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**Office of Energy Efficiency and
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10 CFR Part 431

**Energy Efficiency Program for Certain
Commercial and Industrial Equipment:
Interim Determinations Concerning
Petitions for Recognition as a Nationally
Recognized Certification Program for
Electric Motor Efficiency; Interim Final
Rules**

DEPARTMENT OF ENERGY**Office of Energy Efficiency and Renewable Energy****10 CFR Part 431****[Docket No. EE-RM-96-400]****Energy Efficiency Program for Certain Commercial and Industrial Equipment: Interim Determination Concerning the CSA International Petition for Recognition as a Nationally Recognized Certification Program for Electric Motor Efficiency****AGENCY:** Office of Energy Efficiency and Renewable Energy, Department of Energy.**ACTION:** Public notice of an interim determination and solicitation of comments.

SUMMARY: Today's action announces the Department of Energy's interim determination classifying the CSA International Motor Efficiency Verification Service Program as a nationally recognized certification program in the United States for the purposes of section 345(c) of the Energy Policy and Conservation Act. The Department solicits comments, data and information with respect to its interim determination prior to issuing a final determination.

DATE: Written comments, data and information, and a signed original with an electronic copy, must be received at the Department of Energy by August 5, 2002.

ADDRESSES: Comments, data and information should be labeled "Interim Determination Concerning the CSA International Petition for Recognition as a Nationally Recognized Certification Program for Electric Motor Efficiency," and submitted to: Ms. Brenda Edwards-Jones, Office of Energy Efficiency and Renewable Energy, EE-41, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-2945; Telefax: (202) 586-4617. Also, a copy of such comments should be submitted to Mr. Otto Krepps, Manager, Accreditations, CSA International, 178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3. Telephone: (416) 747-2798; Telefax (416) 747-4173.

FOR FURTHER INFORMATION CONTACT: James Raba, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Mail Station EE-41, 1000 Independence Avenue, SW., Washington, DC 20585-0121; Telephone: (202) 586-8654; Telefax:

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I. Introduction

A copy of the "Petition for Recognition of CSA International as a Nationally Recognized Certification Program for Motor Efficiency" (CSA International Petition or the Petition) was published in the **Federal Register** on April 26, 2000. 65 FR 24429. The Petition consisted of a letter from CSA International to the Department, narrative statements on five subject areas, and supporting documentation. At the same time, the Department of Energy (Department) solicited comments, data and information as to whether CSA International's Petition should be granted. The Department also conducted an independent investigation concerning the CSA International Petition pursuant to 10 CFR 431.28(f).

The supporting documents that accompanied the Petition, as well as the material CSA International subsequently submitted to the Department in support of the Petition, are available in the Freedom of Information Reading Room, U.S. Department of Energy, Forrestal

Building, Room 1E-190, 1000 Independence Avenue, SW., Washington, DC 20585-0101, telephone (202) 586-3142, between the hours of 9 a.m. and 4 p.m., Monday through Friday, except Federal holidays. Additional information about CSA International's Motor Efficiency Verification Service Program (MEVS Program or Program) and its Petition to be a nationally recognized certification program for electric motor efficiency can be obtained on the World Wide Web at <http://www.csa-international.org/welcome.html>, or from Mr. Otto Krepps, Manager, Accreditations, CSA International, 178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3; Telephone: (416) 747-2798; Telefax: (416) 747-4173; or Electronic Mail at otto.krepps@csa-international.org.

The final rule for "Test Procedures, Labeling, and Certification Requirements for Electric Motors" was published in the **Federal Register** on October 5, 1999. 64 FR 54141. It is codified in 10 CFR Part 431 in subparts A, B, E and G. It can also be obtained from the Office of Building Research and Standards, Office of Energy Efficiency and Renewable Energy, EE-41, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585-0121; Telephone: 202-586-9127; or on the World Wide Web at http://www.eren.doe.gov/buildings/codes_standards/rules/motors/index.htm.

A. Authority

Part C of Title III of the Energy Policy and Conservation Act (EPCA) contains energy conservation requirements for electric motors, including requirements for test procedures, energy efficiency standards, and compliance certification (42 U.S.C. 6311-6316). Section 345(c) of EPCA directs the Secretary of Energy to require motor manufacturers "to certify, through an independent testing or certification program nationally recognized in the United States, that [each electric motor subject to EPCA efficiency standards] meets the applicable standard." 42 U.S.C. 6316(c). Regulations to implement this EPCA directive, with respect to certification programs, are codified in 10 CFR Part 431 at sections 431.123, *Compliance Certification*, 431.27, *Department of Energy recognition of nationally recognized certification programs, and 431.28, Procedures for recognition and withdrawal of recognition of accreditation bodies and certification programs*. Sections 431.27 and 431.28 of 10 CFR Part 431 set forth the criteria and procedures for national recognition of an energy efficiency certification

program for electric motors by the Department of Energy.

For a certification program to be classified by the Department as being nationally recognized, the program must: (1) Have satisfactory standards and procedures for conducting and administering a certification system, and for granting a certificate of conformity; (2) be independent; (3) be qualified to operate in a highly competent manner; (4) be expert in the test procedure and methodology in IEEE Standard 112–1996 Test Method B and CSA Standard C390–93 Test Method (1), or similar procedures and methodologies for determining the energy efficiency of electric motors; and (5) have satisfactory criteria and procedures for selecting and sampling electric motors for energy efficiency testing. 10 CFR 431.27(b).

B. Background

Pursuant to 10 CFR 431.28, the Department is required to publish the CSA International Petition in the **Federal Register** in order to solicit comments, data and information on whether the Petition should be granted. CSA International may then respond in writing to any comments received. After review of the Petition, other applicable documents, including public comments and facts found through investigation, the Department is required to issue an interim determination and notify CSA International in writing of that interim determination. Also, the Department is required to publish its interim determination in the **Federal Register** and solicit comments, data and information with respect to the interim determination. After review of the comments and information that is submitted, the Department is required to publish in the **Federal Register** an announcement of its final determination on the Petition. See 10 CFR 431.28(a) through (f).

The Department received comments on the CSA International Petition from the following four manufacturers and one trade association with respect to the CSA International Petition: Sterling Electric, Inc. (Sterling), Baldor Electric Company (Baldor), Siemens Energy & Automation, Inc. (Siemens), GE Industrial Systems (GE), and the National Electrical Manufacturers Association (NEMA), dated May 16, May 22, May 23, May 24, and May 26, 2000, respectively. In general, Sterling, Baldor, and Siemens believe CSA International to be qualified to test and certify electric motors for energy efficiency, and favor national recognition in the United States of the CSA International Program. GE and

NEMA did not appear to state a position on national recognition, but instead commented on the appropriateness of CSA International's sampling plan. GE recommended CSA International use a process equivalent to the National Institute of Standards and Technology/ National Voluntary Laboratory Accreditation Program for determining the competency of a testing facility. NEMA asserted that the CSA International process of selecting motors for energy efficiency testing appeared to be burdensome to manufacturers.

The Department also conducted an independent investigation of the CSA International Program pursuant to 10 CFR 431.28(f).

II. Discussion

A. General

Sections 431.27(b)(1) and (c)(1) of 10 CFR Part 431 set forth criteria and guidelines for the standards and procedures for conducting and administering a certification system and for granting a certificate of conformity. As such, a certification program must have satisfactory standards and procedures for conducting and administering a certification system, including periodic follow-up activities to assure that basic models of electric motors continue to conform to the efficiency levels for which they were certified and for granting a certificate of conformity. ISO/IEC Guide 65 (discussed in 10 CFR 431.27(c)(3) and also below) sets forth the general requirements intended to ensure a certification program is operated in a consistent and reliable manner. These requirements address: (1) Impartiality; (2) sufficient personnel having the necessary education, training, technical knowledge and experience; (3) relevant procedures for sampling, testing and inspecting the product, and the means necessary to evaluate conformance by a manufacturer with those standards; (4) surveillance and periodic audits to ensure continued conformance with the applicable standards; (5) subcontracting work, such as testing, with proper arrangements to ensure competence, impartiality, and compliance with the applicable standards; (6) procedures to control records, documents and data, including review and approval by appropriately authorized personnel; and (7) control over use and display of certificates and marks of conformity.

Sections 431.27(b)(2) and (c)(2) of 10 CFR Part 431 set forth criteria and guidelines for independence. A certification program must be independent of electric motor manufacturers, importers, distributors,

private labelers or vendors. It cannot be affiliated with, have financial ties with, be controlled by, or be under common control with any such entity. Further, it should disclose any relationship it believes might appear to create a conflict of interest. ISO/IEC Guide 65 sets forth requirements for a certification program to be impartial, and have a documented structure that safeguards that impartiality. For example, each decision on certification is made by a person(s) different from those who carried out an evaluation or actual testing of the motor. Its policies and procedures must distinguish between product certification and other activities; its certification process must be free from any commercial, financial and other pressures that might influence decisions; and it must have a committee structure where members are chosen to provide a balance of affected interests.

Sections 431.27(b)(3) and (c)(3) of 10 CFR Part 431 set forth criteria and guidelines requiring that a certification organization must be qualified to operate a certification system in a highly competent manner. Of particular relevance is documentary evidence that establishes experience in the application of guidelines contained in International Standards Organization/ International Electrotechnical Commission (ISO/IEC) Guide 65: 1996, *General requirements for bodies operating product certification systems*, ISO/IEC Guide 27: 1983, *Guidelines for corrective action to be taken by a certification body in the event of either misapplication of its mark of conformity to a product, or products which bear the mark of the certification body being found to subject persons or property to risk*, ISO/IEC Guide 28: 1982, *General rules for a model third-party certification system for products*, as well as experience in overseeing compliance with the guidelines contained in the ISO/IEC Guide 25: 1990, *General requirements for the competence of calibration and testing laboratories*.

Sections 431.27(b)(4) and (c)(4) of 10 CFR Part 431 set forth criteria and guidelines requiring that a certification program must be expert in the content and application of the test procedures and methodologies in IEEE Standard 112–1996 Test Method B and CSA Standard C390–93 Test Method (1). Of particular relevance would be documentary evidence that establishes experience in the application of guidelines contained in the ISO/IEC Guide 25.

ISO/IEC Guide 25 addresses general requirements for establishing quality systems in laboratories and for recognizing their competence to carry

out specified tests. In part, these requirements address: (1) Organization and management that are free from commercial, financial, and other pressures which might adversely affect quality of work; (2) independence of judgment and integrity; (3) supervision by persons familiar with the applicable test procedures; (4) a quality system, and manual which contains procedures for control and maintenance of documents, and procedures for periodic audit and review; (5) sufficient personnel, having the necessary education, training, technical knowledge and experience for their assigned functions, and that training of its personnel is kept up-to-date; (6) all items of equipment and reference materials for the correct performance of tests, and that equipment is properly maintained and calibrated; (7) test equipment that is calibrated and verified prior to operation, and there is traceability to national standards of measurement; (8) documented instructions for the use and operation of equipment, manuals, and applicable test procedures; (9) retention of testing records with sufficient information to permit repetition of a test; and (10) where a laboratory is sub-contracted to conduct testing, that laboratory complies with the requirements contained in ISO/IEC Guide 25 and is competent to perform the applicable testing activities. An example of a "sub-contracted" laboratory would be a manufacturer's laboratory that tests motors for energy efficiency under the CSA International MEVS Program.

Also, where 10 CFR 431.27(b)(4) requires a certification program to have satisfactory criteria and procedures for the sampling and selection of electric motors, likewise, ISO/IEC Guide 25 requires the use of documented sampling procedures and appropriate techniques to select samples.

B. Application of Evaluation Criteria

1. Standards and Procedures for Conducting and Administering a Certification System

Sections 431.27(b)(1) and (c)(1) of 10 CFR part 431, and ISO/IEC Guide 65, set forth criteria and guidelines for the standards and procedures to be used in administering a certification system and granting a certificate of conformity.

The CSA International Petition asserts, in general, that its certification quality assurance program system is based on national and international accreditation requirements and specific customer requirements in order to ensure technical excellence, consistency of interpretation, application of

standards, programs and procedures, integrity of its "Energy Efficiency Marking," and continuous improvement. CSA International asserts that it has implemented the requirements specified in the ISO/IEC Guide 65. Further, CSA International asserts that it has implemented the requirements specified in SCC/CAN P-3 and SCC/CAN P-4, which the Department understands are the Standards Council of Canada equivalents of ISO/IEC Guides 65 and 25, respectively. In order to substantiate these assertions, CSA International has provided to the Department certain Divisional Quality Documents (DQDs) which contain the operating procedures and guidelines used by CSA International's staff in support of its MEVS Program.

In view of the above, the Department understands that the CSA International Program carries out the ISO/IEC Guides 65 and 25 requirements through its Quality Assurance System and DQD No. 050, "Certification Division Quality Assurance Manual," DQD No. 200, "Certification Program," DQD No. 306, "Guidelines for Handling Complaints and Disputes," DQD No. 306.1, "Customer Complaints," DQD No. 318, "Guidelines for Handling Product Incidents Investigations," DQD No. 320, "Factory Inspections," DQD No. 326, "Handling of Non-conformances," and DQD No. 327, "Corrective & Preventive Action," which provide necessary operating procedures and guidelines.

