Fuel,'' which was approved by the NRC on February 4, 2000, demonstrated that the effectiveness of the ECCS will not be affected by a change from zircaloy fuel rod cladding to M5 fuel rod cladding. In addition, TR BAW–10227P demonstrated that the Baker-Just equation (used in the ECCS evaluation model to determine the rate of energy release, cladding oxidation, and hydrogen generation) is conservative in all post-LOCA scenarios with respect to M5 advanced alloy as a fuel rod cladding material. Based on the above, no new accident precursors are created by using M5 fuel cladding, thus, the probability of postulated accidents is not increased. Also, based on the above, the consequences of postulated accidents are not increased. In addition, the licensee will use NRC-approved methods for the reload design process for ANO–1 reloads with M5 cladding. Therefore, there is no undue risk to public health and safety due to using M5 cladding.

Consistent With Common Defense and Security

The exemption requested results in changes to the operation of the plant by allowing the use of the M5 alloy as fuel cladding material in lieu of zircaloy or ZIRLO. This change to the fuel material used in the plant has no relation to security issues. Therefore, the common defense and security is not impacted by this exemption request.

Special Circumstances

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(ii), are present whenever application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.

The underlying purpose of 10 CFR 50.46 is to ensure that facilities have adequate acceptance criteria for the ECCS. On February 4, 2000, the NRC staff approved TR BAW–10227P in which Framatome demonstrated that the effectiveness of the ECCS will not be affected by a change from zircaloy fuel rod cladding to M5 fuel rod cladding. The analysis described in the TR also demonstrated that the ECCS acceptance criteria applied to reactors fueled with zircaloy fuel rod cladding are also applicable to reactors fueled with M5 fuel rod cladding.

The underlying purpose of 10 CFR part 50, appendix K, paragraph I.A.5, is to ensure that cladding oxidation and hydrogen generation are appropriately limited during a LOCA and conservatively accounted for in the ECCS evaluation model. Appendix K requires that the Baker-Just equation be used in the ECCS evaluation model to determine the rate of energy release, cladding oxidation, and hydrogen generation. In TR BAW–10227P, Framatome demonstrated that the Baker-Just model is conservative in all post-LOCA scenarios with respect to the use of the M5 advanced alloy as a fuel rod cladding material, and that the amount of hydrogen generated in an M5-clad core during a LOCA will remain within the ANO–1 design basis.

The M5 alloy is a proprietary zirconium-based alloy comprised of primarily zirconium (~99 percent) and niobium (~1 percent). The elimination of tin has resulted in superior corrosion resistance and reduced irradiation-induced growth relative to both standard zircaloy (1.7 percent tin) and low-tin zircaloy (1.2 percent tin). The addition of niobium increases ductility, which is desirable to avoid brittle failures.

The NRC staff has reviewed the licensee's advanced cladding material, M5, for PWR fuel mechanical designs as described in TR BAW–10227P. In the safety evaluation for TR BAW–10227P dated February 4, 2000, the NRC staff concluded that, to the extent specified in the staff's evaluation, the M5 properties and mechanical design methodology are acceptable for referencing in fuel reload licensing applications. Therefore, since the underlying purposes of 10 CFR 50.46 and 10 CFR part 50, appendix K, paragraph I.A.5 are achieved through the use of the M5 advanced alloy as a fuel rod cladding material, the special circumstances required by 10 CFR 50.12(a)(2)(ii) for the granting of an exemption from 10 CFR 50.46 and 10 CFR part 50, appendix K exist.

Summary

The staff has reviewed the licensee's request to use the M5 advanced alloy for fuel rod cladding in lieu of zircaloy or ZIRLO. Based on the staff's evaluation, as set forth above, the staff concludes that the exemption is authorized by law, will not present an undue risk to public health and safety, and is consistent with the common defense and security. In addition, the staff concludes that the underlying purposes of 10 CFR 50.46 and 10 CFR part 50, appendix K are achieved through the use of the M5 advanced alloy. Therefore, pursuant to 10 CFR 50.12(a), the staff concludes that the use of the M5 advanced alloy for fuel rod cladding is acceptable and the exemption from 10 CFR 50.46 and 10 CFR part 50, appendix K is justified.

