Consumers Power Company

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Director,
Divison of Licensing
Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -
RESPONSE TO GENERIC LETTER 85-02, "STAFF RECOMMENDED ACTIONS STEMMING FROM NRC INTEGRATED PROGRAM FOR THE RESOLUTION OF UNRESOLVED SAFETY ISSUES REGARDING STEAM GENERATOR TUBE INTEGRITY"

This letter provides Consumers Power Company's response to the NRC Generic Letter 85-02 for our Palisades Plant. As committed to in our letter dated June 14, 1985, this response is being submitted by the end of July, 1985, instead of within 60 days from the date of the Generic Letter, due to its late receipt by Consumers Power Company.

Generic Letter (GL) 85-02 requested a description of our overall programs for assuring steam generator tube integrity and for steam generator tube rupture mitigation. GL 85-02 further requested that this description be sufficiently detailed to allow the NRC staff to compare our actions with the staff recommended actions presented in Enclosure 1 to GL 85-02. The description of our programs, given in Attachment 1, is presented by means of addressing each of the staff recommended actions. The information provided by the description of our programs compared to the staff recommended actions is intended to serve as Consumers Power Company's comments on draft NUREG-0844, entitled "NRC Integrated Program for the Resolution of Unresolved Safety Issues A-3, A-4, and A-5 Regarding Steam Generator Tube Integrity." It should also be pointed out, however, that Consumers Power Company is currently in the process of reviewing various aspects of our programs for assuring steam generator tube integrity and for steam generator tube rupture mitigation, and that a Palisades Plant Technical Specifications change request proposing a revised steam generator augmented inservice inspection program was submitted to the NRC on September 28, 1984. This proposed change reflects the results of the 1983/1984 Steam Generator Evaluation and Repair Program carried out at our Palisades Plant, as well as the suggestions included in the NRC Safety Evaluation Report (SER) dated June 11, 1984.

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Enclosure 2 to GL 85-02 also requested information regarding supplemental tube sample inspections. Consumers Power Company's response to this request is provided in Attachment 2.

David J. VandeWalle

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Director, Nuclear Licensing

CC Administrator, Region III, USNRC
NRC Resident Inspector - Palisades

Attachment

ATTACHMENT 1

Consumers Power Company
Palisades Plant
Docket 50-255

DESCRIPTION, BY MEANS OF COMPARISON TO STAFF RECOMMENDED ACTIONS IN GENERIC LETTER 85-02, OF CONSUMERS POWER COMPANY'S PROGRAMS FOR ASSURING STEAM GENERATOR TUBE INTEGRITY AND FOR STEAM GENERATOR TUBE RUPTURE MITIGATION

July 31, 1985

16 Pages

1a. PREVENTION AND DETECTION OF LOOSE PARTS (INSPECTIONS)

Staff Recommended Action

Visual inspections should be performed on the steam generator secondary side in the vicinity of the tube sheet, both along the entire periphery of the tube bundle and along the tube lane, for purposes of identifying loose parts or foreign objects on the tube sheet, and external damage to peripheral tubes just above the tubesheet. An appropriate optical device should be used (e.g., mini-TV camera, fiber optics). Loose parts or foreign objects which are found should be removed from the steam generators. Tubes observed to have visual damage should be eddy current inspected and plugged if found to be defective.

These visual inspections should be performed: (1) for all steam generators at each plant at the next planned outage for eddy current testing, (2) after any secondary side modifications, or repairs, to steam generator internals, and (3) when eddy current indications are found in the free span portion of peripheral tubes, unless it has been established that the indication did not result from damage by a loose part or foreign object.

For PWR OL applicants, such inspections should be part of the preservice inspection.

For steam generator models where certain segments of the peripheral region can be shown not to be accessible to an appropriate optical device, licensees and applicants should implement alternative actions to address these inaccessible areas, as appropriate.

Licensees should take appropriate precautions to minimize the potential for corrosion while the tube bundle is exposed to air. The presence of chemical species such as sulfur may aggravate this potential, and may make exposure to the atmosphere inadvisable until appropriate remedial measures are taken.

