9 million.

⁴² “Data from the 1996 Medical Expenditure Panel Survey show that there are approximately 200 million ambulatory care encounters per year, nearly 20 million persons with a hospital episode, 7 million with home-health episodes, and over 170 million with prescription drug use ...” *Ibid.*, p. 60016.

⁴³ *loc. cit.* Estimate based on a 1998 National Health Interview Survey.

⁴⁴ HHS appears to be including internal policy dissemination costs in its policy dissemination cost estimates. We have chosen instead to include these in our estimates of training expenses.

Next, are the costs associated with modifying patient-related computer software modules. Included in this category are such subsystems as billing, accounts receivable, and patient records. Assume that all three subsystems could be updated in 3 hours. In other words, programming audit trails, and updating locks would take just one business day.⁴⁵ In that time, not only would programming be completed but initial evaluations and requirements assessments would also be completed. In addition to the three hours for the programming of audit trails and locks, one hour was included to program and install notices and disclaimers warning potential intruders that data are protected and illegally accessing it constitutes a crime.

To calculate the costs of this programming effort, take total revenues of computer programming services in 1996 (SIC Code 7371), and divide it by the total employment in that sector to arrive at a plausible estimate of the average hourly charge for programming services, which health care plans and providers might expect to incur. The estimated hourly rate is \$59.49. The hourly rate times the estimated number of hours to upgrade the “front end” systems, yields an estimated cost of \$132.9 million.

In addition, systems that deal with health care vendors and business partners must also be adjusted. Subsystems that control vendor accounts and accounts payable must be modified for the same reasons as patient accounts; that is, to incorporate audit trails, update locks, and to install notices and disclaimers. Assuming a similar amount of time is involved in modifying these “back end” support systems, and that unit costs are the same, the estimated cost is also \$132.9 million.

Lastly, both ends of the system will require testing and evaluation before going on line permanently to avoid data corruption and unexpected downtime. In addition, the electronic data interchange (EDI) interface will likely require modification and testing to ensure that communication with external business partners is functioning properly. Assume these testing and evaluation procedures add another three hours (2 hours to test the subsystems, and 1 hour to test the EDI interface) to the process, at a cost of \$99.7 million.

Taken together therefore, we estimate the costs to modify the computer systems of providers and plans at **\$393.3 million**. This compares to the estimate prepared by HHS of \$90.0 million. HHS derives its estimate by assuming “if privacy constitutes 15 percent [of the security standard in HIPAA], then the security standard would represent about \$900 million system cost. If the marginal cost of the privacy elements is another 10 percent, then the additional cost would be \$90 million.”⁴⁶ There may be simply too many unsubstantiated “ifs” to make the HHS estimate reliable.

⁴⁵ Audit trails are required in order to enable providers and plans to report to whom protected health information was released. Updating locks are required so that only authorized personnel could change records or adjust audit trails.

⁴⁶ Proposed Rule, pp. 60015-60016.

E. Personnel Training (§164.518[b])

HHS suggests that training costs will be minimal inasmuch as training of health care professionals is an ongoing process. "The ongoing costs associated with paperwork and training are likely to be minimal. Because training happens as a regular business practice, and employee certification connected to this training is the norm, we estimate that the marginal cost of paperwork and training is likely to be small. We assume a cost of \$20 per provider office, and approximately \$60-100 for health plans and hospitals."⁴⁷

While training in general may be an on-going process, it does not follow that training in the protection of health care information will be an insignificant addition to the cost burden. We suggest that each employee who handles private health information will require training in order to (a) document to HHS that employees properly understand the importance of safeguarding it, and (b) to protect the firm from possible negligence insofar as unlawful releases of private health information are concerned. Also, rather than estimate training costs on the basis of plans and providers, we estimate the training burden based on the number of employees in the US health care system that may require training. By multiplying the number of hours spent in training by the average hourly wage, we obtain an approximate opportunity cost of training in terms of employment services foregone.

Three principal categories of health care employees will require training in the intricacies of privacy, including health services employees (doctors, nurses, hospital records clerks, etc.), health insurance employees, and pharmacy employees.⁴⁸ In total, these three categories of businesses employ 11,138,488, 623,389, 329,709 persons respectively. In each case, presumably only those employees who actually handle protected health information will require training. Therefore, we estimated that one-half of health services and health insurance plan employees will require training, while just 15% of pharmacy employees will require it.

Average wage rates of each employee class in turn were determined by taking total payrolls by SIC Code and dividing by the SIC employment, and assuming a standard 2,000 work year. The hourly wages costs averaged \$15.05, \$18.22, and \$9.59 for health services, insurance, and pharmacies respectively. We assumed, conservatively, that employee training could be completed in one hour. Thus, the opportunity costs of labor foregone while in training totaled \$87.7 million.

On top of the opportunity costs of labor services foregone by having individual employees attend training, we must add the cost of training materials and the trainer's time, as well as the certification that each employee must sign at the conclusion of training, as prescribed in the proposed rule. We estimated materials, trainer, and certification costs at an average of \$5.00 per trainee, or an additional \$29.1 million. Therefore, taking employee costs and

⁴⁷ *Ibid.*, p. 60017. No evidence or inferences are given to support these cost estimates.

⁴⁸ The SIC Codes are 8000, 6320 + 6370, and 5190 respectively.

materials costs together gives a total training cost estimate of **\$116.9 million**. This compares to an HHS estimate of just \$22.0 million.

F. Business Partner Contract Review (§164.506 [e])

HHS is proposing that business partners with whom health care providers and plans share information be subject to contractual requirements for safeguarding protected health information. “The contract requirement we are proposing would permit covered entities to exercise control over the business partners’ activities and provides documentation of the relationship between the parties, particularly the scope of the uses and disclosures of protected health information that business partners could make.”⁴⁹ HHS elected not to estimate this cost as part of its cost/benefit analysis.

Because we think this aspect of the rule may represent a significant cost component, and because it represents a shift in the burden of law enforcement, we attempt an estimate. Three of five providers (or 62%, the number HHS estimates as currently using electronic storage and retrieval) and all plans will require contractual modification and review by competent legal authority of their business partner contracts. As with the initial development and applicability legal review, we assume providers will use outside legal counsel at an average rate of \$125.00 per hour, while plans will use in-house counsel at an average rate of \$100.00 per hour. We further assume that a competent legal professional can adjust and review each relevant contract in one-quarter hour per contract.

We further assume that each provider has on average five business partners with whom they share private health information not including health insurance plans.⁵⁰ Because relationships between plans and their business partners tend to be more numerous and more complex, we assume that the number of plan contracts proceeds at the rate of $(n*(n-1))/2$ times the number of provider contracts owing to network effects.⁵¹ Thus, the average plan has 10 business partner contracts requiring review under the proposed rule.⁵²

Taking all these facts together yields a cost estimate for providers’ business partner contract review of \$84.4 million. The cost of business partner contract review for health care plans by comparison is \$4.6 million. Together, the costs of requiring business partner oversight are **\$89.0 million** initially.

⁴⁹ Proposed Rule, p. 60025.

⁵⁰ These might include two medical laboratories, three professional referral physicians, and one medical payments clearinghouse.

⁵¹ The equation, $(n*(n-1))/2$, gives the number of connections (i.e., contracts) required to fully connect an “n” sized network.

⁵² Given 871,294 providers and 18,225 plans, the average plan serves almost 48 providers. Therefore, our estimates are conservative.

II. On-Going Compliance Costs

A. Patient Records Inspection and Copying (§164.514)

The Department of Health and Human Services estimates that 1.5 percent of patients “encountering” the health care system in a given year will make a request to inspect and/or copy their medical records. HHS, however, fails to distinguish between providers who maintain records in an electronic form (and are therefore subject to the rule) and those who do not, even though HHS estimates that just 62 percent of providers currently process health transactions electronically.⁵³ Since the proposed rules give patients the right to inspect and copy their medical records regardless of storage medium, a distinction needs to be made between the records stored electronically and those which must be accessed by manual means, since the costs will differ depending on the medium.

HHS relies on a Tennessee hospital-based study that “found an average cost of [providing medical records was] \$9.96 per request, with an average 31 pages per request. The total cost of providing copies was \$0.32 per page.”⁵⁴ Further, HHS suggests that non-hospital providers may face lower costs than these, owing to simpler health records. In another study, a health records manager found that in 1992, “The expected time per search was 30.6 minutes; [HHS then suggests] 85 percent of this time could be significantly reduced with computerization.”⁵⁵ HHS therefore estimates the cost of patient inspection and copying of their records at \$81.0 million annually. (8.1 million requests at an average cost of \$10.00 per record.)

To evaluate the accuracy of this estimate we make a finer distinction between those offices that provide records electronically and those that do not. We assume that all hospitals maintain patient records electronically and that requests for hospital records will account for roughly 10 percent of all records requested.⁵⁶ If retrieval and copying of a manually maintained record takes 30.6 minutes—as the one study cited by HHS found—and 38 percent of non-hospital medical records are kept manually, we estimate that the cost of providing manual records is \$37.5 million,⁵⁷ if 1.5 percent of all encounters with health care providers result in a records inspection request.

If the HHS claim that electronic storage and retrieval of records cuts the time required by 85 percent, then the average non-hospital request would take 4.59 minutes. At an hourly rate of

⁵³ Proposed Rule, pp. 60005-60006.

⁵⁴ *Ibid.*, p. 60016. The Tennessee study was conducted at hospital.

⁵⁵ *loc. cit.*

⁵⁶ According to the HHS data on health care encounters, hospitals accounted for 20 million encounters in 1996, while ambulatory (non-hospital) encounters were 200 million. (*Ibid.*, p. 60016). Thus, we assume a rough proportionality in the volume of requests will obtain.

⁵⁷ This assumes an hourly rate for Offices and Clinics of Doctors of Medicine of \$26.51. Average wage rates are found by dividing the SIC Code employment into SIC Code payrolls. Physicians’ Offices are SIC Code 8010 and hospitals are 8060.

\$26.51, the cost to non-hospital health care providers of serving 4.52 million electronic requests equals \$9.2 million.

Given that hospital records are on average three times larger than non-hospital records, we assume that the time to process patient requests for hospital records rises proportionately to 13.77 (i.e., 4.59×3) minutes per request. At an average hourly cost of \$14.81 and assuming these requests constitute 10% of all requests, gives an expected annual cost to hospitals of \$2.7 million to satisfy patient requests for their medical records.

In sum then, the cost for all health care providers—given the assumptions laid out in the HHS proposed rule—is **\$49.4 million** per year. It bears pointing out however, that this estimate, as well as the HHS estimate, hinge crucially on the assumption that 1.5 percent of patient's will request a copy of their medical records.⁵⁸

B. Requests for Amendment and Correction (\$164.516)

Of the 1.5 percent of patients who in a given year request to inspect their medical records, HHS estimates that two-thirds may wish to amend or correct those records. HHS further estimates that the potential cost per incidence of amendment or correction may be \$75.00. Thus, a total annual cost of \$407.0 million obtains if these assumptions are true.

The HHS estimate of cost and quantity is acceptable as a first approximation of likely amendment and correction costs.⁵⁹ However, we also analyze the costs if a different percentage of patients choose to exercise their amendment rights. If just half of those who initially inspect their records request amendment, annual costs of \$303.8 million can be expected. If all who inspect subsequently request amendment and/or correction, then annual costs rise to \$607.5 million.

These estimates hinge on the initial estimate that 1.5 percent of patients will request inspection of their records. If this estimate is too low by just one percentage point (i.e., 2.5% versus 1.5%), then the estimates for inspection and copying plus the costs for amendment and correction rise by 67 percent. Our best estimate of amendment and correction costs is **\$405.0 million**.

⁵⁸ We do not have an alternative means of checking the 1.5 percent figure, but we do suggest that a potential approach may be found by considering experiences of credit rating agencies. Americans are able, under the *Fair Credit Reporting Act*, to request copies of their credit records from the reporting and compilation companies. The number who request credit records might form the basis for a good approximation of those who might request medical records. Unfortunately, we have been unable to uncover this data yet, and so we simply offer the method as a potential means of checking this important assumption.

⁵⁹ A mathematical error may have entered the HHS estimate of \$407 million. If two-thirds of the 1.5% request amendment and/or correction, then 5.4 million records will require some attention at a cost of \$75 per incident. 5.4 million times \$75 is \$405 million, not \$407 million.

C. Patient Authorizations for Non-standard Releases of Information (§164.506 [c] [1])

HHS estimates that one percent of 540 million health care encounters will result in requests to withhold the release of protected information for other than payment or treatment purposes. They also estimate that the costs of implementing and honoring these requests will average \$10.00 per request. Thus, HHS estimates that the cost of processing patient requests to withhold information will average \$54.0 million per year.

Assume, as a first approximation, that the cost of implementing and honoring patient requests to withhold information is \$10.00 per request. However, the percentage estimated by HHS who might be expected to do so seems disproportionately low. Elsewhere, HHS suggests that roughly 17 percent (one in six) patients are already taking unusual steps to protect their privacy “including providing inaccurate information, frequently changing physicians, or avoiding care.”⁶⁰ Seventeen percent therefore, seems a better estimate of those who are likely to restrict access to their medical records and thus to avail themselves of this new right under the proposed rule.

If one in six patients who encounter the US health care system opt to restrict access to their records, providers and plans can expect to process 90 million requests in an average year. At an average cost of \$10.00 per incident, the total expected cost per year rises to \$900.0 million to implement this aspect of the proposed rule. Moreover, to illustrate just how quickly these costs can spiral out of control, if just one in five patients were to request that information be withheld, the costs of servicing all those requests would rise to \$1,080.0 million. In the interests of providing a conservative estimate, assume the midpoint between 1 percent and 16.67 percent of patients (i.e., 8.83%) will restrict access to their records. This assumption generates a median estimate of **\$477.0 million**.

D. Ongoing Dissemination of Privacy Policies and Changes Thereto (§164.512)

As we discussed above in the determination of start up costs, after the initial notification in year one, and assuming similar patterns of insurance and system encounters—and assuming 3% annual growth in each category—the ongoing costs of disseminating notices under the proposed rule equate to \$17.1 million in year two, \$17.6 million in year three and so on.

E. Periodic Re-Training of Personnel on Policies (§164.518)

With regard to ongoing training costs, we assume that plans and providers will simply conduct periodic re-training on a three-year basis in order to remain compliant with the proposed rule. In other words, costs for ongoing training of personnel will average \$39.0 million per year.

⁶⁰ Proposed Rule, p. 59920.

F. Periodic Review and Oversight of Business Partner Compliance (§164.506 [e])

HHS did not furnish estimates for the ongoing costs of monitoring business partner compliance with respect to protected health information. However, the proposed rule requires that, “a covered entity would be responsible for assuring the each such implementation standard [for ensuring privacy of protected health information] is met by the business partner. ... We are proposing that covered entities be accountable for the uses and disclosures of protected health information by their business partners. A covered entity would be in violation of this rule if [it] knew or reasonably should have known of a material breach of the contract by a business partner and it failed to take reasonable steps to cure the breach or terminate the contract.”⁶¹

Since the rule is unclear regarding what constitutes a reasonable steps to ensure business partner compliance this aspect of the rule is particularly difficult to quantify. It may be that contractual terms stipulating privacy protection among business partners may be sufficient. In the extreme case however, direct oversight including periodic audits may be in order. We have presented the most conservative case: i.e., that of zero on-going oversight costs. In other words, these costs are assumed to have been covered in initially establishing a contract terms between business partners (i.e., in the start-up costs).

⁶¹ *Ibid.*, p. 59949.

Regulation of the Week:
EPA's Toxic Release Inventory, Lead and Lead Compounds

Rule Summary:

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 requires certain facilities that manufacture, process, or otherwise use more than a threshold amount of any listed “toxic chemical” to submit to both EPA and the state in which it is located, a Toxic Chemical Release Inventory Report (Form R) for that chemical each year. The compilation of these reports is known as the Toxics Release Inventory or TRI.

This rule, officially titled, “Lead and Lead Compounds; Lowering of Reporting Thresholds; Community Right-to Know Toxic Chemical Release Reporting,” would lower the reporting thresholds for lead and lead compounds to from 25,000 or 10,000 lbs, to 100 lbs. In other words, if a facility manufactures, processes or uses lead or lead compounds in quantities greater than 100 pounds during a year, it would now be subject to annual TRI reporting requirements.

In addition to lowering the threshold, the rule will eliminate several options for more streamlined reporting, including the *de minimis* reporting exemption applicable to most other TRI chemicals. These modified reporting requirements would not apply to lead contained in stainless steel, brass and bronze alloys.

Facts:

- Toxic releases, as defined under TRI, are not equivalent to health or environmental hazards, so data on pounds of chemicals released fail to provide communities relevant data on risks that may be present.
- Facilities subject to the TRI must identify the number of pounds of the listed chemical that is “released” to the environment. The term “released” refers not only to chemicals that are transferred off-site as waste or routinely or accidentally released on-site into the air, land or water, but also to chemicals that are recycled or treated.
- A reviewer of the TRI data cannot easily ascertain whether the “release” reflects responsible management and recycling, emissions allowed by regulation, or accidental spills.
- Despite extensive information on these chemicals, the reporting thresholds are not based on any quantitative analysis of the magnitude of releases that will be accounted for under different thresholds, nor the risks posed by releases.
- Since TRI data are self-reported and not checked for accuracy on an ongoing basis, it is difficult to determine the accuracy of the inventory. However, two EPA studies reveal that a significant fraction of reported releases contained large errors.

- A 1990 EPA report found that 16 percent of the releases reported in the 1987 database were off by more than a factor of ten, and 23 percent were off by more than a factor of two.
- A 1998 report reveals that the accuracy of the TRI data has not improved significantly since 1987.
- Other EPA studies reveal that the location data in the EPA-published TRI database also contain significant errors
- EPA found that year-to-year changes in estimated releases at facilities are more likely to reflect “estimation technique changes” and “other factors” than physical, engineering and production changes. “Estimation technique changes” and “other factors” accounted for 82 percent of the increases reported between 1989 and 1990, and 67 percent of the 1989 to 1990 decreases.
- Since 1978, ambient concentrations of lead in the air have declined by 97 percent. In 1997, all but four counties in the met air quality standards for lead.

For more information, contact Laura Hill at 703-993-4945 or loquinn@gmu.edu. Download the Mercatus Center public interest comments at www.mercatus.org.

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GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

Comments on:

TRI Reporting of Lead and Lead Compounds

Submitted to:

Environmental Protection Agency

December 15, 1999

"A wise and frugal government, which shall restrain men from injuring one another, which shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government."

Thomas Jefferson, from his "First Annual Message," 1801

RSP 1999-13

MERCATUS CENTER
REGULATORY STUDIES PROGRAM

Public Interest Comment Series:

TRI Reporting of Lead and Lead Compounds

Agency:	Environmental Protection Agency
Rulemaking:	Lead and Lead Compounds; Lowering of Reporting Thresholds; Community Right-to Know Toxic Chemical Release Reporting; Proposed Rule. 40 CFR Part 372
Stated Purpose:	EPA believes that lead and lead compounds are persistent, bioaccumulative toxic (PBT) chemicals that warrant lower reporting thresholds than those currently established under EPCRA section 313.
Submitted: December 15, 1999	RSP 1999-13

Summary of RSP Comment:

EPA's proposal to reduce reporting thresholds for lead and lead compounds is not supported by available data. Despite extensive information on these chemicals, the reporting thresholds are not based on any quantitative analysis of the magnitude of releases that will be accounted for under different thresholds, nor the risks posed by releases.

EPA expects the cost of the reporting required by the proposal to be \$992 million in present value terms. Evidence that every \$15 million in regulatory costs results in one statistical death suggests that these costs alone translate to more than 66 additional deaths. Yet, EPA offers no evidence of direct benefits from this proposal.

The goal of TRI, to inform the public about hazards in their community, is intuitively desirable. However, since chemical releases are not equivalent to health or environmental hazards, TRI data on pounds of chemicals released fail to provide communities relevant information on *risks* that may be present. Furthermore, EPA data quality reviews reveal that the database contains such large errors as to make it unreliable for site-specific analysis, or as a comprehensive database.

It is time EPA took stock of what TRI has achieved. While EPA and others may have been successful at providing easy access to TRI data, there is no evidence that it has been successful at informing consumers and citizens of real health or environmental threats. More information is not necessarily more valuable nor more relevant to communities. EPA should take seriously its responsibility for informing, but not alarming, communities, and should thoughtfully consider RSP's proposals for increasing TRI benefits with a more targeted approach.

Comments on the Environmental Protection Agency's

**Lead and Lead Compounds; Lowering of Reporting Thresholds;
Community Right-to-Know Toxic Chemical Release Reporting;
Proposed Rule¹**

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of regulations and their impacts on society. As part of its mission, RSP produces careful and independent analyses of agency rulemaking proposals from the perspective of the public interest. Thus, the program's comments on EPA's proposal to classify lead and lead compounds as persistent bioaccumulative toxic (PBT) chemicals, and to lower their Toxics Release Inventory (TRI) reporting thresholds do not represent the views of any particular affected party or special interest group, but are designed to protect the interests of American citizens.

RSP's April 1999 comments on EPA's proposal to modify reporting of certain PBT chemicals are enclosed, as they offer analysis and recommendations for improving the value and effectiveness of the TRI that are equally relevant here.

I. Background

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) requires certain facilities that manufacture, process, or otherwise use more than a threshold amount of any listed "toxic chemical" to submit to both EPA and the state in which it is located, a Toxic Chemical Release Inventory Report (Form R) for that chemical each year. The compilation of these reports is known as the Toxics Release Inventory or TRI. The Form R must identify the quantity of the listed chemical that is "released" to the environment. The term released refers not only to chemicals that are transferred off-site as waste or routinely or accidentally released on-site into the air, land or water, but also to chemicals that are recycled or treated.²

When Congress passed EPCRA in 1986, it set default reporting thresholds of 25,000 pounds per year for chemicals that are manufactured or processed at a facility. In other words, if a listed chemical is manufactured or processed in amounts exceeding 25,000 pounds per year, a facility has to report any releases of that chemical. If chemicals are used at a facility, but not manufactured or processed there (in statutory language, "otherwise used"), the presence of more than 10,000 pounds in a year would trigger the reporting requirement.

¹ Prepared by Susan E. Dudley, Senior Research Fellow, Regulatory Studies Program of the Mercatus Center at George Mason University.

² The Pollution Prevention Act of 1990 (PPA) broadened the definition of release beyond that originally in EPCRA.

The statute also included a list of approximately 300 chemicals and chemical categories, but authorized EPA to add to the list chemicals that the agency determined could cause, or be reasonably anticipated to cause (1) acute health effects at reasonably expected exposure levels, (2) chronic health effects, including cancer or other tumors, or (3) a significant adverse effect on the environment. Since passage of the act, EPA has more than doubled the list of toxic chemicals subject to TRI.

EPA's August 3, 1999 Federal Register notice proposes to determine that lead and lead compounds are persistent bioaccumulative toxic chemicals (PBT), which require lower reporting thresholds. As a result it proposes to:

- Lower the reporting thresholds for lead and lead compounds to 10 lbs. In other words, if a facility manufactures, processes or uses lead or lead compounds in quantities greater than 10 pounds during a year, it would now be subject to annual TRI reporting requirements. (Currently, TRI reporting is governed by the statutory thresholds of 25,000 pounds for manufactured and processed lead, and 10,000 pounds for lead otherwise used.)
- Eliminate several options for more streamlined reporting:
 - Eliminate the *de minimis* reporting exemption,
 - Eliminate the option of reporting releases through the abbreviated Form A for small quantities,
 - Eliminate the option of reporting releases using ranges rather than numerical values, and
 - Require reporting to the tenth of a pound rather than to the nearest pound, as allowed for other TRI chemicals.

These modified reporting requirements would not apply to lead contained in stainless steel, brass and bronze alloys.

II. The Rationale for TRI

Informing the public about hazards in their community is a desirable social goal. Without knowledge of the likelihood of exposure to health hazards, families may pay more than they would otherwise to live in certain areas, or might take fewer precautions than they would with more information. However, this does not argue that any information on chemical releases is desirable. The fundamental questions of *what* information will enhance the public's understanding of the risks they face, *how much* information should be disseminated, and *to whom*, must be directly addressed. To address these questions, it is important to recognize that information is costly to produce, and depending on how it is communicated and received, may confuse, rather than inform.³

³ Recent empirical analysis reveals that individuals do not respond rationally to diverse information on risks, weighting high-risk assessments much greater than low-risk assessments, regardless of source. W. Kip Viscusi "Alarmist Decisions with Divergent Risk Information," *The Economic Journal*, 107 (November 1997) 1657-1670.

Even if we determine that information on the release of certain chemicals has a net social value, we cannot assume that more frequently reported information, or information on a broader range of chemicals would be *more* valuable. Only when the social costs of information are weighed against the social benefits can a determination be made regarding what and how much information is optimal.⁴

EPA makes little attempt to determine what level of reporting would be optimal. Rather, it presumes that interests of communities are best served with the lowest possible reporting threshold, or the maximum number of reports, regardless of the potential risk a chemical might pose. It relies on a two-tier decision process, with the first tier considering only social benefit, and the second considering cost. In the first tier, EPA claims that, based purely on the benefits of the reported information to communities, it would set a reporting threshold of 1 lb. (In other words, facilities that had on site more than 1 lb. of lead or lead compound over the course of a year would have to report all "releases" to the nearest tenth of a pound.) In the second tier of its threshold-setting approach, EPA considers the burden on the facilities that must produce the reports. This offsetting industry burden drives EPA to propose a higher reporting threshold of 10 lbs.

This overly simplistic benefit-cost tradeoff is not only not grounded in any quantitative assessment of risks or costs, but it completely ignores important considerations. For example, how does information on the pounds of certain chemicals emitted from certain facilities, even if it were perfectly accurate, advance an individual's knowledge of the potential risks he faces by living near those facilities? Consider the alarm that might be engendered by the revelation that a plant near one's home emitted even small quantities of the following toxic, and potentially carcinogenic, chemicals: acetaldehyde, benzaldehyde, caffeic acid, d-limonene, estragole, and quercetin glycosides. Informed citizens might demand that the facility minimize or prevent the use and release of these chemicals. In fact, these chemicals occur naturally and are likely to be found on a fresh fruit platter of apples, pears, grapes, and mangos.⁵

The presumption that the provision of more information to communities is always better also assumes rational behavior on the part of the recipients of the information. Even if the information TRI provided conveyed important information on potential risk, the recipients of the information may not interpret it correctly or rationally. In other words, there may be a distinction between more information, and more knowledge. A recent empirical paper (which won the Royal Economic Society Prize for 1997) found that individuals' responses to divergent risk information revealed "extreme violations of rationality," as individuals place "inordinate weight on the high risk assessment." The author concluded, "these results do not provide great comfort to economists who

⁴ For a good discussion of the optimal level of information in product markets, see Beales, Craswell, and Salop, "The Efficient Regulation of Consumer Information," *Journal of Law and Economics*, vol. XXIV (December 1981). (In particular, see pages 503, 533-534.)

⁵ Note that these chemicals occur naturally in these fruits, and are not the result of pesticide residues or additives. American Council on Science and Health, "Thanksgiving Dinner Menu 1999." See www.ACSH.org.

hypothesize that decisions will become more rational as we acquire more information to make these decisions.”⁶

This seemingly irrational behavior may reflect the fact that individuals do not have full information on the panoply of risks involved in daily life to allow them to make appropriate tradeoffs. The provision of selective information on chemical uses may suggest the presence of risks which are small relative to the risks accepted in daily life.

It is dangerously naïve to assume that the more reports EPA requires on “releases,” the better informed communities will be. A reviewer of the TRI data cannot easily ascertain whether the “release” reflects responsible management and recycling, emissions allowed by regulation, or accidental spills. Thus, even if the quality of the TRI data were high, data on quantities of certain chemicals, without any insight into the risks they may pose, may serve to misinform and mislead communities about potential health and environmental risks.

Furthermore, as discussed fully in our April 1999 comment, EPA’s own analysis casts doubt on the validity of the TRI database, even as a simple inventory of pounds of chemicals released. Since TRI data are self-reported and not checked for accuracy on an ongoing basis, it is difficult to determine the accuracy of the inventory. However, two EPA studies, one of the 1987 reporting year,⁷ and one of the 1994 and 1995 reporting years,⁸ reveal that a significant fraction of reported releases contained large errors. The 1990 report found that 16 percent of the releases reported in the 1987 database were off by more than a factor of ten, and 23 percent were off by more than a factor of two.⁹ The 1998 report, while not as clearly presented, reveals that the accuracy of the TRI data has not improved significantly since 1987.¹⁰ Other EPA studies reveal that the location data in the EPA-published TRI database also contain significant errors.¹¹

Not only are reported releases from a facility in a given year unreliable, but changes in emissions from a facility from one year to the next may not be accurate. EPA found that year-to-year changes in estimated releases at facilities are more likely to reflect “estimation technique changes” and “other factors” than physical, engineering and production changes.¹² “Estimation technique changes” and “other factors” accounted for

⁶ Viscusi (1997), “Alarmist Decisions...” *op. cit.*

⁷ EPA, *Toxics in the Community, National and Local Perspectives: The 1988 Toxics Release Inventory National Report*, EPA 560/4-90-017, September 1990. Chapter 3; and Radian Corporation, *Assessment of Data Quality in the 1987 Toxic Release Inventory: Site Visit Program*, Prepared for EPA, March 27, 1990.

⁸ EPA, *1994 and 1995 Toxic Release Inventory Data Quality Report*, EPA 754-R-98-002, March 1998.

⁹ Most of these errors in reported non-zero releases reflected *over-reporting* of the release.

¹⁰ Appendix 2 to RSP’s earlier comments discusses the findings of these reports in more detail.

¹¹ Talcott, Branagan & Medina-Ortiz, “Who Is Out There?” Presented at the Air & Waste Management Association meeting, Emission Inventory: Living in a Global Environment, New Orleans, LA, December 8, 1998.

¹² The example of how ammonia releases were reported illustrates this problem. In 1989, EPA changed its guidance to require facilities to report the quantity of ammonia contained in ammonium sulfate rather than the quantity of ammonium sulfate released. This change in guidance caused the reported quantities of ammonium sulfate released to decline by 586.7 million pounds, when, in fact, net ammonia releases

82 percent of the increases reported between 1989 and 1990, and 67 percent of the 1989 to 1990 decreases.¹³

Though EPA promises that the TRI will provide “a complete profile of toxic chemical releases and other waste management activities,”¹⁴ the profile is hardly complete. EPA’s 1997 National Air Quality and Emissions Trends Report reveals that the TRI data alone represent less than 9 percent (760,000 tons per year) of the total 8.1 million tons of air toxics released in 1993. It concludes that “the TRI’s lack of emission estimates from mobile and area sources” as well as “other significant limitations” “severely limit its utility as a comprehensive air toxics emissions database.”¹⁵

EPA has not justified the incremental benefit of collecting TRI information, which has been shown to be incomplete and inaccurate, particularly for substances, such as lead and lead compounds, that are already heavily monitored and regulated. Urbanized areas with a population of 500,000 or more must operate at least two National Air Monitoring Stations that monitor concentrations of lead in the ambient air. Lead monitors are also located in non-urban areas where industrial sources are located.¹⁶ A January 20, 1999 final rule extended the requirement for lead monitoring near industrial sources.¹⁷ These monitors will provide more reliable information than TRI reports.

One of EPA’s goals for the TRI is to provide information “to assess the need to reduce and where possible, eliminate these releases and other waste management activities.” Yet, since 1978, ambient concentrations of lead in the air has declined by 97 percent. As a criteria pollutant, lead is subject to National Ambient Air Quality Standards (NAAQS), which require states, through EPA-approved State Implementation Plans (SIPs) to ensure that source emissions do not contribute to violations of the standard. In 1997, only four counties did not meet the lead NAAQS.¹⁸

III. The Proposal’s Impacts

The preamble to the draft rule justifies the need for the reduced reporting thresholds based on market failures arising from externalities and inadequate information. However, as discussed more fully in our April comment, this analysis is overly simplistic. It ignores several key factors: (1) information itself is a good, valuable to have and costly to produce, (2) facilities are already subject to numerous environmental requirements designed to address potential health and environmental risks, and therefore externalities may already be internalized, (3) incomplete or inaccurate information may misinform,

increased by an estimated 40 million pounds. Volokh, Green & Scarlett, “Environmental Information: The Toxics Release Inventory, Stakeholder Participation, and the Right to Know,” Reason Foundation, Policy Study No. 246.

¹³ EPA, “1991 Toxics Release Inventory – Public Data Release.” 1991, p. 163.

¹⁴ 64 FR 42223.

¹⁵ EPA, *National Air Quality and Emissions Trends Report, 1997*. p. 74 and chapter 5, footnote 4.

¹⁶ The vast majority of these point-source monitors reveal that concentrations of lead in the ambient air meet air quality standards. *Ibid.*

¹⁷ 64 FR 3030.

¹⁸ *Ibid.*

and create market failures, rather than address them (for example the stress caused by alarming information has real social costs) and (4) the requirement that proprietary information be made public imposes additional costs on businesses, and can reduce competitiveness.¹⁹

As noted above, EPA's analysis of the benefits and costs of the proposal is also flawed. It simply asserts that since lead is persistent and bioaccumulative, more information is better, so lower thresholds provide greater public benefits.²⁰ On the cost side, it looks only at the burden to reporting industries (and to EPA for maintaining the database); ignoring the social costs of misinformation, unjustified fears, and attendant actions, as well as the possible competitive implications of requiring companies to reveal private information.

EPA estimates that the proposed rule will cost reporting facilities \$116 million in the first year that reports are required, and \$60 million in subsequent years. It estimates that EPA would incur an additional \$1.6 million in the first year and \$1.2 million in subsequent years for data processing, outreach, and enforcement.

EPA certifies that the proposed rule will not have a significant economic impact on a substantial number of small entities.²¹ It estimates the economic impact on small entities, including small municipalities, by examining the estimated costs as a fraction of revenue. It concludes that while the majority of the affected entities are small (5,600 entities or approximately 70 percent), none of those would experience costs that exceed one percent of their gross revenue.

The preamble does not justify this percent-of-revenue metric, or why it would be a good measure of impact across different industry segments. High volume, low margin industries might have profits that are only a few percent of total revenue, in which case, costs that are close to one percent of revenue would be a very large percent of profit, while lower volume, higher margin industries may have profits that are a much higher percent of revenue.²² For example, a Fortune magazine survey of the top 1000 corporations reveal that, while profits for financial services, semiconductors, and network services companies can average between 12 and 16 percent of revenue,²³ profits are a much smaller percent of revenue for the industries EPA expects will be affected by this rule. EPA expects the new reporting requirements will most affect companies manufacturing electronics and electrical equipment, metals, and rubber and plastic

¹⁹ Beales, Craswell, and Salop, *op. cit.*

²⁰ We note that, in the preamble to this proposal, EPA responds to an issue RSP raised in the PBT comment, and recognizes that many benefits it attributes to changes in the TRI will come at a cost, and that it is appropriate to consider the net benefits. However, it does not attempt to quantify those benefits or costs, or determine whether the net effect is positive or negative.

²¹ 64 FR 42241.

²² As Chapter 3 of SBA's Federal Agency Review Draft Practitioner's Guidance observes, "Percentage reductions in revenues cannot predict long-term insolvency without information on the profit margin of the relevant size-category in the regulated industry." (This draft is subject to revision based on reviews by the federal regulatory community.)

²³ "Fortune 1 Thousand Ranked Within Industries," *Fortune* April 27, 1998.

products.²⁴ Even the largest companies in these industries have average profits that are between 4 and 5 percent of revenues.²⁵

According to SBA, during debate on the Regulatory Flexibility Act, Congress and academics identified several examples of 'significant impact,' none of which justify EPA's ratio of compliance-cost-to-revenue metric.²⁶ SBA's Draft Practitioner's Guidance states "agencies considering using revenue or profit criteria such as annualized capital compliance costs greater than '1 percent of revenues' or '10% of pre-tax profits' should explain in their analytical report the relationship of these levels to solvency and why 1 percent, compared with other levels, constitutes a significant impact."²⁷ EPA offers no such explanation. At a minimum, EPA should use several different metrics to determine economic impacts, and to determine how those impacts would be distributed across companies of different sizes and industry segments.²⁸

EPA is also required to address the potential impact on low income and minority populations and on children, under Executive Orders 12989 and 13045, respectively. However, it merely asserts that the information provided by the proposal will have a positive impact on the health and environment of these population segments. As discussed above, however, collection and dissemination of the information and the subsequent actions engendered by the information cannot be presumed, without more thoughtful analysis and discussion, to provide net benefits. Low income populations in particular may experience negative health and welfare impacts to the extent the information encourages actions that increase the costs of consumer goods and services, reduce wages, alter firms' location decisions, and divert resources from other health-improving activities.

Recent research suggests these health-health tradeoffs may be more significant than previously recognized, with every \$15 million in regulatory costs resulting in one additional statistical death.²⁹ By EPA's estimates, the present value cost of the proposal is \$991.9 million.³⁰ The \$15 million statistic suggests that the burden requirements of this rule alone will result in over 66 additional statistical deaths. EPA should consider these impacts before issuing a final regulation.

The TRI also has important distributional impacts that are implicit in EPA's analysis, but not directly addressed. The Economic Analysis argues that benefits will accrue to

²⁴ 64 FR 42237.

²⁵ *Fortune*, *op. cit.*

²⁶ See SBA Federal Agency Review Draft *Practitioner's Guidance*, chapter 3, *op. cit.* and RSP's summary of these metrics in the April 1999 comment.

²⁷ *Ibid.*

²⁸ EPA's draft Guidelines for Preparing Economic Analysis, which describes various measures to estimate impacts, mentions these ratios only parenthetically, as a possible screening tool, but stresses their limitations. November 3, 1998 Review Draft, chapter 9.

²⁹ Lutter, Morrall and Viscusi, in "The Cost per Life Saved Cutoff for Safety-Enhancing Regulations," *Journal of Economic Literature*, forthcoming 1999, reveal that every \$15 million in regulatory costs results in one additional statistical death.

³⁰ The present value of EPA's burden estimates discounted at 7 percent per year.

citizens, public interest groups, government agencies, and facilities themselves. But benefits will also accrue to competitors, national and international, seeking a competitive advantage.

IV. Response to Specific Requests for Comment

Since EPCRA specifies that information reported to TRI shall not be based on new measurement or monitoring, it is highly unlikely that TRI data will be more accurate or more complete than existing information, which includes monitored levels of lead in ambient air near industrial facilities. EPA should consider the information already available on lead and lead compounds, and evaluate whether requiring reporting under TRI would contribute meaningfully to the existing field of knowledge on those chemicals.

A. Selection of thresholds

The proposal would classify lead and lead compounds as “highly persistent and highly bioaccumulative” chemicals and, accordingly, reduce reporting thresholds (from 25,000 pounds for chemicals that are manufactured or processed, and 10,000 pounds for chemicals that are otherwise used) to 10 pounds. EPA presents little justification for the reduced level of the reporting thresholds proposed in this rule, other than to state that, since these chemicals persist and bioaccumulate, thresholds should be lower than for chemicals that do not.

Given the extensive information currently available on releases of lead and lead compounds, EPA should be able to offer a more thoughtful defense of the proposed revised level. First, EPA should carefully consider the value the newly required reports will add to the public’s ability to identify and track lead releases. If, after such consideration, EPA determines that additional information on releases of lead and lead compounds would be valuable, it should take advantage of the data it has already collected to define reporting thresholds that will (1) include significant releases in the inventory, and (2) provide meaningful and useful information. EPA presents no evidence that the net benefits of the preferred reporting thresholds exceed those of alternative thresholds. In fact, the only justification EPA presents – that chemicals that persist and bioaccumulate in the environment should have relatively lower reporting thresholds than other chemicals – could be applied, just as defensibly, to support *raising* the thresholds for non-PBT chemicals.

As noted above, it is overly simplistic to suggest that the more information the public has on releases, the better. EPA could incorporate information on the fraction of total releases that would be included in the inventory under different reporting thresholds to make more reasoned determinations on appropriate levels. The Small Business Administration has shown that for many PBTs, higher reporting thresholds (of 100 or even 1,000 pounds) would account for the vast majority of the chemicals present at

facilities.³¹ The same SBA analysis revealed that higher thresholds would also significantly reduce reporting burden. Perhaps more importantly, more targeted reporting thresholds would provide more relevant and meaningful information to the public, consistent with Congressional intent.

Furthermore, the public would benefit from data that are more directly linked to health risks. EPA has the risk assessment experience and expertise to ensure that the public is provided meaningful information on releases that can reasonably be expected to pose potential health or environmental hazards. What types of releases are likely to pose health risks (to the air, water or soil)? At what levels? It should extend the type of balancing it demonstrated in rejecting a 1-pound threshold in favor of 10 pounds to develop a clearer understanding of not only the facilities affected and quantities released, but of health and environmental impacts associated with different thresholds.

B. Elimination of options for streamlined reporting

EPA regulations generally offer an alternate "Form A" report for facilities that have 500 pounds or less of production-related waste. These facilities may submit the simpler Form A as long as they manufacture, process or use less than 1 million pounds of a listed TRI chemical in a year.

EPA proposes not to allow reporting on the simpler Form A for lead and lead compounds on the grounds that smaller releases of chemicals that persist and bioaccumulate in the environment could pose health and environmental risks. However, rather than eliminating the applicability of the Form A, EPA should consider establishing an alternate reporting threshold for these chemicals. Rather than 1 million pounds, for example, EPA could set the alternate reporting threshold at 100 or 1000 pounds.

V. Conclusions and Recommendations

This section presents RSP's conclusions and makes recommendations for improving TRI in general, and the lead and lead compound proposal in particular. Appendix 1 contains the RSP Checklist, which provides a consistent framework by which policy makers and interested reviewers can evaluate this action, and the analysis supporting it, and compare it to other federal regulatory actions.

A. EPA's goals for TRI are not adequately linked to health and environment.

Informing the public about hazards in their community may be a desirable social goal. However, the fundamental questions of *what* information will enhance the public's understanding of the risks they face, *how much* of it should be disseminated, and *to*

³¹ For polychlorinated biphenyls, polycyclic aromatic compounds and fluoranthene, thresholds of 100 pounds (or even 1,000 pounds) rather than the proposed 10 pounds, would capture 99 percent of all throughput from combustion sources. Small Business Administration memorandum: "SBA Recommendation on Draft TRI PBT Rule," dated December 8, 1998, to Jere Glover, Chief Counsel from Kevin Bromberg. (p. 5.)

whom, has not been addressed.³² Toxic releases, as defined under TRI, are not equivalent to health or environmental hazards, so data on pounds of chemicals released, as provided by TRI, fail to provide communities relevant data on risks that may be present.

B. The TRI does not achieve the stated goals.

Not only has the TRI information not been demonstrated to be relevant for measuring risks to health or the environment, it is neither accurate nor comprehensive. Past reviews conducted by EPA on the quality of the information in the TRI reveals that facility-specific release data may contain such large errors as to make the inventory unreliable for site-specific analysis. Furthermore, EPA has recognized significant limitations associated with even the aggregate numbers, which severely limit the TRI's utility as a comprehensive database. While EPA and others may have been successful at providing easy access to TRI data, there is no evidence that it has been successful at informing consumers and citizens of real health or environmental threats.

C. Lowering reporting thresholds for lead and lead compounds will not provide benefits commensurate with costs.

EPA's proposal to reduce reporting thresholds for lead and lead compounds is not supported by available data. Despite extensive information on these chemicals, the reporting thresholds are not based on any quantitative analysis of the magnitude of releases that will be accounted for under different thresholds, nor the risks posed by releases.

Information is a good, and like other goods, it is costly to produce. More information is not necessarily more valuable nor more relevant to communities. To avoid tragedies such as the cholera epidemic that ensued when officials in Lima, Peru heeded EPA's warnings about the potential carcinogenicity of chlorination byproducts, EPA should take seriously its responsibility for informing, but not alarming, communities.

EPA expects the cost of the reporting required by the proposal to be \$116 million in the first year, and \$60 million in subsequent years, or \$992 million in present value terms. Evidence that every \$15 million in regulatory costs results in one statistical death suggests that these costs alone translate to more than 66 additional deaths. The preamble to the proposal does not present any direct benefits of the new reporting requirement, but justifies it qualitatively on the grounds that it will increase available information and facilitate further regulation of these chemicals. However, this overlooks the fact that releases of lead and lead compounds are already monitored extensively. EPA does not justify the need for additional, arguably less accurate, release information from TRI.

³² Markets are usually better at addressing these questions than the government. EPA argues that market failures prevent the optimal dissemination of information, but it should not lose sight of the fact that information is a good, valuable to have and costly to produce.

D. Recommendations

The TRI has been in place now for over a decade. EPA has sufficient information to take stock of what it has achieved and evaluate ways to make it more effective at providing communities relevant information to enable them to protect their health and the environment. Neither the final PBT rule nor the lead and lead compound proposal appear to have benefited from the experience of the last ten years, nor from information made available through various other agency efforts to reduce health and environmental risks from toxic chemicals. Below we provide several recommendations for making the TRI more responsive to American citizens.

1. Examine the value of reported data.

EPA owes the public an honest evaluation of the social cost and benefit of the data that is being reported under TRI. The mere act of making vast amounts of data on chemical quantities available to the public should not be assumed to provide value without a careful examination of whether reliable and meaningful information is being conveyed about health and environmental risk. It may find that less data, targeted at higher risk chemicals and facilities, would provide more useful information than more data on more chemicals. Perhaps EPA's concern about the persistent and bioaccumulative nature of lead and lead compounds argues for keeping those thresholds at their current levels, but *raising* thresholds for non-PBT chemicals.

2. Consider altering the reporting frequency.

EPA requests comment on modifying the reporting frequency pursuant to EPCRA Section 313(i) for certain chemicals or certain facilities.³³ The statute requires EPA to make decisions regarding reporting frequency based on "experience from previously submitted toxic chemical release forms" and the extent to which the information has been used. It also suggests that EPA consider the burden on reporting facilities.³⁴

EPA's experience from previously submitted toxic chemical release forms has revealed that year-to-year changes in estimated releases at facilities are more likely to reflect "estimation technique changes" and "other factors" than physical, engineering and production changes. "Estimation technique changes" and "other factors" accounted for 82 percent of the increases reported between 1989 and 1990, and 67 percent of the 1989 to 1990 decreases.³⁵ As a result, reducing the frequency of reporting should not change the value of the information available to potential users. Of course, EPA's experience with TRI would allow it to tailor reporting frequency to the attributes of different facilities and chemicals. For example, it might find that the value of the information provided would not be adversely affected (and might even be improved) if it reduced reporting frequency for all but newly-reporting facilities, facilities that have had major changes, or facilities that comprise the majority of releases. It could also tailor reporting frequency to

³³ 64 FR 42225.

³⁴ PBT Proposal, p. 719

³⁵ EPA, "1991 Toxics Release Inventory – Public Data Release." 1991, p. 163.

characteristics of the chemical. For example, the Small Business Administration recommends that PBT reporting be required “only every three to five years,” noting that “because PBTs are trace elements in processes that are integral to industrial manufacturing, PBT emissions are unlikely to change significantly from year to year.”³⁶

3. Examine accuracy of collected data.

EPA has conducted two data quality reviews of TRI reporting, which suggested significant errors in reported releases. They also reveal that, despite the extensive outreach, guidance documents, built-in error checking, and electronic reporting that have evolved between 1987 and 1995, the reporting accuracy has not improved. EPA should extend this examination to determine whether reports are more accurate for larger facilities or larger releases. If so, modifying thresholds to capture large releases from large facilities might actually improve the quality of the inventory.

4. Use available data to define lead and lead compound thresholds.

Given the extensive information currently available on releases of lead and lead compounds, EPA should carefully consider the value TRI reports will add to the public’s ability to identify and track these releases. If, after such consideration, EPA determines that additional information on releases of these chemicals would be valuable, it should take advantage of the data it has already collected to define reporting thresholds that will (1) capture the significant releases, and (2) provide meaningful and useful information.

EPA could incorporate information on the fraction of total releases captured by different reporting thresholds to make more reasoned determinations on appropriate levels. For example, the analysis conducted by the Small Business Administration suggests that higher reporting thresholds would still cover the vast majority of all chemical use at key facilities. The SBA analysis reveals that lower thresholds would significantly reduce reporting burden. Perhaps more importantly, more targeted reporting thresholds would provide more meaningful information to the public, which was the intent of Congress.

5. Target reporting from key facilities.

EPA should examine the impact, in terms of both quantities reported and reporting burden, of targeting TRI reporting requirements at sources that comprise the majority of releases. This could take the form of exempting certain sources from reporting lead releases or establishing a *de minimis* exemption for lead and lead compounds. EPA should have sufficient data on lead and lead compounds to determine what combination of these approaches would ensure that significant releases are reported without burdening facilities and communities with excessive quantities of low-value information.

³⁶ SBA December 8 memorandum, *op. cit.* p. 6.

6. Provide an option for Form A.

Rather than eliminating the applicability of the shorter reporting Form A, EPA should consider establishing an alternate reporting threshold for lead and lead compounds. Instead of a reporting threshold of 1 million pounds, which applies to other TRI chemicals, EPA could set the alternate reporting threshold at 100 or 1000 pounds.

Appendix 1
RSP Checklist

EPA's Lead and Lead Compounds TRI Proposal

Element	Agency Approach	RSP Comments
1. Has the agency identified a significant market failure?	<p>EPA justifies this proposal and the TRI in general with concerns about externalities and information asymmetries.</p> <p>Fair</p>	<p>EPA's discussion of market failure is generally sound, but it neglects the key fact that information is a good, and like other goods, it is costly to produce. Absent some market failure that results in a sub-optimal production of information, a federal mandate requiring the production of information is likely to divert scarce resources from other more valued uses.</p>
2. Has the agency identified an appropriate federal role?	<p>The preamble to the proposal does not make a case for a federal, as opposed to state or local, role in informing communities about lead releases.</p> <p>Unsatisfactory</p>	<p>State and local governments are better able to address externalities resulting from inadequate information on local releases of lead and lead compounds because they are in a position to weigh the benefits and costs to communities of information dissemination.</p>
3. Has the agency examined alternative approaches?	<p>The Economic Analysis estimates the burden associated with different thresholds for lead and lead compounds, but not the benefits.</p> <p>Unsatisfactory</p>	<p>EPA should consider a wider range of alternatives, including raising the thresholds for chemicals that are not persistent and bioaccumulative. It should also estimate, at a minimum, the volume and fraction of lead and lead-compound releases that would be captured under different thresholds.</p>

Element	Agency Approach	RSP Comments
<p>4. Does the agency attempt to maximize net benefits?</p>	<p>The Economic Analysis quantifies increased paperwork costs, and presents a qualitative discussion of potential benefits. Unsatisfactory</p>	<p>The benefits attributed to the proposal accrue from subsequent activities facilitated by the TRI information, which also involve costs that may well exceed the benefits of the activities. Without a more objective and thorough analysis, one cannot determine whether the net social impact of lowering reporting thresholds for lead and lead compounds is positive or negative.</p>
<p>5. Does the proposal have a strong scientific or technical basis?</p>	<p>EPA proposes to lower reporting thresholds for lead and lead compound because they remain in the environment and accumulate in animal tissue. Unsatisfactory</p>	<p>Despite extensive information on lead and lead compounds, the reporting thresholds are not based on any quantitative analysis of the magnitude of releases that will be captured, nor the risks posed by releases at different thresholds. The logic supporting lowering thresholds could just as reasonably support <i>raising</i> thresholds for all other (non-persistent and bioaccumulative) chemicals.</p>
<p>6. Are distributional effects clearly understood?</p>	<p>EPA examines the paperwork impact on small businesses as a fraction of profits. It asserts net benefits to low income and minority populations, and children. Unsatisfactory</p>	<p>The distributional impacts are superficially evaluated. The Economic Analysis supporting the proposal makes no attempt to examine the costs or benefits to low income and minority populations or children, nor does it recognize the redistribution of wealth that results from requiring the release of private information.</p>
<p>7. Are individual choices and property impacts understood?</p>	<p>The proposal does not consider individual liberties or property rights. Unsatisfactory</p>	<p>Absent a compelling public need, private entities should not be required to release private information broadly to the public, including competitors and potential saboteurs.</p>

Regulation of the Week: EPA's Arsenic in Drinking Water Standards

Rule Summary:

The rule is intended to offer public health risk reduction benefits for Americans who are served by public water systems (PWS) that rely on groundwater or surface waters that have elevated levels of arsenic. The focus of the rule is on reducing arsenic concentrations from the existing standard of 50 micrograms per liter (ug/L) to a new Maximum Contaminant Level (MCL) of 10 ug/L.

Facts:

- Though arsenic poses acute risks at high doses, it is a naturally occurring substance for which health risks have not been observed at the levels found in U.S. drinking water systems.
- New evidence from Taiwan and Chile show that long-term exposure to moderate levels (which are 10 times higher than current maximum levels of 50 ug/l in U.S. water supplies) may be linked to increased risk of lung and bladder cancers. These study populations differ in important ways from the U.S. population, for example higher incidence of smoking and poorer nutrition. Without controlling for these differences, EPA has likely overstated by a significant amount the risk of arsenic ingestion in the U.S.
- An epidemiological study of Latter Day Saints in Utah found no statistical evidence linking the amount of arsenic ingested in drinking water with elevated risks of bladder or lung cancer.
- 1996 Amendments to the Safe Drinking Water Act authorized EPA to develop standards by balancing the benefits and costs born by community water systems. However, the rule would require communities to incur costs of reducing arsenic which, by EPA's analysis, are significantly greater than the health benefits the communities would receive.
- Compliance with this rule will drain community and individual resources that could, if used elsewhere, achieve much greater health protection benefits.
- To attain increasingly stringent MCLs, community water systems must adopt more expensive treatment options to attain the higher arsenic removals necessary to comply. EPA's estimates did not take into account the increasing cost of compliance.
- After correcting for significant flaws in EPA's benefit and cost estimates, the Mercatus Center analysis reveals that the 10 ug/L standard would impose net costs on communities (over and above benefits) of \$600 million per year.

- The EPA analysis indicates that from among the options it examined, 20 ug/L is the most logical choice from society's perspective. But EPA's own flawed cost and benefit data suggest that even 20 ug/L is too stringent, and some level between the current standard (50 ug/L) and 20 ug/L should be considered.
- Removing arsenic from drinking water will generate wastes that will in many cases be considered hazardous under applicable regulations (e.g., RCRA), and water utilities will face considerable costs (and liabilities) for on-site storage, eventual transport to an approved facility and, ultimately, suitable disposal. EPA has not considered these.

For more information, contact Laura Hill at 703-993-4945 or loquinn@gmu.edu. Download the Mercatus Center public interest comments at www.mercatus.org.

MERCATUS CENTER
GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

Comments on:

***National Primary Drinking Water Regulations:
Arsenic Rule***

Submitted to:

Environmental Protection Agency

September 19, 2000

"A wise and frugal government, which shall restrain men from injuring one another, which shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government."

Thomas Jefferson, from his "First Annual Message," 1801

RSP 2000-18

MERCATUS CENTER
REGULATORY STUDIES PROGRAM

Public Interest Comment Series:

Arsenic Drinking Water Standards

Agency:	Environmental Protection Agency
Rulemaking:	National Primary Drinking Water Regulations: Arsenic Rule
Stated Purpose:	“The proposed arsenic standard is intended to protect consumers against the effects of long-term, chronic exposure to arsenic in drinking water.”
Submitted September 19, 2000	RSP 2000-18

Summary of RSP Comment:

Regulation of arsenic in drinking water presents the most compelling case to date for EPA to use its authority to rely on benefit-cost analysis, granted in the 1996 Amendments to the Safe Drinking Water Act. Unfortunately, EPA does not embrace its new mandate enthusiastically. It continues to constrain its decisions in setting drinking water standards with internally-imposed levels of “acceptable risk,” and has proposed to set such standards at levels that its own analysis reveals will impose net costs on users of drinking water systems.

EPA has used its benefit-cost analysis in a narrow way—to reject the “technically feasible” level of 3 micrograms per liter (ug/L) in favor of a slightly less stringent level of 5 ug/L (down from the current level of 50 ug/L). However, its analysis reveals that the selected level is likely to impose more costs than benefits on water systems and (ultimately) their consumers. In fact, EPA’s own cost and benefit estimates suggest that all the levels it examined in developing the proposal (ranging from 3 ug/L to 20 ug/L) impose costs greater than benefits.

More robust estimates of benefits and costs reveal an even greater disparity between costs and benefits. After correcting for significant flaws in EPA’s benefit and cost estimates, it appears that achieving the proposed standard of 5 ug/L would impose net costs (over and above benefits) of over \$1.4 billion per year.

Though arsenic poses acute risks at high doses, it is a naturally occurring substance for which health risks have not been observed at the much lower levels found in U.S. drinking water systems. EPA should reexamine the incremental costs and benefits of achieving different standards, and based on the results of such analysis, it should set drinking water standards that make users of drinking water systems better off, as required by the Safe Drinking Water Act.

MERCATUS CENTER

REGULATORY STUDIES PROGRAM

**Public Interest Comments on
the U.S. Environmental Protection Agency's Proposed
National Primary Drinking Water Regulations: Arsenic Rule¹**

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of the impact of regulation on society. As part of its mission, RSP produces careful and independent analyses of agency rulemaking proposals from the perspective of the public interest. Thus, these comments on the U.S. Environmental Protection Agency's (EPA's) proposed arsenic in drinking water rule do not represent the views of any particular affected party or special interest group, but are designed to evaluate the effect of the Agency's proposals on overall consumer welfare.

EPA proposed the arsenic rule on June 22, 2000 (40 CFR Parts 141 and 142, in the *Federal Register* at page 38888). The proposed rule is intended to offer public health risk reduction benefits for Americans who are served by public water systems (PWS) that rely on groundwater or surface waters that have elevated levels of arsenic. The focus of the rule is on reducing arsenic concentrations from the existing standard of 50 micrograms per liter (ug/L) to a new proposed Maximum Contaminant Level (MCL) of 5 ug/L. The Agency has evaluated MCL options of 20, 10, and 3 ug/L as well, and has solicited comment on these alternative potential MCLs. For each MCL option, the goal is to reduce the risks of several cancers (e.g., bladder, lung, and skin) and other adverse health effects that have been associated with ingestion of elevated levels of arsenic.

The process by which EPA determines the arsenic MCL is particularly important and precedent-setting. As discussed more fully below, the arsenic rule is the most compelling case to date for using EPA's authority to rely on benefit-cost analysis, granted in the 1996 Amendments to the Safe Drinking Water Act. These comments raise and address a series of key questions regarding the proposed arsenic rule, with a specific focus on how the Agency's benefit-cost analysis (BCA) was developed and interpreted within the context of the statutory authority and the economic goal of maximizing the welfare of society. Section I provides background information and reviews the rule's key provisions and rationale, and indicates that EPA's interpretation and application of BCA is not consistent with either its statutory direction, nor basic economic principles. This is particularly important due to the precedent-setting nature of this particular rule. EPA has fallen short in its responsibilities to serve the public interest and maximize social welfare by ensuring that the nation is receiving the greatest health protection possible from its investments in environmental and safety programs.

¹ Prepared by Robert S. Raucher, PhD, Executive Vice President, Stratus Consulting Inc. This comment is one in a series of Public Interest Comments from Mercatus Center's Regulatory Studies Program. The views expressed herein do not reflect an official position of George Mason University.

Section II elaborates on the legal, economic, and policy implications of the Agency's incorrect application of BCA. It contrasts the Agency's approach with what EPA should have done if it properly adhered to the statute and the principles of social welfare economics. Section III describes the Agency's analysis and findings and section IV offers alternative estimates of the benefits and costs of the proposed options. Examining the proposed MCL options with this analysis suggests how the rule might be improved to provide greater net social benefits. Section V offers conclusions and recommendations. Appendix I provides the RSP checklist, which evaluates the proposed rule and its supporting analysis according to seven elements of good regulatory policy.

I. The Precedent of Using Benefit-Cost Analysis is Pivotal for this Proposed Rule

A. The Critical Issue is How Society's Benefits Compare to the Regulatory Costs

In evaluating the Environmental Protection Agency's proposed revision to the arsenic standard for drinking water (U.S. EPA, 2000a), several key issues are widely accepted as facts:

1. There is compelling evidence that elevated levels of arsenic in drinking water are associated with serious risks to human health, including cancer of the bladder, lung, and skin.
2. It is technically feasible to reduce arsenic levels in drinking water to very low levels.
3. There is no party with a vested economic interest in keeping arsenic levels in drinking water high. Drinking water utilities (known as community water systems, CWS) are either investor-owned and economically regulated so as to obtain a reasonable return on any arsenic removal investments they would have to make, or are publicly owned (e.g., municipal) and thus represent the same people who would benefit from reduced arsenic levels (and can recover the costs through increased rates or taxes).²

Given these facts, one might find it hard to imagine that setting a revised drinking water standard (Maximum Contaminant Level, or MCL) for arsenic would be a highly contentious issue. Nonetheless, there is a vigorous debate about how stringently to set the revised drinking water standard for arsenic in the U.S. Why is this the case? Quite simply, the debate hinges around how the benefits compare to the costs.

² Also, because arsenic typically is a naturally occurring compound when found in drinking water supplies, there are few business entities with potential third-party liabilities or pollution control costs associated with a more stringent drinking water standard. The impact on clean-up standards applied to Superfund sites may be a matter of concern for many parties, however.