The Department's investigation found that the CSA International procedures for operating a certification system were very general in nature and could be satisfactorily applied to any certification program conducted by CSA International. This raised the issue as to whether the specific standards and procedures by which the CSA International Program operates in order to certify the energy efficiency of electric motors were adequate, properly documented, well established and maintained, understood, and in fact carried out by staff.

For example, according to section 4.8.2 of ISO/IEC Guide 65, the certification body shall establish procedures to control all documents and data that relate to its certification functions, and these documents shall be reviewed and approved by authorized personnel prior to being issued following initial development or subsequent amendment. The Department found that procedural documents used in the electric motor efficiency evaluation process, including witness testing by CSA International staff at non-CSA International facilities,

and the sampling procedure to be used, were not marked with identification numbers and information such as date of issue, sources or authorities by which the documents were issued and approved, revision numbers, or a particular page from a set of pages. Consequently, the Department requested that CSA International submit documents relevant to the motor efficiency evaluation procedure that had been processed and approved by the CSA International Engineering Quality Assurance group. CSA International complied and submitted, under a letter dated June 14, 2001, the following DQDs:

Certification Division Quality/ Management System Manual, DQD No. 050, dated October 4, 2000.
Guidelines for the Selection of Test and Measurement Equipment and Validation of Borderline Test Measurements, DQD No. 308, dated March 12, 2001.
Selection of Test and Measurement Equipment/Significant Parameters— CSA Energy Efficiency Verification Program for Three-Phase Induction Motors, DQD No. 308.01, dated March 12, 2001.
Witness Testing, DQD No. 316, dated January 22, 2001.
Electric Motor Efficiency Evaluation, DQD No. 384, dated January 23, 2001.
Application Process—CSA Energy Efficiency Verification Program for Three Phase Induction Motors, DQD No. 385, dated January 24, 2001.
Review of Work and Designation of Signatories, DQD No. 431, dated October 17, 2000.

The Department has examined the above documents and concluded that they provide evidence that the standards and procedures CSA International uses to conduct a motor efficiency verification program satisfy the requirements set forth in 10 CFR 431.27(b)(1). Nevertheless, the Department's December 20, 2001, electronic message to CSA International requested that CSA International clarify or make corrections to certain procedures and documents used in its MEVS Program. In sum, the Department requested that CSA International confirm or correct the following: (1) Confirm that DQD No. 308.01 refers to IEEE Standard 112-1996 Test Method B with the modifications described under appendix A to subpart B of 10 CFR part 431, paragraph 2 subparagraph (2); and (2) correct DQD No. 385 to refer to C390-93 Test Method (1). Also, the Department requested that CSA International submit the following documents for examination: DQD No.

305—*Quality/Management System Audit Program*; DQD No. 313—*Guidelines on Retesting*; DQD No. 332—*Document Control Procedure*; DQD No. 424—*Technical Training*; DQD No. 425—*Periodic Technical and Process Review*; and DQD No. 513—*Factory Audit Report*.

CSA International's letter, dated March 1, 2002, addressed the above matters and submitted a revised copy of DQD No. 308.01, dated February 15, 2002, to confirm the reference to IEEE Standard 112–1996 Test Method (1) as set forth under appendix A to subpart B of 10 CFR part 431, and a revised copy of DQD 385 that refers to C390–93 Test Method (1). CSA International's March 1 letter asserts that its MEVS Program operates pursuant to DQD No. 385, wherein fully qualified staff would visit each testing facility to witness the tests being performed, write a detailed report, and have the manufacturer sign an agreement to manufacture the product [motor] in accordance with the description in the report. Also, CSA International confirms that there will be a minimum of one audit visit per year by certification staff.

CSA International also submitted, with its March 1, 2002, letter, DQD Nos. 305, 313, 320, 385, 424, 425 and 513. Furthermore, CSA International stated that DQD No. 332, *Document Control Procedure*, had been withdrawn from its Quality System and the Department should refer to DQD 050 section 1.5, "Documentation System," section 6.0, "Document Control," and section 12.0, "Maintenance of Records." In view of the criteria and guidelines set forth in 10 CFR 431.27(b)(1) and (c)(1), and ISO/IEC Guide 65, the Department examined the above-referenced DQDs. In sum, DQD No. 305 sets forth procedures and guidelines for staffing, organizing, and conducting audits of the CSA International quality system, including technical audits of testing facilities in accordance with ISO/IEC Guide 25. DQD No. 313 sets forth procedures and guidelines for witness retesting to ensure continued compliance with, for example, motor efficiency standards. DQD No. 320, *Factory Inspections*, sets forth guidelines for scheduling and conducting factory audits. DQD No. 385, *Electric Motor Efficiency Evaluation*, sets forth the process for evaluating the energy efficiency of three-phase induction motors and applies both to the regulations in Canada and the United States, including the scope, sampling methods, test procedures, alternative efficiency determination methods, and efficiency levels in 10 CFR part 431. DQD No. 424, *Technical Training*, sets forth the policy and

guidelines for the training of technical staff, which is an ongoing activity that is monitored, evaluated and documented in the individual's training record. DQD No. 425, *Periodic Technical and Process Review*, sets forth guidelines to ensure that technical, administrative and quality records are maintained and periodically reviewed by management. DQD No. 513 is a facility audit report form with provisions for sampling and compliance with standards. In addition, CSA International submitted DQD No. 510.02, *List of Fully Qualified Project Holders for the Motor Energy Verification Program*, dated February 28, 2002, and DQD No. 050, revised November 30, 2001, *CSA International Quality Management System Manual*, that supersedes DQD No. 332. CSA International's March 1, 2002, letter confirms that all compliance and follow up testing is witnessed by technically qualified staff.

The Department has examined the Petition and all other documents described above, and concludes that the standards and procedures CSA International uses to conduct its MEVS Program satisfy the requirements set forth 10 CFR 431(b)(1) and (c)(1), and the guidelines contained in ISO/IEC Guide 65.

2. Independence

Sections 431.27(b)(2) and (c)(2) of 10 CFR Part 431, and ISO/IEC Guide 65, set forth criteria and guidelines for impartiality.

Under Section 2 of its Petition, entitled "CSA International," CSA International provides an overview of its history and a copy of its incorporation document, by-laws, annual report and an organization chart. CSA International asserts that it is an independent organization, has no affiliation with manufacturers or suppliers of products submitted for certification, and provides a copy of its "Statement of Independence" to substantiate these claims. However, the Department understands that the CSA International Standards Division administers the development of voluntary consensus standards for safety matters that involve participation from electric motor manufacturers, while the Certification Division and Quality Management Institute provide conformity assessment programs that carry out laboratory testing certification and inspection of electric motors.

The Department's May 14, 2001, letter requested that CSA International submit to the Department any documents that set forth the policies and procedures that provide assurance of CSA

International's independence from any relationship with a manufacturer, importer, or supplier which might create a conflict of interest with its MEVS Program. Also, the Department requested that CSA International provide an explanation as to why a direct or indirect relationship with a motor manufacturer, importer, or private labeler through (a) the combined energy efficiency and product safety certification processes, (b) status as a "Certification Member," (c) membership on a CSA International technical or standards development committee, or (d) shared certification whereby a manufacturer could perform unwitnessed motor testing and submit a certification report to CSA International, would not compromise CSA International's independence or bias information presented to CSA International for the purposes of compliance with 10 CFR 431.27(b)(2).

CSA International submitted, under a letter dated June 14, 2001, the following documents of policy and procedures as further evidence of its independence from manufacturers, importers, distributors, private labelers or vendors: *Corporate Policy Manual*, dated December 1, 1996.

Certification Division Policies and Practices Manual, dated February 1999. *Standards of Business Conduct*, dated May 1993.

Annual Report 2000. Statement of Independence, signed by the Vice President, Corporate Secretary of CSA International and a Commissioner of Oaths and Notary Public, Province of Ontario, Canada, dated June 4, 1998.

The Department has examined the above documents and concludes that they provide sufficient evidence that the CSA International MEVS Program meets the requirements for independence which are set forth in 10 CFR 431.27(b)(2), and (c)(2). Its MEVS Program meets the guidelines for the objectivity and impartiality of technical persons and committees which are set forth in ISO/IEC Guide 65, including freedom from commercial pressures that might influence the results of the certification process, an organizational structure that provides a balance of affected interests, and procedures that assure each decision on certification is made by a person(s) different from those who carried out an efficiency evaluation or actual testing of a motor. Furthermore, CSA International's MEVS Program meets the ISO/IEC Guide 25 requirements for organization and management to ensure confidence that its independence of judgement and integrity are maintained at all times.

3. Operation of a Certification System in a Highly Competent Manner

Sections 431.27(b)(3) and (c)(3) of 10 CFR Part 431 require that the petitioner demonstrate that its certification program operates in a highly competent manner by establishing its experience in the application of certain ISO/IEC Guides, including ISO/IEC Guides 65, 27 and 28, as well as experience in overseeing compliance with the guidelines in ISO/IEC Guide 25.

Section 3 of the CSA International Petition, "Certification Division Quality Assurance Manual," states that "CSA International has implemented the requirements specified in ISO/IEC Guide 65, General requirements for bodies operating product certification systems." Furthermore, CSA International asserts that its Quality Assurance system is based, in part, on ISO/IEC Guide 25. Also, CSA International asserts that it has both implemented the requirements specified in SCC/CAN P-3 and SCC/CAN P-4, which the Department understands are the Standards Council of Canada equivalents of ISO/IEC Guides 65 and 25 respectively.

a. General Operating Requirements (ISO/IEC Guide 65)

The Department's letter to CSA International, dated May 14, 2001, requested evidence that, at a minimum, the initial determination as to whether an electric motor is in compliance with 10 CFR 431.42(a) is in fact witnessed by CSA International staff and procedures are in place for regular quality audits of all inspections and testing.

CSA International submitted, by letter dated June 14, 2001, the following documents of policy and procedures as further evidence of its competency and expertise in operating a certification system: *Certification Division Policies and Practices Manual*, dated February 1999; *Certification and Testing Services Brochure*; DQD No. 050—*Certification Division Divisional Quality/Management System Manual*, October 4, 2000; *Application for CSA Certification Services Agreement Form*; and DQD No. 301—*Guidelines for Certification Division Representation on Standards Committees*, dated March 31, 2001.

Also, CSA International submitted a copy of DQD No. 385, *Application Process—CSA Energy Efficiency Verification Program for Three Phase Induction Motors*, Attachment 1, paragraph 6, "Qualification of a Manufacturers Testing Facilities," and paragraph 12, "Follow-up Visits," which set forth guidelines for initial and subsequent evaluation of a

manufacturer's testing facility. The Department understands that CSA International uses these guidelines in conjunction with DQD No. 316, *Witness Testing*, whereby qualified CSA International technical staff evaluate a manufacturer's motor testing laboratory and witness the testing of a motor for energy efficiency.

Also, the Certification Division of CSA International, in its June 14 letter, asserts that procedures are in place for regular quality inspections. Further, CSA International submitted DQD 385, Attachment No. 1, "Guide to the CSA Energy Efficiency Verification Service," that states in paragraph 12.1 "a minimum of one visit to each manufacturing plant will be carried out each year."

The Department believes that the above documents provide evidence that procedures are in place for initial compliance testing that is witnessed by CSA International staff, and procedures are in place for regular quality inspections of manufacturers' facilities. Nevertheless, the Department's electronic message to CSA International, dated December 20, 2001, requested that CSA International confirm that all compliance and follow-up testing of motors for energy efficiency is witnessed by a technically qualified CSA International representative.

CSA International's letter, dated March 1, 2002, confirms that "all compliance and follow-up testing is witnessed by technically qualified staff." Further, CSA International submitted as evidence revised DQD No. 385, *Electric Motor Efficiency Evaluation*, dated February 28, 2002, and DQD No. 510.02, *List of Fully Qualified Project Holders for the Motor Energy Efficiency Verification Program*, dated February 28, 2002, to substantiate its assertion of witness testing. The Department has examined the above documents and concludes that the standards and procedures CSA International uses to conduct its MEVS Program satisfy the requirements for training, expertise, and experience in operating a certification system which are set forth in 10 CFR 431.27(b)(3) and (c)(3), and ISO/IEC Guide 65.

b. Guidelines for Corrective Action in the Event of Misapplication of a Mark of Conformity (ISO/IEC Guide 27)

ISO/IEC Guide 27 identifies procedures which a certification program should consider in response to a reported misuse of its registered mark of conformity. According to paragraph 1.1(a) of ISO/IEC Guide 27, "misuse" may take a variety of forms, such as a mark of conformity appearing on a non-

certified product. The Department construes this to mean the unauthorized use by a manufacturer or private labeler of the CSA International Motor Efficiency Verification Marking (Marking) on an electric motor, such as the use of a counterfeit Marking. Under ISO/IEC Guide 27, the certification program would then be required to have strong corrective procedures in place. Such corrective measures would depend upon the nature of the misuse and the desire by the certification program to protect the integrity of its mark.

