



February 18, 1997

FOI/PA REQUEST

Case No: 97-0072
Date Rec'd: 2-27-97
Action Off: Worm
Related Case: _____

Nuclear Regulatory Commission Director
Freedom of Information Act Officer
Office of Administration
Washington, DC 20555

Dear Sir or Madam,

Under the provisions of the Freedom of Information Act, 5 U.S.C. 552, I am requesting access to information concerning nuclear power plants. I would like to know the last incident of nuclear leakage into the environment from any nuclear power plant in California or Oregon, with details of location, time and amount of leakage.

If there are any fees for searching for, or copying, the records I have requested, please inform me before you fill the request.

As you know, the Act permits you to reduce or waive fees when the release of the information is considered as "primarily benefiting the public". I believe that this request fits that category and I therefore ask that you waive any fees.

If all or any part of this request is denied, please cite the specific exemption(s) which you think justifies your refusal to release the information, and inform me of the appeal procedures available to me under the law.

I would appreciate your handling this request as quickly as possible, and I look forward to hearing from you within 10 days, as the law stipulates.

Yours sincerely

Emrys Lloyd-Roberts

TO: George Lanik
FROM: Les Cupidon
DATE: March 12, 1997
TOPIC: Response to a request of information concerning the most recent radioactive release into the environment.

Any reported radioactive leakage to the Nuclear Regulatory Commission (NRC) is prompted by regulatory requirements or on a volunteer basis from the licensee if it is below regulatory thresholds. If the leakage and circumstances concerning the leakage does not fall under regulatory requirements NRC may not have any records of such leakage. Therefore the licensee may be the only source having the most recent knowledge of minute leakages below regulatory thresholds.

A search into the Sequence Coding Search System (SCSS) database at Oak Ridge National Laboratory (ORNL) was accomplished. There were 42 LERs found that indicated radioactive leakage. Some leakages were contained while some were released into the environment.

It appears that the most recent event of a radioactive release into the environment was on the day of February 1, 1996. This event is captured in Licensee Event Report (LER) 206/96-001. The LER states that four kittens were found on the San Onofre 1 Nuclear Power Plant grounds in the Protected Area/Restricted Area but outside the radiologically controlled area. The kittens were surveyed and each registered 6000 counts per minute. Later the remains of the mother was found on Interstate 5 and it also registered the same amount of radioactivity. The LER was voluntary since the radioactive material found on and in the kittens was far below NRC reporting requirements.

In another LER 312/90-003 from the Rancho Seco Nuclear Power Plant states that on December 22, 1990 from approximately 0300 hours to 0900 hours there were various leaks. This was due to the outside temperature dropping below a certain value. One of the leaks resulted in a minor offsite release of radioactive water. This leakage travelled offsite to a field south of the plant. Analysis revealed radioactivity levels of $3.8\text{E-}2$ uCi/ml H-3 and $3.59\text{E-}8$ uCi/ml Cs-137. The total estimated release volume was $1.82\text{E}6$ ml and the total whole-body dose (child) was $7.64\text{E-}4$ mrem.

The following is a brief summary of the other plants and the respective reported radioactive releases. These releases were within the plant boundaries.

<u>PLANT</u>	<u>DATE/TIME</u>	<u>LER</u>	<u>AMOUNT</u>	<u>TYPE</u>
San Onofre 3	6/2/84 1600hrs	362/84-021	427 Ci	gas
San Onofre 2	1/17/85 0503hrs	361/85-008	306 Ci	gas

Query: 1985 EVENT REPORTS:

LICENSEE: SOUTHERN CALIFORNIA EDISON & SAN DI
SITE: **SAN ONOFRE 1** EN NUMBER: 2796
DCCKET: 05000206 EVENT DATE: 11-18-85
RX TYPE: PWR EVENT TIME: 21:25
VENDORS: W-3-LP NOTIFY DATE: 11-19-85
EMERGENCY CLASS: N/A REGION: 5 STATE: CA TIME: 02:30
OPS OFFICER: BYRON HANSEN
10 CFR SECTION: AAIR 50.72(b)(2)(iv)(A) AIRBORNE RAD RELEASE
UNIT SCRAM RX INIT INITIAL MODE CURR CURRENT MODE
CODE CRIT PWR PWR
1 N 0 0

