UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

June 20, 2018

Mr. James M. Welsch
Vice President, Nuclear Generation
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Pacific Gas and Electric Company
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Mr. Jon A. Franke
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SUBJECT: HUMBOLDT BAY POWER PLANT – NRC INSPECTION REPORT
05000133/2018-002 AND 07200027/2018-001

Dear Gentlemen:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) inspection conducted on April 24-26, 2018, at the Humboldt Bay Power Plant, Unit 3 facility, located near Eureka, California. The purpose of the inspection was to determine whether decommissioning and independent fuel storage activities were being conducted safely and in conformance with NRC requirements and the conditions of your licenses. The NRC inspectors discussed the results of this inspection with Mr. B. Barley and other members of your staff during a preliminary exit meeting conducted on April 26, 2018. The NRC performed further in-office evaluation of your implementation of decommissioning survey procedures as part of the caisson activities. A final exit meeting was held on May 22, 2018, with Mr. B. Barley and other members of your staff. The inspection results are documented in the enclosure to this letter.

The NRC inspection examined activities conducted under your licenses as they relate to public health and safety, the common defense and security, to confirm compliance with the Commission's rules and regulations, and with the conditions of your licenses. Within these areas the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. Specifically, the inspectors reviewed the decommissioning activities at the site, the final status survey program, and the transportation of radioactive materials program at the Humboldt Bay, Unit 3 facility.

In addition, the inspectors reviewed the Independent Spent Fuel Storage Installation (ISFSI) program to ensure safe storage of the Unit 3 spent nuclear fuel and Greater-Than-Class-C radioactive wastes. The inspection included a review of the licensee performed quality

assurance audits and surveillances, ISFSI related condition reports, survey records, monitoring data, and licensee performed maintenance and evaluation documentation, as well as a review of any changes to the program. The NRC inspectors did not identify any violation of more than minor significance in either program area.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its enclosure, and your response if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC's Website at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

If you have any questions regarding this inspection report, please contact Ms. Rachel Browder at 817-200-1452 for any decommissioning related questions, or Mr. Eric Simpson at 817-200-1553 for any spent fuel safety related questions.

Sincerely,

/RA by RJEvans Acting for/

Ray L. Kellar, P.E., Chief
Fuel Cycle and Decommissioning Branch
Division of Nuclear Materials Safety

Dockets: 50-133; 72-27
Licenses: DPR-7; SNM-2514

Enclosure:
Inspection Report 05000133/2018-002
and 07200027/2018-001;
w/Attachment: Supplemental Information

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.	05000133; 07200027
License Nos.	DPR-7; SNM-2514
Report No.	05000133/2018-002 AND 07200027/2018-001
Licensee:	Pacific Gas & Electric Company
Facility:	Humboldt Bay Power Plant, Unit 3
Location:	1000 King Salmon Avenue Eureka, California 95503
Dates:	April 24-26, 2018
Inspectors:	Rachel S. Browder, CHP, Senior Health Physicist Fuel Cycle and Decommissioning Branch Division of Nuclear Materials Safety
	Chris D. Steely, Health Physicist Fuel Cycle and Decommissioning Branch Division of Nuclear Materials Safety
	Eric J. Simpson, CHP, Health Physicist Fuel Cycle and Decommissioning Branch Division of Nuclear Materials Safety
Approved By:	Ray L. Kellar, P.E., Chief Fuel Cycle and Decommissioning Branch Division of Nuclear Materials Safety
Attachment:	Supplemental Inspection Information

Enclosure

EXECUTIVE SUMMARY

Humboldt Bay Power Plant, Unit 3
NRC Inspection Report 05000133/2018-002 and 07200027/2018-001

This U.S. Nuclear Regulatory Commission (NRC) inspection was a routine, announced inspection of decommissioning and independent fuel storage activities being conducted at the Humboldt Bay Power Plant, Unit 3 facility. In summary, the licensee was conducting these activities in accordance with site procedures, license requirements, and applicable NRC regulations.