The Department has examined the CSA International *Certification Division Policies and Practices Manual* and finds that it contains rules for authorized use of the CSA International Marking, and procedures that address unauthorized representation of certification of a product or process, and the measures that CSA International would take to protect the integrity of its Marking. Also, the Department has examined sections 15.0, "Control on Non-conformances," and 16.0, "Corrective and Preventive Action," contained in the CSA International *Quality Management System Manual*, DQD 050, revised November 30, 2001. These sections establish policies and procedures to control CSA International services, within the CSA International "Quality Management System," which do not conform to the specified requirements, prevent their unintended use, establish a system for taking appropriate actions to resolve actual or potential non-conformances, and apply suitable corrective and preventive actions. The Department concludes that the CSA International Program satisfactorily follows the guidelines for corrective action to be taken by a certification organization in the event of misapplication of a mark of conformity to an electric motor, set forth in 10 CFR 431.27(c)(3) and ISO/IEC Guide 27.

c. General Rules for a Model Third-Party Certification System for Products (ISO/IEC Guide 28)

ISO/IEC Guide 28 addresses minimum guidelines for a third party certification system in determining conformity with product standards through sample selection, initial testing and assessment of a factory quality management system, follow-up surveillance, subsequent testing of samples from the factory, and the use of a mark of conformity. Furthermore, ISO/IEC Guide 28 requires a certification program operating at a national level, such as under section 345(c) of EPCA which requires manufacturers to certify compliance through a "nationally recognized" certification program, to

have a suitable organizational structure and utilize personnel, equipment, and operating procedures that comply with the criteria for a testing laboratory in ISO/IEC Guide 25.

Consistent with the above ISO/IEC Guide 28 guidelines, Section 4 to the CSA International Petition, "CSA International's Motor Efficiency Verification Program," describes the CSA International MEVS as depending upon: (1) Satisfactory evaluation, sampling and testing to determine that the requirements of the applicable standard, for example CSA Standard C390-93, are met on a continuing basis; (2) identification of the critical features that affect motor efficiency; (3) initial motor qualification testing and follow-up retesting to ensure continued compliance; (4) continued access to a manufacturer's facilities and records, product retesting and challenge testing; (5) annual follow-up inspections; (6) proper authorization to apply the CSA International Motor Efficiency Verification Service Marking; and (7) corrective action when a motor fails to comply.

In view of the above ISO/IEC 28 criteria, the Department examined the CSA International *Certification Division Policies and Practices Manual*, dated February 1999, *Quality Management System Manual*, DQD No. 050, dated November 30, 2001, *Management System Audit Program*, DQD No. 305, dated October 31, 2001, *Guidelines on Retesting*, DQD No. 313, dated November 19, 1999, *Selection of Test and Measurement Equipment/Significant Parameters—CSA Energy Efficiency Verification Program for Three-Phase Induction Motors*, DQD No. 308.1, dated February 15, 2002, *Factory Inspections*, DQD No. 320, dated January 27, 1999, *Electric Motor Efficiency Evaluation*, DQD No. 385, dated February 28, 2002, *Periodic Technical and Process Review*, DQD No. 425, dated October 3, 2000, and *Facility Audit Report*, DQD No. 513, Revision A. The Department finds that, in general, both ISO/IEC Guide 28, and the above-referenced CSA International documents address: (1) The basic conditions and rules for a manufacturer to obtain and retain a certificate of conformity or mark of conformity; (2) initial inspection of a motor factory and a manufacturer's quality management system; (3) sample selection; (4) initial testing; (5) product evaluation; (6) surveillance; (7) identification of conformity in the form of a certificate of conformity or mark of conformity; (8) withdrawal of a certificate or mark of conformity by the certification program; and (9) guidelines on corrective action

for misuse of a certificate or mark of conformity. The Department concludes that the CSA International Program satisfies the general guidelines for a model third-party certification system in 10 CFR 431.27(c)(3), and the guidelines set forth in ISO/IEC Guide 28.

The above-referenced DQD No. 050, *Quality Management System Manual*, DQD No. 385, *Electric Motor Efficiency Evaluation*, and DQD No. 308.01, *Selection of Test and Measurement Equipment/Significant Parameters—CSA Energy Efficiency Verification Program for Three-Phase Induction Motors*, provide general policies, practices and procedures that govern the conformity assessment services, and, in particular, those that relate to the electric motor efficiency certification program. The CSA International *Quality Management System Manual* addresses, for example, "Quality System," "Standards of Conduct," "Organization," "Periodic Technical and Process Review," "Audit Program," "Staff Training," "Inspection, Measuring and Test Equipment," "Maintenance of Records," and "Certification and Testing Programs and Services." The *Electric Motor Efficiency Evaluation* addresses, for example, "Operational Rules/Procedure," "Evaluation," "Qualification of Manufacturers Test Facilities, Test Audit," "Marking Authorization," "Follow-up Visits," "Product Retesting," "Electric Motor Efficiency Evaluation Procedure," "MEEV—Sampling Procedure for U.S.," and "Plan and Procedure Relative to Alternative Efficiency Determination Methods (AEDMs)." *Selection of Test and Measurement Equipment/Significant Parameters—CSA Energy Efficiency Verification Program for Three-Phase Induction Motors* addresses, for example, the requirements of IEEE Standard 112-1996, Test Method B, with the modifications described under appendix A to subpart B of 10 CFR Part 431, the National Institute of Standards and Technology (NIST) Handbook 150-10 entitled, *Efficiency of Electric Motors*, and CSA C390-93 when selecting test and measurement equipment.

The Department has examined the contents of these manuals and concludes that they satisfy the guidelines for conducting a model third-party certification program at the national level as applicable under 10 CFR 431.27(c)(3) and ISO/IEC Guide 28.

d. General Requirements for the Competence of Testing Laboratories (ISO/IEC Guide 25)

(1) Operating Procedures

Third party certification programs must have experience overseeing compliance with the guidelines contained in ISO/IEC Guide 25. ISO/IEC Guide 25 sets out the general requirements by which a laboratory must operate if it is to be recognized as competent to carry out specific tests.

According to Section 3 of the CSA International Petition, "Certification Division Quality Assurance Manual," CSA International's "Quality Assurance" system is based on national and international accreditation requirements, one of which is ISO/IEC Guide 25. In view of ISO/IEC Guide 25, the Department examined the procedures and guidelines contained in CSA International's *Quality Management System Manual*, DQD No. 050, and the above DQD Nos. 385, 308.01 and 316 as they apply to the evaluation of an electric motor testing facility.

The Department finds that DQD No. 050 establishes the general policies, standards of conduct, procedures, guidelines and organization requirements for CSA International's quality program. These are based on national and international accreditation requirements such as ANSI Z34.1, *American National Standard for Certification—Third Party Certification Program*, EN 45004, *General Criteria for the Operation of Various Types of Bodies Performing Inspection*, ISO/IEC 17025, *General Requirements for the Competence of Testing and Calibration Laboratories*, ISO/IEC Guide 65, *General Requirements for Bodies Operating Product Certification Systems*, and NIST Handbook 150, *National Voluntary Laboratory Accreditation Program (NVLAP)—Procedures and General Requirements*. Furthermore, the Department finds that the Standards Council of Canada¹ lists CSA International as an accredited certification body in the area of its Energy Efficiency Verification Service and specifically identifies CSA C390, "Energy Efficiency Test Methods for Three-Phase Induction Motors," which adds credence to the evidence that CSA International operates its certification program in a highly competent manner, including overseeing compliance with the guidelines contained in ISO/IEC Guide 25 to test electric motors for energy efficiency.

The Department finds that DQD No. 385 establishes the guidelines for CSA International's operation of its motor

¹ The Standards Council is a federal Crown corporation which has the mandate to coordinate and oversee the efforts of the National Standards System in Canada.

energy efficiency evaluation process in the United States pursuant to 10 CFR Part 431, including the test procedures, alternative efficiency determination methods, and sampling procedures in 10 CFR 431.23 and 431.24. Under DQD No. 385, a manufacturer's motor testing facility is required to have adequate controls in place to ensure manufacturing consistency and consistent product performance with respect to energy usage. Also, the testing facility is examined for the type and accuracy of test equipment, calibration, test procedures and measurement techniques, a system for documenting test results, and staff training. The Department finds that under DQD No. 385, the CSA International sampling procedure adheres to the sampling procedure in 10 CFR 431.24(b). Also, DQD No. 385 requires periodic audit of the test facility and calibration system. A minimum of one visit per year to a manufacturing plant is carried out by CSA International staff to monitor product control measures and testing facilities, and to conduct retesting. Furthermore, DQD No. 385 sets forth procedures that address Alternative Efficiency Determination Methods (AEDMs) in order to reduce testing burden and accommodate the large number of motors a manufacturer would produce. The CSA International procedures essentially follow the procedures for the substantiation of an AEDM as provided in 10 CFR 431.24(a)(3). The Department understands that CSA International uses these guidelines in conjunction with DQD No. 316, whereby qualified CSA International technical staff evaluate a manufacturer's motor testing laboratory and witness the testing of an electric motor for energy efficiency.

The Department finds that DQD No. 308.01 establishes guidelines that follow the requirements of IEEE Standard 112-1996 Test Method B, CSA Standard C390-93, and NIST Handbook 150-10, *Efficiency of Electric Motors*, when selecting test and measurement equipment that would be utilized for testing electric motors under the CSA Motor Efficiency Verification Service Program. These are the same procedures identified in 10 CFR 431.23.

The Department finds that DQD No. 316, *Witness Testing*, provides guidelines for evaluating and monitoring the capability of a testing facility, such as a manufacturer's motor efficiency testing facility for performing tests that are witnessed by CSA International technical staff. Under DQD No. 316, a motor manufacturer's testing facility is evaluated according to (1) the scope of the standard and test method

that it utilizes, for example CSA Standard C390, (2) the technical capability of testing facility staff, ongoing training of that staff and maintenance of personnel records, (3) suitability of the testing environment, (4) suitability and accuracy of the test equipment that is to be used, (5) the system for calibrations and control of test methods, and (6) traceability of calibration to national standards. Also, DQD No. 316 requires examination of the manufacturer's quality system, proper supervision and control of testing, documentation control, and retention of records.

In addition to examining the underlying documentation that establishes the policies and procedures of the CSA International quality system and operating procedures for evaluating electric motors, the Department directly compared the requirements in ISO/IEC Guide 25 with CSA International's MEVS Program as it would apply to a manufacturer's motor testing laboratory under a certification program and found them to be consistent with each other. The Department found, for example:

- ISO/IEC Guide 25 sets forth requirements for organization and management of a testing laboratory to ensure proper supervision and integrity of data. Similarly, the CSA International Program requires examination of the manufacturer's quality system, proper supervision and control of testing, documentation control, and retention of records.

- ISO/IEC Guide 25 requires a manufacturer's testing laboratory to have a quality system with documented policies and procedures, such as for the organization and operation of a testing laboratory, traceability of measurements, calibration of equipment, test procedures used, procedures for corrective actions and audits. Similarly, the CSA International Program requires use of the test procedures and calibration of equipment set forth in 10 CFR 431.23 and the requirements of IEEE Standard 112-1996, Test Method B, with the modifications described in appendix A to subpart B of 10 CFR Part 431, and CSA Standard C390-93. In addition, the CSA International Program requires use of the quality system set forth in NIST Handbook 150-10 when selecting test and measurement equipment, meeting significant calibration parameters for electric motor efficiency evaluation, and having traceability of calibrated equipment to national standards. Also, the CSA International Program requires periodic audits of the test facility and calibration system, whereby a minimum of one visit per year to a manufacturing plant is carried out by CSA International

staff to monitor product control measures and testing facilities, to conduct retesting, and to take any corrective actions.

- ISO/IEC Guide 25 requires a manufacturer's testing laboratory to have sufficient personnel having the necessary education, training, technical knowledge and experience. Similarly, the CSA International Program evaluates the technical capability of the testing facility staff, staff training, and maintenance of personnel records.

- ISO/IEC Guide 25 requires the proper environment and equipment for performance of testing, and that such equipment is properly maintained and calibrated. Similarly, the CSA International Program requires the proper environment for testing, control of test methods, and suitable equipment that is accurate and properly calibrated and traceable to nationally recognized standards of measurement.

- ISO/IEC Guide 25 requires the testing laboratory to maintain a record system of original observations, calculations, reference to sampling procedures, and derived data sufficient to permit repetition of a test. Similarly, the CSA International Program requires that the test procedures be under documentation control, and that test records be current and properly maintained. Also, the CSA International sampling procedure is consistent with the sampling procedure set forth in 10 CFR 431.24(b).

- Both ISO/IEC Guide 25 and the CSA International Program require test reports that contain similar information.

In view of these comparisons, the Department believes that CSA International's MEVS Program satisfies the requirement of 10 CFR 431.27(c)(3) for documentary evidence that establishes experience in operating a certification system and overseeing compliance with the guidelines for competence contained in ISO/IEC Guide 25 to test electric motors for energy efficiency.

(2) Testing Laboratory

Under Section 1, "Designated Testing Facility," of the CSA International Petition, it is stated that "as part of CSA International's Motor Energy Efficiency Verification Program we are using our Toronto test facility," and that "the facilities of Toronto are used for testing the full range of motors up to 50 horsepower." Also, under Section 3, "Certification Division Quality Assurance Manual," of the CSA International Petition, CSA International asserts that its Quality Assurance system is based, in part, on ISO/IEC Guide 25 and SCC/CAN P-4 that is the

Standards Council of Canada equivalent of ISO/IEC Guide 25.

GE Industrial Systems' comments, dated May 24, 2000, recommend that a test facility, such as the ones used by CSA International which test motors for energy efficiency, should be established and maintained by a process equivalent to the National Institute of Standards and Technology/National Voluntary Laboratory Accreditation Program (NIST/NVLAP) as set forth in the NIST Handbook 150-10, "Efficiency of Electric Motors." Also, GE Industrial Systems recommends that any organization that certifies the energy efficiency of electric motors participate in the NIST/NVLAP proficiency testing program in order to understand, document, and make known any variations among participating testing facilities.