UNIT 1 IS AT 93% POWER. WHILE ESTABLISHING AN UNFILTERED RELEASE FROM THE WASTE GAS SURGE TANK, AN ALARM ON STACK RAD MONITOR R-1214 WAS RECEIVED WHILE ADJUSTING THE FLOW RATE. THE RAD MONITOR ALARM SETPOINT WAS $1.3E+4$ CPM. THE RELEASE WAS SECURED WITHIN 10 MINUTES AND WAS PRIMARILY COMPOSED OF $Zr-133$. THE TOTAL RELEASE WAS APPROXIMATELY 0.34 Ci. TECH SPECS ALLOW A RELEASE OF $4.24E+4$ CPM. HOWEVER, THE ALARM WAS ANNUNCIATED IN SACRAMENTO, OFFICE OF EMERGENCY SERVICES, THUS REQUIRING A NOTIFICATION OF AN OFFSITE RELEASE.

Query: 1989 EVENT REPORTS:

LICENSEE: SACRAMENTO MUNICIPAL UTILITY DISTRI
SITE: RANCHO SECO 1 EN NUMBER: 14632
DOCKET: 05000312 EVENT DATE: 02-03-89
RX TYPE: PWR EVENT TIME: 10:00
VENDORS: B&W-L-LP NOTIFY DATE: 02-03-89
EMERGENCY CLASS: UNU REGION: 5 STATE: CA TIME: 13:56
OPS OFFICER: JAMES BROWN
10 CFR SECTION: ARAD 50.72(b)(1)(vi) RAD REL HAMPERS PERS
UNIT SCRAM RX INIT INITIAL MODE CURR CURRENT MODE
CODE CRIT PWR PWR
1 N N 0 COLD SHUTDOWN 0 COLD SHUTDOWN

WHILE PERFORMING A PURGE OF THE RX BLDG, A SMALL PUFF OF
XENON-133 WAS RELEASED THRU THE RX BLDG STACK (MONITORED PATHWAY)
WHEN THE PURGE WAS SWITCHED FROM A SMALL PURGE LINE(12 IN.0 TO A
LARGER PURGE LINE(66 IN.). THE CONCENTRATION WAS CALCULATED TO BE
5.9E-4 uCI/CC (139 mREM/YR WB). SYSTEM ISOLATED PER DESIGN.
LICENSEE DECLARED NOUE BASED ON EOPs WHICH STATED THAT A NOUE
SHOULD BE DECLARED WHEN THE HI ALARM ON THE RX BLDG EXHAUST VENT
IS RECEIVED. NOUE WAS TERMINATED AT THE SAME TIME IT WAS DECLARED
AS THE RELEASE WAS WELL BELOW T. SPECS. AND WAS TERMINATED
IMMEDIATELY. RI INFORMED. STATE AND LOCAL AUTHORITIES INFORMED.

POWER REACTOR

EVENT NUMBER: 20160

FACILITY: RANCHO SECO
UNIT: [1] [] []
RX TYPE: [1] B&W-L-LP

REGION: 5
STATE: CA

NOTIFICATION DATE: 12/27/90
NOTIFICATION TIME: 19:54 [ET]
EVENT DATE: 12/22/90
EVENT TIME: 03:00 [PST]
LAST UPDATE DATE: 12/27/90

NRC NOTIFIED BY: TOM BARELA
HQ OPS OFFICER: JOHN MacKINNON

NOTIFICATIONS

EMERGENCY CLASS: NOT APPLICABLE
10 CFR SECTION:
AOUT 50.72 (b) (1) (ii) (B) OUTSIDE DESIGN BASIS

AL JOHNSON RDO

UNIT	SCRAM CODE	RX CRIT	INIT PWR	INIT RX MODE	CURR PWR	CURR RX MODE
1	N	N	0	DECOMMISSIONED	0	DECOMMISSIONED

EVENT TEXT

MIN OUTDOOR DESIGN TEMPERATURE FOR RANCHO SECO IS 19 DEGREES F. REFERENCE DESIGN CRITERIA DC-M-5101.1 AND USAR APPENDIX - 2B BASED ON AREA NEWS REPORTS REPORTED MIN OUTDOOR TEMPERATURES IN THE SITE AREA WENT BELOW 19 DEGREES F DURING THE PERIOD OF 12/20/90 THROUGH 12/27/90. PLANT COMPUTER INDICATED A TEMPERATURE BELOW 19 DEGREES F ON 12/22/90 FROM 0300 PST UNTIL 0900PST. AT 0300 PST COMPUTER INDICATED AN HOURLY AVERAGE TEMPERATURE OF 17.7 DEGREES F AND AT 0900 PST COMPUTER INDICATED AN HOURLY AVERAGE TEMPERATURE OF 18.1 DEGREES F. AFTER 0900 PST AVERAGE TEMPERATURE WAS ABOVE 19 DEGREES F. RESIDENT INSPECTOR WAS INFORMED BY THE LICENSEE.