Decommissioning Performance and Status Review at Permanently Shutdown Reactors

- The licensee was scheduling and implementing decommissioning activities in a safe and reasonable manner and consistent with regulatory requirements. (Section 1.2)

Inspection of Remedial and Final Surveys at Permanently Shutdown Reactors

- The licensee was conducting radiological surveys and final status surveys of areas in accordance with regulatory requirements and the License Termination Plant. In addition, the licensee was isolating and controlling the final status survey areas as required to ensure radiological controls were maintained to ensure the area continued to reflect the conditions documented in the respective final status survey package. (Section 2.2)

Solid Radioactive Waste Management and Transportation of Radioactive Materials

- The licensee continued to process, package, and ship radioactive wastes in accordance with regulatory requirements. (Section 3.2)

Away-From-Reactor Independent Spent Fuel Storage Installation (ISFSI) Inspection Guidance

- The licensee demonstrated that it was implementing the license and regulatory requirements associated with the dry cask storage at the Humboldt Bay, Unit 3, ISFSI, based on the documents and activities reviewed. (Section 4.2)

Review of 10 CFR 72.48 Evaluations

- All required screens and safety evaluations had been performed in accordance with site procedures and the requirements of 10 CFR 72.48. All of the 72.48 screens that were reviewed were determined to have been adequately evaluated and dispositioned by the licensee. (Section 5.2)

Report Details

Summary of Plant Status

On July 2, 1976, Humboldt Bay Power Plant (HBPP), Unit 3 was shut down for its annual refueling outage and to conduct seismic modifications. In 1983, an updated economic analysis indicated that restarting Unit 3 would not be cost-effective, and in June 1983, the Pacific Gas & Electric Company (licensee) announced its intention to decommission the HBPP. On July 16, 1985, the NRC issued Amendment No. 19 to the HBPP Unit 3 Operating License to change the status to possess-but-not-operate, and the plant was placed into a SAFSTOR status. This status is a method of decommissioning in which a nuclear facility is placed and maintained in a condition that allows the facility to be safely stored and subsequently decontaminated to levels that permit release for unrestricted use.

The transfer of spent fuel from the spent fuel pool to the ISFSI was completed in December 2008, and the decontamination and dismantlement phase of HBPP Unit 3 decommissioning commenced. On July 19, 2013, the licensee submitted Revision 4 to its Post-Shutdown Decommissioning Activities Report (PSDAR) for HBPP (ADAMS Accession Number ML13213A160). The PSDAR was revised to include significant changes in the scope and cost estimate that primarily included the caisson removal and intake canal remediation activities.

On January 29, 2016, the licensee issued Revision 11 to the Defueled Safety Analysis Report (DSAR), and Revision 33 to the HBPP Quality Assurance Plan (HBQAP) (ADAMS Accession Number ML16029A508). The changes provided a distinct organizational structure between HBPP Unit 3 and ISFSI, as well as updated the programs and procedures that were established and controlled under the licensee's administrative controls listed in Appendix B of the HBQAP. On February 23, 2018, the licensee issued Revision 12 to the DSAR and Revisions 34, 35, and 36 to the HBQAP (ADAMS Accession Number ML18066A137). The changes were made in accordance with regulatory requirements under Title 10 of the Code of Federal Regulations (10 CFR) 50.4(b)(6) and 10 CFR 50.54(a)(3), respectively.

On August 13, 2014, the licensee submitted Revision 1 to the HBPP, Unit 3, License Termination Plan (LTP) (ADAMS Accession Package Number ML14246A164). The LTP is required to be submitted at least 2 years prior to license termination, under 10 CFR 50.82(a)(9). The LTP Revision 1 described the remaining activities that the licensee will perform to complete decommissioning and the methods used to demonstrate that the site meets the NRC radiological criteria for unrestricted use under 10 CFR 20.1402. On May 4, 2016, the NRC issued Amendment No. 45 to Facility Operating License No. DPR-7 (ADAMS Accession Number ML15090A339), to approve LTP Revision 1, and established the criteria under which the licensee was allowed to make changes without prior NRC approval. On February 23, 2018, the licensee issued Revision 2 to the LTP (ADAMS Accession Number ML18066A137), to reflect the current status of the facility.

