

December 9, 2004

Mr. Gregory M. Rueger  
Senior Vice President - Generation  
and Chief Nuclear Officer  
Pacific Gas and Electric Company  
Diablo Canyon Nuclear Power Plant  
P. O. Box 3  
Avila Beach, CA 93424

SUBJECT: HUMBOLDT BAY POWER PLANT, UNIT 3 - REQUEST FOR ADDITIONAL  
INFORMATION REGARDING SPENT FUEL POOL "DAVIT" CRANE DESIGN  
APPLICATION (TAC NO. L52634)

Dear Mr. Rueger:

The NRC staff has reviewed and evaluated the information provided by the Pacific Gas and Electric Company for Humboldt Bay Power Plant, Unit 3 in its License Amendment Request 04-02, Spent Fuel Handling "Davit" crane design application, and has determined that additional information is needed to complete our review. Attached to this letter is the Request for Additional Information.

Sincerely,

**/RA/**

John B. Hickman, Project Manager  
Decommissioning Directorate  
Division of Waste Management  
and Environmental Protection  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 50-133

Enclosure: Request for Additional Information

cc: See next page

December 9, 2004

Mr. Gregory M. Rueger  
Senior Vice President - Generation  
and Chief Nuclear Officer  
Pacific Gas and Electric Company  
Diablo Canyon Nuclear Power Plant  
P. O. Box 3  
Avila Beach, CA 93424

SUBJECT: HUMBOLDT BAY POWER PLANT, UNIT 3 - REQUEST FOR ADDITIONAL  
INFORMATION REGARDING SPENT FUEL POOL "DAVIT" CRANE DESIGN  
APPLICATION (TAC NO. L52634)

Dear Mr. Rueger:

The NRC staff has reviewed and evaluated the information provided by the Pacific Gas and Electric Company for Humboldt Bay Power Plant, Unit 3 in its License Amendment Request 04-02, Spent Fuel Handling "Davit" crane design application, and has determined that additional information is needed to complete our review. Attached to this letter is the Request for Additional Information.

Sincerely,

**/RA/**

John B. Hickman, Project Manager  
Decommissioning Directorate  
Division of Waste Management  
and Environmental Protection  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 50-133

Enclosure: Request for Additional Information

cc: See next page

DISTRIBUTION

DCD r/f	DGillen	CCraig	JHickman
BSpitzberg, RIV	EGarcia, RIV	SJones, NRR	AWong, NRR
RidsRgn4MailCenter	BSmith	MBupp	

ML043440350

\*See previous concurrence

OFFICE	DCD/PM*	DCD/LA	DCD/SC
NAME	JHickman	TMixon	CCraig
DATE	12/09/2004	12/09/2004	12/09/2004

**OFFICIAL RECORD**

REQUEST FOR ADDITIONAL INFORMATION  
RELATED TO SPENT FUEL POOL "DAVIT" CRANE DESIGN APPLICATION  
PACIFIC GAS AND ELECTRIC COMPANY  
HUMBOLDT BAY POWER PLANT, UNIT 3  
DOCKET NO. 50-133

1. The Holtec *Humboldt Bay Davit Crane Specification* (submitted to NRC as an attachment to the 08/17/04 PG&E letter HBL-04-022) page 3 states that "The two strand jacks operating in parallel combine to raise the total working load to 264 tons." Page 7 of 22 of the NUREG-0554/NUREG-0612 Compliance Matrix states that "The strand jack collets automatically adjust for slack in any individual stand so that the strands will be evenly loaded."
  - a. Describe how these two stand jacks automatically operate in unison to lift the load evenly.
  - b. Describe means to correct uneven lifting if such problem is discovered.
  - c. Describe the effect of uneven loading on the ability of the crane to stop and hold the load and to what extent stresses in load bearing members were evaluated for uneven loading conditions.
2. The Holtec *Humboldt Bay Davit Crane Specification* (submitted to NRC as an attachment to the 08/17/04 PG&E letter HBL-04-022) page 4, 5.3 states that "hydraulic pressure in the strand jacks is regulated to protect against a 'two-blocking' event." Page 8, item g "limit switch failure" of the same report states that "The effect of one of the redundant independent limit switches to stop the lift prior to "hard contact" of the Davit Crane members would be that the hydraulic pressure relief valves would limit the lift force." Page 11 of 22 of the NUREG-0554/NUREG-0612 Compliance Matrix Section 4.5, item 2 Compliance Evaluation states that "The protective control system will use two independent upper and two independent lower limit switches. These devices are independent of the drive control system."
  - a. Describe how the hydraulic pressure is regulated/relieved. Please include a discussion on the failure of such mechanism because this failure is not included in Section 7 "Davit Crane and Strand Jack Failure Modes and Effects Analysis". Are manual actions required? If so, briefly describe the complexity of the manual actions.
  - b. Describe how the switches function and how they are independent from each other and from the drive control system. What is the sequence of events when one (or both) switch is activated?

