Diablo Canyon Decommissioning Engagement Panel Meeting

**Date/Time:** 10-24-18 / 6:00 PM – 9:30 PM  
**Facilitator:** Chuck Anders

**Meeting Location:** 1055 Monterey Street, SLO; County Government Offices  
**Recorder:** TBD

**Webcast:** SLO-SPAN Channel 21  
**TV Broadcast:** Channel 21 (Charter)

**Purpose:** Receive information from the NRC on the decommissioning process and potential rule changes; receive likely changes to emergency planning during decommissioning from PG&E and County of San Luis Obispo Office of Emergency Services, receive public comment and provide direct input to PG&E on behalf of the local community.

**Desired Outcomes:**  
*By the end of today’s meeting, the panel will:*
- Receive update from NRC on decommissioning process
- Receive and discuss information on emergency planning
- Review public outreach metrics;
- Receive and discuss public comment;
- Prepare for used fuel storage topic at next Panel meeting and;
- Record actions and evaluate the meeting.

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<td>Item #</td>
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| 1. | Open house poster session with Q&A (25 min) | **Inform**  
  • Discuss  
  • Record comments | All | 6:00 PM (25) |
| 2. | Break |  | All | 6:25 PM (5) |
| 3. | Panel Meeting Start |  | All | 6:30 PM |
| 4. | Safety Minute (911, AED, CPR) | **Consensus** | PG&E | 6:30 PM (2) |
| 5. | PG&E welcome, project update, introduce NRC representative. | **Present** | Jones | 6:32 PM (8) |
| 6. | Review meeting agenda, introduce meeting topic, and review desired outcomes (Public comment window closes at 7:45 PM) | **Present**  
  • Discuss | Anders (Facilitator) | 6:40 PM (5) |
| 7. | Reactor Decommissioning Process | **Present**  
  • Discussion | Watson (NRC) | 6:45 PM (45)  
  7:30 PM (15) |
| 8. | Break |  |  | 7:45 PM (10) |
| 9. | Emergency Planning During Decommissioning | **Present**  
  • Discussion | Jones (PG&E)/ Alsop (County) | 7:55 PM (20)  
  8:15 PM (20) |
| 10. | Review public comments and metrics | **Present** | Anders | 8:35 PM (5) |
| 11. | Public comment | **Discuss**  
  • Record | All | 8:40 PM (30) |
| 12. | Panel observations and discussion | **Discuss**  
  • Record | Panel | 9:10 PM (10) |
| 13. | Introduction to next meeting topic: Spent Fuel | **Present** | Jones | 9:20 PM (5) |
| 14. | Meeting Summary and (+/Δ) | **Discuss**  
  • Record | Anders | 9:25 PM (5) |
| 15. | Adjourn Meeting* | **Action** | Anders | 9:30 PM |

*PG&E staff will remain on-premises after the meeting to answer additional questions.

Rev. 101718
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**Meeting Evaluation**

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Safety Moment

AED (DCPP FIRE)

CPR (DCPP FIRE)

Call 911 (PASION)

Meet and Guide Emerg. Personnel (PASION)

Evacuation Plan (JONES)

Earthquake ‘Duck, Cover, Hold’ (JONES)

Active Shooter ‘Get Out, Hide Out, Take Out, Call Out’ (JONES)
Welcome from Tom Jones
PG&E Director, Strategic Initiatives

October 24, 2018
## Agenda Overview

### Wednesday, October 24

<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenter</th>
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<tr>
<td>Reactor Decommissioning Process</td>
<td>Watson (NRC)</td>
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REACTOR DECOMMISSIONING PROCESS

DIABLO CANYON DECOMMISSIONING ENGAGEMENT PANEL
OCTOBER 24, 2018

BRUCE WATSON, CHP
CHIEF, REACTOR DECOMMISSIONING BRANCH
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
Safe Decommissioning Leads to License Terminations
Guiding Principles of Decommissioning

- Protection of plant & workers
- Protection of the public
- Communications & outreach with external stakeholders
Reactor Decommissioning

The process of removing a reactor facility safely from the operating mode to a permanent shutdown condition and reducing the residual radioactivity to a level that permits the release of the property for unrestricted use and termination of the license.

Maine Yankee

BEFORE

AFTER
Initial Licensee Steps

- Certification of permanent cessation of operations
- Certification of permanent removal of fuel from reactor
- Submittal of the Post-Shutdown Decommissioning Activities Report (PSDAR)
Post-Shutdown Decommissioning Activities Report (PSDAR)

It contains:

- Description of planned decommissioning activities
- High-level schedule of planned decommissioning activities
- Site-specific cost estimate for the decommissioning
- Environmental impacts of decommissioning
PSDAR Review Process

- NRC notices receipt of the PSDAR in the Federal Register and requests public comments
- NRC schedules a public meeting to discuss PSDAR & solicit public comments
- NRC considers public comments
- Plant owner may begin decommissioning work 90 days after NRC receives the PSDAR
Decommissioning Options

- **DECON** – Licensee immediately begins removal of equipment, structures, etc., and decontamination to a level that permits unrestricted release.