B. EPA Has Discretionary Authority for Using Benefit-Cost Analysis in Setting the MCL

The households that ultimately bear the costs of a more stringent arsenic MCL are also the beneficiaries of the health risk reductions. However, the costs of moving from the current U.S. standard of 50 ug/L to levels approaching what is technically feasible (e.g., 3 or 5 ug/L.)³ are quite high. Also, the benefits that consumers receive from reducing their current arsenic exposures to such levels are uncertain and may be quite modest. Hence the debate about how stringently to set the MCL is, in reality, a question about what level of public health protection the regulation should compel American households to make on their own behalf.

Prior to the 1996 Amendments, the Safe Drinking Water Act compelled EPA to establish MCLs as low as was technically feasible.⁴ Recognizing that there are times when what is technically feasible is not necessarily a wise investment in public health protection, Congress in 1996 provided a mechanism by which the benefits and costs could be weighed and a more prudent level of risk reduction achieved. Provisions inserted in the Safe Drinking Water Act Amendments of 1996 (SDWAA) enable EPA to set an MCL at a level less stringent than what is technically feasible. Specifically, an MCL less stringent than what is technically feasible can legally be established in cases where the Administrator determines that the benefits of the technically feasible level do not justify the costs (Section 1412(b)(6)(A)). The proposed arsenic rule is the most compelling case to date for using this authority, and these comments provide a review of the benefit and cost information pertaining to the proposed new MCL for arsenic.

C. EPA's Use of Its Discretionary BCA Authority is Flawed and Over-Constrained

As discussed below, we have several concerns about the accuracy and credibility of the benefit and cost estimates that EPA derives and uses in assessing the proposed rule. However, perhaps more important than the benefit-cost calculations themselves is the manner in which EPA has proposed applying its discretionary authority in the proposed rule.

The Agency claims the technically feasible level is 3 ug/L, but uses its discretionary authority to propose an MCL of 5 ug/L based on benefit-cost considerations. This is a step forward in that the 3 ug/L option would yield significant negative net social benefits (as discussed below). However, the Agency does not go nearly far enough in using its authority because, according to its data, setting an MCL of 5 ug/L would also yield significant negative net social benefits. Most important is that in selecting an MCL, EPA sets several constraints and misapplies concepts with the result that the Agency's

³ EPA's proposal claims that 3 ug/L is technically feasible, but the feasibility of moving below 5 ug/L has been questioned by the Agency's Science Advisory Board and drinking water utilities.

⁴ Specifically, the Act prior to 1996 required that the MCL be set as close to the risk-free health protection goal (MCLG) as feasible. However, for all carcinogens, the risk free goal implied an MCLG of zero, so technical feasibility was the sole determinant for where the standard could be set.

logic is at odds with both the statute and the basic principles of welfare economics. This proposal thus raises important legal, policy, and economic issues, which are discussed more fully in Section II.

D. Health Risks Associated with Elevated Arsenic Levels May be Overstated by EPA

Arsenic has long been known as a potential toxin to humans, especially with respect to acute risks posed by high exposures (70 to 180 mg).⁵ More recently, epidemiological evidence from Taiwan, Chile, and other locations has demonstrated that long-term (chronic) exposure to more moderate levels of arsenic in drinking water—at levels generally in the hundreds of parts per billion range (comparable to hundreds of micrograms per liter)—is associated with elevated risks of cancer of the bladder, skin, lung, and perhaps other target organs. These arsenic levels also may be associated with other (noncancer) ailments as well.

While arsenic is clearly hazardous to humans at some level, the key questions for regulating its level in drinking water are:

- What level of risk is posed to humans at the current U.S. standard of 50 ug/L, and
- How much risk reduction would be achieved if the current standard were reduced to regulatory options such as 20 ug/L, 10 ug/L, 5 ug/L, or lower?

In accordance with the SDWAA, the National Research Council (NRC) assembled an expert panel that provided a comprehensive and scholarly review of the scientific evidence pertaining to these questions. The panel reached a consensus that the risk posed at the current standard of 50 ug/L may be unacceptably high, and that the MCL should be made more stringent (NRC, 1999). However, the panel left unanswered the key questions of (1) what is the level of risks borne at or below the current 50 ug/L standard? and (2) how low should the revised standard be set?

In conducting its benefit-cost analysis of potential MCLs for arsenic, EPA relied heavily (as appropriate) on the NRC report (U.S. EPA, 2000b). However, the Health Risk Reduction and Cost Analysis (HRRCA) that EPA prepared for this rule may have misinterpreted or overlooked important NRC information. For example, the Agency's Science Advisory Board (SAB), Drinking Water Committee (DWC), indicated that EPA's analysis of lung cancer risk is based on a misinterpretation of how such risks compare to those for bladder cancer (SAB/DWC, 2000).⁶

⁵ Vallee et al., 1960, as cited in Casarett and Daull, *Toxicology*, 1986. This is equivalent to 70,000 to 180,000 ug/L in drinking water, given mean tap water consumption of 1L/day.

⁶ The SAB Drinking Water Committee report on the arsenic proposal is still in draft form as of this writing. However, the points raised throughout these comments and attributed to the SAB/DWC have been aired by the Committee in several public meetings, and consistently remain in previous iterations of the Committee's draft report.

The SAB's Environmental Economics Advisory Committee (EEAC) also recently issued a report indicating the latency periods associated with cancer effects should be included in the analysis, and that these future health risk reductions need to be discounted to their present values at the same rates as all other benefits and costs (SAB/EEAC, 2000). These and other issues associated with the health risk reduction and associated benefits analysis have an appreciable impact on net benefit estimates and the appropriate arsenic MCL and are discussed below.

E. The Feasibility and Costs of Meeting Lower Standards are in Question

While the health benefits of a lower arsenic standard remain somewhat uncertain, the scientific evidence of potential risk probably is sufficient enough that there would be little debate about tightening the standard to the technically feasible level if it were reasonably inexpensive and straight-forward to do so. However, the costs of attaining the proposed level of 5 ug/L or even higher levels such as 10 ug/L or 20 ug/L appear to be very high, and there also are numerous concerns about the technical feasibility and potential adverse unintended consequences of doing so (including the potential risks and costs associated with the handling and disposal of hazardous wastes generated as the residuals of water treatment).

As discussed in Section IV, EPA's cost estimates are considerably lower than those developed by a study it cofunded with the American Water Works Association Research Foundation (AWWARF) and other co-sponsors (Frey et al, 2000). In addition, the SAB panel reviewing the rule has raised concerns with key elements of EPA's cost analysis, including the technical feasibility of a potential 3 ug/L or 5 ug/L standard, assumptions about the handling and disposal of wastes generated by treatment to remove arsenic from drinking water, the compliance decision tree, and other facets that contribute to the apparently understated EPA cost estimates (SAB/DWC, 2000).

Issues regarding the details of the costs and engineering feasibility analysis are addressed in other documents (e.g., Frey et al., 2000), and are not covered at length in these comments. However, the cost estimates provided by EPA and Frey et al are both used in the benefit-cost comparisons offered below to indicate the implications of considering alternative potential MCLs. As such, it is important that readers understand that there are considerable divergences in the cost estimates, and that many legitimate concerns exist about the accuracy and completeness of EPA's cost figures.

II. Legal, Policy, and Economic Issues Associated with EPA's Application of the BCA

A. Issues of Precedent

EPA claims in the proposal that it has for the first time invoked the specific cost-benefit provisions of the SDWA to support the choice of an MCL of 5 parts per billion (ug/L) for arsenic. As such, it is vitally important to consider how EPA interprets its mandate and responsibilities in this regard.

One issue is whether the arsenic rule is indeed setting precedent. The Agency has previously used the SDWAA's BCA provisions, in both the radon MCL proposal (Federal Register, November 2, 1999) and again in the Notice of Data Availability (NODA) issued for the proposed radionuclides MCLs (Federal Register, April 21, 2000). In both of these cases, benefit-cost information was used (albeit not quite as explicitly as in the case of the arsenic proposal) as the basis for not extending the enforceable standards to non-transient non-community water systems (NT-NCWS). The rationale employed by the Agency in both cases was that the benefits of extending the MCLs to NT-NCWS did not justify the costs (and data provided in both rulemaking packages indicated that the "unjustified" costs per fatal cancer avoided were on the order of \$100 million to \$165 million, as compared to a central estimate of the "Value of a Statistical Life (VSL) of about \$6 million).

In the case of both radon and other radionuclides (e.g., radium and uranium) the BCA information was used to exclude applicability of the MCL to the NT-NCWS class of public water systems (PWS) rather than to consider how stringently to set the MCL. Nonetheless, these actions created a precedent in that they departed from how EPA had applied MCLs in the past (i.e., it has previously applied all MCLs to NT-NCWS as well as CWS). EPA also indicated in the radon rule that an MCL lower than proposed might have been technically feasible (e.g., 100 pCi/L in contrast to 300 pCi/L), but did not draw explicit attention to this matter.

In the arsenic proposal, the Agency has explicitly drawn attention to the use of its discretionary authority to use BCA in setting the MCL, and has requested comment. In doing so, the Agency raises several important issues that are addressed below.

B. Statutory Provisions Call for the Use of Incremental Benefit-Cost Analysis

Section 1412(b)(3) of the Safe Drinking Water Act Amendments states:

...When proposing any national primary drinking water regulation that includes a maximum contaminant level, the Administrator shall, with respect to a maximum contaminant level that is being considered ... and each alternative maximum contaminant level that is being considered ..., publish, seek public comment on, and use for the purposes of paragraphs (4), (5), and (6) an analysis of ... (t)he incremental costs and benefits associated with each alternative maximum contaminant level considered.

It is thus clear that the BCA's role in MCL-setting is to be based on incremental costs and benefits (rather than total or average benefits and costs). This is consistent with economic principles (as described below). However, EPA has not adhered to this requirement.

1. EPA Incorrectly Focuses on Total, Rather than Incremental, Costs and Benefits.

As in most activities, increasingly stringent arsenic MCLs would generate diminishing returns. As lower and lower treatment targets are considered, costs increase at an increasing rate while the benefits are expected to increase at a decreasing rate (although at most, if the dose-response function is truly linear, it is conceivable that benefits would increase at a constant rate). This relationship implies that there is a balance point where the marginal benefit obtained equals the marginal cost, and it is at this point that net benefits (i.e., social welfare) are maximized. Equating marginal benefits with marginal costs is the appropriate use of benefit-cost analysis to justify a decision—not only is it consistent with economic theory, it is what the statute explicitly requires.

EPA does not use this method to justify the proposed arsenic MCL. Instead, EPA discusses an aggregate comparison of total costs and benefits in an attempt to justify the proposed MCL. In this procedure, the more favorable relationship between benefits and costs from the first increments of additional stringency (i.e., moving from 50 ug/L to 20 ug/L) are averaged in with the less favorable data relating to the last increments (i.e. moving from 10 ug/L to 5 ug/L). EPA bases its decision on comparison of these aggregates. EPA does not employ a reasonable analysis of the incremental costs and benefits associated with each alternative maximum contaminant level considered. EPA has not therefore performed a proper cost-benefit analysis and has not complied with the SDWAA.

Instead of relying on these average values, EPA should examine the tradeoffs between the incremental costs and the incremental benefits from moving from one regulatory option to the next most stringent alternative. The real intent of the statute is clear from the fact that EPA is compelled to compute incremental costs and benefits. EPA presents such incremental values, but provides no discussion of them and does not incorporate them into its justification, relying instead on aggregate cost-benefit comparisons and analysis of uncertainties on the benefits side. The aggregate comparison performed by EPA embodies a decision rule that is structured such that it will always over-shoot the economically optimal level of stringency that would be prescribed by marginal analysis. In other words, given increasing marginal costs per unit of arsenic removal in drinking water treatment, an MCL based on average net benefits will always imply a more stringent MCL, and lower total welfare improvement, than a decision based on comparing incremental benefits to incremental costs

2. EPA Fails to Recognize that Equating Benefits with Costs Does Not Maximize Social Welfare

As a further indication of how EPA fails to comprehend and properly interpret the cost-benefit findings, the Agency states that the objective is to try to *equalize costs and benefits* (with due consideration of nonmonetized costs and benefits). The Agency states: “Congress did not direct EPA to ensure strict equality of monetizable benefits and costs” (p 38951). This statement from the Preamble clearly indicates that EPA does not

understand how benefit-cost analysis should be interpreted in directing the nation's investments in public health protection.

The appropriate objective is to maximize net benefits (which is accomplished when marginal benefits are equated with marginal costs). By merely aiming to have total benefits and total costs be roughly equal, all EPA is accomplishing is to aim for a “break even” proposition that would leave society (if EPA's estimates are correct) neither much worse off nor much better off for having set the MCL. To set regulations and public policies on the basis of such a “zero net benefits” basis would lead to large-scale misallocation of the nation's resources. Instead, the Agency should examine the incremental net benefits of moving to each regulatory option (i.e., the incremental benefits minus the incremental costs), and select the MCL at which the incremental net benefits are greatest.

C. EPA Inappropriately Uses an Ill-Defined “Acceptable Risk” Policy as its Basis for Regulatory Option Selection, Over-Riding the Benefit-Cost Implications

Considerable mention is made in the proposal of the EPA “policy” that MCLs must be established such that individual lifetime cancer risks do not exceed a threshold of 10^{-4} , or that lifetime exposure to the chemical would not induce a greater than one in ten-thousand chance of cancer. This notion that a maximum “allowable risk” (of 10^{-4}) is the ultimate binding constraint on EPA rulemaking—regardless of what the costs of the rule are, or how the benefits compare to those costs—is problematic from the standpoint of welfare maximization, as well as the law.

There is neither statutory mandate nor authority to have a self-defined and self-imposed Agency policy on an “acceptable risk” floor apply to the MCL-setting process. The Safe Drinking Water Act Amendments do not impose or envision such a constraint.

By using the 10^{-4} rule of thumb as a “bright line” above which no MCL can be set, EPA is unduly compromising public welfare. For example, consider an instance where the incremental cost of a potential MCL was not justified by its incremental benefits, but where the estimated cancer risk at a less stringent alternative exceeded the 10^{-4} level. The proposal language appears clearly to state that the Administrator would be obliged to set the MCL at the unjustified level (to maintain a 10^{-4} risk ceiling) rather than follow the letter and intent of the statute and set a less stringent MCL that was indeed justified on a reasonable benefit-cost basis.

EPA should explicitly clarify whether this indeed is its intent and its interpretation of the statute. If this is the case, then the “acceptable risk” floor of 10^{-4} is more of a rule-making itself than a policy, and EPA should publish an “acceptable risk” proposal that allows for public comment on such a critical issue. The change in the statutory standard to a benefit-cost comparison sheds doubt on the legality of the acceptable risk approach that EPA appears to adhere to here.

III. The EPA Analysis Underlying the Proposal Suggests a Less Stringent Arsenic MCL Would Offer Higher Net Benefits.

EPA's preamble (Federal Register, June 22, 2000) and Regulatory Impact Analysis (RIA, U.S. EPA, June 2000) describe the rationale for the proposed rule, the options the Agency considered, and the benefit-cost analysis of the alternative options. This section reviews EPA's analysis and results. It presents the conclusions EPA has drawn from its analysis, and offers alternative interpretations that may be better supported by the data EPA provides.

The Agency's own estimates of costs and benefits are summarized in Exhibit 1. The table includes the EPA-estimated costs of each MCL option, in which the Agency uses a 3 percent discount rate to develop annualized costs, and also a 7 percent rate as mandated by OMB (Circular A-76)(US EPA 2000, RIA, Exhibit 6-10).

Exhibit 1: EPA-Estimated Benefits and Costs
(millions 1999 dollars)

MCL Option	Cancer Cases Avoided		Total Monetized Benefits		Estimated Costs of Compliance		Net Benefits		
	Fatal Cases (1)		Nonfatal Cases		at 3%		at 7%		
	Low	High	Low	High	Low	High	Low	High	
50									
20	2.0	6.0	3.0	9.0	\$ 12.7	\$ 42.1	\$ 63.2	\$ 73.7	\$ (21.1)
10	4.6	11.0	6.7	15.5	\$ 29.3	\$ 76.5	\$ 164.9	\$ 192.4	\$ (88.4)
5	8.4	18.8	11.8	26.6	\$ 53.3	\$ 130.8	\$ 378.9	\$ 442.2	\$ (248.1)
3	11.4	21.8	16.3	31.1	\$ 72.4	\$ 151.9	\$ 644.6	\$ 753.2	\$ (492.7)

(1) Fatal cancers avoided are EPA's estimates for bladder fatalities, plus an equal number of lung cancer fatalities (i.e., fatal lung cancer and bladder cancer cases avoided are in a 1:1 ratio)

The monetized benefits include EPA's estimated reduction in the number of fatal and nonfatal bladder cancer cases, and its "what if" estimates of potential lung cancer fatalities avoided (based on assuming that regulation-derived avoided cases of fatal lung cancers are as numerous as the fatal bladder cancer cases estimated).⁷ EPA values fatal cancer cases at \$6.1 million, reflecting a central estimate from the range of literature-derived "Values of a Statistical Life" (VSL), without any latency or discounting considerations. Nonfatal cancers are valued between \$178,400 (based on cost of illness data reflecting medical expenses, discounted at a 3 percent discount rate) and \$607,200 (based on a benefits transfer of a willingness to pay study of chronic bronchitis). Nonquantified health benefits are also duly noted by EPA, including possible risks of skin and kidney cancer, cardiovascular and pulmonary effects, and potential reproductive and developmental effects.

Based on EPA's own results shown in Exhibit 1, the net benefit of the proposed 5 ug/L MCL is significantly negative, with the standard imposing between roughly \$250 million and nearly \$400 million in net costs every year. EPA suggests these costs may be justified because (1) the Agency's self-imposed "acceptable risk" ceiling of 10^{-4} is met at 5 ug/L (according to EPA's exaggerated risk estimates); and (2) the dollar benefit estimates do not reflect the potential for some nonmonetized or unquantified risk reductions. However, it is difficult to fathom that such unquantified benefits could amount to the nearly half a billion dollars per year required to yield a modest positive net benefit for the proposed rule.

Of course, as noted above, the more appropriate comparison would be to examine incremental benefits, incremental costs, and incremental net benefits. This is done in Exhibits 2 and 3. As shown in Exhibit 3, the incremental net benefits are negative and large for all the potential regulatory options. Hence, based on EPA's own estimates of benefits and costs, one has to wonder whether it makes sense to tighten the existing standard at all. Clearly, there seems to be no basis for selecting 5 ug/L as the preferred option. If the BCA is being used by EPA as its basis for moving away from a technically feasible standard of 3 ug/L⁸ because the costs are not justified by the benefits, then how can EPA find that the costs are any more justified by the benefits at 5 ug/L than they are at 10 ug/L? or 20 ug/L?

⁷ EPA presents a scenario attributing benefits to bladder cancer fatalities avoided, along with "what if" scenarios that assume the standard will avoid lung cancer fatalities in the range of 2 to 5 times higher than fatal bladder cancer cases. The SAB/DWC has since noted this was a misinterpretation of the NRC report, and has stated that the risks are roughly equivalent. The benefits figures in Exhibit 1 reflect a one-to-one ratio of bladder and lung cancer fatalities avoided.

⁸ Note that the SAB, AWWA, and other parties have questioned whether achieving a standard of 3 ug/L or even 5 ug/L is technically feasible.

Exhibit 2: EPA-Based Incremental Benefits of Arsenic MCLs
(millions of 1999 dollars)

MCL Option	Nonfatal Bladder Cancers Avoided		Nonfatal Bladder Benefits		Fatal Bladder & Lung Cancers		Fatal Cancer Benefits (c)		Combined Benefits	
	Low	High	Low(a)	High(b)	Low	High	Low (d)	High(d)	Low	High
50 → 20	3	9	0.5	5.5	2.0	6.0	12.2	36.6	12.7	42.1
20 → 10	3.7	6.5	0.7	3.9	2.6	5.0	15.9	30.5	16.5	34.4
10 → 5	5.1	11.1	0.9	6.7	3.8	7.8	23.2	47.6	24.1	54.3
5 → 3	4.5	4.5	0.8	2.7	3.0	3.0	18.3	18.3	19.1	21.0

(a) at \$178,400 per case based on medical expenses (PV of cost of illness, at 3%), from RIA p 5-21

(b) at 607,200 per case, based on WTP for avoiding chronic bronchitis (Viscusi et al, 1991), from RIA p 5-21

(c) EPA bladder estimate, and lung cancers at 1:1 with bladder

(d) based on unadjusted VSL of 6.1 million

Exhibit 3: EPA-based Incremental Net Benefits of Arsenic Standards
 (millions of 1999 dollars)

MCL Option	Incremental Cost		Incremental Benefits		Incremental Net benefits	
	EPA (3%)	EPA (7%)	Low	High	Low	High
50 → 20	\$ 63.2	\$ 73.7	\$ 12.7	\$ 42.1	\$ (61.0)	\$ (21.1)
20 → 10	\$ 101.7	\$ 118.7	\$ 16.5	\$ 34.4	\$ (102.2)	\$ (67.3)
10 → 5	\$ 214.0	\$ 249.8	\$ 24.1	\$ 54.3	\$ (225.7)	\$ (159.7)
5 → 3	\$ 265.7	\$ 311.0	\$ 19.1	\$ 21.0	\$ (291.9)	\$ (244.7)

Hence, even EPA's own estimates of benefits and costs provide no basis for supporting the proposed standard of 5 ug/L. The results also lead one to wonder whether even 20 ug/L MCL would be a worthy investment in public health.

IV. EPA's Estimated Benefits May be Overstated, and its Costs Understated

The discussion above relied on EPA's own assessment of benefits and costs. However, there are several reasons to believe that the benefits may be overstated, and the costs understated by EPA. These issues have been examined by this author elsewhere (Stratus Consulting, 2000c) and are summarized below, with associated implications for where the MCL should be set.

A. EPA's proposal is unlikely to generate the level of health benefits EPA predicts.

As discussed in detail elsewhere (Stratus Consulting, 2000c), EPA's benefit estimates reflect several flawed assumptions and methodologies. The most important of these for the resulting benefit estimates include:

- EPA's risk assessment and benefits analysis (U.S. EPA, 2000b) rely solely on a study of populations in Taiwan that were exposed to relatively high levels of arsenic in their drinking water (e.g., 500 ug/L). These study populations differ in important ways from the U.S. population, and by ignoring these differences, EPA has likely overstated by a significant amount the risk of arsenic ingestion in the U.S. In fact, an epidemiological study of Latter Day Saints in Utah (Lewis et al, 2000) found no statistical evidence linking the amount of arsenic ingested in drinking water with elevated risks of bladder or lung cancer.
- EPA has adopted a linear dose-response function in order to extrapolate cancer risks from the relatively high exposure levels observed in the Taiwanese study data to the much lower concentrations that are being considered as potential MCLs. The NRC expert panel believes, based on the evidence on the mode of action for arsenic-associated cancers, that the dose-response function is more likely to be sublinear – meaning that the linear extrapolation used by EPA overstates the expected risk at low doses (NRC, 1999).
- Bladder cancer is far more prevalent in males than in females, yet EPA assumes data on bladder cancer incidence in U.S. females will correspond to the rates in Taiwanese males. This is likely to overstate cancer fatalities by 25 percent.
- The NCI notes that smoking is the leading cause of bladder cancer in the U.S., and that smokers are 2 to 3 times more likely to get bladder cancer than nonsmokers (NCI, 1998), yet EPA's risk analysis does not reflect the link between tobacco smoking and bladder cancer. The SAB noted that many of its members could not “support an epidemiological study that did not control for such a well established and

major risk factor for lung and bladder cancer as smoking.” Correcting for this suggests that one-third of the risk EPA attributes to arsenic may actually be due to smoking.

- Contrary to SAB’s guidance (SAB/EEAC, June 2000), EPA’s benefit figures do not reflect the long latency between exposure to arsenic and the incidence of cancers, thereby assuming a zero discount rate over those periods. Making appropriate adjustments based on SAB recommendations, EPA’s value per statistical life saved declines from \$6.1 million to \$2.7 million.
- EPA’s value of \$6.1 million per statistical life does not vary with the age at which fatalities occur. Since that figure is based on studies that reflect the value of life at roughly 40 years of age, it is likely to overstate the value of the increased life expectancies expected from this rule, because these cancers occur when individuals are in their late 60s and 70s. The age adjustment further reduces the estimated value per statistical life saved by about half, to \$1.3 per fatal bladder cancer and \$1.9 million per fatal lung cancer.

B. EPA’s cost analysis is likely to understate costs significantly

Independent estimates suggest that the actual costs of implementing this proposal are likely to be much higher than EPA predicts. In a study sponsored and governed by a group that included EPA (as well as AWWARF and ACWA), Frey et al. (2000) conducted an independent assessment of the costs of compliance with the various MCL options under consideration, and derived cost estimates for the options of 10, 5, and 3 ug/L that greatly exceeded EPA’s estimates. For example, the annualized compliance cost estimated by EPA for the proposed MCL of 5 ug/L is \$378 million, which is roughly one-quarter the Frey et al. estimate of \$1.5 billion.

The Frey et al analysis adopted several key features of EPA’s cost analysis (e.g., the same unit cost curves for the applicable arsenic removal technologies). Given these connections to the EPA analysis, it is surprising to note how divergent the EPA estimates are from the Frey et al. numbers. Some of the important points in which the analyses seem to diverge are:

- As increasingly stringent MCLs are considered, community water systems (CWS) must adopt more expensive treatment options to attain the higher arsenic removals necessary to comply. Yet, EPA’s analysis fails to reflect the reality that, for example, a system with arsenic levels of 25 ug/L can comply with a 20 ug/L MCL at much lower cost than if it had to attain a 5 ug/L or 3 ug/L standard. EPA appears to have applied a constant cost-per-covered-utility to all of the MCL options. This is unrealistic and understates the incremental costs (perhaps significantly) of moving to more stringent MCL options.
- Removing arsenic from drinking water will generate wastes that will in many cases be considered hazardous under applicable regulations (e.g., RCRA), and water utilities will face considerable costs (and liabilities) for on-site storage, eventual

transport to an approved facility and, ultimately, suitable disposal. EPA has not considered these.

- EPA has applied a social rate of time preference (3 percent) to annualize the capital costs of this rule. This is incorrect and inconsistent with OMB guidance on discounting. As these costs reflect the out-of-pocket expense of households who ultimately bear both the costs and the benefits of the proposed rule, the more appropriate measure is the opportunity cost of capital (cost of borrowing), which is much more likely to be in the 7 percent and higher range.

C. Corrections to the EPA BCA Yield Sizable Changes in the Results, and Provide Even Stronger Evidence that the Proposed MCL of 5 ug/L is Overly Stringent

Exhibit 4 shows the adjusted estimates for incremental benefits, based on several of the points noted above. The results diverge from the EPA estimates in several ways:

- The estimated number of premature fatalities reflects two adjustments: (1) a correction for the error EPA made in extending the male bladder rates (from Taiwan) to females (in the US), and (2) the extrapolation of bladder risks to lung cancer fatalities using a 1:1 ratio rather than a 2:1 or 5:1 ratio.
- The monetary values assigned to premature fatalities avoided reflects adjustments to the EPA's estimates for latency periods, discounting, and income growth. A \$2.7 million per premature fatality avoided is applied as an upper bound, and as a sensitivity analysis, the age-adjusted version of the above is applied as a lower bound (\$1.3 million per bladder cancer fatality avoided).

All other aspects of the analysis are identical to EPA's published results, and the adjustments made reflect logical corrections as consistent with SAB review comments.⁹

⁹ One exception is the gender-based adjustment, as the male to female extrapolation has not yet been raised to SAB's attention.

Exhibit 4: Adjusted Incremental Benefits of Arsenic MCLs (gender-corrected bladder cases)
(millions of 1999 dollars)

MCL Option	Nonfatal Bladder Cancers Avoided		Nonfatal Bladder Benefits		Fatal Bladder & Lung Cancers		Fatal Cancer Benefits (c)		Total Incremental Benefits	
	Low	High	Low(a)	High(b)	Low	High	Low (d)	High(e)	Low	High
50 → 20	2.3	6.8	\$ 0.4	\$ 4.1	1.5	4.5	\$ 2.0	\$ 12.2	\$ 2.4	\$ 16.2
20 → 10	2.8	4.9	\$ 0.5	\$ 3.0	2.0	3.8	\$ 2.5	\$ 10.1	\$ 3.0	\$ 13.1
10 → 5	3.8	8.3	\$ 0.7	\$ 5.1	2.9	5.9	\$ 3.7	\$ 15.8	\$ 4.4	\$ 20.8
5 → 3	3.4	3.4	\$ 0.6	\$ 2.0	2.3	2.3	\$ 2.9	\$ 6.1	\$ 3.5	\$ 8.1

(a) at \$178,400 per case based on medical expenses (PV of cost of illness, at 3%), from RIA p 5-21

(b) at \$607,200 per case, based on WTP for avoiding chronic bronchitis (Viscusi et al, 1991), from RIA p 5-21

(c) Gender-based correction of EPA bladder estimate, and lung cancers at 1:1 with bladder

(d) PV income growth and age-adjusted VSL of \$1.3 million

(e) PV income growth-adjusted VSL of \$2.7 million

These adjustments are still fairly conservative, because there remain several reasons to believe that the estimated risks are still overstated. For example, tobacco smoking impacts, the sublinear dose-response function, and the issues associated with extrapolating from a poor Taiwanese study population to the US population are all ignored in these adjustments to the estimated benefits.

Exhibit 5 then shows a comparison of the revised incremental benefits to incremental costs. Incremental net benefits are negative and large regardless of whether one uses the EPA's lowest cost estimates or the independent cost figures from Frey et al. The sum of these estimates suggest that reducing the standard from 50 ug/L to 5 ug/L would impose incremental costs on drinking water systems and their consumers of over \$1.4 billion per year.

- Using EPA's cost data, it is hard to justify going even to 20 ug/L, but it clearly appears unreasonable to consider any MCL less stringent than 20 ug/L.
- Using the Frey et al cost estimates, the incremental net benefits reveal a much sharper "knee of the curve" at MCLs more stringent than 20 ug/L. This is largely driven by the increase in costs associated with reducing the MCL below 20 ug/L. Hence, even if the Agency were inclined to tighten the MCL from its current level of 50 ug/L, the consideration of 10 ug/L or lower is clearly unsupported.

Exhibit 5: Adjusted Incremental Net Benefits of Arsenic Standards
(millions of 1999 dollars)

MCL Option	Incremental Cost		Incremental Benefits		Incremental Net Benefits			
	EPA (3%)	Frey et al	Low	High	EPA Costs		Frey et al Costs	
					Low	High	Low	High
50 → 20	\$ 61.9	\$ 55.0	\$ 2.4	\$ 16.2	\$ (59.5)	\$ (45.7)	\$ (52.6)	\$ (38.8)
20 → 10	\$ 101.8	\$ 550.0	\$ 3.0	\$ 13.1	\$ (98.8)	\$ (88.7)	\$ (547.0)	\$ (536.9)
10 → 5	\$ 213.9	\$ 855.0	\$ 4.4	\$ 20.8	\$ (209.5)	\$ (193.1)	\$ (850.6)	\$ (834.2)
5 → 3	\$ 266.0	\$ 1,370.0	\$ 3.5	\$ 8.1	\$ (262.5)	\$ (257.9)	\$ (1,366.5)	\$ (1,361.9)

D. The Rule Saves Relatively Few Years of Life, and Those are Achieved at Very High Costs

In lieu of examining net benefits, one may instead wish to consider costs per premature fatality avoided or cost per life-year saved. Exhibit 6 provides estimates of incremental costs per life-year saved for various discount rates. At a 7 percent discount rate, the incremental cost for a year of life saved is \$13.8 million for moving the standard from 50 ug/L to 20 ug/L.¹⁰ The incremental cost per life-year saved jumps to nearly \$100 million at more stringent MCL options.

Exhibit 6. Incremental cost per LYS^a
(millions 1999 dollars)

MCL option	Discount rate (w/20 year latency)		
	3%	7%	10%
50 → 20	\$3.6	\$13.8	\$92.4
20 → 10	\$21.8	\$84.3	\$567.1
10 → 5	\$23.8	\$91.9	\$617.9

a. Midpoints of range of \$/LYS.

As a point of reference, the EPA's unadjusted value per statistical life is only \$6.1 million and refers to contexts in which over 35 life-years are lost per fatality (e.g., occupational settings). The incremental costs per life-year saved for the proposed arsenic MCL are well outside of the acceptable range, implying that the proposed rule represents a very inefficient allocation of the nation's public health resources.

E. Unvalued and Omitted Costs (and Benefits) May be Important

Even though the numerical results shown above provide very compelling evidence that the costs of the proposed rule are not justified by the benefits, it is also important to recognize that many costs are probably omitted from the quantitative analysis. For example, some of the waste disposal costs are omitted, especially with regard to hazardous wastes generation. There also are likely to be adverse impacts on the

¹⁰ These estimates were derived using a 20-year latency period, reflect the midpoint between the EPA and Frey et al cost estimates, reflect the midpoint in premature fatalities avoided, and include the gender- and lung cancer-related risk adjustments described above)

availability of water resources.¹¹ Any such impact on water resource availability, or water storage capabilities, will increase pressures to withdraw more water from surface and ground water systems that are already strained in many parts of the country. The net result may well be unsustainable withdrawal rates for western aquifers, and increased ecological risks in surface waters due to diminished instream flows.

EPA has also not examined the indirect impact that lowering the arsenic MCL may have on the cost of cleaning up Superfund sites. Because Superfund cleanup standards are pegged to MCLs, the cost to U.S. taxpayers and consumers of meeting cleanup standards would certainly be expected to increase.

V. Conclusions and Recommendations

Regulation of arsenic in drinking water presents the most compelling case to date for EPA to use its authority to rely on benefit-cost analysis, granted in the 1996 Amendments to the Safe Drinking Water Act. Unfortunately, EPA does not embrace its new mandate enthusiastically. It continues to constrain its decisions in setting drinking water standards with internally-imposed levels of “acceptable risk,” and has proposed to set such standards at levels that its own analysis reveals will impose net costs on users of drinking water systems.

EPA has used its benefit-cost analysis in a narrow way—to reject the “technically feasible” level of 3 micrograms per liter (ug/L) in favor of a slightly less stringent level of 5 ug/L (down from the current level of 50 ug/L). However, its analysis reveals that the selected level is likely to impose more costs than benefits on water systems and (ultimately) their consumers. In fact, EPA’s own cost and benefit estimates suggest that all the levels it examined in developing the proposal (ranging from 3 ug/L to 20 ug/L) impose costs greater than benefits.

The above analysis reveals that the Agency’s use of its new authority is inappropriate and flawed for the following reasons:

- The Agency’s discussion of its use of the authority indicates an intent to stay within the limits of its internal perception that “acceptable risk” levels cannot exceed 10^{-4} . The use of such an internal Agency policy guideline to constrain or over-ride its statutory mandate with respect to how benefit-cost results are used in MCL-setting is not supported by the SDWAA.
- EPA’s cost-benefit analysis fails to present or use in a meaningful way the basic principles of economics (maximizing the well being of the nation’s citizens). The

¹¹ For example, aquifer storage and retrieval (ASR) is a technique that enables utilities to reuse treated wastewater, thereby decreasing demands on raw supplies. However, evidence suggests the process releases small amounts of arsenic into the water from soils surrounding the injection wells. The levels released may be sufficient to cause compliance problems with a 5 ug/L MCL when the water is extracted for potable reuse. The impact will be to raise the costs of ASR considerably, making it uneconomic in some settings and thereby forcing utilities to increase demands on raw supplies.

Agency should examine incremental benefits and incremental costs, and strive to set regulations at the point where incremental net benefits are greatest.

- EPA's analysis has been criticized for overstating benefits and understating costs, but even its own results yield negative incremental net benefits for the rule as proposed. The EPA analysis indicates that from among the options provided in the proposal, 20 ug/L is the most logical choice from society's perspective. But EPA's own flawed cost and benefit data suggest that even 20 ug/L is too stringent, and some level between the current standard and 20 should be considered.
- EPA fails to develop credible, unbiased estimates of benefits or costs, thereby coloring the overall analysis to suggest higher net benefits than can truly be anticipated. More defensible estimates of the incremental net benefits reveal negative net benefits of over \$1.4 billion per year from reducing the standard from 50 ug/L to 5 ug/L.
- While unquantified benefits and costs need to be considered in the use of the new authority, the inclusion of these nonmonetized items needs to be done in a legitimate and insightful manner. EPA has failed to do so. EPA simply suggests that because there are unquantified benefits, the results of the benefit-cost analysis can be overridden or largely ignored.

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APPENDIX I

RSP CHECKLIST

PROPOSED ARSENIC RULE

Element	Agency Approach	RSP Comments
1. Has the agency identified a significant market failure?	<p>In addition to statutory mandate, EPA cites the natural monopoly power of water systems, and notes the information burden associated with having consumers self regulate drinking water risks.</p> <p>Grade: B</p>	<p>The natural monopoly argument is less valid today, given that consumers having opportunities to drink bottled water or purchase home treatment units. The information barrier has some validity, as it would be costly for consumers to assemble the facts about the challenging issues of arsenic-related risk assessment and drinking water.</p>
2. Has the agency identified an appropriate federal role?	<p>The implied federal role is to establish procedures and standards that state primary agents and water systems will have to implement.</p> <p>Grade: C</p>	<p>MCLs are performance standards, so water systems have some flexibility regarding the manner in which they achieve compliance with the rule. But in reality their options are heavily constrained because they are subject to less regulatory risk if they adopt "best available technologies." Allowing more site-specific flexibility to state and local agents could improve the cost-effectiveness of the rule.</p>
3. Has the agency examined alternative approaches?	<p>EPA describes and provides benefit-cost information for 3 options in addition to the proposed MCL.</p> <p>Grade: C</p>	<p>Given the negative net benefits for all the MCL options proposed, a broader and more meaningful set of alternatives should have been developed and analyzed.</p>

Element	Agency Approach	RSP Comments
<p>4. Does the agency attempt to maximize net benefits?</p>	<p>The Agency selected an option with negative net incremental benefits, according to its own analysis of benefits and costs. Grade: F</p>	<p>Both EPA's own analysis, and our assessment of benefits and costs reveal that no serious or systematic effort was used to try to maximize net social benefits. Indeed, EPA has stated that its goal is equate benefits to costs, which implies zero net benefits. This reveals a lack of comprehension about how a benefit-cost analysis is to be interpreted, or what it means to try to maximize net benefits.</p>
<p>5. Does the proposal have a strong scientific or technical basis?</p>	<p>The NRC report provides a strong basis for interpreting the literature regarding scientific risk assessment issues. Occurrence and exposure issues are addressed based on a range of available studies. Benefits valuation applies standard economic practices. Costs estimates appear incomplete and inaccurate. Grade: F</p>	<p>Various committees of the SAB have found key aspects of the Agency analysis problematic. The SAB was critical of EPA's interpretation of the NRC risk report and Utah epidemiological study. The feasibility and costs of treatment also have been called into question by SAB and other informed parties. The Preamble, RIA, and other materials available from the docket lack transparency and are often inconsistent with each other. Many important considerations were ignored (e.g., hazardous waste generation and disposal).</p>
<p>6. Are distributional effects clearly understood?</p>	<p>There is little indication of how this rule would affect people of different economic strata, or small-scale systems. Grade: F</p>	<p>Potentially significant impacts on small enterprises and small communities are inadequately assessed. EPA's use of national averages serves to obscure what may be a major ramification of this rulemaking.</p>
<p>7. Are individual choices and property impacts understood?</p>	<p>The approach is highly prescriptive. Grade: D</p>	<p>With increased opportunities for individuals to make informed choices over drinking water (e.g., bottled supplies, in-home treatment), there is decreasing justification for nationally-imposed approaches. This is especially true for the smallest systems where any benefits received by consumers are likely to be greatly outweighed by the costs.</p>

MERCATUS CENTER

GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

Comments on:

*Proposed Changes to the Total Maximum Daily Load
Program (TMDL) and to the National Pollution
Discharge Elimination System (NPDES) and
Water Quality Standards (WQS) Regulations*

Submitted to:

The Environmental Protection Agency

January 19, 2000

"A wise and frugal government, which shall restrain men from injuring one another, which shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government."

Thomas Jefferson, from his "First Annual Message," 1801

RSP 2000-1

MERCATUS CENTER
REGULATORY STUDIES PROGRAM

Public Interest Comment Series:

EPA's TMDL Rules

Agency:	Environmental Protection Agency
Rulemaking:	Proposed Revisions to the Water Quality Planning and Management Regulation (40 CFR Part 130) and to the National Pollution Discharge Elimination System Program and Federal Antidegradation Policy (40 CFR part 122 <i>et. al.</i>)
Stated Purpose:	"Clarifies and strengthens how TMDLs are established so they can more effectively contribute to improving the nation's water quality."
Submitted January 20, 2000	RSP 2000-1

Summary of RSP Comment:

EPA's proposed changes to regulating states' establishment of Total Maximum Daily Loads (TMDLs) for managing water quality reflects a welcome shift from federally-mandated technology-based controls to controls based on the characteristics of individual watersheds. However, EPA's prescriptive, procedural rule is likely to undermine the benefits of a watershed approach.

Centralizing decision making with EPA for hundreds of thousands of river segments, lakes, and coastal zone regions complicates and delays decision making about matters that are inherently local. Under this proposal, EPA would obtain nearly unlimited authority to overrule state decisions, and impose any standard it chooses on any body of water under any circumstance. The costs to states, just to develop TMDL plans under the new rules, could reach into the billions.

River basins, watersheds, and coastal regions are natural units for managing water quality. EPA's approach must allow for and encourage the recognition of alternate geographic governance units that minimize the environmental cost of achieving improvements in water quality.

A water quality management system based on the rule of law and protection of environmental rights can be devised so that the goals of TMDL can be achieved. The system must include accountability and responsibility for actions that affect environmental quality. The system must allow for flexibility in the development of regulatory institutions and processes so that regional differences in benefits and costs can be taken into account, and innovative local solutions can be implemented to bring about real improvements in water quality.

Public Interest Comment
on the Environmental Protection Agency's

**Proposed Changes to the Total Maximum Daily Load (TMDL) Program and
to the National Pollution Discharge Elimination System (NPDES) and Water
Quality Standards (WQS) Regulations¹**

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of regulations and their impacts on society. As part of its mission, RSP produces careful and independent analyses of agency rulemaking proposals from the perspective of the public interest. Thus, the program's comments on the Environmental Protection Agency's (EPA's) proposed changes to its Total Maximum Daily Load (TMDL) program and to the National Pollution Discharge Elimination System (NPDES) and Water Quality Standards (WQS) regulations do not represent the views of any particular affected party or special interest group, but are designed to protect the interests of American citizens.

These comments first review the history of federal and state regulation of water quality and highlight the delicate balance of authority that has emerged between these government levels. Section II then provides a summary of the two proposed water quality regulations on which EPA requests comment. Section III examines the implications of the proposed changes on the federal-state relationship and water quality, and analyzes the net benefits to the American people. Section IV offers alternatives to EPA's approach, emphasizing common law and property rights solutions to continuing water quality problems. The final section offers recommendations for improving EPA's proposals.

I. Water Quality Regulations Under the Clean Water Act Have a Complex History

Congress passed the Clean Water Act (CWA) in 1972.² The CWA's goal was to enhance and protect the quality of the nation's waters while respecting the authority of each state to regulate the use of its waters.³ Even before the Clean Water Act, however, states were required to designate water bodies as suitable for recreation, propagation of aquatic life or other specific classifications, including public water supplies, agriculture, and industrial uses. The Water Quality Act of 1965 directed states to develop water quality standards that set water quality goals for interstate waters.

¹ Prepared by Roger E. Meiners, Professor of Law & Economics, University of Texas-Arlington and Bruce Yandle, Alumni Distinguished Professor of Economics, Clemson University.

² 33 USCA Chapter 26 Sec. 1313.

³ 33 USCA Chapter 26 Sec. 1251 (a) states the objective of the act to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Sec. 1251 (b) further declares: "It is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this chapter."

The Clean Water Act broadened state requirements for establishing water quality standards, or WQS, and directed EPA to develop and publish, in "consultation with appropriate Federal and State agencies and other interested persons, ... criteria for water quality accurately reflecting the latest scientific knowledge

- (A) on the kind and extent of all identifiable effects on health and welfare including, but not limited to, plankton, fish, shellfish, wildlife, plant life, shorelines, beaches, esthetics, and recreation which may be expected from the presence of pollutants in any body of water, including ground water;
- (B) on the concentration and dispersal of pollutants, or their byproducts, through biological, physical, and chemical processes; and
- (C) on the effects of pollutants on biological community diversity, productivity, and stability, including information on the factors affecting rates of eutrophication and rates of organic and inorganic sedimentation for varying types of receiving waters."⁴

Based on these numerical "criteria," states are required to develop water quality standards that apply to interstate waters and submit them to the Administrator of the EPA.⁵ According to the proposed rule, "water quality standards are the State's goals for individual waterbodies and provide the legal basis for control decisions under the Act."⁶ The Administrator reviews states WQS to ensure that they are not inconsistent with the requirements set by the statute. If states fail to submit proper standards, the Administrator may impose WQS.

These WQS constitute a major portion of the nation's water pollution control system. They have been implemented largely through the National Pollutant Discharge Elimination System (NPDES) program, which restricts the entry of pollutants into state waters by requiring point-source polluters to obtain permits from the states. The permits specify what and how much of what pollutants may be emitted from sewage treatment plants, factories, and other pollution sources into specific bodies of water. The effluent allowed under these NPDES permit is based on application of the "best technology" for a given effluent. Over 350,000 permits have been issued and the number is growing rapidly.

The Clean Water Act also requires states to identify water bodies in which the technology-based point-source effluent limitations set by the NPDES program are not sufficient to achieve water quality standards. States must establish a priority ranking, which considers the severity of the pollution and the designated use of the water. Section 1313 (d) (1) (C) requires each state to establish,

in accordance with the priority ranking, the total maximum daily load [for pollutants the EPA has identified as suitable for calculations]. Such load shall be established at a level necessary

⁴ 33 USCA Chapter 26 1314 (a)1.

⁵ States are to review their water quality standards once each three-year period.

⁶ Proposed Section 130.0(b) (64 FR 46045).

to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.

To date, such total maximum daily loads or TMDLs, have played a rather small role in the nation's clean water policy. The proposed rule would increase that role, and redefine TMDL as

written plans and analyses established to ensure that the waterbody will attain and maintain water quality standards (as defined in 40 CFR 131) including consideration of reasonably foreseeable increases in pollutant loads.⁷

EPA's fact sheet defines a TMDL as a "framework for restoring polluted waters." The framework comprises the following two steps:

- A calculation of the maximum amount of a pollutant that a waterbody can take in and still meet water quality standards; and,
- A distribution of that amount to the pollutant's sources.⁸

Congress clearly intended for the NPDES to reflect a "command-and-control" approach to limiting the discharge of effluent in waters. What has never been clear, and has generated substantial litigation over the years, however, is the limit of EPA control over state permit programs. Since the Clean Water Act gives the states the primary responsibility for water quality programs, what are the limits on EPA rejection of state plans? A large body of regulatory law has arisen around the permit process; and the EPA and the states have engaged in numerous informal and formal tussles over the years. Since neither Congress nor the Supreme Court have clarified the position of the EPA with respect to the states in this process, the two parties have learned to live with the uncertainty and move forward with the business of limiting water pollution. As of 1996, 40 states had been authorized by EPA to issue NPDES permits. In the other 10 states, the EPA issues the permits.⁹ As explained below, the Proposed Rules, which place new emphasis on EPA approval of state plans, or TMDLs, is likely to alter this delicate balance, moving the primary permitting responsibility from the state to the federal level

II. EPA's Proposals

On August 23, 1999, EPA published two notices in the *Federal Register*. The first would revise the Water Quality Planning and Management or TMDL regulations, and the other would revise the NPDES and Water Quality Standards to facilitate implementation of the new TMDL rule. This section briefly highlights the key aspects of each proposal.

⁷ Proposed Section 130.2(h) (64 FR 46046).

⁸ "What is a TMDL?," www.epa.gov/owow/tmdl/cleanfs1/html

⁹ See GAO/RCED 96-42.

A. Proposed Revisions to the TMDL Regulations

EPA states that the purpose of the proposed revisions to the TMDL regulations is “to provide states with clear, consistent, and balanced direction for listing waters and developing TMDLs, resulting in restoration of waterbodies not meeting water quality standards.”¹⁰

The proposal details the methodologies states must use when determining which water bodies to list as not meeting current water quality standards. Each state would be required to articulate such methodologies according to the proposed rule specifications, elicit public comment on the methodology, and submit the methodology to EPA for review eight months before it submits its actual list to EPA for approval.

State lists would have to place the water bodies identified as not meeting water quality standards into one of four categories:

1. Part 1 waters are impaired or threatened by pollutants or by unknown causes;
2. Part 2 waters are impaired or threatened by pollution.
3. Part 3 waters are those for which TMDLs have been completed, but water quality standards have not yet been attained; and,
4. Part 4 waters are expected to meet water quality standards by the next listing cycle as a result of the use of other enforceable pollution controls.

“Pollution” is defined in these regulations and in the Clean Water Act as “the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.”¹¹ “Pollutants” include residues; industrial, agricultural or municipal wastes; heat; biological materials; radioactive materials; solid wastes; discarded equipment; rock sand or cellar dirt; as well as contaminants regulated by the Safe Drinking Water Act.¹² The rule would require states to establish TMDLs in the first category – waters that are impaired or threatened by pollutants or by unknown causes. Once identified as impaired, waters would remain listed until water quality standards are achieved.

The TMDLs themselves work much like State Implementation Plans (SIPs) in EPA’s air program. States establish the maximum amount of each pollutant a water body can receive while still attaining water quality standards and determine the allowable contributions of each pollutant from each contributing source in a watershed. The TMDL specifies the maximum daily loads of each pollutant and the required reductions from discharging sources necessary to meet WQS. States submit these plans (TMDLs) to EPA for approval.

¹⁰ www.epa.gov/owow/tmdl/tmdlfs.html

¹¹ Proposed Section 130.2(c) (64 FR 46046).

¹² Proposed Section 130.2(d) (64 FR 46046).

Until now, TMDLs have not played a major role in EPA's water quality management strategy. Although this is the case, the proposal specifies more detailed requirements for TMDL preparation and submission.

First, the new regulation – if promulgated – would require states to commit to schedules for establishing TMDLs. Such schedules would have to be submitted to EPA and would have to establish a timeframe of no longer than 15 years for addressing all water body and pollutant combinations in the state. The proposal requires states to establish TMDLs for high priority water bodies before medium and low priority water bodies, and also prescribes characteristics (such as threats to endangered species) that would dictate a "high priority" designation. Schedules should call for the establishment of TMDLs for high priority water bodies no later than five years from listing. The proposal would also allow the public to petition EPA to step in and establish TMDLs in a state if the state fails to do so on schedule.

While EPA requires states to submit for EPA review their methodology for listing impaired waterbodies and schedule for establishing TMDLs, it will not approve or disapprove the methodology or schedule. Instead, the proposed rule states that EPA will comment on states methodologies and schedules, and consider them "in its review and approval or disapproval of [state] list and priority rankings."¹³

The proposal also identifies the following ten specific elements each TMDL must include before it can be approved by EPA:

1. Name and location of the impaired or threatened water body as well as upstream waterbodies that may contribute to impairment;
2. Identification of the pollutant and the amount of the pollutant that the water body can receive and still meet water quality standards;
3. Identification of the amount by which the pollutant must be reduced for the water body to meet water quality standards;
4. Identification of the source or sources of the pollutant;
5. Determination of the amount of the pollutant that may come from point sources;
6. Determination of the amount of the pollutant that may come from nonpoint sources;
7. A margin of safety;
8. Consideration of seasonal variations;

¹³ Proposed Section 130.24(c) (64 FR 46048) and 130.31(c) (64 FR 46050).

9. Limited allowance for future growth and reasonably foreseeable increases in pollutant loads; and,
10. An implementation plan.

The implementation plan is a new requirement. For EPA to approve the TMDL, this implementation plan must include these eight elements:

1. A list of actions needed to reduce pollutant loadings and a demonstration that these actions are expected to achieve required pollutant loads;
2. A detailed timeline describing when these actions will occur;
3. Reasonable assurances that the waste-load allocations for point sources and the load allocations for nonpoint sources will be implemented;
4. Legal authorities to be used;
5. Estimate of the time it will take to meet water quality standards, and the basis for that estimate;
6. Monitoring or modeling plan to determine if reductions are being achieved;
7. Milestones for measuring progress; and
8. Plans for revising the TMDL if progress is not being made.

The proposal also emphasizes public participation and opportunity to comment on lists, priority rankings, schedules, and TMDLs prior to submission to EPA.

B. Proposed Revisions to the NPDES and Water Quality Standards Regulations

EPA states that the purpose of the proposed revisions to the NPDES and water quality standards regulations is “to achieve reasonable further progress toward attainment of water quality standards in impaired waterbodies after listing and pending TMDL establishment, and to provide reasonable assurance that TMDLs, once completed, will be adequately implemented.”¹⁴

Existing NPDES regulations allow states to grant a new or expanding facility the permits necessary to discharge pollutants into a water body as long as the facility obtains “offsets,” or discharge reductions, from existing sources (as necessary to attain or progress toward meeting water quality standards). The proposed revisions would restrict the use of offsets by requiring large new or significantly expanding dischargers¹⁵ to obtain an offset of 1.5 times their proposed discharge (1.5:1)

¹⁴ www.epa.gov/owow/tmdl/tmdlfs.html

¹⁵ A significant expansion would be defined as a 20 percent or greater increase in pollutant loadings above current permitted pollutant loads.

before beginning to discharge, unless the state determines that an offset of less than 1.5:1 but more than 1:1 is sufficient to attain water quality standards. States may also determine that no offset should be allowed, if any such offset would degrade water quality.

The proposal would also give EPA more authority over the granting of NPDES permits. For discharges to impaired water bodies in NPDES-authorized states, EPA would have the authority to object to, and ultimately reissue, expired and administratively-continued permits if necessary to ensure progress toward meeting water quality standards and implementing TMDLs. Under the proposal, EPA would also have the authority to designate certain operations, such as Concentrated Animal Feeding Operations; Concentrated Aquatic Animal Production Facilities; and certain silviculture operations as point sources and require them to obtain NPDES permits after completion of a TMDL in cases where EPA is required to establish the TMDL.

III. Implications of the Proposed Rules

Total Maximum Daily Loads, an important concept in assuring water quality, have not previously played a major role in water quality regulations, which have focused more on NPDES controls on point sources. The Proposed Rules would place TMDLs, which the states are ordered to produce within one year, at the cornerstone of federal water controls.

This shift in focus from NPDES and point source controls to TMDLs reflects the fact that most point sources are highly regulated and that discharges that enter water from point sources are minimal due to existing regulation. While there are problems with some public sewage treatment plants, it is generally accepted that for there to be significant improvements in water quality around the nation, it makes little sense to tighten the standards for point sources even further. Further tightening would add substantial costs while providing little improvement in water quality.

Nonpoint sources, including agriculture, silviculture, and urban run-off, are a major sources of most water pollution. Thus, a focus on reducing effluent from nonpoint sources is likely to be more cost-effective than further restrictions on point sources. Since nonpoint sources are, by definition, hard to pinpoint – no pipe emits treated water into a body of water, but rather sediment from multiple sources flows in along the banks of countless waterways – it makes little sense to talk about technological controls on nonpoint sources. The focus should be on what ends up in water that causes harm. In this sense, the basic thrust of the Proposed Rule is logical. The focus should be on what is in a particular body of water that may harm humans or aquatic life, not the specifics of exactly how much is contributed from every single source into every single body of water.

The essential problem with the Proposed Rule, however, is that it grants the federal EPA nearly unlimited authority to address anything that affects any body of water under a multitude of standards and considerations that EPA may apply on a case-by-case basis. This sweeping federal authority is particularly inappropriate considering the lack of knowledge of the extent of the problem the rule proposes to address, and the very local nature of water quality issues.

EPA is right, both economically and ecologically, to focus on watershed management of water quality. However, water quality is largely a local issue, as every water basin differs in its science

and uses. EPA should be concerned with water quality – what is in the water that causes harm – but it should not be concerned with the details, at the federal level, of pollution control efforts for each and every body of water nationwide. Not only is this a virtually impossible task, but it conflicts with the intent of Congress when it mandated that each state have authority over its own waterways.

This section raises four general concerns with EPA’s proposal as drafted:

- A. It does not respect the local nature of water bodies and conflicts with the goal of Congress that states should retain primary responsibility for water quality control;
- B. Its requirements are not supported by sound science;
- C. It is both prescriptive, and open-ended, leaving states little flexibility, but burdening them with substantial responsibility; and
- D. It fails to consider how significant the costs will likely be.

A. Highly Specific National Controls Do Not Respect the Local Nature of Water Bodies and Conflict with the Goal of Congress

The prescriptive nature of the proposed TMDL rule conflicts with the objective of Congress in the Clean Water Act, to give states primary responsibility for water quality control. As noted in the CWA: “It is the policy of Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution....” The states are “to consult” with the Administrator of the EPA, as Congress supports federal research and “technical services and financial aid to State and interstate agencies and municipalities in connection with the prevention, reduction, and elimination of pollution” (at 33 USCA § 1251(b)). Furthermore, the Clean Water Act states “It is the policy of Congress that the authority of each state to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this chapter. It is the further policy of Congress that nothing in this chapter shall be construed to supersede or abrogate rights to quantities of water that have been established by any State. Federal agencies shall cooperate with State and local agencies to develop comprehensive solutions to prevent, reduce and eliminate pollution with programs for managing water resources” (at 33 USCA § 1251(g)).

Congress apparently recognized the inherently local nature of waterbodies. The water quality goals, standards and procedural approaches that make sense in one area may not be appropriate in another. EPA recognizes this to some extent by refocusing on a watershed rather than technology-based approach to water quality management. Yet, EPA’s proposals, rather than allowing states to make decisions regarding local water bodies based on their own unique characteristics, would define procedures and controls, and could impose federal authority and priorities on states.

The emphasis in the proposal is on national consistency and uniformity, when in fact local approaches tailored to individual water bodies and the preferences of the populations living near those water bodies are much more likely to be effective.

The proposal authorizes EPA to determine TMDLs for all "Part 1" waters in the nation, either through conditions it imposes for approval of state plans or by taking over a state program. In addition to asserting authority in these rules to require any WQS for any water body, EPA leaves open the possibility that in the future it might to, "in the future, "promulgate federal water quality standards for states, pursuant to section 303(c)(2)(B), to ensure consistent, nationwide application of the new requirements in the period between listing and TMDL establishment."¹⁶ Thus, states must submit water quality plans that meet EPA approval, for achieving standards that may be determined by EPA at a later date on a case-by-case basis.

States, in establishing TMDLs to meet water quality standards for a given water body, must include every possible source that might contribute to loadings of any pollutant. That is, the impact on water from all possible sources must be determined by the states for every body of water impaired or threatened by pollutants or unknown sources, including: point sources of pollutants (discharges from public and private sources such as water treatment plants); nonpoint sources of pollutants (runoff from land, including that from agriculture and silviculture activities, taking into account the impact of unusually heavy rains, the impact of unusually large snow melts, and the impact of unusually dry weather); and atmospheric pollutants (the impact of airborne dust and pollutants deposited on bodies of water).

While it is true that all these things do affect water quality, EPA places no limits on what it may demand from the states in this regard. Documenting all that EPA is proposing for every Part 1 water body may well be technically impossible, as well as economically infeasible. EPA admits that it knows little about basic water quality for the majority of the nation's waters, yet this proposal would require states to provide detailed documentation regarding the current and potential water quality of every river, stream, estuary, reservoir, lake and pond—including estimates of what happens in case a hurricane should hit, a drought should occur, or a large dust storm in New Mexico should drop heavier than usual particulate matter on Arkansas.

Under its existing authority, EPA already claims very broad authority to force states to deal with water issues that may arise from any source. Last September, for example, the Governor of Nebraska attacked EPA's designation of a stretch of the Middle Platte River as "impaired water" because of concerns about high water temperature. He pointed out that the water is warm due to summer sun and low water levels. The Governor recognized that historically when the weather is hot and rainfall scarce, the river temperature rises, just as EPA asserts. However, he wondered, "How can the state control temperature pollution coming from a natural source, like the sun?"¹⁷ EPA will not answer that question because it asserts that it is Nebraska's responsibility to resolve the problem. Nebraska denies there is a problem, other than one caused by nature. EPA demands a remedy—or may impose one.

The real issue is that of water flow restrictions caused by the existence of the Kingsley Dam on the river. Nebraska contends that the EPA does not have the authority to order the dam torn down or to

¹⁶ www.epa.gov/owow/tmdl/tmdlfs.html

¹⁷ *Omaha World-Herald*, September 21, 1999, p.1.

require higher levels of water flow from the dam.¹⁸ EPA does not assert it has such authority, but continues to demand that Nebraska lower the river water temperature (obviously, by changing water flow). In essence, EPA is using existing water quality standards (temperature) to force a state to change water flow practices, something it cannot directly regulate. The Proposed Rules would end any doubt about the ability of EPA to force states to impose any control on any activity that now affect or in the future could affect water quality, as defined by EPA.

B. EPA's Proposals are not Supported by Sound Science

While there are real problems with water quality in various lakes, rivers and estuaries, the EPA has little scientific evidence about the extent of the problem. As the Proposed Revisions to the NPDES and Water Quality rule states in background information, "of the 19 percent of the Nation's rivers and streams that have been assessed, 35 percent of these do not fully support water quality standards or uses and 8 percent of these are threatened."¹⁹ That means that the water quality in only 1.5 percent of the nation's rivers and streams are known to be "threatened."