The Department's investigation found that the CSA International testing facility in Toronto was not fully operational at the time of the CSA International Petition, and that the CSA International Program relies heavily on the manufacturer to provide most of the test data, including data for initial qualification based on sampling and testing motors for energy efficiency, that are not witnessed by CSA International staff. Nor was there clear evidence of what quality control exists for monitoring the validity of motor efficiency testing by a manufacturer. Also, it appeared that the CSA International Program lacked sufficient staff to perform all the annual follow-up inspections, bi-annual retesting, cross-testing every three years, unannounced retesting, and challenge testing which it claimed would occur. The Department's May 14, 2001, letter requested that CSA International submit information concerning its Toronto motor testing facility, its oversight of testing performed at a motor manufacturer's facility, and procedures for regular quality audits of all inspections and testing for motor efficiency.

The Certification Division of CSA International, in its June 14, 2001 letter, asserts that the Toronto test facility is fully operational, initial compliance testing is witnessed by CSA International staff, and that procedures are in place for regular quality inspections of a manufacturer's motor testing laboratory. In view of the June 14 letter, the Department understands that CSA International uses the Laboratoire des technologies electrochimiques et des electrotechnologies d'Hydro-Quebec (LTEE) for testing motors over 50 horsepower, and acknowledges that the CSA International test laboratory in Toronto is capable of testing motors up

to 50 horsepower. Also, the Department understands that LTEE, although not officially listed in the NIST/NVLAP 2001 Directory, participates in the NIST/NVLAP Proficiency Testing Program.

Section 431.27 of 10 CFR Part 431 does not require a certification program to actually operate its own motor testing laboratory, nor is a laboratory operated or observed by a certification program required to be accredited. Nevertheless, the Department believes that a testing facility operated or observed by a certification program should follow the guidelines in ISO/IEC Guide 25 and in principle be reasonably close to conforming to the technical requirements of an accredited laboratory. The Department understands that, in general, the evaluation of a motor testing laboratory under an accreditation program includes an on-site assessment, proficiency testing, audit of a laboratory's policies and operational procedures, review of staff qualifications, checks of proper maintenance and calibration of test equipment, and records review. Likewise, the evaluation under the CSA International Program includes evaluation of the manufacturer's testing facility, control and maintenance and calibration of test equipment, factory audits for continued compliance, document control, periodic audits of the operational and technical consistency of the program, control of non-conformances, staff training, and witness testing. The Department believes that the goal of a third party certification program is to provide assurance that test results are accurate, valid, and capable of being replicated. Tests must be performed with a degree of oversight so that the results are not influenced by marketing and production concerns. The Department believes that the CSA International Program, while not identical to a laboratory accreditation program, nevertheless satisfactorily follows the ISO/IEC 25 Guidelines.

4. Expertise in IEEE Standard 112-1996 Test Method B and CSA Standard C390-93 Test Method (1)

Sections 431.27(b)(4) and (c)(4) of 10 CFR Part 431 set forth evaluation criteria and guidelines whereby personnel conducting a certification program should be expert and experienced in the content and application of IEEE Standard 112-1996 Test Method B and CSA Standard C390-93 Test Method (1), or similar procedures and methodologies for determining the energy efficiency of electric motors. The program must have satisfactory criteria and procedures for

the selection and sampling of electric motors tested for energy efficiency, and provide documents that establish experience in applying the guidelines for confidence in testing laboratories contained in ISO/IEC Guide 25. Such guidelines address quality audits and reviews, personnel, equipment, test methods, sampling, and records.

Section 3, "Certification Division Quality Assurance Manual," of the CSA International Petition, states that its Quality Assurance system is based on national and international requirements that include ISO/IEC Guide 25. The Department understands that section 6, "Personnel," of ISO/IEC Guide 25 sets forth general requirements for the training, technical knowledge, and experience of testing laboratory personnel. In sum, it states that the testing laboratory shall have sufficient personnel, having the necessary education, training, technical knowledge and experience for their assigned functions; training of personnel is kept up-to-date; and records on relevant qualifications, training, skills, and experience of the technical personnel shall be maintained.

The Department's investigation found that the technical qualifications of the CSA International staff involved in the MEVS Program were very limited with regard to electric motor construction, performance, and efficiency testing. Also, it appeared to the Department that CSA International has only one person that actually participates in the qualification of a motor manufacturer's test facility, witnesses testing, and both directs and evaluates compliance testing, cross testing, and retesting. Consequently, the Department requested that CSA International address its intention to assign additional expert staff to its MEVS Program, and submit evidence as to the nature and extent of training the current staff receives in order to maintain proficiency in the evaluation of motor design and construction, and the practice of efficiency testing.

CSA International, in its June 14, 2001 letter, asserts that it has identified additional staff for participation in the operation of its MEVS Program, and that it would ensure its staff resources are appropriate to the amount of work required by its Motor Efficiency Verification Program. On August 20, 2001, the Department received an electronic message from CSA International which identified additional staff, their credentials, and the associated training each would receive as part of its MEVS Program in order to fulfill the requirements set forth

in 10 CFR 431.27(b)(4) and 431.27(c)(4). In sum, the Department understands that this training addresses electric motor construction, performance, and efficiency testing, and will become part of a regular training program. Also, the Department understands that certain technical staff will work under the direction of a CSA International senior engineer or qualified project leader.

In the Department's view, any technically qualified person could satisfy the criteria for expertise in the content, application and methodologies of the test procedures pursuant to 10 CFR 431.27 (b)(4) if that person: (1) Is proficient in the test methodology of IEEE Standard 112 Test Method B and CSA C390-93 Test Method (1); (2) is familiar with the electrical, mechanical and environmental capabilities of a testing laboratory system; (3) understands how to prepare and mount a motor for testing, which includes the connection and operation of the test equipment; (4) is competent in calibrating test equipment; and (5) is competent with data collection and analysis. CSA International's experience in standards development, testing and evaluation of motors to both U.S. and International safety and similar energy efficiency procedures and methodologies provide sufficient evidence of CSA International staff having the necessary proficiency and expertise to conduct energy efficiency evaluations under ISO/IEC Guide 25. Thus, the Department believes that the credentials of the CSA International staff, regular additional training, and monitoring by CSA International management, satisfy the general requirements for the training, technical knowledge, and experience of testing laboratory personnel under 10 CFR 431.27(b)(4) and (c)(4).

5. Sampling Criteria and Procedures for Selecting an Electric Motor for Energy Efficiency Testing

Section 431.27(b)(4) of 10 CFR Part 431 requires a certification organization to have satisfactory criteria and procedures for the selection and sampling of electric motors tested for energy efficiency. Based on the National Institute of Standards and Technology report, NISTIR 6092, "Analysis of Proposals for Compliance and Enforcement Testing Under the New Part 431: Title 10, Code of Federal Regulations," January 1998, which analyzed various criteria and sampling plans proposed for establishing compliance with the nominal full-load efficiency levels prescribed by EPCA, 42 U.S.C. 6313(b)(1), the Department determined that "the NEMA proposal

for compliance testing provides statistically meaningful sampling procedures." Moreover, the NIST analysis was extensive in order to determine whether a particular sampling plan would be valid for the purpose of establishing compliance with EPCA motor efficiency levels. Also, section 10.5 of ISO/IEC Guide 25: 1990 requires the use of documented procedures and appropriate statistical techniques to select samples.

Under section 4 of the Petition, entitled "CSA International's Motor Efficiency Verification Program," CSA International describes its process for the selection and sampling of electric motors to be tested for energy efficiency. CSA International asserts that the objective of its sampling process is to minimize manufacturers' tests, costs and time to market, while providing sufficient confidence that the series of motors verified meet the applicable energy efficiency standard. Further, CSA International conducts unannounced follow-up inspections, random motor retesting, and challenge testing to ascertain continued compliance with energy efficiency standards by a manufacturer. The Department understands that under the CSA International sampling program, a minimum of 5 basic models are required to be tested to verify the energy efficiency ratings of a series of motors. The basic models are selected so as to represent the complete range of motors within the series, which could require more than 5 basic models. Thereafter, 1 to 5 units of each basic model are tested. The average efficiency of the sample lot must equal or exceed the required nominal full load efficiency. Furthermore, CSA International's goal for verifying continued compliance is to retest high volume motors at least once every 2 years. Other motors of different frame series are retested as needed to ensure continued compliance. Also, the Department understands that under the CSA International retesting program, the initial sample lot is one motor, and if after retesting the result equals or exceeds the minimum result from the qualification tests, then no further samples would be required. If the result is less than the minimum result from the qualifying tests, then motor samples would be selected pursuant to the qualifying test procedure.

GE Industrial Systems' comments, dated May 24, 2000, assert that there should be some understanding of the level of confidence CSA International believes appropriate for the efficiency data that is determined from testing, and the basis for that confidence level. GE Industrial Systems describes the CSA

International statistical approach to sampling of motors for testing as the selection and testing of 5 basic models with a sample size of 1 to 5. GE Industrial Systems asserts that a minimum sample selection to substantiate an Alternative Efficiency Determination Method² should be 5 randomly selected units of 5 basic models, in order to provide a look at the population and statistical variation in the basic model. Further, GE Industrial Systems asserts that frequent sampling over time is more appropriate to an assessment of design and manufacturing variables, and therefore an ongoing sampling program would be appropriate.

NEMA's comment, dated May 26, 2000, asserts that CSA International's sampling process appears to be more burdensome than required by the Department of Energy. NEMA did not elaborate on its comment.

In view of GE Industrial Systems' and NEMA's comments, the Department's investigation found confusing statements from CSA International concerning its intentions to substantiate a manufacturer's AEDMs, either (1) by analyzing and comparing a manufacturer's energy efficiency modeling methods to actual test measurements, or (2) through comparisons between a motor manufacturer's energy efficiency calculations on a software program and a CSA International software program. It is not clear to the Department that the CSA International Program would substantiate an AEDM in a manner that is consistent with 10 CFR 431.24(a)(3) and (4), whereby a manufacturer could test 5 units each of 5 basic models and use the test results to substantiate an AEDM. Furthermore, it is not clear that the CSA International sampling plan would be valid if the initial sample lot is one motor, nor is it clear that testing all the basic models that a manufacturer produces would not be unduly burdensome. The Department's May 14, 2001, letter requested that CSA International submit documents and other materials to substantiate that its motor sampling procedures are

² Alternative Efficiency Determination Method (AEDM) means a method of calculating the total power loss and average full load efficiency of an electric motor. See 10 CFR 431.2. Section 431.24(a)(1) of 10 CFR Part 431 provides that the energy efficiency of a motor must be determined either by testing in accordance with the Department of Energy test procedure or application of an AEDM. Section 431.24(a)(3) of 10 CFR Part 431 requires that, in sum, the accuracy and reliability of an AEDM must be substantiated through testing at least 5 basic models; and that the calculated total power loss for each basic model must be within plus or minus 10 percent of the mean total power loss determined from testing.

statistically valid and result in a confidence level such that the true mean energy efficiency of a basic model meets or exceeds the motor's represented energy efficiency level. Further, the Department's letter requested that CSA International submit its plan and procedures to evaluate a manufacturer's AEDMs.

CSA International, in its June 14, 2001 letter, describes its plan and procedures to evaluate a manufacturer's AEDMs, whereby CSA International verifies that the manufacturer's software energy efficiency calculations are in agreement with its independent calculated values using the methods described in CSA Standard C390. The Department understands that CSA International uses the test data measurements, and then (a) performs its own calculations to determine the efficiency of the tested motor and (b) matches it with the manufacturer's calculated efficiency. If the two values are in agreement for all the motors tested, then CSA International would accept the manufacturer's efficiency calculation procedure as intended by 10 CFR 431.24(b)(3). In its June 14 letter, CSA International asserts that its sampling procedures for electric motor efficiency evaluations are statistically valid, use random selection, and result in confidence levels such that the true mean energy efficiency of a basic model meets or exceeds the motor's represented energy efficiency level.

Furthermore, CSA International's DQD 384, *Electric Motor Efficiency Evaluation*, paragraph 6.2 and Attachment No. 2, *MEEV—Sampling Procedure*, dated January 23, 2001, set forth the CSA International sampling procedure whereby, in sum, CSA International staff selects a minimum of 5 basic models that represent a complete range of motors, and tests 1 to 5 units of those basic models to determine whether the average efficiency of the sample lot equals or exceeds the required efficiency rating. Also, the Department understands that CSA International is establishing a database to substantiate that the sampling plan is valid, uses random selection, and provides the required confidence limits. In view of the above-referenced sampling plan, the Department calculates that a manufacturer could be required to test only 5 motors (5 basic models \times 1 unit = 5 motors) to substantiate compliance for up to 113 basic models. The Department believed this approach was not statistically valid for the purposes of 10 CFR 431.24 and 431.27(b)(4).