CPCo Program Description

Visual inspection of the secondary side of both steam generators (S/Gs) were performed during the 1983/1984 Palisades refueling outage. It is CPCo's intent to perform a one-time visual inspection of both steam generators during the 1987 refueling outage which we consider the next planned outage for eddy current testing that would permit the planning effort and preparations necessary for secondary side inspections to be carried out. Known loose parts will be dispositioned analytically during this interim period. In the future, visual inspections will be performed on a case-by-case basis dependent upon the extent of work performed on the steam generator secondary side, and if there is adequate reason to suspect the existence of loose parts.

The 1983/1984 S/G visual inspections included the use of a video camera, fiber optics, and a combination of the two methods to inspect the upper region of the S/Gs, including the upper three tube support plates. Direct visual examination was performed of the "can deck" region. CPCo has placed high priority on not exposing the S/G tubes to air. Consequently, the video examination and parts retrieval that was also carried out in the S/G lower annulus was performed in an inert environment.

The need to perform visual inspections of the secondary side based on eddy current (EC) indications of potential loose parts wear is evaluated on a case-by-case basis at the time such EC indications are identified. In the event such indications are identified to represent tube damage resulting from loose parts, CPCo would normally consider visual inspection to determine the cause and the need for removal of suspected loose parts. Further, the need to perform EC inspection of the periphery tubes, in particular, to look for indications of potential loose parts wear, is evaluated prior to each outage based on:

- When the last visual inspection was performed
- When the last peripheral tube EC was performed for the purpose of looking for potential wear from loose parts
- Operating experience and evaluation of potential for wear due to loose parts
- QA/QC controls

1b. PREVENTION AND DETECTION OF LOOSE PARTS (QUALITY ASSURANCE)

Staff Recommended Action

Quality assurance/quality control procedures for steam generators should be reviewed and revised as necessary to ensure that an effective system exists to preclude introduction of foreign objects into either the primary or secondary side of the steam generator whenever it is opened (e.g., for maintenance, sludge lancing, repairs, inspection operations, modifications). As a minimum, such procedures should include: (1) detailed accountability procedures for all tools and equipment used during an operation, (2) appropriate controls on foreign objects such as eye glasses and film badges, (3) cleanliness requirements, and (4) accountability procedures for components and parts removed from the internals of major components (e.g., reassembly of cut and removed components).

CPCo. Program Description

Existing maintenance procedures address loose parts by requiring the use of a safety lanyard when the possibility of introduction and subsequent loss of the item within the steam generator exists. The use of material and personnel logs is practiced as a means of controlling the introduction of foreign items to the steam generators. Consumers Power has recently developed a procedure titled "Guidelines for Control of Parts and Equipment In Secondary Side of Steam Generators." This procedure delineates equipment and parts protection requirements and includes:

a. Removed parts
b. Cleanliness
c. Tool safety lanyards
d. Material entry and removal sheets

The use of temporary protective sealing covers is specified to prevent the introduction of items into the lower portions of the steam generator secondary side. This procedure is considered safety related.

2.a INSERVICE INSPECTION PROGRAM (FULL LENGTH TUBE INSPECTION)

Staff Recommended Action

The Standard Technical Specifications (STS) and Regulatory Guide 1.83, Part C.2.f, currently define a U-tube inspection as meaning an inspection of the steam generator tube from the point of entry on the hot-leg side completely around the U-bend to the top support of the cold-leg side. The staff recommends that tube inspections should include an inspection of the entire length of the tube (tube end to tube end) including the hot leg side, U-bend, and cold leg side.

This recommended action does not mean that the hot leg inspection sample and the cold leg inspection sample should necessarily involve the same tubes. That is, it does not preclude making separate entries from the hot and cold leg sides and selecting different tubes on the hot and cold leg sides to meet the minimum sampling requirements for inspection.

Consistent with the current STS requirement, supplemental sample inspections (after the initial 3% sample) under this staff recommended action may be limited to a partial length inspection provided the inspection includes those portions of the tube length where degradation was found during initial sampling.

CPCo Program Description

The 1985 Steam Generator (S/G) Inservice Inspection Program has been developed in compliance with the Palisades Plant Technical Specifications, Section 4.14 and Section XI of the ASME B & PV Code (77S78). In addition, Regulatory Guide 1.83 and the Standard Technical Specifications for CE plants, Section 3/4.4.6 were used to provide further guidance during the preparation of the EC test inspection plans.