What is a "threatened waterbody"? EPA defines it as "Any waterbody ... that currently attains water quality standards, but for which existing or readily available data and information on adverse declining trends indicate that water quality standards will likely be exceeded by the time the next list of impaired or threatened waterbodies is required to be submitted to EPA."²⁰ In other words, so far as EPA can determine, as of its National Water Quality Inventory Report to Congress for 1996, perhaps only 1.5 percent of the nation's rivers and streams appear to be threatened by an increase in pollution in the future. EPA is, apparently, unable to report anything on the water quality of the other 81 percent of the nation's rivers and streams (or on 28 percent of the estuary waters, or 60 percent of the lakes, ponds, and reservoirs).

While there is no doubt that there are real water quality issues around the nation, EPA does not provide much evidence on that point. Rational policy, based on evidence of problems, would demand that the Agency collect comprehensive evidence, rather than assert that a massive expansion of detailed regulations are justified because, to the best of the EPA's knowledge, 1.5 percent of the rivers in the nation *might* violate water quality standards in the future. The fact that just over one-third of the 19 percent of the nation's rivers surveyed for the National Water Quality Inventory Report (or 6.65% of the nation's rivers and streams) are not in full compliance with existing water quality standards is not buttressed by evidence that deviations from existing EPA regulations is, in fact, causing harm to the "chemical, physical and biological integrity of the Nation's waters" as specified by Congress in the Clean Water Act (at 33 USCA § 1251(a)).

EPA recognizes that it has little scientific evidence to support the Proposed Rules. "One option EPA considered was whether it would be appropriate to revise the regulations to require that TMDLs be

¹⁸ Indeed the Clean Water Act expressly states "It is the policy of Congress that the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this chapter." Sec. 1251(g).

¹⁹ Proposed Rule: see Federal Register, August 23, 1999, Volume 64, Number 162, pp. 46012.

²⁰ *Ibid.* 46047.

established only on data and analyses which met very strict quality and analytical standards. EPA concluded that this approach is impractical and would significantly decrease the number of TMDLs that could be established.” (at 46036). However, EPA does not defend why it thinks it is better to have more TMDLs than to have a few meaningful plans for truly impaired water bodies. Critical observers argue that lack of monitoring has left states unable to measure the quality of their waters or the progress made. According to analyst Dr. Richard Halpern, twenty years after the Clean Water Act was passed, only “\$33 million had been spent on monitoring the nation’s water quality, but taxpayers and the private sector had spent more than \$540 billion on technology to fix our water, broken or not.”²¹

“After all this time and money,” two United State Geological Survey water quality specialists reflected recently, “it would be desirable to know whether the [Clean Water] act has worked. Is the water cleaner than it would otherwise have been and have the environmental benefits, however they may be counted, exceeded the costs?” They conclude that decision makers “do not now have the information they need to make wise decisions for the future.”²²

EPA is not to be blamed for the paucity of scientific information; Congress has never chosen to allocate significant funds for this purpose and, similarly, most states do not consistently produce evidence about water quality. No doubt this is because most streams are generally accepted *not* to be in environmental distress. Presumably, the most attention is given to bodies of water that clearly suffer from pollution problems.

C. The Procedural Nature of the Proposed Rule is Both Prescriptive and Open-Ended

The proposed Water Quality Management and Planning rule is both prescriptive and open-ended, leaving states with little flexibility, but substantial responsibility. It requires states to develop lists of impaired water bodies, according to a specified format and using EPA’s prescribed priorities. States must also solicit public input and document the methodology they use to develop the list of impaired water bodies and submit that to EPA eight months before the list is due. While EPA does not assert the authority to approve or disapprove the methodology itself, it will “consider [it] in its review and approval or disapproval of [the] list and priority rankings.”

Since the first lists are due on October 1, 2000, and the methodology is due January 31, 2000,²³ this schedule leaves states very little time for preparing the extensive documentation the proposal requires. Concurrent with the submittal of a state’s list, each state must submit a schedule by which it will develop TMDLs for all Part 1 water bodies. Prior to submittal of lists, priority rankings, schedules, and TMDLs to EPA, states must provide the public with at least 30 days to review and comment on each of these.

²¹ Halpern, 1995.

²² Debra S. Knopman and Richard A. Smith, “20 Years of the Clean Water Act,” *Environment* 35, no. 1 (Jan./Feb. 1993), 17. Knopman and Smith are hydrologists with the U.S. Geological Survey in Reston, Virginia. (As cited by Halpern.)

²³ This deadline will most likely be delayed in the final rule.

As described above, each TMDL must comprise ten elements. These elements themselves are simultaneously prescriptive and open-ended. For example, EPA recognizes that some waterbodies do not meet the water quality standards due to “unknown causes.” Nevertheless, waters impaired by pollutants or *unknown causes* are considered Part 1 water bodies, for which states must develop TMDLs. That is, even if the waterbody is impaired by unknown causes, a state must submit a plan (TMDL) for EPA approval that identifies the pollutant contributing to the impairment, its source, and the amount that it must be reduced. If EPA review of the state-submitted TMDL concludes it does not meet the required elements, EPA will issue an order establishing a new TMDL. Such water bodies will remain on the threatened or impaired list “until water quality standards are attained” (at 46024).

An “approvable” TMDL must include considerations of water quality, habitat, geomorphological, or other conditions that indicate adequate water quality (at 46031). For example, the Proposed Rules say that a state may have to show, among other things, how it can improve spawning of a particular fish by 20 percent by its TMDL plan for a particular water body (at 46031). Whether 20 percent more successful spawning is the “correct” target is at EPA’s discretion. In planning such TMDLs for various water bodies, the state must consider fine sediment from hillsides or river banks, and the variability of such sediment according to the season of the year, the amount of rainfall (“low flow during drought periods” and “high flow nonpoint source runoff” at 46032), and the temperature that “varies as a result of climate and season” (at 46031) and that may affect the impact on water of assorted pollutants. The Proposed Rules recognize that such matters are “extremely difficult to solve” and may be “costly” (at 46031), so the Agency assures the states that it appreciates the complexities they face. However, should a state fail to submit a TMDL plan that satisfies EPA, “EPA has authority to require such an implementation plan as an element of an approvable TMDL” (at 46032).

While the general outlines of the Proposed Rules are based upon water quality standards and implementation plans outlined by Congress at 33 USCA § 1313, EPA has significantly stretched the words of Congress to give itself nearly unlimited control over state waters. Whereas Congress says that water quality plans will take into account “seasonable variations” (33 USCA § 1313(d)(1)(C)), EPA stretches that to be from drought to flood conditions, as noted above. In other words, states, in developing TMDLs must consider the effect of “seasonable variations,” including hundred year floods and unusual droughts. Similarly, while Congress says that water controls should be “stringent enough to assure protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife” (at 33 USCA § 1313(d)(1)(B)), EPA stretches this to include habitat plans under the Endangered Species Act and asserts that it has the option of using the Safe Drinking Water Act standards or new standards that may be developed in the future.

The Proposed Rules grant EPA nearly unlimited authority to impose controls on states. The Proposed Rules are followed by discussion that indicates that in practice the Agency does not intend to implement such sweeping powers except in rare cases. But EPA does not define what these rare cases are.

D. Cost Will Be Significant

EPA has determined that the proposal is a "significant regulatory action" under the terms of Executive Order 12866, and the preamble states that EPA prepared an "Analysis of the Incremental Costs of Proposed Revisions to the TMDL Program Regulations," which examines the direct costs to states, territories and authorized tribes of developing TMDLs. However, the preamble does not report the results of that analysis (other than to suggest in a separate section that these direct costs will not exceed \$25 million in any one year), nor does EPA post the analysis on its web site. Interested public must go to EPA's docket to obtain it. The preamble also promises expeditiously to gather information and provide analysis of the costs and benefits of the implementation (by private parties) of the TMDLs required by the proposal. EPA hopes to make this available for public review and comment before final promulgation of the TMDL rule.

Because EPA states that it does not expect the costs to states, territories and authorized tribes to exceed \$25 million in any one year, it has not conducted an analysis as required by the Unfunded Mandates Reform Act (UMRA) for rules imposing costs on these governmental units or the private sector of \$100 million or more (at 46043). For rules costing more than \$100 million in any one year, UMRA requires agencies to consider, in a written statement, a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that meets the rules objectives.

A 1996 EPA report of the costs to state and local governments of developing TMDLs (based on case studies of 14 TMDLs) provides some insights into potential costs to states, territories and authorized tribes. It found that per-watershed costs ranged from under \$5,000 for small watersheds with single pollutant source and no public participation to over \$1,000,000 for larger watersheds with various sources and more extensive public participation. The studies examined five components of costs: administration, outreach and public participation, analysis, modeling, and data collection and monitoring. If the additional requirements in the proposed rules increase administration and public participation costs by 25 percent, and modeling and analysis costs by 15 percent (we assumed no increase in monitoring and data collection costs due to the proposal), the average *incremental* cost of the proposal would be about \$115,000 per watershed. EPA suggests that over 20,000 waterbodies have been identified as impaired or threatened,²⁴ implying total costs of over \$2 billion. Even if these costs are distributed evenly over the 15-year period during which states must develop TMDLs for all Part I waterbodies, it amounts to over \$250 million per year in costs to states, simply for developing plans.²⁵ This rough estimate does not include costs to private citizens of implementing these plans.

²⁴ The Proposed Rules note that the State of Kansas alone needs to produce "TMDLs for over 1,000 waterbodies statewide" (at 46039).

²⁵ The table below summarizes these rough calculations. The low and high estimates for each cost component are from EPA's 14 case studies, Figures 8a and 8b. The annualized cost estimates are calculated using a 7 percent discount rate.

The American Legislative Exchange Council (ALEC) observes that states estimate they will incur average costs of \$50 million if the TMDL rule is promulgated.²⁶ This amounts to almost \$275 million per year.²⁷ Other studies of the costs of modeling watersheds (which is not included in the \$2 billion estimate) suggest that these costs also may be significant. The General Accounting Office (GAO) has estimated that current EPA watershed models, costing \$25,000 per study, are insufficient to calculate the consequences of pollutant loadings.²⁸ Better, but not well-tested watershed models by the U.S. Geological Survey are about \$750,000 each, the same GAO report notes. One commentator observed, “conservatively estimating 100 watersheds per state, the bill for their assessment alone could reach \$4 billion”²⁹

Though based on very rough calculations, we believe the above figures suggest that EPA’s estimate that the proposed changes will cost under \$25 million per year is understated. The cost of producing comprehensive TMDLs, which must potentially account for temperature swings, rainfall (and snow melt) highs and lows, habitat, sedimentation, and a wide variety of pollutants and water quality standards that EPA may rely upon in approving or setting such plans, is clearly a massive undertaking, imposing costs that could well exceed our rough \$250 million estimate in any one year. The states must incur these costs and, due to the open-ended nature of the proposal, are dependent on EPA’s verdict as to whether a particular TDML is adequate with respect to the various elements contained in the rule.

It is not clear how states will fund this open-ended program. The Proposed Rules note that states “may have difficulty in completely identifying funding sources for all such measures” (at 46034). Left unsaid is how funds are to be produced if not allocated by state legislatures. EPA is putting

Cost Component	Mean Cost/watershed In \$1000	Increment attributed to rule	Total Cost/ Watershed in \$1000	Total Cost for 20,000 watersheds in \$1,000,000
Administration	50	25%	\$ 12.5	\$ 250
Public Participation	50	25%	\$ 12.5	\$ 250
Modeling	400	15%	\$ 60	\$ 1,200
Monitoring	300	0%	\$ -	\$ -
Analysis	200	15%	\$ 30	\$ 600
	1000		\$ 115	\$ 2,300
Annualized cost over 15 years				\$ 253

²⁶ Model ALEC Legislation, “State Implementation of Clean Water Act TMDL Requirements,” December 1999.

²⁷ This assumes the \$50 million figure is a present value, and that these costs are distributed evenly over 15 years, using a 7 percent discount rate.

²⁸ GAO, “Water Quality: Federal Role in Addressing and Contributing to Nonpoint Source Pollution,” GAO/RCED-99-45.

²⁹ Oliver A. Houck, “TMDLs IV: The Final Frontier,” 29 Environmental Law Reporter 10469 at p. 13.

itself in the position of forcing the states to allocate additional funds to cover the costs of whatever water protection programs EPA asserts it has the authority to mandate on the states.³⁰

EPA also asserts that the Regulatory Flexibility Act does not apply because the Proposed Rules “will not have a significant economic impact on a substantial number of small entities” (at 46041). EPA does not deny that its proposal will not involve compliance costs on small entities, rather *EPA* is not directly ordering any group of small entities to change their methods of operation. EPA asserts, “no impact flows directly from these proposed regulations” (at 46042). The impacts will flow from the states when they implement TMDL plans that they create under the Rules (or that EPA imposes if it disapproves state plans).

Similarly, EPA does not have to comply in this instance with Executive Order 13045, which concerns health or safety risks to children, because the Proposed Rules are not “economically significant” and do not “establish an environmental standard intended to mitigate health or safety risks. Today’s proposal is a procedural rule” (at 46045). Of course, the procedures here specifically assert that the Agency may require states to incur or impose substantial economic costs. These costs will divert scarce state, territory, and tribal resources away from programs that may provide much more effective and concrete improvements in children’s health and safety.

IV. Market-Based Alternatives Would Respect States’ Rights and Improve Water Quality

EPA could recast the TMDL proposal to meet more effectively the Congressional goals of significantly enhancing and protecting the quality of the nation’s waters, while respecting its objective regarding “the authority of each State” with respect to the use of its waters (at 33 USCA § 1251(g)). The needs of the states with respect to the uses of their waters, and the causes of and solutions to water pollution problems differ significantly from state to state.

Just as there is diversity among the states in their water needs and water problems, the science of water pollution control is still emerging, and will continue to evolve more rapidly, if the states are allowed to take widely different approaches to water quality management. The Proposed Rule produces great uncertainty among the states and causes them constantly to look to EPA for the agency’s currently preferred water pollution control measures. States will have less incentive to find innovative solutions to water problems if they all have the same point of reference—the federal authority, especially if the EPA can reject any part of any state’s proposed water plan and impose its own standards and solutions.

The current Clean Water Act regulatory regime has not addressed the real problems that have arisen from the failure of the EPA and the states to address nonpoint water pollution. Most states have not assessed their watersheds because the costs are significant and, quite likely, because the

³⁰ The American Legislative Exchange Council has responded with model legislation to assist states in setting priorities to meet their obligations under the CWA “in a fashion that recognizes their resource constraints and that is based on sound scientific data.”

consequences of an honest assessment that reveals pollution problems may be expensive EPA mandates.

On the other hand, to be eligible for certain federal money, the states must declare bodies of water to be impaired. As the governor of Wyoming explained to Congress, "the authority for states to receive federal money for watershed work required that we declare that a waterbody was functionally impaired—regardless of its actual condition. That misunderstood incentive caused many streams to be mislabeled as impaired."³¹ The Proposed Rules would compound this problem, as the states know they may face costs that cannot be predicted given the open-ended nature of the authority EPA is asserting under the Rules.

This section recommends an alternative regulatory structure that would more effectively achieve water quality goals, while complying with existing law.

A. The TMDL Regulations Should Provide More Flexibility

Refocusing water quality regulation on outcomes instead of inputs (as reflected in the emphasis on TMDLs rather than technology based NPDES effluent limitations) is a major step in the right direction, but greater flexibility is needed if the promise of real water quality improvements and cost savings is to be realized. Given a choice between performance standards that identify and focus on outcomes and technology-based input standards, common sense suggests that environmental protection should be about the environment and how it affects people, not about engineering and permits. Performance or outcome-based water quality management changes the incentives in the right direction. With unconstrained performance standards, polluters have complete flexibility, technologically and economically, in finding effective ways to meet environmental targets. New information and discoveries can be translated quickly into enhanced environmental quality. Profit seeking moves producers in the direction of improved water quality. On the other hand, technology-based input regulation tends to freeze technology, to force a single approach on polluters in the same industry, to blunt the incentive to discover and implement alternate approaches, to reduce competition, and to disregard outcomes. Permitted polluters who adopt approved technologies can expand operations even though environmental loadings may exceed the assimilative capacity of streams for handling discharge. The fact that numerous river segments are environmentally stressed while all dischargers meet EPA engineering standards – and that this situation is destined to get worse – is powerful evidence that input management will not generate environmental protection (at 46016).

The proposed requirement that point-source dischargers who wish to expand first obtain offsets from existing dischargers raises the admirable prospect of gains from trade in the context of a river basin

³¹ Statement of Jim Geringer, Governor of Wyoming, Hearing on Governors' Perspectives on the Clean Water Act Before the Subcommittee on Water Resources and the Environment of the House Committee on Transportation and Infrastructure, 106 Cong. 4 (1999).

management system.³² However, for EPA to require that offsets of particular amounts and kinds be sought only after technology-based standards are met is just as clearly a step in the wrong direction.

Evidence from experiments on Wisconsin's Fox River that offered permit trading opportunities, the equivalent of market offsets, after EPA technology-based standards were met illustrates the difficulties associated with a hybrid system that attempts to install markets on command-and-control regulation.³³ Touted in the early 1980s as a cost-effective alternative to strict command-and-control regulation for reducing biological oxygen demand (BOD), the Fox River experiment initiated by the Wisconsin legislature in September 1981 offered the prospect of generating annual savings of \$4.5 to \$6.8 million.³⁴ But as environmental economist Tom Tietenberg points out, the large savings were not achieved.³⁵ Only one trade between BOD dischargers was recorded. The requirement that technology standards had to be met prior to entering the market for offsets raised costs and practically eliminated the potential gain from trade. In addition, bureaucratic barriers were then erected by regulators who did not support the concept.³⁶ In a perceptive analysis of what happens when efforts are made to append markets to command-and-control regulation, two water quality management scholars David and Joeres pointed out early on that the Fox River experiment would suffer because the financial and bureaucratic incentives were not right.³⁷ Their pessimistic forecast proved to be extraordinarily accurate. EPA's proposed TMDL regulation suffers for the same reasons.

B. Decentralized Regulation is Needed

Water quality problems are inherently local or regional, and while there is a national interest in improving environmental quality, there are no national rivers or lakes. Even if there were rivers and lakes that touched every state or most of them, the span of such water bodies would be so large and heterogeneous that decentralized control would naturally emerge. To achieve the largest net gains in water quality benefits, management of water quality should be decentralized. Those best equipped with specialized knowledge and with the greatest incentive to minimize cost and improve water quality should be made responsible and accountable for managing water quality. TMDL regulations should be refocused; they should be cast in terms of property rights protection and the rule of law and focused at the state level. A decentralized approach for water quality management based on the rule of law maintains state supremacy and congressional intent that EPA "consult" with the states.

C. Property Rights and the Rule of Law Form a Solid Foundation for Water Quality Management

Instead of specifying in detailed fashion how states shall proceed in developing TMDLs for all bodies of water within their boundaries and then engaging in continuous water quality planning and

³² See U.S. EPA, 1992.

³³ See Meiners and Yandle, 1993, 97.

³⁴ Maloney and Yandle, 1983, p. 312.

³⁵ Tietenberg, 1999, p. 456.

³⁶ Meiners and Yandle, 1993, 97.

³⁷ David and Joeres, 1983, p.234.

monitoring, federal rules for managing water quality should simply require: 1) that each state have a plan for achieving water quality management that provides accountability and liability for damages imposed on holders of environmental rights, and 2) that real data on observed water quality conditions for all major water bodies be provided continually and consistently to the public. The data should be in a form that allows for comparisons to be made across time and space. Obviously, appropriate definitions of "major water bodies" and "real data on observed water quality conditions" would have to be specified.

The rule of law that has evolved through common law courts provides a logical framework for defining legitimate holders of environmental rights.³⁸ Under common law, ordinary people and communities of people hold the right not be harmed against their will. To illustrate, if a discharger of waste imposes costs on parties downstream against their will, the holders of downstream rights have a cause of action against the polluter. If those downstream are citizens of the same state or city populations in another state, the cause of action is the same. State and federal courts provide forums for settling the related disputes. Typically, the remedies are damages and injunction.

If common law rights were enforced, any city that discharged raw sewage that imposed costs on downstream citizens would do so at its own risk. Paying a nominal fine to the EPA, which is the usual result under the current regulatory system, does not get the job done. Any nonpoint-source polluters who allowed runoff from a farm or collection of city parking lots to impose damages on downstream parties would be subject to suit. Any state that allowed damages to befall the citizens of another state could be sued in federal court. And any state that damaged the federal property of citizens of the United States, as in the case of the Florida Everglades or Yellowstone National Park, could be sued by the stewards of that property.

Common law property rights protection introduces an understandable discipline that causes ordinary people to become conscious of and accountable to their neighbors. Common law courts do not issue permits that allow polluters to harm other people. Instead of dealing with the endless technical problems of specifying TMDL for hundreds of thousands of U.S. river segments, the common law process would protect environmental rights. The result of that protection would then yield another form of TMDLs, one based on the prevention of damages to people and the things they value.

To be taken seriously, a proposal for common law protection of environmental rights must reflect on the so-called "race to the bottom," a concern that citizens of a particular state might choose to become an environmental sink for polluting industries.³⁹ While this may have been a legitimate concern 30 years ago, there is no evidence that a race to the bottom has occurred. People living in California, Oregon, New York, Florida, North Carolina, or any state in the nation simply do not wish to live in an environmental wasteland. Instead of a race to the bottom, the issue today is how to race more quickly to the top.

³⁸ Meiners and Yandle, 1999.

³⁹ Volokh, Scarlett, and Bush, 1998.

D. The Rule of Law Can Be Consistent with River Basin and Watershed Management

From the very outset of the nation's interest in improving water quality, scholars and policy analysts have focused on river basins and watersheds as the appropriate domain for a substantial part of water quality management.⁴⁰ Water quality results from the collective action of all water quality users; it is impossible to achieve collective improvements by focusing on individual discharge points. More than a century of European experience tells us about the relative merits of river basin management.⁴¹ Federal encouragement for building environmental protection on the basis of property rights and the rule of law would support the formation of associations or multi-state compacts for improving water quality. Building on a foundation of law and property rights leaves room for many kinds of institutional experiments.

There are obvious economies associated with defining the boundaries of a proposed solution so that they fit the boundaries of the problem. Very positive U.S. experience is found in the history of the Ohio River 10-state compact, ORSANCO, which led to dramatic improvements in water quality in that region before federal intervention.⁴² A similar experience is seen now in North Carolina's Tar-Pamlico River Basin Association, which forms a cost-minimizing community of point-source and nonpoint-source dischargers who are collectively improving water quality of the Tar River and Pamlico Sound.⁴³

When ORSANCO was formed in 1948, there were no federal water pollution control statutes. ORSANCO and state and local statutes filled the need. By contrast, when Tar-Pamlico was formed in the 1980s following a massive downstream fish kill, federal statutes had failed to provide water quality protection. Every point-source discharger in the watershed was operating within permit limitations, and nonpoint source dischargers were outside the regulatory control network.

Estimates of the incremental cost of reducing a unit of biological oxygen demand (BOD) in the watershed region varied from 10 cents per kilogram to \$3.15 per kilogram.⁴⁴ At one location in the Tar-Pamlico estuary, reductions of harmful nutrient discharge from an industrial point source ranged from \$860 to \$7,861 per pound eliminated. It was estimated that the same pollutant could be removed by farmers (nonpoint-source dischargers) at a cost of \$67 to \$119 per pound.⁴⁵ In short, the expected gains from trade were sizable.

Today, Tar-Pamlico collects revenues from point-source dischargers who are members of the association. The revenues generated are used in turn to make low-cost purchases of reductions from nonpoint-source dischargers who are not association members. The incentives are right for all parties. Operators of publicly owned treatment works have coordinated capital improvements to

⁴⁰ Dales, 1968; Kneese and Bower, 1968.

⁴¹ Riggs and Yandle, 1997.

⁴² Cleary, 1967.

⁴³ Riggs and Yandle, 1997; North Carolina Department of Environment, Health, and Natural Resources, 1992; U.S. EPA, Office of Water and Office of Policy, 1992.

⁴⁴ Yandle, 1993, p. 193.

⁴⁵ EPA Office of Water and Office of Policy 1992.

minimize the cost of improving water quality and have avoided the installation of more costly yet still ineffective advanced control systems by paying discharge fees. Farmers in the region gain revenues by modifying their cropping operations. Meanwhile water quality has improved in the Tar River. Initial estimates of the command-and-control approach to the problem indicated the cost would be \$50 to \$100 million and water quality would not necessarily be improved. By comparison, Tar-Pamlico is achieving improvements at a cost of \$10 million.* Tar-Pamlico and ORSANCO illustrate just two possibilities that states might take in efforts to improve water quality.

Given a complete range of choices as to how to manage water quality, it is conceivable that a river basin association would take a TMDL approach precisely like the one outlined in EPA's proposed rule. It is also conceivable that an association would follow the path of Tar-Pamlico, which with EPA approval focuses strictly on outcomes and supports contracting for reductions between point-source and nonpoint-source dischargers. People in other states would no doubt discover and implement a range of solutions to the water quality problem that cannot be predicted before the fact. Accountability and water quality protection would be assured by a requirement of liability for damages provided by common law and with a reporting of water quality data required by regulation.

E. EPA Should Be a Consultant to the States; Not a Manager of TMDLs

The evolving state-centered water quality management process still leaves a key role to be played by the EPA. It is not, however, the micro-management role envisioned by the proposed TMDL rules. Quite apart from these rules, the EPA is positioned to be a key consultant to the states in reporting water quality data, analyzing conditions, and providing technical support in the development of water quality management approaches. If water quality is to be improved, it is critical that reliable data be provided so that citizens and responsible officials can know where, when, and how much progress is being made. If nothing else, the federal government should provide accurate data on environmental quality.

EPA could play an enforcement role in common lawsuits that involve interstate matters and protection of federally managed assets. Obviously, the adjustment from enforcer of command-and-control, technology-based standards to the role of consultant in a common-law world will not come easily. But change is important.

Far more is known today about water quality management than was known in 1972 when the current Clean Water Act was passed into law. Even if the economic makeup of the country had not changed, there would be reason to reexamine and perhaps change the regulatory assumptions that supported that first major statute. But the economy has changed dramatically. The United States is no longer a smokestack economy; it is primarily a services economy. The major water pollution control challenges have also changed. Instead of industry, it is now municipalities and nonpoint sources that continue to pollute. Instead of just effluent discharge, it is also air emissions. The institutions of the past do not fit the challenges of the present and future.

* Riggs, 1993.

V. Conclusions and Recommendations

EPA's proposed changes to its water quality planning and management regulation may reflect an effort to shift from technology-based controls determined at a federal level, to controls based on the characteristics of individual watersheds. This is an important transition, and a watershed approach to meeting water quality goals is more conducive to a focus on outcomes, rather than inputs, which has dominated water quality management in the past. However, EPA's prescriptive, procedural rule is likely to undermine the benefits of a watershed approach.

Centralizing decision making with EPA for hundreds of thousands of river segments, lakes, and coastal zone regions complicates and delays decision making about matters that are inherently local. The regulatory framework proposed by EPA, with its combination of command-and-control, technology-based regulation with offsets and trading has not succeeded in meeting water quality goals in the past and is not likely to succeed now.

River basins, watersheds, and coastal regions are natural units for managing water quality. EPA's approach for TMDL must allow for and encourage the recognition of alternate geographic governance units that minimize the environmental cost of achieving improvements in water quality.

A water quality management system based on the rule of law and protection of environmental rights can be devised so that the goals of TMDL can be achieved. The system must include accountability and responsibility for actions that affect environmental quality. The system must allow for flexibility in the development of regulatory institutions and processes so that regional differences in benefits and costs can be taken into account.

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Appendix I
RSP Checklist

Water Quality Management (TMDLs, NPDES, and WQS)

Element	Agency Approach	RSP Comments
1. Has the agency identified a significant market failure?	The regulations would address water bodies that are not meeting standards due to regulatory and market failures, on a watershed by watershed basis. Fair	EPA's historic focus on command-and-control and technology-based standards has not achieved water quality goals in some water bodies. EPA correctly recognizes that a waterbody focus is likely to produce better outcomes in terms of reduced harm to humans and aquatic life.
2. Has the agency identified an appropriate federal role?	EPA's goal is to provide states with "clear, consistent, and balanced direction." It would dictate the elements and procedures by which states would manage local waterbodies. Unsatisfactory	Both the Clean Water Act and the inherently local nature of water bodies argue for a more flexible, state-lead approach. Yet EPA's prescriptive, procedural rule is likely to undermine state's efforts to meet their own unique needs.
3. Has the agency examined alternative approaches?	<i>EPA rejects alternatives that would focus resources on a smaller number of higher priority waterbodies.</i> Unsatisfactory	EPA should consider alternatives that offer more state flexibility to develop regulatory institutions and processes that take regional differences in water use and characteristics into account.

Element	Agency Approach	RSP Comments
4. Does the agency attempt to maximize net benefits?	<p><i>EPA suggests that the rule will cost states less than \$25 million per year, but does not estimate its benefits.</i></p> <p>Unsatisfactory</p>	<p>Under UMRA and Executive Order 12866, EPA is required to do a more complete analysis of the benefit and costs of these proposals. Our rough estimates suggest that EPA's cost figure is understated by a factor of about 10.</p>
5. Does the proposal have a strong scientific or technical basis?	<p><i>EPA has little scientific evidence about the extent and nature of water quality problems around the nation.</i></p> <p>Unsatisfactory</p>	<p>EPA should not proceed without sufficient scientific evidence of the existence of a national problem that cannot be addressed by regional, state and local efforts.</p>
6. Are distributional effects clearly understood?	<p>EPA does not address distributional effects of the proposals.</p> <p>Unsatisfactory</p>	
7. Are individual choices and property impacts understood?	<p><i>EPA's approach does not recognize the effect its rules will have on state incentives and property rights.</i></p> <p>Unsatisfactory</p>	<p>A market-based approach will respect states' rights, provide incentives for innovative solutions to water problems, and improve water quality.</p>

BRIEFLY . . .

Perspectives on Legislation, Regulation, and Litigation

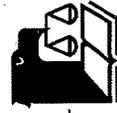
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OVERSTRESSING BUSINESS: OSHA AND ERGONOMICS

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REGULATORY STUDIES PROGRAM
MERCATUS CENTER
GEORGE MASON UNIVERSITY

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PREFACE

"Musculo-Skeletal Disorders (MSDs)" is the term for a host of ills to which the human body is prey—head backs, aching joints, muscle strains, sprains, inflamed tendons. The list is long.

Many of these ills are caused, it is generally thought, by interactions between the human body and the machines that permeate our environment, ranging from tennis rackets and garden spades to jackhammers and computer keyboards, and by the ways in which we use our bodies to lift, bend, twist, and otherwise act.

For seven years, the Occupational Health and Safety Administration (OSHA) has been working on a regulation to address MSDs related to the workplace. It released a Working Draft in early 1999, which promptly became a source of intense conflict among OSHA, business, labor unions, the Office of Management and Budget, and Congress. Despite the objections, on November 22, 1999, OSHA released a proposed rule containing only minor changes from its draft.

This edition of *BRUEFLY* . . . analyzes this proposed rule, and concludes that it is deeply flawed. Employers already have huge incentives to reduce MSDs, and are doing so as effectively as the state of knowledge permits. The real problem is not lack of will but lack of knowledge. OSHA's approach would not cure this problem, and in fact would tend to stunt investigation and innovation.

The monograph is written by the staff of the Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University, and is based on comments that RSP filed with OSHA in June 1999. RSP conducts careful and independent analyses of agency rulemaking proposals from the perspective of the public interest, providing rigorous, objective analysis developed independently of any of the special interest groups that normally respond to such invitations. NLCPI is delighted to partner with it on this important topic.

This monograph, like all others published by the National Legal Center, is presented to encourage greater understanding of a legal issue. It is not intended to influence legislation but to enlighten its readers through the thought, experience, and knowledge of others. The views expressed in this monograph are those of the authors and do not necessarily reflect the opinion or position of the advisors, officers, or directors of the National Legal Center. This publication is presented purely as an educational public service.

Ernest B. Hueter, President
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OVERSTRESSING BUSINESS: OSHA AND ERGONOMICS

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OVERSTRESSING BUSINESS: OSHA AND ERGONOMICS

REGULATORY STUDIES PROGRAM
 MERCATUS CENTER
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INTRODUCTION

Regulatory Studies Program

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to developing and disseminating knowledge of regulations and their impacts on society. In pursuit of this mission, RSP conducts careful and independent analyses of agency rulemaking proposals from the perspective of the public interest, providing rigorous, objective analysis developed independently of any of the special interest groups that normally respond to such invitations. (A list of the comments filed to date is included in ABOUT THE AUTHORS, at the end of this *Briefly*)

This *Briefly* is an expansion of comments on the Occupational Safety and Health Administration's (OSHA) working draft of a proposed ergonomics standard that RSP submitted to the agency in June 1999.¹ It has been updated to reflect the actual proposed rule that OSHA announced on November 22, 1999.² Neither the June 1999 comment nor this *Briefly* represent the views of any particular affected party or interest group. Rather they are designed to protect the interests of American citizens.

Objectivity and disinterest do not mean that the Program lacks a point of view. Its guiding principle is that the tool of government regulation should be used with restraint, and only when an agency

¹OSHA posted its *Working Draft of a Proposed Ergonomics Program Standard* on its Website in February 1999.

²See OSHA, 29 C.F.R. § 1910, Subpart Y—Ergonomics, Program Standard (Proposed) <<http://www.osha-slc.gov/ergonomics-standard/index.html>>.

can provide a clear definition of the problem it is seeking to solve and an explanation as to why the natural forces of the society and the free market economy are not dealing with it. Without this analytic anchor to reality, regulation easily turns into a superficial "there ought to be a law" exercise, in which the nature of the problem and the efficacy of the proposed regulatory solution are simply assumed, not proven.

In this monograph, the material in RSP's initial comment is augmented by background information on the proposal and its history and by some additional explanations of the legal and scientific issues, but the conclusion remains the same: Because employers already have strong incentives to reduce the types of injuries at issue here, and because they are indeed doing so, OSHA's proposed mandate is, at best, redundant. Furthermore, because the basic problem in the field is lack of knowledge and understanding, not lack of employer motivation for improvement, the proposed OSHA mandate is far more likely to do harm than good.

Background of the Ergonomics Rule

OSHA hired its first ergonomist in 1979, and began discussing ergonomics issues with interested communities in the early 1980s. It increased its information collection and dissemination activities in the late 1980s, brought its first ergonomic-hazard action against an employer in 1987, and created an Office of Ergonomic Support in 1990. In 1992, OSHA issued an Advance Notice of Proposed Rulemaking, and ever since the proposal has been the subject of intense controversy.³ At various times, Congress has imposed appropriation bill riders forbidding OSHA to spend money on the proceeding. The most recent of these expired in early 1999, and OSHA promptly posted a draft ergonomics standard on its web site. This working draft received a considerable amount of discussion and comment from businesses, labor unions, the Office of Management and Budget, and Congress.

³OSHA, *Ergonomics Chronology* <<http://www.osha-slc.gov/SLTC/ergonomics/chronology.html>>.

Current Status of the Rule

Despite the intense disagreement over the merits of the draft standard, OSHA officially announced a Notice of Proposed Rulemaking (NPR) on November 22, 1999, immediately after Congress adjourned for the year. While the proposal uses slightly different language than the working draft, the six-element program that OSHA would require companies to adopt remains essentially the same. OSHA states that its "proposed standard is designed to help prevent . . . work-related musculoskeletal disorders (MSDs) . . . which affect "1.8 million workers" each year.⁴ OSHA's proposed standard would require employers to demonstrate leadership, respond to employee complaints, provide resources, training and medical support, and keep records. All workplaces with manufacturing or manual handling operations would be required to establish ergonomics programs. Employers would be required to identify any "ergonomic risk factors" or MSD hazards that "are reasonably likely to cause or contribute to a covered MSD," and to inform employees about these hazards and the corresponding symptoms.

For nonmanufacturing or manual handling workplaces, a single reported MSD hazard or injury would trigger the requirement that a company establish an ergonomics program, "unless [the company] eliminate[s] the MSD hazard by using the 'Quick Fix' option."

OSHA rationalizes its proposed rule on the basis that MSDs are (a) costly; (b) preventable; and (c) that uniform federal-level regulations are the best means of achieving the goal of reducing MSDs. As the rest of this monograph will show, OSHA's proposed ergonomics standard does not satisfy any of the immediately preceding criteria because it does not rest on either established medical or economic foundations.

⁴OSHA "Press Kit" available at <www.osha-slc.gov/ergonomics-standard/fo-over.html>.

- MSDs present unique problems of attributing causation to the workplace, and OSHA may have made this problem worse for employers by substituting in this proposal the term MSDs for the more targeted term "WMSD" or "workplace MSD" it used in the working draft. In the everyday world, most people associate ergonomics with common sense. Putting stress on the human body can indeed hurt you, and it is sensible to take precautions. Just as your mother told you, good posture is important. Head up and shoulders back! When something heavy must be lifted, get into a good position. Stop slouching when you watch television. Work at a comfortable height. Don't perform demanding physical tasks from an awkward position. Exercise regularly to stay strong, especially in your back. Stretch, doubly so if you are feeling tense and anxious. Warm up and cool down. Wear good shoes. Know your age and accept it.
- People who fail to follow these rules, and many people who do follow them, injure themselves. Backs ache or cramp from golf or gardening, or while walking, toting luggage through airports, removing groceries from a car trunk, or arising from a chair. Eighty percent of Americans have occasional back pain, and as many as 60 percent experience back pain in any given year.⁴ "Tennis elbow" is self-explanatory. A look at the rack in any drug store reveals an extensive collection of devices to alleviate problems with feet, ankles, knees, elbows, wrists, and necks, usually next to the heating pads, cold packs, and liniments.
- Some of the injuries occur at work, where the human body is subject to biomechanical stress, just as it is subject to stress in the world outside of work. Thus it is often difficult or impossible to attribute a particular MSD to the workplace rather than to the particular human body involved, or to an outside-of-work activity, or to assume that the remedy must be in changing the job rather than in the body. Above all, it is

⁴William L. Cas-Beall & John W. Frymoyer, *The Economics of Spinal Disorders*, 1 THE ADULT SPINE 35, 95 (1991).

THE AMBIGUITIES OF "ERGONOMICS"

Basic Definitions

One dictionary defines "ergonomics" as "the study of the relationship between humans and machines, especially in terms of physiological, psychological, and technological requirements."⁵ OSHA defines it as "the science of fitting jobs to people." The subtle distinction between the key terms used in these definitions "the study" in the dictionary and "the science" by OSHA should be underscored, because a major underlying problem with OSHA's proposed rule is that ergonomics is *not* a science. It cannot produce replicable results or make reliable predictions. Ergonomics contains some science, some art, and some folk wisdom, but ergonomics itself is not a science.

Despite its ambiguous nature, ergonomics is important. For several years, OSHA has been concerned about MSDs, which it defines broadly as "injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal disks," including such examples as carpal tunnel syndrome and low back pain.

This definition of MSDs also deserves a red flag, because it raises serious problems for both the agency and those regulated by it. It presents several major problems:

- The addition of the term "disorders" to "injuries" is deliberate, and artful. In common parlance, an injury exhibits palpable symptoms. "Disorders" is intended to sweep in conditions that cannot be identified by any medical tests, that are subjective, and that are often transitory. OSHA defines as "signs" of MSDs such objective criteria as decreased range of motion, loss of function, deformity, and decreased grip strength. It defines as "symptoms" of MSDs such subjective phenomena as pain, tingling, stiffness, numbness, cramping, or burning. In OSHA's view, any report of either a sign or a symptom in connection with any job by any worker should be sufficient to start the regulatory machinery in motion.

⁵RANDOM HOUSE COLLEGE DICTIONARY (revised ed. 1980).

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injuries.⁹ In the working draft, OSHA said such injuries accounted for 34 percent (647,000 in 1996) of all workdays lost to injury and illness and for a comparable share of workers compensation costs. In the proposal, it uses 1997 data, and gives the number of injuries at 626,000, without noting the decline.¹⁰ The costs for workers compensation alone are around \$1.5 to \$2.0 billion per year, and total costs may reach \$60 billion.¹¹

Prior OSHA Action

As noted above, OSHA's involvement in the field of ergonomics began in 1979, and it began enforcement efforts in 1987 by bringing a series of actions against individual employers. Enforcement relies on the General Duty Clause of the Occupational Safety and Health Act: a provision imposing upon employers a general duty to maintain a safe and healthful workplace. To make a case under the clause, OSHA must establish four factors: (1) A condition in the employer's workplace presented a hazard to employees; (2) The employer or its industry recognized the hazard; (3) The hazard was causing or likely to cause death or serious physical harm; (4) Feasible means existed to eliminate or materially reduce the hazard.¹² Up to 1994 it issued more than 430 citations for alleged ergonomics hazards.¹³

Lawyers report that many of these citations were dropped when they were contested by the company, but OSHA can also claim some victories. It has signed 13 corporate-wide settlement agreements, many of them with large employers, such as the big three of U.S.

⁹NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH), MUSCULO-SKELETAL DISORDERS (MSDs) AND WORKPLACE FACTORS (Renee P. Bernard ed.) (July 1997), at 7 (Internet edition) <<http://www.cdc.gov/niosh/ergesec1.html>>.

¹⁰<<http://www.osha-slc.gov/ergonomics-standards/overview.html>>

¹¹OSHA, Department of Labor, *Background on the Working Draft of OSHA's Proposed Ergonomics Standard* <<http://www.osha-slc.gov/SLC/ergonomicsback-groundinfo.html>>.

¹²Pepperidge Farms, Inc., OSHRC Dkt. No. 89-0263, April 26, 1997 <<http://www.oshrc.gov/html/199789-0263.html>> (Internet edition, at 10).

¹³Pugene Scalia, *Ergonomics: OSHA's Strange Campaign To Run American Business*, (National Legal Center for the Public Interest White Paper, 1994), at 3.

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untenable to make the assumption (as does OSHA) that every job can be made totally safe for every body, regardless of condition. As the medical literature makes clear, aging, in particular, is associated with MSDs.⁷

OSHA regards all responsibility for safeguarding the workplace as lying with the employer, not the worker. In eliminating a hazard, engineering controls are typically favored, followed by changes in work routines. Personal protective gear is relied upon only if the favored methods will not work. A mandate that the worker be "more careful" or "tougher" is usually not considered. This philosophy makes the most sense in dealing with conventional hazards, those that cause immediate and obvious trauma. It is ill-suited to MSDs, where effects are often subtle, spasmodic and unpredictable, and often related to nonwork activities. For example, a study by the National Research Council noted: "A set of well-controlled studies . . . show that hospital workers, nurses aides, and industrial workers benefitted from extended exercise programs Among these benefits were greater strength, less absenteeism, and fewer days of reported lower back pain. These effects have been seen for workers with and without prior histories of back pain."⁸

These definitional ambiguities impose a great deal of uncertainty on the estimates of the numbers of workplace MSDs. However, OSHA and its sibling agency, the National Institute of Occupational Safety and Health (NIOSH), regard them as a serious problem. A NIOSH report says that in 1994 there were 705,800 injuries due to overexertion or repetitive motion, one-third of all occupational

⁷See, e.g., *Spine Dr.* <<http://www.spine-dr.com/>>.

⁸COMMITTEE ON HUMAN FACTORS, COMMISSION ON BEHAVIORAL AND SOCIAL SCIENCES AND EDUCATION, NATIONAL RESEARCH COUNCIL, WORK-RELATED MUSCULO-SKELETAL DISORDERS: A REVIEW OF THE EVIDENCE (National Academy Press: Washington, DC, 1998), at 16 [hereinafter NARS Study].

automobile production. *Pepperidge Farm*, the first case to be decided by the Occupational Safety and Health Review Commission (OSHR), which has appellate authority over the decisions of administrative law judges (ALJs), upheld the basic proposition that ergonomic analysis is sufficiently established to prove that a hazard exists, at least when demonstrable injuries have occurred.¹⁴

However, many of the cases are problematical, including *Pepperidge Farm*, and business has begun to battle back, often with the argument that ergonomics is too vague and unsettled a discipline to provide a solid basis for regulatory action. The vagueness argument has considerable merit, as was detailed in Eugene Scalia's 1994 White Paper for the National Legal Center, *Ergonomics: OSHA's Strange Campaign To Run American Business*, and administrative law judges and OSHRC are finding it persuasive.

In *Pepperidge Farm*, various medical experts and ergonomists debated fiercely over the fundamental problem of causation. Could the injuries that provided the basis for OSHA's citation be attributed to ergonomic stress at all? OSHRC decided "yes," in a decision based less on hard scientific data than on a judgment call that OSHA's experts looked more credible than the company's. However, the company won anyway. As noted above, to establish a violation of the General Duty Clause OSHA must prove not only the existence of a hazard but that a feasible means existed to eliminate or materially reduce it. OSHRC found that OSHA had not met this second part of its burden. *Pepperidge Farm* had been active on the ergonomics front. It had made a number of changes in its production methods and had experimented with others. OSHA could not instruct the company on what actions it should have taken. The fundamental problem was that even if ergonomics as a discipline could identify hazards, it is simply not precise enough to prescribe how to eliminate them.

In the subsequent case *Beverly Enterprises*, OSHA charged that "unsafe lifting practices" were responsible for low back pain among nursing assistants in nursing homes, who were often required to lift the full weight of patients in transferring them among beds, chairs,

¹⁴*Pepperidge Farms, Inc.*, OSHRC Dkt. No. 89-0265, April 26, 1997 <http://www.oshrc.gov/html_1997/89-0265.html>.

and toilets.¹⁵ After an extensive review of the evidence, the ALJ ruled that OSHA had failed to show the existence of a hazard. It had been unable to show any specific unsafe practice, nor had it even established that low back pain was more prevalent among the workers involved than in the population at large.

OSHR accepted *Beverly Enterprises* for review in 1995, and briefs were filed in the fall of 1996. But no decision has appeared. The case has sat for three years, possibly, say some experienced labor lawyers, because it presents severe problems for OSHRC. To uphold the ALJ decision in *Beverly Enterprises* could put much of OSHA's ergonomics program in jeopardy, because if the expert evidence was insufficient it is difficult to imagine a situation in which that evidence would be sufficient. But it is hard to refute the judge's decision. So the matter sits.

The basic problems were explicated at greater length in a subsequent ALJ decision in *Dayton Tire*.¹⁶ Measuring ergonomics against the standards for scientific evidence established by the Supreme Court in *Daubert*, the judge found that some important basic methods of the field could not pass the test for classification as "science."¹⁷ The questions under *Daubert* are whether the theory or technique:

- Has been tested;
- Has been subjected to peer review and publication;
- Has a known error rate; and
- Is generally accepted within the scientific community.

The task of a court, as articulated by the Ninth Circuit, is not to analyze what the conflicting experts say, but their basis for saying it.¹⁸ A later case re-emphasizes that it is methodology that counts, the link between facts and conclusions: "Trained experts commonly

¹⁵*Beverly Enterprises*, Dkt. No. 91-3344 (Oct 11, 1995). Designated for Review, OSHRC Dkt. No. 91-3344 (Nov. 9, 1995) (not available on the Internet).

¹⁶*Dayton Tire*, OSHRC Dkt. No. 91-3327, March 4, 1998 <http://www.oshrc.gov/html_1998/91-3327.html>.

¹⁷*Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993) (*Daubert I*); *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 43 F.2d 1311 (9th Cir. 1995) (*Daubert II*).

¹⁸*Dayton Tire*, at 12 (Internet edition).

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but they apply in proceedings before OSHRC because Section 2200.71 of OSHRC's Rules of Procedure provides: "The Federal Rules of Evidence are applicable." Formally, *Daubert-Joiner-Kumho* focus on giving trial judges discretion to keep out junk science, but this should not be interpreted as meaning that judges have discretion to allow the junk in. The cases say, most explicitly in a concurrence in *Kumho*, that judges have not just the power but the obligation to exclude unsupported expert testimony.

In a recent paper, policy analyst Brian Mannix makes the point that rulemaking may be a way for OSHA to circumvent these problems:

One way to view OSHA's [proposed regulation] is that it is intended to paper over the defects in the agency's litigation of individual cases. If OSHA can interpret the statute's General Duty Clause to require specific programs, records, training, and procedures, then the agency can relieve itself of the burden of proving that a hazard exists, or that an injury has been caused, or that an effective abatement measure is available. OSHA will be able to win cases by proving only that an employer did not follow its prescribed procedures. OSHA can avoid the scrutiny given to expert witnesses in a trial by invoking the automatic deference that courts traditionally give to an agency's expertise when reviewing an administrative rule. The rules of evidence do not apply to an informal rulemaking.²⁷

OSHA'S PROPOSAL

Businesses Covered

The proposal covers all industries except construction, agriculture, and maritime jobs, which are exempted. Production jobs in manufacturing operations and manual handling jobs (lifting/lowering,

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extrapolate from existing data. But nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.²⁸

In *Dayton Tire*, the ergonomic hazards identified by OSHA included lifting, reaching, and standing. In connection with one particular job, OSHA's alleged hazard consisted of "torso flexions," more commonly known as "bending at the waist," required of employees *once or twice per hour*. Time after time, the ALJ figuratively threw up his hands, noting that the activities were not automatically hazardous, that they could indeed be healthy and beneficial, and that OSHA had no theory or evidence that would identify the point at which levels of force, frequency, or repetition converted them from the routines or even beneficial into dangerous hazards. Nor did OSHA present any coherent theory or data relating the alleged workplace ergonomic hazards to nonoccupational factors that are connected with MSDs, including age, gender, pregnancy, obesity, individual medical history and other personal characteristics.²⁹ In the end, the ALJ concluded that OSHA had failed to meet the first requirement of a case under the General Duty Clause; it had failed to establish that conditions or activities in the workplace present a hazard to employees.

The ALJ's concerns about the quality of ergonomic evidence in *Dayton Tire* were reinforced by the 1999 Supreme Court opinion in *Kumho Tire v. Carmichael*.³¹ There, the Court made clear that the basic principle of *Daubert*—"that trial judges must function as gatekeepers to exclude junky expert testimony"³⁰ applies to engineers and all other kinds of technical experts, not just to formal science.

The shakiness of the scientific foundation for many of the conclusions of ergonomics creates substantial problems for OSHA. *Daubert* and subsequent federal court cases on expert evidence are interpretations of the requirements of the Federal Rules of Evidence,

²⁷General Electric v. Joiner, 522 S. Ct. 136 (1997).

²⁸Dayton Tire, at 26-28 (Internet edition).

²⁹119 S. Ct. 1167 (1999).

³⁰Manufacturers Alliance/MAPI, *Occupational Safety and Health: OSHA's Draft Ergonomics Rule* (March 31, 1999) (Brian F. Mannix, Director of Science and Technology Studies), at 3.

pushing/pulling, carrying) in all industries are automatically covered. Other jobs are covered if an MSD is reported that is recordable under OSHA rules, provided that the injury occurred where MSD hazards are present that can be connected to the type of MSD reported and that a significant part of the injured employee's job involves exposure to such hazards.

Injuries Covered

OSHA defines MSDs as "injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilages, and spinal disks." It provides no further elaboration, but does provide a list of examples, which include:

- Carpal tunnel syndrome
- Epicondylitis
- Tarsal tunnel syndrome
- Herniated spinal disc
- Tendinitis
- Rotator cuff tendinitis
- De Quervain's disease
- Carpet layer's knee
- Reynaud's phenomenon
- Sciatica
- Trigger finger
- Low back pain

However, the proposal does not define these conditions, and inquires to OSHA found that the agency does not maintain any list of definitions.

Appendix II contains basic descriptions of these conditions, along with some other conditions commonly classified as MSDs. It is important to emphasize that the material in Appendix II was culled from the available medical literature and was not furnished in the OSHA proposal. Even in the medical literature, moreover, substantial latitude exists on symptom interpretation and treatment modalities.

Definition of Hazards

One complaint against the Working Draft was that it failed to define "hazards." The NPR remedies this, though not in a way that will make business happy. "Hazards" are work activities or conditions "in which ergonomic risk factors are present, that are reasonably likely to cause or contribute to a covered MSD." A table relates work activities and conditions to ergonomic risk factors, which are "force,"

"repetition," "awkward postures," "vibration," "contact stress," and "cold temperatures." The list of suspect work activities or conditions contains 20 items, including sitting too long, repeating the same motion, handling things that are "heavy," reaching too far, using hand or power tools, bending or twisting, exerting "considerable" physical effort, and other commonplace actions. The agency does not elaborate on the distinction between an activity or condition that "causes" an injury and one that only "contributes" to it; both are covered.

Finding a job lacking in ergonomic risk factors, as defined by OSHA, will not be easy.

Obligations

A business covered by the rule must set up an ergonomics program with the following elements:

- Management leadership and employee participation: Employees must have means to report problems, and must be involved in hazard analysis and control. Managers must be informed that they have responsibilities. Someone must be the point person to respond to problems. Communications with employees must be established.
- Hazard identification and information: There must be a system for employees to report signs and symptoms of MSDs. Reports must be checked. Records must be reviewed for indications of hazards. Employees must be informed of hazards.
- Job hazard analysis and control: Problem jobs must be analyzed and MSD hazards eliminated or controlled to the extent feasible. (N.B. The meaning of "feasible" in OSHA rules is *not* necessarily "practical" or "reasonable." In previous rulings, the word has been interpreted to mean all measures short of actually bankrupting the employer.²³) Jobs that are similar to the problem job must also be analyzed, and the ergonomics program extended to them. In controlling the

²³See, e.g., *International Union, UAW v. OSHA*, 938 F.2d 1310, 1317 (D.C. Cir. 1991).

hazards, engineering controls are the preferred method, followed by work practice and administrative controls. Any combination may be used. Personal protective equipment may be used to supplement other controls. It may not be used alone unless other approaches are not feasible. Engineering controls include modifications in work stations, tools, equipment, materials, or processes. Administrative controls include employee rotation, changing the task, or changing the pace. The definition of work practice controls is "procedures and methods for safe work," as exemplified by training in proper postures or appropriate tools, or "employer-authorized micro breaks."

- **Training:** Employees in problem jobs and their supervisors must receive training at least every three years.
- **MSD management:** Any employee with an MSD must be provided with access to prompt and effective evaluation, treatment and followup by health care providers. MSD management also includes any work restrictions recommended by the health care provider. All must be supplied at no cost to the employee. Work restrictions must be provided until the employee recovers, the job is re-engineered, or six months have passed. Workers on restricted duty must receive full pay; workers removed from the workplace must receive 90 percent. Both must get full benefits. Workers compensation payments can be deducted.
- **Program evaluation:** The program must be evaluated at least every three years, based on specific measures of activities and outcomes.

An employer can avoid this full panoply of requirements if it responds to a complaint by implementing Quick Fix controls that eliminate the hazard. But if another MSD is reported in that job within three years, then the full requirements kick in.

FEDERAL ROLE IN ERGONOMICS PROGRAMS

OSHA relies on three premises to justify its efforts to develop federal ergonomics standards:

- MSDs account for one-third of all lost-workday injuries and illnesses, cost more than \$15-20 billion in workers' compensation and impose total costs that "add up to as much as \$60 billion."²⁴
- MSDs are preventable.
- Ergonomics programs are the most effective way to reduce risk, decrease exposure and protect workers against MSDs.²⁵

As discussed more fully in the next section, each of these premises has some merit, though to different degrees, and they also have some problems. American businesses certainly think they have merit, because they spend considerable sums in the effort to identify and eliminate ergonomic hazards.²⁶ However, even if the merits of these assumptions were unambiguous, they would not justify a federal standard prescribing specific ergonomics programs in all workplaces.

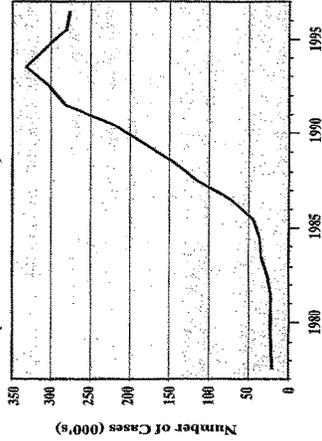
It is widely recognized—by the Administration's own guidelines on "best practices"²⁷ for performing economic analyses of regulatory proposals, for example—that, in the absence of a significant market failure, regulatory solutions to social problems are likely to be less effective than market solutions.²⁸ In the case of MSDs, OSHA has offered no evidence that employers and employees do not have adequate incentives to provide the optimal level of workplace protection against MSD hazards. On the contrary, OSHA provides evidence that:

²⁴OSHA, *Background on the Working Draft of OSHA's Proposed Ergonomics Standard* <<http://www.osha-slc.gov/SLTC/ergonomics/backgroundinfo.html>>.

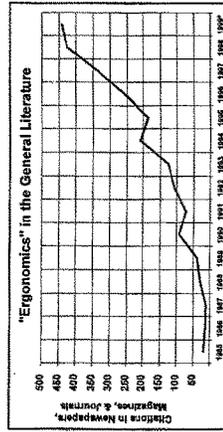
²⁵See, e.g., GENERAL ACCOUNTING OFFICE (GAO), WORKER PROTECTION: PRIVATE SECTOR ERGONOMICS PROGRAMS YIELD POSITIVE RESULTS, Report No. HEHS-97-163 (Aug. 27, 1997) [hereinafter GAO REPORT].

²⁶In order to establish the need for the proposed action, the analysis should discuss whether the problem constitutes a significant market failure." U.S. Office of Management and Budget, *Economic Analysis of Federal Regulations Under Executive Order 12,866* (Jan. 1996).

Repeated Trauma Disorders, 1978-1997



Of course, a major question concerns the apparent increase in reported MSDs in the period 1985 to 1994. It seems doubtful that this increase is real, given the general progress in workplace safety that has occurred. A 15-year search of LEXIS/NEXIS (popular press—i.e., major newspapers, magazines, and journals) on “ergonomics” found a continuing exponential upward trend in articles on ergonomics during this period, as shown in Graph 2.



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- The costs to employers of MSDs offer ample incentives to reduce their occurrence;
- Employers are, in fact, working hard on developing programs and other initiatives to reduce MSDs; and
- MSDs are declining.²⁷

OSHA also defends a federal role with the observation that state action has been limited, and varied. In a recent speech, the OSHA Administrator raised concerns that “the nation not end up with a patchwork of ergonomic requirements.”²⁸ However, states are generally much closer to the players on both sides of any regulatory issue, so the fact that they have largely confined their ergonomics policies to cooperative agreements and guidelines is telling. With cooperative agreements, state officials identify employers who have reported high numbers of illnesses and injuries, and ask them to review their MSD records and implement an ergonomic program of their own design, should it appear justified. Guidelines follow a similar approach. Often written as a “how-to” manual, guidelines describe a standard program but give employers full discretion.

Even these state actions may be unwarranted. As the graph below illustrates, MSDs began dropping in 1994, before many of the state ergonomics programs came into effect.²⁹

²⁷See pp. 16-18, *infra*.
²⁸Charles N. Jeffress, Speech to the National Coalition on Ergonomics, Washington, D.C. (Apr. 29, 1999), <http://www.osha-slc.gov/OshDoc/Speech_data/SP19990429.html>.

²⁹Bureau of Labor Statistics, *Occupational Illness Cases, 1980-1995* <<http://www.bls.gov/special.requests/chicago/oshi/ohars95.pdf>>; BLS, *Industries with the Highest Number of Nonfatal Illness Cases of Disorders Associated with Repeated Trauma, Private Industry, 1996* <<http://www.bls.gov/os/osh0526.pdf>>; BLS, *Rates and Number of Cases of Disorders Associated with Repeated Trauma by Industry, 1997* <<http://www.bls.gov/os/osh0653.txt>>.

LACK OF KNOWLEDGE, NOT LACK OF MOTIVATION,
IS THE PROBLEM

OSHA's three basic premises for this rulemaking are supported to different degrees by factual data. The varying, and sometimes conflicting, information on the causes of, and solutions to, MSDs highlights the fact that incomplete knowledge, not insufficient employer incentives, frustrates efforts to reduce MSDs. This section examines the basis for OSHA's three premises, that:

- MSDs are a significant and costly workplace problem;
- MSDs are preventable; and
- Ergonomics programs are the solution.

Are MSDs a Significant and Costly Workplace Problem?

A prerequisite to good public policy is a clear understanding of the nature and extent of the problem to be addressed.

OSHA's traditional approach is to identify a workplace hazard, "a condition that can cause an injury," and then focus on the means of correcting it. The ergonomics proposal is quite different. It focuses on physical conditions seen in workers and assumes that they must be the result of workplace hazards, even if OSHA cannot identify these hazards or draw connections between them and the conditions. And it defines the physical conditions so broadly that no one can be sure that they are in fact caused by anything that can fairly be viewed as a hazard.

The proposal defines MSDs as "... injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal disks." As noted earlier, the use of the term "disorder" is deliberate, designed to sweep in effects that cannot be formally diagnosed as "injuries."³³

Unfortunately, data on the extent and cost of the injuries, illnesses, or symptoms that match this broad definition are not available.

³³The National Academy of Sciences notes: "'disorder' is a broader category than 'injury' and better captures the range of phenomena being considered." NAS STUDY, *supra* note 8, at 3.

Neither the Department of Labor (DOL) nor any other national organization uses these definitions in tracking illnesses and injuries.

