



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005**

December 20, 2005

EA-05-166
NMED Nos.: 040585, 050105

Mr. David H. Oatley
General Manager and Vice President
Acting Chief Nuclear Officer
Pacific Gas and Electric Company
Diablo Canyon Power Plant
P.O. Box 56
Avila Beach, CA 93424

**SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY -
\$96,000 (NRC Special Inspection Report No. 050-00133/05-002)**

Dear Mr. Oatley:

This refers to PG&E's September 19, 2005, letter responding to apparent violations of NRC requirements that were identified during our special inspections conducted at Pacific Gas and Electric's (PG&E) Humboldt Bay Power Plant (HBPP) Unit 3 facility. Our special inspections were conducted from November 2, 2004 through August 2, 2005, in order to review the circumstances of the reported loss of three approximately 18-inch long spent fuel rod segments, one intact incore detector, and parts of three other incore detectors; all containing special nuclear material (SNM). On August 16, 2005, a telephonic exit interview was conducted with members of your staff to discuss the inspection results. Inspection reports documenting the findings of the special inspection were issued on April 5, 2005 (interim Inspection Report No. 050-00133/05-001), and August 19, 2005 (final Inspection Report No. 050-00133/05-002).

Our final inspection report documented three apparent violations associated with the loss of SNM that were being considered for escalated enforcement, and provided PG&E an opportunity to either request a predecisional enforcement conference to discuss the apparent violations or to provide its position in a written response. In a telephone conversation on August 25, 2005, Mr. David Sokolsky informed Dr. D. Blair Spitzberg, NRC Region IV, that PG&E declined a predecisional enforcement conference, and instead provided a written response on September 19, 2005. In summary, PG&E's response agreed that the three violations occurred and provided circumstances for NRC to consider in deciding on its enforcement action. Specifically, PG&E's letter offered that: (1) PG&E had no previous escalated enforcement in the past 2 years; (2) PG&E self-identified the violations; and (3) PG&E's corrective actions were prompt and comprehensive.

Based on the information developed during the inspection and the information that PG&E provided in its September 19 response, the NRC has determined that three violations of NRC requirements occurred. The violations involved: (1) failure to keep adequate records of SNM inventory, transfer or disposal, (2) failure to establish adequate procedures for control and

accounting of SNM, and (3) failure to conduct adequate physical inventories of SNM. These three violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding the violations are described herein, as well as in the subject inspection report. The violations relate to PG&E's July 2004 report to the NRC that PG&E did not conclusively know the whereabouts of the subject SNM, but PG&E had reason to believe it was in one of several specified locations. PG&E's records failed to account for the three 18-inch fuel rod segments after they were cut from a single fuel rod in 1968. Likewise, PG&E's records failed to account for incore detectors after some were cut in 1973. The plant was shutdown in 1976 and has been in a SAFSTOR status since 1988. As a result, these violations were identified only recently when PG&E was examining the contents of the spent fuel pool in 2004.

As documented in the subject inspection report, the NRC has independently determined the following: (1) the missing SNM was most likely shipped to a low level radioactive waste facility before 1989; (2) it is possible that the three 18-inch fuel rod segments were shipped to a facility for reprocessing in the 1970s or might remain in the HBPP spent fuel pool; (3) there is no evidence to support the possibility of theft or diversion of the missing fuel rods; and (4) PG&E has taken significant actions to correct its material control and accountability program at HBPP.

Because the loss of control of highly radioactive SNM is a very significant concern to the NRC, the three violations are categorized collectively as a Severity Level II problem in accordance with the NRC's Enforcement Policy. In accordance with the Enforcement Policy (in effect in 2004), a base civil penalty in the amount of \$96,000 is considered for a Severity Level II problem. Because the violations have been classified at Severity Level II, the NRC considered whether credit was warranted for *Identification and Corrective Action* in accordance with the civil penalty assessment process in Section VI.C.2 of the Enforcement Policy. With respect to *Identification*, the NRC determined that PG&E had prior opportunities to identify the location of the fuel rod segments and institute corrective actions. The first opportunity occurred on August 3, 1966. An internal memorandum directed plant staff to keep track of fuel rod pieces and to make entries on the control operator's log regarding fuel rod pieces that were found. Another significant missed opportunity involved the guidance contained in ANSI Standard N15.8-1974, which stated that "nuclear material contained in fuel elements, not part of an assembly, shall be separately identified on all material control records." This ANSI Standard was endorsed by NRC Regulatory Guide 5.29 in June 1975. PG&E's September 19, 2005, letter argues that the ANSI Standard N15.8-1974 did not define or specifically consider situations where a fuel rod or pin was broken or divided into smaller segments. While PG&E is correct that the guidance did not specifically define the particular situation at HBPP, it did provide sufficient information for PG&E to have explored the problem of how to account for spent fuel in pieces smaller than a fuel rod. Our inspection (and PG&E's investigation) indicates that HBPP took no specific actions to strengthen its accounting and control programs at that time. Thus, as a result of the prior opportunities for PG&E to have identified these violations, the NRC has concluded that credit for identification is not warranted.