The inspection requirements of the Palisades Technical Specifications, Section 4.14 are summarized as follows:

a. All unplugged EC indications called 30% or greater in either the hot or cold leg tubes during either of the two previous inspection periods in each S/G.

b. A random sample of 2% of the tubes in the hot leg and 1% of the tubes in the cold leg of each S/G.

c. All newly and previously installed tube sleeves. (The proposed change to the current Technical Specifications, dated September 28, 1984, will require inspection of installed sleeves at a minimum frequency of once per three S/G tube inspections.)

d. Blocked Tubes - At present, when a tube is sufficiently restricted to prevent passage of a 0.540 inch diameter EC probe, the tube is plugged. The proposed Technical Specifications change require all unplugged tubes surrounding each blocked tube to be inspected to ensure acceptable denting levels. CPCo has followed this practice since 1979.

In addition to the above required inspections, dent profilometry has been performed during previous inspections and is planned for the 1985 inspection.

Past inspections of the Palisades S/Gs show that the number of flaws found in the cold leg portion of the S/Gs is much smaller than the number found in the hot leg portion. The 1983 inspection results show that for flaws ≧30%, hot leg indications outnumber cold leg indications approximately 12 to 1. Therefore, we believe that the present number of tubes being inspected in the cold legs is adequate and that an adequate basis exists for applying the inspection criteria separately to the hot and cold leg portions of the S/G tubes. The Technical Specifications presently require a 1% cold leg sample although, historically, we have inspected more than 1% depending on the observed condition of the S/Gs and as a matter of good practice. In 1985 we will inspect approximately 3% of the unplugged tubes in "A" S/G cold leg and 2% of the unplugged tubes in "B" S/G cold leg as required by Palisades Technical Specifications. In addition, profilometry for dent sizing and profiling is planned for 1-1/2% of the unplugged tubes in each S/G cold leg.

Regarding a partial tube length inspection for supplemental samples, Palisades S/G conditions have generally dictated that supplemental tube samples include the same tube lengths as the initial sample due to the distribution of flaws within the S/G. However, in the event a new degradation mechanism is detected which is isolated to a specific tube area, CPCo would consider such partial inspections.

In the opinion of Consumers Power Company, enforcement of this recommended action could lead to significant increases in the cost, schedule and exposure levels associated with cold leg inspection without significant gains in terms of added tube integrity.

2.b INSERVICE INSPECTION PROGRAM (INSPECTION INTERVAL)

Staff Recommended Action

The maximum allowable time between eddy current inspections of an individual steam generator should be limited in a manner consistent with Section 4.4.5.3 of the Standard Technical Specifications, and in addition should not extend beyond 72 months.

CPCo Program Description

Consumers Power Company concurs with the staff recommended action. In accordance with the current Palisades Technical Specifications, inspection frequency does not exceed 24 months beyond the previous inspection for both Palisades steam generators. A proposed change to the current Technical Specifications, submitted on September 28, 1984, will increase the interval to 30 months, which is still much less than 72 months specified in the staff recommended action.

3a. SECONDARY WATER CHEMISTRY PROGRAM

Staff Recommended Action

Licensees and applicants should have a secondary water chemistry program (SWCP) to minimize steam generator tube degradation.

The specific plant program should incorporate the secondary water chemistry guidelines in SGOG Special Report EPRI-NP-2704, "PWR Secondary Water Chemistry Guidelines," October 1982, and should address measures taken to minimize steam generator corrosion, including materials selection, chemistry limits, and control methods. In addition, the specific plant procedures should include progressively more stringent corrective actions for out-of-specification water chemistry conditions. These corrective actions should include power reductions and shutdowns, as appropriate, when excessively corrosive conditions exist. Specific functional individuals should be identified as having the responsibility/authority to interpret plant water chemistry information and initiate appropriate plant actions to adjust chemistry, as necessary.

The referenced SGOG guidelines above were prepared by the Steam Generator Owners Group Water Chemistry Guidelines Committee and represent and consensus opinion of a significant portion of the industry for state-of-the-art secondary water chemistry control.