The decommissioning activities observed during the inspection consisted of final status surveys of certain areas of the facility, transportation activities, and backfill of the caisson. The licensee plans to complete final status surveys and site restoration activities by early 2019.

1 Decommissioning Performance and Status Review at Permanently Shutdown Reactors (71801)

1.1 Inspection Scope

The inspectors evaluated whether the licensee and its contracted workforce were conducting decommissioning activities in accordance with the LTP Revision 1 and 2, and regulatory requirements.

1.2 Observations and Findings

The inspectors reviewed the scheduled decommissioning activities, including critical path items. The licensee's schedule specified civil infrastructure activities including sewer piping, new 12 kilovolt line, road work and parking lot, new fencing, as well as final site restoration activities that consisted of land contours and drainage to support the wetlands. The licensee's milestone for completing the final site restoration project is scheduled for February 2019. The licensee was performing work activities through the use of work packages and procedures as required by the LTP, Revisions 1 and 2, dated May 4, 2016 and February 23, 2018, respectively.

The NRC inspectors observed the licensee's plan-of-the-day meetings and attended the radiation protection daily meetings. The inspectors observed several activities including crushing the concrete foundation from the previous two onsite soil management facility tents, where materials had been processed and packaged for transportation. The crushed concrete was acceptable for use as backfill in the caisson by the NRC and the State of California. The licensee started using the crushed concrete as backfill material in the caisson at approximately the -15 foot elevation. The licensee's plan also specified a clay cap with engineered backfill up to +9.5 feet for the caisson.

The licensee continued to use the mobile assay system, Energy*Solutions*™ gamma radiation detection and in-container analysis (GARDIAN) system. It was anticipated that the GARDIAN trailers and associated count room would be the last areas for the conduct of final status surveys and restoration activities.

The licensee issued Revision 2 of the LTP on February 23, 2018, which included changes made under the provision of 10 CFR 50.59 and 10 CFR 50.82(a)(6). The LTP is Appendix A to the Defueled Safety Analysis Report (DSAR). The inspectors reviewed the changes in accordance with Section 1.5 of the LTP and regulatory requirements and concluded that the changes did not require prior NRC approval. The changes made to the LTP reflected the current site status and activities, including changes to the site boundary based on the release of approximately 30 acres of the property for unrestricted use.

The inspectors observed industrial safety and precautions throughout the site, including discussions during morning meetings, as part of the pre-job briefings and tailboards, during site work activities, and during tours of the facility.

1.3 Conclusion

The licensee was scheduling and implementing decommissioning activities in a safe and reasonable manner and consistent with regulatory requirements.

2 Inspection of Remedial and Final Surveys at Permanently Shutdown Reactors (83801)

2.1 Inspection Scope

The inspectors evaluated whether the licensee and its contracted workforce were conducting remedial action support surveys and final status surveys in accordance with the approved LTP and written implementation procedures.

2.2 Observations and Findings

The licensee's LTP is the NRC approved methodology for the licensee to develop its program and implementation for remediation surveys and final status surveys to ensure the facility has been decontaminated to acceptable residual radioactivity levels for unrestricted use as specified in 10 CFR Part 20, Subpart E. A survey plan at a minimum, encompasses the establishment of survey units, development of a survey design and data quality objectives, specification of appropriate survey instruments and survey methods, collection and processing of data, assessment of the data results, and documentation of the final status survey report. The LTP also documents the derived concentration guideline level (DCGL), which is radionuclide specific activity concentration within a survey unit corresponding to the release criterion. The DCGLs are derived from activity/dose relationship through various exposure pathway scenarios.

The inspectors observed two final status survey plan briefings and reviewed the following worksheet packages. The briefings were thorough and opportunities were provided for any questions by the participants.

