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TECHNICAL EVALUATION REPORT

CONFORMANCE TO REGULATORY GUIDE 1.97: MAINE YANKEE

Docket No. 50-309

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ABSTRACT

This EG&G Idaho, Inc., report documents the review of the submittals for Regulatory Guide 1.97, Revision 3, for the Maine Yankee Atomic Power Station and identifies areas of nonconformance to the regulatory guide. Exceptions to Regulatory Guide 1.97 are evaluated and those areas where sufficient basis for acceptability is not provided are identified.

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TAC No. 51103

FOREWORD

This report is supplied as part of the "Program for Evaluating Licensee/Applicant Conformance to RG 1.97," being conducted for the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Division of Engineering and System Technology, by EG&G Idaho, Inc., Electrical, Instrumentation and Control System Evaluation Unit.

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CONTENTS

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1. INTRODUCTION

On December 17, 1982, Generic Letter No. 82-33 (Reference 1) was issued by D. G. Eisenhut, Director of the Division of Licensing, Nuclear Reactor Regulation, to all licensees of operating reactors, applicants for operating licenses and holders of construction permits. This letter included additional clarification regarding Regulatory Guide 1.97, Revision 2 (Reference 2), relating to the requirements for emergency response capability. These requirements have been published as Supplement No. 1 to NUREG-0737, "TMI Action Plan Requirements" (Reference 3).

Maine Yankee Atomic Power Company, the licensee for the Maine Yankee Atomic Power Station, provided a response to Section 6.2 of the generic letter on February 28, 1985 (Reference 4). This submittal addresses the recommendations of Regulatory Guide 1.97, Revision 3 (Reference 5). Additional information was provided on June 17, 1986 (Reference 6), September 5, 1986 (Reference 7), April 8, 1988 (Reference 8), and April 29, 1988 (Reference 9).

This report is based on the recommendations of Regulatory Guide 1.97, Revision 3, and compares the instrumentation proposed by the licensee's submittals with these recommendations.

2. REVIEW REQUIREMENTS

Section 6.2 of NUREG-0737, Supplement No. 1, sets forth the documentation to be submitted in a report to the NRC describing how the licensee complies with Regulatory Guide 1.97 as applied to emergency response facilities. The submittal should include documentation that provides the following information for each variable shown in the applicable table of Regulatory Guide 1.97.

1. Instrument range

2. Environmental qualification

3. Seismic qualification

4. Quality assurance

5. Redundance and sensor location

6. Power supply

7. Location of display

8. Schedule of installation or upgrade

The submittal should identify deviations from the regulatory guide and provide supporting justification or alternatives.

Subsequent to the issuance of the generic letter, the NRC held regional meetings in February and March 1983, to answer licensee and applicant questions and concerns regarding the NRC policy on this subject. At these meetings, it was noted that the NRC review would only address exceptions taken to Regulatory Guide 1.97. Where licensees or applicants explicitly state that instrument systems conform to the regulatory guide it was noted that no further staff review would be necessary. Therefore, this

report only addresses exceptions to Regulatory Guide 1.97. The following evaluation is an audit of the licensee's submittals, based on the review policy described in the NRC regional meetings.

3. EVALUATION

The licensee provided a response to Item 6.2 of NRC Generic Letter 82-33 on February 28, 1985. The response describes the licensee's position on post-accident monitoring instrumentation. Additional information was provided on June 17, 1986, September 6, 1986, April 8, 1988, and April 29, 1988. This evaluation is based on the submitted material.

3.1 Adherence to Regulatory Guide 1.97

The licensee has provided a review of their post-accident monitoring instrumentation that compares the instrumentation characteristics against the recommendations of Regulatory Guide 1.97, Revision 3. The licensee shows that in several instances, satisfactory instrumentation already exists and states that additional instrumentation will be installed to comply with the provisions of Regulatory Guide 1.97, except for those instances where deviations are justified. The licensee states in their report that the identified modifications will be completed during the 1985 refueling outage. Later submittals that commit to modifications also provide schedules. Therefore, we conclude that the licensee has provided an explicit commitment on conformance to Regulatory Guide 1.97. Exceptions to and deviations from the regulatory guide are noted in Section 3.3.

3.2 Type A Variables

Regulatory Guide 1.97 does not specifically identify Type A variables, i.e., those variables that provide the information required to permit the control room operator to take specific manually controlled safety actions. The licensee classifies the following instrumentation as Type A.

1. Reactor coolant system (RCS) cold leg water temperature

2. RCS hot leg water temperature

3. RCS pressure

4. Wide range containment sump water level

5. High range containment pressure

6. Containment area radiation

7. Pressurizer level

8. Steam generator level

9. Steam generator pressure.

This instrumentation meets the Category 1 recommendations consistent with the requirements for Type A variables, with the exceptions as listed in Section 3.3.

3.3 Exceptions to Regulatory Guide 1.97

The licensee identified deviations and exceptions from Regulatory Guide 1.97. These are discussed in the following paragraphs.

3.3.1 Reactor Coolant System Pressure

Regulatory Guide 1.97 recommends instrumentation with a range from 0 to 4000 psig for this variable for Maine Yankee's Combustion Engineering supplied nuclear steam supply system. The licensee's instrumentation for this variable has a range of 0 to 3250 psig.

The licensee states that, as part of the final resolution of the anticipated transient without scram (ATWS) issue, they are installing an ATWS mitigation system that curtails reactor coolant system pressures in excess of 3250 psig. As the pressure is limited to the 0 to 3250 psig range of the instrumentation, we find the range acceptable.

3.3.2 Coolant Level in Reactor

Regulatory Guide 1.97 recommends Category 1 instrumentation for this variable. The licensee has identified the following deviations for the instrumentation provided; 1) there is no redundant instrumentation, 2) one recorder indicates the level for all three instrument loops, and 3) all three instrument loops are powered by the same power source, /B-1.

The licensee states that the core exit thermocouples, the subcooled margin monitors and the safety parameter display system and the plant computer displays provide alternate and backup indication for this variable.

This exception goes beyond the scope of this review and has been addressed by the NRC as part of their review of NUREG-0737, Item II.F.2.

3.3.3 Degrees of Subcooling

Regulatory Guide 1.97 recommends instrumentation for this variable with a range of 200°F subcooling to 35°F superheat. The instrumentation supplied by the licensee has a range of 0 to 200°F subcooling. Superheat is not monitored. No justification for this deviation was given by the licensee in their submittals regarding Regulatory Guide 1.97.

The NRC has reviewed the acceptability of this variable as part of their review of NUREG-0737, Item II.F.2.

3.3.4 Containment Sump Water Level

Regulatory Guide 1.97 recommends narrow range instrumentation for this variable. The licensee does not include narrow range intrumentation. They state that the wide range instruments have resolution sufficient for measurement of the range in question. The licensee states that the sumps isolate below 6 inches water level, and that the wide range instruments are adequate for all usable (above 6 inches) sump levels.

Because the wide range instrumentation covers the entire range of expected water levels for post-accident conditions, we conclude that (a) the range is sufficient to monitor the sump operation for any anticipated condition and (b) the sump level is adequately monitored by the wide range instrumentation to preclude the need for narrow range instrumentation. Therefore, we find that the instrumentation provided for this variable is acceptable.

3.3.5 Containment Pressure

Regulatory Guide 1.97 recommends instrumentation for this variable with a range of -5 psig to three times design pressure. The licensee has instrumentation for this variable with a range of 0 to 200 psig. The licensee (Reference 6) verifies that this instrumentation is capable of monitoring subatmospheric pressure. With this clarification, we find this instrumentation acceptable.

3.3.6 Radiation Level in Circulating Primary Coolant

The licensee has instrumentaton that monitors the radiaton level in the letdown line during normal operaiton. This line is isolated with an accident signal. Thus, this instrumentation is not available post-accident, and the post-accident sampling system, which has been reviewed by the NRC as part of their review of NUREG-0737, Item II.B.3, is used to verify fuel cladding integrity.

Based on the alternate instrumentation provided by the licensee, we conclude that the instrumentation supplied for this variable is adequate and, therefore, acceptable.

3.3.7 Radiation Exposure Rate

Regulatory Guide 1.97 recommends instrumentation for this variable with a range of 10^{-1} to 10^{4} R/hr. The licensee has instrumentation for this variable with a range of 10^{-4} to 10 R/hr. The licensee states that

this instrumentation is used to determine area accessibility. Portable instrumentation is used to survey the area prior to and during any work being done in the areas monitored.

From a radiological standpoint, if the radiation levels reach or exceed the upper limit of the range, personnel would not be permitted into the areas without portable monitoring (except for life saving). Based on the alternate supplemental instrumentation used by the licensee for this variable, we find the provided ranges for the radiation exposure rate monitors acceptable.

3.3.8 Residual Heat Removal (RHR) System Flow

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable. The instrumentation supplied by the licensee meets Category 2 requirements except in environmental qualification. The licensee states that the Category 2 low pressure safety injection (LPSI) flow instrumentation can be used for this variable, because it is the LPSI system that provides long term decay heat removal in post-accident conditions. The licensee also states that the RHR system flow instrumentation has been addressed in accordance with the Environmental Qualification Rule 10 CFR 50.49, and it was found that environmental qualification was not necessary. Based on this, we find the provided instrumentation acceptable.

3.3.9 RHR Heat Exchanger Outlet Temperature

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable. The licensee's instrumentation for this variable meets the Category 2 requirements except for environmental qualification. The licensee states that for large break loss-of-coolant accidents (LOCA) the RHR system is isolated, and that this instrument would not be used. For a small break LOCA, the licensee states that this instrumentation may be used during recirculation. The licensee states that the containment sump contents would not exceed 191°F and that no net positive section head pump

problems would result for the high pressure safety injection pumps, even if the heat exchanger is not functioning. The licensee states that heat removal can be monitored by the rise in primary and secondary component cooling water (PCCW and SCCW) temperatures. The licensee (Reference 6) states that this instrumentation has been addressed in accordance with the Environmental Qualification Rule, 10 CFR 50.49, and it was found that environmental qualification was not necessary because the long term decay heat removal capacity following an accident is performed by the LPSI system. Based on this, we find the provided instrumentation acceptable.

3.2.10 Accumulator Tank Level and Pressure

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable. The licensee's instrumentation for this variable meets the Category 2 requirements except in environmental qualification. The range of the pressure instrumentation is not as recommended. The regulatory guide recommends a range of 0 to 750 psig. The licensee's instrumentation has a range of 0 to 300 psig.

The licensee states that the accumulators are a passive system and that they are not accessible during an accident. Because the level and pressure are verified and recorded by the operator (to maintain the readiness of the accumulators to function) on each shift, the licensee does not supply environmentally qualified instrumentation for this variable.

The licensee states that the accumulator safety relief valves are set for 250 psig. Because of these safety relief valves, the pressure in the accumulators will not exceed the range of 0 to 300 psig. Therefore, we find the range acceptable.

The existing instrumentation is not acceptable. An environmentally qualified instrument is necessary to monitor the status of these tanks. The licensee should designate either level or pressure as the key variable to directly indicate accumulator discharge and provide instrumentation for that variable that is environmentally qualified in accordance with 10 CFR 50.49 and Regulatory Guide 1.97.

3.3.11 Accumulator Isolation Valve Position

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable. The licensee's instrumentation for this variable meets the Category 2 requirements except for environmental qualification. The licensee states that there is no need to monitor the position of these valves during or after an accident because these valves are opened in the startup procedure and electrically disabled and verified to be in the open position. This is accomplished by the licensee's tagging procedures. Additionally, the valves are operated by keylock switches, providing additional administrative controls on the valve position.

Based on the licensee's justification that these valves are open and cannot change position during or following an accident, we consider the instrumentation for this variable acceptable.

3.3.12 Boric Acid Charging Flow

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable. The licensee's instrumentation for this variable meets the Category 2 requirements except for environmental qualification. The licensee states that the flow transmitter is not required to operate in a harsh environment, because the flow is not through the transmitter during emergency boration. For emergency boration, the flow from the boric acid storage tank to the reactor coolant system is via the boric acid transfer pumps and the charging pumps, in series. The flow is calculated by the rated pump flow rate and the duration of the pump operation. The licensee states (Reference 6) that this instrumentation has been addressed in accordance with the Environmental Qualification Rule, 10 CFR 50.49. This determined that environmental qualification of this instrumentation is not necessary. Based on this, we find the provided instrumentation acceptable.

3.3.13 Low Pressure Injection System Flow

Regulatory Guide 1.97 recommends instrumentation for this variable with a range of 0 to 110 percent of design flow. The licensee identifies this requirement as 0 to 2100 gallons per minute. The licensee states (Reference 6) that the range of the instrumentation is 0 to 3000 gallons per minute. This meets the recommendations of the regulatory guide and is acceptable.

3.3.14 Pressurizer Level

Regulatory Guide 1.97 recommends instrumentation for this variable with a range from the top to the bottom. The licensee's instrumentation, measures from the bottom to the top of the pressurizer (Reference 6). Based on this statement, we find the instrumentation acceptable.

3.3.15 Pressurizer Heater Status

Regulatory Guide 1.97 recommends monitoring the pressurizer heater electric current with Category 2 instrumentation. The licensee monitors the heater circuit breaker position.

Section II.E.3.1 of NUREG-0737 requires a number of the pressurizer heaters to have the capability of being powered by the emergency power sources. Instrumentation is to be provided to prevent overloading a diesel generator.

The licensee maintaines the position that an on-off mode of indication is adequate to monitor this variable (Reference 6). The licensee bases this on the fact that the heater banks are either "on" or "off". The licensee further states that the heater current can be monitored with the diesel kilowatt meters when the heaters are loaded onto the diesels.

While this would provide an indication of the operability of the pressurizer heaters when powered by the diesel generators, it does not provide an operability indication when the power source is offsite power. We find the justification provided by the licensee unacceptable. A means of monitoring pressurizer heater current in the control room should be provided.

3.3.16 Quench Tank Temperature

Regulatory Guide 1.97 recommends instrumentation for this variable with a range from 0 to 750°F. The licensee's instrumentation has a range of 0 to 350°F. The licensee states that the normal tank temperature is 104°F, and that the maximum temperature that can be reached by the tank contents is 350°F.

The range covers the anticipated requirements for normal operation, anticipated operational occurences and accident conditions. Because the temperature of the tank contents will not exceed the 0 to 350°F range of the instrumentation, we find this deviation from the regulatory guide acceptable.

3.3.17 Steam Generator Level

Regulatory Guide 1.97 recommends Category 1 instrumentation for this variable with a range from the tube sheet to the separators. The licensee commited to install Category 1 instrumentation that has the full range recommended by the regulatory guide (Reference 6). The installation is to be accomplished during the 1988 refueling outage or the refueling outage 6 months following the NRC Safety Evaluation Report, whichever is later. We find this committment acceptable.

3.3.18 Steam Generator Pressure

Regulatory Guide 1.97 recommends instrumentation for this variable with a range of 0 to 20 percent above the lowest safety valve setting. The

licensee has identified the lowest safety valve setting as 985 psig (1000 psia). Thus, the recommended range is 0 to 1200 psia. The licensee's present instrumentation has a range of 0 to 1000 psia. The licensee commits (Reference 7) to provide upgraded instrumentation, scheduled for the 1988 refueling outage, with a range to 1200 psig. We find this commitment acceptable.

3.3.19 Condensate Storage Tank Water Level

Regulatory Guide 1.97 recommends Category 1 instrumentation for this variable. The licensee's instrumentation is a single Category 1 channel with readout in the control room. A self powered pressure guage is mounted on the tank and is assessible following an accident. The licensee indicates that the diverse and separately powered low level and low-low level alarms are sufficient to backup this instrumentation. Based on this diversity, we find the instrumentation provided for this instrumentation acceptable.

3.3.20 Containment Spray Flow

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable with a range of 0 to 110 percent of design flow. The licensee commits (Reference 7) to provide the recommended Category 2 instrumentation. The upgrade is scheduled for the 1988 refueling outage. We find this commitment acceptable.

3.3.21 Containment Atmosphere Temperature

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable with a range of 40 to 400°F. As Category 2 instrumentation, it should be enviromentally qualified and isolated. The licensee's instrumentation deviates from these recommendations. The licensee states that environmental qualification and isolation from the plant computer is not needed because this instrumentation is used only for containment

leakage tests, and not for normal or post-accident operation. The licensee states that containment pressure is the variable used to monitor the post-accident containment integrity.

Based on the licensee's justification, we find that the application of Category 3 backup instrumentation is in accordance with the regulatory guide.

The range of the instrumentation is 30 to 150°F, rather than the recommended 40 to 400°F. No justification was given by the licensee for this deviation. Therefore, we find the deviation in range not acceptable. The licensee should provide instrumentation with the recommended range for this variable.

3.3.22 Containment Sump Water Temperature

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable with a range of 50 to 250°F. The licensee has not provided this instrumentation, stating that an analysis has determined that the required safety equipment will not be adversly affected by the sump water temperature. Reference 6 indicates that this variable is not required to appraise the operation of the containment spray system (which provides containment pressure suppression).

This is insufficient justification for this exception. The licensee should provide the recommended instrumentation to allow a quantative evaluation of the heat removed from the containment. Otherwise, the licensee should identify other instruments (such as the RHR heat exchanger inlet temperature) that provides the same information and satisfies the regulatory guide.

3.3.23 Makeup Flow-In

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable. Thus, environmentally qualified instrumentation should be

utilized. The instrumentation provided for this variable is not environmentally qualified. The licensee states that charging can be performed using the high pressure safety injection system, using its qualified flow instrumentation, should long term cooling be required. The licensee states that this instrumentation has been evaluated in accordance with the Environmental Qualification Rule, 10 CFR 50.49, and environmental qualification was found to be unnecessary. Based on this statement, we find the provided instrumentation acceptable.

3.3.24 Letdown Flow-Out

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable. Thus, environmentally qualified instrumentation should be utilized. The instrumentation provided for this variable is not environmentally qualified. The licensee states that the high pressure drain line can be used for letdown should the letdown flow instrumentation fail due to a harsh environment.

The high pressure drain line flow is measured by instrumentation located in a mild post-accident environment. The licensee states that this instrumentation has been evaluated in accordance with the Environmental Qualification Rule, 10 CFR 50.49, and environmental qualification was found to be unnecessary. Based on this statement, we find the provided instrumentation acceptable.

3.3.25 Component Cooling Water Flow to Engineered Safety Features (ESF) System Components

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable with a range of 0 to 110 percent of design flow. The licensee is upgrading alternate instrumentation to Category 2 requirements. The alternate instrumentation consists of the following for each of the two compenent cooling water subsystems.

- Surge tank level

- pump motor current

- temperature alarms for each individual cooling load.

A decrease in the surge tank level (displayed on demand) would indicate leakage or a break in the cooling water subsystem. A pump flow curve shows that the pump motor current would decrease if system blockage occurred on the discharge side of the pump or if pump suction was lost. A high temperature alarm on any compenent would indicate the possiblity of inadequate system operation.

We find the upgraded alternate instrumentation to be a viable and acceptable approach to meeting the objectives of Regulatory Guide 1.97.

3.3.26 Radioactive Gas Holdup Tank (Drum) Pressure

Regulatory Guide 1.97 recommends instrumentation for this variable with a readout in the control room. The licensee's instrumentation for this variable has local indication only. The licensee states (Reference 7) that this local readout is accessible in the post-accident situation. Considering the operation of this equipment, that no automatic or manual transfer of radioactive gases would occur in the post-accident situation, we find the accessible local readout acceptable.

3.3.27 Containment or Purge Effluent-Noble Gases and Vent Flow Rate

Regulatory Guide 1.97 recommends instrumentation for this variable with ranges of 10^{-6} to 10^{5} µCi/cc and ^ to 110 percent of design flow. The licensee provides a range of 10 to 10^{6} cpm.

The licensee states (Reference 7) that the containment purge effluent is directed to the primary vent stack for exhaust (see Section 3.3.28). We find the provided instrumentation, as described, to be in conformance with Regulatory Guide 1.97, which allows no instrumentation for this variable if the purge effluent is routed through a common plant vent.

3.3.28 Common Plant Vent-Noble Gases and Vent Flow Rate

Regulatory Guide 1.97 recommends instrumentation for this variable with ranges of 10^{-6} to 10^{3} µCi/cc and 0 to 110 percent of design flow. The licensee provides ranges of 10 to 10^{6} cpm, 100 to 10^{6} cpm and 0.1 to 10^{7} mR/hr.

The licensee states that the flow rate is known based on the number of fans operating. The flow rate for each individual fan is a known quantity. The licensee also states that calculations have been made that show the equivalence between the recommended range and the supplied range and units. The licensee has this information available for review should an audit need this information.

Based on this equivalence, we find that the instrumentation provided is adequate to monitor this variable during all accident and post-accident conditions.

3.3.29 Vent from Steam Generator Safety Relief Valves-Noble Gases, Duration and Mass of Steam per Unit Time

Regulatory Guide 1.97 recommends instrumentation for this variable with ranges to 10^{-1} to 10^{3} µCi/cc, seconds and mass of steam per unit time. The licensee provides a range of 10^{-1} to 10^{7} mR/hr. The equivalence to the recommended range not stated. Instrumentation is provided for main steam flow, and the duration of the release can be determined from this. Additionally, the licensee states that, since the safety relief valves discharge to the atmosphere, various personnel will be aware of the lifted safety relief valves.

The licensee's response did not address the equivalence of the provided range to the recommended range. Therefore, we can only conclude that the range is not acceptable. The licensee should provide the recommended instrumentation with a range of 10^{-1} to 10^{3} µCi/cc.

3.3.30 Estimation of Atmospheric Stability

Regulatory Guide 1.97 recommends instrumentation for this variable with a range of -9°F to +18°F. The licensee has provided instrumentation for this variable with a range of -8°F to 20°F.

Table 1 of Regulatory Guide 1.23 (Reference 10) provides seven atmospheric stability classifications based on the difference in temperature per 100 meters elevation change. These classifications range from extremely unstable to extremely stable. Any temperature difference greater than +4°C or less than -2°C does nothing to the stability classification. The licensee's instrumentation includes this range. Therefore, we find that this instrumentation is acceptable to determine the atmospheric stability.

3.3.31 Accident Sampling (Primary Coolant, Containment Air and Sump)

The licensee's post-accident sampling system provides sampling and analysis as recommended by the regulatory guide, except that:

1. the primary coolant and sump are not analyzed for dissolved oxygen, and,

2. the containment air is not analyzed for oxygen content.

The licensee deviates from Regulatory Guide 1.97 with respect to post-accident sampling capability. This deviation goes beyond the scope of this review and has been addressed by the NRC as part of their review of NUREG-0737, Item II.B.3.

4. CONCLUSIONS

Based on our review, we find that the licensee either conforms to or is justified in deviating from Regulatory Guide 1.97, with the following exceptions:

1. Accumulator level and pressure-the licensee should designate either level or pressure as the key variable and provide environmentally qualified instrumentation for that variable (Section 3.3.10).

2. Pressurizer heater status--the licensee should provide the recommended current instrumentation (Section 3.3.15).

3. Containment atmosphere temperature--the licensee should provide the recommended range for this instrumentation (Section 3.3.21).

4. Containment sump water temperature--the licensee should provide the recommended instrumentation or identify alternate instrumentation that provides the same information and satisfies the regulatory guide (Section 3.3.22).

5. Vent from steam generator safety relief valves--the licensee should provide the recommended instrumentation for this variable to monitor any radioactive releases from this point (Section 3.3.29).

5. REFERENCES

1. NRC letter, D. G. Eisenhut to All Licensees of Operating Reactors, Applicants for Operating Licenses, and Holders of Construction Permits "Supplement No. 1 to NUREG-0737--Requirements for Emergency Response Capability (Generic Letter No. 82-33)," December 17, 1982.

2. Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident, Regulatory Guide 1.97, Revision 2, NRC, Office of Standards Development, December 1980.

3. Clarification of TMI Action Plan Requirements, Requirements for Emergency Response Capability, NUREG-0737, Supplement No. 1, NRC, Office of Nuclear Reactor Regulation, January 1983.

4. Letter, Maine Yankee Atomic Power Company (G. D. Whittier) to NRC, "Regulatory Guide 1.97 Report", February 28, 1985, MN-8-43, GDW-85-71.

5. Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident, Regulatory Guide 1.97, Revision 3, NRC, Office of Nuclear Regulatory Research, May 1983.

6. Letter, Maine Yankee Atomic Power Company (G. D. Whittier) to NRC, "Additional Information on Exceptions to Regulatory Guide 1.97," June 17, 1986, MN-86-81.

7. Letter, Maine Yankee Atomic Power Company (G. D. Whittier) to NRC, "Additional Information on Exceptions to Regulatory Guide 1.97," September 5, 1986, MN-86-111.

8. Letter, Maine Yankee (G. D. Whittier) to NRC (R. H. Wessman), "Regulatory Guide 1.97, Rev. 3," April 8, 1988, MN-88-41, GDW-88-86.

9. Letter, Maine Yankee (G. D. Whittier) to NRC (R. H. Wessman), "Regulatory Guide 1.97, Rev. 3," April 29, 1988, MN-88-49, GDW-88-95.

10. Onsite Meteorological Programs, Regulatory Guide 1.23 (Safety Guide 23), NRC, February 17, 1972 or Meteorological Programs in Support of Nuclear Power Plants, Proposed Revision 1 to Regulatory Guide 1.23, NRC, Office of Standards Development, September 1980.

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