On August 28, 2001, the Department received an electronic message from

CSA International which set forth its "Plan and Procedure Relative to Alternative Efficiency Determination Methods (AEDMs)" (Plan and Procedure). In sum, CSA International asserts that it will require a motor manufacturer to submit predicted energy efficiency values that represent a group of motors. CSA International would then select a minimum of 5 basic models from that group, and 5 samples of each basic model, for testing to determine the correlation between the predicted efficiency and the tested efficiency. CSA International asserts that the individual and average efficiency of the motors tested shall be in accordance with 10 CFR 431.24(b)(2)(i) and (ii). Also, CSA International asserts that it will conduct periodic follow-up audits and testing witnessed by CSA International staff.

The Department finds that the above Plan and Procedure is consistent with 10 CFR 431.24(a)(1)–(4)(i). However, in item 3 of the Plan and Procedure, CSA International states that "tests may be performed at the manufacturer's previously evaluated testing facility with some testing witnessed by [CSA International] CSAI staff." This appeared to contradict the aforementioned CSA International policies and procedures in DQDs 385 and 316, and assertions by CSA International in its *Certification and Testing Services* booklet, that both initial compliance and periodic follow-up tests are witnessed by qualified CSA International technical staff. The Department requested that CSA International confirm that the "witness testing" policies and procedures apply to initial and subsequent verification of a manufacturer's AEDMs.

On August 30, 2001, the Department received an electronic message from CSA International containing a revised sampling plan and procedure DQD 384, "Attachment 2, MEEV—Sampling Procedure for U.S., Part 431—DOE Energy Efficiency Program for Motors," dated August 29, 2001, for motor compliance testing, substantiation of an AEDM, and retesting. The Department examined the above DQD 384 Attachment 2 and, in general, found it to be consistent with 10 CFR 431.24(a)(1)–(4)(i) and 431.24(b)(1). However, where the CSA International sampling procedures follow 10 CFR 431.24, the Department recommended that DQD 384 Attachment 2 clearly state that (1) the average full load efficiency of each basic model of electric motor must be determined either by testing or by the application of an Alternative Efficiency Determination Method, (2) the section entitled "Samples Required

for Motor Model Qualification Testing" should be modified to read "Samples of Units Required for Motor Model Qualification Testing," (3) the section entitled "Selection of Basic Model Types to Represent a Group of Motors" should be modified to read "Selection of Basic Models for Testing," and (4) the specific example provided under "Example Scope of Certification" should be corrected to accurately depict the sampling guidelines that precede it in DQD 384 Attachment 2.

Also, DQD 384 Attachment 2, entitled "Samples Required for Scheduled Motor Retesting," states: "The initial retest sample lot shall consist of one motor. If the measured full load efficiency from retest meets or exceeds the lowest full load efficiency determined from the qualification testing, then no further samples are required for testing." It is not clear to the Department whether the "lowest full load efficiency determined from the qualification testing" refers to the results of actual tests or some other criterion. Consequently, the Department requested that the procedures to be used during retesting be clarified.

Moreover, the Department believes that the sampling procedures set forth in 10 CFR 431.24(b)(2)(i) and (ii) provide reasonable assurance that the average full load efficiency of the basic model being retested meets or exceeds the mandated efficiency level and, accordingly, may be applied during retestings. The Department recommended that CSA International adopt these sampling procedures for retesting. Thus, when testing a sample size of one motor during retesting, the efficiency of that unit must not be less than the full load efficiency described in section 431.24(b)(2)(ii); and, when samples of two or more motors are tested during retesting, the average efficiency of the lot must not be less than the full load efficiency described in section 431.24(b)(2)(i) and, the lowest efficiency of any unit in the lot must not be less than the full load efficiency described in section 431.24(b)(2)(ii).

CSA International's letter, dated March 1, 2002, addresses the above recommendations. As such, the Department understands that DQD No. 384 and DQD No. 385 have been combined into one document, and have been revised to clarify the sampling and compliance requirements. Also, CSA International revised the above DQD No. 384, Attachment 2, *MEEV—Sampling Procedure* which is now DQD No. 385, Attachment 2 in order to incorporate the Department's above recommendations both for initial qualification testing and retesting. The Department has examined the above documents and concludes

that the standards and procedures CSA International uses to conduct sampling under its MEVS Program are consistent with 10 CFR 431.24 and 431.42, and satisfy the criteria for the selection and sampling of electric motors to be tested for energy efficiency under 10 CFR 431.27(b)(4).

III. Conclusion

A. Interim Determination

In view of CSA International's Petition and supporting documents, the public comments received, the Department's independent investigation, and CSA International's actions to correct the defects the Department addressed as described above, the Department concludes that the CSA International Motor Efficiency Verification Service Program satisfactorily meets the criteria in 10 CFR 431.27.

Therefore, the Department's interim determination is, as of today's **Federal Register** notice, to classify the CSA International Motor Efficiency Verification Service Program as nationally recognized in the United States for the purposes of section 345(c) of EPCA. In the event that a final determination recognizes the CSA International Motor Efficiency Verification Service Program as a nationally recognized certification program pursuant to the criteria in 10 CFR 431.27, and the Program thereafter fails to meet the criteria for recognition, the Department can withdraw its recognition after following the procedural requirements in 10 CFR 431.28(g).

B. Future Proceedings

Pursuant to 10 CFR 431.28(d), the Department will notify CSA International in writing of this interim determination. Today's **Federal Register** notice solicits comments, data and information concerning the Department's interim determination to classify the CSA International Motor Efficiency Verification Service Program as nationally recognized in the United States. After review of information submitted concerning the interim determination, the Department will publish in the **Federal Register** an announcement of its final determination. See 10 CFR 431.28(e).

Issued in Washington, DC, on June 28, 2002.

Douglas L. Faulkner,

Principal Deputy Assistant Secretary, Energy Efficiency and Renewable Energy.

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DEPARTMENT OF ENERGY

Office of Energy Efficiency and Renewable Energy

10 CFR Part 431

[Docket No. EE-RM-96-400]

Energy Efficiency Program for Certain Commercial and Industrial Equipment: Interim Determination Concerning the Petition for Recognition of Underwriters Laboratories Inc. as a Nationally Recognized Certification Program for Electric Motor Efficiency

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Public notice of an interim determination and solicitation of comments.

SUMMARY: Today's action announces the Department of Energy's interim determination classifying the Underwriters Laboratories Inc. Energy Verification Service Program for Electric Motors as a nationally recognized certification program in the United States for the purposes of section 345(c) of the Energy Policy and Conservation Act. The Department solicits comments, data and information with respect to its interim determination prior to issuing a final determination.

DATES: Written comments, data and information, as a signed original with an electronic copy, must be received at the Department of Energy by August 5, 2002.

ADDRESSES: Comments, data and information should be labeled "Interim Determination Concerning the Underwriters Laboratories Inc. Petition for Recognition as a Nationally Recognized Certification Program for Electric Motor Efficiency," and submitted to: Ms. Brenda Edwards-Jones, Office of Building Research and Standards, EE-41, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-2945; Telefax: (202) 586-4617. Also, a copy of such comments should be submitted to Ms. Jodine E. Smyth, Senior Coordinator, Global Accreditation Services, Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062. Telephone: (847) 272-8800, ext. 42418; or Telefax (847) 509-6321.

FOR FURTHER INFORMATION CONTACT:

James Raba, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Mail Station EE-41, 1000 Independence Avenue, SW., Washington, DC 20585-0121.

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I. Introduction

A copy of Underwriters Laboratories Inc.'s Petition, "Classification in Accordance with 10 CFR 431.27," (UL Petition or the Petition) was published in the **Federal Register**, on October 3, 2001. 66 FR 50355. The Petition consisted of a letter from Underwriters Laboratories Inc. (UL) to the Department, narrative statements on five subject areas, and supporting documentation. At the same time, the Department of Energy (Department) solicited comments, data, and information as to whether UL's Petition should be granted. The Department received two comments. The Department also conducted an independent investigation concerning the UL Petition pursuant to 10 CFR 431.28(f).

The supporting documents that accompanied the Petition, as well as the material UL subsequently submitted to the Department in support of UL's Petition, are available in the Freedom of Information Reading Room, U.S.

Department of Energy, Forrestal Building, Room 1E-190, 1000 Independence Avenue, SW, Washington, DC 20585-0101, Telephone (202) 586-3142, between the hours of 9:00 a.m. and 4:00 p.m., Monday through Friday, except Federal holidays. Additional information about UL's Energy Verification Service (UL EVS Program or Program) and its Petition to be a nationally recognized certification program for electric motor efficiency can be obtained on the World Wide Web at http://www.eren.doe.gov/buildings/codes_standards/rules/index.htm, or from Ms. Jodine E. Smyth, Senior Coordinator, Global Accreditation Services, Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062, or Telephone: (847) 272-8800, ext. 42418; or Telefax (847) 509-6321, or electronic mail at Jodine.E.Smyth@us.ul.com.

The final rule for "Test Procedures, Labeling, and Certification Requirements for Electric Motors," was published in the **Federal Register** on October 5, 1999. 64 FR 54141. It is codified in 10 CFR Part 431 in Subparts A, B, E and G. It can also be obtained from the Office of Building Research and Standards, Office of Energy Efficiency and Renewable Energy, EE-41, U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585-0121, or Telephone 202-586-9127, or on the World Wide Web at http://www.eren.doe.gov/buildings/codes_standards/rules/motors/index.htm.

A. Authority

Part C of Title III of the Energy Policy and Conservation Act (EPCA) contains energy conservation requirements for electric motors, including requirements for test procedures, energy efficiency standards, and compliance certification (42 U.S.C. 6311-6316). Section 345(c) of EPCA directs the Secretary of Energy to require motor manufacturers "to certify, through an independent testing or certification program nationally recognized in the United States, that [each electric motor subject to EPCA efficiency standards] meets the applicable standard." 42 U.S.C. 6316(c). Regulations to implement this EPCA directive, with respect to certification programs, are codified in 10 CFR part 431 at sections 431.123, *Compliance Certification*, 431.27, *Department of Energy recognition of nationally recognized certification programs*, and 431.28, *Procedures for recognition and withdrawal of recognition of accreditation bodies and certification programs*. Sections 431.27 and 431.28

set forth the criteria and procedures for national recognition of an energy efficiency certification program for electric motors by the Department of Energy.

For a certification program to be classified by the Department as being nationally recognized, the program must: (1) Have satisfactory standards and procedures for conducting and administering a certification system, and for granting a certificate of conformity; (2) be independent; (3) be qualified to operate in a highly competent manner; and (4) be expert in the test procedures and methodologies in IEEE Standard 112-1996 Test Method B and CSA Standard C390-93 Test Method (1), or similar procedures and methodologies for determining the energy efficiency of electric motors; and (5) have satisfactory criteria and procedures for selecting and sampling electric motors for energy efficiency testing. 10 CFR 431.27(b).

B. Background

Pursuant to 10 CFR 431.28, the Department is required to publish the UL Petition in the **Federal Register** in order to solicit comments, data and information on whether the Petition should be granted. UL may then respond in writing to any comments received. After review of the Petition, other applicable documents, including public comments and facts found through investigation, the Department is required to issue an interim determination and notify UL in writing of that interim determination. Also, the Department is required to publish its interim determination in the **Federal Register** and solicit comments, data and information with respect to the interim determination. After review of comments and information that is submitted, the Department is required to publish in the **Federal Register** an announcement of its final determination on the Petition. See 10 CFR 431.28(a)-(f).

The Department received comments on the UL Petition from Advanced Energy, dated October 12, 2001, and Emerson Motor Company, dated October 15, 2001. Advanced Energy is an independent motor testing facility and Emerson is a manufacturer of electric motors. In general, neither of these companies believes Underwriters Laboratories Inc. to be qualified to test and certify electric motors for energy efficiency for the purposes of section 345(c) of EPCA.

II. Discussion

A. General

Sections 431.27(b)(1) and (c)(1) of 10 CFR part 431 set forth criteria and guidelines for the standards and procedures for conducting and administering a certification system and for granting a certificate of conformity. As such, a certification program must have satisfactory standards and procedures for conducting and administering a certification system, including periodic follow up activities to assure that basic models of electric motors continue to conform to the efficiency levels for which they were certified and for granting a certificate of conformity. ISO/IEC Guide 65 (discussed in 10 CFR 431.27(c)(3) and also below) sets forth the general requirements intended to ensure a certification program is operated in a consistent and reliable manner. These requirements address: (1) Impartiality; (2) sufficient personnel having the necessary education, training, technical knowledge and experience; (3) relevant procedures for sampling, testing and inspecting the product, and the means necessary to evaluate conformance by a manufacturer with those standards; (4) surveillance and periodic audits to ensure continued conformance with the applicable standards; (5) subcontracting work, such as testing, with proper arrangements to ensure competence, impartiality, and compliance with the applicable standards; (6) procedures to control records, documents and data, including review and approval by appropriately authorized personnel; and (7) control over use and display of certificates and marks of conformity.

Sections 431.27(b)(2) and (c)(2) of 10 CFR part 431 set forth criteria and guidelines for independence. A certification program must be independent of electric motor manufacturers, importers, distributors, private labelers or vendors. It cannot be affiliated with, have financial ties with, be controlled by, or be under common control with any such entity. Further, it should disclose any relationship it believes might appear to create a conflict of interest. ISO/IEC Guide 65 sets forth requirements for a certification program to be impartial and have a documented structure that safeguards impartiality. For example, each decision on certification is made by a person(s) different from those who carried out the evaluation or actual testing of the motor. Its policies and procedures must distinguish between product certification and other activities, its certification process must be free from any commercial, financial

and other pressures that might influence decisions, and it must have a committee structure where members are chosen to provide a balance of affected interests.