- MEPPS01, "Mobile Emergency Power Plant Station (MEPPS) Island Building" (Class 3 survey area)

- OOL03, "Open Land area encompassing Unit 1" (Class 1 survey area)

The survey design and planning for each package contained sufficient information and data to perform the final status surveys in accordance with the LTP. The licensee utilized the worksheet package in the field to ensure the required sample instructions were followed. The inspectors reviewed documentation to confirm the instrument pre- and post-checks were performed and documented by the licensee as required by the LTP. The inspectors observed the licensee's survey activities using an in-situ object counting system (ISOCS™) which is a detection and measurement system by Canberra. The ISOCS™ was suspended by a crane above the MEPPS Island building at a pre-determined distance to collect the required sample data to support the final status survey.

The NRC inspectors also performed a confirmatory survey concurrently with the licensee in the survey area OOL03-1. The inspectors used a Ludlum Model 2221 (Serial Number 161573, Calibration due date December 16, 2018) with an Eberline SPA-3 sodium-iodide 2" x 2" detector (Serial Number RN18461). The NRC survey results were consistent with the licensee's survey results, which ranged between 7,000-8,500 counts per minute. There was no indication of results above background values. The inspectors observed the licensee collect one soil sample, which was collected in accordance with the planning worksheet and procedure requirements.

The inspectors also reviewed several final status survey packages, including HBPP-FSSP-OOL07-04 (Class 1 area) and HBPP-BLDG26-001. The latter was a MARSAME survey package for Building 26. The elements of the survey design that were reviewed included: 1) the sample size; 2) the Type I decision error; 3) the lower boundary of the gray region; 4) the relative shift ; 5) the sample grid spacing ; 6) the instrumentation selected; and 7) the minimum detectable concentrations. The inspectors concluded that the elements adequately met the LTP Revision 1 or Revision 2, as applicable and licensee procedure HBAP C-225, "Final Status Survey Program," Revision 4. In addition, the inspectors reviewed the survey and sample analyses and concluded that the final status surveys (FSSs) demonstrated the respective survey units were less than the established DCGLs.

The licensee performed an independent audit dated December 6, 2017, which evaluated the final status survey program and the implementation and effectiveness of the corrective actions from the 2015 license termination/final status survey audit and the 2016 radiation protection audit. The inspectors reviewed the audit and concluded that it was a comprehensive review of the FSS program and sufficiently met the LTP, Section 5.8.1.15, and the licensee's procedure HBAP C-202, "Final Status Survey Quality Assurance Project Plant," Revision 4A, which required periodic audits of FSS activities. The audit concluded that the FSS program areas reviewed were considered satisfactory and the licensee was implementing its LTP in accordance with regulatory requirements and license conditions.

2.3 Conclusion

The licensing was conducting radiological surveys and final status surveys of areas in accordance with regulatory requirements and the LTP. In addition, the licensee was isolating and controlling the final status survey areas as required to ensure radiological controls were maintained to ensure the area continued to reflect the conditions documented in the respective final status survey package.

3 Solid Radioactive Waste Management and Transportation of Radioactive Materials (86750)

3.1 Inspection Scope

The inspectors reviewed the licensee's radioactive waste management and transportation activities to determine whether the licensee properly processed, packaged, stored, and shipped radioactive materials in accordance with regulatory requirements.

3.2 Observations and Findings

The inspectors reviewed the licensee's shipment tracking summary as of April 6, 2018, which indicated a total of 157 shipments for calendar year 2018 and a total of 4,073 shipments for the entire project. The licensee had made 1 radioactive waste shipment to Energy*Solutions*™, Utah, and 75 radioactive waste shipments to Waste Control Specialists, Texas, during 2018. The remaining shipments for 2018 were to US Ecology, Idaho under three different NRC approved exemptions dated November 2, 2010 (ADAMS Accession Number ML102870344), April 25, 2012 (ADAMS Accession Number ML120620450), and December 19, 2012 (ADAMS Accession Number ML12299A056). The licensee was tracking the volume of shipments to US Ecology, Idaho, under the respective exemptions and had not exceeded any of the allowed volume of materials.