4.0 Conclusion

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a), the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Also, special circumstances are present. Therefore, the Commission hereby grants Entergy Operations, Inc. an exemption from the requirements of 10 CFR 50.46 and 10 CFR part 50, appendix K to allow the use of M5 cladding at ANO–1.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not have a significant effect on the quality of the human environment (70 FR 37126).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 25th day of July 2005.

For the Nuclear Regulatory Commission.

Ledyard B. Marsh,

Director, Division of Licensing Project Management, Office of Nuclear Reactor Regulation.

[FR Doc. 05–15125 Filed 7–29–05; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

[Docket No. 40–8989]

In the Matter of Envirocare of Utah, Inc.; Order Modifying Exemption From 10 CFR Part 70

AGENCY: Nuclear Regulatory Commission.

ACTION: Issuance of order to modify Envirocare of Utah, Inc.'s exemption from requirements of 10 CFR part 70.

FOR FURTHER INFORMATION CONTACT: James Park, Environmental and Performance Assessment Directorate, Division of Waste Management and Environmental Protection, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001. Telephone: (301) 415–5835, fax number: (301) 415–5397, e-mail: *JRP@nrc.gov.*

SUPPLEMENTARY INFORMATION:

I. Introduction

The Nuclear Regulatory Commission (NRC) is issuing an Order pursuant to section 274f of the Atomic Energy Act to Envirocare of Utah, Inc. (Envirocare) to modify Envirocare's exemption from certain NRC licensing requirements for special nuclear material.

II. Further Information

I

Envirocare of Utah, Inc, (Envirocare) operates a low-level waste (LLW) disposal facility in Clive, Utah. This facility is licensed by the State of Utah, an Agreement State. Envirocare also is licensed by Utah to dispose of mixed waste, hazardous waste, and 11e.(2) byproduct material (as defined under section 11e.(2) of the Atomic Energy Act of 1954, as amended).

II

Section 70.3 of 10 CFR part 70 requires persons who own, acquire, deliver, receive, possess, use, or transfer special nuclear material (SNM) to obtain a license pursuant to the requirements in 10 CFR part 70. The licensing requirements in 10 CFR part 70 apply to persons in Agreement States possessing greater than critical mass quantities as defined in 10 CFR 150.11.

Pursuant to 10 CFR 70.17(a), ''the Commission may * * * grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest.''

On May 24, 1999, the NRC transmitted an Order to Envirocare. The Order was published in the **Federal Register** on May 21, 1999 (64 FR 27826). The Order exempted Envirocare from certain NRC regulations and permitted Envirocare, under specified conditions, to possess waste containing SNM in greater quantities than specified in 10 CFR part 150, at Envirocare's LLW disposal facility located in Clive, Utah, without obtaining an NRC license pursuant to 10 CFR part 70. The methodology used to establish these limits is discussed in the 1999 Safety Evaluation Report (SER) that supported the 1999 Order (ADAMS Legacy Library Accession No. 9905140064).

On January 30, 2003, the NRC revised the Order to: (1) Include stabilization of liquid waste streams containing SNM; (2) include the thermal desorption process; (3) change the homogenous contiguous mass limit from 145 kilograms (kg) to 600 kg; (4) change the language and SNM limit associated with footnotes ''c'' and ''d'' of Condition 1 to reflect all materials in Conditions 2 and 3; and (5) omit the confirmatory testing requirements for debris waste. The revised Order was published in the **Federal Register** on February 13, 2003 (68 FR 7399).