- **SAFSTOR** – Plant is placed in a safe, stable condition and maintained in this state until it is subsequently decontaminated to levels that permit unrestricted release.
How Long to Complete Decommissioning?

- Under NRC regulations, the process must be completed within 60 years.
- Site Restoration is determined by the owner and State.
- Decommissioning typically takes 7-10 years.
Decommissioning Process - Phases

- Before Cleanup
- During Cleanup
- After Cleanup
- Ready the plant for decommissioning
- Move spent nuclear fuel to dry cask storage
- Submit & update PSDAR
- Removal of structures & components
- Soil remediation
- Radioactive waste shipments
- NRC license termination
- Spent fuel management
- Site restoration
Power Reactors in Decommissioning

- 6 units in active decommissioning
- 15 units in SAFSTOR
- 12 plants have announced they will be permanently ceasing operations by 2025
- New Business Models
Oversight Program After Shutdown

- Oversight and monitoring conducted over the entire period of decommissioning process.

- Oversight program is described in Inspection Manual Chapter (IMC) 2561 & 2690.
Oversight Program After Shutdown

- Decommissioning inspection program includes both core and discretionary inspections

- Implementation depends on activities being planned or performed.
  - Post-Operation Transition Phase
  - Actively Decommissioning – Fuel in Spent Fuel Pool
  - Actively Decommissioning – No Fuel in Spent Fuel Pool
  - SAFSTOR – Fuel in Spent Fuel Pool
  - SAFSTOR – No Fuel in Spent Fuel Pool
  - Final Surveys Under way
What Happens to the Spent Fuel?

- Removed from spent fuel pool
-Stored on-site in dry cask storage systems
-Safety and security programs remain until fuel removed from site
Is the Spent Fuel Pool Safe?

- Robust structures
- Designed to withstand severe natural events
- Regulated design features & operational practices implemented to maintain fuel in safe condition
How Does Emergency Planning Change?

- Emergency preparedness remains
- ‘All hazards’ approach utilized vs. formal pre-planned off-site radiological response plans
- Decommissioning Rule Making to be completed by 2019 to make the transition more efficient
Emergency Plan Graded Approach

*Level 1* — Permanent cessation of operations and all fuel in spent fuel pool

*Level 2* — Spent fuel has sufficiently decayed (10 hour adiabatic heatup time)

*Level 3* — All fuel is in dry cask storage

*Level 4* — All fuel removed from site
Post-Shutdown Emergency Plan (PSEP)

- PSEP may start after NRC dockets licensee’s certifications of permanent cessation of operations and permanent removal of all fuel from the reactor vessel.
- PSEP is a transition period
  - May only last 10 months (BWR) to 16 months (PWR)
  - Significant changes to plan not anticipated
  - No changes to regulations for offsite emergency plan
Post-Shutdown Emergency Plan (PSEP)

- 10 CFR 50.200(a)
- Proposed Rule provides for:
  - Reduced ERO staffing
  - Revisions to EALs
  - ETE updates no longer required
  - Annual dissemination of information to the public
    - future plant status
  - Revised exercise schedule (drill cycle maintained)
Permanently Defueled Emergency Plan (PDEP)

- 10 CFR 50.200(b) and (c)
- Proposed Rule provides for:
  - Reduced Emergency Response Organization staffing
  - Classification and Notification timeliness commensurate to risk and accident timing
  - Events classified as Notification of an Unusual Event or Alert
  - No offsite (Radiological Emergency Plan) planning requirements
    - No defined Emergency Planning Zones beyond the site boundary
    - No demonstration of capability for prompt public alerting
    - No pre-determined Protective Actions
Permanently Defueled Emergency Plan (PDEP)

- Proposed Rule provides for:
  - Revisions to Emergency Action Levels (EALs)
  - Emergency response facilities (Technical Support Center, Operations Support Center, Emergency Operations Facility) may be combined
  - Biennial exercise within 2 years of entering into decommissioning (drill cycle maintained)
  - No hostile action requirements (security EALs maintained)
Permanently Defueled Emergency Plan (PDEP)