The licensee's administrative procedure that governed the shipment of Class A radioactive materials was HBAP D-510, "Shipment of Radioactive Materials and Radioactive Waste," Revision 9. The inspectors reviewed several transportation packages for compliance with the regulations under 10 CFR 71.5, "Transportation of Licensed Material," and the licensee's procedures, and concluded that the shipping packages were generated in accordance with the requirements and contained thorough supporting documentation. The packages reviewed included:

- RMS-18-119
- RMS-18-101

The inspectors verified and concluded that individuals involved in the packaging preparation and transport had received the proper and adequate training and that the training was appropriately documented in accordance with the requirements under 49 CFR Subpart H.

3.3 Conclusions

The licensee continued to process, package, and ship radioactive wastes in accordance with regulatory requirements.

4 Away-From-Reactor ISFSI Inspection Guidance (60858)

4.1 Inspection Scope

A routine inspection was conducted of the Humboldt Bay, Unit 3 (HB) ISFSI to verify compliance with its site specific Materials License No. SNM-2514, Amendment 4 and associated Technical Specifications, the Final Safety Analysis Report (FSAR), Revision 6, and the regulations under 10 CFR Parts 20 and 72. The inspection included a walk-down of the ISFSI site to confirm that the licensee was maintaining the facility in good physical condition to ensure safe storage of spent nuclear fuel and greater-than-Class-C (GTCC) radioactive wastes. The inspection also included a paperwork review of documents related to dry fuel storage operations at Humboldt Bay. The documents reviewed included licensee performed quality assurance (QA) audits and surveillances, ISFSI related condition reports, survey records, monitoring data, and licensee performed maintenance and evaluation documentation.

4.2 Observations and Findings

a. Corrective Actions Program and Quality Assurance Audits

Issues identified for placement into the HB ISFSI corrective action program (CAP) were documented as SAP Notifications or Condition Reports (CRs). For the sake of simplicity, both types of notifications will be referred to as condition reports (CRs) in this inspection report.

The licensee provided the inspectors with a list of ISFSI related CRs that were created since the last NRC inspection. The NRC inspectors selected several CRs for closer review. The CRs selected for review included many that were initiated as a result of the QA audits performed at the site. The CRs adequately documented and properly categorized the safety significance of the identified conditions. The NRC inspectors did not identify any safety significant issues in any of the CRs reviewed. The types of conditions identified demonstrated a reasonably low threshold for placement into the CAP. Follow-up corrective actions were appropriately assigned. However, resolution of conditions were often less than timely, based on internal audit findings.

The HB ISFSI was granted a site-specific NRC license in 2005. It was managed by the Quality Assurance Program (QAP) of the associated HBPP, which is currently being decommissioned and is close to completion. When decommissioning is complete, the HB ISFSI will become the only NRC licensed operation at the Humboldt Bay site and will retain the Humboldt Bay QAP (HBQAP). Many of the audit findings and CRs reviewed by the NRC during the current inspection reflected problems resulting from the transition of the HB ISFSI to a stand-alone organization separate from the HBPP. That transition occurred on January 29, 2016.

Four ISFSI related audit reports were issued since the last routine NRC inspection performed in April 2016. The audit reports assessed the performance of many quality related programs of the HB ISFSI. The programs that were audited included items associated with 10 CFR 72, Subpart G, Security, Emergency Planning, and the HB ISFSI Radiological Environmental Monitoring Program. In 2016, an Independent Management Review (IMR) of the HB ISFSI and a QA audit performed by Pacific Gas and Electric Company (PG&E) identified some large gaps in the HBQAP. The 2016 IMR had identified numerous shortcomings that resulted in several condition reports (CRs). The PG&E audit identified that the ISFSI program's ineffective response to the CRs from the IMR and other problems resulted in a determination that implementation of the HBQAP was ineffective.

A follow-up audit identified that the licensee had responded in an untimely and ineffective manner to the 2016 IMR and PG&E audit findings of substantial weaknesses in the HBQAP. As such, PG&E initiated a First Level Escalation to the Director of Nuclear Security and Emergency Services to address the problems in the HBQAP, associated with the ISFSI. To address the escalation, Humboldt Bay hired a consultant to assist in performing an assessment of the HBQAP and to develop a plan for resolution.

The 2017 PG&E audit ascertained that the HB ISFSI program had made satisfactory progress in its resolution plan for the issues identified in the First Level Escalation.

Further, the 2017 PG&E audit identified that the most significant gaps in the HBQAP had been closed. No NRC safety concerns were identified in the review of condition reports or audit reports reviewed during this HB ISFSI inspection.

b. Radiological Conditions Related to Stored Casks

The NRC inspectors verified the radiological conditions of the HB ISFSI through a review of thermoluminescent dosimeter (TLD) direct radiation monitoring data, the most recent radiological surveys, and a radiological evaluation of the ISFSI pad with radiation monitoring. The NRC inspectors were accompanied into the HB ISFSI by a representative from Regulatory Assurance and a member of the security guard force during the evaluation of the ISFSI pad. The ISFSI pad was securely fenced and locked inside its own protected area with highly controlled access. The ISFSI was surrounded on all sides by several feet of gravel. The ISFSI site was clear of any vegetative overgrowth and there were no flammable, combustible, or unexpected items present on the pad or near the fuel storage vaults. The ISFSI pad contained six Holtec International Storage, Transport, and Repository Cask System (HI-STAR HB) casks designed specifically for the Humboldt Bay, Unit 3 spent fuel. Five vaults were loaded with spent fuel and the sixth contained reactor related GTCC wastes from the Humboldt Bay, Unit 3 reactor.

The ISFSI fence line, pad boundary, and vault lid radiation levels were verified by the NRC inspectors using a Ludlum Model 19 (NRC #015546, calibration due October 2018) survey instrument. The Ludlum Model 19 has a sodium iodide scintillation radiation detector which is calibrated to estimate gamma exposure rates in micro-roentgens per hour (μR/h). The NRC inspectors measured an average of 3 μR/h at the ISFSI fence boundary and pad perimeter. The ISFSI pad and vault lids were in good physical condition. The inspectors took vault lid measurements, which ranged from 3 - 4 μR/h. The radiological conditions in and around the ISFSI were only slightly elevated compared with background measurements and were consistent with previous survey reports. The radiation levels at the HB ISFSI were low because of the ample shielding provided by the HI-STAR storage casks, the ISFSI vault structure, and the relatively low heat load of the spent fuel. The HB ISFSI vaults were properly posted as Radioactive Materials Areas. To review the contents of the HB ISFSI, see a previous NRC inspection report for this site (ADAMS Accession Number ML13350A481).

The inspectors reviewed the ISFSI direct radiation monitoring TLD data results from the previous 2 years. The TLD data results documented a small, but uniform, decrease in ambient radiation levels at the ISFSI boundary. The decrease is likely due to random fluctuations in natural background levels. The annual radiation doses measured near the ISFSI were slightly lower than offsite background TLD monitoring locations.

The inspectors reviewed the annual radiological environmental monitoring program data from 2016 (ADAMS Accession Number ML17117A683) and 2017 (ADAMS Accession Number ML18123A361) submitted by the licensee. The reports documented the dose equivalent to any real individual located beyond the site controlled area was well below the 10 CFR 72.104(a)(2) requirement of less than 25 millirem (mrem) per year above background. In addition, the annual monitoring data near the ISFSI boundary locations demonstrated that all accessible areas of the ISFSI fall below the requirement for monitoring occupational dose as specified under 10 CFR 20.1502(a)(1), which

is 500 mrem per year. The NRC inspectors determined that the licensee was adequately monitoring the HB ISFSI and the monitoring data demonstrated that all regulatory requirements were met.

c. Routine/Annual ISFSI Maintenance

The FSAR, Section 4.4.3.8, “Vault Inspections,” required periodic inspection of the interior of the ISFSI vault for water intrusion. In FSAR, Section 2.2.2.2.1, “Hazards from Fires – Existing Structures and Facilities,” required that the ISFSI maintenance program prevent the uncontrolled growth of vegetation in the immediate area and out to a distance of 50 feet from the ISFSI restricted area fence. The NRC inspectors reviewed the ISFSI drainage system, vault lid caulking, and vegetation inspection records generated since 2016. During the review period, no instances of water intrusion inside the ISFSI vaults were identified. The inspectors also observed that vegetation had been controlled to being less than 2 feet high at a distance of within 50 feet of the ISFSI exclusion area fence, which the NRC inspectors determined was an acceptable level.