The primary source for worker illness and injury data is the Department of Labor's Bureau of Labor Statistics (BLS). The BLS asks approximately 250,000 private-sector employers each year to complete its *Survey of Occupational Injuries and Illnesses*, using the OSHA Log 200 form on which all employers are legally required to record all work-related illness and injury data. The OSHA Log 200 was revised in 1992 to record illnesses and injuries by *event or exposure* as well as by *type*. But it does not have a specific category for reporting MSDs. The closest proxy to MSDs under the type classification is "repeated trauma illnesses" and the closest proxies under the event or exposure classification are the "illnesses due to repeated motion, vibration, or pressure," and "illnesses due to over-exertion." Only this last group includes back injuries. Thus, depending on which way one looks at the data, the number of MSDs experienced in the workplace in 1994 ranged from 332,000 (repeated trauma illnesses) to 705,800 (repeat motion and over-exertion illness and injuries).³⁴

OSHA relies on worker compensation claims to estimate that MSDs are responsible for one-third of all lost-workday injuries and illnesses, and between \$15 and \$20 billion in costs each year. Yet, since MSDs are not classified as such in these claims, how can OSHA know the true extent of their costs? Furthermore, nonwork-related activities may contribute to MSDs and contribute to symptoms that affect workplace productivity. Yet, few studies have addressed the occurrence of MSDs in the general population, making it difficult to compare work-related incidence rates with nonwork-related incidence rates.³⁵

This lack of information is significant, because without a clear understanding of the nature and extent of MSDs and the reasons they persist in the workplace policymakers are likely to target efforts ineffectively. The available data suggest that MSDs may be a significant problem affecting the workplace, but that they are not well

³⁴NIOSH, *supra* note 9, at 1-2.

³⁵NAS STUDY, *supra* note 8, at 170.

defined, and have not been accurately tracked or recorded. The BLS data also suggest that MSDs have been declining in recent years, reflecting the fact that employers, who bear large costs associated with MSD-related injuries, are already taking steps to improve employee health and reduce costs.

Are MSDs Preventable?

OSHA asserts that MSDs are preventable. However, in order to prevent an injury, an employer must be able to:

- Recognize it;
- Identify its cause; and
- Develop a solution to prevent future occurrence.

As the above discussion noted, although available data suggest that MSDs can have significant effects on worker productivity and employer costs, lack of accurate data on the prevalence and nature of MSDs makes their identification difficult. Identifying the cause of workplace MSDs is more difficult. Ergonomics specialists are finding that MSDs are not simply caused by poor bio-mechanic functioning, but rather involve a combination of physical, organizational, social, and psychological factors. Actually finding a solution that prevents MSDs then is even more complicated and uncertain.

At the request of the National Institutes of Health, the National Academy of Sciences (NAS) sponsored a workshop in August 1998 to examine the scientific literature relevant to MSDs. The workshop report observes not only that "non-work related" activities can contribute to MSDs, but that complex interactions between various factors influence the development of MSDs. For example:

- Pain may cause a worker to use his muscle differently, thereby changing the loading pattern;
- Time pressure may cause an individual to handle a particular load carelessly; or

- Psychological stress might influence what a worker reports, or even the worker's physical reaction.³⁶

The NAS committee found that:

Specific interventions can reduce the reported rate of musculoskeletal disorders for workers who perform high risk tasks, [but] no known single intervention is universally effective. Successful interventions require attention to individual, organization, and job characteristics, tailoring the corrective action to those characteristics.

It also concluded that more research is needed to develop recommendations for the most efficient interventions. Key areas for research include:

- Understanding mechanisms that cause MSDs;
- Understanding the "influence of multiple factors (mechanical, work, social, etc.) on symptoms, injury, reporting, and disability"; and
- Understanding the relationship between incremental load and incremental response, improving measures of risk factors, outcome variables, etc. and understanding the clinical course of MSDs.³⁷

OSHA has defined MSDs as a varied set of symptoms, rather than a well-identified workplace hazard. Regulating on the basis of symptoms rather than hazards requires knowledge about a wide range of potential remedies, as different injuries or symptoms have been examined to varying degrees.

Three of the most studied MSDs are carpal tunnel syndrome, "white finger," and back injuries. Yet, even for these well-studied MSDs, only for white finger does there seem to be consensus about the most effective form of intervention.

³⁶Id. at 7.
³⁷Id. at 27-28.

- Carpal tunnel syndrome, often arising from the use of computer keyboards and mice, is one of the most studied forms of MSDs. It affects approximately 30,000 workers annually who average 30 days away from work. Yet, while many experts think that carpal tunnel syndrome is caused by repetitive forceful motion of the hand and wrist, they do not agree on whether or to what extent extreme posture is a contributing factor. Nor do they agree on whether alternative keyboard designs reduce MSDs. Three studies found no difference in reported pain between alternative and standard keyboards, while one showed some benefit to the split keyboard.³⁸ Finally, while the relationship of keyboard use to carpal tunnel syndrome is now part of the folklore of America, many experts scoff at the alarm, arguing that cases of simple fatigue or strain are being misdiagnosed as carpal tunnel syndrome.³⁹
- “White finger” is caused by vibrating forces on the palm and fingers, largely from the use of power tools. OSHA does not perceive this as being as widespread as carpal tunnel syndrome, but it may affect thousands of workers annually. While there have been fewer studies than in the case of carpal tunnel syndrome, there appears to be more consensus that tool redesign, including reduction in tool weight and improved grip design, will provide benefits.
- Back injuries make up one-quarter of all work-related injuries, and while not all qualify as MSDs, back pain is among the most well-studied MSDs. The debate has been long and complex, and only recently have experts agreed on one aspect of the debate, for example, that back belts *do not* help.

³⁸*Id.* at 208.

³⁹The issue is discussed in Scallia, *supra* note 12, *passim*. He points out that many epidemics of Repetitive Stress Injuries seem to be iatrogenic, caused by the inquiry into whether they are occurring. Also, reported injury rates vary widely for different plants and parts of the nation, even when the jobs being performed are basically identical.

Given the current state of knowledge, even for these most-studied MSDs (and OSHA’s definition of MSDs includes many other symptoms that have not been studied nearly as thoroughly), prevention may simply be unattainable. Clearly, while it may be true that interventions are available for many MSDs, OSHA’s assertion that “MSDs are preventable” is overstated.

Are Ergonomics Programs the Answer?

As discussed above, MSDs are a costly problem in some workplaces, and certain work environments and working conditions appear to pose higher risks of workplace MSDs than others. While more research is needed to fully understand the cause and most effective interventions, viable interventions exist to reduce the risks of many MSDs. The third premise on which OSHA bases its proposal is that ergonomics programs are the most effective way to reduce risks. It bases this largely on evidence that employers who have implemented ergonomics programs have enjoyed reductions in workplace MSDs and workers’ compensation costs.

Probably the best evidence that employer ergonomics programs have worked to reduce workers’ compensation costs is a 1997 GAO report, which examined the experience of five companies that undertook ergonomics programs: American Express, AMP Incorporated, Navistar International Transportation, Sisters of Charity Health System, and Texas Instruments. The primary objective of these private programs was to reduce worker compensation costs, and they did achieve cost reductions ranging from 35 percent to 91 percent. OSHA highlights other case studies of companies that have prevented injuries and saved money by establishing ergonomics programs.⁴⁰

The private sector experience highlights important points. First, employers for whom MSDs pose a problem have responded with effective programs tailored to their particular workplaces. The ergonomics programs they put in place were driven by market forces, rather than federal mandates, and the fact that these programs were

⁴⁰OSHA, *Real Solutions* <<http://www.osha-slc.gov/SLTC/ergonomics/solutions.html>>.

successful for companies who responded to market incentives does not necessarily imply that such programs would be successful for all employers.

Second, inadequate information on the nature and extent of MSDs hindered the companies that participated in GAO's study. Ultimately, each found it necessary to set up systems—either on their own, through their worker compensation insurer, or third party administrator—to track MSD-related injuries and associated costs. GAO notes that “other companies, even if they have high workers’ compensation costs, may not have access to the information needed to determine whether they have a problem with [workplace] MSDs and, if so, how to address the problem.”⁴¹ Thus, more research into identification, causation, and intervention is likely to be more effective at encouraging reductions in MSDs than mandated ergonomic programs.

In sum, the available evidence does not provide a sound analytical basis for OSHA's claim that its ergonomics program is the most effective way to reduce MSDs. The steady decline in workplace MSDs since 1994 correlates with increasingly available information on the causes of and remedies for different symptoms, not with any mandated ergonomics programs.

OSHA'S ERGONOMICS PROGRAM WOULD NOT ADDRESS THE PROBLEM, AND WOULD CONSTRAIN PRIVATE INITIATIVES

OSHA's rule would require employers to “demonstrate management leadership”; respond to employee complaints; provide resources, training, and medical support; and keep records. But it would not address the fundamental problem of insufficient knowledge. Furthermore, its one-size-fits-all, six-element program could impede private efforts to respond cost-effectively to specific injuries under varied conditions.

OSHA recognizes that there is not a single solution to all ergonomics problems. Department of Labor Assistant Secretary, Charles Jeffress observed to the National Coalition on Ergonomics: “No,

⁴¹GAO REPORT, *supra* note 24, at 36 (Internet edition).

ergonomics is not an exact science. That's because we're dealing with individuals, not robots.”⁴² Such a response however overlooks the fact that other infirmities, such as diseases of the brain for example, also operate differently on different individuals. However, the crucial difference between a neurological disease and an MSD is that the former has been subject to rigorous, replicable study, while the latter has not.

Perhaps in view of this fact, OSHA touts its proposal as a flexible, process standard, and yet it contains a mandated list of ergonomics program elements, discussed below, and requires employers to implement all feasible controls in the face of a single reported MSD. Existing programs would be “grandfathered” as long as they contain the ergonomics program elements defined by OSHA and are “eliminating or controlling MSD hazards to the extent feasible.”

Hazard Information and Reporting

OSHA's definition of MSDs is broad, encompassing not only repetitive motion injuries, but also such symptoms as back pain and muscle strain. All workplaces with manufacturing or manual handling operations would be required to establish ergonomics programs. Employers would be required to identify any MSD hazards that are “reasonably likely to cause or contribute to a covered MSD,” and to inform employees about these hazards and the corresponding symptoms. For nonmanufacturing or manual handling workplaces, a single reported MSD hazard or injury would trigger the requirement that a company establish an ergonomics program. Thus, despite the fact that MSDs are broadly and vaguely defined, and even specialists have difficulty identifying the cause of many MSDs, due to the confounding influence of various work- and nonwork-related factors, the rule would require the establishment of a complex and expensive program based on a single report of a possible hazard or injury.

In a change from the working draft, the proposal would let an employer avoid some of the mandated program elements if it elected the “Quick Fix” option. This would involve (1) promptly making the

⁴²Jeffress, *supra* note 27.

required MSD management available, (2) consulting with employees, (3) putting in "Quick Fix" controls within 90 days, and determining within 30 more days whether they eliminated the hazard, (4) keeping records, and (5) providing hazard information to employees, as required by the rule. If another MSD were reported on the same job within 36 months, the employer would be required to set up a complete ergonomics program according to the rule.

And, as noted above, OSHA responded to criticisms that the working draft contained insufficient definition of hazards by adding to the proposal a definition that is virtually unlimited. In *Dayton Tire*, the agency asserted that a worker's bending at the waist once or twice an hour was a hazard. In *Beverly Enterprises*, OSHA regarded any lifting of patients as a hazard. Given OSHA's expansive view, it is difficult to imagine any physical activity that could not be regarded as a hazard in an enforcement proceeding under a final rule. For that matter, physical inactivity could also be a hazard—staying still raises the possibility of a sudden strain when the worker moves.

Employers fear scenarios such as the following: A worker who played 36 holes of golf on Saturday and spaded his garden on Sunday feels a twinge in his forearm when he sits down at the keyboard on Monday morning. He complains to OSHA that the keyboard is a hazard that contributed to a muscle strain, and that the company should re-engineer the work station. Under the proposal, on these facts the company could be cited for a rule violation, and enter a never-ending round of changing keyboards, their placement, chairs, and other site characteristics in an effort to find "the hazard."

Furthermore, this hazard identification and information component of the proposal could have perverse results. OSHA's own Small Business Advocacy Review Panel raised concerns that employers might be discouraged from investigating potential hazards, since "known hazards" would trigger an onerous ergonomics program. In addition, the fact that a single report would trigger a program is likely to elicit false reports from employees, making it more difficult to collect reliable objective data on ergonomic injuries and their causes.⁴³

⁴³Manufacturers Alliance/MADI, *supra* note 21.

Job Hazard Analysis and Control

To meet this requirement, employers "must analyze the problem job to identify the 'ergonomic risk factors' that result in MSDs" and then implement control measures. The proposal presents a table of 20 "Physical Work Activities and Conditions," and associated "Ergonomic Risk Factors That May be Present." It also sets forth a hierarchy of controls, with engineering controls preferred, but with work practice and administrative controls also accepted. Personal protective equipment, such as gloves and knee pads, provided at no cost to the employee, would only be allowed as a supplement to engineering, work practice, and administrative controls unless these other controls are not feasible.

This hierarchy is intended to impose costs on employers rather than employees, but it reduces employee incentives to take responsibility for their own safety and creates further incentives for spurious claims of injury. It also may discourage innovation and application of the most effective measures for alleviating MSDs. For example, the prohibition on the use of personal protective equipment as a permanent measure could preclude the use of wrist braces for alleviating the symptoms of carpal tunnel syndrome and discourage innovation in such measures. Given the wide variations in MSDs and the dearth of information on the most effective solutions to many of them, OSHA's hierarchy can only serve to constrain innovation in a science still in its infancy.

MSD Management

Whenever an MSD occurs, an employer must promptly provide "MSD management" at no cost to the employee. This includes work restrictions and work restriction protection (i.e., maintenance of earnings), and, if necessary, referral to a health care professional (HCP). The referral is to contain information about the MSD hazards in the employee's job, and a description of available work restrictions that might help. If a referral is made, the employer must obtain a written opinion from the HCP. If the HCP recommends work restrictions, the recommendation must be followed.

These requirements seem to assume an understanding of MSD causality by both employer and HCP that will often be unrealistic. According to the National Academy of Science Workshop participants: "Labeling the specific cause . . . is an issue of construct validity, a standard that is unlikely to be achieved in actual workplace environments."⁴⁴ How would an employer (or even a medical professional) determine whether back pain or muscle strains were caused by work-related activities or weekend yard work?

Work restrictions can include complete removal from the workplace for up to six months, during which period employers must maintain 90 percent of the employee's earnings. This requirement is onerous and ripe for abuse in itself, but its redundancy or conflict with workers compensation claims also concerned the Small Business Advocacy Review Panel. For certain minor MSDs, employers may need to compensate an employee for an injury or illness that would not be covered under state worker's compensation laws. In response to panel concerns that the employee might end up receiving wages from the employer, in compliance with ergonomic regulation, in addition to worker compensation benefits, OSHA's proposal allows employers to reduce compensation to an employee whose work is restricted due to an MSD by the amount the employee receives in workers' compensation, insurance or other income.⁴⁵

Program Evaluation

The draft rule requires employers to evaluate their ergonomics program according to both activity and outcome measures. Yet in the case of MSDs, neither activity nor outcome measures are likely to reflect program effectiveness. As the GAO study reported:

Facility officials said they faced a number of challenges in measuring the overall performance of their programs and tying outcomes to the efforts they were making in implementing

⁴⁴ NAS STUDY, *supra* note 8, at 20.

⁴⁵ OSHA, *Report of the Small Business Advocacy Panel on the Draft Proposed Ergonomics Program Rule* (April 1999), at 12-13 (Internet edition) <<http://www.osha-sbc.gov/html/Pantr1.html>> [hereinafter SBAP Report].

their programs. Primary among these challenges was determining what injuries should be included as MSDs, and effectively tracking the changes in the number and severity of those injuries in light of what officials referred to as "confounding" factors that complicated their ability to interpret outcomes or changes that accompanied their program efforts.⁴⁶

Some employers actually found an increase in reportable MSDs after program implementation, which they attributed to an increased awareness of MSD hazards. As noted above, OSHA's requirements for work restrictions and medical management would provide incentives for employees to report MSDs.

Compliance

While the proposal states that "the occurrence of a covered MSD in a problem job is not itself a violation of the standard," exactly what will constitute compliance with this process standard is uncertain. Just as employers will find it difficult to evaluate their own programs, as discussed above, they will likely have difficulty knowing whether they are in compliance with this regulation. For example, the proposal requires that employers, after implementing controls, go through a continuing process of evaluating whether additional controls have now become feasible. And assessment of the need for further action is based totally on the reaction to the first round of controls of "the injured employee," which places the process largely in the hands of a possibly idiosyncratic reaction of a single individual.

Some members of the Small Business Advocacy Review panel expressed concerns about the vagueness of the term "feasible" and doubted their ability to determine whether they had taken sufficient steps to be in compliance. In regulatory parlance, the term "feasible" often means technologically possible, rather than cost-effective or an efficient use of resources. Despite questions from the small business

⁴⁶GAO REPORT, *supra* note 24, at 30.

community and other commenters, OSHA has still not defined what it means by "feasible" in the context of this regulation.

Given the requirement to implement workplace restrictions and slow down the pace of work in response to reported MSDs, without regard to the impacts of such measures on productivity or profitability, achieving compliance with the proposal could shakele a company. Dissatisfied employees would have a new avenue for disrupting a workplace, and since a claim of an MSDs would be difficult to dispute, employers would have little recourse against an unproductive worker.

OSHA'S PROPOSAL WOULD IMPOSE COSTS WITHOUT COMMENSURATE BENEFITS

The economic impact analysis OSHA prepared for the proposed rule suggests that the mandatory ergonomics programs will yield benefits of \$9 billion each year in employer savings. The same analysis estimates costs of \$4.2 billion per year, which includes an estimated \$875 million per year for employee compensation.⁴⁷ However, the Small Business Review Panel commented that OSHA's costs were "significantly underestimated."⁴⁸ A report prepared recently for the Small Business Administration found that the actual costs are likely to be 2.5 to 1.5 times higher than OSHA estimates.⁴⁹

Some costs of ergonomics programs will accrue to employers whether they are mandated by OSHA or adopted voluntarily. If allowed to adopt programs voluntarily, however, employers would be able to tailor the program to their particular work environment and ergonomic needs, and make ergonomics changes to the extent the benefits of those changes (in terms of workers compensation costs,

⁴⁷<http://www.osha-slc.gov/ergonomics-standard/fg-over.html>

⁴⁸SBAP Report, *supra* note 44, at 8-10, 14-16.

⁴⁹Policy Planning & Evaluation, Inc., *Analysis of OSHA's Data Underlying the Proposed Ergonomics Standard and Possible Alternatives Discussed by the SBREFA Panel 3/2/99-4/3/99* (Prepared on behalf of the Small Business Administration) (Sept. 22, 1999) <http://www.sba.gov/ADVO/ergo.html>.

employee morale, and employee productivity) are commensurate with the costs. As the NAS panel observed:

Rational decision making . . . depends on the relative importance attached to the different consequences. Different people and institutions will have different values and different opportunities for action, at the governmental, employer, and individual levels.⁵⁰

However, a striking feature of OSHA's process rule is that it would not allow employers and employees to consider the "relative importance attached to different consequences."⁵¹ Cost-effectiveness is not a criterion in the establishment of programs or in the selection of control measures. To identify whether MSDs hazards are present in the workplace, OSHA estimates that some companies will rely on ergonomics consultants at an average cost of \$1,000. One safety and health consultant on the Small Business Advocacy Panel, however, estimated that ergonomic consultant services would range from \$2,000 for a simple walk-through to \$25,000 for a hazard control analysis.

These costs will not be borne entirely by employers. Employees and consumers of the goods and services companies offer will bear at least some of them. There may be less-readily quantifiable costs, as well. Several members of the Small Business Advocacy Panel raised concerns that:

[T]he rule would lead to discrimination against workers perceived to be more likely to have or report a MSD. Discrimination against older workers, persons previously on welfare, and persons who had MSDs in the past were mentioned as possible types of discrimination the draft proposed standard might encourage.⁵²

Furthermore, the fact that ergonomics programs are mandated does not assure greater benefits than if the private sector were

⁵⁰NAS STUDY, *supra* note 8, at 28.

⁵¹SBAP Report, *supra* note 44, at 11.

allowed to implement them in response to private incentives. OSHA has not identified social costs that are not also private costs (in economic jargon, an externality) that would suggest that private employers do not have adequate incentives to maximize the net benefits of ergonomics improvements.

OSHA SHOULD ADDRESS KEY QUESTIONS BEFORE PROCEEDING

The key tests of whether a government action is likely to make society better off are:

- Whether it is designed to correct a significant market failure, and
- Whether its projected benefits are likely to exceed its projected costs.

The Regulatory Studies Program has developed a checklist of elements that are necessary to determine whether these two tests are met. As it proceeds in the development of federal policy on ergonomics, OSHA should address the following questions, which are based on the RSP Checklist. (Refer to Appendix I of this comment for RSP's Checklist evaluation of OSHA's Working Draft. The rule as proposed is subject to the same objections, since the alterations made by OSHA were minor, and did not address any of the fundamental problems.)

What Market Failure Is OSHA Attempting to Remedy?

It is axiomatic that regulatory actions that do not explicitly recognize the market failure or systematic problem underlying the need for action are bound to be less effective than actions that do identify and address the fundamental problem. In the absence of a significant and generalized market failure that affects all firms within the ambit of the regulatory proposal, private solutions that can be tailored to particular situations and diverse types of MSDs will be more effective and socially beneficial than government actions. So, OSHA should ask:

- Why would private markets not be expected to respond appropriately to ergonomic hazards in the workplace?
- What significant externalities prevent profit-maximizing employers and utility-maximizing employees from achieving a socially optimal level of ergonomics protection?

Why Is a Federal Role Preferable to Private or State Actions?

Another axiom of our governmental system is that, except when necessary to guarantee rights of national citizenship or to avoid significant burdens on interstate commerce, effective public policy is most likely to evolve when individual states and communities are free to experiment with a variety of approaches than from a federal mandate that assumes that there is one best way. So OSHA should ask:

- What role do state workers' compensation programs play in providing employers' incentives to mitigate ergonomic hazards?
- How will federal involvement affect those incentives?
- Since information on the causes and most effective remedies for MSDs is limited and sometimes conflicting, can state and private actions better target specific circumstances?
- What net benefits can federal actions offer over private and more local government initiatives?

What Alternative Approaches Could Meet OSHA's Goals?

Considering the above questions:

- What alternative approaches are available to meet OSHA's objective of reducing the number and severity of MSDs?
- Which alternatives most effectively target the fundamental market cause of the problem? For example, if employer lack of knowledge on the cause of MSDs and how to address them inhibits remedies, what alternatives might facilitate the sharing of successful experiences and dissemination of new research? Would nonbinding guidance targeted to sectors where certain MSDs are prevalent achieve the desired goals?

- How would "feasible" be defined—would cost-effectiveness criteria be more appropriate?

What Are the Costs and Benefits of the Proposal and Alternatives?

- What are the social costs and benefits of the proposed approach and viable alternatives? (These should be incremental to a baseline in which private markets are allowed to respond to existing incentives, such as workers compensation costs and lost productivity.)

Does Available Science and Technical Information Support the Proposal?

- What information does OSHA have on the prevalence of MSDs, as defined by the proposal?
- Is the definition supported by research that distinguishes work-related MSDs from nonwork-related MSDs?
- Does available information support OSHA's hierarchy of control measures for all MSDs?
- Are the medical management provisions in the proposal justified by available information for all the symptoms covered by the draft?

What Are the Distributional Effects of the Proposal?

- Could the rule lead to discrimination against workers perceived to be more likely to have or to report an MSD, as the Small Business Advocacy Review Panel suggested?
- Would small businesses bear a greater proportionate burden associated with hazard identification and work restrictions?

How Will the Proposal Affect Employer and Employee Incentives and Individual Responsibility?

- What incentives do different elements provide employers and employees?
- Would the program trigger false reports of MSDs?

- How will employers distinguish legitimate work-related injuries from nonwork-related injuries?
- How might the standard influence individual responsibility for safety in the workplace?
- Could the requirement that all known hazards trigger an ergonomics program reduce employer incentives to study and identify hazards in advance of an employee report?

CONCLUSIONS AND RECOMMENDATIONS

Private Incentives Are Driving Employer Efforts to Reduce MSDs

Recognizing that MSDs impose real costs on employers and employees, OSHA has drafted a rule that would mandate the establishment of ergonomics programs to eliminate or control MSD hazards. However, OSHA's approach fails to address the fundamental problem of MSDs in the workplace, lack of information on causation and on viable, cost-effective solutions.

The costs associated with MSDs are real, but they are already internalized by the private sector. OSHA has offered no evidence that employers and employees do not have adequate incentives to provide the optimal level of workplace protection against MSD hazards. On the contrary, OSHA provides evidence that (1) MSDs impose significant costs on employers, which should offer ample incentives to reduce their occurrence, (2) employers are, in fact, developing programs and other initiatives to reduce MSDs, and (3) MSDs are declining.

In public statements on OSHA's approach, Mr. Jeffress recognizes that private incentives have stimulated successful private efforts: "Ergonomic programs work. They reduce injuries. They improve employee morale. And they save money for employees."⁵²

Lack of knowledge on the causes of and remedies for MSDs, not lack of motivation, has hindered employer efforts to reduce MSDs. Yet, lack of information is not addressed at all by OSHA's regulatory approach. Instead, OSHA's proposal mandates certain procedural

⁵²Jeffress, *supra* note 27.

activities without contributing to the body of knowledge about the causes of and solutions to work-related MSDs. This improper targeting of federal regulatory efforts is aggravated by OSHA's definitions of MSDs and ergonomic risks. They are so broad that employers are likely to be held liable for injuries or symptoms that are out of their control, such as muscle aches or injuries resulting from nonwork-related activities.

OSHA Would Do More to Reduce the Risk of MSDs by Facilitating Research and Disseminating Knowledge

Employers already have strong incentives to reduce MSDs, so OSHA's mandates to do so are, at best, redundant. More likely, the procedural requirements and hierarchy of control measures will discourage individual responsibility and hinder innovation into creative solutions. MSDs have declined in recent years, as high worker's compensation claims and a growing awareness among employees and employers have fueled ergonomics programs at many companies. This is, in turn, stimulating research at many universities into the causes of MSDs, as well as leading to an explosion of ergonomic consultants.

Rather than mandating that all workplaces adopt a framework that is not yet demonstrated, OSHA could do more to reduce the risk of MSDs by facilitating continued research and disseminating the results of that research and experience to all employers. Several states are experimenting with guidelines and standards to address these injuries, and OSHA should track and, perhaps, report on those efforts.

OSHA could also make valuable contributions to the state of knowledge by developing a more reliable database on the nature and extent of MSDs, including a baseline of the current level of MSDs (work- and nonwork-related) and the amount and types of ergonomic activity currently being undertaken by employers. Such a database could offer valuable insights into the causes of, and effectiveness of solutions to, MSDs. It would also allow OSHA and employers to target real workplace problems, rather than attempt to address the all-encompassing list of symptoms covered by the definition in the proposal.

APPENDIX I

RSP CHECKLIST ON OSHA'S WORKING DRAFT OF A PROPOSED ERGONOMICS STANDARD

Element	Agency Approach	RSP Comments
1. Has the agency identified a significant market failure?	OSHA states that "The purpose of this standard is to reduce the large number and severity of WMSDs [workplace musculo-skeletal disorders] employees have." OSHA observes that WMSDs impose total costs of "as much as \$60 billion."	OSHA offers no evidence that employers and employees do not have adequate incentives to provide the optimal level of workplace protection against MSD hazards. In response to high costs (workers' compensation costs and lost productivity), employers are taking initiatives to reduce WMSDs.
2. Has the agency identified an appropriate federal role?	Un satisfactory The draft standard defines ergonomics programs that affected companies would have to incorporate in their ergonomics programs. Un satisfactory	Lack of knowledge, not lack of motivation, has hindered progress in reducing WMSDs. OSHA's ergonomics program standard would, at best, be redundant with private initiatives. It could also undermine current state efforts to address WMSDs with other approaches.
3. Has the agency examined alternative approaches?	OSHA's web site does not discuss approaches other than the draft ergonomics program standard. Un satisfactory	OSHA should consider a wider range of approaches before settling on the procedural requirements and hierarchy of control measures in the draft standard. It should consider approaches that seek to remedy the underlying causes of the lack of knowledge on the causes of, and solutions to, WMSDs.

Overcrossing Business: OSHA and Ergonomics

<p>4. Does the agency attempt to maximize net benefits?</p>	<p>The draft standard would not allow employers and employees to consider costs or benefits when establishing programs or selecting control measures.</p> <p>Unsatisfactory</p>	<p>The draft standard could have significant social costs that would be borne not only by employers, but employees and consumers as well. OSHA should consider whether the program would be above the standard (over and above the benefits that would accrue to private initiatives in the absence of the standard) are worthy of the incremental social costs.</p>
<p>5. Does the proposal have a strong technical basis?</p>	<p>Ergonomics programs are supported by anecdotal evidence from companies that adopted them voluntarily in response to private industry concerns. The Academy of Sciences report concluded that further research is needed on the causes of and interventions for MSDs.</p> <p>Unsatisfactory</p>	<p>OSHA's program elements and hierarchy of controls are not supported by scientific literature. Given the wide variance in WMSDs, and the difficulty of identifying the most effective solutions to many of them, OSHA's standard could constrain innovation in a science still in its infancy.</p>
<p>6. Are distributional effects clearly understood?</p>	<p>Unsatisfactory</p> <p>OSHA does not discuss possible distributional effects.</p> <p>Unsatisfactory</p>	<p>Larger companies may find the requirements easy to implement, while smaller companies could face heavier burdens. Smaller companies with the heaviest burdens would face the most difficult medical management requirements. Employers may have incentives to discriminate against individuals perceived to be more likely to have or to report an MSD.</p>
<p>7. Does the proposal respect individual property rights?</p>	<p>Unsatisfactory</p> <p>OSHA does not discuss the impact on property or individual decisions.</p> <p>Unsatisfactory</p>	<p>The draft confers new rights on employees which could have a significant impact on some establishments. Several aspects of the standard could limit individual responsibility for safety in the workplace, and limit choices with respect to remedies for different symptoms.</p>

APPENDIX II
COMMON MUSCULO-SKELETAL DISORDERS
(* means the condition is named by OSHA as an example of an MSD)

Name	Brief Description	Possible Causes
Carpal tunnel syndrome*	Pressure on the median nerve carrying nerves impulses back and forth between part of the hand, thumb, index finger, middle finger, and part of the ring finger and the wrist. Numbness, tingling, and pain in the hand and fingers (except the little finger), losing control of some of the hand muscles; difficulties in picking up or holding objects; awakening with deep aching and painful numbness in the hand, wrist, and forearm.	Excessive flex stress on the wrist over a lengthy period of time; mechanical stress on the palm; excessive gripping or forceful gripping or grasping motions; pregnancy and menopause; mild arthritis, diabetes mellitus, other hormone disorder (rare).
Epicondylitis*	Irritation or inflammation of one or both epicondyles (the bumps on the outside and the inside of the elbow) and forearm.	Avoiding or reducing the activity responsible for the syndrome often alleviates the symptoms in mild cases.
Common Treatments	Rest or decreased activity; anti-inflammatory drugs; injection of corticosteroid drug; chiropractic manipulation; wearing brace or splints; surgical operation	Rest or decreased activity; wearing an "elbow" band or Veltro/elastic strap that

42		inside of the elbows) or surrounding tissues. Commonly called tennis elbow when it involves the lateral (outside) epicondyle, golfer's elbow when it involves the medial (inside) epicondyle.	fingers.	alleviates the symptoms in mild cases.	fits snugly around the upper forearm and prevents over-contraction of the forearm muscles; anti-inflammatory drugs; corticosteroid injections or other ligamentous injections; occasionally surgery.
	Ulnar neuro-pathy	Irritation or compression of the ulnar nerve, usually at the elbow, where it crosses to the forearm behind the medial epicondyle.	Direct trauma to the ulnar nerve; inflammation of the tissues surrounding the nerve because of medial epicondylitis; excessive flexion of the elbow creating tension on the nerve; excessive prolonged pressure on the elbow from driving, leaning on the arm while using the phone, etc.	Avoid direct trauma to the nerve; avoid prolonged pressure on the nerve; treat medial epicondylitis.	Elbow pad to protect the ulnar nerve and prevent prolonged flexion of the elbow and tension on the nerve; treat medial epicondylitis; possible surgery to decompress the nerve.
	Thoracic outlet syndrome	Irritation or compression of neurological or vascular structures in the region of the first rib; pain in the neck, shoulder, and arm; pain and numbness in the forearm and	Direct trauma to the shoulder; secondary effect of cervical (neck) pathology or repetitive stress injury with spasm of the neck muscles irritating	Early diagnosis and treatment; treatment of associated conditions.	Treatment of underlying associated conditions; physical therapy; anti-inflammatory, analgesic, muscle relaxant medications; possible

		hand, particularly along the ulnar aspect (the little finger side).	the brachial plexus (nerves passing from the spinal cord to the arms) or arteries passing to the arm.		surgery to relieve pressure on the brachial plexus or subclavian artery.
	Synovitis	Inflammation of the synovial membrane (the layer of smooth, slippery tissue that lines the joints, surrounds tendons, and forms protective bags over bony protuberances) The affected joint becomes swollen and painful, especially when moved.	Injury to a joint, infection or various joint disorders.	Avoiding precipitating activities early in the course of the problem may arrest worsening.	Rest or decreased activity; supporting the joint with a splint or cast; nonweight bearing for hip, knee, or ankle joint involvement; painkilling, antibiotic, anti-inflammatory drugs; corticosteroid injections; synovectomy for chronic condition.
	Muscle strains	Tears in muscle tissue. A "strain" by definition involves muscle. Many cases diagnosed as "muscle strains" are really ligamentous sprains.	Sudden moves against resistance. A common athletic injury.	Warm up before physical activity, either athletic or work. Avoiding activity beyond current level of training.	(These usually heal promptly.) Ice, heat, electrical muscle stimulation; rest or decreased activity of the injured part; local anesthetic and/or corticosteroid injections.
	Sprains	A tear in fibrous tissue, usually involving a ligament. Can become chronic with continued inflammation and	Sudden moves against resistance. Overuse of a structure, either through work-related or athletic	Warm up before physical activity, either athletic or work. Avoid overuse. Early treatment	Rest or decreased activity; ice, heat; chiropractic and/or osteopathic manipulation to restore

44		delayed healing in the injured structures.	activity, or through trying to protect another injured part.	of symptoms.	joint function; corticosteroid and/or other forms of ligamentous injection. ⁴
	Raynaud's phenomenon*	Excessive constriction of the small arteries and arterioles of the fingers upon stimuli. Ears, nose, cheeks become pale, cyanotic and numb under the influence of cold or emotional upset; redness may occur; tingling or burning sensation may last for a few minutes or hours; severe cases may lead to ulcers or gangrene.	Often unknown; sometimes a complication of vascular disease, trauma, disease of the endocrine glands or central nervous system; various substances such as nicotine, arsenic, ergot and lead	Avoidance of cold environment and emotional upset.	Analgesics, psychotherapy, treatment of any underlying disorders; sympathetic ganglion or nerve blocks with local anesthetic; sympathectomy if the condition is severe.
	Sciatica*	Pain along the course of the sciatic nerve, which runs from the lower back down the back of the legs. A special form of radiculopathy when it involves irritation or compression of one or more nerve roots.	Pressure on one or more of the nerve roots contributing to the sciatic nerve, often from a herniated intervertebral disc, sometimes from an osteoarthritic spur or from generalized narrowing of the spinal canal (spinal stenosis); congenital	Warm up prior to physical activity. Avoid lifting heavy loads, avoid prolonged sitting with the lumbar spine in flexion (slouched forward); avoid lifting and twisting at the same time; follow sound ergonomic principles	Diagnose with MRI of the low back. Rest or decreased activity; rehabilitative physical therapy to teach proper spinal ergonomic principles and spinal/abdominal/low back conditioning; lumbosacral corset; epidural or
			anomalies of the spine, tumor of the spinal canal. Pain often occurs following an unusual movement or exertion that causes a tear in one or more of the intervertebral discs; may become more severe with coughing, sneezing, or otherwise straining.	when lifting, twisting, sitting. Use of a properly supported sleeping surface; use of chairs with good back support.	selective nerve root injections ⁴ ; surgical decompression of the nerve to relieve the acute pain if it doesn't respond to nonsurgical treatment. Various minimally invasive techniques are available for some forms of disc pathology. If severe central low back pain accompanies sciatica, spinal fusion may also be required to deal with the pain and instability.
	Radiculopathy	A more generalized term for irritation or compression of one or more nerve roots in the cervical, thoracic, or lumbosacral regions.	Usually occurs because of a herniated intervertebral disc; less commonly from spinal stenosis (narrowing of the spinal canal or nerve root channels).	Warm up prior to physical activity. Avoid overuse or overly vigorous use of the neck or low back.	Diagnose with MRI of the neck, thoracic region, or low back. Treatment -- same principles as the treatment of sciatica. Different types of traction may be effective, especially for cervical (neck) problems.

Tendinitis (or Tendinitis)*	Inflammation of the sheaths of the tendons (in wrist, shoulder, elbow, or elsewhere); tenderness and sometimes swelling along the course of the involved tendon; pain is reproduced by having the involved muscle and tendon move against resistance.	Irritation of the sheaths by excessive prolonged or abnormal use of the tendons; bacterial infection is rare cause.	Avoid overuse.	Rest or decreased activity; anti-inflammatory medication; local injection of local anesthetics and/or corticosteroids; other forms of injection therapy. ⁴
Rotator cuff tendinitis or tear*	Inflammation or tearing of the rotator cuff (part of the shoulder that enables the arm to be pulled away from the side of the body)	Overuse or sudden movement of the shoulder against resistance.	Warm up before physical activity. Avoid overuse.	Diagnose with MRI of the shoulder. Rest or decreased activity; anti-inflammatory medications; corticosteroid or other forms of injection therapy ⁴ ; arthroscopic or open shoulder surgery.
De Quervain's disease*	A special form of tendinitis, involving inflammation of the sheath enclosing a tendon to the wrist or fingers, called the adductor pollicis longus and extensor pollicis brevis, causing pain and temporary disability of affected areas.	Excessive rapid and repetitive movements of the hand or forearm	Avoid overuse.	Rest or decreased activity; anti-inflammatory medication; injections of corticosteroids; surgery to open the involved tendon sheath.

Carpet layer's knee*	Bursitis of the prepatellar bursa or tendonitis of the quadriceps tendon.	Excessive kneeling and forcibly hitting the carpet setting device with the knee while laying carpet.	Avoid the activity.	Rest or decreased activity; use of a protective device for the knee; anti-inflammatory medication; corticosteroid injections.
Trigger finger* (A form of synovitis)	A tight synovium may jam the finger's ability to straighten. When the tendon overcomes the obstruction, the finger moves with a jerk.	Using fingers in a repetitive fashion, or occasionally, by an infection.	Avoid overuse of the fingers.	Sometimes helped by corticosteroid injections; surgery is simple and may be necessary.
Herniated intervertebral disc*	Separation of the reinforcing region of the disc, the annulus fibrosus, with protrusion of the central portion of the disc, the nucleus pulposus, into the spinal canal, often with compression of a nerve root.	Damage to the disc by lifting or twisting against resistance, or by spontaneous separation of the disc fibers with protrusion of the central portion of the disc.	Avoid heavy lifting; follow ergonomic principles when lifting, bending, sitting, and twisting.	Same as radiculopathy.
Internal disc disruption and painful annular tears	Tearing of the fibers of the annulus fibrosus with the development of inflammatory changes within the disc.	Tearing of the fibers of the disc, usually from trauma, with subsequent development of inflammatory changes for unknown reasons.	Avoid heavy lifting; follow ergonomic principles when lifting, bending, sitting, and twisting.	MRI; physical therapy; anti-inflammatory medications; epidural injections; back brace; use discography ⁶ to diagnose the condition definitively; consider IDET ⁷ ; consider extensive disc excision and spinal fusion.

Back pain, non-specific ^{3*}	Discomfort in the lower region of the spine and surrounding tissues.	Sudden tears or strains of the muscles, tendons, or ligaments of the back due to bad posture, excessive stress, spinal disorders, kidney infection, gynecological disorders, menstrual period, nerve disorders.	Avoid the activity which precipitates the pain.	Rest or decreased activity; analgesic, anti-inflammatory, muscle relaxant medications; physical therapy; injection therapy.
Tarsal tunnel syndrome*	Analogous to carpal tunnel syndrome, only it occurs in the ankle.	Rare; causes are not well-documented.	Avoiding or reducing the activity, if it can be identified.	Similar to treatment of carpal tunnel.

¹ Some physicians think that anti-inflammatory medications, including aspirin, are over-prescribed. Side effects include gastrointestinal irritation, sometimes with sudden and life-threatening GI hemorrhage, damage to the liver and/or kidneys.

² Carpal tunnel surgery (median nerve release) involves surgically dividing the carpal ligament on the front of the wrist. It can fail for several reasons: 1) Misdiagnosis – the operation was performed for the wrong reason, and some condition other than carpal tunnel syndrome is causing the pain and/or numbness. 2) The ulnar nerve was also compressed in Guyon's tunnel, a tight area on the front of the wrist located to the little finger side of the carpal tunnel. 3) The carpal ligament was not completely divided either proximally (toward the arm) or distally (toward the fingers). 4) Synovitis – inflammation of the joint lining of the wrist – is causing swelling within the carpal tunnel. If this is not addressed at the time of surgery, pressure on the median nerve may not be completely relieved. 5) Postoperatively, the patient returns to the activity which caused the problem in the first place, and irritation and/or compression of the median nerve recurs.

³ Ligaments are relatively flat fibrous structures which hold bones together across joints. Tendons are relatively tubular fibrous structures which attach muscles to bones and transfer muscular power to the bones to provide movement. Fascia (and an

aponeurosis) is a sheet-like fibrous structure which encloses muscles and contains them when they contract. These structures are innervated and provide feedback to the brain regarding pain and position of the joints and bones in space.

⁴ Different types of ligamentous injections are available to relieve acute and chronic pain from injured ligaments. Corticosteroid injections can relieve inflammation and sometimes lead to permanent relief. However, pain from chronic ligamentous injuries can persist for many, many years if not treated effectively, and many practitioners believe that, for chronic conditions, the injured ligaments need to be strengthened with substances which encourage the growth of new, healthy connective tissue. These types of injections are called by different names, including "proliferant therapy" and "regenerative injection therapy." This treatment is controversial, with supporters pointing to a series of randomized, controlled, prospective, double-blind studies showing the injections to be safe and efficacious in the treatment of chronic pain of ligamentous origin. Skeptics argue that not enough studies have yet been done to investigate properly this form of therapy.

⁵ Epidural injections and selective nerve root blocks involve the injection of corticosteroids into or beside the spinal canal to soothe the inflamed nerve roots. These injections can facilitate rehabilitative physical therapy and can hasten non-surgical healing of the condition. Most cases of sciatica respond to nonsurgical treatment, especially if epidural or selective nerve root injections are included in the therapeutic program.

⁶ Discography involves injecting radiographic contrast material into the disc under fluoroscopic control to determine if the disc is a pain-generating structure and whether the disc is anatomically intact or not.

⁷ "IDET" stands for "Intradiscal Electrothermal Coagulation" and is a procedure which involves heating the inside of the disc to alter the inflamed tissue and encourage healing. The heating element is a wire placed into the disc under fluoroscopic control. This is a new procedure and it remains to be seen how effective it will prove to be over time.

⁸ Most cases of so-called nonspecific low back pain can be diagnosed specifically with appropriate clinical evaluation, laboratory studies, and radiological studies. *It is important to note that medical professionals do not agree among themselves regarding the causes (and treatment modalities) for lower back pain in particular. It has been suggested, for example, that a high percentage of all back pain not traceable to physical deformity or defect can be attributed to psychological stressors.*

Table prepared by: W. Bradford DeLong, M.D., F.A.C.S., and Tam Ngo, Regulatory Studies Program.
(For list of sources, see overleaf)

ABOUT THE AUTHORS

The Regulatory Studies Program (RSP) is a research and educational program aimed at advancing knowledge about regulations and their impact on society. The program is part of the Mercatus Center at George Mason University in Fairfax, Virginia, and is directed by Dr. Wendy Gramm, the former Administrator for the Office of Information and Regulatory Affairs at the OMB, and former Chairman of the Commodity Futures Trading Commission.

RSP works within its university setting to improve the state of knowledge and debate about regulations, and ultimately to improve how government works in the regulatory arena. RSP accomplishes this goal through projects that:

- Create knowledge through research on regulations;
- impact rules have on American citizens;
- Disseminate this knowledge through publications, courses, workshops, and conferences.

A key activity of the Regulatory Studies Program is to provide specific and practical guidance to policy makers and to the public on the impact of proposed regulations. This is done through the public interest comment project, where the RSP develops careful, scholarly analyses of potential agency regulations. These comments provide policymakers with rigorous analysis that is independent of any special interest group before regulations are implemented so that appropriate changes can be made.

This analysis was prepared by RSP Senior Research Fellow Susan E. Dudley, and Consulting Analyst Diana Rowen.

Ms. Dudley holds an S.M. from the Sloan School of Management at Massachusetts Institute of Technology, and has regulatory experience at the Commodity Futures Trading Commission and the Office of Management and Budget. Ms. Rowen holds a B.S. in Industrial Engineering from Stanford University and a Master of Public Policy from the John F. Kennedy School of Government, Harvard University, and was a Policy Analyst at the Office of Management and Budget.

Since its inception, RSP has filed comments on the following regulatory proposals. The complete texts of all comments are available online at <http://www.gmu.edu/mercatus>.

Sources: Spine Dr. Website <<http://www.spine-dr.com/>>
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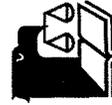
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OVERPRESSING BUSINESS: OSHA AND ERGONOMICS

- Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases (BEN) (September 1999)
- Consultation Agreements: Proposed Changes to Consultation Procedures (September 1999)
- EPA's Tier 2 Standards for Vehicle Emissions and Gasoline Sulfur Content (July 1999)
- DOL's Proposal Governing Helpers on Davis-Bacon Act Projects (June 1999)
- OSHA's Draft Ergonomics Program Standard (June 1999)
- Environmental Enforcement and Compliance Assurance Activities (April 1999)
- Regulation of Short- and Long-Term Natural Gas Transport Services (April 1999)
- Toxic Release Inventory (TRI) (March 1999)
- Minimum Security Devices and Procedures and Bank Secrecy Act Compliance (March 1999)
- FERC Gas Pipeline Short-Term Transportation Rulemaking and Long-Term Transportation Inquiry (December 1998)
- NHTSA's Advanced Airbags Proposal (December 1998)
- The Army Corps of Engineers' Proposal to Issue and Modify Nationwide Permits for Wetlands Use (November 1998)
- OMB's Draft Report to Congress on the Costs and Benefits of Federal Regulations (October 1998)
- Ozone Transport (NOx) (June 1998)
- NASDAQ Integrated Order Delivery and Execution System (June 1998)
- EPA's Proposed Rule on National Ambient Air Quality Standards for Particulate Matter (March 1997)
- EPA's Proposed Rule on National Ambient Air Quality Standards for Ozone (March 1997)
- Fast-track Designation and Rule Approval Procedures (December 1996)

Drinking Water Arsenic in Utah: A Cohort Mortality Study

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The association of drinking water arsenic and mortality outcome was investigated in a cohort of residents from Millard County, Utah. Median drinking water arsenic concentrations for selected study towns ranged from 14 to 166 ppb and were from public and private samples collected and analyzed under the auspices of the State of Utah Department of Environmental Quality, Division of Drinking Water. Cohort members were assembled using historical documents of the Church of Jesus Christ of Latter-day Saints. Standard mortality ratios (SMRs) were calculated. Using residence history and median drinking water arsenic concentration, a matrix for cumulative arsenic exposure was created. Without regard to specific exposure levels, statistically significant findings include increased mortality from hypertensive heart disease (SMR = 2.20; 95% confidence interval (CI), 1.36–3.56), nephritis and nephrosis (SMR = 1.72; CI, 1.13–2.50), and prostate cancer (SMR = 1.45; CI, 1.07–1.91) among cohort males. Among cohort females, statistically significant increased mortality was found for hypertensive heart disease (SMR = 1.73; CI, 1.11–2.58) and for the category of all other heart disease, which includes pulmonary heart disease, pericarditis, and other diseases of the pericardium (SMR = 1.43; CI, 1.11–1.80). SMR analysis by low, medium, and high arsenic exposure groups hinted at a dose relationship for prostate cancer. Although the SMRs by exposure category were elevated for hypertensive heart disease for both males and females, the increases were not sequential from low to high groups. Because the relationship between health effects and exposure to drinking water arsenic is not well established in U.S. populations, further evaluation of effects in low-exposure populations is warranted. **Key words:** arsenic, cancer, cohort studies, drinking water, epidemiologic studies, mortality, noncancer, standardized mortality ratio, United States, Utah. *Environ Health Perspect* 107:359–365 (1999). [Online 26 March 1999]

<http://ehpnet1.niehs.nih.gov/docs/1999/107p359-365lewis/abstract.html>

The 1996 Safe Drinking Water Act Amendments (1) mandate that the EPA revise the current drinking water standard for arsenic of 50 µg/liter (ppb) by the year 2000. Cross-sectional studies conducted in Taiwan in the late 1960s (2,3) reported associations with blackfoot disease, a vaso-occlusive disorder that has never been reported in U.S. populations, and skin cancer. Previous studies of arsenic in drinking water in the United States have evaluated nonmelanoma skin cancer (4–6), bladder cancer (5), vascular disease (10), reproductive effects (11,12), and toxic effects (13–15). The results from these studies have been mostly negative. In a review of U.S. skin cancer prevalence studies (16), populations with adequate exposure and health outcome data had drinking water arsenic concentrations of <500 ppb. In contrast, studies in other countries have indicated associations with much higher concentrations of arsenic in drinking water supplies and a wide range of health effects, including a variety of cardiovascular effects, diabetes mellitus, and cancer other than skin cancer. Other investigators in the United States have presented analyses that suggest larger and more comprehensive U.S. studies are possible (9,10).

In the late 1970s the EPA conducted a small study in Millard County, Utah, on a

population exposed to drinking water with a mean arsenic concentration of at least 150 ppb (range 53–750 ppb). To conduct a mortality study, we established a cohort of Millard County residents based on the 1970s-era studies. The objective of the current study was to examine the health effects of chronic consumption of arsenic-contaminated drinking water in a U.S. population. This paper describes the results of an analysis of drinking water arsenic exposures of <200 ppb and cancer and noncancer health effects in a U.S. population. Results on both cancer and noncancer causes of death are presented, along with drinking water arsenic exposure concentrations that consider residence time in the geographic study area.

Materials and Methods

Cohort assembly. The cohort was assembled from historical ward membership records of the Church of Jesus Christ of Latter-day Saints (LDS) (also known as the Mormons). These records represent the registry of all members who ever lived in a ward during a specific time period. The registers were compiled by ward members. An LDS church ward is a defined geographic area whose residents constitute a single congregation. In this study, the boundaries of the LDS church wards are

closely aligned with their respective town boundaries. The wards and years for which the historical membership books were kept, which were used in constructing the cohort (i.e., enrolling the cohort members), include 1) Delta for the years 1921–1924 (original ward), 1927–1941 (first ward), 1939–1941 (second ward), and 1918–1941 (third ward); 2) Hinckley (1932–1941); 3) Deseret (1933–1945); 4) Oasis (1900–1945); and 5) Abraham (1900–1944). Therefore, for individuals entered into the cohort from these records, the earliest cohort entry date for residence and follow-up purposes was 1900, and the latest entry date for an individual was 1945. Information was recorded on individual characteristics, including name, church ward, family relationships, birth date, death date, location of death, and date that the person moved into or out of that church ward. Follow-up for residence history for the purpose of estimating exposure to drinking water arsenic was provided by LDS church censuses. This is discussed further in the Arsenic Exposure section. Additional data were collected from other sources as follows.

- From the historical LDS church membership records: name, church ward affiliation, birth date, birth town, birth state, death date, death town, death state, cause of death, church-related events, gender, age, spouse name(s), father's name, and mother's name
- From the LDS church census records: date of census, name, and residence at the time of the census

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The further study of this population was a direct recommendation of panelists from the EPA-sponsored workshop "Arsenic in Drinking Water" held on 8 March 1994 in Research Triangle Park, North Carolina. Panel members were Carol Angle, Dennis Clifford, Gunther Craun, Phi. Enterline, Floyd Fros, and Craig Schnell. We thank David Thomas, Elaine Kenyon, and Larry Scanlan for their contributions. The views expressed in this article are those of the individual authors and do not necessarily reflect the views and policies of the EPA. The research described in this article has been supported by the EPA through contract 68-D2-0187. It has been subject to the agency's peer and administrative review, and it has been approved for publication. Mention of trade names or commercial products does not constitute endorsement or recommendation for use. Received 27 October 1998; accepted 15 January 1999.

- Current vital status was provided by the LDS church (these records are updated by the church on a weekly basis)
- From the LDS Ancestral File (LDS, Salt Lake City, UT), the International Genealogical Index (LDS), and the Social Security Death Index (LDS): date of birth and place of death
- From the death certificates: death date, death town, death state, underlying cause of death, and other causes of death
- From the Utah Health Department (Salt Lake City, UT): information on the duration of residence in the community, and coding of the underlying cause of death according to the *International Classification of Diseases, Ninth Revision (ICD-9)* codes (17).

The cohort was assembled from a 1977 study (14) that consisted of 2,073 cohort members during the first phase of data collection. Most of these cohort members had at least 20 years of exposure history in their respective towns. This cohort was expanded in a second phase of data collection to include all individuals who lived for any length of time in the study communities. The second phase of data collection resulted in a total combined cohort of 4,058 individuals. Cohort members were enrolled from historical LDS ward registries (18): 1,191 (29.4%) from Delta and 1,192 (29.4%) from Hinckley; the remaining 1,675 (41.2%) were enrolled from historical ward registries from the surrounding areas of Deseret, Abraham, and Oasis. More than 70% had attained the age of 60 years at the end of the follow-up period or by the time they were deceased. In all, 2,092 (51.6%) were male and 1,966 (48.5%) were female. At the end of the cohort assembly in November 1996, 1,551 (38.2%) were alive, 2,203 (54.3%) were deceased, and 300 (7.4%) were lost to follow-up. Four individuals were younger than 1 year of age and were not included in further analysis. The current analysis focuses on the 2,203 deceased.

Vital status determinations were made by the LDS church using current records. For deceased members, death certificates were requested from the state where the death occurred. Because most of the deceased cohort members died in the State of Utah, the Utah Bureau of Vital Records (BVR; Salt Lake City, UT) provided the majority of the death certificates. Death certificates were requested from other states where cohort members died. The Utah BVR assisted in the coding of all death certificates according to the *ICD-9* (17).

All death certificates were verified to ensure a match on identity, gender, and date of birth as compared to the abstracted

information from the historic ward membership files. Quality control review of the underlying cause of death was performed on 10% of death certificates from the initial phase of the cohort study by a first nosologist. Cause-of-death codes that were in question were submitted to a second nosologist at the National Center for Health Statistics (Research Triangle Park, NC), who verified the coding of the first nosologist. All death certificates collected in the most recent enrollment were verified for *ICD-9* coding by the first nosologist. The corrected codes were entered into the database and used in the analysis.

Water samples. Community drinking water arsenic concentrations were determined by historical records of arsenic measurements in drinking water maintained by the state of Utah dating back to 1964.

An overview of arsenic concentrations in drinking water and source-of-exposure information for the study area were presented in a previous feasibility assessment (18). In the current study, arsenic exposure levels for the communities were based on measurements performed by the Utah State Health Laboratory (Salt Lake City, UT), which participated in the EPA's quality assurance program and water quality proficiency testing. In addition, the samples must have originated from a water source used for culinary or potable purposes (not for agricultural or irrigation purposes), and the location of the source of the water sample (i.e., community) had to be clearly identified. The analysis date must have been 1976 or later, when the sample collection method involved acidification of the collection containers. This resulted in 151 samples of drinking water that were used in assessing the potential exposure of cohort members to arsenic in drinking water. The distribution of the concentrations of arsenic in drinking water in the study communities is provided in Table 1 in order of highest to lowest median concentration. Drinking water samples for 60 of the arsenic concentrations were collected during an EPA study in June 1997, with the rest of the samples dating from 1976 or

later. The Delta water samples came from the Delta public water system, and samples from Abraham, Deseret, Oasis, Sugarville, and Sutherland were taken from private drinking water wells. No additional water samples were taken for Hinckley because the original wells were abandoned in 1981 when a new, low-arsenic source (<50 ppb) of public drinking water was provided to Hinckley residents.

Arsenic exposure. Previous studies of the relationship between arsenic in drinking water and health effects have used a cumulative exposure index in which the overall exposure to arsenic for each subject is the product of the length of residence and the concentration of arsenic in drinking water (19,20). Using similar methods, an arsenic exposure index score was calculated for each individual in the cohort. The exposure index was derived from the number of years of residence in the community and the median arsenic concentration of drinking water arsenic in the community. Residence was determined by the members' entry into historical LDS church censuses, which the church conducted roughly every 5 years between 1914 and 1962 to determine where individual members lived throughout the world. Census years were 1914, 1920, 1925, 1930, 1935, 1940 (1945 skipped), 1950, 1955, 1960, and 1962. Data extracted from the censuses included date of census and residence at the time of the census.

The arsenic exposure index scores are expressed as ppb-years and are calculated as follows:

$$E_i = \sum (D_{ij} \times A_j) = \text{ppb-years}$$

where E = exposure index score value for individual i in ppb-years, D = duration of residence in years in community x for individual i , and A = median arsenic concentration in drinking water for community x in ppb.

The arsenic exposure index was categorized as low (<1,000 ppb-years), medium (1,000–4,999 ppb-years), and high (≥5,000 ppb-years). The rationale for this categorization is that 20 years of exposure is a reasonable

Table 1. Distribution of arsenic drinking water concentrations from historical and recent arsenic measurement data for Utah communities in the study area

Town	Number	Median	Mean	Min	Max	SD
Hinckley	21	166	164.4	80	285	48.1
Deseret	37	160	150.7	30	620	106.6
Abraham	15	116	134.2	5.5	319	67.2
Sugarville	6	92	94.5	79	120	15.3
Oasis	7	71	91.3	34	205	57.8
Sutherland	19	21	33.9	8.2	135	31.8
Delta	46	14	18.1	3.5	125	17.7

Abbreviations: Min, minimum arsenic concentration (ppb); Max, maximum arsenic concentration (ppb); SD, standard deviation.

period for most cancers to become manifest and an exposure to drinking water with 50 ppb arsenic or higher will yield a cumulative arsenic exposure of 1,000 ppb-years.

Analysis. Basic distributions of selected variables were made using SAS statistical software (21). The cohort data analysis uses standardized mortality ratios (SMRs) as the measure of association (22). The OCMAP program (23), adapted to a nonoccupational cohort, was used to compare the observed number of deaths with the expected number of deaths generated from death rates from the white male and white female general population of Utah within a given underlying cause of death category. Because a review of the race variable entered on the death certificates showed that all deceased individuals were white, death rates for white males and white females were used. Death rates for the state of Utah were available for the years 1960–1992 for diseases other than cancer, and from 1950 to 1992 for cancers. The death rates were applied in 5-year increments, with the exception of the 1990–1992 period. For those who died of causes other than cancer before 1960, the 1960–1964 death rates for causes other than cancer were applied. Similarly, for those who died of cancer before 1950, the 1950–1954 cancer death rates were applied. For those who died after 1992, the 1990–1992 death rates for either the cancer or noncancer cause of death were applied. To accommodate the needs of the program, a 1-year lag was imposed. This resulted in the exclusion of children less than 1 year old from the analysis ($n = 4$). At the end of the study, an individual was censored from the analysis on the date of death if deceased, the end of study date (27 November 1996) if alive, or at the last known residence date if lost to follow-up. The end date of the study was based on the

time when the last vital status determination was made on the last batch of records provided by the LDS church. LDS church records are updated weekly.

Results

Table 2 shows the distribution of basic demographic factors and arsenic exposure index distribution for the 2,203 deceased individuals with residence data. For non-cancer outcomes among males (Table 3), deaths from hypertensive heart disease [SMR = 2.20; 95% confidence interval (CI), 1.36–3.36] and nephritis and nephrosis (SMR = 1.72; CI, 1.13–2.50) were significantly elevated in the cohort as compared to the mortality experience for Utah white males. Death from arteriosclerosis (SMR = 1.24; CI, 0.69–2.04) and benign neoplasms (SMR = 1.05; CI, 0.29–2.69) was increased, but not statistically significant. Death from other cardiovascular causes (including cerebrovascular disease and ischemic heart disease) and respiratory causes (including non-malignant respiratory disease; bronchitis, emphysema, and asthma; and other respiratory disease) was significantly decreased as compared to the expected number of deaths for white males in the state of Utah. Among females (Table 3), death due to hypertensive heart disease (SMR = 1.73; CI, 1.11–2.58) and to all other heart disease (SMR = 1.43; CI, 1.11–1.80) was significantly elevated as compared to Utah white females. Deaths due to benign neoplasms (SMR = 1.96; CI, 0.85–3.86), diabetes mellitus (SMR = 1.23; CI, 0.86–1.71), arteriosclerosis (SMR = 1.18; CI, 0.68–1.88), and nephritis and nephrosis (SMR = 1.21; CI, 0.66–2.03) were increased. Deaths from ischemic heart disease and all external causes of death were less than that experienced by Utah white females.