- 10 CFR 50.47(f) — Planning standards do not apply to offsite EP if Emergency Planning Zone does not extend beyond the site boundary.
- 10 CFR 50.54(s)(3) — Clarifies how NRC will make findings and determinations of reasonable assurance when planning standards do not apply to offsite.
  - (s)(3)“If the planning standards for radiological emergency preparedness apply to offsite radiological emergency response plans, the NRC will base its finding on a review of the FEMA findings and determinations as to whether State and local emergency plans are adequate and capable of being implemented, and on the NRC assessment as to whether the licensee's emergency plans are adequate and capable of being implemented.”
- 10 CFR 50.54(t) — EP program element review at 2 year intervals until all fuel in dry cask storage.
Independent Spent Fuel Storage Installation (ISFSI) Only Emergency Plan (IOEP)

- IOEP may start after all spent fuel is in dry cask storage
- IOEP utilizes established EP planning standards for ISFSIs contained in 10 CFR 72.32(a)
- Part 50 and Part 52 licensees are granted a general Part 72 license
- Application for a specific Part 72 license would require NRC approval of emergency plan
Decommissioning Rulemaking by 2019

- Emergency Plan Change Process
  - Transition to Levels
  - Changes within Levels
  - Changes in Final Safety Analysis Report (FSAR)
  - Changes in Emergency Action Levels (EALs) Classifications and Scheme(s)
- 10 CFR 50.54(q)(7) — Licensee may elect to follow and maintain a Level standard when conditions are met.
- 10 CFR 50.54(q)(8) — Clarifies need for Reduction in Effectiveness (RIE)
- Transition between levels is not an RIE if changes comply with standards.
- Changes to e-plan are not RIEs if supported by Final Safety Analysis Report (FSAR) for Safety Systems and Components (SSCs) out of service.
- Changes to EAL not RIE if physically unattainable.

- Draft EP Regulatory Guide to accompany proposed rule
De-commissioning EP Levels

Power Operations

Level 1
- Post Shutdown Emergency Plan (PSEP)
- Cessation of Power Operations and Defueled

Level 2
- Permanently Defueled Emergency Plan (PDEP)
- 10 months (BWR) 16 months (PWR)

Level 3
- ISFSI Only Emergency Plan (IOEP)
- > 5 years

Level 4
- No Spent Fuel Onsite
How will plant security change?

- Security controls remain in place
- Some key features include: intrusion detection and response, assessment of alarms, and off-site assistance, when necessary
Public Involvement on Decommissioning

- Public meeting to discuss the decommissioning process and the plant’s PSDAR

- NRC staff typically provide briefings at meetings of state/citizen decommissioning advisory panels

- An opportunity for a hearing

- Public meeting on License Termination Plan
2009 Rancho Seco
San Onofre 1, 2, 3
Vallecitos Nuclear Center
Humboldt Bay
Links for NRC References

- IMC 2561: Decommissioning Power Reactor Inspection Program
- RG 1.184: Decommissioning of Nuclear Power Reactors
- RG 1.185: Post Shutdown Decommissioning Activities Report
- NUREG 1628: Staff Responses to FAQs Concerning Decommissioning of Nuclear Power Reactors
- NRC Backgrounder: Decommissioning of Nuclear Power Plants
- NRC YouTube Video on Decommissioning

Questions????

Bruce.Watson@nrc.gov
or 301-415-6221
Questions/ Discussion
Break

10 minutes
Emergency Planning

Emergency Response Facilities

- Control Room
- Technical Support Center
- Operational Support Center
- Emergency Operations Facility
- Joint Information Center
- Unified Dose Assessment Center
- Energy Education Center
- Emergency Operations Center - San Francisco, CA
- State Operations Center - Sacramento, CA
Emergency Planning

On-site Facilities

- Control Room, Technical Support Center and Operational Support Center
Emergency Planning

Local Facilities

- Emergency Ops Facility (Kansas Ave. SLO)
- Joint Information Center (Kansas Ave. SLO)
- Alternate Technical Support Center (Kendall Rd. SLO)
- Backup Emergency Ops Facility (S. Higuera. SLO)
- Control Room & Technical Support Center (DCPP)
- Energy Education Center (Ontario Rd. SLO)
Emergency Planning

Early Warning System Siren Locations

- 131 locations stretching from Whale Rock Reservoir in Cayucos to Black Lake Golf Course in Arroyo Grande, and from DCPP to School Rd in eastern SLO County
Beyond Design Basis (BDB) Equipment

- Designated BDB equipment storage facilities
- Mobile communication centers
- Additional back-up and portable diesel generators
- Additional emergency cooling pumps
- Additional instrumentation to monitor spent fuel pool levels
Emergency Planning

BDB Equipment

- Secondary Storage Facility houses BDB equipment including a front end loader and emergency cooling pumps
Emergency Planning