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

Pacific Gas and Electric Company
Nuclear Power Generation, B14A77
ATTN: Gregory M. Rueger, Senior Vice
President and General Manager
Nuclear Power Generation Bus. Unit
77 Beale Street, Room 1451
P.O. Box 770000
San Francisco, California 94177

January 8, 1996

SUBJECT: NRC INSPECTION REPORT 50-133/95-03 AND NOTICE OF VIOLATION

This refers to the routine announced inspection conducted by Mr. Vincent Everett of this office on December 6-7, 1995, at the Humboldt Bay Nuclear Power Plant facility. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. At the conclusion of the inspection, the findings were discussed with those members of your staff identified in the enclosed report.

Areas examined during the inspection are identified in the report. This inspection included a review of the circumstances which led to the release of contaminated water from the radwaste system into the discharge canal which was reported to the NRC in a Licensee Event Report dated November 27, 1995. Other areas reviewed included the in-line process monitor sensitivity, mixed waste barrel storage, condition of the spent fuel pool, site health physics activities, and status of the recent work on the caisson sump pump. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Based on the results of this inspection, the NRC has determined that a violation of NRC requirements occurred. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the inspection report. The violation involved the discharge of contaminated water from the radwaste system that had not been filtered, treated, and sampled prior to release into the discharge canal. Although the violation was self-identified and some corrective actions had been implemented prior to the inspection, the violation is of concern to the NRC and is being cited because it involved the repeated actions of a worker to override the function of a system designed to prevent the release of radioactivity to the environment.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. After reviewing your response to this Notice, including your proposed corrective actions and the results of future

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Pacific Gas and Electric
Company

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inspections, the NRC will determine whether further NRC enforcement action is necessary to ensure compliance with NRC regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure(s) will be placed in the NRC Public Document Room (PDR). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction.

The response directed by this letter and the enclosed Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, Pub. L. No. 96.511.

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

Ross A. Scarano, Director
Division of Nuclear Material Safety

Docket: 50-133
License: DPR-7

Enclosures:

1. Notice of Violation
2. NRC Inspection Report
50-133/95-03

cc w/enclosures:

Pacific Gas and Electric Company
ATTN: Christopher J. Warner, Esq.
Law Department
P.O. Box 7442
San Francisco, California 94120

Pacific Gas and Electric Company
Humboldt Bay Power Plant
ATTN: Thomas A. Moulia
Plant Manager
1000 King Salmon Avenue
Eureka, California 95503

Humboldt County Board of Supervisors
ATTN: Chairman
County Courthouse
825 Fifth Street
Eureka, California 95501

Pacific Gas and Electric
Company

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Donohew, Jones, Brown & Clifford
ATTN: Linda J. Brown, Esq.
100 Van Ness Avenue, 19th Floor
San Francisco, California 94102

U. S. Environmental Protection Agency
Region IX Office
ATTN: Regional Radiation Representative
75 Hawthorne Street
San Francisco, California 94105

Sierra Club California
ATTN: Dr. Richard Ferguson
Energy Chair
1100 11th Street, Suite 311
Sacramento, California 95814

Department of Conservation
Division of Mines & Geology
ATTN: Dr. James F. Davis, State Geologist
801 K Street MS 12-30
Sacramento, California 95814-3531

Radiological Health Branch
State Department of Health Services
ATTN: Mr. Steve Hsu
P.O. Box 942732
Sacramento, California 94234

Energy Facilities Siting Division
Energy Resources Conservation &
Development Commission
ATTN: Director
1516 9th Street
Sacramento, California 95814

Public Utilities Commission
of the State of California
ATTN: Gretchen Dumas, Esq.
5066 State Building
San Francisco, California 94102

Office of Intergovernmental
Management
State of California
400 10 Street, Room 108
Sacramento, California 95814

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Company

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Redwood Alliance
P.O. Box 293
Arcata, CA 95521

Department of Toxic Substance Control
Region 2
Environmental Protection Agency
State of California
ATTN: Waqar Ahmad
700 Heinz Avenue, Suite 200
Berkley, California 94710-2737

Pacific Gas and Electric
Company

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bcc to DMB (IE01)

bcc distrib. by RIV:

LJCallan, RA
SSBajwa, NRR/DOPS/ONDD (11B20)
AWMarkley, NRR/DOPS/ONDD (11B20)
CYates, NRR/DOPS/ONDD (11B20)
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*NMLB
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OFFICIAL RECORD COPY

ENCLOSURE 1

NOTICE OF VIOLATION

Pacific Gas and Electric Company
Humboldt Bay Nuclear Power Plant

Docket: 50-133
License: DPR-7

During an NRC inspection conducted on December 6-7, 1995, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," (60 FR 34381; June 30, 1995), the violation is listed below:

Facility Operating License DPR-7, Paragraph 2.C.2 states, in part, that Technical Specifications contained in Appendix A to the license are incorporated into the license. Section VI.A.1 of the Technical Specifications states, in part, that minimum treatment for any batch of waste released from the liquid radioactive waste system shall consist of filtration. Section VI.A.2 states, in part, that spent demineralizer resin liquids shall be treated in the liquid waste treatment facility prior to release. Section VI.B.1.d states, in part, that each batch of wastes shall be sampled and analyzed before release to the discharge canal.

Contrary to the above, on October 27, 1995, the licensee released into the discharge canal approximately 10 gallons of contaminated water from the liquid radioactive waste system that had not been filtered, treated, or sampled.

This is a Severity Level IV violation (Supplement IV).

Pursuant to the provisions of 10 CFR 2.201, Pacific Gas and Electric Company is required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011 within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response.

If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

Because the response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. However, if it necessary to include such information, it should clearly indicate the specific information that should not be placed in the PDR, and provide the legal basis to support the request for withholding the information from the public.

Dated at Arlington, Texas
this 4th day of January 1996

ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-133/95-03

License: DPR-7

Licensee: Pacific Gas and Electric Company
Nuclear Power Generation, B14A77
77 Beale Street, Room 1451
San Francisco, California

Facility Name: Humboldt Bay Nuclear Power Plant

Inspection At: Eureka, California

Inspection Conducted: December 6-7, 1995

Inspectors: J. Vincent Everett, Health Physicist
Nuclear Materials Licensing Branch

Accompanied by: D. Blair Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch

Approved:

D. Blair Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch

Date

Inspection Summary

Areas Inspected: Routine, announced inspection of the conditions which led to the discharge of contaminated water from the radioactive waste system that had not been filtered, treated, and sampled prior to release into the discharge canal. Other areas reviewed included the in-line process monitor sensitivity, mixed waste barrel storage, condition of the spent fuel pool, site health physics activities, and a status of the recent work on the caisson sump pump. Open Item 133/9401-01 related to emergency preparedness was also reviewed and closed.

Results:

- A violation was identified relating to the release of slightly contaminated water from the radwaste system into the discharge canal. This release violated plant Technical Specifications, in that the water had not been filtered, treated, and sampled prior to being discharged. The release was a result of repeated actions to override the radwaste process monitor alarm on the radwaste liquid discharge system (Section 1).

- The in-line radwaste process monitor sensitivity was reviewed and found to be within Technical Specifications for both alarm level and background level. The process monitor had detected, recorded, and alarmed properly during the October 27, 1995, contaminated liquid discharge. The inspector concluded that the process monitor functioned correctly and provided an accurate record of the release (Section 2).
- The completed surveillances for the spent fuel pool were reviewed and found to be in compliance with the required Technical Specifications (Section 3).
- Nine barrels of mixed waste were observed and found to be properly posted, stored, and secured (Section 4).
- The efforts to open the plugged drain holes in the caisson sump were evaluated and found to have been effective in reestablishing flow through all of the holes (Section 5).
- Health physics and contamination control activities inspected were effective and met NRC requirements (Section 6).
- Corrective action for Open Item 133/9401-02 related to classifying emergency conditions and completing required notifications was reviewed and determined to be acceptable. This open item was closed (Section 7).

Summary of Inspection Findings:

- Violation 133/9503-01 was opened (Section 1.3)
- Open Item 133/9401-02 was closed (Section 7).

Attachment:

- Persons Contacted and Exit Meeting

DETAILS

1 EVALUATION OF THE RADIOACTIVE LIQUID DISCHARGE EVENT (92720)

1.1 Summary of Event

On October 27, 1995, plant operators were in the process of performing a waste batch discharge of water from the No. 2 waste holding tank into the discharge canal. The waste holding tank had been sampled to verify no radioactivity was present. Before the waste holding tank discharge was completed, the process was halted to allow for the movement of water from the resin disposal tank to the waste receiver tank. This required a realignment of valves between the various systems. When the transfer of the water from the resin disposal tank was completed, the system was realigned to continue the earlier waste batch discharge from the waste holding tank to the discharge canal. However, upon completion of the valve realignment, approximately 10 gallons of contaminated water from the process of draining the resin disposal tank remained in the piping and was now in-line to be transferred with the waste batch water to the transfer canal.