To assess whether an increased exposure to drinking water arsenic could affect

mortality, SMRs were analyzed according to low, medium, and high arsenic exposure index values. Although the SMRs for hypertensive heart disease were elevated for males and females, the increases in the SMRs for low, medium, and high exposures did not increase sequentially. Other causes of death with elevated SMRs (nephritis and nephrosis for males and females, and all other heart disease for females) had elevated SMRs mostly in the medium or low arsenic exposure index categories. Causes of death with significantly decreased SMRs mostly had decreased SMRs within the low, medium, and high arsenic exposure index categories (e.g., cerebrovascular disease, all heart disease, and ischemic heart disease); however, the decreases did not descend sequentially from the high to low categories.

SMRs for cancer causes of death are listed for males and females in Table 4. Among males, prostate cancer was significantly increased (SMR = 1.45; CI, 1.07–1.91). Death due to kidney cancer (SMR = 1.75; CI, 0.80–3.32) was elevated in the medium and high exposure groups. Males in the mortality cohort had significantly less mortality due to all malignant cancers and cancer of the digestive organs and peritoneum, large intestine, and respiratory system than Utah white males. Mortality from lymphatic and hematopoietic cancers was decreased for both males and females. There were no cancer causes of death for females that were significantly elevated; however, moderate elevations in death due to cancer of the biliary passages and liver (SMR = 1.42; CI, 0.57–2.95), kidney cancer (SMR = 1.60; CI, 0.44–4.11), melanoma of the skin (SMR = 1.82; CI, 0.50–4.66), and all other malignant neoplasms (SMR = 1.34; CI, 0.84–2.03) are noted. Females in the mortality cohort had significantly less death due to all malignant neoplasms, cancers of the digestive organs and peritoneum, pancreas, respiratory system, and breast than did Utah white females. Mortality from uterine cancer and other female genital cancers was also decreased.

Among cancer causes of death for males, SMRs for the arsenic exposure index categories remained consistently elevated for prostate cancer, with the medium and high SMRs of similar magnitude and higher than the low group. Although the SMRs for low, medium, and high arsenic exposures for kidney cancer were elevated for males and females, the increases did not rise sequentially from low to high drinking water arsenic concentrations.

Discussion

Previous studies of drinking water arsenic concentration and health effects have indicated that skin cancer (2,3,24,25),

Table 2. Demographic distribution and arsenic exposure categories for deceased individuals in the Millard County, Utah, mortality cohort

	Low <1,000 ppb-years		Medium 1,000–4,999 ppb-years		High ≥5,000 ppb-years		Total
	n	%	n	%	n	%	
Age at death							
<50	171	18.1	102	14.6	34	6.1	307
50–59	88	9.3	84	12.0	40	7.2	212
60–69	173	18.3	144	20.6	92	16.5	409
70–79	259	27.4	209	29.9	182	32.7	650
80+	255	27.0	161	23.0	209	37.5	625
Gender							
Male	536	56.7	415	59.3	291	52.2	1,242
Female	410	43.3	285	40.7	266	47.8	961
Years in cohort							
<40	401	42.4	276	39.4	59	10.6	736
40–59	335	35.4	197	28.1	153	27.5	685
60–69	147	15.5	102	14.6	101	18.1	350
70+	63	6.7	125	17.9	244	43.8	432
Total	946		700		557		2,203

internal cancers (25-35), cardiovascular effects (10,19,20,29,36), diabetes mellitus (34,37,38), and potentially neurologic effects (2,39) are linked with ingestion of increased concentration of drinking water arsenic. Most of these studies were conducted in non-U.S.

populations with markedly higher drinking water exposures that can exceed 2,000 ppb. Although the Taiwan studies (2,3) linked skin cancer and blackfoot disease with very high exposures, there are few individuals in the U.S. population with

comparable exposures to arsenic in drinking water. In general, the highest exposures in U.S. studies are similar to the lowest exposures (or control exposures) in studies from other countries. The generalizability of the results from the Taiwan studies to the U.S.

Table 3. Standard mortality ratio (SMR) results for noncancer outcomes for males and females in the Millard County, Utah, mortality cohort

Cause of death	Males					Females						
	SMR estimate for exposure group ^a				All males	SMR estimate for exposure group ^a				All females		
	Low	Med	High	O/E		Low	Med	High	O/E			
All causes of death	1.02	0.93	0.74	1,235/1,367.6	0.91	0.86-0.96	1.23*	0.99	0.74*	954/874.6	0.98	0.92-1.04
Benign neoplasms	2.17	—	—	4/3.8	1.05	0.29-2.69	2.89	1.60	1.38	8/4.1	1.96	0.85-3.86
Diabetes mellitus	0.93	0.95	0.42	20/25.3	0.79	0.48-1.22	1.14	1.72	0.88	35/28.5	1.23	0.96-1.71
Cardiovascular disease	1.00	0.57*	0.74	76/96.5	0.79*	0.62-0.99	0.87	1.05	0.63	109/115.1	0.87	0.71-1.06
All heart disease	0.87	0.78*	0.74*	412/514.4	0.80*	0.73-0.88	1.03	0.80	0.61*	273/257.9	0.81*	0.72-0.91
Ischemic heart disease	0.83*	0.74*	0.70*	281/369.6	0.76*	0.67-0.85	0.88*	0.82*	0.62*	130/203.3	0.64*	0.53-0.76
Disease of arteries and capillaries	0.97	0.98	0.82	27/29.1	0.93	0.61-1.35	1.24	0.78	0.56	20/23.3	0.86	0.52-1.32
Arteriosclerosis	1.23	1.82	0.84	15/12.2	1.24	0.69-2.04	1.88	1.06**	0.53	17/14.5	1.18	0.68-1.88
Aortic aneurysm	0.44	0.79	1.15	9/11.9	0.76	0.35-1.44	—	—	1.30	2/4.2	0.48	0.06-1.73
Hypertensive heart disease	2.37*	1.91	2.29	21/9.6	2.20*	1.36-3.36	1.71	2.28*	1.34	24/13.9	1.73*	1.11-2.58
All other heart disease	1.09	0.97	0.71	56/59.7	0.94	0.71-1.22	2.26*	1.43	0.71	69/48.4	1.43*	1.11-1.80
Hypertension without heart disease	1.96	—	0.90	4/3.9	1.03	0.28-2.66	—	—	—	9/4.4	—	0.00-0.84
Nonmalignant respiratory disease	0.80	0.54*	0.69	81/118.6	0.68*	0.54-0.85	1.09	0.94	0.77	58/62.6	0.93	0.70-1.20
Bronchitis, emphysema, and asthma	0.65	0.50	0.85	19/31.5	0.60*	0.36-0.94	0.72	0.76	—	4/8.3	0.48	0.13-1.23
Nephritis and nephrosis	2.02*	2.10*	0.88	27/15.7	1.72*	1.13-2.50	2.32*	0.85	0.48	14/11.6	1.21	0.66-2.03

Abbreviations: O/E, observed/expected deaths; CI, 95% confidence interval.
^aLow exposure, <1,000 ppb-years; median exposure, 1,000-4,999 ppb-years; high exposure, ≥5,000 ppb-years.
^{*}Significant at the *ps* 0.05 level.

Table 4. Standard mortality ratio (SMR) results for cancer outcomes for males and females in the Millard County, Utah, mortality cohort

Cause of death	Males					Females						
	SMR estimate for exposure group ^a				All males	SMR estimate for exposure group ^a				All females		
	Low	Med	High	O/E		Low	Med	High	O/E			
All malignant cancers	0.69*	0.98	0.83	182/222.5	0.82*	0.70-0.95	0.99	0.56*	0.65*	130/177.4	0.73*	0.61-0.87
Digestive organs and peritoneum	0.57*	0.87	0.73	45/63.0	0.72*	0.52-0.96	1.11	0.20*	0.70	34/48.4	0.69*	0.48-0.96
Stomach	0.67	0.85	1.20	13/14.8	0.88	0.47-1.50	1.00	0.40	0.70	6/8.3	0.72	0.28-1.57
Large intestine	0.79	0.45	0.35	11/20.0	0.50*	0.22-0.99	1.23	—	0.91	14/19.0	0.74	0.40-1.24
Biliary passages and liver	—	2.82	—	3/3.5	0.85	0.18-2.48	2.99	—	1.15	7/4.9	1.42	0.57-2.93
Pancreas	0.21	1.44	0.86	10/12.9	0.80	0.38-1.46	—	0.35	0.31	2/9.3	0.22*	0.03-0.78
Respiratory system	0.32*	0.96	0.44*	28/40.1	0.57*	0.38-0.82	0.44	0.66	0.22	6/13.7	0.44*	0.16-0.95
Prostate	1.07	—	1.70*	50/34.5	1.45*	1.07-1.91	—	—	—	—	—	—
Breast (female)	—	—	—	—	—	—	0.64	0.70	0.40	21/36.4	0.58*	0.38-0.89
Uterine	—	—	—	—	—	—	0.42	0.49	0.69	7/13.5	0.52	0.28-1.07
Other female genital organs	—	—	—	—	—	—	0.87	0.71	1.09	12/13.4	0.89	0.46-1.55
Kidney	2.51	1.13	1.43	9/5.2	1.75	0.80-3.32	2.36	1.32	1.13	4/2.5	1.60	0.44-4.11
Bladder and other urinary organs	0.36	—	0.95	3/7.2	0.42	0.08-1.22	1.18	—	1.10	2/2.5	0.81	0.10-2.93
Melanoma of the skin	0.72	0.79	1.06	3/3.6	0.83	0.17-2.43	5.30*	—	—	4/2.2	1.82	0.50-4.66
Central nervous system	—	0.90	—	2/6.4	0.31	0.38-1.12	1.21	—	—	2/4.8	0.42	0.05-1.50
Lymphatic, hematopoietic tissue	0.95	0.65	0.64	21/27.6	0.76	0.47-1.16	0.94	0.68	0.45	13/18.9	0.69	0.37-1.17
All other malignant neoplasms	0.98	1.10	0.77	18/18.7	0.96	0.57-1.52	1.26	1.18	1.57	22/16.4	1.34	0.84-2.03

Abbreviations: O/E, observed/expected deaths; CI, 95% confidence interval.
^aLow exposure, <1,000 ppb-years; median exposure, 1,000-4,999 ppb-years; high exposure, ≥5,000 ppb-years.
^{*}Significant at the *ps* 0.05 level.

general population has been questioned (40), as the lowest exposure category includes concentrations of up to 290 ppb (41). It is estimated that approximately 200,000 individuals are exposed to drinking water arsenic concentrations above 50 ppb (42). The median concentration of arsenic in drinking water in the Millard County mortality study is <200 ppb, and exposure to arsenic in drinking water could be regarded as typical of those concentrations of arsenic found in drinking water supplies in the United States. There are consistencies in the kinds of health effects that have associations in this study and in other international studies; however, the results of the present study need to be considered in the full context of all epidemiologic results currently available.

The major strength of this study is that it examines the effects of chronic exposure to arsenic in a U.S. population. Advantages of the cohort design include that the exposure precedes the effect, and that cohort studies have the capability to provide information on a variety of health effects from a single exposure (22). While the exposure is ecologic, i.e., not tied to an individual's actual consumption, the arsenic exposure estimates are believed to be accurate and the exposure is believed to have remained constant over time. During this study, the investigators were able to gather a considerable number of arsenic concentrations from private wells, so that estimates of exposure to arsenic from drinking water for individuals may be possible in future studies. Although individual data on confounding factors are not available, the historic membership of the cohort in the LDS church permits some assumptions regarding personal lifestyle including prohibition of tobacco use and of the consumption of alcohol or caffeine. Because church policy dictates that membership registration records are placed in the church ward of a member's residence, there is a high degree of confidence that the cohort members were exposed to the concentrations of drinking water arsenic for the communities in which they resided. Although the period of residence in the study area for the cohort members exceeds the period of available exposure information, historical documents indicate that drinking water quality has not changed considerably because of 100% reliance on groundwater supplies (18).

Other U.S. studies have not had the advantage of more population-specific arsenic monitoring data. A previous study (10) estimated the concentration of arsenic in drinking water in Millard County was 93 ppb. However, this estimate was based on a population-weighted mean arsenic

concentration in the public water supply data from the state of Utah. Because many residents of Millard County relied on private wells with much higher concentrations of arsenic, this estimate is not accurate.

Associations of drinking water arsenic with cardiovascular diseases, including hypertension (19), arteriosclerosis (29), cerebrovascular disease (36), ischemic heart disease (20), and other vascular diseases (10,35,43), have been reported. It has been hypothesized that exposure to arsenic in drinking water may be directly linked to ischemic heart disease and blackfoot disease via the atherogenic pathway (44). Indirect effects of arsenic on other cardiovascular risk factors including hypertension and diabetes (19,36) have also been proposed. Arsenic has been associated with vascular lesions including angiosarcomas and atherosclerotic plaques, suggesting that arsenic plays a role in somatic mutations and cell proliferation in the etiology of atherosclerotic plaques (45). In the current study, increased associations for hypertension and arteriosclerosis were found for both males and females. Death from all other heart disease in females was increased. This category included pulmonary heart disease, pericarditis, and other diseases of the pericardium.

The findings of cardiovascular effects in the context of a dose-response relationship with drinking water arsenic in this analysis are less clear. Although SMRs cannot be directly compared in an analysis that uses indirect adjustment, trends may be observed if the age and gender distributions in the exposure groups are similar. In Table 2, the age distributions are not similar ($\chi^2 = 48.4$, 8 degrees of freedom, $p < 0.01$), but the gender distributions are similar ($\chi^2 = 1.9$, 2 degrees of freedom, $p = 0.17$). Based on this, any conclusions on whether arsenic is an etiologic factor in consideration of increased or decreased SMRs among the groups is uncertain. Further evaluation of the relationship of each of these cardiovascular diseases with drinking water arsenic in this and other populations is needed. Positive associations with diabetes mellitus and the concentration of arsenic in drinking water have been reported in India, Bangladesh, and Argentina (34,37,38). In this study, there is no clear indication of any relationship between the concentration of arsenic in drinking water and diabetes mellitus.

Associations for nonmalignant respiratory diseases and bronchitis, emphysema, and asthma combined were also decreased, possibly indicating that the respiratory health of the cohort was good and smoking was not a major factor. Death from respiratory cancers was decreased significantly for

both males and females. Because the cohort was assembled based on historic LDS records, it is believed that the cohort was largely nonsmoking, as smoking is prohibited by the LDS church. Annual smoking prevalence rates for the state of Utah between 1984 and 1996 indicate that Utah consistently had the lowest prevalence of smoking among all states reporting, ranging from 13.2 to 16.8% among adults aged 18 years and older (46). Smoking rates for the Central Utah Health District, which includes Millard County, reported an average smoking rate among adults 18 and older of 13% for 1996 (47). During the same year, the entire state of Utah had a smoking prevalence of 12.4% and Salt Lake County had a smoking prevalence of 13.9% (47). For the incidence of cancers that are strongly related to smoking (including oral cavity, larynx, lung, esophagus, and bladder cancers), Mormon men had cancer incidence rates over a 15-year period from 1971 to 1985 that were approximately half those for U.S. men (48).

The current results indicating a positive association with prostate cancer are intriguing as this is the first known potential association between exposure to arsenic in drinking water and prostate cancer in the United States. In this analysis, prostate cancer was also the only health outcome that appeared to have a dose-response effect based on the low, medium, and high exposure index categories. The etiology of prostate cancer is largely unknown; however, it is believed that hormonal factors, family history, and dietary practices are involved (49). The incidence and mortality of prostate cancer increase dramatically after age 40. Worldwide, prostate cancer has the lowest rates among Chinese and Japanese men (50), with African-American men and Caucasian populations from North America experiencing the highest incidence rates. Mortality is lower in the United States as compared to high-risk countries (51). The ethnic background of the Millard County study population is primarily English, Scottish, and Scandinavian. For prostate cancer, Mormons have about a 10–15% higher incidence rate than U.S. men (48,52). Familial history is a strong risk factor for prostate cancer, as indicated by the results of a previous family study that also utilized Mormon records (53). In contrast, associations with mortality from cancers of the female reproductive tract in the Millard County mortality cohort were largely negative.

Previous studies from an endemic area of chronic arsenic toxicity in Taiwan (9,32,33,35) and an ecologic study in Argentina (26) have reported associations for increased exposure to drinking water

arsenic and risk for bladder cancer. A case-control study of bladder cancer in Utah (9) did not find an association with ingested arsenic, and in the Millard County mortality study only five deaths were due to bladder cancer. Whereas the studies in Taiwan and Argentina reported high exposures to drinking water arsenic, this study population was exposed to much lower levels, perhaps indicating that bladder cancer occurs in response to higher arsenic concentrations. In reviewing other causes of death from the urinary system, death from kidney cancer and nephritis and nephrosis were consistently elevated in both males and females. However, the SMRs did not increase with increasing levels of exposure. Other subclassifications of the types of nephritis and nephrosis were not available for the analysis, but competing causes such as infections need to be ruled out.

An increase in mortality due to melanoma in the lowest exposure category was found among females. Although skin cancer is etiologically linked with arsenic in drinking water, melanoma is not the histologic type of skin cancer usually associated with arsenic intake (54). In females, all of the melanoma deaths occurred in the lowest exposure category where the expected number was less than one. Based on these small numbers, it is not possible to draw conclusions about any involvement of exposure to arsenic in drinking water with this finding. Alternatively, continued follow-up of the cohort in the future could clarify whether the association between arsenic exposure and melanoma disappears. In contrast, the results for melanoma among males were negative.

Based on these cohort data, we do not believe that loss to follow-up, confounding, or multiple comparisons played a significant role in these results. Based on their review of several cohort studies, Breslow and Day (55) noted that loss to follow-up is acceptable if it is <10%. Our loss to follow-up is 7.4%. The distribution of this group by drinking water arsenic exposure was 163 in the low-exposure group, 96 in the medium-exposure group, and 41 in the high-exposure group. Because the net effect of loss to follow-up is to bias results toward the null value (55), and because most of the loss to follow-up is already in the low group in this cohort, the impact on our results would be to attenuate any observed effects rather than to spuriously increase them.

In this study, potential exposure to atmospheric arsenic is the most likely confounder because this variable is related both to health effects in previous studies of miners (56,57) and is associated with availability in sediments as a result of mining (58). Although data on atmospheric arsenic concentration was sought from the state of Utah to address potential confounding

effects from this alternate exposure to arsenic, this type of data is not routinely collected. However, future studies involving arsenic exposure assessment will consider atmospheric arsenic data collection. Because the study region in Millard County is primarily agricultural or vast desert with no mining activity, we do not believe a significant part of the exposure to arsenic was due to atmospheric exposure.

Because most of the significant associations we found in this analysis have been found by others and were not unanticipated, we do not believe multiple comparisons of exposure and outcome in these data represent a problem. To adjust for multiple comparisons would be incorrect because the correction theory is based on the universal null hypothesis that chance serves as the explanation for observed associations (59). Associations with hypertension and prostate cancer have been reported elsewhere (19,35). The association with nephritis and nephrosis is worthy of further investigation. Human autopsy data do not suggest arsenic accumulates more in the kidney than in other internal tissues (60,61). Although it is unknown whether the kidney represents a site of injury of arsenic, arsenate has been taken up by the phosphate carrier in cells of the proximal convoluted tubule (62).

In conclusion, this study represents a unique opportunity for health researchers to better understand the potential for health effects in association with relatively low exposure to arsenic in drinking water in a U.S. population. Although cohort members contributed many years to the highly exposed group and some died at an advanced age with no perceived adverse effects, further examination of this cohort is planned. Additional analysis of the data continues and includes a Cox proportional hazards analysis that will allow internal comparisons to be made between high, medium, and low exposure categories. Results from this study are important in the context of the ongoing review of the U.S. drinking water arsenic standard. This study will provide some insight into the role of both noncarcinogenic end points and carcinogenic end points in the review of the drinking water arsenic standard. Data from this cohort study will be especially useful in evaluating hazard identification and will provide some information on potential dose-response relationships as specified in the risk assessment paradigm.

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Coal Scores With Wager on Bush

Belief That Mineral Is Part of 'Balanced' Energy Policy Lifts Industry Outlook

By Dan Morgan
 Washington Post Staff Writer
 Sunday, March 25, 2001; Page A05

Few businesses placed as big a bet on Republicans in the last election as the coal industry, which gave 88 cents out of every dollar in campaign contributions to GOP candidates or organizations. Two months into the Bush administration, that wager has begun to pay off.

President Bush has jettisoned a campaign promise to require coal-burning power plants to reduce emissions of carbon dioxide, after heeding industry warnings that such action could "kill coal." Now, industry officials who worked for this week's Environmental Protection Agency decision to revoke a Clinton administration crackdown on arsenic in drinking water are taking aim at more than two dozen pending rules regulating substances from coal mine dust and ozone to diesel particulates.

In the GOP-controlled Congress, lobbyists for coal companies, railroads and electric utilities are mobilizing behind tax credits, subsidies and regulatory exemptions for coal-burning

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The emergence of coal from the political shadows is due in part to Bush's conviction that the mineral, which is used to generate half the nation's electricity, is crucial to preventing the spread of the California energy crisis.

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Coal "didn't have a very friendly forum in this town" during the Clinton administration, an environmental official said. The Clinton administration favored rigorous enforcement of clean air controls on emissions by coal-burning utilities and encouraged expansion of power plants using cleaner natural gas. The Bush administration, in a tilt back the other way, contends that an expansion of coal-generated power must be part of the "balanced" energy policy needed to provide ample electricity at reasonable prices.

But coal's new strength also rests on the enhanced influence, in the aftermath of last year's election, of a network of interests, such as electric utilities and railroads, that strongly oppose lessening the country's dependence on coal.

In late February, senior executives of coal, utility and railroad companies descended on Washington under the auspices of an informal group, the Coal-Based Generators, to lobby for legislation providing tax credits and other subsidies for utilities using experimental "clean coal" technologies.

Among them were Irl Engelhardt, chairman of the Peabody Group, the nation's largest coal enterprise, whose holding company contributed \$250,000 to the Republican National Committee in July. Engelhardt himself served as an energy adviser to the Bush-Cheney transition team.

Meanwhile, coal, rail and power companies such as Peabody Holdings Inc., Burlington Northern/Santa Fe, and Southern Co., provided funding last year to start Americans for Balanced Energy Choices, to develop grass-roots support for coal.

"The market realities have changed, and the political dynamics have changed in Washington," said the group's president, Steve Miller, a Democrat who was Bill Clinton's campaign organizational chairman in Kentucky in 1992. "People have no idea of the environmental improvement the coal industry has made."

To get that message across, Americans for Balanced Energy Choices has set up a Web site and prepared a media advertising budget of several million dollars to finance what Miller says will be "a longtime conversation with opinion leaders across the country." The purpose will be to counter the influence of environmental organizations.

Separately, the Coalition for Affordable and Reliable Energy, made up largely of trade associations, has been set up to lobby in Washington and

has begun running advertisements in Capitol Hill publications.

Electric utilities and their executives and employees last year gave \$18.4 million to candidates and parties, of which \$12.4 million went to Republicans, according to the Center for Responsive Politics, a campaign research group. Southern Co., one of the nation's largest coal-burning power producers, opposes the Kyoto protocol, under which signatory nations, including the United States, agreed to reduce greenhouse gas emissions to 1990 levels. The Senate has never ratified the agreement.

Southern Co. is represented in Washington by the lobbying firm headed by former Republican National Committee chairman Haley Barbour, a close associate of Senate Majority Leader Trent Lott (R-Miss.).

In the House, Rep. Joe Barton (R-Tex.), chairman of the subcommittee with jurisdiction over clean air and energy, has vowed that legislation containing such restrictions will "never" pass through his panel. Until Barton's northeast Texas district was reconfigured in 1994, it contained strip mines and coal-burning power plants belonging to Texas Utilities Co., the third largest electricity producer in the United States. Barton has continued to receive funds from its political action committee.

The coal industry itself has made use of its own extensive network of connections. The Interior Department's newly appointed deputy secretary is J. Steven Griles, who has lobbied for coal and gas companies ranging from Pittston Coal Co. to Dominion Resources.

The Bush-Cheney transition team was sprinkled with industry officials, including Engelhardt and Steven Chancellor, president and chief executive of Indiana-based Black Beauty Coal Co. Chancellor and his company were major Republican contributors, and he hosted a fundraiser in August at his home attended by former president George Bush and vice president Dan Quayle, according to the Indianapolis Star.

West Virginia coal executive James "Buck" Harless raised more than \$100,000 for President Bush and chipped in \$100,000 to the Bush-Cheney Inaugural Fund, as did Peabody Holding Co. and Southern Co.

The coal industry may enjoy even better connections in Congress. Along with Sen. Robert C. Byrd (D-W.Va.), Sen. Mitch McConnell (R-Ky.) has advanced legislation providing billions of dollars in tax credits for utilities, and indirectly benefiting contributors to GOP campaign committees he has headed.

In the debate over global warming, coal interests have prevailed over environmental organizations and corporations that have been moving toward acceptance of the threat of carbon dioxide emissions. This small but growing group now includes BP Amoco PLC, Enron Corp., Entergy

Corp. and American Electric Power, an Ohio-based coal-burning utility.

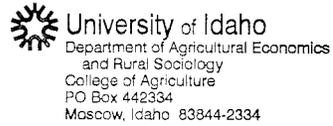
Enron's chief executive, Kenneth Lay, one of Bush's most generous campaign supporters, has urged the president to create a trading system for carbon as a way of limiting emissions into the atmosphere. But Lay was not given advance notice of Bush's decision ruling out mandatory carbon controls, sources said.

A spokesman said Lay was "somewhat disappointed that we don't have a process in place to deal with what he thinks is going to be a significant issue."

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The Valley County Economy: A Regional Input/Output Model

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The Valley County Economy: A Regional Input/Output Model

Executive Summary

At the request of the Valley County Commissioners, social and economic surveys were conducted of Valley County residents and visitors to develop a social assessment. The economic surveys were used to adapt an economic model to Valley County and show the linkages which exist in the county. Analysis indicates the effect of a major reduction in the timber harvest and manufacturing would be a direct loss of 144 jobs and, \$27.3 million in output. The indirect and induced effect would be a loss of an additional 81 jobs and \$15.9 million in output for a total of 225 jobs and an impact of \$43.2 million on the Valley County economy.

The second scenario relates to the effect of expanding recreation in the county, to replace the former commodity production. In this case, increases in demand because of visitors' spending would be allocated over several sectors. The employment gains would also be in several sectors. To compensate for the timber and wood manufacturing losses visitor days would need to almost double. Doubling of visitor days would create 927 jobs, a four fold increase to replace the 225 jobs lost and equal the same total impact. That is a net increase of 702 jobs from direct, indirect and induced impacts. The direct impact is the same, \$27.3 million but indirect and induced impact would increase \$1.9 million because of greater interlinkage to the local economy. The combined impact shows more jobs with lower pay. This project permits local officials to evaluate alternative policy proposals for their affects on the Valley County economy before making the decisions.

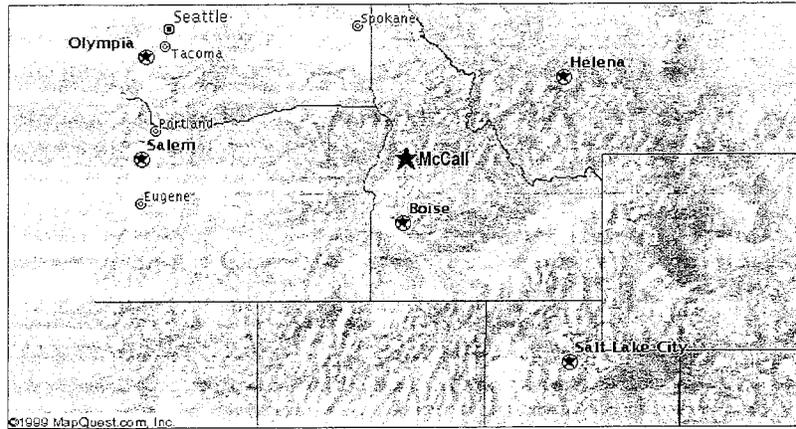
This study is supported by Boise Cascade, City of Cascade, City of McCall, Idaho Power, Ida-Ore Planning and Development Association, U.S. Bureau of Reclamation, Valley County and West Central Highlands RC&D.

The economy of the county is shifting based on the changes in national preferences and the resulting national policy changes. Timber is becoming relatively less important and recreation is becoming a larger part of the local economy. The changes require people with different skills. Communication and traffic to and from the county, highlights communication and transportation necessary for growth and stability of the county's economy. The project changes also imply greater demand for social services and housing.

Introduction

At the request of the Valley County Commissioners, the Idaho Cooperative Extension System and the Department of Agricultural Economics and Rural Sociology faculty, conducted this economic study in Valley County, Idaho. The purpose of this study was to develop a description of the Valley County economy and a model which helps to predict the impacts on employment and value added (income) from potential policy changes. To make these predictions, the researchers developed an input/output model. This report summarizes the results of the study by describing the employment, value added, and industry output for each sector of

the economy. Furthermore, the predictions of the model under two different scenarios are



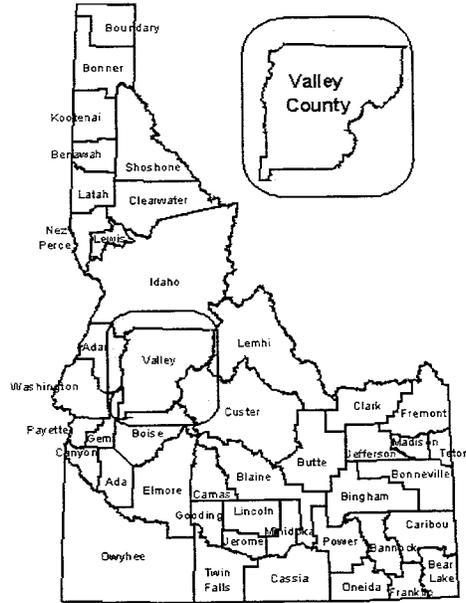
reported.

This report describes Valley County's economic base. The researchers have divided the economy into seventeen industry sectors and a government sector (see Appendix B). Their goal is to discuss the importance of the different sectors in terms of their exports, employment, value added, and industry output (gross sales). Aggregations of sectors have been made to avoid disclosing data from any individual business.

McCall and Vicinity

Boise, ID to McCall, ID = 108 miles
 Portland, OR to McCall, ID = 458 miles
 Spokane, WA to McCall, ID = 266 miles

Valley County, Idaho



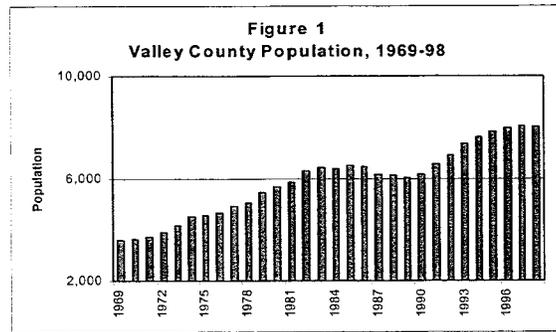
Economic Growth

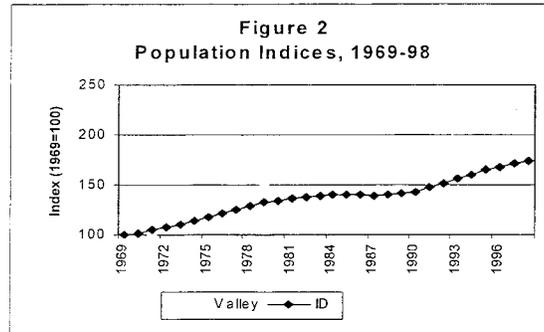
Economic growth in Valley County was evaluated using population, employment, total personal income, and individual income. In order to compare with Idaho, population, employment and income were converted to indices with 1969 as the base year (i.e., 1969=100). To account for the effects of inflation and allow comparison of data between years, all dollar amounts have been deflated to 1992 dollars.

Population

Retaining economic growth in a community requires a stable or growing population to work and consume, and thus support economic growth. Population growth is a reflection of a community's ability to attract and retain individuals as both producers and consumers. The following figures summarize population growth for Valley County from 1969 to 1998 and compare it through indices with population growth for the State of Idaho.

- Between 1969 to 1998, Valley County's population increased by 123 percent (3,585 to 8,010). (Figure 1)
- Idaho's population has been steadily increasing, however growth was flat during the late 80's. Valley County's population has increased, but dipped during the mid 80's and increased again during the early 90's. (Figure 2)

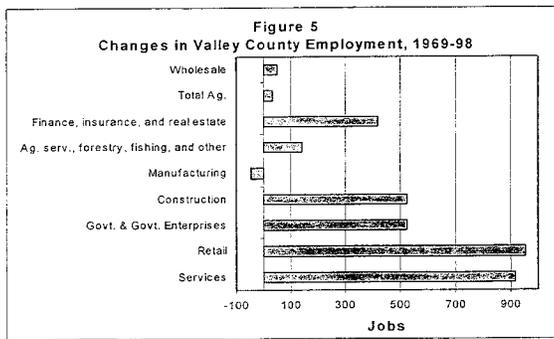
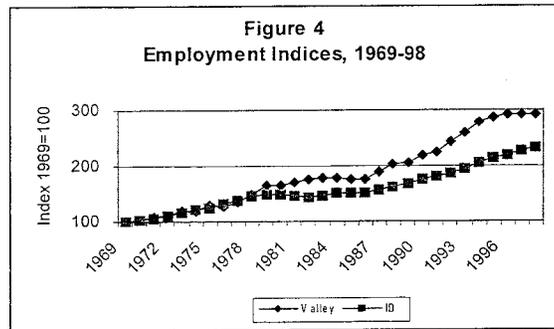
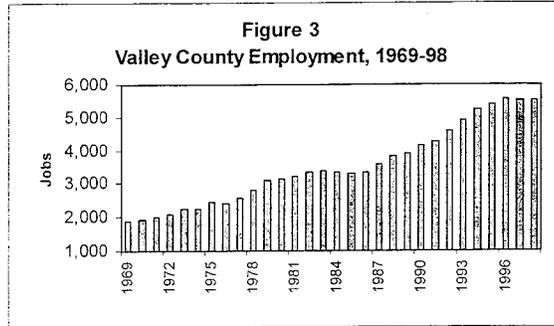


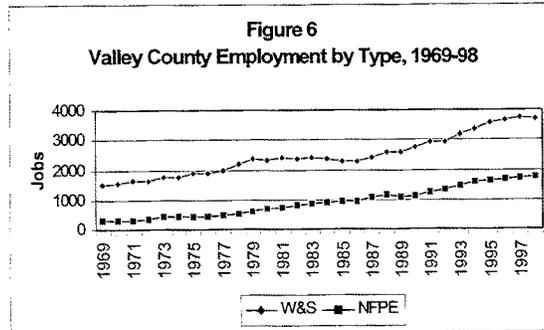


Employment

Closely associated with changes in population are changes in employment. Traditionally, it has been assumed that population growth follows employment growth. However, more recently it has been suggested that in some cases, such as when quality of life or amenity considerations are involved, employment growth may actually follow population growth. The following graphs summarize employment growth for Valley County, from 1969 to 1998, and compare it with Idaho. The graph labeled *Changes in Valley County Employment, 1969-98* indicates the change in employment by sector for Valley County between 1969 and 1998. *Valley County Employment by Type, 1969-98* compares the trend in Wage and Salary jobs with that for Non-Farm Proprietor Employed (NFPE) jobs.

- Employment in Valley County rose 192% between 1969 to 1998 (1892 to 5524). (Figure 3)
- Since 1978, Valley County's employment has been increasing at a faster rate than the State's as a whole. (Figure 4)
- Jobs were gained in retail and services while manufacturing lost jobs. (Figure 5)
- Between 1969 and 1998, wage and salary jobs were much greater than non-farm proprietor employed jobs. In 1969, the number of non-farm proprietor-employed jobs was 20 percent of wage and salary jobs. In 1998, this number increased to 48 percent. (Figure 6)
- In 1969 the job/person ratio was 0.53. In comparison 1998 it was 0.69. This difference may be due to the increase in part time jobs.

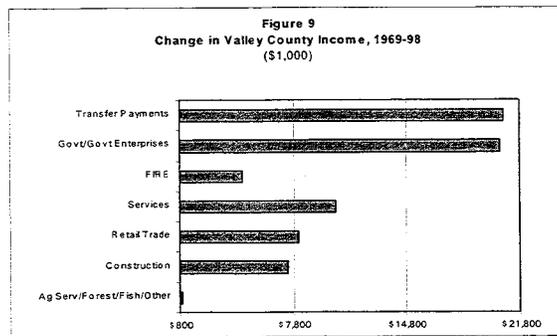
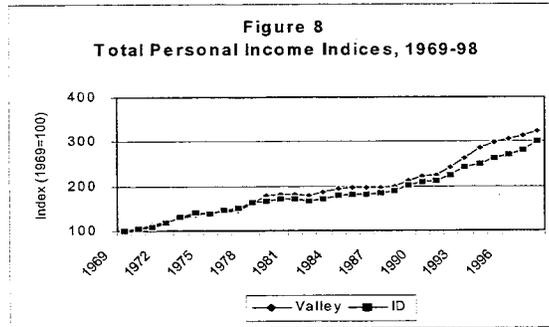
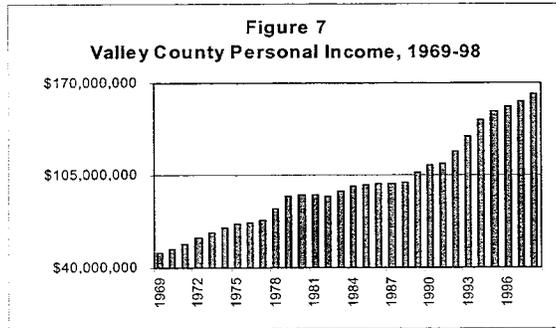


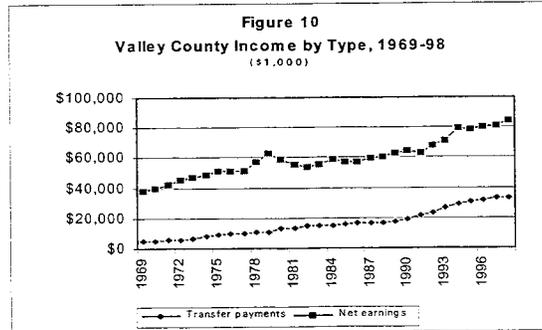


Total Personal Income

The following graphs describe personal income in Valley County. Personal income can be used as a method to estimate a community's economic growth. The two graphs labeled *Valley County Personal Income, 1969-98* (Figure 7) and *Total Personal Income Indices, 1969-98* (Figure 8) summarize Valley County's income growth for the 1969 to 1998 time period, and compare it to that of the state of Idaho. *Change in Valley County Total Income, 1969-98* (Figure 9) shows the change in source of personal income by sector for Valley County. Net earnings and transfer payments are compared in *Valley County Income by Type, 1969-98*. All dollar amounts used have been deflated to 1992 dollars.

- Valley County personal income is almost four times higher in 1998 than it was in 1969, reaching over \$150 million. (Figure 7)
- Valley County and the state of Idaho's total personal income have more than doubled since 1969. (Figure 8)
- Transfer payments have grown more than any other sector of Valley county's economy. (Figure 9)
- Transfer payments measured 39% of Valley's net earnings in 1998. (Figure 10) (Transfer payments include unemployment, veterans, medicare, worker's compensation, pensions, social security and other such payments.)



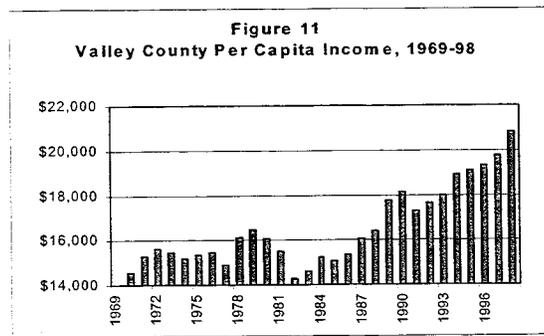


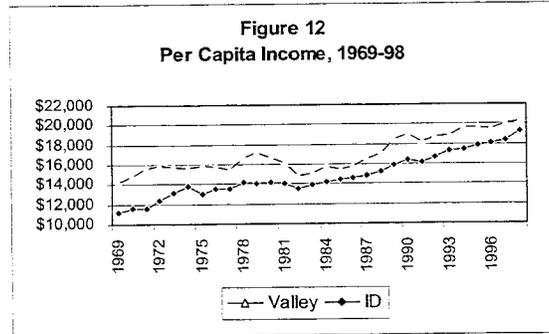
Individual Per Capita Income

Individual income is used as a scale to measure the economic well-being of a specific area, and the people who reside there. These numbers were adjusted for inflation. Per capita income and average earnings per job were used to measure individual income.

Per capita personal income can be used as an indicator of the quality of consumer markets, and shows the economic well-being of all county residents. Per capita personal income is defined as the total county income divided by the population of the county. The *Per Capita Income, 1969-98* compares Valley County to State of Idaho's values.

- Valley county per capita income has trended upward from 1969 through 1998. There were 5 periods when per capita income actually declined. (Figure 11)
- Per capita income in Valley County was \$14,557 in 1969, and increased 43 percent to \$20,822 in 1998. Idaho had a per capita income increase of 73 percent during the same time period to \$19,316. (Figure 12)

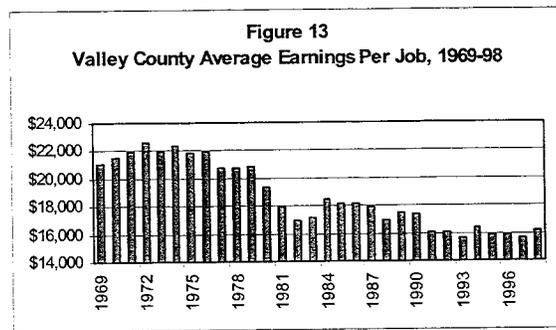


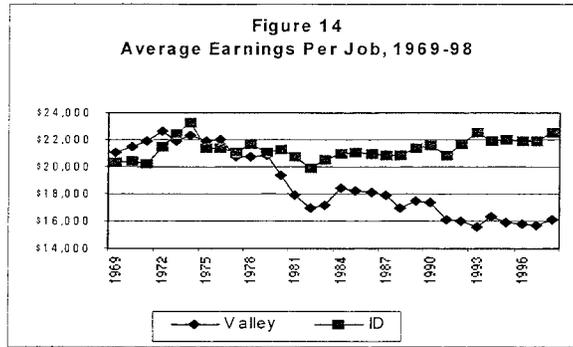


Average Earnings Per Job

Average earnings per job is estimated by dividing total earnings by total employment. While per capita income considers the entire population, inflation adjusted average earnings per job focuses on the economic well-being of the community's workforce. The following figures summarize average real earnings per job for Valley County from 1969-98 and compare it to the state of Idaho.

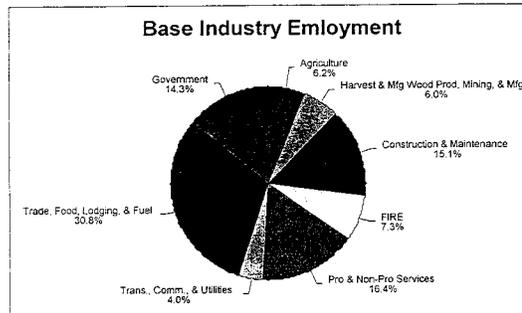
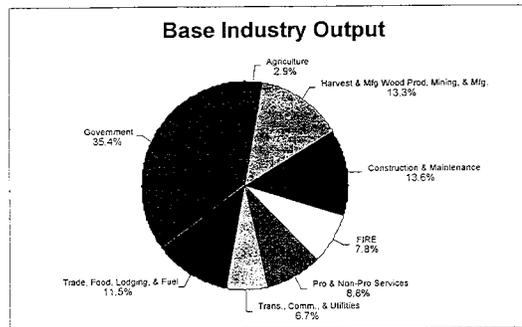
- Between 1969-98 average earnings per job for Valley County have varied dramatically. The average earnings per job have been declining since 1972. (Figure 13)
- Between 1969 and 1998, average earnings per job for Valley County trended downward and below Idaho's average earnings per job.





I/O Model Application

I/O models can be used to show economic impacts from governmental policy, business introduction and other potential changes in a local or regional economy. To derive economic impacts from a change or “shock” to an economy we must first decide whether it is a change to final demand or to output. Final demand changes are changes in purchases of goods and services for final consumption such as purchases made by the federal government or households. These purchases may be food, computers, houses, buildings or any other good or service. Output changes are sales or value of production (agricultural commodities) from a given industry. These sales can be anything ranging from alfalfa hay and cattle to gold and electronic parts or sales to region visitors.



At the request of the Valley County Commissioners, two scenarios, loss of the mill and an increase in recreation were used to demonstrate the capabilities of the model.

Scenario 1: A decrease of timber availability and effect of roadless initiative

Timber has historically been an important part in Valley County's economy. Currently it still holds an important roll, but the increase in recreation activities have shifted the economy to a more tourism dependant economy. This scenario evaluates the in-county effects of reducing the timber that is available for harvest and the closing of the mill.

Logging in the county occurs on private, Bureau of Land Management, Idaho State Department of Lands, and Forest Service land. Portions of the Boise and Payette National Forest have been logged to supply lumber to the mill, and in the past this has been a significant source of timber for processing. Timber harvesting in National Forests is in jeopardy due to timber harvest reductions and the proposed roadless initiative, both could greatly effect the mill and the county.

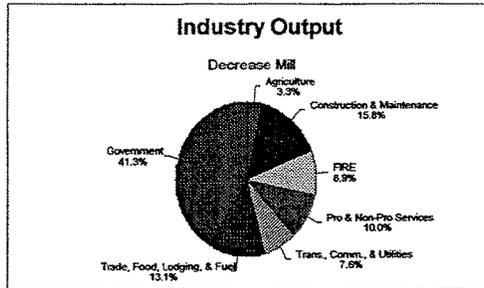
Local Margins

For many of the purchases from the local economy, a major share is for imported product. The table below shows the proportion of the purchase which was assumed to be locally produced. The larger the proportion of the local purchase, the greater will be the impact on the local economy. The model is adjusted to reflect in-county purchases.

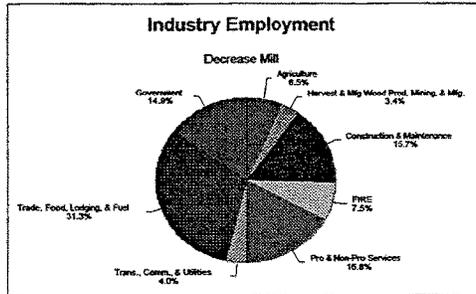
Sector	Local Margin
Ag. Forestry & Rec Services	0.57
Trade	0.32
Fuel	0.29
Food & Lodging	0.71
Non Pro-services	0.62
Households	1.00

Table 1. Effect of timber availability and roadless initiative in Valley County

Sectors	Harvesting & Manufacturing Wood Products Type II	Direct Impacts	Indirect & Induced Impact Harvest & Mfg. Wood Prod	Total Impact Harvest & Mfg. Wood Prod
Cattle	0.0001		(\$1,639)	(\$1,639)
Other Livestock	0.0001		(\$3,076)	(\$3,076)
Pasture & Crops	0.0000		(\$652)	(\$652)
Ag., Forest & Recreation Services	0.0008		(\$22,863)	(\$22,863)
Mining	0.0000		(\$488)	(\$488)
New Residential Structures & Maintenance	0.0012		(\$33,791)	(\$33,791)
Other Construction & Maintenance	0.0060		(\$163,064)	(\$163,064)
Harvesting & Manufacturing Wood Products	1.2144	(\$27,300,000)	(\$5,852,162)	(\$33,152,162)
Manufacturing	0.0003		(\$7,296)	(\$7,296)
Transportation	0.0128		(\$350,657)	(\$350,657)
Communication & Utilities	0.0108		(\$294,518)	(\$294,518)
Wholesale & Retail Trade	0.0277		(\$756,342)	(\$756,342)
Auto Service & Fuel	0.0066		(\$180,801)	(\$180,801)
Food & Lodging	0.0169		(\$461,867)	(\$461,867)
FIRE	0.0257		(\$701,692)	(\$701,692)
Non-Professional Services	0.0144		(\$392,154)	(\$392,154)
Professional Services	0.0162		(\$442,347)	(\$442,347)
Households	0.2286		(\$6,239,592)	(\$6,239,592)
Sum	1.5826			
Total Industry Impact		(\$27,300,000)	(\$9,665,412)	(\$36,965,412)
Total Regional Income Impact		\$0	(\$6,269,592)	(\$6,239,592)
Total Employment Impact				(225)
Total Economic Impact		(\$27,300,000)	(\$15,905,004)	(\$43,205,004)



Note: Business Sector Harvesting & Manufacturing of Wood Products is now much smaller, due to loss of output. However some activity remains in the local economy.



Directly the loss of the mill would cause a 60% decrease in the Harvesting and Manufacturing Wood Products sector. This amounts to a direct economic loss of \$27,300,000 a decrease of purchases by this sector from other business sectors in the county (Table 1). In addition there would be indirect and induced reductions in all sectors of the Valley County economy which would amount to \$15,905,004. The total reduction in county economic activity would be \$43,205,004. There would be a loss of 144 jobs in timber, harvesting and manufacturing sector. Eighty-one jobs would be lost in other sectors of the local economy. The total jobs lost would be 225.

Scenario 2: Effect of increase in recreation

A second scenario considers tourism development. Tourism can be a number of things including campers, hunters, snowmobilers, ranch experiences, fishermen, other outdoor experiences or just people passing through who stop for a few days or a few hours. To get information on spending, visitors to Valley County were interviewed concerning their purchases for the trip. Purchases were divided among sectors as well as between in-county and out-of-county (Appendix D). Table 2 shows the in-county spending per recreational visitor days (RVD) for different types of Valley County visitors in 1999. Table 3 shows the current levels of visitors estimated for the same period.

Table 2. Recreational Persons Daily Spending in Valley County*

Recreation Type	Per Person Daily Spending
Downhill Skiers	\$58.69
Snowmobilers	36.45
Golfers	35.86
Cross-country Skiers	25.47
Boaters	25.16
Rafters	22.38
Mountain Bikers	20.80
Hunters	14.70
Fishermen	13.16
Campers	7.69

*Detailed expenditures are included in Appendices D.

Table 3. Visitor Spending in Valley County, 1998-99

Activity	Number of Visitors	Estimated Recreation Revenue ¹
Downhill Ski	101,489	\$5,956,389
Fish	340,741	4,484,152
Camp	468,879	3,605,680
Snowmobile	78,444	2,859,284
Boat	91,029	2,290,290
Hunt	152,800	2,246,160
Golf	53,564	1,920,805
Cross-country Ski	68,879	1,779,818
Mountain Bike	42,900	892,320
Raft ²	3,689	82,560
TOTAL	1,402,414	\$26,117,458

To replace reduced Timber Harvest and Manufacturing, Scenario II doubled the number of recreational visitor days of each activity and assumed spending patterns would remain the same. The total number and total sales to visitors are shown in Table 4. There would be 2,804,828 visitor days with visitors directly spending \$52,183,974 in the local economy. The distribution of those effects are shown in Table 5. The margins are adjusted to reflect the leakage from the economy. The indirect and induced effects are \$17,802,848. The direct, indirect and induced effect would be \$45,102,848 on the economy. A total of 927 jobs would be added to the economy.

¹Per person daily spending Table 2 estimated number of visitors (Table 3).

²May include small percentage of kayakers.

Table 4. Impact of Doubled Recreation to Valley County.

Recreational Visitor Type	Numbers of Persons by Recreation Type Needed to Compensate for 60% Decrease in Harvesting & Manufacturing of Wood Products ¹	Direct Effect with Increase in Recreation Visitors
Hunters	305,600	\$4,492,320
Boaters	182,058	4,580,579
Snowmobilers	156,888	5,718,568
Downhill Skiers	202,978	11,912,779
Cross-country Skiers	137,758	3,508,696
Fishermen	681,482	8,968,303
Campers	937,758	7,211,359
Golfers	107,128	3,841,610
Rafters	7,378	165,120
Mountain Bikers	85,800	1,784,640
TOTAL	2,804,828	\$52,183,974

1. With current local purchase patterns

Reduction in the timber harvest and manufacturing sector would be expected to result in a direct decrease in output of \$27.3 million and the indirect/induced is another \$15.9 million for a total reduction of \$43.2 million. This would be expected to be a loss of 144 direct jobs and 81 indirect and induced jobs for a total of 225 jobs lost in the county.

Because a major share of recreation purchases are made outside the county, a major increase in tourism would be needed to compensate for the timber harvest and manufacturing loss. Table 4 of the scenario II gives an idea of the magnitude of expansion that would be needed by individual expansions of recreation.

The increase in visitor days of 2,804,828 would be needed to compensate for timber harvest and manufacturing loss. That is about double current visitor levels. Considerable investment would be needed to support the increased recreational activity. The county also currently does not have the facilities to accommodate such large increase in numbers of persons. Therefore the county would be expected to lose economic activity in the short run as a result of the timber harvest and processing reduction. Over a longer period of time additional facilities and recreation opportunities could be developed to capture more recreation dollars. There would likely be a short term construction boom as facilities are expanded to provide for larger visitor numbers.

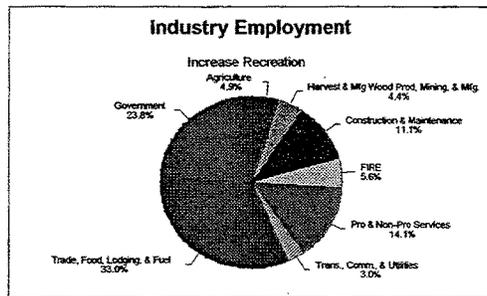
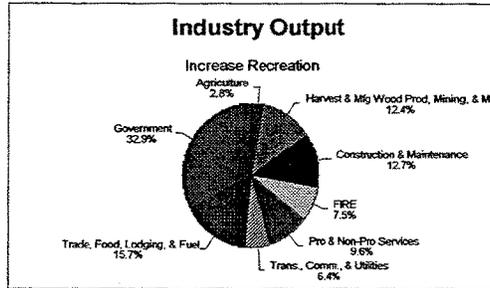
Employment in the expanded visitor industries would be 927, that is 702 more jobs than current employment. It is over four times the current number of jobs. Because of seasonality, lower pay scales, and lack of security benefits, instability of population and greater turn over of people would be introduced to the Valley County labor forces. Would problems of housing and

social services arise in the county?

A related question is the seasonality of visitors. July and August are already at capacity. The major part of the expansion would need to come in the non-peak demand periods. This would utilize capacity thus reducing costs and increasing profitability for Valley County businesses.

Table 5. Impacts on Valley County—Increase in Recreation

Sectors	Direct Impacts	Indirect Impact	Total Impact
Cattle		\$7,665	\$7,665
Other Livestock		\$26,044	\$26,044
Pasture & Crops		\$5,073	\$5,073
Ag., Forest & Recreation Services	\$457,680	\$95,336	\$553,016
Mining		\$1,786	\$1,786
New Residential Structures & Maintenance		\$60,701	\$60,701
Other Construction & Maintenance		\$455,559	\$455,559
Harvesting & Manufacturing Wood Products		\$41,289	\$41,289
Manufacturing		\$13,148	\$13,148
Transportation		\$215,509	\$215,510
Communication & Utilities		\$908,235	\$908,235
Wholesale & Retail Trade	\$4,458,525	\$991,209	\$5,449,734
Auto Service & Fuel	\$1,638,301	\$22,638	\$1,880,939
Food & Lodging	\$15,596,528	\$1,355,968	\$16,952,496
FIRE		\$1,374,505	\$1,374,505
Non-Professional Services	\$4,810,873	\$1,208,322	\$6,016,165
Professional Services		\$915,626	\$915,626
Households	\$338,094	\$9,884,236	\$10,222,330
Total Industry Impact	\$26,961,907	\$7,918,612	\$34,880,519
Total Regional Income Impact	\$338,094	\$9,884,236	\$10,222,330
Total Employment Impact			927
Total Economic Impact	\$27,300,000	\$17,802,848	\$45,102,848

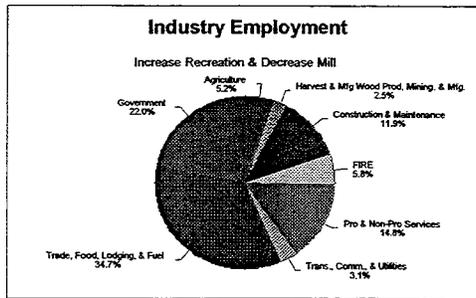
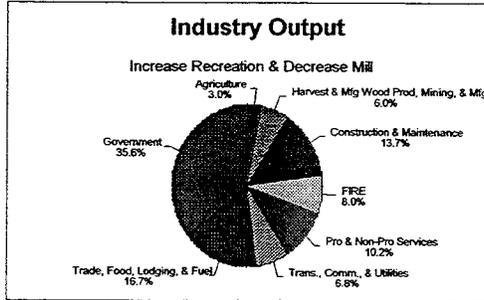


Scenario 3: Effect of increase in recreation and loss of timber mill

Table 6. Combined effect of mill closure, timber harvest reduction and recreation expansion.

Sectors	Direct Impact of Recreation	Indirect Impact of Recreation	Total Impact
Cattle	\$0	\$6,026	\$6,026
Other Livestock	\$0	\$22,967	\$22,967
Pasture & Crops	\$0	\$4,421	\$4,421
Ag., Forest & Recreation Services	\$457,680	\$72,473	\$530,153
Mining	\$0	\$1,298	\$1,298
New Residential Structures & Maintenance	\$0	\$26,910	\$26,910
Other Construction & Maintenance	\$0	\$292,494	\$292,494
Harvesting & Manufacturing Wood Products	(\$27,300,000)	(\$5,810,873)	(\$33,110,873)
Manufacturing	\$0	\$5,852	\$5,852
Transportation	\$0	(\$135,147)	(\$135,147)
Communication & Utilities	\$0	\$613,716	\$613,716
Wholesale & Retail Trade	\$4,458,525	\$234,866	\$4,693,391
Auto Service & Fuel	\$1,638,301	\$61,837	\$1,700,138
Food & Lodging	\$15,596,528	\$894,101	\$16,490,629
FIRE	\$0	\$672,812	\$672,812
Non-Professional Services	4,810,873	\$816,168	\$5,627,041
Professional Services	\$0	\$473,278	\$473,278
Households	\$338,094	\$3,644,644	\$3,982,737
Total Industry Impact	(\$338,093)	(\$1,746,800)	(\$2,084,893)
Total Regional Income Impact	\$338,093	\$3,644,644	\$10,222,330
Total Employment Impact			702
Total Economic Impact	\$0	\$1,897,844	\$1,897,844

The combined effect of harvest reduction, mill closure and increased visitors would be a \$1.9 million increase in indirect and induced final demand and an increase of 702 jobs in the county (Table 6). The lower pay of the visitor effected sectors plus their linkages to the local economy create the additional final demand and jobs. Timber Harvest and Manufacturing and Transportation decrease in final demand and jobs while all other sectors would gain something.



Questions for Decision makers

Local decision makers need to consider what the substitution of higher paying regular jobs with seasonal lower paying jobs means for the local community and county. More jobs paying lower wages could mean higher turnover in employees, more need for low cost housing, or greater demand for social services. Questions need to be asked concerning the additional services which will be demanded by the additional visitors such as search and rescue, solid waste management, emergency medical services. All have potential impacts on local citizens and service providers as well as fiscal resources. These are beyond the scope of this study but important implications to consider.

Using the Model

The input/output model permits development of multipliers for a number of purposes. Each multiplier is used differently.

Final demand multipliers or business multipliers (Table C-1) are the sum of the direct and indirect (and induced effects in household are included in the model) requirements from all sectors of the local economy needed to produce one additional dollars worth of output to final demands. Final demand is driven by sales outside the region or exports. The magnitude of the final demand multiplier indicates the amount of demand stimulus that sector creates for one unit of final demand. A larger multiplier indicates the sector directly and indirectly purchases a greater portion of its input from within the local economy. Larger multipliers indicate a greater degree of intermediate production. To use the values in Table C-1, multiply change in exports times the Type I multiplier to get the direct effects and by the Type II multiplier to get the total effects. For example a change of \$1 million in New Construction and Maintenance would have direct effects in Valley County of \$1,350,000. The total effects would be \$1,610,000 including the direct, indirect and induced effects.

Output multipliers (Table C-2) are when production drives the model, like in the addition of a new resort or production facility. They show the direct (Type I) and indirect and induced effects (Type II) multipliers of production increases in a specific sector. For example a \$1 million change in output for New Construction and Maintenance sector would result in \$1,350,000 change in output and \$1,610,000 change in total Valley County output.

Primary input multipliers assess direct and indirect (and induced) payments to the primary input or resource resulting from a change in final demand. The difference is that resources multipliers are denominated in physical quantities such as gallons of water or numbers of jobs instead of economic unites (dollars). Primary input multipliers are used to examine the direct and indirect (and induced if household are included) payments to any of the primary input sectors when final demands change for the economy. Primary input multipliers are always less than one as compared to output multipliers which are always equal to or greater than one.

- ▶ Earning and value added Table (C-4) are the most common types of primary multipliers. Earnings are payments to households (salaries and wages) plus proprietors income. Proprietors income is owner operated business income paid to the owner in lieu of wage income. Value added is the amount remaining after payments to intermediate suppliers. It includes earnings, taxes, plus other income. A \$1 million change in final demand for the New Construction and Maintenance sector would result in a direct change in value added of \$280,000, and a direct, indirect and induced effect of \$320,000.
- ▶ Employment multipliers (Table C-5) measures the total change in the physical number of jobs resulting from a change in final demand. The employment multiplier gives the backward linked (direct, indirect and induced) physical amount of labor used throughout the economy as the result of a change in final demand.. A \$1 million change in final demand would change jobs by 17.1 directly and a total of 18.5 jobs in Valley County.