In a letter dated July 8, 2003, Envirocare proposed that the NRC amend the 2003 Order. The NRC has evaluated Envirocare's request in two phases. In the first phase, the NRC evaluated the following requested revisions: (1) Modify the table in Condition 1 to include limits for uranium and plutonium in waste without magnesium oxide; (2) modify the units of the table from picocuries of SNM per gram of waste material to gram of SNM per gram of waste material; and (3) revise the language of Condition 5 to be consistent with the revised units in the table in Condition 1. The first phase of these revisions was published in the **Federal Register** on December 29, 2003 (68 FR 74986).

In the second phase, which is the subject of this Order, the NRC evaluated the remaining revisions that were requested by Envirocare. These involve: (1) Modifying the table in Condition 1 to include criticality-based limits for uranium-233 and plutonium isotopes in waste containing up to 20 percent of materials listed in Condition 2 (*e.g.*, magnesium oxide); (2) including criticality-based limits in the table in Condition 1 for plutonium isotopes in waste with unlimited materials in Condition 2, and in waste with unlimited quantities of materials in Conditions 2 and 3 (*e.g.*, beryllium); (3) providing criticality-based limits for uranium-235 as a function of enrichment in waste containing up to 20 percent of materials listed in Condition 2 and in waste containing none of the materials listed in Condition 2; and (4) including additional mixed waste treatment technologies.

III

A principal emphasis of 10 CFR part 70 is criticality safety and safeguarding SNM against diversion or sabotage. The NRC staff considers that criticality safety can be maintained by relying on concentration limits, under the conditions specified below. Safeguarding SNM against diversion or sabotage is not considered a significant issue because of the diffuse form of the SNM in waste meeting the conditions specified. These conditions are considered an acceptable alternative to the criticality definition provided in 10 CFR 150.11, thereby assuring the same level of protection. The NRC staff reviewed the safety aspects of the proposed action (*i.e.*, the granting of Envirocare's request) in the SER, dated November 2004. The NRC staff concluded that additional conditions were required to maintain sufficient protection of health, safety, and the environment. The exemption conditions would be revised as follows:

1. For waste with no more than 20 weight percent of materials listed in Condition 2, concentrations of SNM in individual waste containers must not exceed the following values at time of receipt:

TABLE A

SNM nuclide	Maximum SNM concentration in waste containing the described materials (g SNM/g waste)	
	No materials listed in Condition 2	Maximum of 20 weight percent of materials listed in Condition 2 and no more than 1 weight percent of beryllium
U-235 (>50%) [a]	6.2E–4	5.4E–4
U-235 (=50%)	6.9E–4	6.1E–4
U-235 (=20%)	8.3E–4	7.4E–4
U-235 (=10%)	9.9E–4	8.8E–4
U-235 (=5%)	1.0E–3	9.6E–4
U-235 (=3%)	1.3E–3	1.1E–3
U-235 (=2%)	1.7E–3	1.5E–3
U-235 (=1.5%)	2.3E–3	2.1E–3
U-235 (=1.35%)	2.8E–3	2.5E–3

TABLE A—Continued

SNM nuclide	Maximum SNM concentration in waste containing the described materials (g SNM/g waste)	
	No materials listed in Condition 2	Maximum of 20 weight percent of materials listed in Condition 2 and no more than 1 weight percent of beryllium
U-235 (=1.2%)	3.5E–3	3.2E–3
U-235 (=1.1%)	4.5E–3	4.2E–3
U-235 (=1.05%)	5.0E–3	4.8E–3
U-233	4.7E–4	4.3E–4
Pu-239	2.8E–4	2.6E–4
Pu-241	2.2E–4	1.9E–4

[a] Percentage value refers to weight percent enrichment in U–235. For enrichments that fall between identified values in the table, the higher value is the applicable value (*e.g.*, for an enrichment of 14 weight percent U–235, the applicable concentration limit is that for 20 weight percent U–235).