An in-line process monitor was operational on the radwaste system discharge line to monitor radioactive liquids that were discharged into the canal. Upon reinitiation of the effort to discharge the waste holding tank, this monitor detected the radioactive water from the resin disposal tank and alarmed on the annunciator panel in the control room. When the alarm occurred, the system automatically stopped the radwaste pump and the caisson sump pump thereby terminating the release. Upon recognizing that the flow had stopped and that the caisson pump was off, an operator proceeded to flush the line with demineralized water to clear the process monitor alarm. This flushing resulted in a portion of the contaminated water being released into the discharge canal. The process monitor returned to a reading slightly above background after the flushing and the process monitor alarm was cleared. The discharge of the waste holding tank was then restarted. Again the process monitor detected radioactive liquids and tripped the two pumps, terminating the release. The system was again flushed with demineralizer water by the operator resulting in another portion of the contaminated water being released to the discharge canal. The operator restarted the pump to continue the discharge of the waste holding tank. Again, the process monitor detected elevated radiation levels and terminated the release. The operator, then for a third time, flushed the system with demineralizer water.

During this event, the shift foreman was involved with the demineralizer change-out job. He had been notified of the process monitor alarm and had instructed the operator to isolate the radwaste system and discontinue the discharge until work was completed on the demineralizer change-out job. However, due to a misunderstanding of the directions, the operator continued to flush the system. Upon becoming aware of the additional attempt to flush the system and restart the pumps, the shift foreman stopped all radwaste processes and initiated Procedure EOP-8, "Abnormal Release of Liquid Radioactivity During a Planned Batch Release." This procedure was required to be initiated in response to the Process Monitor HI Rad annunciator alarm. The

waste holding tank was sealed at the direction of the shift foreman. A Plant Staff Review Committee was convened to review the situation and to establish a plan to flush the system, which was completed later that night.

1.2 Quantity of Release

The inspector reviewed and assessed the licensee's analyses of the radionuclide activities released during the event to determine compliance with the limits of 10 CFR Part 20 and the Technical Specifications. A sample of the water from the waste receiver tank was analyzed by the licensee to determine the radionuclide concentration of the water in the system. Piping schematics were reviewed to determine the dimensions of the piping that contained the contaminated water. Based on this review, an evaluation was completed to provide a conservative estimate of the volume of water in the piping. The licensee analyses determined that the concentration of radioactive material in the water released as a result of this incident was 39 percent of the Maximum Permissible Concentration limit specified in 10 CFR Part 20 for an instantaneous release. Therefore, the release was determined to be below Technical Specification VI.B.1.a, which limits an instantaneous radioactive waste discharge for Humbolt Bay to less than the Maximum Permissible Concentration limit in 10 CFR 20, Appendix B, Table II, Column 2. The inspector found the licensee's analyses to be appropriate and conservative.

1.3 License and Procedure Requirements

This incident resulted in the violation of the license and Technical Specifications. The violation occurred, in part, because of failure to adhere to applicable procedures.

Section VI of the Humbolt Bay Technical Specifications establishes the design and operating requirements for the liquid radioactive waste system. Section VI.A.1 states, in part, that minimum treatment for any batch of waste released from the liquid radioactive waste system shall consist of filtration. Section VI.A.2 states, in part, that spent demineralizer resin liquids shall be treated in the liquid waste treatment facility prior to release. Section VI.B.1.d states, in part, that each batch of wastes shall be sampled and analyzed before release to the discharge canal.

Procedure EOP-8, "Abnormal Release of Liquid Radioactivity During a Planned Batch Discharge," Revision 62, provides directions for response to the Process Monitor HI Rad Level annunciator alarm. When an alarm occurs on the process monitor, Step 3.1 directs the operator to ensure the radwaste pumps have stopped. Step 4.2 states that the operator is to obtain a radwaste sample from the tank being discharged and make arrangements for it to be analyzed as soon as possible. Step 4.3 states that the operator is to notify the senior radiation protection engineer, or his alternate, who will review the results and determine whether or not the release can be continued.