In 2017, the licensee performed an extensive inspection and evaluation of the HB ISFSI program in support of the NRC license renewal application. The programmatic inspection activity went beyond the usual scope of the periodic inspections identified in Procedure HBI-450, “ISFSI Inspections and Monitoring,” Revision 6. The 2017 inspection included boroscope examinations via the vault access ports for all six vault cells and a detailed evaluation of the internal vault conditions of vault #2, which necessitated the removal of the vault lid.

Based on the boroscope examination, the licensee evaluated the condition of all six overpacks, vault liners, lifting trunnions, access ports, seismic shims, vault drains, etc. The licensee performed a more extensive examination of vault #2 in order to evaluate the condition of the vault closure lid, HI-STAR HB overpack, and vault liner. The 2017 inspection concluded that the HB ISFSI was in overall good condition. However several conditions were noted and place into the HB ISFSI CAP. In particular, corrosion (rusting) was noted as a pervasive aging effect in the area of the vault closure lid bolts. Several bolts were replaced because of the extent of rusting and pitting, primarily in the bolt shaft area. The bolts that were not replaced were lubricated and reinstalled. The findings of the vault #2 bolt inspections led to an expansion of the original inspection scope to include all vault closure lid bolts for the ISFSI. The majority of the vault closure lid bolts met the established acceptance criteria. The licensee performed an engineering evaluation and determined that even the bolts that were replaced would have continued to meet their intended safety function. The licensee concluded that their replacements were a conservative measure.

The results of the licensee’s 2017 HB ISFSI programmatic inspections will provide a basis for the ISFSI aging management program, which is an NRC requirement for relicensing. The HB site specific ISFSI license expires in 2025.

No FSAR compliance issues were identified by the NRC inspectors’ review of annual and periodic maintenance at the HB ISFSI.

d. Site Emergency Plan

The licensee had reviewed its HB ISFSI Emergency Plan once since the last NRC inspection. At the time of the inspection, the current Humboldt Bay Power Plant Emergency Plan (E-Plan) was Revision 8. The changes made to the current revision of the E-Plan were to more accurately reflect site changes due to Humboldt Bay, Unit 3 decommissioning efforts. Some of the items or areas referenced in the earlier revision of the E-Plan are no longer present onsite. The E-Plan was also updated by removing references to outdated or cancelled procedures. Otherwise, the changes made to the E-Plan were largely editorial in nature.

The E-Plan Section 8.3.2 requires that Radiological/Health Physics, Medical, and Fire drills shall be conducted annually. The requirement for emergency exercises was biennially. The inspectors reviewed the records which demonstrated that HB had been conducting drills and EP exercises yearly, and often more frequently. HB was in full compliance with its E-Plan, including the required drills and exercises.

e. Changes to the SNM-2514 License and FSAR

At the time of the last inspection in April 2016, Humboldt Bay was utilizing ISFSI License SNM-2514, Amendment 4 and FSAR Revision 5. Since that time, there have not been any license amendments. However, the ISFSI FSAR was revised to Revision 6. The FSAR Revision 6 updated Sections 2.2 and 8.2, in part, to support an ISFSI license renewal pre-application inspection that took place in 2017. The FSAR revision updated the administrative controls used during those ISFSI maintenance and inspection activities. The FSAR Sections 2.2 and 8.2 were also revised to update the fire and explosion hazards to more accurately reflect current site conditions with the addition of compressed gas cylinders onsite; the use of a mobile crane during vault inspections; and the nearby natural gas pipeline being equipped with automatic shutoff valves.