For waste with more than 20 weight percent of materials listed in Condition 2, concentrations of SNM in individual waste containers must not exceed the following values at time of receipt:

TABLE B

Radionuclide	Maximum SNM concentration in waste containing the described materials (g SNM/g waste)	
	Unlimited quantities of materials listed in Condition 2	Unlimited quantities of materials listed in Conditions 2 and 3
U-235 (>50%)	3.4E–4	1.2E–5
U-235	N/A	[a] 3.1E–4
U-233	2.9E–4	1.1E–5
Pu-239	1.7E–4	7.5E–6
Pu-241	1.3E–4	5.3E–6

[a] For uranium at any enrichment with sum of materials listed in Conditions 2 and beryllium not exceeding 45 percent of the weight of the waste.

Plutonium isotopes other than Pu-239 and Pu-241 do not need to be considered in demonstrating compliance with this condition. When mixtures of these SNM isotopes are present in the waste, the sum-of-the-fractions rule, as illustrated below, should be used.

$$\frac{\text{U-233 conc}}{\text{U-233 limit}}+\frac{\text{100wt\%U-235 conc}}{\text{100wt\%U-235 limit}}+\frac{\text{10wt\%U-235 conc}}{\text{10wt\%U-235 limit}}+\frac{\text{Pu-239 conc}}{\text{Pu-239 limit}}+\frac{\text{Pu-241 conc}}{\text{Pu-241 limit}}\leq 1$$

The concentration values in Condition 1 are operational values to ensure criticality safety. Where the values in Condition 1 exceed concentration values in the corresponding conditions of the State of Utah Radioactive Material License (RML), the concentration values in the RML, which are averaged over the container, may not be exceeded. Higher concentration values are included in Condition 1 to be used in establishing the maximum mass of SNM for non-homogeneous solid waste and liquid waste.

The measurement uncertainty values should be no more than 15 percent of the concentration limit, and represent the maximum one-sigma uncertainty associated with the measurement of the concentration of the particular radionuclide. When determining the applicable U-235 concentration limit for a specific enrichment percentage, the analytical uncertainty shall be added to the result (*e.g.*, for a measurement value of U-235 enrichment percentage of 1.1 +/ − 0.2, the U-235 concentration limit corresponding to an enrichment percent of 1.35 shall be used). This shall be applied to analytical methods employed by the generator prior to receipt and by Envirocare upon receipt.

The SNM must be homogeneously distributed throughout the waste. If the SNM is not homogeneously distributed, then the limiting concentrations must not be exceeded on average in any contiguous mass of 600 kilograms of waste.

Liquid waste may be stabilized provided the SNM concentration does not exceed the SNM concentration limits in Condition 1. For containers of liquid waste with more than 600

kilograms of waste, the total mass of SNM shall not exceed the SNM concentration in Condition 1 times 600 kilograms of waste. Waste containing free liquids and solids shall be mixed prior to treatment. Any solids shall be maintained in a suspended state during transfer and treatment.

2. Except as allowed by Tables A and B in Condition 1, waste must not contain ''pure forms'' of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (*e.g.*, a pallet of drums, a B–25 box). By ''pure forms,'' it is meant that mixtures of the above elements, such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc., do not contain other elements. These chemicals would be added to the waste stream during processing, such as at fuel facilities or treatment such as at mixed waste treatment facilities. The presence of the above materials will be determined by the generator, based on process knowledge or testing.

3. Except as allowed by Tables A and B in Condition 1, waste accepted must not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one tenth of one percent of the total weight of the waste. The presence of the above materials will be determined by the generator, based on process knowledge, physical observations, or testing.

4. Waste packages must not contain highly water soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. The sum of the fractions rule will apply for mixtures of U-233 and U-235. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. The presence of the above materials will be determined by the generator, based on process knowledge or testing.

5. Waste processing of waste containing SNM will be limited to stabilization (mixing waste with reagents), micro-encapsulation and macro-encapsulation using low-density and high-density polyethylene, macro-encapsulation with cement grout, spray-washing, organic destruction (CerOx process and Solvent Electron Technology process), and thermal desorption.

Envirocare shall confirm that the SNM concentration in the rinse water does not exceed the limits in Condition 1 following spray-washing, prior to further treatment. If the rinse water is evaporated, the evaporated product shall comply with the requirements in Condition 1. Envirocare shall perform sampling and analysis of the liquid effluent collection system at a frequency of one sample per 300 gallons or when the system reaches capacity, whichever is less.

Envirocare shall track the SNM mass of waste treated using the CerOx process. When the total concentration of SNM is 85 percent of the sum of the fraction rule in Condition 1, Envirocare shall confirm the SNM concentration in the phase reactor tank and replace the solutions. The 10 percent enriched limit shall be used for uranium-235. The contents of the phase reactor tank should be solidified prior to disposal.

When waste is processed using the thermal desorption process and the Solvent Electron Technology process, Envirocare shall confirm the SNM concentration following processing and prior to returning the waste to temporary storage.

6. Envirocare shall require generators to provide the following information for each waste stream:

Pre-Shipment

Waste Description. The description must detail how the waste was generated, list the physical forms in the waste, and identify uranium chemical composition.

Waste Characterization Summary. The data must include a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

Uniformity Description. A description of the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

Manifest Concentration. The generator must describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. The generator must describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

Envirocare shall review the above information and, if adequate, approve in writing this pre-shipment waste characterization and assurance plan before permitting the shipment of a waste stream. This will include statements that Envirocare has a written copy of all the information required above, that the characterization information is adequate and consistent with the waste description, and that the information is sufficient to demonstrate compliance with Conditions 1 through 4. Where generator process knowledge is used to demonstrate compliance with Conditions 1, 2, 3, or 4, Envirocare shall review this information and determine when testing is required to provide additional information in assuring compliance with the Conditions. Envirocare shall retain this information as required by the State of Utah to permit independent review.

At Receipt

Envirocare shall require generators of SNM waste to provide a written certification with each waste manifest that states that the SNM concentrations reported on the manifest do not exceed the limits in Condition 1, that the measurement uncertainty does not exceed the uncertainty value in Condition 1, and that the waste meets Conditions 2 through 4.

7. Sampling and radiological testing of waste containing SNM must be performed in accordance with the following: One sample for each of the first ten shipments of a waste stream; or one sample for each of the first 100 cubic yards of waste up to 1,000 cubic yards of a waste stream, and one sample for each additional 500 cubic yards of waste following the first ten shipments or following the first 1,000 cubic yards of a waste stream. Sampling and radiological testing of debris waste containing SNM (that is exempted from sampling by the State of Utah) can be eliminated if the SNM concentration is lower than one tenth of the limits in Condition 1. Envirocare shall verify the percent enrichment by appropriate analytical methods. The percent enrichment determination shall be made by taking into account the most conservative values based on the measurement uncertainties for the analytical methods chosen.

8. Envirocare shall notify the NRC, Region IV office within 24 hours if any of the above conditions are not met, including if a batch during a treatment process exceeds the SNM concentrations of Condition 1. A written notification of the event must be provided within 7 days.

9. Envirocare shall obtain NRC approval prior to changing any activities associated with the above conditions.

IV

Based on the staff's evaluation, the Commission has determined, pursuant to 10 CFR 70.17(a), that the exemption of above activities at the Envirocare disposal facility is authorized by law, and will not endanger life or property or

the common defense and security and is otherwise in the public interest. Accordingly, by this Order, the Commission grants an exemption subject to the stated conditions. The exemption will become effective after the State of Utah has incorporated the above conditions into Envirocare's radioactive materials license. In addition, at that time, the Order transmitted in December 2003 will no longer be effective.

Pursuant to the requirements in 10 CFR part 51, the Commission has prepared an Environmental Assessment (EA) for the proposed action and has determined that the granting of this exemption will have no significant impacts on the quality of the human environment. This finding was noticed in the **Federal Register** on July 18, 2005 (70 FR 41241).