Appendix A

Valley County Gross Transactions Matrix

Table A-1. Valley County I/O Gross Transactions.

Valley County I/O Gross Transactions, 1996	Cattle	Other Livestock	Pasture & Crops	Ag., Forest & Recreation Services	Mining	New Construction & Maintenance	Other Construction & Maintenance	Harvesting & Manufacturing Wood Products
Cattle	128,129	0	0	0	0	0	0	0
Other Livestock	46	9,872	0	49,481	0	0	0	0
Pasture & Crops	357,500	49,667	0	0	0	0	0	0
Ag., Forest & Recreation Services	51,250	15,414	26,214	383,229	4,262	46,495	83,231	10,085
Mining	0	0	0	0	4,631,540	1,543	37,819	0
New Residential Structures & Maintenance	0	0	0	0	0	5,455	7,910	0
Other Construction & Maintenance	37,971	2,117	0	37,282	75,860	143,737	205,105	157,748
Harvesting & Manufacturing Wood Products	44	0	0	0	0	3,101,298	684,209	8,010,000
Manufacturing	0	0	0	0	1,048	14,180	11,424	8,478
Transportation	0	0	0	25,651	21,246	179,823	185,158	406,251
Communication & Utilities	12,908	1,286	24,500	22,749	38,897	84,062	180,485	183,615
Wholesale & Retail Trade	39,445	2,011	44,432	31,437	29,133	1,350,798	1,618,352	420,931
Auto Service & Fuel	0	0	0	9,910	1,598	190,813	347,368	101,146
Food & Lodging	0	0	0	0	0	11,377	89,442	257,986
FIRE	128,988	4,088	120,583	102,202	51,409	218,838	479,386	348,178
Non-Professional Services	7,258	257	17,442	53,124	13,606	71,103	290,271	207,664
Professional Services	19,854	1,188	35,934	58,672	25,328	234,907	1,658,324	113,719
Households	2,231,169	103,352	1,389,560	1,659,743	3,214,335	1,964,406	5,904,423	7,049,027
Non Local Employee Compensation	0	0	0	0	0	1,671,954	4,876,227	585,379
Non Local Proprietary Income	0	0	0	116,047	102,277	1,274,655	3,980,407	2,854,474
Other Property Income	869,648	43,676	453,697	594,190	1,077,704	354,768	880,529	8,526,959
Indirect Business Taxes	356,154	8,102	15,123	129,887	408,031	128,855	233,205	284,392
Non Res Households	0	0	0	0	0	0	0	0
Federal Government	149	13	0	1,347	1,759	13,644	33,684	15,501
State/Local Government Non-Education	12,850	910	0	21,351	5,483	28,284	104,761	139,911
State & Local Education	0	0	0	0	0	152	0	15,990
Capital & Inventory	0	0	0	75	9,456	5,299	6,985	53,074
Imports	676,792	44,393	297,276	1,904,414	1,371,899	8,715,557	19,179,953	15,749,490
Col Sum	4,930,154	286,347	2,424,761	5,200,791	11,084,872	19,812,205	41,078,659	45,500,000

Appendix A Cont.

Valley County ID Gross Transactions, 1996	Manufac- turing	Transporta- tion	Communica- tion & Utilities	Wholesale & Retail Trade	Auto Service & Fuel	Food & Lodging	FIRE	Non- Professiona l Services
Cattle	0	0	0	4	1	7,929	0	268
Other Livestock	0	0	0	0	0	24,741	0	1,973
Pasture & Crops	0	0	0	0	0	0	0	0
Ag. Forest & Recreation Services	660	0	569	5,051	0	41,087	107,093	16,716
Mining	0	0	8,682	1	0	418	0	0
New Residential Structures & Maintenance	0	0	0	0	0	0	820,002	0
Other Construction & Maintenance	27,980	74,575	573,687	99,583	36,083	451,536	627,077	261,765
Harvesting & Manufacturing Wood Products	25,620	120	20,449	5,415	333	1,169	324	7,276
Manufacturing	97,424	0	0	0	0	0	0	51,199
Transportation	18,266	191,973	123,845	24,159	18,140	170,528	70,848	90,163
Communication & Utilities	29,234	66,925	674,192	258,643	100,346	695,799	579,626	563,694
Wholesale & Retail Trade	71,122	41,684	122,072	60,925	68,216	284,955	33,512	176,940
Auto Service & Fuel	3,752	25,433	12,921	26,676	12,879	64,507	23,628	78,586
Food & Lodging	0	47,430	102,104	0	0	1,429,845	230,112	189,543
FIRE	41,047	103,157	408,900	476,746	229,540	312,472	2,624,174	1,110,446
Non-Professional Services	27,596	51,916	337,381	353,168	98,070	589,691	578,881	1,526,758
Professional Services	16,980	28,014	151,632	83,588	33,085	227,304	424,801	624,343
Households	700,168	1,332,824	4,571,369	8,635,809	1,610,025	5,540,103	4,481,223	9,435,600
Non Local Employee Compensation	0	175,995	237,198	1,049,074	360,173	2,219,746	511,991	0
Non Local Proprietary Income	0	227,450	855,263	220,239	101,057	541,044	448,317	115,009
Other Property Income	529,183	487,500	9,055,937	2,377,583	727,427	2,159,213	14,129,128	2,468,762
Indirect Business Taxes	24,668	89,753	2,427,496	2,990,113	501,355	1,493,903	3,405,315	345,391
Non Res Households	0	0	0	0	0	0	0	0
Federal Government	2,611	3,125	39,480	57,724	14,704	52,375	93,992	126,617
State/Local Government Non-Education	4,094	13,435	54,986	23,075	10,691	119,239	107,021	50,155
State & Local Education	500	387	2,169	287	70	8,279	190	4,429
Capital & Inventory	810	27	608	69	6,424	110	104	676
Imports	1,434,220	1,953,555	5,271,654	2,144,207	1,897,362	10,387,678	5,482,817	7,102,529
Col Sum	3,075,935	4,913,080	25,032,593	18,872,137	5,825,982	26,823,669	34,780,175	24,548,838

Appendix A Cont.

Valley County ID Gross Transactions, 1996	Professional Services	Households	Local Employee Compensation	Local Proprietors Income	Non Local Employee Compensation	Non Local Proprietary Income	Other Property Income	Indirect Business Taxes
Cattle	205	45,683	0	0	0	0	0	0
Other Livestock	308	72,033	0	0	0	0	0	0
Pasture & Crops	0	0	0	0	0	0	0	0
Ag. Forest & Recreation Services	0	311,509	0	0	0	0	0	0
Mining	0	698	0	0	0	0	0	0
New Residential Structures & Maintenance	0	542,240	0	0	0	0	0	0
Other Construction & Maintenance	101,794	61,169	0	0	0	0	0	0
Harvesting & Manufacturing Wood Products	602	227,546	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0	0	0
Transportation	44,463	933,436	0	0	0	0	0	0
Communication & Utilities	197,555	2,989,282	0	0	0	0	0	0
Wholesale & Retail Trade	59,872	13,278,823	0	0	0	0	0	0
Auto Service & Fuel	24,478	3,098,704	0	0	0	0	0	0
Food & Lodging	154,154	7,310,933	0	0	0	0	0	0
FIRE	778,016	9,679,505	0	0	0	0	0	0
Non-Professional Services	405,382	4,914,716	0	0	0	0	0	0
Professional Services	614,863	9,549,682	0	0	0	0	0	0
Households	6,106,636	0	0	0	0	0	0	0
Non Local Employee Compensation	839,625	0	0	0	0	0	0	0
Non Local Proprietary Income	501,823	0	0	0	0	0	0	0
Other Property Income	588,443	5,761,203	0	0	0	0	0	0
Indirect Business Taxes	100,351	1,170,953	0	0	0	0	0	0
Non Res Households	0	3,247,634	67,095,023	14,615,252	14,138,559	10,913,164	13,373,992	0
Federal Government	111,900	16,874,002	8,619,691	991,428	3,694,153	424,898	(895,025)	2,210,760
State/Local Government Non-Education	99,343	17,555,277	2,709,597	0	83,802	0	416,587	12,103,084
State & Local Education	1,377	361,813	0	0	0	0	0	0
Capital & Inventory	121	11,591,321	0	0	0	0	53,865,892	0
Imports	3,955,833	87,048,799	0	0	0	0	(9,345,962)	0
Col Sum	14,687,142	196,626,962	78,424,311	15,606,680	17,916,514	11,338,061	57,415,484	14,313,845

Appendix A Cont.

Valley County ID Gross Transactions, 1996	Federal Government	State/Local Government Non-Education	State & Local Education	Capital & Inventory	Exports	Row sum
Cattle	0	2,453	199	137,322	4,607,962	4,930,154
Other Livestock	0	7,561	273	2,180	117,880	286,346
Pasture & Crops	0	0	0	0	2,017,593	2,424,761
Ag., Forest & Recreation Services	0	115,366	2,686	2,757	3,977,117	5,200,791
Mining	0	9,006	181	99,738	6,295,246	11,084,872
New Residential Structures & Maintenance	0	533,595	0	14,852,014	3,050,989	19,812,205
Other Construction & Maintenance	12,365	13,243,871	99,397	19,086,555	5,661,401	41,078,659
Harvesting & Manufacturing Wood Products	30	12,204	803	10,747	33,391,811	45,500,000
Manufacturing	0	0	0	1,013,661	1,878,521	3,075,935
Transportation	29,680	116,528	28,790	45,930	2,188,202	4,913,080
Communication & Utilities	13,903	500,405	48,211	71,790	17,694,485	25,032,593
Wholesale & Retail Trade	4,069	217,325	9,892	521,247	384,944	18,872,136
Auto Service & Fuel	3,431	56,307	7,141	62,257	1,674,445	5,825,982
Food & Lodging	2,089	433,912	0	3,981	16,560,561	26,823,670
FIRE	21,758	1,021,297	50,898	944,523	15,524,022	34,780,175
Non-Professional Services	5,401	313,579	30,545	401	14,654,629	24,548,838
Professional Services	2,283	314,574	19,385	32,655	416,026	14,687,142
Households	11,656,007	14,980,897	1,464,315	0	0	94,030,991
Non Local Employee Compensation	4,995,432	463,327	14,657	(82,264)	0	17,916,514
Non Local Proprietary Income	0	0	0	0	0	11,338,062
Other Property Income	1,616,596	3,819,917	1,641	911,979	0	57,415,484
Indirect Business Taxes	0	0	798	0	0	14,313,844
Non Res Households	22,978,242	8,915,768	0	36,649,570	4,699,758	196,626,962
Federal Government	25,654,685	114,440	3,530	16,175,112	3,782,611	78,198,910
State/Local Government Non-Education	19,947,163	18,675,617	9,615	13,035,148	1,168,672	76,500,152
State & Local Education	277	1,936,751	1,352,555	0	308	3,685,536
Capital & Inventory	29	101,482	1,577	14,344,734	39,826,873	119,815,745
Imports	1,255,469	10,593,969	538,446	1,893,709	2,323,426	181,897,485
Col Sum	78,198,910	76,500,152	3,685,535	119,815,745	181,897,483	

Appendix B**Valley County Industry Aggregations****Livestock:**

The livestock sector is mainly comprised of cow/calf operations. The factor that effects this sector greatly is the short grazing season.

Other Livestock:

There are a small number of sheep ranchers in the county, along with some horses. This, however is a smaller sector than the cattle ranchers.

Pasture and Crops:

The sector is comprised primarily of grazing pasture production. There is a limited acreage used for alfalfa or hay for bailing. The majority of the pasture is non-irrigated land.

Ag., Forestry, and Recreation Services:

This is a relatively small sector in the county. Most agricultural services are purchased within the county. The larger portion of this sector is made up of the recreation services, which are boat related services. The remainder of this sector is the growing of trees for sale, or tree nurseries.

Mining:

The mining sector in Valley County is almost non-existent.

New Construction and Maintenance:

This sector includes all the new residential structures as well as their maintenance and repair. This is an important sector in the county due to the growing popularity of the natural resources and recreation activities the county has to offer. Second homes to many of the county's recreation visitors have expanded this sector.

Other Construction and Maintenance:

This sector includes all other construction, utility, farm structures, government facilities, highways and streets as well as their maintenance and repair.

Harvesting and Manufacturing of Wood Products:

This is one of the most important sectors to the county. This sector includes logging companies, mills, and other such related businesses. The county has an abundant source of trees which have been logged for many years. Prior to the counties recreation sector, this sector was the base of the county's economy.

Manufacturing:

This is a very small sector in the county's economy. There are few businesses which

manufacture small scale items.

Transportation:

There are four systems for transportation in the county. A railroad line runs through the county from north to south, which has some recreational use, but is mostly used for hauling lumber from the mills. Load is picked up in Cascade at the mill on the southwestern corridor of the county. An interstate highway traverses the county from north to south. Some local traveling exists.

Communication and Utilities:

Phone communication is the larger component of in-county communication. It also includes the various local newspapers and the local radio station. The utilities include city sewer and water, and the electric company.

Wholesale and Retail Trade:

This sector includes grocery, clothing, furniture, feed, lumber or home centers, and other such retail stores. This sector also involves a number of small firms supplying special niche markets. The only contribution of this sector to the Valley economy is wages paid and local services purchased, such as utilities.

Auto Service and Fuel:

There are service stations located in all parts of the county. Because of Highway 55 being a major corridor for traffic to travel from north to south, and vice versa, within the state, and the only highway in the county, the increases in traffic provide a great service to the economy.

Food and Lodging:

There are eating and drinking establishments in every community in the county. These range from simple fast food locals to those with more extensive menus. Most employ local labor and are locally owned so proprietors' incomes remain within the county. Supplies for these businesses must be imported to the county.

FIRE (Finance, Insurance, and Real Estate):

There are financial services available in the county as well as insurance and real estate agents. These are small offices connected to larger national firms, however some real estate offices are locally owned.

Professional Services:

This sector includes doctors, hospitals, nursing facilities, lawyers, accountants and other such services. The majority of these employ or are owned by local persons, so proprietor's income stays within the county.

Non-Professional Services:

This includes electricians, beauty or barber shops, day cares, storage facilities, and other

such services. These are generally locally owned and do not employ many persons.

Proprietary Income:

Proprietary income is the return to owners' efforts for operating a business. This becomes large in profitable times and can become zero in difficult times. The actual residential location is important because that is where the income is attributed. In the case of a number of businesses in Valley County, the owners reside outside the county resulting in their proprietary income being classified as nonresidential.

Other Property Income:

Includes corporate income, corporate transfer payments, interest and rental income.

Indirect Business Taxes:

Covers sales, excise, and value added taxes as well as customers duties. These are taxes paid during normal operation of industry. Other types of taxes such as income and property are paid out of income, therefore exogenous to the I/O model.

Households:

The consumers which purchase goods and services created by the economy. They are also the recipients of wages which create the purchasing power.

Federal Government: Sales are goods or services that have been produced or stockpiled by governmental units. Purchases are expenditures for goods and services to provide federal government services.

State/Local Government- Non-education:

Sales are non-education goods and services produced or stockpiled and sold. Purchases are expenditures for goods and services required to provide government services or goods.

State and Local Education:

Sales are education goods and services produced or stockpiled and sold. Purchases are expenditures for goods and services required to provide government services or goods.

Enterprises/Corporations:

Organizations which produce goods or services for government or private entities.

Capital/Inventory:

Capital goods purchased for formation of private capital. Inventory is the value of goods not dispersed or purchases which are additions to inventory.

Exports:

Commodities or services sold outside the region being analyzed or to non-residents visiting the region.

Appendix C

Valley County Multipliers

Table C-1. Final Demand Multipliers for Valley County

Demand Final	Type I Multiplier \$ Chg TGO/\$ Chg FD	Type II Multiplier \$ Chg TGO/\$ Chg FD
Cattle	1.18	1.95
Other Livestock	1.35	2.10
Pasture & Crops	1.13	2.01
Ag., Forest & Recreation Services	1.18	1.72
Mining	1.77	2.50
New Construction & Maint.	1.35	1.61
Other Construction & Maint.	1.17	1.46
Harvesting & Mfg. Wood Products	1.28	1.58
Manufacturing	1.14	1.52
Transportation	1.15	1.60
Communication & Utilities	1.12	1.42
Wholesale & Retail Trade	1.09	1.78
Auto Service & Fuel	1.12	1.56
Food & Lodging	1.19	1.56
FIRE	1.21	1.46
Non-Professional Services	1.23	1.88
Professional Services	1.19	1.87
Households		1.45

Table C-2. Output Multipliers for Valley County.

Valley County, Idaho 1996 Output Multipliers	Type I Multiplier \$ Chg TIO/\$ Chg TGI	Type II Multiplier \$ Chg TIO/\$ Chg TGI
Cattle	1.15	1.90
Other Livestock	1.30	2.02
Pasture & Crops	1.13	2.01
Ag., Forest & Recreation Services	1.09	1.59
Mining	1.03	1.46
New Construction & Maintenance.	1.35	1.61
Other Construction & Maintenance	1.16	1.44
Harvesting & Manufacturing Wood Products	1.06	1.30
Manufacturing	1.10	1.47
Transportation	1.10	1.53
Communication & Utilities	1.09	1.38
Wholesale & Retail Trade	1.08	1.71
Auto Service & Fuel	1.12	1.55
Food & Lodging	1.12	1.46
FIRE	1.12	1.33
Non-Professional Services	1.15	1.73
Professional Services	1.14	1.74
Households		1.31

Table C-3. Earnings Multipliers for Valley County.

Earnings	Direct Earnings	Type I	Type II
	\$/ \$ Output	Chg\$/Chg \$ FD	Chg\$/Chg \$ FD
Cattle	0.45	0.06	0.12
Other Livestock	0.36	0.93	0.99
Pasture & Crops	0.57	0.61	0.67
Ag., Forest & Recreation Services	0.32	0.38	0.42
Mining	0.29	0.51	0.56
New Construction & Maintenance	0.10	0.18	0.20
Other Construction & Maintenance	0.14	0.20	0.22
Harvesting & Mfg. Wood Products	0.15	0.21	0.23
Manufacturing	0.23	0.26	0.29
Transportation	0.27	0.31	0.34
Communication & Utilities	0.18	0.21	0.23
Wholesale & Retail Trade	0.46	0.48	0.53
Auto Service & Fuel	0.28	0.31	0.00
Food & Lodging	0.21	0.25	0.28
FIRE	0.13	0.17	0.19
Non-Professional Services	0.38	0.45	0.49
Professional Services	0.42	0.47	0.52

Table C-4. Value Added Multipliers for Valley County.

Value Added	Direct Value Added	Type I	Type II
	\$/ \$ Output	chg \$ /chg \$ FD	chg \$ / chg \$ FD
Cattle	0.70	0.10	0.20
Other Livestock	0.54	0.77	0.87
Pasture & Crops	0.77	0.84	0.96
Ag., Forest & Recreation Services	0.46	0.55	0.62
Mining	0.42	0.75	0.85
New Construction & Maint.	0.12	0.28	0.32
Other Construction & Maint.	0.17	0.26	0.30
Harvesting & Mfg. Wood Products	0.35	0.46	0.50
Manufacturing	0.41	0.48	0.53
Transportation	0.39	0.46	0.52
Communication & Utilities	0.64	0.70	0.74
Wholesale & Retail Trade	0.74	0.79	0.88
Auto Service & Fuel	0.49	0.56	0.61
Food & Lodging	0.34	0.43	0.48
FIRE	0.63	0.74	0.77
Non-Professional Services	0.51	0.63	0.71
Professional Services	0.46	0.56	0.65

Table C-5. Employment Multipliers for Valley County.

Valley County, Idaho 1996 Employment Multipliers	Direct Employment	Final Demand Type I	Final Demand Type II	Employ Multiplier Type I	Employ Multiplier Type II
	Jobs/Mil\$	Chg Jobs/Chg Mil\$FD	Chg Jobs/Chg Mil\$FD	Chg Jobs / Job	Chg Jobs / Job
Cattle	10.75	14.23	18.26	1.32	1.70
Other Livestock	52.38	61.70	65.64	1.18	1.25
Pasture & Crops	21.45	23.88	28.52	1.11	1.33
Ag., Forest & Recreation Services	38.07	43.15	46.00	1.13	1.21
Mining	6.86	12.53	16.43	1.83	2.40
New Construction & Maintenance	12.37	17.12	18.51	1.38	1.50
Other Construction & Maintenance	12.76	16.23	17.74	1.27	1.39
Harvesting & Mfg Wood Products	4.35	6.66	8.24	1.53	1.89
Manufacturing	11.05	13.29	15.30	1.20	1.38
Transportation	17.91	20.48	22.83	1.14	1.27
Communication & Utilities	4.55	6.24	7.85	1.37	1.72
Wholesale & Retail Trade	35.40	36.68	40.34	1.04	1.14
Auto Service & Fuel	19.22	21.07	23.41	1.10	1.22
Food & Lodging	29.49	33.32	35.25	1.13	1.20
FIRE	10.70	13.70	15.00	1.28	1.40
Non-Professional Services	20.90	24.74	28.16	1.18	1.35
Professional Services	22.06	25.32	28.89	1.15	1.31

Appendix D

In-County Visitor Spending per Day by Activity

Camper's Daily Per Person In-County Spending	
Gas	\$ 0.63
Groceries	\$ 2.83
Shopping	\$ 0.25
Camp/Park Fee	\$ 2.57
Camp Equipment	\$ 0.05
Restaurant Meals	\$ 0.33
Fishing Licenses	\$ 0.01
Fish Equipment	\$ 0.06
Boat Equipment/Rent	\$ 0.12
Golf Fee	\$ 0.05
Vehicle Service	\$ 0.22
Other	\$ 0.41
Total	\$ 7.52

Note: Person Days=1724

Characteristics and limitations:

- Camp fees are high due to RV campers
- Most do not purchase restaurant meals
- Purchase some groceries locally
- Most do not purchase fuel locally, those who do are RV campers staying for an extended period of time (a month or longer)
- 42% of their total spending on their trip is spent in county

Rafters' Daily Per Person In-County Spending	
Gas	\$ 0.49
Groceries	\$ 0.76
Shopping	\$ 0.03
Camp/Park Fee	\$ 0.19
Restaurant Meals	\$ 1.18
Boat Fee	\$ 1.05
Rafting Fee	\$ 18.68
Lodging	\$ -
Other	\$ -
Total	\$ 22.38

Note: Person Days=257.5

Characteristics and limitations:

- Most spend no money on purchasing fuel or groceries
- Few stay over night, and those who do camp are a small percentage
- 80% of those who raft stay only 1 day
- Their largest expense is the fee for rafting
- Most do not stay long enough to eat a meal in a restaurant, or are fed during the rafting trip and it is included in the rafting fee

Mountain Biker's Daily Per Person In-County Spending	
Gas	\$ 2.31
Groceries	\$ 2.82
Camp/Park Fee	\$ 5.36
Camp Equipment	\$ -
Restaurant Meals	\$ 2.90
Bike Rental/Service	\$ 0.71
Bike Equipment	\$ 0.24
Permit & Tolls	\$ 6.45
Lodging	\$ -
Other	\$ -
Total	\$ 20.80

Note: Persons Days=42

Characteristics and limitations:

- Small sample size
- Most are day visitors, few stay over night and those that do camp
- Largest expense is user fee at the Brundage Ski Basin
- Few buy gas or restaurant meals
- 80% of total spending is spent in Valley County

Fishermen's Daily Per Person In-County Spending	
Gas/Car Service	\$ 1.61
Groceries	\$ 3.06
Shopping	\$ 0.81
Camp/Park Fee	\$ 1.93
Rest. Meals	\$ 1.45
Fishing Licenses	\$ 1.51
Fish Equipment	\$ 1.08
Golf Fee	\$ 0.27
Lodging	\$ 1.45
Other	\$ -
Total	\$ 13.16
Note: Person Days=186	

- Characteristics and limitations:
- Most are day visitors
 - Spend very little on fuel or restaurant meals, with the exception of those that are visiting for a longer period of time

Hunter's Daily Per Person In-County Spending	
Gas	\$ 3.29
Groceries	\$ 4.19
Camp/Park Fee	\$ 0.07
Camp Equipment	\$ 0.10
Rest. Meals	\$ 0.94
Hunting Licenses	\$ -
Hunting/Fish Equipment	\$ 0.08
Lodging	\$ 1.88
Vehicle Service	\$ 3.96
Other	\$ 0.20
Total	\$ 14.70
Note: Person Days=101	

- Characteristics and limitations:
- Most groceries are purchased from their home town store
 - Most do not eat in restaurants
 - Hunting licenses are purchased in their home town areas
 - Few purchase lodging, those that do are usually using a guide
 - Most hunters do not use guides

Golfer's Daily Per Person In-County Spending	
Gas/Auto Service	\$ 1.02
Groceries	\$ 3.42
Shopping	\$ 5.95
Restaurant Meals	\$ 6.55
Golf Fee	\$ 6.47
Boat Fee	\$ 2.48
Boat Equipment/Rent	\$ 0.53
Camp Fee	\$ 0.06
Lodging	\$ 8.76
Other	\$ 0.62
Total	\$ 35.86
Note: Persons Days=322	

- Characteristics and limitations:
- Small sample size
 - These include persons visiting for golf tournament
 - Tend to eat mostly in restaurants
 - None camped
 - On average they spend approximately 58% of their total dollars spent on their trip, in Valley County

Cross Country Skier's Daily Per Person In-County Spending	
Gas/Auto Repair	\$ 0.05
Groceries	\$ 2.15
Camp/Park Fee	\$ 0.35
Rest. Meals	\$ 1.83
Lift Tickets	\$ 0.02
CC Ski Passes	\$ 6.25
Ski Equipment Purchase	\$ 2.44
Ski Equipment Rent	\$ 0.98
Lodging	\$ 11.39
Total	\$ 25.47

Note: Person Days=170

Characteristics and limitations:

- One out of 20 purchase fuel
- Longer staying visitors tend to purchase groceries in-county and restaurant meals, others do not
- Most stay in local lodging
- Few have second home in-county

Down Hill Skier's Daily Per Person In-County Spending	
Gas/Auto Service	\$ 0.26
Groceries	\$ 1.95
Shopping	\$ 0.47
Restaurant Meals	\$ 7.17
Lift Tickets	\$16.43
CC Ski Passes	\$ 0.03
Ski Lessons	\$ 0.37
Ski Equip Purchases	\$ 3.00
Ski Equip Rent	\$ 1.66
Lodging	\$ 25.71
Other	\$ 1.65
Total	\$ 58.69

Note: Persons Days=455

Characteristics and limitations:

- On average 80% of their spending is in-county
- Purchase little groceries and are brought from their homes
- Purchase little fuel in-county
- Lift tickets is their largest expense
- Most are day visitors and do not purchase local lodging
- Some have second home

Snowmobiler's Daily Per Person In-County Spending	
Fuel	\$ 4.43
Groceries	\$ 1.05
Shopping	\$ 0.22
Restaurant Meals	\$ 3.12
Snowmobile Rent	\$ 2.36
Snowmobile Equipment/License	\$ 3.44
Lodging	\$ 20.03
Auto Service	\$ 1.81
Other	\$ -
Total	\$ 36.45

Note: Persons Days=276

Characteristics and limitations:

- Tend to purchase a high quantity of local fuel
- Most use local lodging and restaurants
- Purchase very little groceries, local or otherwise

Boater's Daily Per Person In-County Spending	
Fuel/Auto Service	\$ 0.71
Groceries	\$ 3.76
Camp/Park Fee	\$ 0.15
Shopping	\$ 1.07
Rest. Meals	\$ 4.39
Fishing Licenses	\$ -
Fish Equipment	\$ 0.22
Lodging	\$ 8.28
Boat Fees	\$ 2.84
Boat Equipment/Rent	\$ 2.79
Other	\$ 0.94
Total	\$25.16
Note: Persons Days=179	

Characteristics and limitations:

- Spend little on fuel
- Most groceries are purchased in Valley County
- Tend to eat in restaurants
- Few stay in motels etc.
- Most do not have second homes

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This annotated bibliography provides an overview of primary research, almost all from peer-reviewed journals, documenting the adverse impacts of roads and logging on North American forest ecosystems. The bibliography was published in December 1999 by the Natural Resources Defense Council.

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INTRODUCTION

Roads, and the logging often associated with them, have a wide range of profound impacts on forest ecosystems. These include direct and indirect effects on individual plant and animal species, as well as broad changes in ecosystem structure and function. Though much remains to be investigated about the full nature and scope of these impacts, a large body of existing scientific literature evaluates their severity, extent, and timescale.

This annotated bibliography provides an overview of primary research, almost all from peer-reviewed journals, documenting the adverse impacts of roads and logging on North American forest ecosystems. The research included focuses on effects that extend beyond the immediate road and its edges. Such impacts compromise the diversity and health of entire landscapes and their species as well as that of the road environs themselves. Literature clarifying the ecological significance of impacts is also reviewed.

Six categories of impact are addressed here, each in its own chapter. These include effects on sensitive wildlife species from displacement, dispersal barriers, road kill, and reduced reproductive success. Also covered is the spread of tree diseases by road construction, tree stumps, and logging wounds. Overlapping with disease problems is the increase in pest infestations at forest edges, in logging debris, and in diseased trees. Fourth, the dispersal of non-native plant and animal species along roads and disturbed habitat is reviewed. A fifth category is damage to soils by logging and road-building equipment. Sixth, the bibliography reviews literature about road- and logging-related degradation of stream ecosystems. A seventh and final chapter summarizes relevant literature reviews, each of which itself discusses numerous studies; it also covers a few studies that attempt to quantify how much of the forest landscape is affected by certain road impacts.

Within these seven chapters, each annotation begins with one or more "Key Findings," identifying the central significance of a published work (these Key Findings are also listed in the Summary following this Introduction). A synopsis of the article follows, providing a brief account of the study's methodology, geographical location, and pertinent results.

The body of work investigating how forest management affects wildlife is particularly extensive. Chapter One in this report (*Harm to Wildlife*) focuses on a subset of this research — that showing the direct impacts of management on sensitive wildlife. It includes studies documenting changes in behavior, reduced reproduction rates, increased mortality, and changes in community composition and diversity. Generally, however, this report does not attempt to review the voluminous literature about habitat associations for individual species. From much of this latter work, good inferences can be drawn concerning the adverse wildlife impacts of road building and, even more, of logging.

Also not included are studies that show the significant threat roads pose by providing poachers access into pristine areas. Many large mammals, such as grizzly bears, black bears, and elk, suffer from increased hunting pressure near roads and may not be able to maintain their populations near roadsides.

Finally, the impact of roads or logging on forest fire hazard is an important issue that has not been addressed in this bibliography. Increased ignition frequency along roads has been well established. In addition, some published studies indicate that logging can increase fire hazard, perhaps because of slash left behind, drier forest conditions under open canopies, damage to residual trees, compromised soil resources, or disrupted ground water regimes. This is a complex topic that deserves separate consideration in its own right.



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SUMMARY OF KEY FINDINGS

1. Harm to Wildlife

Roads displace species sensitive to disturbance or dependent on forest interior habitat. For example, species like grizzly bears, wolves, and elk avoid otherwise suitable habitat near roads. They may modify their home range, and they have been shown to select areas with lower road densities than the average on the landscape. As a result, high-quality habitat becomes effectively unavailable to them.

Roads also create barriers to the movement of many species. In particular, small animals such as salamanders, frogs, and mice will rarely cross roads or are killed by vehicles when crossing. As barriers to dispersal, roads isolate populations on one side of the road from those on the other. Biologists fear a likely consequence of this isolation and the resultant loss of gene flow between populations is, over the long-term, increased vulnerability of some species to inbreeding or environmental catastrophes. Larger species such as moose, white-tailed deer, and mule deer also have high rates of mortality due to roadkill. The impact of high roadkill rates on species' total population number is not thoroughly understood, but roads may act as ecological "sinks" (areas of net loss) for some species, endangering their continuing viability.

Species that live in the forest interior are also adversely affected by logging, which fragments habitat by destroying old-growth and mature forest and by creating poor quality habitat "edges" in otherwise continuous forest. Species that prefer old-growth and closed canopy forest, such as martens, California red-backed voles, northern flying squirrels, and red-backed salamanders, to mention a few, have declined in abundance in logged forests relative to unlogged forests. These species' decline in turn has impacts on other parts of the ecosystem. For instance, a reduction in salamander populations (which are an integral part of the forest food chain) affects bird and mammal species that rely on them as food, as well as forest floor ecology and nutrient cycles.

Research has also shown that forest interior birds are sensitive to disturbance, whether in the form of roads, logging, or the increased access they provide to nest predators or parasitic cowbirds. Breeding success has declined in many of these affected areas. For example, bald eagle nesting success is lower near clearcuts. In eastern forests, cowbirds have invaded the edges (and in some cases, the interior) of many forest fragments. This species parasitizes the nests of other bird species, destroying their eggs or young and laying its own eggs in the nest instead. Research has shown that this behavior may be partly responsible for the population declines of many neotropical migrant bird species.

Displacement of wildlife

- Grizzly bear use of suitable habitat in Montana declined as road density and road traffic increased.

- Grizzly bears used habitat near roads less than expected in the Northern Rockies, resulting in less habitat available in roaded areas.
- Black bears crossed roads with higher traffic volumes less frequently than roads with lower traffic volumes.
- Habitat occupied by wolves in Minnesota had a lower road density than unoccupied habitat.
- Wolves showed a preference for areas with low road density rather than high road density when establishing packs in the northern Great Lakes region.
- Wolves in Alaska avoided roads that were open to regular public use.
- Roadless areas are important reservoirs for maintaining wolf populations in adjacent, high-road-density areas.
- Mountain lions avoided improved dirt roads and hard-surfaced roads and selected home range areas with lower densities of these road types.
- Female Roosevelt elk reduced their daily movements, core area size, and home range size, and therefore, their energy needs, when disturbance due to vehicular access on roads was limited by gate closures.
- Mule deer and elk avoided roads and areas within 200 m of roads.
- Columbian black-tailed deer were displaced from their usual home ranges by increased vehicular traffic during the hunting season.
- Eastern massasauga rattlesnakes avoided roads in all seasons.
- Prairie voles and cotton rats tended to move away from a narrow dirt road rather than toward it.

Barriers to dispersal

- Roads were a barrier to movement by the eastern chipmunk and the white-footed mouse.
- Highways were a barrier to movement for seven of 10 rodent species studied.
- A narrow dirt road was a significant barrier to movement by prairie voles and cotton rats.
- A highway in southern Nevada acted as a barrier to crossing for all eight rodent species studied.
- Roads impeded movement by amphibians and could result in population isolation. Despite some speculation, road ruts and ditches have not been shown to provide successful amphibian breeding habitat rather than acting as ecological traps. Amphibians play a key role in the forest ecosystem, affecting nutrient cycling and also serving as high quality prey for many species.
- Roads impeded dispersal of all six amphibian species studied.
- Road mortality of 7 amphibian species, 10 reptile species, 21 mammal species, and 62 bird species was documented during four years of study, exceeding 32,000 individuals on a 3.6 km stretch of highway.
- Frog and toad density near paved roads decreased with increasing traffic intensity.
- Frog and toad mortality on roads increased with increasing traffic intensity.
- Road mortality of 20 species of snakes was recorded along a 44-km stretch of highway passing through Organ Pipe Cactus National Monument, Arizona.
- Mortality due to roadkill was documented for northern saw-whet owls and eastern screech-owls over a 10-year period in New Jersey.

- Road mortality along a highway in Ohio was surveyed for one year and included 11 species of mammals, 12 species of birds, 11 species of amphibians, and at least 249 species of insects.
- Collision with a vehicle was the highest cause of death for female moose studied in Alaska.
- Mortality of white-tailed deer due to roadkill was documented for 18 months along an interstate highway.
- Road mortality rates of white-tailed deer were documented after the construction of an interstate highway through their wintering area.
- Mortality of mule deer due to roadkill was documented for two years along a highway and two state roads.

Loss of habitat

- Marten capture rates declined as forest fragmentation increased, and the animals were rarely detected in sites with more than 25% non-forested area in a total 9 km² area.
- Mountain lions avoided logging areas and established home ranges in areas with lower road densities than the average in the area.
- Northern flying squirrels, the primary prey of northern spotted owls, occurred at lower densities in logged, shelterwood stands than in unmanaged, old-growth forest.
- California red-backed voles were more abundant in old-growth forest and naturally regenerated stands than in young, managed stands. Their higher abundance correlated well with the deeper organic soil layers measured in unmanaged stands.
- California red-backed voles were adversely affected by habitat fragmentation: they were absent in clearcuts, had low densities at the edges of forest remnants, increased in density toward the forest interior, and had higher abundances in large forest fragments compared to small fragments. Truffles, the primary food source of red-backed voles, were absent in clearcuts and near the edges of forest remnants, but occurred in forest interiors.
- Red-backed salamanders, sensitive to forest moisture and temperature levels, were more abundant in old-growth forest and 60-year-old second-growth than in clearcuts or selectively logged forest. Salamanders are a critical part of the forest food chain: they are important food sources for birds and mammals, and as predators themselves, they cycle large amounts of energy through the forest ecosystem.
- The abundance of amphibians was significantly lower in clearcuts, plantations, and forest edges than in mature forest interior sites.
- Lungless salamanders, such as the red-backed salamander, are particularly vulnerable to population declines due to clearcut logging.
- Clearcuts had a significantly lower abundance and fewer species of salamanders compared to mature, 50- to 70-year-old forest stands in the southern Appalachians. *Plethodon* salamanders are unlikely to survive logging because individuals are closely tied to small home ranges and unlikely to relocate to intact forest from logged areas.
- The relatively abundant land salamander *Plethodon jordani*, an important part of the food chain, disappeared from forest sites in the southern Blue Ridge Mountains after they were clearcut.
- In the first two years after clearcutting, salamander numbers, including *Plethodon jordani*, declined to almost zero on all three forest sites studied.
- Adult and juvenile wood frog and spotted salamander capture rates declined along

a gradient from closed-canopy forest to recently clearcut habitat.

- Juvenile wood frogs, dispersing from breeding pools at the forest edge, preferred to migrate toward closed-canopy forest habitat and away from open habitat.

Reduced nesting success

- The density of bald eagle nests in southeast Alaska decreased with proximity to clearcuts.
- Productivity of nesting bald eagles decreased with proximity to clearcuts.
- Three of four forest interior bird species declined in abundance after logging, whether clearcutting or lower intensity logging.
- The brown-headed cowbird, a species that parasitizes other birds' nests, increased in abundance after logging.
- As forest fragmentation increased, nests of all nine bird species studied suffered higher rates of parasitism and predation.
- The reproductive success of ovenbirds, a forest interior species, was significantly lower in forest fragments than in continuous forest, partly due to cowbird parasitism of their nests.
- The density of breeding male ovenbirds was lower in forest fragments than in continuous forest, with birds avoiding habitat within 100 m of the forest edge.
- All three species of tanagers studied were sensitive to forest fragmentation, with a declining probability of breeding tanagers occurring at a given site as fragmentation increased.
- Nesting success of forest birds decreased within 50 m of forest edges.
- In five of six studies, nesting success of forest birds decreased as forest patch size decreased.
- Nest predation rates in southern Appalachian forest fragments increased as fragment size decreased.
- Artificial nests had higher rates of predation on the edges of forest fragments than in the interior of fragments.

2. Spread of Tree Diseases and Bark Beetles

Logging and road construction have increased the incidence of damaging or lethal tree diseases, including annosus root disease, *Armillaria*, laminated root rot, black-stain root disease, and Indian paint fungus. Tree stumps have a high likelihood of infection, become centers of infection in a stand, and facilitate the spread of a disease to adjacent, living trees. For some diseases, such as black-stain root disease, woody debris left after thinning attracts insects that are vectors for infection. For at least one disease, Port-orford-cedar root rot, road construction and logging equipment have been directly linked to the spread of the disease to new stands. Black-stain root disease has also been found to occur at higher rates along roads and skid trails.

Trees stressed by disease are more susceptible to attack by bark beetles. For example, ponderosa pines infected with black-stain root disease have suffered higher bark beetle attack rates than uninfected trees. Attempts to mitigate some of these problems have not been easy or fully successful. Stump treatments, such as borax, are not one hundred percent effective, while other efforts, such as stump removal, damage essential ecosystem functions through soil compaction.

Increased occurrence of tree diseases

- Multiple studies have shown that annosus root disease, often fatal or damaging for a number of conifer species, has increased in western forests as a result of logging.
- The incidence of annosus root disease in true fir and ponderosa pine stands increased with the number of logging entries.
- The proportion of western hemlock trees infected by annosus root disease increased after thinning, due to infection of stumps and logging equipment wounds.
- The percentage of western hemlock trees infected by annosus root disease greatly increased after thinning, with infected stumps being the primary source of infection.
- Annosus root disease was found on 89% of true fir stumps in stands that had been logged five to 10 years earlier.
- Annosus root disease and *Armillaria* infected freshly cut stumps of young western hemlock and Sitka spruce in southeastern Alaska.
- *Armillaria* is a primary, aggressive root pathogen in western interior forests, where it spreads into healthy stands from the stumps and roots of cut trees.
- *Armillaria* root disease was present in stumps of old-growth ponderosa pine, logged up to 35 years earlier. The oldest stumps of ponderosa pine had the highest rate of infection by *Armillaria*.
- Mortality of saplings was significantly correlated to the number of Douglas-fir stumps infected with *Armillaria* and laminated root rot.
- The pathogenic fungus *Armillaria* had a threefold higher occurrence on disturbed plots compared to pristine plots at high productivity sites in the Northern Rockies.
- Infection and mortality from the root disease *Armillaria ostoyae* was several times higher in forest stands with logging disturbance than in undisturbed stands.
- Thinning and soil disturbance led to an increased risk of infection and mortality by black-stain root disease in Douglas-fir.
- The majority of black-stain root disease infection centers were close to roads and skid trails.
- Black-stain root disease occurred at a greater frequency in Douglas-fir trees close to roads than in trees located 25 m or more from roads.
- Thinned stands attracted a greater number of black-stain root disease insect vectors.
- Mechanical wounding of grand fir and white fir by logging equipment activated dormant decay fungi, such as the Indian paint fungus.
- Port-orford-cedar root rot, a fatal fungus, is spread by logging equipment, road maintenance equipment, and construction equipment, which transport its spores to new areas.

Attack by bark beetles

- Root disease fungi predispose some conifer species to bark beetle attack and/or help maintain endemic populations of bark beetles.
- More mountain pine beetles and western pine beetles (two species of bark beetle) were captured on ponderosa pine infected with black-stain root disease than on healthy trees.
- Two species of beetle were more frequently attracted to wounds on trees that were also diseased than to uninfected trees.
- Loblolly pines colonized by annosus root disease had a greater probability of being

infested with southern pine bark beetle. Trees infected by annosus root disease had significantly less radial growth than trees not infected.

- A significantly higher percentage of plots attacked by the southern pine beetle were infected by blue-stain fungi.

Problems with mitigation

- Borax-treated plots did not have lower rates of annosus root disease infection compared to untreated plots 20 years after thinning.
- Mitigation measures for *Armillaria* root disease were problematic in several regards.
- Stump removal, a method of *Armillaria* root disease control, resulted in high levels of soil compaction in ash-cap soils.
- Restricting thinning to summer months, a recommended practice for mitigating the spread of annosus root disease in southern forests, was not a reliable form of disease control.
- Annosus root disease may spread via root systems from stumps to neighboring trees even following treatment of stumps with borax.

3. Promotion of Insect Infestations

Forest edges created by logging or road construction sustain higher populations of tree pest species such as the tent caterpillar, jack pine budworm, and gypsy moth. Possible mechanisms for this include increased larval development due to higher light levels and increased mortality of natural pathogens.

Biologists predict that logging and habitat destruction will increase the severity of a variety of insect outbreaks because the loss of habitat diversity and old-growth forest has meant a decrease in the diversity of natural pest predators. Natural predators of the western spruce budworm for instance include ant and bird species whose habitat needs include large standing and downed logs that are reduced or eliminated by logging.

Insect infestations

- Forest fragmentation due to cleared forest increased the duration of tent caterpillar outbreaks.
- Forest edges were predicted to be source populations for tent caterpillars.
- Mortality of tent caterpillars in the forest understory due to a natural virus (NPV) decreased as forest cover decreased and edge habitat increased.
- Abrupt edges along mature jack pine stands increased the levels of defoliation by jack pine budworm in Michigan.
- Trees at forest edges created by roads had 2.4 times more gypsy moth egg masses than trees in the forest interior.

Loss of ecological complexity

- A diversity of predators is important for preventing pest outbreaks.
- Old-growth and roadless areas, with their greater diversity of composition, structure, and predators, are predicted to be less vulnerable to pest outbreaks than forests simplified through management.
- Species diversity and functional diversity of arthropods were much higher in

old-growth stands than regenerating logged stands.

- Old-growth forests, which have a greater diversity of insect predators, are predicted to help control pest populations.
- Ant and bird predation reduced adult western spruce budworm densities by approximately 10- to 15-fold at low budworm densities, and by approximately twofold at high budworm densities.
- Thatching ants play an important role in suppressing insect defoliator populations.
- Ants, important predators of the western spruce budworm, require sufficient down wood in a range of sizes and decomposition stages.

4. Invasion by Harmful Non-native Plant and Animal Species

Roads facilitate the spread of invasive non-native (exotic) plants, animals, and insects. For example, vehicles can transport the seeds of exotic plants to new areas. Reduced canopy cover (with correspondingly higher light levels) and increased soil disturbance along roads have favored numerous exotic plant species, including Oriental bittersweet and spotted knapweed, as well as exotic ant species such as the red imported fire ant and the Argentine ant. Over time, some exotic species spread from roadsides into adjacent, undisturbed areas.

Exotic species disrupt natural ecosystem processes and the species that depend on them. For example, exotic plants have been shown to replace native understory vegetation, inhibit seedling regeneration, and change soil nutrient cycling. Some weedy species can cause higher erosion rates or change fire regimes. The abundance and diversity of native ants has decreased in areas invaded by the red imported fire ant or the Argentine ant. This can change the entire food base for other species. The decline in other species, such as the northern bobwhite, has been directly documented in habitat infested with exotic ants.

Invasion by non-native species

- Non-native plant species occurred on high-use, low-use, and abandoned forest roads, with the greatest frequency on roads with the highest level of disturbance and lowest percentage of canopy cover.
- Exotic annual plants invaded an ecological reserve in California along a pipeline corridor and were still dominant in the corridor 10 years after the disturbance occurred.
- Oriental bittersweet, an exotic vine of the eastern United States, responded vigorously to increased light intensity after disturbances such as road construction, logging, or windthrow.
- Spotted knapweed invaded new areas along roadsides.
- Spotted knapweed preferred open canopies and disturbed areas.
- Spotted knapweed and diffuse knapweed, two exotic species, preferred open, disturbed habitat, including roads, over shaded areas.
- Exotic weeds spread along logging roads in forests at all elevations in western Montana.
- Exotic weeds invaded clearcuts in mid-elevation forests.
- In a regional survey, a greater proportion of anthropogenically disturbed plots in the southeastern and northeastern United States contained at least one exotic species compared to undisturbed plots.

- The red imported fire ant, an exotic pest in the southeastern United States colonized roads, power lines, and forest gaps created by logging.
- The density of red imported fire ant mounds was correlated with the degree of soil disturbance and direct sunlight exposure.

Spread into undisturbed areas

- Exotic annual plant species invaded adjacent undisturbed oak woodland, coastal sage, and grassland communities from a pipeline corridor in an ecological reserve in California.
- Exotic weeds spread outward from roadsides in lowland forest and rangeland in Montana, invading relatively undisturbed areas.
- Originally confined to roadways and abandoned farmland, cheatgrass now invades shrub, ponderosa pine, and pinyon-juniper ecosystems.
- The red imported fire ant, an exotic pest in the southeastern United States, is believed to disperse into forest gaps from adjacent roads and power lines.

Damage to ecosystem processes

- Oriental bittersweet, an exotic vine in the eastern United States, inhibited seedling regeneration and damaged young hardwood stands through stem girdling.
- Tree seedling density decreased with increasing cover of an exotic honeysuckle, *Lonicera tatarica*.
- The diversity and density of herbaceous species declined as honeysuckle cover increased in three of four northeastern forest stands.
- In shrub-steppe ecosystems, invading weed species, which were usually non-mycorrhizal, disrupted succession by native species, 99% of which were mycorrhizae-dependent.
- An exotic weed, bull thistle, reduced growth rates of ponderosa pine seedlings by up to 33% in a forest plantation.
- Forest litter depth and soil organic layers were lower and pH was higher in sites invaded by two exotic plant species (Japanese barberry and a Japanese grass species), when compared to adjacent uninvaded forest sites.
- Native oaks and shrubs occurred at a lower density in forested sites invaded by Japanese barberry and a Japanese grass species than in uninvaded sites.
- Surface runoff and soil erosion were greater from spotted knapweed-dominated sites than natural bunchgrass-dominated sites.
- Fires have become more common and extensive in pinyon-juniper woodlands and sagebrush ecosystems invaded by cheatgrass, an exotic grass.
- The incidence of fire has increased in ponderosa pine forests and pinyon-juniper woodlands where cheatgrass, an exotic annual, has invaded. This grass has proven difficult to control.
- Invasion in Texas by the red imported fire ant resulted in a 90% decrease in native ant abundance and a 70% decrease in ant species richness.
- Native ants had a lower abundance and diversity in areas invaded by the Argentine ant, an exotic ant.
- The trophic structure of invertebrate communities changed in areas invaded by Argentine ants, with higher numbers of scavengers at the expense of herbivores, predators, and parasites.

- Northern bobwhite populations in Texas decreased after invasion by the non-native red imported fire ant. Densities of northern bobwhites increased after treatment to reduce infestation by the red imported fire ant.

5. Damage to Soil Resources and Tree Growth

Logging and road construction compact soils, disturb or destroy organic layers, and cause high rates of soil erosion. Soil compaction, which can last for several decades, is typically measured by changes in soil bulk density or porosity. Trees' access to nutrients and water is reduced because of restricted root growth in compacted soils, reduced water infiltration rates, and decreased oxygen and water available to root systems. Soil compaction also has a detrimental impact on microorganism communities, which play a critical role in nutrient cycling and tree growth. The loss of organic layers also affects mycorrhizal fungi, which are important to many tree species in accessing nutrients. As a result of this damage to soil resources, trees can suffer from moisture stress, reduced growth rates, inability to establish seedlings, and reduced resilience in the long term.

Compacted soils are also more susceptible to surface erosion. The frequency of mass erosion events, such as debris slides, also increases in landscapes that have been roaded or logged, thus increasing total soil loss. In forests where overland (surface) water flow is unlikely, roads have been documented to intercept water at road cuts, converting subsurface flow to surface flow. This greatly increases runoff-related erosion.

This loss of soil due to erosion not only reduces the productivity of the local site by removing top, nutrient-rich layers of soil, but the sediment that is generated often runs into streams, where it has a range of detrimental impacts on aquatic ecosystems.

Damage to soils

- Logging resulted in soil compaction, displacement of surface mineral soil, loss of organic matter, and loss of nitrogen, an essential nutrient.
- Logging on volcanic ash soils in the Pacific Northwest caused soil compaction, as measured by increased soil bulk density.
- Average soil bulk density was 15% greater on skid trails than on undisturbed soils in a ponderosa pine site 23 years after logging, and 28% greater on a lodgepole site 14 years after logging.
- Compacted volcanic and granitic soils were slow to recover on skid trails in western Idaho, and after 23 years, only the bulk density of the granitic soil's top few centimeters had returned to undisturbed values.
- Stump removal, a method of Armillaria root disease control, resulted in high levels of soil compaction in ash-cap soils.
- Soil bulk density increased, aeration porosity decreased, and water conductivity decreased in the upper layers of soil after logging in the Piedmont region.
- Logging was documented to cause soil compaction in a variety of soil types in the southern United States.
- Logging resulted in soil compaction and disturbance of organic matter in three New England forests.
- Logging activity caused significant soil erosion in the Pacific Northwest.
- Soil compaction leads to surface erosion.
- Clearcutting and post-logging slash burning were associated with high rates of ravel (upslope erosion) on various soil types in the Northwest.
- Roads caused debris slides in areas that would be relatively stable otherwise.

- The likelihood of surface runoff increased on the compacted soils of skid trails.
- Subsurface flow converted to surface flow by road cuts could trigger soil erosion and mass movement.
- Soil erosion rates due to debris slides were many times higher on forests with roads, landings, and logging activity than on undisturbed forests.
- Roads were responsible for 61% of the soil volume displaced by erosion in northwestern California.
- Clearcutting increased the frequency of mass soil movements from hillsides.

Impacts on tree growth and health:

- Soil compaction results in root damage and decreased root growth, which decrease plants' ability to access nutrients and water.
- Soil compaction and organic matter disturbance cause a decline in mycorrhizal fungi.
- Soil compaction results in reduced infiltration rates and increased surface erosion.
- Soil compaction results in a loss in site productivity as measured by tree growth.
- Soil compaction restricted root growth and increased moisture stress in southern U.S. forests.
- Soil compaction after logging resulted in a loss of soil pore space and a 33% reduction in water to plants.
- Soil compaction by logging reduced the movement of water through the soil (saturated hydraulic conductivity), with increases in runoff predicted.
- Soil compaction reduced growth of young ponderosa pine.
- Beneficial soil microorganisms and mycorrhizal fungi occur primarily in soil organic layers. Soil compaction and the disturbance of organic layers of the soil due to logging activities alter soil microbial activity and adversely affect mycorrhizal populations.
- Ectomycorrhizal abundance and diversity on Douglas-fir seedlings were much lower in soils compacted by stump removal than in undisturbed soils.
- A 20% increase in soil bulk density due to soil compaction significantly reduced the numbers of root tips on Douglas-fir and western white pine seedlings.
- Ectomycorrhizal root tip abundance and diversity in Douglas-fir seedlings were decreased by soil compaction and organic layer removal.
- Soil erosion results in the loss of nutrients and water availability, degraded soil structure, and the loss of important soil organisms including mycorrhizal fungi.
- Erosion of the topmost soil layers, which are the most important for nutrients, water, and soil biota, is the most damaging to site productivity.
- Roads in mountainous areas affected site productivity upslope and downslope of the road through changes in the groundwater system and through debris slides.

Role of soil microorganisms and mycorrhizae:

- Healthy ectomycorrhizal populations are important for forest stability and recovery after a disturbance.
- Mycorrhizal fungi increase nutrient uptake in plants.
- A healthy population of soil organisms is critical for nutrient cycling.

- Mycorrhizae increase the uptake of nutrients and water.

6. Impacts on Aquatic Ecosystems

Roads and logging can significantly degrade stream ecosystems by introducing high volumes of sediment into streams, changing natural streamflow patterns, and altering stream channel morphology. The frequency of landslides in steep terrain is higher in roaded areas and in forests that have been clearcut. Much of the resultant eroded soil ends up in streams. Fine sediment from road surfaces runs into streams during storm events. The interception of subsurface flow by road cuts also increases surface flow and therefore surface erosion.

Streamflow patterns can change in watersheds that are roaded and/or have been logged. Roads, ditches, and new gullies form new, large networks of flow paths across the landscape; this changes the rate at which water reaches streams. As a result, peak discharge volumes in some watersheds are higher and after large storms begin earlier than they would in undisturbed watersheds.

These changes in stream habitat affect the health of aquatic organisms. The survival rates of many salmonid species, for instance, decrease as fine sediment levels increase. Deposition of fine sediment on the stream bed degrades spawning areas, reduces pool refuge habitat, decreases winter refuge areas for juveniles, and impedes feeding visibility. For example, survival rates of coho salmon, chum salmon, and steelhead trout fry decrease as stream sediment levels increase. Sensitive amphibian and invertebrate species are also adversely affected by increased sediment loads, decreasing in abundance and/or diversity. Thus, large-sized aquatic invertebrate species may be replaced by smaller-sized species. Changes to aquatic invertebrate communities not only affect the food supply available to other stream organisms such as fish, but also to non-aquatic forest species. As adults, stream invertebrates emerge from streams and occupy riparian forests, where they are an important source of food for birds, bats, and various other mammals.

Changes in stream channel structure lead to decreases in the habitat available to fish and other organisms. In addition, increases in stream peak discharge volumes and/or sediment loads can affect egg survival rates of salmon adapted to natural stream flows or streambed scour rates.

Increases in sediment and altered streamflows

- Roads degraded stream habitat for aquatic species, including salmonids, by accelerating erosional processes and modifying natural drainage networks.
- Logging activities degraded stream habitat by changing the amount, quality, and timing of flowing water, increasing erosion rates, and reducing stream habitat diversity.
- Soil erosion rates due to debris slides were many times higher on forests with roads, landings, and logging activity than on undisturbed forests.
- Roads were responsible for 61% of the soil volume displaced by erosion in northwestern California.
- Clearcutting increased the frequency of mass soil movements from hillsides.
- During storm events in southwestern Washington, average sediment levels in runoff from forest roads ranged from 500 mg/l to 20,000 mg/l.
- Roads were direct sources of sediment delivery to streams, with approximately 34% of road drainage points entering stream channels.
- Very fine sediment washed from a forest road surface directly into a stream during rainfall events.

- Forest road erosion was a source of fine sediment in stormflow runoff, even after mitigation measures.
- Gravel forest roads generated up to 440 ton of sediment/km/year from surface erosion.
- The volume of fine sediment present in streams increased in direct proportion to logging in the watershed and stream crossings by roads.
- Logging and forest road construction led to an increase in landslides and surface erosion, disrupting the riparian vegetation along first- and second-order tributaries of a river in Oregon.
- Roads intercepted subsurface flow on mountainous slopes in the Idaho Batholith, converting it to surface flow. Subsurface flow converted to surface flow by intercepting roads would be likely to trigger soil erosion and soil mass movement.
- The peak rate of subsurface flow increased by an average of 27% after clearcutting, and due to its interception by a road cut and conversion to surface flow, was believed likely to lead to increased levels of erosion from the road and the slopes below the road.
- Roads and clearcut logging increased peak stream discharges and advanced the timing of peak discharges in multiple paired watershed studies, most likely because of subsurface flow being converted to surface flow at road cuts.
- Even after many years, roads and clearcut logging, both together and separately, resulted in significant increases in stream peak discharges.
- Roads formed new surface flow paths to natural channels and incised new gullies, so increasing the routing efficiency of water; thereby probably explaining some higher stream peak flows.
- Almost 30 years after clearcut logging occurred, average and peak stream flows in the watershed studied were still higher than pre-logging flows.
- Natural streamflow rates during periods of high flow were significantly altered in two watersheds after logging road construction.
- Subsurface flow intercepted by logging roads was converted to surface flow and was the most likely cause for increases in streamflows during snowmelt runoff and heavy summer storms.
- Stream peak flows increased significantly in a watershed with 12% of its area in roads, before any logging occurred.
- Stream peak flows increased as the percentage of watershed area clearcut increased.
- Forest roads extended the natural channel network, initiated new channels, and increased the susceptibility of steep slopes to landsliding.
- Road cuts intercepted subsurface flow and diverted it to roadside ditches.

Adverse impacts on aquatic species

- Salmonid survival rates decreased after logging and road construction as fine sediment levels in streams increased and as important habitat characteristics, including the number of pools and winter cover, decreased.
- Coho and chum salmon fry survival declined after logging and associated increases in fine sediment deposited in spawning areas.
- Survival rates of coho salmon and steelhead trout fry decreased as the proportion of fine sediment in spawning gravel increased.
- Brook trout populations declined significantly after stream sedimentation levels increased.

- Populations of stream benthic invertebrates (the major food source of brook trout) declined significantly after stream sediment levels increased.
- Higher fine sediment levels in a stream resulted in a loss of pool habitat, fish cover, changes in stream velocity, and higher summer water temperatures.
- Salmonids avoided water with suspended sediment in Alaskan streams and lakes.
- Delivery of fine sediments to streams and deposition on spawning and rearing substrate decreased after a moratorium on logging, but increased again after logging resumed.
- Fine sediment deposition on cobble substrates decreased the availability of interstitial spaces (used as winter refuges), and winter densities of juvenile chinook salmon decreased correspondingly.
- Chum salmon eggs were susceptible to mortality from increased streambed scour associated with logging and/or roads.
- Salmonid embryo survival rates decreased as the proportion of fine particles in stream spawning substrate increased and dissolved oxygen levels decreased.
- Adult and juvenile salmonids exposed to suspended fine sediment in streams had an increasingly negative response as concentrations and duration of exposure increased.
- Juvenile coho salmon avoided water with high turbidity levels.
- Basins with more than 25% of their area logged had lower stream habitat diversity, as measured by the number of pools and pieces of wood, than basins with less than 25% of their area logged.
- The diversity of juvenile anadromous salmonid populations was lower in basins with more than 25% of the area logged than in basins with less than 25% logged.
- The density of all three stream amphibian species studied was lower in streams affected by sediment due to road construction than in control streams. Two of three species had significantly lower numbers in all five stream microhabitats.
- A higher proportion of fine sediment occurred in streams flowing through forest stands with logging than streams flowing through unlogged forest stands.
- Abundance, density, and biomass of all aquatic amphibian species studied were lower in streams flowing through logged forest than unlogged forest streams.
- Stream insects preferred fully exposed cobble on the streambed to cobble partly or fully embedded in fine sediment.
- Adult aquatic insects were an important part of the insect community in forests adjacent to streams, and were believed to be an important part of the food web for forest animals such as birds and bats.
- The remaining intact watersheds in southeast Alaska are key to maintaining sustainable salmon stocks.
- Trout standing stocks decreased as the density of road culverts (a measure of the extent to which roads crossed watercourses) increased.
- During the summer, adult chinook salmon preferred pool habitat and cool stream reaches over other kinds of stream habitat.

7. General review papers on the ecological effects of roads

A few papers have reviewed and summarized research from both within and outside

North America on the effects of roads on aquatic and terrestrial ecosystems. These papers cover not only the six issues highlighted in this bibliography, but also additional concerns such as higher poaching pressure along roads, stream pollution from runoff of heavy metals and deicing salts, impaired plant photosynthesis due to roadside dust, and impacts on wetlands over the long-term.

Some researchers have also attempted to quantify the total area of landscape affected either directly or indirectly by roads. They estimate that overall, up to 15-20% of the United States' land area is affected by roads.

Ecological effects of roads

- Roads were associated with a diversity of negative effects on the biotic integrity of both terrestrial and aquatic ecosystems.
- Based on numerous studies on the ecological impact of roads, 15-20% of the United States land area was estimated to be affected by roads.
- The zone of ecological effects surrounding roads averaged more than 600 m wide, and for some factors extended more than 1 km from the road surface.
- Roads are a major cause of forest fragmentation because they divide large landscape patches into smaller patches and convert forest interior habitat into edge habitat.
- Clearcuts and roads affected 2.5 to 3.5 times more of the landscape than the surface area occupied by the actual clearcuts and roads themselves.
- Road networks affected stream systems, increasing the frequency and/or magnitude of peak flows, debris flows, and landslides.
- Richness of plant, bird, amphibian, and reptile communities in wetlands decreased as road density within the adjacent 2 km increased, with the full impact on biodiversity not evident for several decades.

THE WHITE HOUSE
WASHINGTON

January 20, 2001

MEMORANDUM FOR THE HEADS AND ACTING HEADS OF EXECUTIVE
DEPARTMENTS AND AGENCIES

FROM: ANDREW R. GARD, JR. *Andrew R. Gard, Jr.*
Assistant to the President
and Chief of Staff

SUBJECT: Regulatory Review Plan

The President has asked me to communicate to each of you his plan for managing the Federal regulatory process at the outset of his Administration. In order to ensure that the President's appointees have the opportunity to review any new or pending regulations, I ask on behalf of the President that you immediately take the following steps:

1. Subject to any exceptions the Director or Acting Director of the Office of Management and Budget (the "OMB Director") allows for emergency or other urgent situations relating to health and safety, send no proposed or final regulation to the Office of the Federal Register (the "OFR") unless and until a department or agency head appointed by the President after noon on January 20, 2001, reviews and approves the regulatory action. The department or agency head may delegate this power of review and approval to any other person so appointed by the President, consistent with applicable law.
2. With respect to regulations that have been sent to the OFR but not published in the Federal Register, withdraw them from OFR for review and approval as described in paragraph 1, subject to exception as described in paragraph 1. This withdrawal must be conducted consistent with the OFR procedures.
3. With respect to regulations that have been published in the OFR but have not taken effect, temporarily postpone the effective date of the regulations for 60 days, subject to exception as described in paragraph 1.

4. Exclude from the requested actions in paragraphs 1-3 any regulations promulgated pursuant to statutory or judicial deadlines and identify such exclusions to the OMB Director as soon as possible.
5. Notify the OMB Director promptly of any regulations that, in your view, impact critical health and safety functions of the agency and therefore should be also excluded from the directives in paragraphs 1-3. The Director will review any such notifications and determine whether exception is appropriate under the circumstances.
6. Continue in all instances to comply with Executive Order 12866, pending our review of that order, as well as any other applicable Executive Orders concerning regulatory management.

As used in this memorandum, "regulation" has the meaning set out in section 3(e) of Executive Order 12866. That is, this plan covers "any substantive action by an agency (normally published in the Federal Register) that promulgates or is expected to lead to the promulgation of a final rule or regulation, including notices of inquiry, advance notices of proposed rulemaking, and notices of proposed rulemaking."

This regulatory review will be implemented by the Director or Acting Director of the OMB. Communications regarding exceptions to the review, or questions regarding the review generally, should be addressed to that individual.

Finally, in the interest of sound regulatory practice and the avoidance of costly, burdensome, or unnecessary regulation, independent agencies are encouraged to participate voluntarily in this review.

This memorandum shall be published in the Federal Register.

Mr. Card's Dangerous Memo *2/12/01*

On Jan. 20, the day George W. Bush was sworn in, the White House chief of staff, Andrew Card, ordered all executive departments to postpone for 60 days the effective date of a wide range of regulations announced by President Bill Clinton in his final days. The purpose of this "review" is to give the administration more time to devise strategies for killing or weakening rules it does not like.

The memo covered dozens of regulations. Those that had not yet become law by virtue of being published in the Federal Register will simply lapse, to be revived only if the new administration wants to revive them. Still in the balance, however, are rules that made it into the Federal Register in time but had not yet taken effect. The Department of Health and Human Services, for example, is reviewing a controversial rule requiring states to pay for certain uncovered Medicaid expenses. But the memo's main targets were rules dealing with the environment.

Three of these are especially vulnerable. One would protect nearly 60 million acres of wild national forest from new road-building and nearly all new logging and oil, gas and mineral development. A second closes a loophole in the Clean Water Act that has allowed the destruction of thousands of acres of valuable wetlands. A third would sharply lower the sulfur content in diesel fuel, reducing air pollution.

The administration can attack along several lines. One is to rescind these rules administratively. But because all three rules, and others of lesser visibility, have already appeared in the Federal Register, the White House would have to follow the

same laborious procedures dictated by the Administrative Procedures Act to undo them that Mr. Clinton was obliged to follow to create them. That could take a long time. Contrary to White House assertions that these rules appeared at the 11th hour, all required a year or more of public comment and revision.

A second line of attack might originate in Congress, where members hostile to the rules will be tempted to attach legislative riders to appropriations bills that would overturn the Clinton rules. This would give the administration legislative cover but could also inspire partisan fights at a time when President Bush wants smooth sailing for big-ticket items like tax reduction.

A third approach would be for the administration to encourage industry lawsuits challenging the rules in court. The Justice Department — whose new boss, John Ashcroft, has a long record of hostility to environmental causes — could then negotiate settlements favoring industry and severely weakening the rules. An industry suit is almost certain to be the strategy of choice in the case of a rule banning snowmobiles in Yellowstone National Park.

President Bush should think hard before going down any of these roads. Recent history will tell him that politically there is much to lose by trifling with environmental laws. His father suffered from Vice President Dan Quayle's efforts to undermine regulations, and the Republican Party suffered when Newt Gingrich tried to do the same thing in 1995. A memo on these and other strategic blunders would serve the president far better than Mr. Card's.

For Immediate Release:
Jan. 30, 2001

Contact: Frank Clemente (202) 454-5190
Paul Schmitt (202) 588-7742

Bush Delay of Critical Consumer, Worker and Environmental Safeguards Has Wide-Ranging Implications

Public Citizen Releases Compilation of Safety Standards Effectuated

WASHINGTON, D.C. – Public Citizen today released a compilation of crucial consumer, worker and environmental protections that were recently approved by the Clinton administration but delayed by the incoming Bush administration. The delay could be detrimental to the environment, people's health and our natural resources, Public Citizen has concluded. Further, the safety standards that are in limbo could be dramatically altered before being allowed to take effect.

President Bush's chief of staff, Andrew H. Card Jr., issued a memo on Jan. 20, 2001, to federal agency heads in which he postponed for 60 days the effective date of any new regulation that has been published in the Federal Register and has not yet taken effect, so long as a deadline for the rule is not statutorily or judicially mandated. This would affect scores of new safety standards approved by Clinton agency heads in recent months, including at least 12 rules that would make major improvements in protecting the public, workers and the environment, according to Public Citizen's report, "Public Safeguards at Risk!"

The Card memo also requires agencies to withdraw new safety standards that had been signed and sent to the Office of Federal Register for publication but had not been published prior to the issuance of the memo. The report identifies at least three standards affected by this requirement: Environmental Protection Agency rules to improve air quality and eliminate haze, and require monitoring of the environmental and health effects of genetically modified crops, and a proposed Agriculture Department rule requiring packagers of hot dogs and ready-to-eat meats to test for the dangerous *Listeria* pathogen.

"No law gives Mr. Card the authority to stay rules that have been signed, sealed, delivered and published," said Public Citizen President Joan Claybrook. "It's urgent that these protections, which represent years of work by agency experts, move forward. If industry groups object to any final standards they can petition for reconsideration, not use their financial connections to the Bush administration to try to rescind, delay, defang or derail these standards."

The Public Citizen report also documents 12 "Safeguards to Watch," regulations that are so named because they are key to public health and the environment but are likely to be strongly opposed by industry groups, which are sure to use their close connections to the Bush administration to try to derail them.

“The Card memo is just the opening skirmish in what we expect to be a protracted war between special interests and the public’s interest under the Bush administration,” said Frank Clemente, director of Public Citizen’s Congress Watch. “We anticipate a return to the ways of the former Reagan and Bush I administrations, when important safeguards proposed by the agencies were sent into an OMB [Office of Management and Budget] ‘black hole,’ where they were delayed for years, eviscerated or buried under the guise of administration ‘review.’”

The report identifies many of the uncertainties and legal issues raised by the Card memo. For instance, Public Citizen questions whether there is legal authority for the president, or his chief of staff, to order an across-the-board 60-day freeze of the effective date of standards promulgated by agency heads.

Safeguards Affected by the Card Memorandum

- Control of Deadly Microorganisms in Food
- Genetically Modified Crops
- National Organics Standards
- Clean Air in National Parks
- Protection of Federal Forests
- Energy Conservation
- Arsenic in Drinking Water
- Public’s Right-to-Know about Industrial Releases of Toxic Lead
- Pollution from Diesel Engines
- Protecting Wetlands
- Lead Poisoning in Children
- Snowmobiles in National Parks
- HMO Protections for Medicaid Patients
- Workplace Dangers
- Mine Safety

Safeguards to Watch

- Juice Safety
- Quality of Poultry
- Large-Scale Factory Farm Pollution
- Medical Privacy
- Protecting Patients in Gene Therapy
- Ergonomics Protections
- Injury Tracking and Reporting
- Protections for Medical Professionals
- Protection from Tuberculosis
- Prevention of Deadly Vehicle Fires
- Reducing Head and Neck Injuries in Crashes
- Protections to Prevent Tire and Other Defects

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Public Citizen is a consumer advocacy organization based in Washington, D.C. A complete copy of the report is available at <http://www.citizen.org/congress/regs-/regsdelay.htm>



**Environmental Protections at Risk Under
Bush Regulatory Freeze**

NATURAL RESOURCES DEFENSE COUNCIL

Numerous environmental protections put in place by the Clinton Administration are now at risk. These protections were enacted after a lengthy, public process to address significant threats. Now, instead of following the legally mandated rulemaking process, industry is looking for short-cuts on Capitol Hill and in the Bush White House to rollback these protections. Here's some of what is at stake.

Protections for America's Wild Forests. On January 12, President Clinton issued a final rule prohibiting the building of roads in the remaining National Forest roadless areas. Clinton's action protects almost 60 million acres of wild forests from roadbuilding and commercial logging. The rule includes Alaska's Tongass National Forest despite earlier proposals to leave it out.

Diesel Engine Standards. On January 18, EPA issued a final rule to clean up diesel engines and fuels. The action promises to limit soot and other harmful emissions from diesel buses, trucks and generators.

Limits on Arsenic in Our Drinking Water. On January 22, EPA issued a final rule that cuts allowable levels of arsenic in tap water five fold, to 10 parts per billion. The previous standard of 50 ppb, which was set in 1942, was declared unsafe in a 1999 National Academy of Sciences report.

Appliance Efficiency Improvements. In January, the Department of Energy issued new energy efficiency standards for air conditioners, water heaters, and clothes washers. Overdue for several years, these standards will cut millions of tons of global warming pollution, save consumers billions of dollars, and improve electric system reliability.

Air Quality Protections in Our National Parks. On January 12, EPA publicly announced a proposed regulation to improve air quality and eliminate haze in the country's national parks and wilderness areas. The rule is designed to get old dirty power plants to update their pollution control equipment.

Limits on Mercury from Power Plants. On December 20, EPA issued a determination that mercury from power plants should be controlled. This determination triggers an obligation to propose regulations to limit mercury emissions from power plants by 2003. Despite the harmful health effects from the bioaccumulation of mercury in the environment, no controls have existed to date on mercury emissions from power plants.

Protections for Wetlands. On January 17, EPA and the U.S. Army Corps of Engineers issued a final rule to narrow a loophole, referred to as the Tulloch exception, in the Clean Water Act that has been used to degrade and destroy wetlands and streams. Previously,

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developers could avoid obtaining a permit when draining, ditching or excavating wetlands as long as they did not dump the fill on the site. According to EPA estimates, at least 20,000 acres of wetlands and 150 miles of streams have been targeted for destruction since 1998 because of this loophole.

Dry Tortugas Protections. On January 17, the National Oceanic and Atmospheric Administration issued a final rule creating a Tortugas Ecological Reserve within the Florida Keys National Marine Sanctuary. The National Park Service is still developing plans for expanding the reserve into the boundaries of the Dry Tortugas National Park.

Essential Fish Habitat Protections. In January, the National Marine Fisheries Service finalized a rule to guide the identification and protection of essential fish habitat by fishery management councils. The rule also provides guidance for interagency consultation on actions adversely affecting essential fish habitat.

Limitations on Ocean Discharges. On January 19, EPA proposed improvements to regulations governing discharges into marine waters. Poor monitoring and lack of enforcement have undermined the current regulations.

Restrictions on Snowmobiles in Our National Parks. On January 22, the National Park Service issued final restrictions on snowmobile use in Yellowstone National Park. The NPS has initiated similar rulemakings for other national parks as well.

Endangered Species Protections. On October 24, the United States Fish and Wildlife Service designated over 500,000 acres of imperiled sage scrub in Southern California as "critical habitat" for the coastal California gnatcatcher. The gnatcatcher, which is listed as a threatened species depends, upon Southern California's fast-disappearing sage scrub habitat to survive. The designation will restrict the federal government from funding, carrying out, or authorizing any activities which might result in the adverse modification of the gnatcatcher's critical habitat.

Sewage Overflow Controls. On January 5, EPA announced new proposed rules to prevent raw sewage from contaminating our nation's beaches, lakes and streams. Many sanitary sewers are inadequately maintained and often overflow dumping raw sewage into basements, streets and waterways. The proposed rules require sewage systems to have adequate capacity and be properly maintained, as well as make public reporting and notification mandatory.

Reducing Factory Farm Pollution. On January 12, EPA announced proposed rules to close a number of loopholes that have allowed large animal feedlots to dump unlimited amounts of manure into rivers and lakes. Manure discharges from factory farms cause massive fish kills, hypoxic waters devoid of life, and bacteria-laden streams.

**For more information contact: Sharon Buccino, 202-289-6868
2/8/01**

New York Times 4/8/01
 Environmental Rollbacks 4-8 01/1

Republican moderates are exasperated by President Bush's posture on environmental issues. They are not alone. In less than three months Mr. Bush has begun to remind people of the country's last genuinely anti-environmental president, Ronald Reagan. But where Mr. Reagan's attitude was one of careless indifference — "You've seen one redwood, you've seen 'em all." — was a typical Reaganism — Mr. Bush's retreat on issues as large as global warming and as localized as poisoned drinking water seems aggressively hostile.

It could also be politically ruinous. The president says he must soften environmental rules to prevent a recession. He thus revives the historically insupportable notion that economic progress and environmental protection are incompatible. Further, Mr. Bush appears to have forgotten that Republicans inevitably self-destruct when they challenge environmental values that command public support. Newt Gingrich's hard-line agenda on everything from clean water to endangered species in the mid-1990's succeeded only in energizing the Democrats and persuading Bill Clinton to embark on the aggressive program of wilderness protection that Mr. Bush now seeks to repudiate.

If there has been any unifying theme to Mr. Bush's policies, it has been his eagerness to please the oil, gas and mining industries — indeed, extractive industries of all kinds. The oil and coal mining companies helped shape his decision to withdraw from the Kyoto Protocol on climate change as well as his earlier reversal of a campaign pledge to impose mandatory limits on carbon dioxide. These were hasty and ill-conceived decisions that have essentially left the United States without a policy on a matter of global importance.

The mining industry also had a hand in two other rollbacks. One was a decision to withdraw a

Clinton rule that reduced by 80 percent the permissible standard for arsenic in drinking water. The other was a decision by Interior Secretary Gale Norton to suspend important new regulations that would require mining companies to pay for clean-ups and, for the first time, give the Interior Department authority to prohibit mines that could cause "irreparable harm" to the environment.

Mr. Bush seems to be backing off his plan to open the Arctic National Wildlife Refuge to oil exploration, in part because Congress will not support him. But other sensitive and ecologically significant areas, particularly in the Rocky Mountains, remain vulnerable. Ms. Norton has targeted some 17 million acres of land, in 11 Western states, now designated as wilderness study areas. Mr. Bush is prepared to open up the 19 national monuments created by Mr. Clinton. And the administration has signaled a retreat on Mr. Clinton's most ambitious conservation measure — a Forest Service rule protecting nearly 60 million acres of largely untouched national forest from new road building, new oil and gas leasing and most new logging.

Killing that plan would represent a big victory not only for the timber companies but also for the oil and gas industries. Although the roadless areas contain less than 1 percent of the nation's oil and gas resources, the energy companies have long had the forests in their sights. During his distinguished tenure as Mr. Clinton's Forest Service chief, Mike Dombeck managed to keep the drillers at bay. But Mr. Dombeck has now retired to private life, along with nearly every other friend of the environment from the Clinton administration. With few exceptions, they have been replaced by industry lobbyists and hard-edged advocates of development. It will be Congress's job to hold the line against them.

APR-17-01 12:14 From:

T-375 P.02/02 Job-698



NATURAL RESOURCES DEFENSE COUNCIL

April 3, 2001

The Honorable Doug Ose
 Chairman,
 Subcommittee on Energy Policy, Natural Resources and Regulatory Affairs
 Committee on Government Reform
 2157 Rayburn, U.S. House of Representatives
 Washington, DC 20515-6143

Dear Chairman Ose:

I want to thank you for the opportunity to testify before the committee on March 27, 2001. During the questioning, you asked me about comments related to collaboration attributed to the Forest Service by one of the other witnesses, Dr. Robert Nelson. I write to provide some follow-up information while the record of the hearing remains open.

In his testimony, Dr. Nelson implied that the Forest Service stated in its final environmental impact statement (FEIS) that "the Roadless Rule contradicts the [past] emphasis placed on collaboration." Nelson Testimony, at p.2. In fact, this quote is not a statement by the Forest Service of its position, but instead a description of the comments the agency received from others. The FEIS reads, "Some members of the public perceive that the Roadless Rule contradicts the emphasis placed on collaboration." (FEIS, 3-369). The Forest Service explicitly states, "The Roadless Rule would not affect the collaborative decision-making process itself." (FEIS, 3-369). The other quote Dr. Nelson implicitly attributes to the Forest Service can be found nowhere on the page he cites, FEIS, 3-369.

In addition, I was disturbed to discover that the subcommittee's web site does not list all the witnesses that appeared at the hearing. I hope you would agree that it is a misrepresentation to the public of what occurred at the hearing to list some, but not all, of the witnesses. I applaud the committee for providing electronic versions of testimony it receives via the internet and therefore promptly provided the staff with an electronic version of my testimony as requested. I would appreciate this testimony being made available on the web site in the same way testimony of other witnesses is provided.

Sincerely,

Sharon Buccino
 Senior Attorney

Cc: The Honorable John F. Tierney

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National Forest Roadless Area Conservation Policy

A FOREST CONSERVATION LEGACY FOR THE FUTURE—

- The Roadless Area Conservation Policy is the most significant forest conservation measure of the last 100 years; it protects approximately 58.5 million acres of wild, pristine national forest lands. These areas are vital sources of native fish and wildlife habitat, clean water, and quality recreation. The final policy includes Alaska's Tongass National Forest, the largest remaining temperate rainforest in the world.
- Under the roadless policy, these special areas will be protected from new road construction, most forms of logging, new oil and gas leases, and mineral development.

NOT AN 11TH HOUR RULE, BUT RATHER THE MOST COMMENTED UPON POLICY IN OUR NATION'S HISTORY—

- The journey toward the roadless policy began in January of 1998 when Forest Service Chief Michael Dombeck announced that he was proposing a moratorium on road construction in roadless areas of most national forests.
- President Clinton announced the formal beginning of the roadless area conservation initiative on October 13, 1999.
- The roadless policy went through two rounds of formal comment (Oct.-Dec. 1999 and May - July 2000).
- The Roadless Area Conservation policy is the most commented on federal rulemaking in our nation's history—over 1.6 million Americans submitted public comments on this policy. The vast majority of these were in support of a strong policy of protection for the last remaining wild spaces in our national forests. The second most commented upon rulemaking was the organic food safety rule that garnered 275,000 comments.
- The Forest Service held over 600 public meetings, including several meetings in every national forest.
- The roadless policy rule was published in the Federal Register January 12, 2001 and was originally scheduled to take effect March 13, 2001.

Mar-28-01 04:55pm From-

T-512 P.05/06 F-461

- In accordance with President Bush's Regulatory Review Plan, the roadless policy was delayed an additional 60 calendar days on February 5, 2001 when Secretary of Agriculture Anne Veneman published a Federal Register notice extending its implementation date until May 12. This was the result of a memo from White House Chief of Staff Andrew Card ordering an implementation delay.
- Therefore the roadless policy will become official on May 12 unless current court proceedings or further administrative actions interfere.

A FLEXIBLE APPROACH—

- The effect of this policy on national domestic timber production is negligible, only 2/10ths of 1%. Moreover, it affects only 4 % of all national forest timber production. In addition, for the continental U.S., all projects with a record of decision (ROD) signed prior to January 12, 2001 are grand fathered. In addition, new commodity timber sales are permitted in those portions of inventoried roadless areas where construction of official (i.e. classified) Forest Service roads and timber harvest has occurred since the area was last inventoried, which is typically the most recent forest plan revision.
- Timber cutting and sale is permitted in the unroaded portions of roadless areas under certain circumstances where it will maintain or improve roadless area characteristics, such as restoration of ecosystem composition and structure to reduce the risk of uncharacteristic wildfires.
- New road construction necessary for public health and safety per 36 CFR §294.12 (b) would be permitted.
- The effect on natural gas production is expected to be small as the entire National Forest System (roaded and unroaded) only accounts for 4/10ths of 1% of all domestic production. In addition, the policy allows existing oil and gas leases to be re-leased—even if they have not been developed or roaded previously.
- No official National Forest System roads are closed by this policy.
- Off-road vehicle use is not regulated by the roadless policy.
- All valid existing rights will be honored. This includes access to state and private lands.
- A study by researchers at Colorado State University found that keeping some of the targeted areas roadless would result in economic benefits valued at over \$2 billion. Five hundred million of this is in clean water for cities and reduced need for water filtration systems.

IN THE COURTS—

- Earthjustice has filed for intervener status on four separate challenges to the roadless policy. On March 15 our intervention motions were granted in the Boise Cascade and the State of Idaho cases.
- March 16: Instead of defending the roadless policy, the government offered to further suspend it in exchange for an extension of time for filing its response to Boise Cascade's motion for a preliminary injunction against the policy. This was the first briefing deadline associated with any of the four challenges.

- March 20: The government made a similar offer in the state of Idaho case when its response to the state's motion for preliminary injunction.
- These are separate cases with separate preliminary injunction motions and separate briefing deadlines. The court denied the government's request in both cases and ordered that the government file their briefs regarding both preliminary injunction motions on March 21.
- The briefs subsequently filed by the government did everything possible to avoid doing anything that could be construed as defending the policy. The government essentially stated that a preliminary injunction was not necessary because they had already unilaterally suspended the policy and argued that the court could easily suspend it post May 12 should that be necessary.
- Both cases will hold hearings on the preliminary injunction motions on March 30 in which oral arguments in support of the briefs will be heard in Boise Idaho.
- Tuesday, March 13, is the day the Roadless Policy would have gone into effect if the Card memo hadn't delayed it.
- There are two other challenges to the roadless policy. One was filed by the state of Alaska, the other by the Mountain States Legal Foundation in the D.C. district court.

A LEGACY AT RISK—

- Last year the policy's opponents in Congress announced repeatedly that they intend to review the roadless policy under the Congressional Review Act—a provision that is part of the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).
- Under this Act if a "resolution to disapprove" is passed by the Senate and the House and signed by the President, the regulation that is the subject of the resolution is killed. This is the legislative approach used recently to kill the Clinton ergonomic regulations.
- A more likely scenario based on their recent actions in Idaho is that the government's lawyers charged with defending the roadless policy would use these legal proceedings as merely a backdrop in an attempt to kill the policy administratively. Under this scenario, they would enter into settlement talks with Boise Cascade and other plaintiffs that they would use as a reason to abandon the policy. The government could then attempt to say the courts or the lawsuit forced this outcome on them and the courts (including the Circuit Court of Appeals) may never have ruled on the underlying merits of the opponents' legal claims.
- Should neither of the aforementioned strategies succeed in killing the roadless area conservation policy, one would expect its opponents on Capitol Hill to insert a legislative provision, known as a rider, into one of this year's must pass spending bills.

For more information contact: Marty Hayden 202.667.4500

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Environmental News

FOR RELEASE: TUESDAY, MARCH 20, 2001

EPA TO PROPOSE WITHDRAWAL OF ARSENIC IN DRINKING WATER STANDARD; SEEKS INDEPENDENT REVIEWS

Robin Woods 202-564-7841/woods.robin@epa.gov

U.S. Environmental Protection Agency Administrator Christie Whitman announced today that EPA will propose to withdraw the pending arsenic standard for drinking water that was issued on January 22. The rule would have reduced the acceptable level of arsenic in water from 50 parts per billion to 10 ppb.

EPA will seek independent reviews of both the science behind the standard and of the estimates of the costs to communities of implementing the rule. A final decision on withdrawal is expected after the public has an opportunity to comment.

"I am committed to safe and affordable drinking water for all Americans. I want to be sure that the conclusions about arsenic in the rule are supported by the best available science. When the federal government imposes costs on communities—especially small communities—we should be sure the facts support imposing the federal standard," said Whitman. "I am moving quickly to review the arsenic standard so communities that need to reduce arsenic in drinking water can proceed with confidence once the permanent standard is confirmed."

While scientists agree that the previous standard of 50 parts per billion should be lowered, there is no consensus on a particular safe level. Independent review of the science behind the final standard will help clear up uncertainties that have been raised about the health benefits of reducing arsenic to 10 parts per billion in drinking water.

"It is clear that arsenic, while naturally occurring, is something that needs to be regulated. Certainly the standard should be less than 50 ppb, but the scientific indicators are unclear as to whether the standard needs to go as low as 10 ppb," said Whitman.

"This decision will not lessen any existing protections for drinking water. The standards would remain the same, whether the rule went through or not, until it was time to enforce it under the compliance schedule five to nine years from now," said Whitman. "But, in the interim, EPA will examine what may have been a rushed decision."

R-42

-more-

Some cities and states that will have to comply with the arsenic rule have raised serious questions about whether the costs of the rule were fully understood when the rule was signed in early January. PA estimates the cost to be about \$200 million per year. Many small communities will be affected by the drinking water standard for arsenic, making it especially important to ensure that the Safe Drinking Water Act provision allowing balancing of costs is based on accurate information.

Arsenic is an element that occurs naturally in several parts of the country. The highest concentrations of arsenic occur mostly in the Western states, particularly in the Southwest. At unsafe levels, arsenic causes cancer and other diseases.

EPA today will ask for a 60-day extension of the effective date of the pending arsenic standard for drinking water, and expects to release a timetable for review within the next few weeks.

Whitman plans to attend the Western Governors Association meeting in Denver, Colorado on March 22 and March 23, where she plans to participate in round table discussions on arsenic with stakeholders.

The New York Times
March 22, 2001

Arsenic and Old Laws

By CHUCK FOX

ANNAPOLIS, Md. — The Bush administration said this week that it intends to withdraw new drinking water standards designed to protect the public from arsenic pollution. This rash move could threaten the health of 13 million Americans whose drinking water has elevated levels of arsenic.

The administration now says "scientific indicators are unclear," implying that the new standard was not justified. I was in charge of the Environmental Protection Agency office that developed these new standards under rigorous scientific review. Arsenic exposure is closely linked to lung and bladder cancer and many other adverse health effects. The Environmental Protection Agency approved the new permissible standard for arsenic in drinking water of 10 parts per billion in January, after a decade's worth of work and a lengthy public process. The old standard of 50 parts per billion was established in 1942, long before new research on arsenic's effects.

The National Academy of Sciences completed the most recent analysis of arsenic in 1999, concluding that the old standard was more than 100 times less protective than other drinking water standards. The academy did not recommend a new number. But it urged the federal government to move quickly to revise the World War II-era rule to protect public health. Even Congress expressed frustration with the slow pace of revising the arsenic standard, and in 1997, Congress directed the E.P.A. to set a new arsenic standard.

Now the Bush administration has justified its sudden reversal on arsenic by suggesting that there was no "consensus" on a specific numeric standard. Unfortunately, there rarely is consensus on such numbers. The 10 parts per billion standard for arsenic, however, is widely supported by drinking water utilities, states, scientists, public health officials and environmentalists, though not by the mining industry, some Western states and some scientists. Regulators always strive for consensus, as I did. But it is simply not possible to achieve absolute consensus in this case, so we opted for the scientifically sound standard that would protect public health.

If the E.P.A. ultimately rescinds the new standard, there may be no standard whatsoever for arsenic. Under the new rule, all communities would have to be in compliance with the new standard within five years. But if that rule is

repealed, there is a question as to whether the old standard would automatically go back into effect five years from now.

Communities need time to plan capital investments to improve drinking water quality. They need certainty in a regulatory environment. By reversing course, the E.P.A. would cause serious delays in their planning processes. Approximately 3,000 communities throughout the country, many of them in the Southwest, are in need of federal guidance in upgrading their water systems. But it could be many years before the agency makes another decision on arsenic levels.

The Bush administration apparently will go back to the drawing board and try to find a new consensus. While I have great faith in the agency's staff, the mining industry and public health professionals are not likely to agree. The questions facing the agency a few years from now will be fundamentally the same that exist today. We answered those questions with a commitment to public health protection. I certainly hope that the new administration will approach this issue in the same manner.

Chuck Fox is a former assistant administrator for water at the Environmental Protection Agency.

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NRDC Denounces EPA's Proposal to Withdraw New Arsenic-in-Tap-Water Standard; Group Says Move is Unwarranted and Illegal – and Vows to Sue

WASHINGTON (March 20, 2001) – The Bush administration's announcement today to withdraw the new arsenic-in-tap-water standard is a craven capitulation to the mining industry and other corporate interests at the expense of the health of millions of Americans, said NRDC (Natural Resources Defense Council).

EPA's final arsenic standard of 10 parts per billion (ppb) would have lowered allowable levels of arsenic in tap water from the current standard of 50 ppb, an outdated standard established in 1942. The new standard was a result of more than a decade of scientific reviews, public hearings, and discussions with health experts and industry. The international standard adopted several years ago by the World Health Organization and the European Union also is 10 ppb.

"This decision will force millions of Americans to continue to drink arsenic-laced water," said NRDC Senior Attorney Erik D. Olson. "Many will die from arsenic-related cancers and other diseases, but George Bush apparently doesn't care. This outrageous act is just another example of how the polluters have taken over the government."

George W. Bush received more money from the mining industry during last year's campaign than any other candidate for federal office. Meanwhile, the mining industry last year shoveled \$5.6 million into Republican Party campaign coffers, but less than \$900,000 to Democrats. (See the Center for Responsive Politics' Web site, opensecrets.org.)

The Environmental Protection Agency said it withdrew the rule on scientific grounds. In a draft press statement issued today, EPA Administrator Christie Whitman said, "I want to be sure that the conclusions about arsenic in the rule are supported by the best available science."

In fact, that work has already been done. A definitive 1999 report by the National Academy of Sciences (NAS) determined that arsenic in drinking water causes bladder, lung and skin cancer, and may cause kidney and liver cancer. The study also found that arsenic harms the central and peripheral nervous systems, heart and blood vessels, and causes serious skin problems, including pre-cancerous lesions and pigmentation changes. In addition, the NAS report and peer-reviewed animal studies have found that arsenic may cause birth defects and reproductive problems. NAS also found that children could be more vulnerable to arsenic exposure than adults.

The NAS report concluded that EPA's 1942 arsenic standard for drinking water of 50 ppb, established before the chemical was known to cause cancer, "does not achieve EPA's goal for public health protection and, therefore, requires downward revision as promptly as possible." NAS said that drinking water at the current EPA standard "could easily" result in a total cancer risk of one in 100 – about a 10,000-times higher cancer risk than EPA would allow for carcinogens in food. NAS assumes people drink 2 liters of water a day over a lifetime.

According to NRDC, EPA should have lowered the arsenic level in drinking water to 3 ppb (see "Arsenic and Old Laws" at NRDC's Web site www.nrdc.org). The agency, however, proposed a

5 ppb standard in June 2000 and then increased it to 10 ppb in January 2001 in response to industry pressure.

“What will it take to convince the Bush administration to do something about this enormous health risk?” asks Olson. “Congress told the agency to update the arsenic standard in the mid-1970s and again in the late 1980s, but it never happened. In 1996, Congress asked for the third time, making January 2000 the deadline for a proposal. EPA finally proposed the new standard in June 2000 after we sued the agency. Now we will be forced to sue again.”

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The Natural Resources Defense Council is a national, non-profit organization of scientists, lawyers and environmental specialists dedicated to protecting public health and the environment. Founded in 1970, NRDC has more than 400,000 members nationwide, served from offices in New York, Washington, Los Angeles and San Francisco. More information is available through NRDC's Web site at www.nrdc.org.

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**POTENTIAL IMPACTS OF ENVIRONMENTAL
REGULATIONS ON DIESEL FUEL PRICES**

*Evaluation of An Assessment of the Potential Impacts of Proposed
Environmental Regulations on U.S. Refinery Supply of Diesel Fuel, prepared
for American Petroleum Institute, August 2000.*

by

**David Harrison, Jr., Ph.D.
Randall Lutter, Ph.D.**

Prepared for

Alliance of Automobile Manufacturers

December 2000

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ACKNOWLEDGEMENTS

This report was requested and funded by the Alliance of Automobile Manufacturers ("Alliance"). The report was prepared by National Economic Research Associates, Inc. ("NERA"), an international firm of consulting economists specializing in the application of economics to complex issues of business and public policy. NERA has considerable experience in energy and environmental economics and policy.

NERA was asked to evaluate the economic methodology contained in a recent report concerning the impacts of proposed environmental rules on diesel fuel markets that was prepared for the American Petroleum Institute ("API report").¹ Specifically, NERA's assignment was to assess the methodology used in the API report to project diesel fuel price increases due to proposed desulfurization regulations of the U.S. Environmental Protection Agency ("EPA"). (Projected price increases from the API report have appeared in the trade press.²) NERA's review included neither a detailed evaluation of the underlying data used in the API report nor evaluations of other aspects of the proposed EPA regulations.

The NERA report was prepared by Dr. David Harrison and Dr. Randall Lutter, a NERA outside consultant. Mr. Daniel Radov contributed to the report. We are grateful to individuals at the Alliance for providing us with the API report and various background information. Responsibility for the report, however, and any errors or omissions, rests solely with NERA.

¹ Charles River Associates, Inc. and Baker and O'Brien, Inc., *An Assessment of the Potential Impacts of Proposed Environmental Regulations on U.S. Refinery Supply of Diesel Fuel*, prepared for American Petroleum Institute, August 2000.

² See, "50 Cent/Gallon Price Spike, 320,000 Barrel/Day ULSD Shortage Seen in U.S. in 2006: Shocking API Study," *Hart's Diesel Fuel News* Vol. 4 (No. 15), August 2000, p. 1.

ABOUT THE AUTHORS

David Harrison, Jr. is a Senior Vice President at NERA and director of its environmental economics practice. Dr. Harrison has extensive experience in energy and environmental economics and policy as a consultant, academic, and government official. He has directed numerous NERA studies of the impacts of environmental regulations. Dr. Harrison was previously an Associate Professor at the John F. Kennedy School of Government at Harvard University, where he taught courses in environmental policy, economics, and other subjects for more than a decade. He also served as a senior economist at the President's Council of Economic Advisers, where he had responsibility for energy and environmental issues. He is the author or co-author of four books or monographs on environmental economics and policy, as well as numerous articles in professional journals. Dr. Harrison holds a B.A. and Ph.D. in Economics, both from Harvard University, as well as a M.Sc. in Economics from the London School of Economics.

Randall Lutter, an outside consultant at NERA, is resident scholar with the American Enterprise Institute and fellow with the AEI-Brookings Joint Center for Regulatory Studies. Dr. Lutter has advised senior Administration officials about the economic consequences of a broad variety of regulatory decisions. Until 1998 he served as senior economist for regulation and the environment at the President's Council of Economic Advisers. From 1991 to 1997 he was an economist at the federal Office of Management and Budget where he helped develop guidelines for federal agencies conducting benefit-cost analyses. Dr. Lutter taught at the State University of New York at Buffalo and at American University. He earned a Ph.D. in economics at Cornell University and his research has appeared in the *Journal of Political Economy*, *Science*, and *Environmental Science & Technology*.

ABSTRACT

Recent press accounts that diesel fuel prices may rise by between 15 and over 50 cents per gallon as a result of forthcoming desulfurization regulations of the U.S. Environmental Protection Agency rely on a report that has serious limitations. The report prepared for the American Petroleum Institute assessed the potential impacts of proposed desulfurization regulations on the market for diesel fuel in the U.S. The American Petroleum Institute report estimated that the regulations would lead to compliance costs for individual refineries that range between 2 cents per gallon and 15 cents per gallon and would reduce diesel output by 320 million barrels daily, or more than 12 percent of the baseline domestic diesel supply predicted by the U.S. Energy Information Agency. As a result of the compliance costs and reduced supply, the API report concludes that “depending upon the extent, if any, of ultra low-sulfur diesel (ULSD) import availability, diesel prices could rise by between 15 and over 50 cents per gallon.”

Although the American Petroleum Institute report includes an innovative approach, its conclusions hinge on pessimistic assumptions about potential investments in ultra- low-sulfur refining capacity, the likely response of foreign suppliers and the costs of removing sulfur from diesel. Indeed, the innovative approach—using detailed refinery estimates of added costs rather than an average refinery approach—is limited conceptually as a means of projecting price increases because it implicitly ignores variations in non-environmental production costs across refineries.

Based on our review, we find that American Petroleum Institute’s estimates of the price increases for diesel fuel due to desulfurization are substantially too pessimistic. U.S. consumers likely will see long-run price increases due to the environmental regulations that are substantially smaller than the American Petroleum Institute estimates.

1. INTRODUCTION

Recent press accounts have reported estimates that environmental regulations to reduce sulfur in on-road diesel fuel will lead to price increases of 15 cents per gallon ("cpg") to more than 50 cpg in 2007.³ These price projections are based upon a recent report that was prepared for the American Petroleum Institute (hereafter "API" or "the API report").⁴

The API report is based upon detailed estimates of the compliance costs that individual refineries would incur in order to comply with future environmental regulations, including low sulfur standards, a phase-out of the additive MTBE in reformulated gasoline, and other restrictions on toxics in gasoline. The API report estimates that the incremental costs to achieve these standards at individual refineries in 2007 will range from 2 cents per gallon (cpg) to about 15 cpg. The study also estimates that the proposed regulations would lead to a loss of domestic diesel production equal to 320 million barrels daily, or more than 12 percent of the baseline domestic diesel supply predicted by the U.S. Energy Information Agency. This decrease in domestic production is alleged by API to result in a "gap" between supply and demand for diesel fuel in 2007. The estimate that desulfurization would lead to a price increase in 2007 of 15 cpg is based upon the assumption that the "gap" would be made up for by increased imports at a price increase equal to the highest domestic cost increase. The estimate of a more than 50 cpg increase in diesel price in 2007 is based upon the assumption that the "gap" is made up only by price-induced decreases in demand.

Given the dramatic price increases projected in the API report, it is sensible to ask whether the API methodology is sound and whether the empirical estimates are reasonable. The higher figures clearly are not plausible long-term values, as even the API report notes:

³ See, "50 Cent/Gallon Price Spike, 320,000 Barrel/Day ULSD Shortage Seen in U.S. in 2006: Shocking API Study," *Hart's Diesel Fuel News* Vol. 4 (No. 15), August 2000, p. 1.

⁴ Charles River Associates, Inc. and Baker and O'Brien, Inc., *An Assessment of the Potential Impacts of Proposed Environmental Regulations on U.S. Refinery Supply of Diesel Fuel*, prepared for American Petroleum Institute, August 2000.

“These premia [30 to over 50 cents per gallon] are so high as to be fundamentally unsupportable, except perhaps in the short term.” (API report, p. 8)

But the cost-based value of 15 cpg also is not a reliable estimate of the long-term effects of the environmental regulations on diesel fuel prices. Although the attempt to develop detailed data for individual refineries is commendable, we conclude that the API study is based upon an incomplete and highly pessimistic assessment of the factors that will determine the impacts of environmental regulations on the supply and price of diesel fuel in 2007. The analysis in the API study has four major shortcomings:

1. Contrary to claims in the report, the compliance cost estimates are not sufficient by themselves to develop reliable estimates of diesel prices in 2007 because they ignore differences in production costs (i.e., costs to produce diesel fuel other than the additional environmental compliance costs) across refiners. The price increases in the API report implicitly assume the most pessimistic case in which the refineries with the very highest compliance cost also have the highest cost of producing diesel fuel. This problem is evident from the conceptual formulation given in the API report.
2. The empirical analysis omits important sources of domestic diesel fuel supply in 2007, including various potential new investments that would be forthcoming at higher projected prices. This omission leads to pessimistic price projections.
3. The assumption that import prices would be set based upon the highest cost complier in the U.S. is arbitrary and pessimistic.
4. The detailed compliance cost estimates reported in the API report appear to be based upon some unrealistic and pessimistic assumptions about the costs of meeting environmental regulations.

The following four sections of this report explain these concerns with the API report and why they lead to pessimistic estimates of likely price increases. The sections include rough estimates of the price increases that might occur under more realistic assumptions. The final section summarizes our conclusions regarding potential diesel fuel price increases.

II. THE API COMPLIANCE COST ESTIMATES ARE NOT SUFFICIENT TO GENERATE A REVISED SUPPLY CURVE

The key element of the API price projections is the set of estimates of the cost changes due to the environmental regulations. As discussed below, the empirical estimates given in the

API report appear to be inconsistent with its conceptual approach. The net effect is an extremely pessimistic projection that the highest cost of compliance establishes the future diesel fuel price.

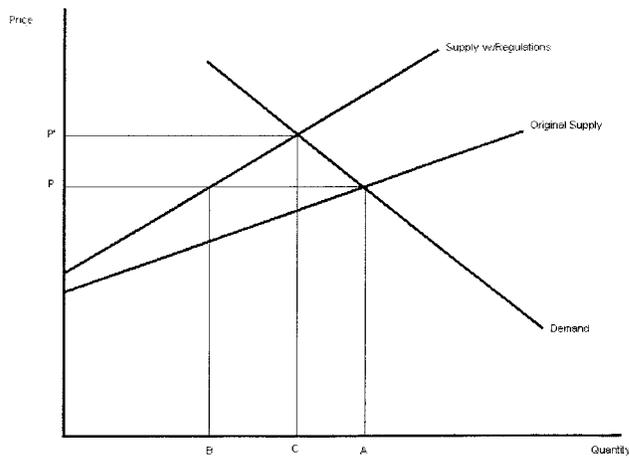
A. Relationship Between Compliance Costs and Supply Shifts

The limitation of the API report's treatment of future diesel fuel supply can be explained by the demand and supply framework presented in the API report. Figure 1 reproduces the supply-demand analysis figure given as Figure 8.1 in the API report. The equilibrium price and quantity without the environmental regulations are at price P and quantity A. The price and quantity values correspond to the intersection of the Demand curve and the Original Supply curve. The original supply curve reflects the incremental production costs of individual refiners. Regulatory requirements increase the overall cost of producing diesel fuel, which translates into a shift in the supply curve upward to the Supply w/Regulations line. The Supply w/Regulations line reflects the original incremental production costs as well as the compliance costs to meet the new environmental requirements.

The graph illustrates why compliance costs would tend to lead to price increases. If price were to remain at P, firms would only be willing to supply a quantity equal to B, substantially less than the quantity A that is demanded at that price. This imbalance leads consumers to bid up the price until it reaches P', at which point C is produced and consumed. The price increase due to the environmental regulations is equal to $P' - P$.

This figure provides a sound conceptual analysis of the long-term supply and demand factors that will affect the price of diesel fuel in 2007. Although the empirical analysis developed in the API report bears a superficial resemblance to the conceptually correct approach, it does not correspond to this formulation.

Figure 1. Conceptual Formulation of Price Impacts of Regulations in the API Report

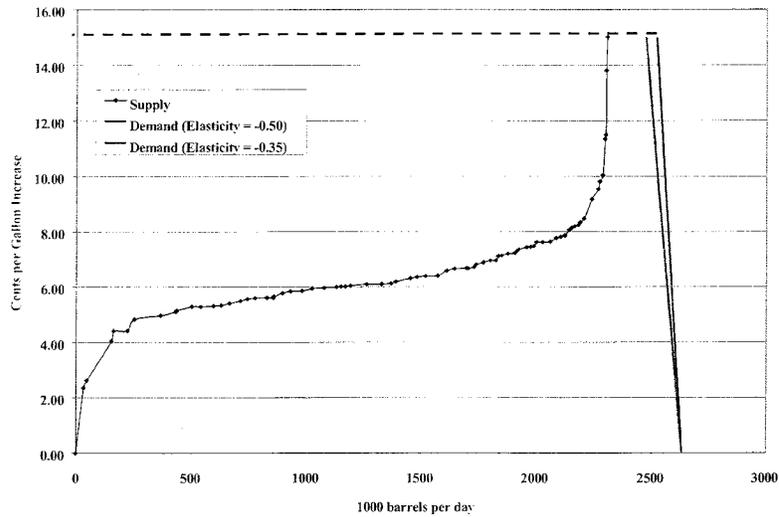


Source: API report, p. 66.

B. Limitations of the API Approach

Figure 2 reproduces the empirical results developed in the API Report. The figure shows the compliance in costs for individual refineries estimated by the PRISM refinery model developed by Baker and O'Brien, Inc.⁵ As noted above, the API report concludes that the suppliers would face different compliance costs due to ultra-low-sulfur requirements, with the compliance cost per gallon ranging from about 2 cpg to more than 15 cpg depending upon the refinery. Note, however, that most of the refineries have compliance costs that are within a reasonably small range, about 4 cpg to 8 cpg. Indeed, only about 10 percent of the capacity in the API study are projected to have a compliance cost greater than 8 cpg.

Figure 2. Compliance Cost Estimates for Refiners Reported in API Report



Source: API report, p. 7.

Figure 2 presents projected compliance costs for individual refiners, rather than the total of production costs and compliance costs.⁵ A footnote to Figure 8.1 in the API report (shown as Figure 1 above) provides the API report's rationale for focusing on compliance costs rather than on overall costs.

Note that the PRISM cost curves shown in the previous section give the incremental cost associated with the regulations, which are shown in the figure as the difference between the two supply curves. (API report, footnote 9, p. 66)

(...continued)

⁵ The figure also includes the API estimates of 2007 demand conditions and possible import response. The implications of the API assumption regarding imports are discussed below.

⁶ Note that the compliance costs calculated in the API report are the total additional costs of producing ultra-low sulfur fuel that complies with EPA's standards. See API report p. 67.

This interpretation of the empirical results is critical to the price projections in the API report. As discussed below, this statement is not correct except under the most extreme assumption that the refiners with the highest full compliance costs of meeting the ultra-low sulfur requirement are also the refiners with the highest full incremental costs of producing diesel fuel. Note that these two components of cost are separate. The two components can be summed to give the overall cost of producing ultra-low-sulfur diesel.

The actual change in the supply curve due to environmental regulations could be very different than the results given in the API report. The API report implicitly assumes that there is a positive correlation between production costs and compliance costs, i.e., that the refinery with the highest full costs of compliance also has the highest incremental costs of production.⁷ No empirical information is given in the API report to support this implicit assumption.

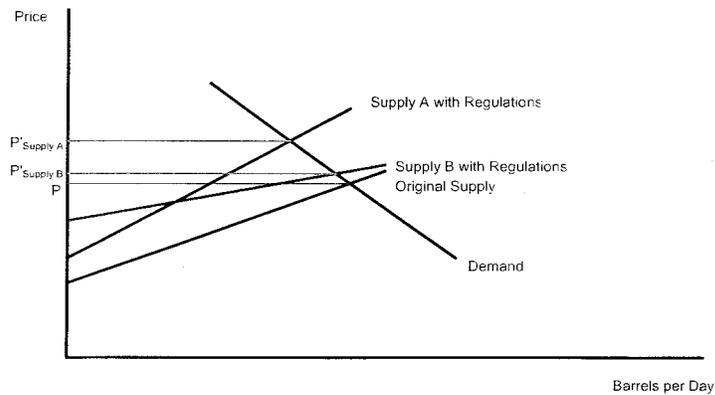
Figure 3 illustrates two extreme scenarios regarding the relationship between production costs and compliance costs.

- In Supply A, production costs and compliance costs are positively correlated; i.e., low-production cost refiners are assumed to have low compliance cost and high-production cost refiners are assumed to have high compliance costs. Under this assumption, the price increase is the largest possible. This corresponds to the implicit assumption in the API report.
- In Supply B, production costs and compliance costs are negatively correlated, i.e., low-production cost refiners are assumed to comply at high cost and high-production cost refiners are assumed to comply at low cost. Under this assumption, the price increase due to the environmental regulations is relatively small.

These illustrations do not prove that the API report assumptions are wrong, although they do indicate that the API assumptions are at one extreme. Under a less extreme assumption, the price increase due to environmental regulations would be substantially lower.

⁷ Incremental costs of production refer to the full costs that are incurred assuming that refineries have an opportunity to adjust their plant and equipment between now and 2007. This approach is consistent with the approach in the API report, which uses "full cost curves [that] approximate industry long-run marginal cost curves". See API report, p. 67.

Figure 3. Compliance Costs Could Affect the Diesel Supply Curve in Different Ways Depending Upon the Relationship Between Compliance Costs and Production Costs



C. Implications of More Plausible Assumptions

It is possible to provide some indication of the potential change in results under a less extreme assumption. As Figure 2 indicates, according to the PRISM results, compliance cost is above 8 cpg for less than 10 percent of the total capacity. If the highest 10 percent of capacity based upon compliance costs were not also the highest production cost facilities—and the original supply curve were not nearly horizontal—the likely price increase would be no more than 8 cpg.

III. THE API COMPLIANCE COST ESTIMATES IGNORE MANY OF THE POTENTIAL U.S. SOURCES OF ADDITIONAL DIESEL SUPPLY

The diesel supply curve should reflect the cost of all potential suppliers of on-road diesel fuel, including those that currently participate in the market and those that would participate or increase participation if the price were to increase. The API detailed cost analysis appears to focus on one category of potential suppliers of ultra-low-sulfur diesel fuel—

refineries that currently produce “low-sulfur” diesel fuel (500 ppm) for the on-road market—to the exclusion of other domestic suppliers. This section discusses the implications of excluding other U.S. sources from the supply analysis. (The section after this discusses the API report’s treatment of imports.)

A. Sources Included in the Domestic Diesel Supply Curve

Potential U.S. suppliers of diesel fuel oil that complies with the environmental regulations can be divided into four categories:

1. Refineries that currently produce on-road (low sulfur) diesel fuel and could modify their facilities to produce ultra-low-sulfur diesel fuel.
2. Refineries that currently produce off-road (high sulfur) diesel fuel—but not on-road (low-sulfur) diesel fuel—and could modify their facilities to produce ultra-low-sulfur diesel fuel.
3. Refineries that currently do not produce diesel fuel but could convert some existing gasoline capacity to ultra-low-sulfur diesel fuel.
4. New refineries that might be built to produce the new ultra-low-sulfur diesel fuel.⁸

The empirical analysis in the API report appears to be limited to refineries in the first category, ignoring the possibility of expansion, conversion from existing refineries and supply from new facilities.⁹ In the face of the large potential price increases projected by the API report, this restrictive assumption seems implausible. History suggests that new investment responds to regulatory requirements. The current sulfur standards for on-road diesel fuel appear to have prompted such a high level of investment in low-sulfur (500 ppm cap) diesel fuel in the early 1990s that refineries sometimes sell this fuel for off-road uses even though off-road diesel uses do not currently require it.¹⁰

⁸ No new U.S. refineries have opened in the last two decades largely because of low profitability in the industry.

⁹ See API report, p. 33, which provides the basis for PRISM investment assumptions.

¹⁰ See 65 *Federal Register* 35494 (May 17, 2000).

B. Limitations of the API Approach

The API study ignores new investments in capacity that could change substantially the likely long-run supply response to higher diesel fuel prices.¹¹ The API report claims that its projected shortfalls in domestic diesel supply are so acute—about 12 percent of on-road diesel supply in 2007—that prices will increase by 15 cpg or even more. Expectations of such high price increases would spur new investment, a factor that the API report apparently neglects. Information about the projected diesel price increases would be available to refinery managers at the time they make decisions to invest in new productive capacity. Indeed it is standard practice to assume investment responds to the best available information concerning future prices, demands, and market conditions. The Energy Information Agency (EIA) adopts this practice in its analyses.¹² The API report also indicates that the expected returns are important to managers making investment decisions.¹³ But instead of assessing how refinery managers would take advantage of this opportunity for profitable new investment, the API report states only that each refinery was evaluated and an assumption was made of its economic incentive to invest to make diesel fuel that meets the 15 ppm sulfur requirement. The API report makes no reference to the important role of expected future prices in these investment decisions.

In addition to this conceptual shortcoming, the API's approach appears to limit new investment unnecessarily. The API report uses an investment decision matrix, which specifies which plants can undertake new investment in specific equipment.¹⁴ This matrix assumes, for example, that no plant invests in a new distillate hydrodesulfurization unit unless its unit

¹¹ Our discussion of the API report focuses on their long-run projections for 2007 and beyond. The API report also appears to exclude short-term modifications to expand diesel output that could be made by refineries that are projected by API to have the capacity to produce compliant diesel fuel. As the price of diesel fuel increases, refineries would be able to modify their mix of output to produce more diesel fuel and less of other refined products. The analysis in the API report appears to exclude these possibilities and thus understates short-run supply responses. This omission suggests that the API report's projection of a 50+ cpg diesel price increase is not even plausible as a possible short-run effect.

¹² See for example, EIA, Report # SR/OIAF/98-02, Appendix A: Petroleum Market Model Methodology. At <http://www.eia.doe.gov/oiaf/servicerpt/appa.html>

¹³ See API report, p. 56, which lists perceived unacceptable returns as a reason to abandon some or all of on-road diesel production.

¹⁴ See API report, p. 33.

pressure is less than 800 pounds per square inch, regardless of the returns to such investment. Whether refineries undertake such investments in fact depends on the expected return, and not merely on the characteristics of existing capital equipment. Yet the API report assumes that these characteristics by themselves are sufficient to determine certain investment decisions.

The API approach differs sharply from that followed by the EIA, which assumes that investment responds to profit opportunities in its assessment of the costs of environmental regulations. In particular, EIA's models of petroleum markets expand capacity when the value received from additional product sales exceeds the investment and operating costs of the new unit. Capacity expansion is done in 3-year increments, so that after the model has reached a solution for forecast year 2000, the model looks ahead and determines the optimal capacities given the demands and prices existing in the 2003 forecast year. The model then allows 50 percent of that capacity to be built in forecast year 2001, 25 percent in 2002, and 25 percent in 2003. At the end of 2003, the cycle begins anew.¹⁵ The API approach lacks such a mechanism for profit opportunities to affect investment decisions.

In sum, the API approach understates domestic supply because managers likely would respond to opportunities for profit by making additional investments in capacity beyond the limited ones assumed in the API report. The proposed implementation deadline of June 1, 2006, is likely to be sufficiently distant to allow such investments in new capacity to be completed and brought on line.

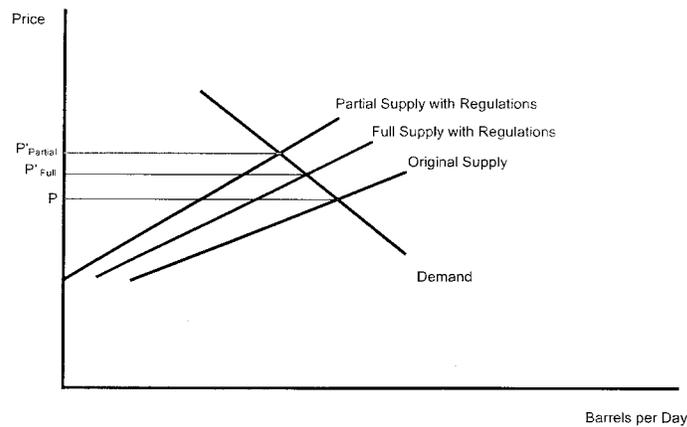
C. Implications of the API Omissions

We can illustrate the implications of excluding potential U.S. supply options using the conceptual framework in Figure 1 (which, as noted, is taken from the API report). Figure 4 shows the same demand and supply conditions as Figure 1, but adds an additional supply curve based upon the full set of possible domestic suppliers. We have relabeled the curve in the API report the Partial Supply with Regulations case to indicate that it includes only part of the potential supply response due to higher diesel prices. The curve labeled Full Supply with

¹⁵ See EIA Report #SR/OIAF/98-02, Appendix A: Petroleum Market Model Methodology. At <http://www.eia.doe.gov/oiaf/servicrpt/appa.html>

Regulations illustrates the implications of allowing other existing refineries and new refineries in the supply response. The interpretation of the rightward shift in the curve is that more supply would be forthcoming at any given price.

Figure 4. Increasing Supply Results in Smaller Price Change



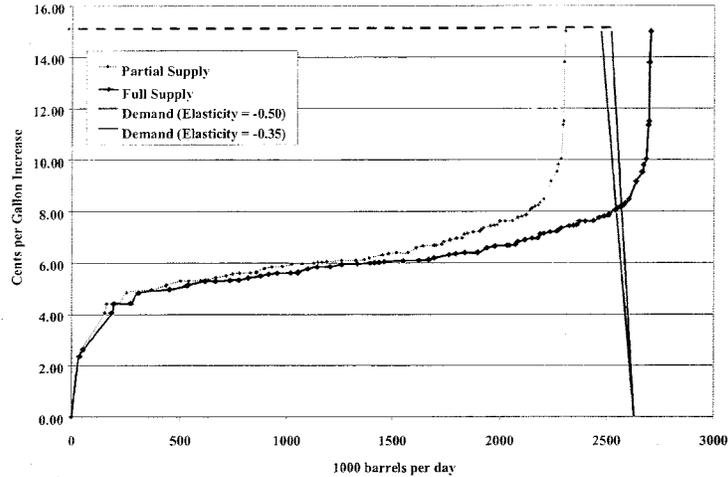
The net effect of accounting for other domestic sources of supply is to reduce the likely price impact of the environmental regulations. In Figure 4, the price increase under the Partial Supply case is $P_{\text{Partial}} - P$. In contrast, when all supply options are included, the price increase is only $P_{\text{Full}} - P$. This conceptual formulation indicates that the API report overstates the price increase due to environmental controls if some relevant supply options are excluded, although the formulation does not provide an indication of how much difference including the full range of domestic supply options might make in the price projection.

D. Implications of More Plausible Assumptions

It is possible to provide some indication of the likely empirical significance of including other domestic sources of supply, starting with the compliance cost results in the API report. As noted, the API analysis ignores supply additions from existing refineries that could be modified

to produce complying product as well as from new refineries that could be constructed to provide complying product. Figure 5 modifies the API data only by adding a Full Supply curve (i.e., a curve showing the full supply forthcoming at various price increases) including the omitted sources. The Full Supply curve results in an estimated price increase of about 8 cpg. At that price increase, the additional supply is equal to about 15 percent of the diesel fuel included in the API report. Although arbitrary, this additional supply response seems more plausible than assuming that no additional investment would be made in response to increases in expected prices.

Figure 5. More Complete Domestic Supply Reduces the Expected Price Increase



IV. THE API DEMAND AND SUPPLY ANALYSIS PROVIDES AN OVERLY PESSIMISTIC ANALYSIS OF THE EFFECTS OF IMPORTS

The supply options also should include possible responses from foreign suppliers of diesel fuel. This section reviews the implications of foreign supply sources in the U.S. petroleum market and the limitations of the API approach.

A. Implications of Foreign Supply Sources in the U.S. Diesel Market

The landed price of imported product limits possible diesel fuel price increases in the United States. The landed price takes into account production costs as well as the transportation costs of bringing foreign products to the U.S. market.¹⁶

Some foreign refineries are likely to decide to produce ultra-low sulfur diesel because diesel sales in the U.S. are already a significant part of their total sales. For example, EIA's data indicate that in 1998, the United States imported about 436,700 bbl/d of petroleum from the Caribbean, of which about 87 percent was petroleum products.¹⁷ The U.S. Virgin Islands was the largest single regional exporter to the United States (about 293,000 bbl/d of petroleum products), followed by Netherlands Antilles (nearly 70,000 bbl/d of crude oil and petroleum products), Trinidad and Tobago (nearly 59,000 bbl/d of crude and petroleum products), and Puerto Rico (over 15,000 bbl/d of petroleum products). Since a significant share of the production of these refineries goes to the U.S. it seems reasonable to presume that they will seriously consider investing in the ultra-low-sulfur production capacity in order to serve the U.S. market.¹⁸ Indeed, in 1997 the share of total distillate production shipped to the U.S. was 79 percent for the U.S. Virgin Islands. For Venezuela it was 19 percent. Unfortunately, no data on existing exports of diesel fuel *per se* are available, so we cannot assess directly how such imports of ultra-low sulfur diesel from these countries would affect the U.S. market.

In addition, several refineries are considering large-scale gas to liquid conversion projects that would provide sulfur free products. If these products were priced close to petroleum-based diesel, refineries in and outside the U.S. could use them to blend with higher sulfur diesel so as to achieve EPA's proposed standard.

¹⁶ Note that transportation costs for refined products include both potential transportation costs for the crude oil as well as transportation costs of the refined product to final users.

¹⁷ See EIA, 2000, United States Energy Information Administration, Caribbean FactSheet, February 2000, at <http://www.eia.gov/emeu/cabs/carib.html>

¹⁸ Note that it would be useful to consider the specific circumstances in other countries to assess the likely quantity and price of imported diesel fuel. It may be more or less expensive, for example, to reduce sulfur from the specific crude used in some other countries.

B. Limitations of the API Approach

The API report does not model foreign supply, although it notes that foreign supply and price-induced reductions in U.S. consumption together will have to meet any reductions in U.S. supply. The API report appropriately treats foreign supply as a factor that will mitigate price increases. But the assumption regarding the likely price of foreign products is arbitrary and pessimistic. The API report notes its assumption regarding import prices as follows:

“[I]f imports are available at a price equal to the highest full-cost domestic supply (15 cents per gallon) in unlimited quantities, then price increases can be capped at that level.” (API report, p.7)

There are three reasons why this critical assumption about foreign supply may substantially understate imports and overstate future price increases.

First, the API report’s assumption that imports are available at a price equal to the *highest* full cost domestic supply is unduly pessimistic. Foreign refineries, like U.S. refineries, will differ in the cost of desulfuring diesel fuel, and the foreign refineries most likely to respond to the U.S. mandate for ultra-low sulfur diesel are those who can produce it most cheaply. API’s analysis (See Figure 2) suggests that that average cost increase for U.S. refineries is about 6 cents per gallon, and that 90 percent of the total projected increase in supply would be forthcoming at a cost of less than 8 cents per gallon. A more reasonable assumption to use instead of API’s would be that foreign refineries could supply diesel meeting the U.S. requirements at a price equal to the average cost among U.S. suppliers. A pessimistic assumption might be that foreign supply would be forthcoming at a premium of 8 cents a gallon, a level that corresponds to the cost of ultra-low sulfur diesel for about 90 percent of the U.S. refineries that according to API would produce it. In these cases the foreign supply would be forthcoming at either 6 or 8 cents per gallon, and that would be the price increase for complying diesel, assuming all other parts of API’s analysis are valid.

Second, European and Japanese refineries may be able to export ultra-low sulfur diesel to the U.S. to the extent that local regulations require sulfur levels in diesel approximately as stringent as the 15 ppm level. Current EU diesel regulations will specify 50 ppm sulfur by 2005, but the adequacy of that level is currently being challenged, with Germany leading the

way.¹⁹ Thus the EU may issue regulations as stringent as 10 ppm sulfur or lower by 2007, going beyond EPA's proposal. Japan is also considering 10 ppm sulfur levels in diesel by 2007, and it currently has a considerable surplus in refining capacity. If regulations in EU or Japan were (approximately) as stringent as in the U.S., refineries could export diesel to U.S. markets for transportation charges that would be much less than the 15 cpg price increase forecast by API. Even if foreign sulfur regulations are not exactly as stringent as in the U.S., foreign refiners still may be able to produce significant amounts of ultra-low sulfur fuel for export to the U.S. .

Third, some refineries in the EU or Japan as well as in the Caribbean and Venezuela, when making investment decisions, may elect to acquire the hydro treating capability necessary to remove sulfur to meet the proposed EPA sulfur cap. U.S. refineries, after all, will prefer to make such investments instead of forgoing diesel sales because they anticipate that higher prices for ultra-low-sulfur diesel will offer reasonable returns to the investment. Some foreign refineries that export diesel to U.S. markets will face similar incentives and respond in the same way. Several foreign refineries export significant portions of their production to U.S. markets. Venezuela, for example, exported to the U.S. nearly 19 million of the 98 million barrels of distillate fuels that it produced in 1997. Canada exported to the U.S. nearly 31 million of the 192 million barrels of distillate fuels that it produced in 1997.²⁰ Thus for both of these countries the U.S. market provides an important share of total revenue. Moreover, swings in U.S. imports from these countries by as much as 40 percent from one year to another suggest that the flow of imports responds to economic incentives.

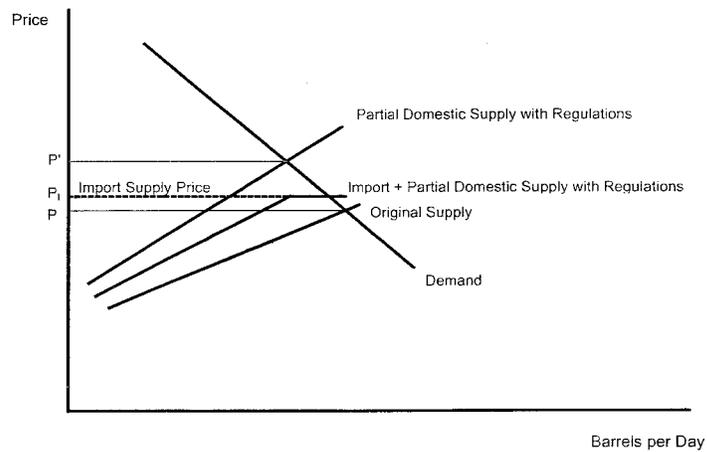
Refinery managers in these countries will have to assess whether to invest in the hydro treating capacity necessary to produce ultra-low sulfur diesel that meets EPA's standards, or whether to forgo this market. Forecasts of high prices for ultra-low-sulfur diesel several years in the future provide these managers with the incentives and the opportunity to make profitable investments that will serve to increase imports and lower projected price hikes below the range forecast by API.

¹⁹ See, "Euro Commission to Probe 5 PPM Fuel Sulfur Impact on Refining Industry." *Hart's Diesel Fuel News* Vol. 4 (No. 15). August 2000, p. 1.

C. Implications of the API Assumptions

We can illustrate the implications of imports using the same conceptual framework outlined in the API report. Figure 6 shows the same demand and supply conditions as Figure 1 but adds a price for imports. We have relabeled the curve in the API report the Domestic Supply with Regulations case to indicate that it includes only domestic supply responses due to higher diesel prices. The line labeled Import Supply Price illustrates the implications of including imports in the analysis. Since foreign countries would supply ultra-low sulfur diesel at the price P_1 , imports effectively cap the potential price increase from the environmental regulations. Supply is now the kinked curve labeled import + Partial Domestic Supply with Regulations. (Note that this analysis ignores the effects of additional domestic supply.)

Figure 6. Price at Which Imports Are Supplied Significantly Affects New Diesel Price



(...continued)

²⁰ See EIA Table "Annual International Distillate Fuel Oil Production and U.S. Imports by Country".

The net effect of accounting for potential imports is to reduce the maximum price impact of the environmental regulations. In Figure 6, the price increase under the “domestic supply” case is $P^* - P$. In contrast, when imports are included, the price increase is only $P_I - P$. This graph suggests that the API report overstates the price increase due to environmental controls—assuming that the import price is less than the maximum cost increase for domestic refineries—although the formulation does not provide an indication of how much difference including a more realistic import option might make in the price projection.

D. Implications of More Plausible Assumptions

It is possible to provide some indication of the likely empirical significance of including a more realistic import option. Figure 7 modifies the API report results by adding an assumption that the import price is equal to the price without environmental regulations plus a compliance cost increase equal to about the 90th percentile of the values for domestic refineries in the API report sample. The implication of this assumption—which seems more reasonable than assuming that imports would face cost increases equal to the very most expensive domestic refinery—would be to reduce the estimated price rise from 15 cpg reported in the API report to about 8 cpg. (Note that this calculation focuses only on the implications of imports and ignores the other difficulties with the API report, including the extreme correlation between compliance cost and production cost and disregard of additional domestic supply responses.)

V. THE API REPORT APPEARS TO INCLUDE SOME UNREALISTIC ASSUMPTIONS CONCERNING COMPLIANCE COSTS

The API report develops estimates of compliance costs that appear to include unrealistic or poorly substantiated assumptions. Two assumptions appear to overstate the impacts of the ultra-low-sulfur regulations on costs and market prices.

First, in estimating the appropriate scale for HDS units, API appears to use a conservative assumption about the capacity of the hydrodesulfurizing unit (API report, p. 34). In particular API multiplies the calendar production rate by 1.20 to determine the stream day capacity required to design the HDS unit. This assumption apparently does not take into account other technological factors such as technological advances for new technologies or

“learning by doing” effects. These developments may increase the refineries’ abilities to use the existing and new capacity.

Second, in estimating costs API uses an uncertainty cost multiplier, saying only that other studies used a range of 115 percent to 140 percent (API report, p. 35). Apart from commenting that other studies have used similar estimates, API provides no justification for these estimates. Although new technology is uncertain, plant managers can learn with experience to lower costs by making small-scale innovations; the API report appears to neglect such effects.

VI. CONCLUSIONS

The API report provides both a conceptual formulation for analyzing the potential effects of environmental regulations on the price of diesel fuel as well as empirical estimates of price increases in 2007. The empirical estimates predict that environmental regulations could boost diesel fuel prices in 2007 by more than 15 cents per gallon, with even greater possible short-term increases.

The API price projection is highly pessimistic, however, because the empirical analyses do not implement a full conceptual formulation and because the results are based upon extreme and overly pessimistic assumptions. Specifically,

- The API price projections assume that the firm with the highest cost of compliance is also the firm with the highest cost of production.
- The API price projections appear to exclude the effects of higher prices on additional domestic investment in new capacity.
- The API price projections assume that imports would only be available at the highest compliance cost reported for U.S. refineries.

It is possible to provide some indication of the possible empirical implications of these unnecessarily pessimistic assumptions. Assuming that the API report empirical estimates are accurate for the refineries that were surveyed—and as noted above, there are some reasons to question this assumption—the price rise seems likely to be 8 cpg or less. A price increase of 8 cpg would result from any one of the following assumptions:

- The 10 percent of sampled refineries with very high compliance costs are not the marginal suppliers in the market.
- The API empirical results exclude about 15 percent of the domestic supply that would be forthcoming at that price increase.
- Imports would be available at a price increase equal to the 90th percentile for the domestic refineries included in the API cost analysis.

In sum, when all of these corrections are included, the more likely scenario using the API methodology and data is that the long-run price increase due to the environmental regulations would be around 8 cpg rather than the value of 15 cpg reported in the API study. A careful and complete reassessment would lead to a more accurate and potentially different estimate.

United States Senate

WASHINGTON, DC 20510

February 20, 2001

Honorable Mitchell E. Daniels, Jr.
Director, Office of Management and Budget
Washington, D.C. 20503

Dear Mr. Daniels:

We write to ask that you halt the Administration's unwise and possibly unlawful efforts to suspend the requirement that the government not do business with chronic lawbreakers.

The Contractor Responsibility Rule, which was proposed in July 1999 and finalized in December 2000, requires that, to qualify for a government contract, a business must have a record of satisfactory compliance with federal laws, including those protecting public health, workers, consumers, civil rights, and the environment. Recent Administration attempts to grant a six-month reprieve from the obligations of this rule are contrary to the public interest and, according to a legal memorandum issued by the non-partisan Congressional Research Service, are likely unlawful.

We support the common-sense principle embodied in the Contractor Responsibility Rule that government contracts should not be awarded to companies that routinely disregard laws designed to protect workers, the public, and the environment. The Federal Acquisition Regulation has always required that contractors exhibit a satisfactory record of "integrity and business ethics." The Contractor Responsibility Rule merely clarifies that "integrity and business ethics" includes satisfactory compliance with federal laws. This rule should provide a positive incentive for voluntary compliance with a range of tax, environmental, labor, civil rights, and consumer laws. Taxpayer-funded government contracts should go to companies that obey the law, not to chronic lawbreakers.

We are particularly troubled by a coordinated effort by several departments and agencies to exempt themselves for six months from their Contractor Responsibility obligations without the thoughtful consideration required by law. Several departments and agencies have followed the course laid out in a January 31 memorandum from the Civilian Agency Acquisition Council (CAAC), by giving themselves a half-year reprieve without public notice or soliciting and considering public comment. According to published news reports, the General Services Administration, NASA, and the Departments of Transportation and Interior are among those who have suspended implementation of the rule until July 16, and more agencies are in the process of granting themselves similar exemptions.

While the CAAC memorandum expresses concern about the impact of the Contractor Responsibility Rule upon contracting agencies and their contractors, the memorandum makes no

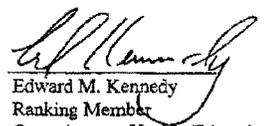
Honorable Mitchell E. Daniels, Jr.
February 20, 2001
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mention of the effect of the suspension upon any other parties or upon the public interest. For this and other reasons, the Congressional Research Service's legal memorandum (a copy of which is enclosed with this letter) states that a suspension pursuant to the CAAC memorandum "would likely be held by a reviewing court to be legally deficient on its face."

Legalities aside, it is unfair for the Administration to delay the implementation date for six months without notice or any consideration of the views of the public. The Contractor Responsibility Rule — which is the culmination of a multi-year process in which more than a thousand comments from interested parties were received and carefully considered — is a moderate and sensible reform, and we urge the Administration to implement it without further delay.

We would appreciate receiving a response, at your earliest convenience, explaining how you intend to address our concerns. Thank you very much for your consideration.


Joseph I. Lieberman
Ranking Member
Committee on Governmental
Affairs


Edward M. Kennedy
Ranking Member
Committee on Health, Education,
Labor and Pensions


Richard J. Durbin
Ranking Member
Subcommittee on Oversight of
Government Management,
Committee on Governmental
Affairs

Enclosure

cc: Al Matera
Chairman
Civilian Agency Acquisition Council
GSA Office of Governmentwide Policy



Memorandum

February 14, 2001

TO: Honorable Joseph Lieberman, Ranking Member
Senate Governmental Affairs Committee

FROM: Morton Rosenberg *MR*
Specialist in American Public Law
American Law Division

SUBJECT: Legal Sufficiency of the Suspension on January 31, 2001 of a Final Federal Acquisition Regulation on Contractor Responsibility Which Became Effective on January 19, 2000.

On December 20, 2000, the Federal Acquisition Regulatory Council (FAR Council) issued a final rule dealing with contracting officer (CO) determinations as to whether a potential government contractor has a satisfactory record of integrity and business ethics. 65 F.R. 80256. The rule became effective on January 19, 2001. The rule has been the subject of controversy since its initial proposal in July 1999. 64 F.R. 37360 (1999). See generally Nye Stevens, "The Contractor Responsibility Regulation: Need for Clarification or a Potential Blacklist?", CRS Report No. RL 30715, Oct. 20, 2000 (CRS Report). The FAR Council received over 1500 comments during a four month comment period. After consideration of the comments the Council withdrew its initial proposal. On June 30, 2000, the FAR Council issued a substantially revised proposal 65 F.R. 40830 (2000). The revised rule retained the original purpose of "clarifying that a satisfactory record of integrity and business ethics included satisfactory compliance with federal laws including tax, labor and employment, environmental, antitrust, and consumer protection laws," but added directions as to what CO's could consider in making a responsibility determination. The revised rule stated that while CO's "may consider all relevant credible information," they were to give greatest weight to decisions within the past three years involving convictions or civil judgments against prospective contractors. CRS Report at 3-4. Vigorous opposition to the proposal was voiced during the 60-day comment period and included negative views from two federal agencies heavily involved in contracting: the General Services Administration (GSA) and the Environmental Protection Agency (EPA). *Id.* at 4.

On December 22, 2000, two days after the final rule was published in the Federal Register, several business groups filed suit challenging its legality. *Business Roundtable, et al. v. United States*, D.D.C. No. 1:00 CV3088. On January 31, 2001, the Chairman of the Civilian Agency Acquisition Council (CAAC), Al Matera, issued a memorandum to all civilian agencies (other than the National Aeronautics and Space Administration (NASA)), authorizing them to suspend implementation of the new contractor responsibility rule until July 19, 2001 "or until issuance

of an appropriate FAR change, whichever occurs first."¹ In explanation, the memorandum cites the filing of the lawsuit by the business groups, notes that under Section 705 of the Administrative Procedure Act (APA), 5 U.S.C. 705, "When an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review," and concludes that "In the interest of justice, the General Services Administration believes implementation of the final rule should be voluntarily stayed." In further explanation, the memorandum states that "The effective date extension will allow the Federal Government and Federal Contractors sufficient time to meet the new obligations and responsibilities imposed by the final rule." The memorandum grants in advance permission to the heads of all civilian agencies to authorize a "class deviation" (waiver) with respect to implementation of the new rule by their agencies until July 19, 2001.

You inquire whether the CAAC's action, as reflected in its January 31, 2001 memorandum, was legally sufficient to effect the six month suspension of the contractor responsibility rule. Our examination of applicable law and precedent indicates, first, that a substantial argument may be made that the CAAC suspension was not supported by a proper showing of cause as been required the courts applying Section 705. Second, there is substantial doubt whether section 705 is the appropriate legal vehicle for an agency to use to effect the suspension of an already effective rule. Finally, it could be argued that since the rule had already gone into effect, the appropriate course of action under applicable case precedent would have been to suspend the rule through a rulemaking proceeding conducted pursuant to the requirements of 41 U.S.C. 418b and 48 CFR Subpart 1.5 (2000).

As indicated above, the first sentence of Section 705 allows an agency to grant a stay of its own actions during the pendency of a judicial challenge to such actions upon a finding that "justice so requires." The remainder of Section 705 deals with the authority of reviewing courts to postpone the effectiveness of agency action or to preserve the status of proceedings. The court may exercise this power "to the extent necessary to prevent irreparable injury." The legislative history of Section 705, and the case law elaborating the meaning of the authority granted by that provision, clearly indicate that Congress intended *both* agencies and applicants to courts to demonstrate that irreparable injury would result if a stay were not granted and to take into account the effect of postponement on other parties who might be adversely affected by a postponement. The House Report stated:

... The authority granted [by Section 705] is equitable and should be used by both agencies and courts to prevent irreparable injury or afford parties an adequate judicial remedy. Such relief would normally, if not always, be limited to the parties complainant and may be withheld in the absence of a substantial question for review. In determining whether agency action should be postponed, the court should take into account that persons other

¹ The Federal Acquisition Regulation (FAR) was established for the codification and publication of uniform policies and procedures for acquisition by all executive agencies. The FAR System consists of the FAR and agency acquisition regulations that implement or supplement the FAR. Revisions to the FAR are prepared and issued through the coordinated action of two councils, the Defense Acquisition Regulations Council (DARC) and the Civilian Agency Acquisition Council (CAAC). The chairperson of CAAC is the representative of the Administrator of General Services. The CAAC has representatives from all other civilian agencies except NASA. The two councils are tasked with coordinating revisions of the FAR. See 48 CFR 1.201-1. Civilian agency heads may authorize class deviations after consultation with the chairperson of the CAAC. 48 CFR 1.404.

than parties may be adversely affected by such postponement and in such cases the party seeking postponement may be required to furnish security to protect such other persons from loss resulting from postponement.

H. Rept. No. 1980, 79th Cong., 2d Sess. (1946), *reprinted in* Administrative Procedure Act: Legislative History, 79th Congress, 1944-46 (GPO 1946), at 277-78. See also Sen. Rept. No. 752 at 187 ("This section permits either agencies or courts, if the proper showing is made, to maintain the status quo. While it would not permit a court to grant an initial license, it provides intermediate judicial relief for every other situation in order to make judicial review effective. The authority granted is equitable and should be used by both agencies and courts to prevent irreparable injury or to afford parties an adequate judicial remedy.").

In elaborating on the grounds that a court will consider before a stay of agency action will be granted under Section 705, the courts have established a four-part test. In one of the most influential cases, the District of Columbia Circuit Court of Appeal in *Virginia Petroleum Jobbers Assoc. v. Federal Power Commission*, 259 F. 2d 921, 925 (D.C. Cir. 1958), stated that the petitioner must answer four questions: (1) Has the petitioner made a strong showing that it is likely to prevail on the merits of its appeal? (2) Has the petitioner shown that without such relief, it will be irreparably harmed? (3) Would the issuance of a stay substantially harm other parties? (4) Where does the public interest lie? In 1988, in *Washington Metropolitan Area Transit Commission v. Holiday Tours*, 559 F. 2d 841 (D.C. Cir. 1988), a D.C. Circuit panel reiterated the applicability of the *Virginia Petroleum Jobbers* to agency grants of stays, but with one modification. The *Holiday Tours* court modified that part of *Virginia Petroleum Jobbers* that requires an agency to demonstrate a challenger's "likelihood of prevailing on the merits." The panel deemed it inappropriate to require an agency to apply this part of the test to applications for administrative stays of its own actions because this would enable an agency to grant a stay only by predicting it had rendered an erroneous decision. Instead, *Holiday Tours* requires an agency to determine that "an admittedly difficult legal question" is at issue. 559 F. 2d at 844-45. Reported cases involving applications for stays of agency actions have applied *Virginia Petroleum Jobbers* as modified by *Holiday Tours*, rejecting petitions that have not met the four-part test or have failed to even address any of the four factors. See, e.g., *Special Counsel v. Campbell*, 58 MSPR 455 (1993); *Jeffrey v. Office of Personnel Management*, 28 MSPR 434 (1985); *Special Counsel v. Starrett*, 28 MSPR 372 (1985); *Social Security Administration v. Brennan*, 27 MSPR 439 (1985); *Berard v. Office of Personnel Management*, 24 MSPR 347 (1984).

As has been previously detailed, the January 31, 2001, CAAC memorandum did not address any of the four factors requisite to demonstrate the appropriateness of a grant of an administrative stay. The suspension, therefore, would likely be held by a reviewing court to be legally deficient on its face.

A further question might be raised whether Section 705 is even available to an agency to suspend an already effective rule. The legislative history is silent in this regard and we have found no reported cases involving a Section 705 stay by an agency of a promulgated rule. All have involved stays of adjudicative actions. On the other hand, Section 705 speaks of "agency action," a term that could easily encompass a completed rulemaking proceeding (of course there appears to be no question that a reviewing court could stay the effectiveness of a final rule on a proper showing). The doubt that is here raised stems from an understanding of the nature of the rulemaking process as it existed in 1946 and as it has evolved since the late 1960's. Briefly, most substantive agency rulemaking prior to the late 1960's was accomplished through adjudicatory

proceedings. The FTC, for example, would develop the law of deceptive practices through case by case adjudications, a long, arduous process. It was not until the early 1970's that the FTC first attempted to utilize the APA's notice and comment rulemaking process and received judicial approval of its action. See *National Petroleum Refiner's Assoc. v. FTC*, 482 F. 2d 672 (D.C. Cir. 1973). The notion of pre-enforcement review of agency rules was not recognized as a valid review mechanism until 1967. See *Abbott Laboratories v. Gardner*, 387 U.S. 136 (1967). Indeed, until the 1970's, notice and comment played a subsidiary role in agency decisionmaking and the courts regarded public input to a rulemaking proceeding as "instruments for the education" of the agency officials but not binding or necessary to support an agency's final decision. But since 1970, the Supreme Court and federal courts of appeal have virtually singlehandedly reshaped the structure of informal rulemaking in a series of decisions expanding the obligations of agencies and the role of reviewing courts. The result has been a transformation, without benefit of legislative amendment, of notice and comment rulemaking into a new, on-the-record proceeding that has fostered widespread public participation in the process. These developments are comprehensively treated in legal commentaries. See, e.g., Stewart, "The Reformation of American Administrative Law," 88 Harv. L. Rev. 1669 (1975); Verkuil, "The Emerging Concept of Administrative Procedure," 78 Colum. L. Rev. 258 (1978); De Long, "Informal Rulemaking and the Interpretation of Law and Policy," 65 Va. L. Rev. 257 (1979).

The relatively recent emergence of notice and comment rulemaking as the dominant agency policymaking vehicle arguably casts doubt on whether agency suspensions of final rules could have been contemplated to be encompassed by the first sentence of Section 705. In any event, since the early 1980's, APA case law has established that unilateral, indefinite agency suspensions of rules, whether those rules have become effective or not, are deemed to be rescissions of rules that require notice and comment rulemaking in order to be deemed to be valid. See, e.g., *Natural Resources Defense Council v. EPA*, 383 F. 2d 752 (3d Cir. 1982); *Environmental Defense Fund, Inc. v. Gorsuch*, 713 F. 2d 802 (D.C. Cir. 1983); *Environmental Defense Fund Inc. v. EPA*, 716 F. 2d 915 (D.C. Cir. 1983) (*per curiam*); *Natural Resources Defense Council v. EPA*, 725 F. 2d 761 (D.C. Cir. 1984). In *NRDC v. EPA*, the court reasoned that because a rule is defined as an agency statement "of future effect," the effective date is an integral substantive part of the rule, and its suspension is a modification of the rule. 683 F. 2d at 761-62. The court also relied on the substantial impact of the suspension on the public. *Id.* at 764. In 1983, the Supreme Court ruled that rescissions or modifications of substantive rules must be accomplished by a new rulemaking proceeding. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983) (*State Farm*). Thus, it is arguable that the change in the nature of informal rulemaking, and the close scrutiny that reviewing courts now give to agency actions that depart from the current rulemaking norms, lend support to the notion that the FAR rule in question cannot be simply suspended, even for a definite period, under the authority of Section 705. Indeed, there is some evidence that a court might so hold. In an unpublished opinion in *Safety-Kleen Corp. v. EPA*, 1996 U.S. App Lexis 2324 (D.C. Cir., filed January 19, 1996), a panel of the court in a *per curiam* order rejected EPA's reliance on Section 705 to stay an effective rule and vacated the administrative stay, stating: "Respondent improperly justified the stay based on 5 U.S.C. § 705 (1994). That statute permits an agency to postpone the effective date of a not yet effective rule, pending judicial review. It does not permit the agency to suspend without notice and comment a promulgated rule, as respondent has attempted to do here. If the agency determines the rule is invalid, it may be able to take advantage of the good cause exception, 5 U.S.C. § 553(b)." This unpublished ruling, of course, may not be binding precedent. But it is suggestive and appears supportive of the proposition that Section 705 stays by agencies of their own administrative actions do not reach rules that have become effective.

Under this line of reasoning, such rules must be suspended, modified or rescinded by the same process by which they were promulgated.

It is possible that an argument might be made that since matters relating to contracts are exempt from the APA's notice and comment requirements, the CAAC is under no obligation to provide public notice or opportunity for public participation for a suspension action such as that taken in the instant situation. This argument may well be rejected by a reviewing court. While there is little doubt that the "contracts" provision in 5 U.S.C. 553 (a)(2) exempts procurement regulation from the notice and comment requirements of Section 553, see *Humana of South Carolina v. Califano*, 590 F. 2d 1070, 1082 (D.C. Cir. 1978); *Essex Electro Engineers, Inc. v. United States*, 960 F. 2d 1576 (Fed. Cir.), cert. denied, 506 U.S. 953 (1992) (holding Federal Acquisition Regulations interpreting the Contracts Dispute Act were exempt from Section 553); *Munitions Carrier Conference, Inc. v. United States*, 932 F. Supp. 334, 336-37 (D.D.C. 1996) rev'd on other grounds, 147 F. 3d 1027 (D.C. Cir. 1998), it does not exempt procurement regulations from procedural requirements imposed on such rules by Congress outside of Section 553. Congress did just that in 1984 when it amended the Office of Federal Procurement Policy Act to provide specific requirements for the promulgation of procurement rules that have a "significant" effect or impact on contractors or offerors. See Pub. Law 98-577, title III, sec. 302 (e), codified at 41 U.S.C. 418 b (1994). Section 418 b (a) requires that

No procurement policy, regulation, procedure, or form (including amendments or modifications thereto) relating to the expenditure of appropriated funds . . . may take effect until 60 days after the procurement policy, regulation, procedure, or form is published for public comment in the Federal Register.

The provision also requires that the comment period last for at least 60 days and that the published notice include "a request for interested parties to submit comments on the proposal." Sections 418 b (b), (c). Under its own implementing rules, the CAAC must consider all comments received in response to a notice of proposed revision; arrange for public meetings; prepare any final revision in the appropriate FAR format and language; and must submit any final revision to the FAR Secretariat for publication in the Federal Register and printing for distribution. See 48 CFR 1.201-1 (e)(2000). See also 48 CFR 1.501 which defines "significant revisions" to include "that alter the substantive meaning of any coverage in the FAR system having significant cost or administrative impact on contractors or offerors, or significant effect beyond the internal operating procedures of the issuing agencies," and details the nature of the notice for opportunity for public comments.

The legislative history of the provision underlines the congressional concern that contractors and other interested parties were not being afforded the opportunity to present input with respect to rules that would have imposed substantive impact despite the 1972 recommendation of the Commission on Government Procurement that "criteria and procedures should be established for an effective method of soliciting the viewpoints of interested parties in the development of procurement regulations," and the directive of the Office of Federal Procurement Policy (OFPP) in May 1983 requiring all agencies to publish in the Federal Register notice of significant proposed procurement policies, regulations procedures, and forms and to allow 30 to 60 days in which to submit comments on the proposal. During floor debate on the provision, Senator Cohen observed that "[c]ompliance with OFPP's policy directive, however, has been a problem" and stated that the legislation was designed to "codify OFPP's policy for the expressed purpose of enhancing compliance." In a colloquy with the bill's floor manager and principal sponsor, Senator Weicker, Senator Cohen confirmed that the provision was meant to reach all

procurement rules that have a substantive impact on the regulated public and to cover "not only . . . proposed changes or additions to the Government-wide Federal acquisition regulation, but also to agency supplements to the FAR as well as subagency supplements on down to the lowest level." See 130 Cong. Rec. 29974-76 (1984) (statement of Senator Cohen).

In the only judicial ruling construing Section 418 b, the district court in *Munitions Carriers Conference, Inc. v. United States*, *supra*, upheld a challenge to a proposed change by the Military Traffic Management Command (MTMC) to the process of bidding for foreign military sales (FMS) shipments. MTMC had published a notice in the Federal Register stating that, in the future, carriers submitting bids for general traffic (GT) or voluntary under work would have to include FMS shipments in their bid, all at one rate. The notice effectively established a new condition precedent for carriers who would seek the government's GT and voluntary tender business: they had to agree to accept FMS work at the same rate. The plaintiff carriers challenged the notice on the ground that it did not set forth any procedure or establish a time period for public comment prior to its effective date. The court found that while the agency did not have to comply with the Section 553 notice and comment procedures because of the contract exemption, it was bound to follow the rule promulgation requirements of Section 418 b and that plaintiffs had standing to enforce compliance. 934 F. Supp. at 337-338. It rejected the agency's claim the plaintiffs had "constructive notice" of its proposal, holding that the failure to provide for a comment period as required by the statute indicated "that MTMC would abide by the terms of the Notice in spite of any comments received." *Id.* at 339. The court invoked APA principles to the effect that notice is meaningless if it is clear that an agency has no intent of considering comments. *Id.* The Court concluded that the agency's notice was inoperative for failure to provide adequate notice and comment for two reasons: "First, Section 418 b itself requires that 'no procurement regulation . . . may take effect' without proper procedures having been followed. Second, this court may set aside agency actions found to be 'without observance of procedure required by law.'" *Id.* at 340.

* * *

In its *State Farm* decision, the Supreme Court observed that heightened scrutiny is required in situations where an agency has abruptly changed a settled course of agency action: "A 'settled course of behavior embodies the agency's informed judgment that, by pursuing that course, it will carry out the policies committed to it by Congress. There is, then, at least a presumption that those policies will be carried out best if the settled rule is adhered to' . . . Accordingly, an agency changing its course by rescinding a rule is obligated to supply a reasoned analysis for the change beyond which may be required when an agency does not act in the first instance." 463 U.S. 29, 41-42 (1983). The court acknowledged that rules need not last forever. It noted, however, that

the forces of change do not always or necessarily point in the direction of deregulation. In the abstract, there is no more reason to presume that changing circumstances require the rescission of prior action, instead of a revision in or even the extension of current regulation. If Congress established a presumption from which judicial review should start, that presumption—contrary to petitioners' view—is not against safety regulation, but against changes in current policy that are not justified by the rulemaking record. While the removal of a regulation may not entail the monetary expenditures and other costs of enacting a new standard, and accordingly, it may be easier for an agency to justify a deregulatory action, the direction

in which an agency chooses to move does not alter the standard of judicial review established by law.

463 U.S. at 42.

In the instant circumstances, a reviewing court is likely to take a "hard look" at the validity of CAAC's six month suspension of the just effective contractor responsibility rule. In particular, substantial legal doubts may be raised with respect to whether CAAC made the proper showing of cause required to support an administrative stay under Section 705; whether Section 705 may be properly invoked to administratively stay agency rulemaking at all; and whether CAAC has adhered to the notice and comment requirements of Section 418 b in effecting the six month suspension of the subject rule. While the matter is not free from doubt, it is likely that a reviewing court could find the suspension legally deficient for any or all these reasons.

DAN BURTON, INDIANA
CHAIRMAN

HENRY A. WAXMAR, CALIFORNIA
RANKING MEMBER

ONE HUNDRED SEVENTH CONGRESS

Congress of the United States
House of Representatives

COMMITTEE ON GOVERNMENT REFORM
2157 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6143

Majority (202) 225-5074
Minority (202) 225-6051
March 6, 2001

The President
The White House
Washington, DC 20500

Dear Mr. President:

We write to protest the Administration's decision to stay implementation of the rule on Contractor Responsibility, Labor Relations Costs, and Costs Relating to Legal and Other Proceedings (65 FR 80255). The rule was published in the Federal Register on December 20, 2000, with an effective date of January 19, 2001.

We believe that the rule reflects good public policy and its stay is unwarranted. Simply put, the contractor responsibility rule requires that when awarding a federal contract, the government ensure that the company receiving the contract has a satisfactory record of complying with federal laws, including environmental, labor, tax, and consumer protection laws. This is a commonsense proposal which could help ensure fairness and integrity in government contracting. It would pose no problem for the vast majority of law-abiding companies which do business with the federal government.

The merits of the rule are simple but compelling. Companies which pollute our environment, endanger workers or consumers, or fail to pay taxes should not be rewarded with federal contracts.

Further, this rule is needed to clarify existing government procurement regulations. Its main portion makes clarifying revisions to the existing regulatory language of the Federal Acquisition Regulation, Part 9, regarding what constitutes a "satisfactory record of integrity and business ethics" when a contractor makes a responsibility determination. Currently, federal contracting officers are required to take that record into account, but have little guidance to help them make these determinations.

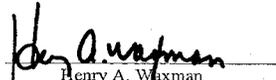
In addition to opposing the stay of the implementation of the contractor responsibility rule on its merits, we have serious concerns about the legality of the stay. The Administrative Procedure Act, 5 U.S.C. 705, is cited as giving authority for a stay of a final rule. Even if section 705 applied, however, it can be invoked only "to prevent irreparable injury." Neither the General

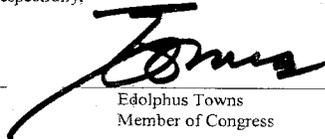
The President
 March 6, 2001
 Page 2

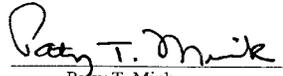
Services Administration nor the Civilian Agency Acquisition Council appear to have considered whether those seeking adjudicatory relief have the possibility of such harm. Even if such harm is established, a stay can only be invoked if it is weighed against potential harm to the public or other interested parties. Further, it is unclear whether the Administration has the authority to change the effective date of final rules unilaterally. Several court rulings hold that changes to the effective date of final rules constitute substantive action, thus requiring a notice and comment period.

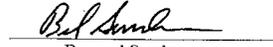
A proposal which would have had a similar effect to the stay was considered by the House of Representatives in July 2000, as part of the Treasury Postal Appropriations bill. Though narrowly adopted by the House, the provision was dropped in conference with the Senate and not included in the final bill. Adoption of this stay now would create by administrative fiat that which Congress has explicitly rejected.

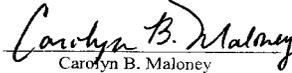
Respectfully,


 Henry A. Waxman
 Ranking Minority Member


 Edolphus Towns
 Member of Congress

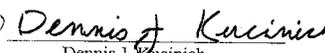

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 Dennis J. Kucinich
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The President
March 6, 2001
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FOR IMMEDIATE RELEASE

For more information: Lynn Rhinehart, 202-637-5155
Richard Greer, 202-627-5279

Statement by John J. Sweeney
President of the AFL-CIO
On the Bush Administration's Blocking of Responsible Contractor Rules
February 2, 2001

The Bush Administration has launched a secret and outrageous assault on regulations designed to make sure that taxpayer-funded projects are awarded to responsible companies -- not chronic lawbreakers.

The rules say that before rewarding a company a lucrative government contract, agencies should consider a company's record of complying with the law, including laws designed to protect working families, the public and the environment. The rules are based on the principle that tax dollars should go to responsible, law-abiding companies, not to corporations that are chronic law breakers.

The regulations blocked by the Bush Administration were shaped by a three-year process in which the public -- including business groups, contractors, environmentalists, unions, consumers and others -- provided significant comment.

Now the Bush Administration has decided to do the bidding of corporate interests opposed to the rules, putting the interests of those who supported his campaign ahead of working families. By quietly and secretly blocking the rules through a "deviation" -- without public notice or the opportunity for public input -- the Administration has in effect nullified the public policy-making process and unilaterally overturned these important new rules.

This action raises concerns about whether the Bush Administration will use similar tactics to attack other new health, safety and environmental protections. The American public deserves openness and accountability from its government. And we deserve a government willing to stand up for corporate responsibility, not chronic corporate lawbreakers.

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Each forecast has its own logic. Its champions and a past downturn to serve as its model. And, although it has only been a matter of

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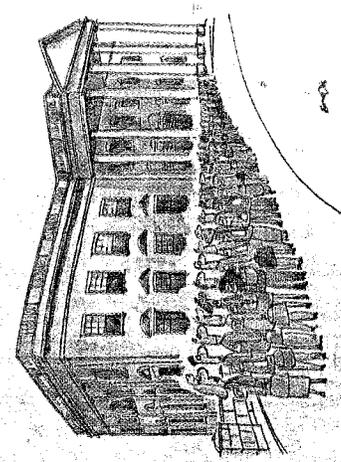
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THE REGULATORS | Bush vs. Clinton White House

Lining Up to Lobby for Rule Recision

By Chady Skarzewski
Washington Post Staff Writer



Take a number. Industry groups are lining up to make their case to the new Bush administration that rules they don't like should be killed.

Some already have had some success. Federal contractors won a reprieve late last week from a controversial new rule to have government officials consider past violations of labor, environmental and consumer laws and regulations in awarding new contracts. It became known in business circles as the "blacklisting" rule and business groups already were challenging it in court.

Last Friday, the **General Services Administration** and other civilian agencies quietly announced they would suspend it for at least six months.

Randy Johnson, vice president of labor and employees benefits for the **U.S. Chamber of Commerce**, said the action "points out how agencies themselves are unable to comply with the rule." It should be repealed, gov-

See REGULATORS, E11, Col. 1

INSIDE

Housing

Moderate-income families are the latest victims of the affordable housing crisis, says the nation's mortgage banker. *Page E2*

Washtech

NetDecide of Tysons Corner plans to sell software to banks and others to help them meet the financial advice needs of their customers. *Page E5*



Hacked Forum

Week after its annual and economic summit of Davos, Switzerland, the World Economic Forum announced it had been hacked. Computer hackers stole and stole 400 prominent people's e-mail addresses to light when the German magazine Der Spiegel revealed the names of the hackers, passport information, phone contacts of participants, who are rich and powerful. The list included former secretary of state Mead Welford, African President Thabo Mbeki and other corporate executives.

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JAN 31 2001

GSA Office of Governmentwide Policy

CIVILIAN AGENCY ACQUISITION COUNCIL LETTER 2001-1

MEMORANDUM FOR CIVILIAN AGENCIES OTHER THAN NASA

FROM: *Al Matera*
AL MATERA
CHAIRMAN
CIVILIAN AGENCY ACQUISITION COUNCIL (CAAC)

SUBJECT: Class Deviation from Federal Acquisition Circular 97-21 (Final Rule, Final Rule FAR Case 1999-010, Contractor Responsibility, Labor Relations Costs, and Costs Relating to Legal and Other Proceedings.

A final rule was published in the Federal Register on December 20, 2000 (Federal Acquisition Circular (FAC) 97-21, Federal Acquisition Regulation (FAR) Case 1999-010, Contractor Responsibility, Labor Relations Costs, and Costs Relating to Legal and Other Proceedings, 65 FR 80255). The final rule, among other things, revised the FAR guidance for making responsibility determinations and added a new certification requirement requiring the prospective contractor to certify regarding certain violations adjudicated within the last three years. An affirmative responsibility determination must be made before the award of every contract. The certification applies to all procurements over \$100,000.

The following FAR sections were affected: 9.103(b), 9.104-1(d), 9.104-3 new paragraph (c), 14.404-2(i), 15.503(a), 31.205-21, 31.205-47(a) and (b), 52.209-5, and 52.212-3(h).

The Business Roundtable, the Chamber of Commerce, the National Association of Manufacturers, the Associated General Contractors of America, Inc., and the Associated Builders and Contractors, Inc., filed a lawsuit in the United States District Court for the District of Columbia on December 22, 2000, seeking to overturn the final rule.

The Administrative Procedure Act, 5 U.S.C. 705, gives authority for a stay of the final rule: "When an agency

U.S. General Services Administration
1600 F Street, NW
Washington, DC 20465-0002
www.gsa.gov

finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review." In the interest of justice, the General Services Administration believes implementation of the final rule should be voluntarily stayed.

The FAR Council has received letters from industry and Congress requesting an effective date extension from January 19, 2001, to July 19, 2001. The effective date extension will allow the Federal Government and Federal Contractors sufficient time to meet the new obligations and responsibilities imposed by the final rule. The Federal Government has similar concerns with the 30-day effective date of the final rule.

Accordingly, civilian agencies may immediately authorize a class deviation in accordance with FAR 1.404 and 31.101 to deviate from the requirements of Federal Acquisition Circular (FAC) 97-21 (Federal Acquisition Regulation (FAR) Case 1999-010, Contractor Responsibility, Labor Relations Costs, and Costs Relating to Legal and Other Proceedings (65 FR 80255)) and immediately restore the previous FAR text including certification language. (See enclosure) The class deviation shall remain in effect until July 19, 2001 or until issuance of an appropriate FAR change, whichever occurs first. This letter serves as evidence of consultation with the Chairperson of the Civilian Agency Acquisition Council, as provided in 1.404, and approval by the Civilian Agency Acquisition Council as provided in 31.101.

Enclosure



GSA Office of Governmentwide Policy

CLASS DEVIATION FROM
FEDERAL ACQUISITION CIRCULAR 97-21
(Final Rule FAR Case 1999-010,
Contractor Responsibility, Labor
Relations Costs, and Costs Relating to
Legal and Other Proceedings)

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Contracting Officers are directed to amend solicitations already issued that incorporated a certification provision from that final rule. Instead, the previous version of the certification is to be used. Amended solicitations should use the March 1996 edition of 52.209-5, or for commercial items, the October 2000 edition of 52.212.3(h), as appropriate. Electronic versions of the FAR as it existed before FAC 97-21 is posted under "FAR (Archived) HTML" for FAC 97-20 at:

<http://www.arnet.gov/far/>

The following sections were affected: 9.103(b), 9.104-1(d), 9.104-3 new paragraph (c), 14.404-2(i), 15.503(a), 31.205-21, 31.205-47(a) and (b), 52.209-5, and 52.212-3(h).

Rationale: The final rule, among other things, revised the FAR guidance for making responsibility determinations and added a new certification requirement requiring the prospective contractor to certify regarding certain violations adjudicated within the last three years. An affirmative responsibility determination must be made before the award of every contract. The certification applies to all procurements over \$100,000.

U.S. General Services Administration
1800 F Street, NW
Washington, DC 20405-0002
www.gsa.gov

The Business Roundtable, the Chamber of Commerce, the National Association of Manufacturers, the Associated General Contractors of America, Inc., and the Associated Builders and Contractors, Inc., filed a lawsuit in the United States District Court for the District of Columbia on December 22, 2000, seeking to overturn the final rule.

The Administrative Procedure Act, 5 U.S.C. 705, gives authority for a stay of the final rule: "When an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review." In the interest of justice, the General Services Administration believes implementation of the final rule should be voluntarily stayed.

The FAR Council has received letters from industry and Congress requesting an effective date extension from January 19, 2001, to July 19, 2001.

Based on these concerns and other concerns expressed within the Federal Government, I have determined that the 30-day effective date did not give Federal contractors and the Federal Government sufficient time to meet the new obligations and responsibilities imposed by the December 20, 2000, final rule.

Consultation: In accordance with FAR 1.404 and 31.101, I have consulted with Al Matera, Chairman, Civilian Agency Acquisition Council before approving this class deviation to the FAR, who agrees with this deviation as does the Civilian Agency Acquisition Council.

Consultation: Al Matera Date: 1/31/01

Al Matera
Chairman
Civilian Agency Acquisition Council

David A. Drabkin
Date: 01/31/01
David A. Drabkin
Senior Procurement Executive
General Services Administration

Enclosure

CLASS DEVIATION FROM
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Based on these concerns and other concerns expressed within the Federal Government, I have determined that the 30-day effective date did not give Federal contractors and the Federal Government sufficient time to meet the new obligations and responsibilities imposed by the December 20, 2000, final rule.

Consultation: In accordance with FAR 1.404 and 31.101, I have consulted with the Civilian Agency Acquisition Council Chairman before approving this class deviation to the FAR, who agrees with this deviation as does the Civilian Agency Acquisition Council. The appropriate consultation and approval have been accomplished under the authority granted to the civilian agencies under Civilian Agency Acquisition Letter 2001-1.

Approved: _____ Date: _____
(Name, Title)



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February 26, 2001

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Brian Komar

The Honorable Mitchell E. Daniels, Jr.
Director, Office of Management and Budget
Eisenhower Executive Office Building
Washington, D.C. 20503

Re: "Deviation" from New Contractor Responsibility Rules

Dear Mr. Daniels:

The undersigned civil rights organizations are writing to express our unhappiness and concern with the Administration's decision to block important new regulations governing the standards of responsibility for federal contractors.

In December 2000, after two rounds of public notice and comment on proposed rules, the Federal Acquisition Regulatory Council (FAR Council) issued a final rule clarifying the standards for determining what constitutes a "responsible contractor" eligible to receive a federal procurement contract. Specifically, the final rule elaborated on the longstanding requirement that prospective contractors must have a "satisfactory record of integrity and business ethics." The new rules made clear that one element of a "satisfactory record of integrity and business ethics" is "satisfactory compliance with the law including tax laws, labor and employment laws, environmental laws, antitrust laws, and consumer protection laws." 65 Federal Register 80256-66 (Dec. 20, 2000).

These new rules stand for the basic and common sense principle that a company's track record of complying with the law is a relevant and important part of determining whether that company is a "responsible contractor" deserving of lucrative government contracts. It should be beyond debate that the government's interest is best served when taxpayer-funded federal contracts go to responsible, law-abiding companies and not corporations that regularly flout laws protecting civil rights, the environment, workplace rights, and other important rights.

"Equality in a Free, Plural, Democratic Society"

HUBERT H. HUMPHREY CIVIL RIGHTS AWARD DINNER - MAY 2, 2001



The Honorable Mitchell E. Daniels, Jr.
February 26, 2001
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Notwithstanding the modest and common sense nature of these new rules, on January 31, 2001, the chair of the Civilian Agency Acquisition Council (CAAC) authorized civilian agencies to block implementation of the new rules through a procedure unique to government contracting known as a "deviation." A "deviation" is essentially a waiver of government contracting rules. Not surprisingly, a number of civilian agencies have now issued "deviations" from the new responsible contractor rules, including the agencies responsible for the vast majority of civilian contracts, the General Services Administration and NASA. According to press reports, other agencies, including the Department of Defense, may soon follow. As a consequence, these important new rules have been suspended for six months, or until the FAR Council changes the rules, whichever occurs first.

Our concerns are two-fold. First, and most important, we are distressed that the Administration has not embraced these new rules and instead is "working as fast as we know how to undo [them]." Comments of GSA official David Drabkin, as quoted in the Washington Post (Feb. 6, 2001). We think this is a mistake. The responsible contractor rules reflect good, sensible public policy. Repealing these important rules sends a troubling message about the depth of this Administration's commitment to ensuring that federal dollars are not used to subsidize discrimination.

Second, we are troubled by the manner in which the responsible contractor rules were blocked. Rather than going through notice-and-comment rulemaking -- the process that produced these rules and the process that the law requires must be followed to modify or repeal an existing rule -- various executive branch agencies have quietly blocked the rules through a unique and secretive "deviation" device, depriving the public of any notice or opportunity to be heard on this action.

As the Director of the agency responsible for overall procurement policy, we urge you to remedy this situation. Specifically, we urge you to instruct all agencies to rescind any deviations they have issued from the responsible contractor rules, and to instruct all agencies to implement the new rules without delay. Should the Administration wish to revisit the responsible contractor rules, we ask that we have an opportunity to meet with you to discuss this issue and its importance to the civil rights community before any action is taken.

Thank you for your consideration.

Sincerely,

Dr. Dorothy I. Height
Chairperson
Leadership Conference on Civil Rights

Wade Henderson
Executive Director
Leadership Conference on Civil Rights

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Director
Religious Action Center of Reform Judaism

Anne Ladky
Executive Director
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Alan Reuther
Legislative Director
International Union, UAW

cc: Al Matera, Chairman
Civilian Agency Acquisition Council (CAAC)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
GENERAL COUNSEL

MEMORANDUM

SUBJECT: Whether the Administrator can withhold, withdraw from publication or revise a rule document that has been signed and published in the Federal Register, or otherwise disseminated, without going through further notice and comment rulemaking procedures

FROM: Gary S. Guzy *G. Guzy*
General Counsel

TO: Michael W. McCabe
Deputy Administrator

This memorandum explains the Office of General Counsel's assessment that a new rulemaking would generally be required to revise or withdraw a final rule that has been published in the Federal Register. There appears to be no legal bar to withdrawing a proposed rule document without going through further notice and comment rulemaking procedures. In contrast, the Administrator's authority to withdraw or revise a final rule document without going through additional rulemaking would turn on whether the Agency is considered to have promulgated the rule, such that the withdrawal action would in turn be considered "amending" or "repealing" the rule. If a final rule has been published in the Federal Register, withdrawal most likely would be subject to notice and comment rulemaking procedures, particularly if the rule also becomes judicially reviewable on the date it is published. However, the Administrative Procedure Act ("APA") and case law do not precisely define the point at which the document becomes a "rule" for APA purposes, and it is possible that notice and comment procedures could apply even if a withdrawal occurred prior to this point, depending on the stage of the rulemaking, the applicable judicial review provision, the authority under which the rule is promulgated, and whether the rule has been disseminated to the public prior to publication.¹

¹ This memo assumes the proposed or final rule is not being issued pursuant to a court-ordered deadline or settlement agreement. There will likely be other considerations associated with withdrawing a rule document in these instances, even if it has not been published or otherwise disseminated to the public.

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BACKGROUND - PRIOR TRANSITIONS

On two past occasions, a new EPA Administrator has been called upon to review rules recently signed by a predecessor.

In 1981, President Reagan issued Executive Order 12291. Section 7 required EPA and other agencies to suspend (except where prohibited by law) the effective date of major rules that had been "promulgated in final form" as of the date of the order, but that had not yet become effective. There are two court decisions (both dealing with EPA rules) reversing the suspension or effective suspension of published rules without notice and comment.

In Environmental Defense Fund v. Gorsuch, 713 F.2d 802 (D.C. Cir. 1983) ("EDF"), EPA decided not to call in permits under a final rule that had been published in the Federal Register. The court found that the rule had been promulgated pursuant to court order, and that EPA's action suspended the effective date of the rule and was subject to APA rulemaking procedures.

In Natural Resources Defense Council v. EPA, 683 F.2d 752 (3rd Cir. 1982) ("NRDC"), EPA suspended the effective date of a rule. Noting that the date for promulgation for judicial review purposes (i.e., two weeks after publication in the Federal Register, pursuant to EPA's race to the courthouse regulations, 40 C.F.R. part 23) had passed, the court found that EPA's action was a repeal of the rule and was subject to APA rulemaking procedures.

In 1993, Leon Panetta, Director of OMB, issued a memorandum (the "Panetta Memorandum") directing EPA and other agencies subject to Executive Order 12291 to withhold all proposed and final regulations from transmittal to the Federal Register, and to withdraw all regulations that had been sent to the Office of the Federal Register ("OFR") but had not been published and that could be withdrawn under existing OFR procedures. Unlike E.O. 12291, the Panetta Memorandum did not apply to rules that already had been published, and it did not apply to rules that had to be issued immediately because of a statutory or judicial deadline. There are two court decisions (neither dealing with EPA rules) upholding agency actions withdrawing signed rules that already had been sent to the Federal Register.

In Kennecott Utah Copper Corp. v. Department of the Interior, 88 F.3d 1191 (D.C. Cir. 1996) ("Kennecott"), DOI, in accordance with OFR procedures, withdrew a final rule document that had been sent to the OFR but had not yet been made available for public inspection or published. The court agreed that notice and comment rulemaking was not required because the document never became a rule.

In Zhang v. Slattery, 55 F.3d 732 (2d Cir. 1995), cert. denied, 516 U.S. 1176 (1996) ("Zhang"), the court upheld the withdrawal without APA rulemaking procedures of a rule

document which was withdrawn after it was made available for public inspection at the OFR and scheduled for publication but before it was published.

PROPOSED RULE DOCUMENTS

Although there are no special procedural requirements for withdrawing proposed rules that have not yet been made final, the Agency's decision may, however, be subject to judicial review and the Agency may have to provide a reasoned explanation for the decision.²

FINAL RULE DOCUMENTS

As with proposed rule documents, agencies must comply with OFR procedures when withdrawing final rule documents that have been sent to the OFR but not yet published. In contrast to proposals, however, withdrawal of signed final rule documents may also be subject to APA notice and comment rulemaking procedures. The APA, 5 U.S.C. §553, generally requires notice and comment procedures for the withdrawal or amendment of final rules.³

It is likely that once a final rule has been published in the *Federal Register*, APA rulemaking will be required to withdraw it. The two most recent cases dealing with withdrawal of rule documents during a transition, *Kennecott* and *Zhang*, both focus on the *Federal Register* publication date as a significant date for APA purposes. After a review of the case law, the D.C. Circuit observed in *Kennecott* that while there may be uncertainty about the precise date upon which a regulation is promulgated, "it is surely either the date of issuance or other formal announcement by the agency, the date of filing with the Office of the Federal Register, or the date of publication in the *Federal Register*." 88 F.3d at 1212. The *Zhang* court reasoned that the rule under review was not effective until the date of publication, and there was thus no APA "rule" to repeal until the effective date was reached by publication. See 55 F.3d at 749. Because these two cases both deal with withdrawal of a final rule document that was submitted to the OFR but not yet published, they are the most directly relevant to the fact situation that could occur at the point the Administration changes.

² See Memorandum of Larry L. Simms, Acting Assistant Attorney General, Office of Legal Counsel, "Proposed Executive Order entitled 'Federal Regulation,'" dated March 13, 1981. In the D.C. Circuit, termination of an ongoing rulemaking may be subject to judicial review based on a more deferential standard than promulgation of a new rule.

³ Section 307(d) of the Clean Air Act ("CAA") contains special procedural provisions that replace the APA notice and comment requirements for certain actions under the CAA. For purposes of this discussion, the CAA notice and comment provisions do not differ materially from the APA requirements, in that §307(d) does not explicitly define the point at which a document becomes a "rule" for purposes of withdrawal.

Defining the APA "promulgation" date as the publication date also is consistent with OER's regulations and guidance under the Federal Register Act ("FRA"), which allow agencies to withdraw documents prior to publication. Additionally, the fact that a rule becomes effective after publication does not mean that the rule can be withdrawn after publication. Two earlier cases, *NRDC* and *EDE*, reject the argument that the effective date of the rule is the APA "promulgation" date. *NRDC* also reasoned that a rule must be considered final for purposes of withdrawal if the rule is final for purposes of judicial review. 683 F.2d at 759.⁴ Thus, there is a particularly strong argument for the Federal Register publication date as the APA "promulgation" date if the rule also becomes subject to judicial review on that date.

However, the APA and case law do not definitively identify the point at which the document becomes a "rule" for APA purposes, and it is possible that a withdrawal would be subject to APA rulemaking procedures even before the final rule is published. There is some support for the position that a withdrawal could be subject to further rulemaking if it occurs after the date a rule is filed for public inspection in the OER but before publication. The date a document is filed for public inspection is significant under the FRA, which provides that "[u]nless otherwise specifically provided by statute, filing of a document . . . is sufficient to give notice of the contents of the document to a person subject to or affected by it." 44 U.S.C. §1507. As noted above, however, *Zhang* upheld the withdrawal of a final rule document that had been filed for public inspection but not yet published. Thus, *Zhang* supports the argument that a filed document can be withdrawn without further rulemaking procedures, although the case does leave some questions open.⁵

In addition, there is a considerable body of case law in which courts have decided that signing and disseminating a rule prior to publication may constitute "promulgation" for particular

⁴ The promulgation date for judicial review purposes (i.e., the first date on which the rule can be challenged in court) may be defined in statute, in EPA's "race to the courthouse" regulations at 40 C.F.R. part 23, in case law, or in the rule itself. Part 23 identifies promulgation dates for certain actions reviewable in the courts of appeals. The date varies by statutory provision, and in some instances, such as particular rules under the Clean Water Act or the Toxic Substances Control Act, the promulgation date may be two weeks after publication. Part 23 also allows EPA to provide different promulgation dates for individual actions. EPA's decision to establish a particular promulgation date is subject to judicial review and may be upheld if it is a reasonable interpretation of the statute.

⁵ The *Zhang* court did not address the validity of the OER's withdrawal procedures for rule documents. In addition, the *Zhang* court also seemed to give weight to the fact that the rule was effective upon promulgation. It is unclear how much weight should be given to the effective date, particularly because the earlier cases, *EDE* and *NRDC*, did not consider the effective date to be relevant to the question of when the rule is promulgated for APA purposes.

purposes.⁶ See, e.g., *American Mining Congress v. Thomas*, 772 F.2d 640, 645 (10th Cir. 1985) (purpose of statutory deadline for promulgation of regulations was met when EPA signed and released copies to the public on that date); *American Petroleum Institute v. Costle*, 609 F.2d 20, 24 (D.C. Cir. 1979) (based on purpose of record cut-off provision, promulgation in CAA §307(d)(6)(C) means the date the rule is signed and released to the public); *Industrial Union Dept., AFL-CIO v. Ruckelshaus*, 570 F.2d 565 (D.C. Cir. 1977) (petition for review was not premature when filed after rule was signed and announced to a limited but representative gathering of industry and union officials, but before filing with CFR); *Saturn Airways, Inc. v. Civil Aeronautics Board*, 476 F.2d 907 (D.C. Cir. 1973) (petition for review was not premature when Board had taken what it deemed to be official action and issued a press release communicating substance of action to the public). Indeed, in a 1993 Draft Memorandum, then EPA Acting General Counsel Raymond Ludwiczewski wrote that there is a "substantial" risk a reviewing court will invalidate action to revoke a final rule without notice and comment when "the substance or text of the rule has been communicated to a significant segment of the public."⁷ Furthermore, no additional APA case law has developed since the widespread advent of more efficient Internet-based means of disseminating Agency decisions. As a practical matter, these new capabilities reinforce existing case law and strongly support the argument that promulgation for APA purposes occurs prior to Federal Register publication, when the agency provides widespread notice through agency web-site posting of a rule's content.

cc: Assistant Administrators
Anna Wolgast
Associate General Counsels
Maryann Froehlich

⁶ It is very unlikely that further rulemaking would be required for a signed final rule document that is withdrawn without submitting it to the CFR and without otherwise disseminating it to the public. There is case law holding that affected parties must have knowledge of the substance of agency action before it can be considered issued for purposes of defining rights or for judicial review. See *Horseshoe Resource Development Co. v. EPA*, 130 F.2d 1090, 1093 (D.C. Cir. 1997) ("*Horseshoe*").

⁷ The argument that a rule is not promulgated when it is signed and disseminated appears strongest where a later promulgation date for judicial review purposes is clearly established in statute, case law or agency rule. *Horseshoe* expressly rejected the argument that pre-publication distribution of a signed rule constituted "promulgation" for purposes of judicial review, where the statute (in this case, RCRA §7006) provided that a rule is promulgated for judicial review purposes on the date of publication. 130 F.2d 1090, 1093-94 (D.C. Cir. 1997). However, *Horseshoe* dealt only with the question of promulgation for judicial review purposes, leaving open the question whether the same reasoning would apply to promulgation for purposes of APA notice and comment rulemaking. Thus, because the cases addressing the withdrawal of rules do not address the fact situation in which a rule is withdrawn after signature and dissemination but

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