Emergency Response

• The Diablo Canyon Fire Department uses state-of-the-art equipment and conducts rigorous training exercises in preparation for extreme events
Off-Site Monitoring Equipment

• Geophysical Monitors
• Meteorological Towers
• Environmental Direct Radiation Monitors and Air Sampling Devices
• Radiation Monitoring System
• Laboratories
How Emergency Planning is Funded for Nuclear

Current Emergency Planning Funding is established by Assembly Bill 361
- Requires CPUC to reimburse agencies for support of nuclear-related emergency planning activities
- Sunsets with Unit 2 license expiration date
- Only applies to operating nuclear plants

CPUC Decision and Senate Bill 1090
- PG&E shall file for funding to continue local off-site emergency planning services:
  - Maintenance of public warning sirens
  - Funding of local government emergency planning functions until Part 50 license termination
Emergency Planning

Today - 2025

- Legislation Protected
- Operations

2025 - 2038

- Legislation Inferred; NRC Rulemaking

2038 - 2067

- NRC Rulemaking
- Part 50 License Terminated, mid-2038

Phase 1: Zirconium Fire (Post-Shutdown) Period

Phase 2: Permanently Defueled Period
2027 – mid-2032

Phase 3: ISFSI-Only Period, mid-2032
- Until DOE Takes Possession of ISFSI Contents
Thank you

Tom Jones
Tom.Jones@pge.com
Questions/ Discussion
San Luis Obispo County
Office of Emergency Services

Overview of Diablo Canyon Related Emergency Planning and Preparedness
• FEMA Radiological Emergency Preparedness (REP) Program

• Program created to address communities with commercial nuclear power plants.

• FEMA reviews and approves planning and preparedness activities, evaluates exercises and issues findings if issues are identified.
• FEMA term: “Offsite Response Organization” is a term used to refer to state, tribal, and/or local government organizations acting to protect the public health and safety offsite.

• Thus, the County, cities, special districts, the State and related agencies are the OROs related to Diablo Canyon.
• Our ORO make up is unique in that we have one common emergency plan for all the ORO jurisdictions related to Diablo Canyon - the San Luis Obispo County-Cities Nuclear Power Plant Emergency Response Plan.

• OES coordinates NPP emergency planning with and between the OROs, the state, and FEMA.
1 NPP Admin Plan (Overview)
Over 50 agency and function based SOPs

SOPs include:
- Checklists for each emergency position
- Preplanned actions based on emergency classification level
- Evacuation Time Estimates
- Special Needs considerations
- Public School Relocation
- Carless Collection
- Public Notification Methods
- Protective Action Guidelines
- Exposure Control Guidelines
- Reentry, Return, and Recovery
- Ingestion Pathway issues
NPP exercises are required and evaluated by FEMA; however, we also go beyond what is required ... we also request FEMA provide evaluators at times for exercises that are not required to be evaluated but we want their input.

Required exercises include plume, ingestion pathway zone, monitoring and decontamination, medical and hostile action based scenarios.

Full scale exercise participation may range from 200-1000 players.
NPP exercises also benefit preparedness for other types of potential emergencies.
- NPP preparedness also benefits response to actual emergencies.
Questions?

- County of San Luis Obispo Office of Emergency Services

- oes@co.slo.ca.us or (805) 781-5011

- Follow us on Twitter and Facebook, both are “slocountyoes”.
Panel Discussion and Observations
Public Comments & Questions

2018 TOTAL: 449 (393 total last month)

- Repurposing: 63
- Lands: 335
- Transportation: 10
- Environmental: 14
- Economic Impacts: 5
- Funding: 4
- Safety: 5
- Security: 0
- Outreach Process: 6
- Other: 7
## Public Comment Session

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Panel Observations and Discussion
Nov 14 Topic:

Spent Fuel Storage
Meeting Evaluation
Thank you

We’re available now to answer additional questions
Appendix

• On-Site Assessment Systems & Equipment
• Industry Emergency Planning: SAFER
On-Site Assessment Systems & Equipment

- Seismic Monitoring System
- Meteorological Systems
- Area Radiation Monitoring System
- Process Radiological Monitoring System
- Radiological Counting Room
- Analytical Facilities (assoc. with TSC)
- Portable Survey and Dose Rate Instruments
- Field Monitoring and Evacuation Kits
- Fire Detection and Trouble Alarm System
- Sampling and Analysis Capability
- Post Accident Assessment Instruments
Industry: SAFER

- SAFER: Strategic Alliance for FLEX Emergency Response

- Two National Response Centers in Memphis, TN. and Phoenix, AZ., can respond to any US nuclear power plant within 24 hours with portable emergency backup equipment

- Portable equipment would maintain plant safety functions for an indefinite period if an event disabled Diablo Canyon’s safety systems