The operator, in taking the actions to repeatedly flush the system and attempt to restart the pump in order to reestablish the discharge of the radioactive liquid from the waste holding tank, failed to follow the approved procedure

which would likely have prevented the violation of Technical Specification requirements. No sampling of the water was performed after the alarm. Nor was the senior radiation protection engineer notified prior to attempting to restart the system. This resulted in contaminated water from the spent demineralizer resins being released directly into the discharge canal without being filtered, treated, or sampled as required by plant Technical Specifications. Therefore, this event was identified as a violation of Sections VI.A.1, VI.A.2, and VI.B.1.d of the Humbolt Bay Facility Operating License and Technical Specifications (133/9503-01).

1.4 Conditions that Contributed to the Incident

Several conditions existed at the time of this incident that contributed to the release of contaminated water into the discharge canal. The process of moving water from the resin disposal tank to the waste receiver tank was an operation that had been conducted infrequently over the past several years. The process of interrupting the batch discharge of liquids from the waste holding tank to the discharge canal to perform other liquid transfer operations had not typically occurred. Operator familiarity with the in-line process monitor's function was minimal due to the fact that liquid discharges to the discharge canal in the past had not resulted in alarms. In addition, the operator involved with flushing and resetting the process monitor had last received training on the procedure associated with the liquid radwaste system discharge requirements 26 months prior to the incident.

There was also evidence that the operator involved with this incident was aware that failure to restart the caisson sump pump within a short time frame would result in water level problems in the caisson sump. The operator apparently placed a high priority in getting the caisson sump pump restarted to avoid potential flooding of the caisson sump. As discussed in the Licensee Event Report submitted by PG&E, there appeared to be a lack of understanding as to why the process monitor would be alarming and what the alarm meant in relation to the potential for a release of contaminated liquids into the discharge canal. This lack of familiarity with the function of the process monitor resulted in the continued effort by the operator to restart the system in order to prevent water level problems in the caisson sump.

1.5 Corrective Actions

Following the October 27, 1995 release, the licensee convened a Plant Staff Review Committee to approve valving line up to flush any piping that may have held suspected contamination. A License Event Report was completed and issued on November 27, 1995, which described the event, evaluated the cause of the event, and identified corrective actions. This Licensee Event Report was reviewed during this inspection and was found to provide an acceptable response to the incident. Several procedures were revised to provide more detail and operators were trained on the changes. At the time of the inspection, licensee representatives stated that additional procedure changes were envisioned. Retraining was conducted on the main annunciator system for the proper response to alarms.

The inspector reviewed the training requirements in the Licensee's Technical Specifications and determined that no training requirements are specified related to personnel who operate the radwaste systems. The Technical Specifications only require training for certification as a fuel handler, for assignment to the fire brigade, and for personnel functioning as radiation and process monitors.

1.6 Conclusion

The actions taken by an operator at the Humbolt Bay Nuclear Power Plant resulted in the discharge of approximately 10 gallons of contaminated water that had not been filtered, treated, or sampled. This was the result of an operator repeatedly flushing the process monitor with demineralizer water to clear an alarm that indicated high radiation levels in the discharge line in order to restart the discharge pump. The actions of the operator were inappropriate in response to the alarm on the process monitor and resulted in a violation of Technical Specification requirements for liquid radwaste discharges.

Though the release was below NRC limits and below the license conditions established in the Technical Specifications, the release had not been filtered, processed, or sampled as required by the Technical Specification for liquid radwaste discharges. The fact that PG&E identified the problem, responded quickly and appropriately to the event, and initiated some corrective action that included reviewing the proper response to this type of occurrence with the operators was noted by the NRC during this inspection, but the violation is being cited because the release was the result of repeated actions by an operator that resulted in the defeat of a system designed to prevent this type of occurrence.

2 RADWASTE DISCHARGE LINE PROCESS MONITOR (84101)

2.1 Process Monitor Sensitivity

Liquids are periodically discharged from the Humbolt Bay facility through the radwaste system. These discharges are filtered and sampled to ensure radioactive concentrations are below 10 CFR Part 20 limits. The discharges are then released to the discharge canal through a system that includes an in-line process monitor which is set to alarm in the control room if the concentration in the discharge line exceeds the Technical Specification V.B.2.b limit of 1×10^{-4} microcurie/ml ($\mu\text{Ci/ml}$) Cs-137 equivalent. In addition, background levels for the detector must be maintained below 5×10^{-5} $\mu\text{Ci/ml}$ Cs-137. The process monitor is a NaI detector in a one gallon chamber.