4.3 Conclusion

The licensee had demonstrated that it was implementing the license and regulatory requirements associated with the dry cask storage at the Humboldt Bay, Unit 3 ISFSI, based on the documents and activities reviewed.

5 Review of 10 CFR 72.48 Evaluations (60857)

5.1 Inspection Scope

The licensee's 10 CFR 72.48 screenings and evaluations since the 2016 NRC ISFSI inspection were reviewed to determine compliance with regulatory requirements

5.2 Observations and Findings

The licensee's 10 CFR 72.48 screens and evaluations for changes to the ISFSI program since the last NRC inspection were reviewed to determine compliance with regulatory requirements. Humboldt Bay had performed a 10 CFR 72.48 screen and subsequent evaluation to support changes made to the ISFSI FSAR to support license renewal preparations. The FSAR Sections 2.2 and 8.2 were revised to update the fire and

explosion hazards to more accurately reflect current site conditions with the addition of compressed gas cylinders onsite; the use of a mobile crane during vault inspections; and the nearby natural gas pipeline being equipped with an automatic shutoff valve. Based on the results of the licensee's evaluation, the NRC concluded that the changes to the ISFSI FSAR did not require notification to the NRC prior to making the change, and the NRC did not identify any safety concerns regarding the licensee's evaluation.

5.3 Conclusions

All required screens and safety evaluations had been performed in accordance with site procedures and the requirements of 10 CFR 72.48. All of the 10 CFR 72.48 screens that were reviewed were determined to have been adequately evaluated and dispositioned by the licensee.

6 Exit Meeting Summary

On April 26, 2018, the NRC inspectors presented the preliminary inspection results to Mr. B. Barley, HBPP Site Closure Manager, and other members of the licensee's staff. A final exit meeting was held on May 22, 2018, with Mr. B. Barley and other members of your staff. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was provided during the inspection.

SUPPLEMENTAL INSPECTION INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Barley, Site Closure Manager
B. Jasen, Environmental Oversight
K. Rowberry, FSS/Site Closure
B. Lopez, PG&E Regulatory Services

INSPECTION PROCEDURES USED

IP 71801	Decommissioning Performance and Status Review at Permanently Shutdown Reactors
IP 83801	Inspection of Remedial and Final Surveys at Permanently Shutdown Reactors
IP 86750	Solid Radioactive Waste Management and Transportation of Radioactive Materials
IP 60858	Away-From-Reactor ISFSI Inspection Guidance
IP 60857	Review of 10 CFR 72.48 Evaluations

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed

None

Discussed

None

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
CAP	Corrective Action Program
CFR	*Code of Federal Regulations*
CR	Condition Report
DCGL	Derived Concentration Guideline Level
DSAR	Decommissioning Safety Analysis Report
FSAR	Final Safety Analysis Report
FSS	Final Status Survey
GTCC	Greater-Than-Class-C
HBPP	Humboldt Bay Power Plant
HBQAP	Humboldt Bay Quality Assurance Plan
IMR	Independent Management Review
ISFSI	Independent Spent Fuel Storage Installation
ISOCS™	In-Situ Object Counting System
LTP	License Termination Plan
MEPPS	Mobile Emergency Power Plant Station
NRC	Nuclear Regulatory Commission
PG&E	Pacific Gas & Electric
PSDAR	Post-Shutdown Decommissioning Activities Report
QA	Quality Assurance
QAP	Quality Assurance Program
TLD	thermoluminescent dosimeter

HUMBOLDT BAY POWER PLANT – NRC INSPECTION REPORT 05000133/2018-002 AND 07200027/2018-001; DATED JUNE 20, 2018

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☒ SUNSI Review By: *RSB*	ADAMS: ☒ Yes ☐ No	☐ Sensitive ☒ Non-Sensitive	☐ Non-Publicly Available ☒ Publicly Available	Keyword NRC-002

OFFICE	DNMS/FCDB	DNMS/FCDB	C:FCDB
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