3. The Holtec *Humboldt Bay Davit Crane Specification* (submitted to NRC as an attachment to the 08/17/04 PG&E letter HBL-04-022) pages 11 thru 13 of 22, addressing the NUREG-0554/NUREG-0612 Compliance Matrix Sections 4.5 and 4.9, states that "The Davit Crane does not employ holding brakes. Stopping and holding are passive safety features of the hydraulics."
  - a. Describe the passive safety features of the hydraulics. In particular, how it stops and holds the load. Also, describe how dynamic effects from the jacking are controlled and were considered in the design of load-bearing elements.
  - b. Describe the dynamic effects on the system from other postulated sudden movements. For example, upon loss of hydraulic power (e.g., rupture of a hydraulic line), what is the impact on the system/load when the two vertical booms fall suddenly from a vertical position (90 °) to a fully-extended position over the spent fuel pool? Can the Davit Crane be manually brought to a safe state upon loss of power?
  - c. Describe how the effects of wear and the resulting reduction in frictional load holding capacity will be monitored and controlled during the life of the crane.
4. Page 18 of 22 of the NUREG-0554/NUREG-0612 Compliance Matrix Sections 6.6 item 1 Compliance Evaluations states that "An O&M manual will be provided with the Davit Crane." That statement did not directly address the location of operating and emergency controls issue.

Describe the location of operating and emergency controls. Are they located on or near the crane where the crane operator can directly observe the crane movement?

5. Page 49 of 68 of the Enclosure to the PG&E Letter HBL-04-016 (July 9, 2004) states that "This probabilistic evaluation determined that the probability of a cask drop causing a radiological release exceeding the guidelines of 10 CFR or a criticality event was less than  $1 \times 10^{-7}$  and therefore was not credible."

Describe the sequence of events that led to the cask dropping and how the cask dropping probability was determined. In particular, please focus on the areas where either human actions or hardware failures were involved.

## Humboldt Bay Power Plant, Unit 3 Service List

cc:

Mr. Gregory M. Rueger  
Senior Vice President - Generation  
and Chief Nuclear Officer  
Pacific Gas and Electric Company  
Diablo Canyon Nuclear Power Plant  
P. O. Box 3  
Avila Beach, CA 93424

Mr. Lawrence F. Womack, Vice President,  
Power Generation & Nuclear Services  
Diablo Canyon Power Plant  
P. O. Box 56  
Avila Beach, CA 93424

Mr. Roy Willis, Plant Manager  
Humboldt Bay Nuclear Power Plant  
Pacific Gas & Electric Company  
1000 King Salmon Avenue  
Eureka, CA 95503

R. Terry Nelson, Director  
Fossil Generation  
Mail Code N11E  
Pacific Gas & Electric Company  
P.O. Box 770000  
San Francisco, CA 94177-0001

Mr. Richard F. Locke, Esq.  
Law Department  
Pacific Gas & Electric Company  
Post Office Box 7442  
San Francisco, CA 94120

Chairman, Humboldt County Board  
of Supervisors  
County Courthouse  
825 Fifth Street  
Eureka, CA 95501

Mr. Steve Hsu  
Radiologic Health Branch  
State Department of Health Services  
P.O. Box 997414 (MS 7610)  
Sacramento, CA 95899-7414

Regional Administrator, Region IV  
U.S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011-8064  
California Public Utilities Commission  
505 Van Ness, Room 4102  
San Francisco, CA 94102

California Public Utilities Commission  
505 Van Ness, Room 4102  
San Francisco, CA 94102

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

Dr. Rich Ferguson, Energy Chair  
Sierra Club California  
1100 11<sup>th</sup> Street, Suite 311  
Sacramento, CA 94814

Mr. Ed Bailey, Radiation Program Director  
Radiologic Health Branch  
State Department of Health Services  
P.O. Box 997414 (MS 7610)  
Sacramento, CA 95899-7414

Commissioner  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814

Deputy Attorney General  
State of California  
110 West A Street, Suite 700  
San Diego, CA 92101

December 2004