A review was completed of the process monitor to ensure compliance with the Technical Specifications. The detector was recording a background level of approximately 5k cpm. This was equivalent to 2×10^{-5} $\mu\text{Ci/ml}$, well below the required limit for the background as established in the Technical Specification. The alarm setpoint for the process monitor was established in procedure ODCM-II "Alarm Setpoints" as 25k cpm (1×10^{-4} $\mu\text{Ci/ml}$ Cs-137 equivalent).

This event involved the release of contaminated water into the discharge canal exceeded the alarm set point on three occasions. The process monitor recorder chart and the discharge flow recorder chart were reviewed. The process monitor recorder chart recorded the three attempts to flush the discharge line. Based on the review of the process monitor recorder chart and comparison to the discharge flow recorder chart, along with the fact that the process monitor did alarm on each occasion that radiation levels exceeded the trip point, the inspector found that the process monitor had functioned within the requirements of the Technical Specifications.

The licensee's analyses of the event involved the calculation of the probable concentration of the liquid released by sampling the waste receiver tank. This tank contained the water that had been transferred from the resin disposal tank. Based on analysis of this sample, the process monitor would have recorded a maximum of 945k cpm. The highest reading actually recorded by the process monitor was 545k cpm. These values were in reasonable agreement considering that the water that was discharged was mixed with the clean demineralizer water while being flushed and, therefore, would have recorded a lower reading indicative of the dilution.

2.2 Conclusion

The in-line radwaste process monitor sensitivity was reviewed and found to be within Technical Specifications for both alarm level and background level. The process monitor had detected, recorded, and alarmed when the radioactive liquid discharges occurred. The inspector concluded that the process monitor functioned correctly and provided an accurate record of the release.

3 SPENT FUEL POOL (86700)

3.1 Spent Fuel Pool Water Level

Section III.B.2.a of the Technical Specifications requires the spent fuel pool water level to be maintained at an elevation greater than +10.5 feet, which is 1.5 feet below the main floor of the refueling building. The inspector reviewed records for the period 1/7/94 through 12/1/95 and confirmed that the water level had been maintained above the required +10.5 feet.

3.2 Spent Fuel Pool Water Chemistry

Table III-2 of the Technical Specifications establishes the limits for the water chemistry parameters for the spent fuel pool that must be monitored on a monthly basis. These include a pH limit of 5.3 to 6.5, a chloride limit of 0.5 ppm maximum, a conductivity limit of 10.0 micromho/cm maximum, and Cs-137 activity of 1.0×10^{-4} $\mu\text{Ci/ml}$ maximum. The inspector reviewed logs for the time period January 4 through December 6, 1995, and found that all parameters had been analyzed on the required frequency and were within Technical Specifications.

3.3 Spent Fuel Pool Service System

Section IV.B.2.b of the Technical Specifications requires that the spent fuel pool liner gap pump be verified operable at least monthly. The inspector reviewed logs for the period January through November 1995 which demonstrated that pump operability had been confirmed monthly.

3.4 Conclusion

The completed surveillances for the spent fuel pool were reviewed and found to be in compliance with the required Technical Specifications.

4 MIXED WASTE BARREL STORAGE (84101)

4.1 Condition of Barrels

Over the past several years, the Humbolt Bay facility had accumulated wastes that contained both radioactive material and hazardous chemicals, classified as mixed wastes. Mixed wastes require special disposal. There had been very limited options available to the licensee for disposing of this type of waste. PG&E had actively pursued options to dispose of the mixed wastes with little success. As a consequence, at the time of the inspection, 9 barrels of mixed wastes were in storage at the Humbolt Bay facility awaiting disposal. These wastes contained very low levels of radioactivity measuring near background. The inspector observed that the barrels had been surveyed and were properly labelled and the storage area posted. The barrels were secured by chain and padlock in a dedicated storage facility on site and appeared to be in good condition.

NRC regulations do not establish special requirements for mixed waste. NRC regulations apply to the radioactive constituent of the waste only. Therefore, proper posting, labeling, storage, and securing of the wastes were reviewed during this inspection, and the licensee was found to be in compliance with applicable NRC regulations.

4.2 Conclusion

Nine barrels of mixed waste were observed and found to be properly posted, stored, and secured.