The NRC determined that credit for *Corrective Action* is warranted. PG&E's investigation of the missing fuel rod segments was thorough and complete, and PG&E's physical inspection process of the HBPP spent fuel pool was prompt and comprehensive, as noted in our August 19, 2005, letter that transmitted the final inspection report. PG&E also summarized the various corrective actions that have been taken which include but are not limited to:

(1) establishing a SNM Control and Accountability Project that was complete and thorough in its search and investigation of the missing SNM; (2) revising HBPP procedures for handling, controlling and accounting of SNM containing items as they are identified in the spent fuel pool; (3) fully cataloging and characterizing the spent fuel pool contents to ensure a complete and accurate accounting of all SNM in PG&E's possession at HBPP; and (4) establishing required qualifications for individuals designated as SNM Custodian.

In accordance with the Enforcement Policy, credit for corrective action combined with no credit for identification for a Severity Level II problem results in a base civil penalty. Because this issue was categorized as a Severity Level II problem, the NRC further considered whether enforcement discretion was warranted to escalate the proposed civil penalty. The NRC considered that your investigation into this issue, including the search for the missing fuel pin segments and the incore detectors was complete and thorough. The NRC notes that the loss of accountability of the spent fuel occurred in 1968, and segmenting fuel pins was a rare activity at HBPP. The NRC staff agrees with your position that segmenting the fuel rod into smaller pieces contributed to its subsequent loss. At that time, PG&E's program had some deficiencies and, as a result, PG&E could not account for the material. The NRC has determined that PG&E's SNM control deficiencies were limited based on the fact that fuel pin segmenting was a non-routine process and the fact that spent fuel handling activities were minimal after HBPP ceased operations in 1976. Therefore, the NRC has concluded that there was a low probability that PG&E's spent fuel pool handling activities would have resulted in additional or more significant losses of SNM. In light of this, the NRC is not exercising discretion to escalate the civil penalty beyond the base amount. Therefore, to emphasize the importance of controlling special nuclear material and of prompt identification of violations, I have been authorized, after consultation with the Director, Office of Enforcement and the Executive Director for Operations, to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalty (Notice) in the base amount of \$96,000 for the Severity Level II problem.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from

the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. The NRC also includes significant enforcement actions on its Web site at www.nrc.gov; select **What We Do, Enforcement**, then **Significant Enforcement Actions**.

Sincerely,

/RA/

Bruce S. Mallett
Regional Administrator

Docket No.: 050-00133

License No.: DPR-7

Enclosures:

- (1) Notice of Violation and Proposed Imposition of Civil Penalty
- (2) NUREG/BR-0254 Payment & Methods (Licensee only)

cc w/enclosure (1):

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San Francisco, CA 94120

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Chairman
Humboldt County Board of Supervisors
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U. S. Environmental Protection Agency
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Director
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Energy Resources Conservation &
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Gretchen Dumas, Esq.
Public Utilities Commission
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San Francisco, CA 94102

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

James D. Boyd, Commissioner
California Energy Commission
1516 Ninth Street (MS 34)
Sacramento, CA 95814

bcc w/enclosure (via ADAMS distrib):

- BSMallett
- TPGwynn
- J. Dixon-Herrity, OEDO RIV Coordinator (JLD)
- LWCamper, NMSS/DWM
- DMGillen, NMSS/DWM/DCD
- CMCraig, NMSS/DWM/DCD
- JBHickman, NMSS/DWM/DCD
- LDWert
- CLCain
- DBSpitzberg
- KSFuller
- GMVasquez
- EMGarcia
- WMaier
- VDricks
- MCWilliams, NSIR/DNS/NSO/SOS
- GWTuttle NSIR/DNS/NSO/SOS
- RLKellar
- TKMcLellan, NRR/ADPT/DE/EMCB
- WCSifre
- OEMAIL, OEWEB
- RFretz
- SMerchant
- KEGardin
- FCDB File

SISP Review Complete: EMG

ADAMS: X Yes Initials: emg
 X Publicly Available X Non-Sensitive

DOCUMENT NAME: S:\RAS\ACES\Humboldt Bay\Enforcement Action\EA-05-166 Final-HBPP NOV & CP.wpd

RIV:DNMS:FCDB		ES:ACES		RC/ACES	
EMGarcia* (via e-mail)		GMVasquez		KDFuller*	
/RA/ D. B. Spitzberg for		/ RA /		/RA/	
10/14/2005		10/18/2005		10/18/2005	
C:FCDB	D:DNMS	DRA		RA	
DBSpitzberg*	LDWert	TPGwynn		BSMallett	
/RA/	/RA/	/RA/		/RA/	
10/14/2005	12/15/2005	12/19/2005		12/20/2005	
OGC		D:OE			
BJones* (via e-mail)		MRJohnson			
/RA/ J. Hull (NLO) for		/RA/			
11/17/2005		12/15/2005			