CPCo Program Description

The current procedure (Chemistry Operating Procedure COP-11, "Secondary System Chemistry") governing the Secondary Water Chemistry Program (SWCP) at Palisades uses as its base the "PWR Secondary Water Chemistry Guidelines" developed by the Steam Generator Owners Group and published by EPRI, June 1984. COP-11 is provided in Attachment 3. COP-11 makes use of the Action Level statements prepared by the Guidelines which address progressively more stringent corrective actions for out-of-specification water chemistry conditions. The measured chemistry parameters and values given in COP-11 are essentially consistent with those stipulated in the Guidelines with the following exceptions.

Exception: Palisades does not currently use cation conductivity as the basis for power escalation above 35%. The chemistry power hold is based on the values of sodium, sulfate and chloride in the S/G blowdown sample. The values for sodium, sulfate and chloride must be below the level of 100 ppb each prior to power escalation above 35% power.

Exception: Permission to exceed the values of 100 ppb (each) for sodium, sulfate or chloride and proceed with power escalation above 35% must be obtained from the Duty and Call Superintendent prior to power escalation. The Vice-President of Nuclear Operations has final approval of all power holds which are not Technical Specification limited. Plant Procedure COP-11, "Secondary Water Chemistry," requires Plant Manager approval for any deviations from it.

Exception: Palisades has imposed a policy to not operate with locatable condenser leaks. Although such leaks do not challenge the S/G chemistry contamination limits, such operation is considered incompatible with long-term reliability.

3b. CONDENSER INSERVICE INSPECTION

Staff Recommended Action

Licensees should implement a condenser inservice inspection program. The program should be defined in plant specific safety-related procedures and include:

1. Procedures to implement a condenser inservice inspection program that will be initiated if condenser leakage is of such a magnitude that a power reduction corrective action is required more than once per three month period; and

2. Identification and location of leakage source(s), either water or air;

3. Methods of repair of leakage;

4. Methodology for determining the cause(s) of leakage;

5. A preventative maintenance program.

CPCo Program Description

Palisades presently has a rigorous chemistry program to identify condenser inleakage. Condenser tube leaks are detected by monitoring condensate oxygen continuously and magnesium levels once per shift. Condenser air inleakage is measured daily. Corrective action levels are identified in plant chemistry procedures depending on impurity levels present.

Eddy current testing is performed as necessary to provide information on the material condition of the condenser tubes. 100% of the tubes were eddy current tested in 1981, 43% in 1983, and no testing is scheduled for the 1985 refueling outage. Testing requirements will be defined for the 1987 refueling outage. Mechanical plugs are utilized to repair tubes that are identified as leaking.

Consumers Power Company considers that a condenser inservice inspection program should not be required, ie, plant specific safety-related procedures. The goal should be to control steam generator water chemistry (ie, a secondary water chemistry program). Depending on plant-specific conditions, utilities may decide to perform various forms of condenser inspection and/or maintenance to support meeting this goal. Requirements for both the goal and a means for meeting the goal appear to be unnecessarily prescriptive.

4. PRIMARY TO SECONDARY LEAKAGE LIMIT

Staff Recommended Action

All PWRs that have Technical Specifications limits for primary to secondary leakage rates which are less restrictive than the Standard Technical Specifications (STS) limits should implement the STS limits.

CPCo Program Description

The current Palisades Technical Specification for a primary to secondary leakage limit (Section 3.1.5d) is more restrictive than the Standard Technical Specification for Combustion Engineering PWRs (NUREG-0212, Rev 2, Section 3.4.7.2c).

Specifically, the Palisades Technical Specifications require that "The primary to secondary leakage in a steam generator shall not exceed 0.3 gpm for any period of steady state operation greater than 24 consecutive hours."

"During periods of start-up and major load changes, when leakage measurement sensitivity is reduced, the calculated leakage shall not exceed 0.6 gpm for any period of greater than 24 consecutive hours.

This limit is more conservative than the 1 gpm total primary to secondary leakage through all steam generators and is also more conservative than the 500 gpd (0.347 gpm) through any one non-isolated steam generator allowed by the Standard Technical Specifications.

5. COOLANT IODINE ACTIVITY LIMIT

Staff Recommended Action

PWRs that have Technical Specifications limits and surveillance for coolant iodine activity that are less restrictive than the Standard Technical Specification (STS) should implement the STS limits. Those plants identified above that also have low head high pressure safety injection pumps should either: (1) implement iodine limits which are 20% of the STS values, or (2) implement reactor coolant pump trip criteria which will ensure that if offsite power is retained, no loss of forced reactor coolant system flow will occur for steam generator tube rupture events up to and including the design basis double-ended break of a single steam generator tube, and implement iodine limits consistent with the STS.

CPCo Program Description

The current Palisades Technical Specifications are more restrictive than the Standard Technical Specifications. The Palisades Technical Specifications permit limited (72 hour increments - 36 days per calendar year) operation between 1.0 and 40 microcuries/gram. This limit of 40 microcuries/gram is always below the CE STS power dependent limit (see attached figure).

1. Palisades Technical Specifications - Section 3.1.4 a, b, c, d

   a. The specific activity of the primary coolant shall be limited to:

      1) <1.0 microcurie/gram dose equivalent I-131, and

      2) <100/$\bar{E}$ microcuries/gram

   b. With the specific activity of primary coolant >1.0 microcurie/gram dose equivalent I-131 but less than 40 microcuries/gram, operation may continue for up to 72 hours provided that operation under these circumstances shall not exceed 36 days per calendar year.

   c. With the specific activity of the primary coolant > 1.0 microcurie/gram dose equivalent I-131 for more than 72 hours during one continuous time interval or exceeding 40 microcuries/gram, be shutdown with T_{avg} <500°F within 6 hours.

2. NUREG-0212 Rev 2 STS for Combustion Engineering Pressurized Water Reactors Section 3/4 3.4.9

3.4.9

The specific activity of the primary coolant shall be limited to:

a. Less than or equal to 1.0 microcurie/gram DOSE EQUIVALENT I-131, and

b. Less than or equal to 100/$\bar{E}$ microcuries/gram

APPLICABILITY: MODES 1, 2, 3, 4, and 5

ACTION

MODES 1, 2, and 3*

a. With the specific activity of the primary coolant greater than 1.0 microcurie/gram DOSE EQUIVALENT I-131 but within the allowable limit (below and to the left of the line) shown on figure 3.4-1, operation may continue for up to 48 hours provided that the cumulative operating time under these circumstances does not exceed 800 hours in any consecutive 12 month period. With the total cumulative operating time at a primary coolant specific activity greater than 1.0 microcurie/gram DOSE EQUIVALENT I-131 exceeding 500 hours in any consecutive 6 month period, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days indicating the number of hours above this limit. The provisions of Specification 3.0.4 are not applicable.

b. With the specific activity of the primary coolant greater than 1.0 microcurie/gram DOSE EQUIVALENT I-131 for more than 48 hours during one continuous time interval or exceeding the limit line shown on Figure 3.4-1, be in at least HOT STANDBY with T_{avg} less than 500°F within 6 hours.

*With T_{avg} greater than or equal to 500°F.

With regard to surveillance requirements for coolant iodine activity the current Palisades Technical Specifications are consistent with the Standard Technical Specification.

1. Palisades Technical Specification Section 3.1.4e and Table 4.2.1

3.1.4

e. With the specific activity of the primary coolant >1.0 microcurie/gram dose equivalent I-131 or >100/$\bar{E}$ microcuries/gram, perform the sampling and analysis requirements of item 1 of Table 4.2.1 until the specific activity of the primary coolant is restored to within its limits. A Special Report shall be prepared and submitted to the Director of the

appropriate Regional Office within thirty days of the occurrence of the event. This report shall contain the results of the specific activity analyses together with the following information:

1. Reactor power history starting 48 hours prior to the first sample in which the limit was exceeded,

2. Fuel burnup by core region,

3. Clean-up flow history starting 48 hours prior to the first sample in which the limit was exceeded,

4. History of de-gassing operation, if any, starting 48 hours prior to the first sample in which the limit was exceeded, and

5. The time duration when the specific activity of the primary coolant exceeded 1.0 microcurie/gram dose equivalent I-131.