Sections 431.27(b)(3) and (c)(3) of 10 CFR part 431 set forth criteria and guidelines requiring that a certification organization must be qualified to operate a certification system in a highly competent manner. Of particular relevance is documentary evidence that establishes experience in the application of guidelines contained in International Standards Organization/International Electrotechnical Commission (ISO/IEC) Guide 65: 1996, *General requirements for bodies operating product certification systems*, ISO/IEC Guide 27: 1983, *Guidelines for corrective action to be taken by a certification body in the event of either misapplication of its mark of conformity to a product, or products which bear the mark of the certification body being found to subject persons or property to risk*, ISO/IEC Guide 28: 1982, *General rules for a model third-party certification system for products*, as well as experience in overseeing compliance with the guidelines contained in the ISO/IEC Guide 25: 1990, *General requirements for the competence of calibration and testing laboratories*.

Sections 431.27(b)(4) and (c)(4) of 10 CFR part 431 set forth criteria and guidelines requiring that a certification program must be expert in the content and application of the test procedures and methodologies in IEEE Standard 112–1996 Test Method B and CSA Standard C390–93 Test Method (1). Of particular relevance would be documentary evidence that establishes experience in the application of guidelines contained in the ISO/IEC Guide 25.

ISO/IEC Guide 25 addresses general requirements for establishing quality systems in laboratories and for recognizing their competence to carry out specified tests. In part, these requirements address: (1) Organization and management that are free from commercial, financial, and other pressures which might adversely affect quality of work; (2) independence of judgment and integrity; (3) supervision by persons familiar with the applicable test procedures; (4) a quality system, and manual which contains procedures for control and maintenance of documents, and procedures for periodic audit and review; (5) sufficient personnel, having the necessary education, training, technical knowledge and experience for their assigned functions, and that training of its personnel is kept up-to-date; (6) all items of equipment and reference

materials for the correct performance of tests, and that the equipment is properly maintained and calibrated; (7) test equipment that is calibrated and verified prior to operation, and there is traceability to national standards of measurement; (8) documented instructions for the use and operation of equipment, manuals, and applicable test procedures; (9) retention of testing records with sufficient information to permit repetition of a test; and (10) where a laboratory is subcontracted to conduct testing, that laboratory complies with the requirements contained in ISO/IEC Guide 25 and is competent to perform the applicable testing activities. An example of a “subcontracted” laboratory would be a manufacturer’s laboratory that tests motors for energy efficiency under the UL EVS Program.

Also, where 10 CFR 431.27(b)(4) requires a certification program to have satisfactory criteria and procedures for the sampling and selection of electric motors, likewise, ISO/IEC Guide 25 requires the use of documented sampling procedures and appropriate techniques to select samples.

B. Application of Evaluation Criteria

1. Standards and Procedures for Conducting and Administering a Certification System

Sections 431.27(b)(1) and (c)(1) of 10 CFR 431, and ISO/IEC Guide 65, set forth criteria and guidelines for the standards and procedures to be used in administering a certification system and granting a certificate of conformity.

In Attachment 1 to the UL Petition, entitled “431.27(c)(1) Standards and Operating Procedures,” it is stated that “Underwriters Laboratories Inc. product safety certification program is an ISO Guide 65 compliant program” and that “UL’s Energy Verification utilizes the same operation manuals as UL’s product safety certification services with minor variations that are detailed in the UL Energy Verification Manual.”

Advanced Energy’s comments, dated October 12, 2001, and Emerson Motor Company’s comments, dated October 15, 2001, generally assert that the UL EVS Program is not an ISO/IEC Guide 65 compliant program.

The Department’s investigation found that the UL procedures for operating a certification system, provided as attachments to the Petition, were very general in nature and could be satisfactorily applied to any UL certification program. This raised the issue as to whether the specific standards and procedures by which the UL EVS Program operates are adequate,

properly documented, well established and maintained according to the aforementioned ISO/IEC Guide 65 criteria. The Department’s letter to UL, dated June 12, 2001, requested copies of the specific documents that have been approved by appropriately authorized UL personnel, and are used as the standard operating procedures for the UL EVS Program as it pertains to electric motors.

UL’s letter to the Department, dated July 2, 2001, asserts that procedures which demonstrate compliance with sections 4.3, 4.8, 5 and 13 of ISO/IEC Guide 65 are contained in UL’s *Conformity Assessment Manual*, the *Energy Verification Service Manual* (EVS Manual), and the *Client Interactive Programs Manual*. Copies were submitted to the Department during its investigative process. UL’s letter, dated July 31, 2001, conveyed a copy of its *Motor Efficiency Guide*, 2001, which outlines the criteria UL uses to evaluate motor efficiency in the United States.

The *UL Conformity Assessment Manual* and *Client Interactive Programs Manual* establish general operating procedures that form a basis for UL certification programs, including the certification program for electric motors. The Department finds that ISO/IEC Guide 65 and the *UL Conformity Assessment* and *Client Interactive Programs Manuals* are consistent with each other in that they address, for example: (1) Steps necessary to evaluate conformance with relevant product standards, such as energy efficiency standards for electric motors; (2) competence of persons carrying out testing; (3) documented procedures for granting, maintaining and withdrawing certification; (4) control of documentation; and (5) surveillance to assure continued conformity with standards, such as energy efficiency standards for motors. The Department understands that these manuals are used in conjunction with the *UL EVS Manual* and *Motor Efficiency Guide*. The *Conformity Assessment Manual* and *Client Interactive Programs Manual* are further addressed in section II.3.c. of today’s **Federal Register** Notice.

The EVS Manual outlines the standard criteria and operating procedures by which UL evaluates and verifies the energy efficiency of various types of products. In the case of electric motors, the EVS Manual refers to the energy efficiency test procedures found in 10 CFR 431.27. Its contents include efficiency verification procedures, documentation, sample selection, product testing, test facility evaluation, product construction evaluation, and manufacturers ongoing and follow-up

testing. The *Motor Efficiency Guide* outlines the criteria that UL utilizes to evaluate motor efficiency in accordance with the energy efficiency regulations in the United States and Canada. It is used in combination with the EVS Manual for conducting evaluations in accordance with UL's EVS Program. It contains a tutorial on motor efficiency, information on correlation of stray load loss and the basis of acceptability for motor efficiency, sample selection, assessment of a testing facility, test record data sheets, and guides the UL representative that conducts a facility assessment and witness testing. For example, the section entitled "Assessment of Client Facility," lists areas of a manufacturer's testing facility that UL would investigate under its certification program. These include investigation of a manufacturer's quality program system as to whether (1) an ISO 9001 or ISO 9002 quality assurance program is in place, (2) proficiency of personnel is witnessed, (3) the motor testing laboratory environment is properly maintained, (4) testing equipment is properly maintained and calibrated, and (5) testing of the energy efficiency of electric motors is conducted in accordance with 10 CFR 431.23.

Also, UL submitted the revised *Motor Efficiency Guide* ULS-02194-ZWAA, "Test Record Data Sheet" pages 1 through 14, and a page ULS-02194-ZWAA "Appendix D," page 0001, "Manufacturer's Test Equipment." The Department understands that this revised guide supersedes the above-referenced earlier version and is used in combination with the *Energy Verification Services Manual* for conducting evaluations in accordance with UL's EVS Program. Further, UL provided the Department a copy of UL's specific standard operating procedures which are utilized as part of the UL EVS Program. These included data sheets that describe the test methodology, follow-up inspections to verify electric motor efficiency, and an exemplary "Certificate of Compliance."

The Department has examined UL's Petition and all other documents described above, and concludes that these documents provide evidence of satisfactory standards and procedures for UL to conduct its EVS Program to satisfy the requirements set forth in 10 CFR 431.27(b)(1) and (c)(1), and the guidelines contained in ISO/IEC Guide 65.

2. Independence

Sections 431.27(b)(2) and (c)(2) of 10 CFR part 431, and ISO/IEC Guide 65, set forth criteria and guidelines for impartiality.

In Attachment 2 to the UL Petition, entitled "Independence," UL asserts that it is independent and impartial of any individual electric motor supplier or purchaser and is free from any other conflict of interest. A notarized Statement of Independence signed by an officer of the corporation was submitted in support of its assertion.

The Department's June 12, 2001, letter to UL requested additional documents concerning the policies or procedures that distinguish (a) a direct or indirect relationship with a motor manufacturer, importer, or private labeler that is in a situation where UL both provides safety certification services and an EVS for such entity's motors, and (b) where a manufacturer's representative serves, for example, on UL Standards Technical Panel UL 1004, Electric Motors. Such relationships need more explanation as to why each would not create or appear to create a conflict of interest, compromise UL's independence, or bias information presented to UL for the purposes of compliance with 10 CFR part 431.

UL's letter to the Department, dated July 2, 2001, asserts that UL is "independent and impartial of any individual supplier or purchaser and is free from any other conflict of interest," and that "UL has no stockholders, i.e., no direct or indirect relationship with manufacturers, importers or private labelers." UL explains that it is incorporated as a not-for-profit organization in the State of Delaware, and its policy regarding conflict of interest is both addressed as a condition for employment and in its code of ethics. Also, chapter 2 of the UL "*Client Interactive Programs Manual*" sets forth procedures whereby each decision on certification is made by a person or persons different from those who carried out a motor efficiency evaluation. Furthermore, UL explains that its standards development process for safety matters is organizationally separated from its certification operations. Thus, a manufacturer's representative who participates in a UL Technical Panel as part of the standards development process only provides technical input to standards and has no influence over certification functions, such as the EVS Program for Electric Motors.

The Department has examined the above documents and concludes that they provide sufficient evidence that the UL EVS Program meets the requirements for independence which are set forth in 10 CFR 431.27(b)(2) and (c)(2), and the guidelines for objectivity and impartiality of technical persons and committees which are set

forth in ISO/IEC Guide 65. Furthermore, the UL EVS Program meets the ISO/IEC Guide 25 requirements for organization and management to ensure confidence that its independence of judgement and integrity are maintained at all times.

3. Operation of a Certification System in a Highly Competent Manner

Sections 431.27(b)(3) and (c)(3) of 10 CFR 431 require that the petitioner demonstrate that its certification program operates in a highly competent manner by establishing its experience in the application of certain ISO/IEC Guides, including ISO/IEC Guides 65, 27 and 28, as well as experience in overseeing compliance with the guidelines in ISO/IEC Guide 25.

In Attachment 3 to the UL Petition, "Testing Experience and Expertise," UL asserts that it has been conducting product safety evaluations for 105 years, and that in 1999 alone it conducted more than 94,300 product evaluations. As to further experience in operating a certification system and application of guidelines contained in ISO/IEC Guide 65, UL states in Attachment 3, "Summary of UL's Accreditations," that it is involved in more than 80 accreditation programs that are involved with the evaluation and testing of products for public safety. It states that its competence as a product certification organization has been, for the most part, established under the criteria in ISO/IEC Guides 25 and 65. Copies of UL's accreditation documents from the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC), and recognition as a Nationally Recognized Testing Laboratory from the Occupational Safety and Health Administration were attached to the UL Petition.

a. General Operating Requirements (ISO/IEC Guide 65)

Both Advanced Energy and Emerson Motor Company state that "UL has a solid reputation in testing services and quality assurance for safety programs," and is capable of administering safety programs because they are ISO/IEC Guide 65 compliant, as demonstrated by the ANSI accreditation. However, both Advanced Energy and Emerson Motor Company "find no evidence of this being true with respect to UL's Energy Verification Program." Advanced Energy's letter, dated October 12, 2001, asserts that UL's EVS Program has the potential to confuse customers in the marketplace and unduly burden motor manufacturers, because UL would visit each motor manufacturer's facilities twice per year, require testing of an unspecified number of sample motors,

and require inspection of the motor manufacturing processes. Advanced Energy and Emerson Motor Company state that the UL EVS Program is not sufficient for the purposes of EPCA on motor efficiency, and that it conflicts with the intent of EPCA and 10 CFR part 431.

In response to the above comments from Advanced Energy and Emerson Motor Company, UL's letter to the Department, dated October 22, 2001, asserts that Advanced Energy's view of the UL certification program is based upon limited exposure to UL's technical expertise and other portions of the EVS Program related to electric motors. Also, UL believes that Emerson Motor Company's concerns are addressed under 10 CFR part 431 concerning the use of a certification program.

The Department examined the above UL accreditations and found that the majority of them concerned product safety certification and there was no explicit reference to the certification of energy efficiency for electric motors. The Department's June 12, 2001, letter to UL requested evidence as to whether the UL EVS Program for electric motors is, or will become, accredited by another organization, such as ANSI. Also, the Department's letter requested evidence of the technical qualifications and experience held by UL personnel directly involved with the UL EVS Program, such as technical evaluations and decisions concerning critical motor construction features, performance, and testing for energy efficiency using IEEE 112-1996 Test Method B and CSA C390-93 Test Method (1).