*Previously concurred OFFICIAL RECORD COPY T=Telephone E=E-mail F=Fax

NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION AND CIVIL PENALTY

Pacific Gas and Electric Company
Humboldt Bay Power Plant Unit 3

Docket No. 050-00133
License No. DPR-7
EA-05-166

During an NRC special inspection which concluded on August 16, 2005, violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the NRC proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violation and associated civil penalty are set forth below:

1. 10 CFR 74.19(a)(1), formerly 10 CFR 70.51(b)(1), requires, in part, that the licensee shall keep records showing the receipt, inventory (including location and unique identity), acquisition, transfer, and disposal of all SNM in its possession regardless of its origin or method of acquisition.

Contrary to the above, from October 1968 (the approximate date when the fuel pin was known to have been segmented into three 18-inch pieces) to July 16, 2004 (date when PG&E determined that the segments were missing), PG&E failed to keep records showing the inventory, transfer or disposal of three segments of irradiated fuel, each approximately 18-inches in length, containing approximately 22.5 grams of SNM. In addition, from June 25, 1973, to February 4, 2005, PG&E failed to keep records including location and unique identity showing the inventory, transfer or disposal of one complete and three partial incore detectors containing a total of approximately 0.035 grams of SNM.

2. 10 CFR 74.19(b), formerly 10 CFR 70.51(c), requires that each licensee that is authorized to possess SNM in a quantity exceeding one effective kilogram at any one time shall establish, maintain, and follow written material control and accounting procedures that are sufficient to enable the licensee to account for the SNM in its possession under license. The licensee shall retain these procedures until the Commission terminates the license that authorizes possession of the material and retain any superceded portion of the procedures for 3 years after the portion is superceded.

Contrary to the above, from October 1968 (the approximate date when the fuel pin was known to have been segmented into three 18-inch pieces) to July 16, 2004 (date when PG&E determined that the segments were missing), PG&E, authorized by NRC License DPR-7 to possess SNM in a quantity exceeding one effective kilogram, failed to establish, maintain, and follow written material control and accounting procedures sufficient to account for the SNM in its possession under license DPR-7. Specifically, PG&E failed to account for SNM located in the HBPP spent fuel pool consisting of a quantity of 111 grams of uranium-235, 27 grams of plutonium contained in the remnants from Type 1 damaged fuel assemblies (fuel fragments and SNM waste), and incore detectors.

3. 10 CFR 74.19(c), formerly 10 CFR 70.51(d), requires each licensee who is authorized to possess SNM, at any one time and site location, in a quantity greater than 350 grams of

contained uranium-235, uranium-233, or plutonium, or any combination thereof, shall conduct a physical inventory of all SNM in its possession under license at intervals not to exceed 12 months.

Contrary to the above, PG&E, a licensee authorized to possess SNM at the HBPP in quantities greater than 350 grams of contained uranium-235, uranium-233, or plutonium failed to conduct a physical inventory of all SNM in its possession at intervals not to exceed 12 months. Specifically, inventories performed by PG&E from October 1968 (the approximate date when the fuel pin was known to have been segmented into three 18-inch pieces), to February 4, 2005, with the exception of periods when the sealed SFP cover was in place, did not include fuel fragments and other SNM remnants from Type 1 damaged fuel assemblies and all incore detectors.

These violations are a Severity Level II problem (Supplement VI). Civil Penalty - \$96,000.

Pursuant to the provisions of 10 CFR 2.201, Pacific Gas and Electric Company is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalty (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; EA-05-166 and should include for each alleged violation: (1) admission or denial of the alleged violation, (2) the reasons for the violation if admitted, and if denied, the reasons why, (3) the corrective steps that have been taken and the results achieved, (4) the corrective steps that will be taken to avoid further violations, and (5) 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 why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Consideration may be given to extending the response time for good cause shown.

Within the same time as provided for the response required above under 10 CFR 2.201, the Licensee may pay the civil penalty proposed above in accordance with NUREG/BR-0254 and by submitting to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, a statement indicating when and by what method payment was made, or may protest imposition of the civil penalty in whole or in part, by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission. Should the Licensee fail to answer within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalty, an order imposing the civil penalty will be issued. Should the Licensee elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation" and may: (1) deny the violation listed in this Notice, in whole or in part, (2) demonstrate extenuating circumstances, (3) show error in this Notice, or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty in whole or in part, such answer may request remission or mitigation of the penalty.

In requesting mitigation of the proposed penalty, the factors addressed in Section VI.C.2 of the Enforcement Policy should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply

pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the Licensee is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing a civil penalty.

Upon failure to pay any civil penalty due which subsequently has been determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282c.

The response noted above (Reply to Notice of Violation, statement as to payment of civil penalty, and Answer to a Notice of Violation) should be addressed to: Michael Johnson, Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852-2738, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you are required to post this Notice within two working days.

Dated this 20th day of December 2005