TABLE 4.2.1
Minimum Frequencies For Sampling Tests

	Test	Frequency
Reactor Coolant Samples		
	Isotopic analysis for iodine, including I-131, 133, 135	a) Once/4 hours, whenever dose equivalent I-131 exceeds 1.0 microcurie/gram and b) One sample between 2 and 6 hours following a thermal power change exceeding 15% of rated thermal power within a one hour period.

2. NUREG-0212 Rev 2 STS for Combustion Engineering PWR's Section 3/4 3.4.9d and Table 4.4-4

3/4 3.4.9

d. With the specific activity of the primary coolant greater than 1.0 microcurie/gram DOSE EQUIVALENT I-131 or greater than 100/$\bar{E}$ microcuries/gram, perform the sampling and analysis requirements of item 4 a) of Table 4.4-4 until the specific activity of the primary coolant is restored to within its limits. A REPORTABLE OCCURRENCE shall be prepared and submitted to the Commission pursuant to Specification 6.9.1. This report shall contain the results of the specific activity analyses together with the following information:

1. Reactor power history starting 48 hours prior to the first sample in which the limit was exceeded,

2. Fuel burnup by core region,

3. Clean-up flow history starting 48 hours prior to the first sample in which the limit was exceeded,

4. History of de-gassing operation, if any, starting 48 hours prior to the first sample in which the limit was exceeded, and

5. The time duration when the specific activity of the primary coolant exceeded 1.0 microcurie/gram DOSE EQUIVALENT I-131.

TABLE 4-4.4
PRIMARY COOLANT SPECIFIC ACTIVITY SAMPLE AND ANALYSIS PROGRAM
SAMPLE AND ANALYSIS FREQUENCY

TYPE OF MEASUREMENT AND ANALYSIS	SAMPLE AND ANALYSIS FREQUENCY	MODES IN WHICH SAMPLE AND ANALYSIS REQUIRED
4. Isotopic Analysis including I-131 I-131, and I-135	a) Once per 4 hours, whenever the specific activity exceeds 1.0 μCi/gram, DOSE EQUIVALENT I-131 or 100/$\bar{E}$ μCi/gram, and	1#, 2#, 3#, 4#, 5#
	b) One sample between 2 and 6 hours following a THERMAL POWER change exceeding 15 percent of the RATED THERMAL POWER within a one hour period.	1, 2, 3

Palisades does have low head high pressure safety injection pumps. As described above, the coolant iodine limits and surveillance requirements for the Palisades Plant are equally or more restrictive compared to the Standard Technical Specifications requirements. Nevertheless, Consumers Power Company will implement a "trip two/leave two" strategy for the reactor coolant pumps (RCP) as discussed in our letters dated January 11, 1985 and June 14, 1985. This strategy ensures that if offsite power is retained, and RCP operating limits (eg, seal flow, temperature) are satisfied, no loss of forced reactor coolant system flow will occur for steam generator tube rupture events.

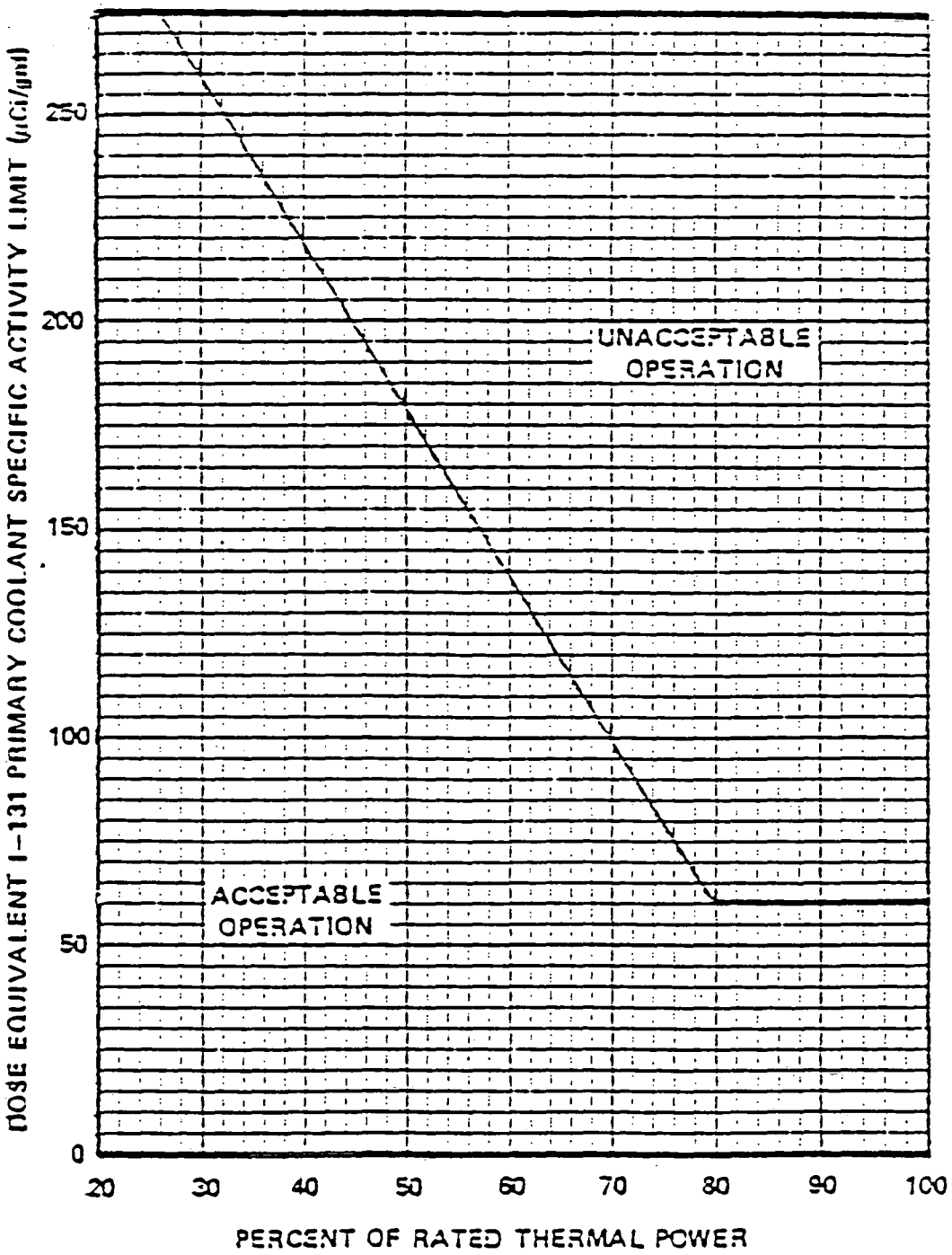

FIGURE 3.4-1

DOSE EQUIVALENT I—131 Primary Coolant Specific Activity Limit Versus Percent of RATED THERMAL POWER with the Primary Coolant Specific Activity > 1.0 μCi/gram Dose Equivalent I-131

6. SAFETY INJECTION SIGNAL RESET

Staff Recommended Action

The control logic associated with the safety injection pump suction flow path should be reviewed and modified as necessary, by licensees, to minimize the loss of safety function associated with safety injection reset during an SGTR event. Automatic switchover of safety injection pump suction from the boric acid storage tanks (BAST) to the refueling water storage tanks should be evaluated with respect to whether the switchover should be made on the basis of low BAST level alone without consideration of the condition of the SI signal.

CPCo Response

The NRC staff recommended modification has been reviewed and found not to be applicable to the Palisades Plant because of design differences in the Safety Injection System when compared to the Ginna Safety Injection System which was the initial source of the NRC concern.

The staff recommended action to review control logic for the suction flow paths for the Safety Injection pumps has been performed and no modifications have been found to be necessary to ensure that the pumps perform their safety function during a Steam Generator Tube Rupture event. The reason no modifications were found necessary is that the design of the Palisades ECCS is different from the system at the Ginna Plant, for which this problem was originally identified. At Palisades, the Safety Injection pumps never take their suction from the BAST. The concentrated boric acid is pumped into the primary coolant system by the charging pumps which shut off on low suction pressure when the concentrated boric acid tanks are emptied in the event that an operator does not terminate the boration after the necessary amount of boric acid is added.