Thereafter, the Department received a letter, dated June 26, 2001, from ANSI which affirms that the UL EVS Program is covered under the scope of the ANSI accreditation for Electrical and Electronic Products, Processes, Systems, and Services in accordance with ISO/IEC Guide 65. Also in response to the Department's June 12 letter, UL's letter, dated July 2, 2001, asserts that UL has documented procedures to ensure that qualified personnel review the evaluation of motors for compliance with energy efficiency requirements, and written instructions that set forth the duties and responsibilities of such personnel. UL staff undergoes continual on-the-job training and is evaluated through a documented performance appraisal process. UL has supervisory and review staff with the necessary education, training, skill, abilities and experience for evaluating motors for compliance with energy efficiency requirements, and its management structure provides for the supervision of reviewers and other personnel involved

in the product certification process. UL's July 2nd letter conveyed resumes of certain staff involved in the EVS Program.

As to any undue burden on a manufacturer caused by UL's biannual inspections of a motor facility, the Department understands that UL's surveillance program consists of two random unannounced audits of the manufacturer's facilities, and such audits can be conducted separately or in conjunction with its motor safety investigations, thereby lessening the compliance burden on a manufacturer. Therefore, the Department believes that the UL EVS Program does not present any undue burden on a manufacturer.

As to the above-referenced comments from Advanced Energy and Emerson Motor Company concerning the UL EVS Program not meeting the requirements for a "certification program" in section 345(c) of EPCA and in 10 CFR 431.123(a)(1), the Department finds no facts or convincing arguments that support the assertions of Advanced Energy or Emerson Motor Company that the UL certification program is "not sufficient" or "conflicts with the intent" of EPCA, or "would place additional burden on manufacturers." Such issues involving the merits and use of an accredited laboratory or a certification program were argued at length under section II.C.2. and 3. of the Preamble to the Final Rule for Electric Motors, 64 FR 54124-26 (October 5, 1999) and need not be repeated here. The Department continues to believe that use of a certification program, such as the UL EVS Program, where it meets the requirements set forth in 10 CFR 431.27(a) will provide adequate assurance of compliance with EPCA's energy efficiency requirements. Because the assertions of Advanced Energy and Emerson Motor Company are merely arguments against the wisdom of the final rule and of the Departments regulations themselves, and are not directed at the UL Petition, they are rejected.

b. Guidelines for Corrective Action in the Event of Misapplication of a Mark of Conformity (ISO/IEC Guide 27)

ISO/IEC Guide 27 identifies procedures which a certification program should consider in response to a reported misuse of its registered mark of conformity. According to paragraph 1.1 (a) of ISO/IEC Guide 27, "misuse" may take a variety of forms, such as a mark of conformity appearing on a non-certified product. The Department construes this to mean the unauthorized use by a manufacturer or private labeler of the UL Verification Mark for Energy

Efficiency (Mark or UL Mark) on an electric motor, such as the use of a counterfeit UL Mark. Under ISO/IEC Guide 27, the certification program would then be required to have strong corrective procedures in place. Such corrective measures would depend upon the nature of the misuse and the desire by the certification program to protect the integrity of its mark.

The Department has examined the UL *Conformity Assessment Manual* and finds that it contains procedures for reporting the misuse of any UL Mark used to identify certified products, such as any unauthorized or counterfeit use of a UL Registered mark. The Department concludes that the UL *Conformity Assessment Manual* satisfactorily follows the guidelines for corrective action to be taken by a certification organization in the event of misapplication of a mark of conformity to an electric motor set forth in 10 CFR 431.27(c)(3) and ISO/IEC Guide 27.

c. General Rules for a Model Third-Party Certification System for Products (ISO/IEC Guide 28)

ISO/IEC Guide 28 addresses minimum guidelines for a third-party certification system in determining conformity with product standards through sample selection, initial testing and assessment of a factory quality management system, follow-up surveillance, subsequent testing of samples from the factory, and the use of a mark of conformity.

Consistent with the above ISO/IEC Guide 28 guidelines, Attachment 1 to the UL Petition, entitled "431.27(c)(1) Standards and Operating Procedures," describes the UL certification of motors under its EVS Program as being based upon: (1) Satisfactory evaluation and testing to the requirements of the applicable standard, which in this case is under 10 CFR 431.23; (2) continued surveillance at the manufacturing location; (3) initial motor evaluation that consists of an examination of motor efficiency test data, test facilities, and motor design and construction; (4) selection of samples and witness testing by a UL representative; (5) where an electric motor is found to be in compliance, authorization to apply a mark of conformity; and (6) procedures for withdrawal or cancellation of a mark of conformity if an electric motor is found in non-conformance. Also, UL submitted its *Energy Verification Service Manual* as evidence that its EVS Program for electric motors follows the guidelines contained in ISO/IEC Guide 28.

In view of ISO/IEC Guide 28, the Department examined the UL EVS Manual that outlines the criteria by which UL performs third-party energy efficiency certifications for various products, including electric motors. In sum, the UL EVS Manual contains the general operating procedures and business document formats applicable to UL's EVS Program, that when utilized in conjunction with the procedures and technical document formats in the UL *Conformity Assessment Manual* and *Motor Efficiency Guide*, correspond to the "model" procedures and example forms contained in ISO/IEC Guide 28. The Department finds that, in general, both ISO/IEC Guide 28, and the UL EVS and *Conformity Assessment Manuals* address: (1) The basic conditions and rules for a manufacturer to obtain and retain a certificate of conformity or mark of conformity; (2) initial inspection of a motor factory and a manufacturer's quality management system; (3) sample selection; (4) initial testing; (5) product evaluation; (6) surveillance; (7) identification of conformity in the form of a certificate of conformity or mark of conformity; (8) withdrawal of a certificate or mark of conformity by the certification program; and (9) guidelines on corrective action for misuse of a certificate or mark of conformity. The Department concludes that the UL EVS Program satisfies the general guidelines for a model third-party certification system under 10 CFR 431.27(c)(3) and the guidelines set forth in ISO/IEC Guide 28.

Also, ISO/IEC Guide 28 requires a certification program operating at a national level, such as under section 345(c) of EPCA which requires manufacturers to certify compliance through a "nationally recognized" certification program, to have a suitable organizational structure and utilize personnel, equipment, and operating procedures that comply with the criteria for a testing laboratory in ISO/IEC Guide 25. Consistent with these guidelines, the UL *Conformity Assessment Manual* and *Client Interactive Programs Manual* provide general policies, practices and procedures that govern UL's conformity assessment services. These include submitting a product for investigation, conduct of the investigation, witnessed test data procedures, compliance management, issuance of the UL Mark, and follow-up services. The Department finds that the "Client Test Data Program," contained in the *Client Interactive Programs Manual*, particularly addresses the UL EVS Program, whereby tests for energy efficiency are conducted at client

facilities and are subject to review and audit by UL. Furthermore, the "Client Test Data Program" establishes policies and procedures consistent with ISO/IEC Guide 25 which address operating a laboratory quality system, testing equipment, qualification of personnel, test standards and procedures for testing, training, assessment of a test facility, program administration, documentation, and issuing a certificate of qualification. The Department understands that both the *Conformity Assessment* and *Client Interactive Programs Manuals* are used in conjunction with UL's product-specific operations manuals, such as the UL *Energy Verification Service Manual*, that applies specific procedures to the acceptance of energy efficiency test data for electric motors.

The Department has examined the contents of these manuals and concludes that they satisfy the guidelines for conducting a model third-party certification program at the national level as applicable under 10 CFR 431.27(c)(3) and ISO/IEC Guide 28.

d. General Requirements for the Competence of Testing Laboratories (ISO/IEC Guide 25)

Third-party certification programs must have experience overseeing compliance with the guidelines contained in ISO/IEC Guide 25. ISO/IEC Guide 25 sets out the general requirements by which a laboratory must operate if it is to be recognized as competent to carry out specific tests.

According to Attachment 3 to the UL Petition, "Summary of UL's Accreditations," the majority of UL's accreditations cover UL as a testing laboratory and product safety certification organization. Although each accreditor to a certain extent establishes its own criteria, for the most part, two sets of criteria are utilized for evaluating the competence of a testing laboratory and product certification organization: ISO/IEC Guide 25, *General Requirements for the Competence of Calibration and Testing Laboratories* and ISO/IEC Guide 65 *General Requirements for Bodies Operating Product Certification Systems*. UL's written policies and associated operating procedures were designed using the criteria of these two guides.

UL's letter to the Department, dated January 24, 2002, asserts that UL has "significant experience understanding, adapting, documenting and applying the requirements of Guide 25 to manufacturers' laboratories as evidenced by the [Client Test Data Program] CTDTP documentation and overseeing compliance of manufacturers

with UL's CTDTP." According to the January 24 letter, UL has determined that Guide 25 as written "can not solely be the basis on which it accepts responsibility for the test data generated from a manufacturer's laboratories," and as a result, UL's Client Test Data Program requirements are "an adaptation of Guide 25, with necessary changes made, so that UL has an adequate basis for taking responsibility for the test data from a manufacturer's laboratory." For example, even though not required by ISO/IEC Guide 25, UL requires repeat testing and requires that the data from that repeat testing correlate with the original test data generated by the manufacturer. In addition, UL conducts audits of manufacturers' laboratories under the Client Test Data Program, whereas ISO/IEC Guide 25 only requires a laboratory to audit itself. UL believes such additional oversight requirements are necessary in order for it to accept responsibility for the test data. Further, UL asserts that it does not rely solely on a manufacturer's self-monitoring of laboratory competence through the laboratory's quality system; rather, UL itself "directly monitors those aspects of laboratory operations that contribute to the accuracy of the test data produced." Thus, UL adds a second level of assurance through audit testing and subsequent data correlation. UL's January 24 letter concludes with the assertion that it has "demonstrated experience overseeing a laboratory not just to Guide 25 requirements, but to even more stringent requirements related to transfer of responsibility for test data."

The Department compared ISO/IEC Guide 25 with UL's CTDTP as it would apply to a manufacturer's motor efficiency testing laboratory under a certification program and found them to be consistent with each other. Under UL's CTDTP, a motor manufacturer's laboratory must, in sum, have a quality program that is subject to assessment and reassessment, have physical resources, equipment, qualified personnel and procedures that conform to national and international accreditation criteria, and have test data that is reviewed and subject to a regular audit. The Department found, for example:

- Where ISO/IEC Guide 25 sets forth requirements for organization and management of a testing laboratory to ensure proper supervision and integrity of data, similarly, the UL CTDTP requires a testing laboratory to have procedures and policies in place to assure accuracy and correctness of the performance of the tests, test data developed, and

results reported, as well as qualified staff to oversee testing and ensure proper documentation.

- Where ISO/IEC Guide 25 requires a manufacturer's testing laboratory to have a quality system with documented policies and procedures, such as for the organization and operation of a testing laboratory, traceability of measurements, calibration of equipment, test procedures used, procedures for corrective actions and audits, likewise, the UL CTDP requires a manufacturer's testing laboratory to have procedures and policies that assure accuracy and correctness of the performance of a test, test data developed, and results reported, and oversight of sampling, testing, data recording and periodic audits.

- Where ISO/IEC Guide 25 requires a manufacturer's testing laboratory to have sufficient personnel having the necessary education, training, technical knowledge and experience, the UL CTDP requires similar qualifications of testing laboratory personnel.

- Where ISO/IEC Guide 25 requires the proper environment and equipment for performance of testing, and that such equipment is properly maintained and calibrated, the UL CTDP requires the proper environment for testing, and requires that equipment is fully operational, calibrated and traceable to nationally recognized standards of measurement.

- Where ISO/IEC Guide 25 requires the testing laboratory to maintain a record system of original observations, calculations, and derived data sufficient to permit repetition of a test, similarly, the UL CTDP requires data recording and test reports, and other documentation of initial assessments and reassessments and verification. Also, the UL CTDP requires that reference standards and test procedures used by the testing laboratory are current.

- Both ISO/IEC Guide 25 and the UL CTDP require test reports or test certificates that contain similar information.

In view of these comparisons, the Department believes that UL's EVS Program satisfies the requirement of 10 CFR 431.27(c)(3) for documentary evidence that establishes experience in operating a certification system and overseeing compliance with the guidelines for competence contained in ISO/IEC Guide 25 to test electric motors for energy efficiency.

Also, 10 CFR 431.27 does not require a certification program to actually operate its own motor testing laboratory, nor is a laboratory operated or observed by a certification program required to be

accredited. Nevertheless, the Department believes that the quality program to which a motor efficiency testing laboratory adheres under a certification program that is "nationally recognized" for the purposes of EPCA should be inherently stringent because its efficiency measurements are the basis for compliance determinations for many motors. Therefore, the Department believes that a testing facility operated or observed by a certification program should follow the guidelines in ISO/IEC Guide 25: 1990. The Department understands that, in general, the evaluation of a motor testing laboratory under ISO/IEC Guide 25 includes an on-site assessment, proficiency testing, an audit of a laboratory's policies and operational procedures, review of staff qualifications, checks of proper maintenance and calibration of test equipment, and records review. Likewise, evaluation of a motor testing laboratory under the UL EVS includes evaluation of the manufacturer's testing facility, control and maintenance and calibration of test equipment, factory audits for continued compliance, document control, periodic audits of the operational and technical consistency of the program, control of non-conformances, staff training, and witness testing.

The Department believes that the goal of a third-party certification program is to provide assurance that test results are accurate, valid, and capable of being replicated. Tests must be performed with a degree of oversight so that the results are not influenced by marketing and production concerns. The Department believes that the UL EVS Program essentially follows the ISO/IEC 25 Guidelines.