V

Documents related to this action, including the application for amendment and supporting documentation, will be available electronically at the NRC's Electronic Reading Room at *http://www.NRC.gov/reading-rm/adams.html.* From this site, you can access the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The ADAMS accession numbers for the documents related to this notice are: Envirocare's June 8, 2003, request (ML031950334), the NRC staff's July 2005 Environmental Assessment (ML041200390), and the NRC staff's June 2005 SER (ML041190003).

If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's Public Document Room (PDR) Reference staff at 1–800–397–4209, 301–415–4737, or by e-mail to *pdr@nrc.gov.*

These documents may also be viewed electronically on the public computers located at the NRC's PDR, O 1 F21, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852. The PDR reproduction contractor will copy documents for a fee.

Dated in Rockville, Maryland this 22nd day of July, 2005.

For the Nuclear Regulatory Commission.

Margaret V. Federline,

Acting Director, Office of Nuclear Material Safety and Safeguards.

[FR Doc. 05–15123 Filed 7–29–05; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Proposed Generic Communication Inaccessible or Underground Cable Failures That Disable Accident Mitigation Systems

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of opportunity for public comment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is proposing to issue a generic letter (GL) to:

Alert the licensees on the potential susceptibility of certain cables to affect the operability of multiple accident-mitigation systems;

Request that addressees provide information regarding the monitoring of the inaccessible or underground electrical cables in light of the information provided in this letter. Adequate monitoring will ensure that cables will not fail abruptly and cause plant transients or disable accident mitigation systems when they are needed;

Require addressees, to submit a written response to this generic letter pursuant to 10 CFR 50.54(f).

This **Federal Register** notice is available through the NRC's Agencywide Documents Access and Management System (ADAMS) under accession number ML050880448.

DATES: Comment period expires September 30, 2005. Comments submitted after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except for comments received on or before this date.

ADDRESSES: Submit written comments to the Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Mail Stop T6–D59, Washington, DC 20555–0001, and cite the publication date and page number of this **Federal Register** notice. Written comments may also be delivered to NRC Headquarters, 11545 Rockville Pike (Room T–6D59), Rockville, Maryland, between 7:30 a.m. and 4:15 p.m. on Federal workdays.

FOR FURTHER INFORMATION, CONTACT: Thomas Koshy at 301–415–1176 or by e-mail *txk@nrc.gov.*

SUPPLEMENTARY INFORMATION: NRC Generic Letter 2005–XX, Inaccessible or Underground Cable Failures that Disable Accident Mitigation Systems.

Addressees

All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this generic letter to:

(1) Alert the licensees on the potential susceptibility of certain cables to affect the operability of multiple accident-mitigation systems.

(2) Request that addressees provide information regarding the monitoring of the inaccessible or underground electrical cables in light of the information provided in this letter. Adequate monitoring will ensure that cables will not fail abruptly and cause plant transients or disable accident mitigation systems when they are needed.

Pursuant to 10 CFR 50.54(f), addressees are required to submit a written response to this generic letter.

Background

Cable failures have a variety of causes: Manufacturing defects, damage caused by shipping and installation, and exposure to electrical transients or abnormal environmental conditions during operation. Most of these defects worsen gradually over time as insulation degradation leads to cable failure.

Electrical cables in nuclear power plants are usually located in dry environments. However, some cables are exposed to moisture from condensation and wetting in inaccessible locations such as buried conduits, cable trenches, cable troughs, duct banks, underground vaults and direct buried installations. Cables in these environments can fail due to various failure mechanisms such as water treeing (physical degradation), electrical treeing or other mechanisms of insulation degradation over varying voltage levels that decrease the dielectric strength of the conductor insulation.

Information Notice (IN) 2002–12 described medium-voltage cable failures at Oyster Creek and Davis-Besse and several other plants which experienced long-term flooding problems in manholes and duct banks in which safety related cables were submerged. In response to the concern identified in IN 2002–12, several plants began manhole restoration projects to replace faulty dewatering equipment and cable supports and made other modifications. Several other plants have reported water removal problems but have not yet