The high and low pressure safety injection pumps at Palisades take their suction from the Safety Injection and Refueling Water Tank (SIRWT). When low level is reached in the SIRWT, the suction for the pumps (including the containment spray pumps) is switched from the SIRWT to the containment sump and the low pressure injection pumps are automatically turned off. Resetting the Safety Injection signal does not affect the switch-over of the suction.

Another significant difference from the Ginna design is that there is no reason to reset the SIS signal to de-isolate containment. It is not necessary at Palisades to have the SIS reset in order to reset the containment isolation signal. Prior to this fuel cycle, there had been an incentive to reset the SIS signal because Component Cooling Water (CCW) was isolated to containment by SIS. During the last refueling cycle, the isolation logic was altered such that CCW isolates to containment only when an SIS is present in conjunction with low CCW pressure. This was done to allow the primary coolant pumps to operate in events where their operation enhanced the control of an accident after Safety Injection has occurred, ie, a Steam Generator Tube Rupture event.

ATTACHMENT 2

Consumers Power Company
Palisades Plant
Docket 50-255

ADDITIONAL INFORMATION REGARDING SUPPLEMENTAL STEAM GENERATOR TUBE INSPECTIONS

July 31, 1985

2 Pages

MI0785-0252B-NL04

Information Requested

Draft NUREG-0844 Section 2.2.1.2 describes certain limitations which the staff believes to be inherent in the present Technical Specification steam generator ISI requirements pertaining to Category C-2 inspection results. Licensees and applicants are requested to provide a description of their current policy and actions relative to this issue and any recommendations they have concerning how existing Technical Specification steam generator ISI requirements pertaining to a Categoty C-2 inspection results could be improved to better ensure that adequate inspections will be performed. This description should include a response to the following questions:

1. What factors do, or would, the licensee or applicant consider in determining (a) whether additional tubes should be inspected beyond what is required by the Technical Specifications, (b) whether all steam generators should be included in the inspection program, and (c) when the steam generators should be reinspected.

2. To what extent do these factors include consideration of the degradation mechanism itself and its potential for causing a tube to be vulnerable to rupture during severe transients or postulated accident before rupture or leakage of that tube occurs during normal operation.

CPCo Response

1. The current plant Technical Specifications do not make provision for supplemental tube inspections. The proposed Technical Specifications, for the Palisades Plant, submitted September 28, 1984, however, do contain a revision to address supplementary samples. These proposed Technical Specifications sample requirements were developed from RG 1.83 and the Standard Technical Specification (STS).

   (Item 1.a) - The proposed Technical Specifications specify that following the failure of two supplementary samples, NRC involvement is necessary to determine additional sample requirements. CPCo believes that any sample inspections beyond Technical Specification requirements should be on a plant specific basis and include discussions with the NRC to ensure adequate benefit from such inspections.

   (Item 1.b) - Both steam generators at the Palisades Nuclear Plant are included in the inspection program each outage. However, supplementary samples should only be applied to the affected S/G. This practice is consistent with our proposed Technical Specifications.

   (Item 1.c) - CPCo inspects all steam generators on a interval not to exceed 30 months, as stated in our proposed Technical Specifications. This results in each steam generator being inspected each outage.

2. Generally, degradation mechanisms, alone, do not affect sample size determination at CPCo. However, the frequency of the inspections and the number of S/Gs included in the supplemental inspection are both increased conservatively due to the extent of the degradation mechanisms observed at Palisades.

   The selection of the initial tube sample is based upon the results of previous examinations, eg, the tubes that will be examined during the 1985 refueling outage were selected on the basis of examination results from the 1982 and 1983/1984 outages. Further, no S/G tube ruptures have occurred at the Palisades Plant due to inadequate initial or supplemental sample selection. Finally, the basis for expanding the supplemental sample size during the 1983/1984 refueling outage as a result of the particular examination findings and in consultation with the NRC was considered an adequate method as pointed out in our response to item 1-a above.

   While the potential for tube rupture due to a particular degradation mechanism is not specifically considered, the tube plugging criteria in the proposed Technical Specifications change does account for tube integrity during normal and accident conditions.