4. Expertise in IEEE Standard 112-1996 Test Method B and CSA Standard C390-93 Test Method (1)

Section 431.27(b)(4) of 10 CFR part 431 set forth evaluation criteria and guidelines whereby personnel conducting a certification program should be expert and experienced in the content and application of IEEE Standard 112-1996 Test Method B and CSA Standard C390-93 Test Method (1), or similar procedures and methodologies for determining the energy efficiency of electric motors. The program must have satisfactory criteria and procedures for the selection and sampling of electric motors tested for energy efficiency, and provide documents that establish experience in applying the guidelines for confidence in testing laboratories contained in ISO/IEC Guide 25. Such guidelines address quality audits and reviews, personnel,

equipment, test methods, sampling, and records.

In Attachment 4 to the UL Petition entitled, "431.27(c)(4) Expertise in Motor Test Procedures," it is stated that "UL has been providing Energy Verification certification services since 1995," and that "UL has evaluated motors in sizes ranging from 1 hp to 200 hp using the standards IEEE 112 Test Method B or CSA C390." According to the Petition, UL publishes a *Directory of Electric, Gas Fired, and Oil-Fired Equipment Verified for Energy Efficiency 1999*, which includes electric motors, and asserts that each member of its engineering staff has at least four-year Bachelor of Science degree in engineering. Also, UL submitted to the Department a copy of its *Conformity Assessment Manual*, *EVSs Manual*, *Client Interactive Programs Manual*, and *Motor Efficiency Guide* as evidence of its expertise in electric motor test procedures.

The Department's letter to UL, dated June 12, 2001, requested evidence as to the nature and extent of training that current staff actually involved with the EVS Program regularly undergoes to maintain proficiency with the evaluation of motor designs and construction, and the practice of energy efficiency testing.

UL's letter, dated July 2, 2001, asserts that UL has documented procedures to ensure that qualified personnel review the evaluation of motors for compliance with energy efficiency requirements. These include the written instructions for the duties and responsibilities of personnel with respect to the evaluation of motor efficiency investigations, as well as qualification requirements to assure that its personnel are qualified in the scientific disciplines related to energy efficiency. Further, UL asserts that its staff undergoes continual, on-the-job training and each person is evaluated through a documented performance appraisal process. UL has supervisors as review staff with the necessary education, training, skill, abilities and experience for evaluating motors for compliance with energy efficiency requirements. Also, UL has developed its own *Motor Efficiency Guide* as a reference for staff involved in conducting motor efficiency evaluations. UL's management structure provides for the supervision of reviewers and other personnel involved in the product certification process. UL's letter, dated September 20, 2001, contains the names of UL technical staff involved with the EVS Program, indicates their experience with CSA C390-93 and IEEE 112-1996, and contains a resume for each.

Furthermore, UL's letter dated September 20, 2001, asserts that the test procedures in "CSA C390-93 method B" [sic] are similar to those procedures already in place under other CSA International Standards as well as UL Standards, and that the data and information recorded to verify energy efficiency is some of the same data and information required under the testing it conducts on a routine basis and which follows UL Standard 1004, "Electric Motors," UL Standard 2111, "Overheating Protection for Motors," UL 547, "Thermally Protected Motors," and CSA C22.2 No. 77, "Overheating Protection for Motors," and CSA C22.2 No. 100, "Motors and Generators." UL asserts that the data and information recorded for energy verification testing is some of the same data and information required under the above-referenced test procedures, which it uses in an automated spreadsheet program entitled "Motor Efficiency Testing Program V3.0," UL copyrighted 1994 and 1997, to calculate motor efficiency. The September 20 letter from UL compares the IEEE 112 and CSA C390 test procedures with similar procedures in the above "UL" and "CSA" standards for performance and safety.

Advanced Energy's letter, dated October 12, 2001, expresses concern with "the level of 'expert' knowledge regarding motor testing." Advanced Energy asserts that UL is thorough in the documentation of procedures and calibrations of laboratory equipment, but weak in motor efficiency testing, test data analysis, and in its prescriptive audit process that does not involve motor testing, review of motor test data, or proficiency testing by a laboratory.

Emerson Motor Company's letter, dated October 15, 2001, expresses concern that UL uses a motor manufacturer's testing facilities that have been "reviewed" by a UL staff member, but there is no evidence of the staff member's credentials, knowledge, level of training and certification with regard to motor efficiency testing laboratories.

In response to the above comments from Advanced Energy and Emerson Motor Company, UL's letter, dated October 22, 2001, asserts that Advanced Energy's view of the UL certification program is based upon limited exposure to UL's technical expertise when both UL and Advanced Energy were exploring a business relationship in the 1990s. According to UL, a laboratory assessment is one part of its Client Test Data Program under which external testing, such as by Advanced Energy, would be accepted by UL. However,

other portions of the UL's EVS Program, including staff with specific technical capability related to motor testing, were not completed at that time, nor had Advanced Energy been exposed to the "full expertise" within the UL Program.

UL's letter to the Department, dated February 21, 2002, asserts that its experience in standards development, testing, and safety evaluation of motors according to the requirements of UL and other U.S. and International standards and the corresponding data acquisition necessary to accomplish these endeavors, is "equivalent to and demonstrative of the indicated UL staff having the necessary proficiency and expertise to conduct energy efficiency evaluations." In sum, the experience with CSA C390-93 and IEEE Standard 112 of the five UL staff persons engaged in the UL EVS Program ranges from one to four years, which is in addition to their four to 13 years experience with test procedures for motor safety.

In the Department's view, any technically qualified person could satisfy the criteria for expertise in the content, application, and methodologies of the test procedures pursuant to 10 CFR 431.27(b)(4) if that person: (1) Is proficient in the test methodology of IEEE Standard 112 Test Method B and CSA C390-93 Test Method (1); (2) is familiar with the electrical, mechanical and environmental capabilities of a testing laboratory system, (3) understands how to prepare and mount a motor for testing, which includes the connection and operation of the test equipment, (4) is competent in calibrating test equipment; and (5) is competent with data collection and analysis. UL's experience in standards development, testing and evaluation of motors to both U.S. and International safety and similar energy efficiency procedures and methodologies provide sufficient evidence of UL staff having the necessary proficiency and expertise to conduct energy efficiency evaluations under ISO/IEC Guide 25. Thus, the Department believes that the qualifications of the UL Staff named in the above September 20 letter, regular additional training, and monitoring by UL management, satisfy the general requirements for the training, technical knowledge, and experience of testing laboratory personnel under 10 CFR 431.27(b)(4) and (c)(4).

5. Sampling Criteria and Procedures for Selecting an Electric Motor for Energy Efficiency Testing

Section 431.27(b)(4) of 10 CFR 431 requires a certification organization to have satisfactory criteria and procedures for the selection and sampling of

electric motors tested for energy efficiency. Based on the National Institute of Standards and Technology report, NISTIR 6092, "Analysis of Proposals for Compliance and Enforcement Testing Under the New Part 431: Title 10, Code of Federal Regulations," January 1998, which analyzed various criteria and sampling plans proposed for establishing compliance with the nominal full-load efficiency levels prescribed by EPCA, 42 U.S.C. 6313(b)(1), the Department determined that "the NEMA proposal for compliance testing provides statistically meaningful sampling procedures." Moreover, the NIST analysis was extensive in order to determine whether a particular sampling plan would be valid for the purpose of establishing compliance with EPCA motor efficiency levels. Also, section 10.5 of ISO/IEC Guide 25: 1990 requires the use of documented procedures and appropriate statistical techniques to select samples.

In Attachment 1 of its Petition, UL describes its sample selection process as one where representative samples from the manufacturer's production are selected for use in testing and witnessed by UL engineering staff. According to the Petition, representative samples are those that, when reviewed as a group, can adequately represent a line of similar models that use the same major energy consuming components. UL asserts that the objective in selecting representative samples is to obtain sufficient confidence that the series of motors verified meet the applicable energy efficiency standard while at the same time minimize the number of tests the manufacturer is required to perform. Samples are selected to represent an entire range of motors. Furthermore, as part of a manufacturer's ongoing production testing, UL audits the number of samples tested and the frequency of testing and test results which are documented by the manufacturer. The manufacturer is required to document the test results, which UL audits as part of each follow-up visit.

Notwithstanding UL's above assertions, the Department found no evidence that the samples used for a motor manufacturer's test data was selected randomly, that a UL representative participated in the sample selection process or witnessed any of the initial testing, or that it was clear that "two samples" were sufficient to statistically validate the energy efficiency of an entire line of electric motors.

Subsequently, UL submitted to the Department, under cover letter dated

July 31, 2001, a copy of its *Motor Efficiency Guide* (Guide), to outline the criteria by which UL evaluates motor efficiency in accordance with energy efficiency regulations. The Department examined the Guide and found that appendix D contained a section entitled "Sample Selection," Form Page 8 on ULS-02194-ZWAA-Appendix-0001, which set forth procedures whereby samples consisting of production units are "randomly selected by UL Staff" and appeared to satisfy one of the Department's concerns. However, in the "Definitions" section of the Guide, the Department found that the definition of "nominal full load efficiency" was not consistent with the definition of "nominal full load efficiency" in 10 CFR 431.2, nor did the Guide contain a definition of the term "Sample." Also, the "Basis of Acceptability," on Form Page 11 of appendix D in the Guide, which provided procedure to calculate a tolerance for "permitted values of energy efficiency" using a "Coefficient K" and required that the "actual motor efficiency value will be not less than the associated minimum value," was inconsistent with 10 CFR 431.24, "Determination of efficiency," and 10 CFR 431.42, "Energy conservation standards." Thereafter, UL submitted to the Department, under cover letters dated January 11 and January 28, 2002, a copy of the revised pages in the Guide that were in question. These included a definition for the term "sample," revised sample selection criteria, identification of UL's initial factory production visit to select the random samples, and corrections to the "Statistical Test Method" formulas and the "Basis of Acceptability" in order to be consistent with the applicable provisions in 10 CFR 431.

The Department concludes that the above documents, as corrected by UL, are consistent with 10 CFR 431.24 and 431.42, and satisfy the criteria and procedures for the selection and sampling of electric motors to be tested for energy efficiency under 10 CFR 431.27(b)(4).

C. Other Matters

In a separate matter related to 10 CFR 431.82, "Labeling requirements," and section 14, "Use of licenses, certificates and marks of conformity," in the ISO/

IEC Guide 65, Emerson Motor Company's comments, dated October 15, 2001, object to any requirement to display a compliance certification labeling mark, such as the UL Mark, on an electric motor either in place of or in addition to the required Compliance Certification number supplied by the Department of Energy as provided for in 10 CFR 431.82(a)(1)(ii). Emerson Motor Company asserts that such additional marks would add significant financial burdens on motor manufacturers and confuse the motor purchaser. Further, Emerson Motor Company asserts that the Department of Energy Compliance Certification number is the only mark allowed.

Advanced Energy's comments, dated October 12, 2001, object to the proposed UL requirement that a manufacturer display the UL Mark. Advanced Energy asserts that there would be an added financial burden to a manufacturer because of being forced to display the UL Mark, with possible confusion to a motor purchaser attempting to distinguish between one motor with a Compliance Certification number alone and another motor with both a Compliance Certification number and the UL mark.

Section 431.82(a)(1) of 10 CFR 431 requires a manufacturer or private labeler to mark the permanent nameplate of an electric motor clearly with the motor's nominal full load efficiency and a Compliance Certification number supplied by the Department. However, 10 CFR 431.82(a)(3) permits the optional display of the encircled lowercase letters "ee" or some comparable designation or logo on either the permanent nameplate of an electric motor, a separate plate, or decalomania. The UL Mark falls into the "optional display" category and would be comparable to the encircled lowercase letters "ee." Therefore, display of the UL Mark would be permitted in addition to the labeling requirements set forth under section 431.82(a)(1). But, such optional display is not a replacement mark for the motor's nominal full load efficiency and the Compliance Certification number supplied by the Department. The optional logo or designation, (such as the UL Mark) may also be used in

catalogs and other marketing materials according to 10 CFR 431.82(b)(2). The Department believes that display of the UL Mark is a matter between UL and the manufacturer or private labeler.

III. Conclusion

A. Interim Determination

In view of the UL Petition and supporting documents, the public comments received, the Department's independent investigation, and UL's corrections to its Program described above, the Department concludes that the UL EVS Program for Electric Motors satisfactorily meets the criteria in 10 CFR 431.27.

Therefore, the Department's interim determination is, as of today's **Federal Register** notice, to classify the UL EVS Program for Electric Motors as nationally recognized in the United States for the purposes of section 345(c) of EPCA. In the event that a final determination recognizes the UL EVS Program for Electric Motors as a nationally recognized certification program pursuant to the criteria in 10 CFR 431.27, and the Program thereafter fails to meet the criteria for recognition, the Department can withdraw its recognition after following the regulatory procedural requirements in 10 CFR 431.28(g).

B. Future Proceedings

Pursuant to 10 CFR 431.28(d), the Department will notify UL in writing of this interim determination. Today's **Federal Register** notice solicits comments, data and information concerning the Department's interim determination to classify the UL EVS Program for Electric Motors as nationally recognized in the United States. After review of information submitted concerning the interim determination, the Department will publish in the **Federal Register** an announcement of its final determination. See 10 CFR 431.28(e).

Issued in Washington, DC, on June 28, 2002.

Douglas L. Faulkner,

Principal Deputy Assistant Secretary, Energy Efficiency and Renewable Energy.

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