5 CAISSON SUMP PLUGGING (92720)

5.1 Background of Problems with Caisson Sump

The Humbolt Bay reactor building is a 60-foot diameter facility extending about 70 feet underground. The water table is about 4 to 5 feet below ground level, which provides for a considerable hydrostatic head to drive leakage from the bottom of the reactor building up into the facility. The reactor building has a 6-foot thick concrete base pad, then 6 inches of crushed rock covered with a 6-inch thick concrete slab. A sump arrangement is established to allow the water from the crushed rock section between the two concrete slabs to drain into a sump to be pumped to the radwaste system for eventual release into the discharge canal. The sump is a 2-foot diameter pipe that penetrates the upper concrete slab, extending through the crushed rock

section, and into the lower concrete slab approximately 1 foot. There are 32 holes in this pipe to allow water drainage from the crushed rock section into the sump. A recent examination of the sump found that 31 of the 32 holes were clogged. Flow into the sump was through the one open hole.

Before 1992, the in-leakage into the sump was 100-150 gallons/day. Following three earthquakes that occurred in April 1992, the in-leakage jumped to 700 gallons/day and began to increase. After an earthquake in December 1994, the in-leakage increased to 2200 gallons/day. During September 1995, the in-leakage suddenly increased to 3500 gallons/day without any seismic activity. This in-leakage rate equates to approximately 2.5 gpm. The caisson sump pump has a capacity of 10 gpm.

Samples of the water taken from the sump had typically showed no contamination, however, periodic extended sample counting had, on occasion, measured trace amounts of Co-60 and Cs-137 on the order of 6-10 pCi/l. As a precaution, all water from the caisson sump had been transferred to the radwaste holding tanks for eventual release to the discharge canal. There are two radwaste holding tanks. Each can hold approximately 7500 gallons.

5.2 Sump Maintenance

To reestablish the flow in the sump through the 32 holes, PG&E initiated a maintenance work activity to clean the sump and to reopen the clogged holes. This included replacement of some of the hardware on the sump cover. The maintenance activity was successful, and the flow was reestablished through the clogged holes. The in-leakage increased slightly for a short period of time and then returned to the 3500 gallon/day level. No contamination problems were encountered during the maintenance activity.

5.3 Conclusion

The effort to open the plugged drain holes in the caisson sump was evaluated and found to have been effective in reestablishing flow through all of the holes.

6 HEALTH PHYSICS ACTIVITIES (83100)

6.1 Site Tour

A general site tour was taken of the reactor building, control room, counting lab, settling ponds, radwaste building, and spent fuel pool area. General health physics requirements related to posting and control of radioactive material, including contamination controls, were observed. Proper radioactive postings were evident throughout the facilities. Potentially contaminated areas were properly roped off and posted.

A radiation technician performing a radiation survey in the reactor building was observed. General radiation levels were low, as well as contamination levels in the areas of the reactor building toured during this inspection.

6.2 Conclusion

Health physics and contamination control activities inspected were effective and met NRC requirements.

7 FOLLOWUP (92701)

7.1 (Closed) Open Item 133/9401-02: Emergency Planning Weakness

Incorrect classification of an emergency condition, out-of-sequence notification to offsite agencies, and inadequate notification of termination of the emergency condition had been identified as a weakness of the emergency preparedness program. An emergency classification of Unusual Event had been declared for a suspected heart attack victim. However, since the individual was not suspected of being contaminated, no emergency classification or notifications should have been made, other than the appropriate medical notifications.

In response to this identified weakness, PG&E conducted additional training for the certified fuel handlers and the persons that may be called upon to complete the required notifications. Training included classifying emergency conditions and completing required notifications. This training was completed in 1994.

7.2 Conclusion

Corrective action for open item 133/9401-02 related to classifying emergency conditions and completing required notifications was reviewed and determined to be acceptable. This open item is closed.

ATTACHMENT

1 PERSONS CONTACTED

1.1 License Personnel

- *R. Flohaug, Quality Assurance (QA) Auditor
- M. Grossman, Operations Supervisor
- E. Kahler, Sr. Engineer
- *R. Kelmenson, Sr. Engineer
- *T. Moulia, Plant Manager
- *R. Parker, Sr. Radiation Protection Engineer
- *R. Prigmore, QA
- *P. Rasmussen, Sr. Power Production Engineer
- *R. Sorensen, Quality Control Supervisor
- *R. Willis, Plant Engineer

1.2 NRC Personnel

- *V. Everett, Health Physics Inspector
- *B. Spitzberg, Chief, Nuclear Materials Licensing Branch

* Denotes persons that attended the exit meeting

2 EXIT INTERVIEW

An exit was conducted at the conclusion of the inspection on December 7, 1995. During this meeting, the inspector reviewed the scope and findings of the inspection with the participants. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspector.