THE HUMBOLDT BAY LICENSE TERMINATION PLAN

August 20, 2013

John B. Hickman
Project Manager
Reactor Decommissioning Branch
Division of Waste Management and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

AGENDA

- **WELCOME AND PURPOSE OF MEETING**
  - **Bruce Watson, Nuclear Regulatory Commission**
- **NRC REGULATORY PROCESS**
  - **John Hickman, Nuclear Regulatory Commission**
- **LICENSE TERMINATION PLAN**
  - **Pacific Gas and Electric Company**
- **NRC INSPECTION AND OVERSIGHT PROGRAM**
  - **Blair Spitzberg, Nuclear Regulatory Commission**
- **PUBLIC COMMENTS**
- **CLOSING REMARKS**

DECOMMISSIONING PROCESS

- Facility Permanently Ceases Operations
  - June 1983
- Operating License No Longer Permits Operation
  - Amended July 1988
- Decommissioning Plan
  - Planned Decommissioning Activities (SAFSTOR ~ 30 years)
  - Schedule for the Planned Activities
  - Site-specific Cost Estimate
- License Termination Plan
- Final Status Surveys
- License Terminated

RESTRICTIONS

- **The Licensee Is Prohibited at Any Time from Performing Any Decommissioning Activities That:**
  - **Would Not Allow the Release of the Site for Unrestricted Use; or**
  - **Result in Significant Environmental Impacts Not Previously Considered; or**
  - **Result in There No Longer Being Reasonable Assurance That Adequate Funds Will Be Available.**

NRC FOCUS DURING DECOMMISSIONING

- The Safe Removal of Radiological Hazards
  - The Removal Of The Facility From Service
  - Reduction Of Radioactive Materials To A Level That Allows Site Release
  - Detailed Final Radiological Survey

LICENSE TERMINATION PLAN

- **The Plan Will Describe:**
  - **Site Characterization**
  - **Identification of Remaining Dismantlement Activities**
  - **Plans for Site Remediation**
  - **Plans for the Final Radiation Survey**
  - **Description of the End Use of the Site If Restrictions Are Imposed**
  - **Updated Site-specific Cost Estimate of Remaining Costs**
  - **Any New Information to Supplement the Environmental Report**

NRC REVIEW OF THE LTP

- Acceptance Review
- Technical Review
- Request Additional Information if Necessary
- Public Meeting / Opportunity for a Hearing
- NRC approves LTP by License Amendment
- NRC Performs In-process Inspections

NRC REVIEW OF THE LTP

- Licensee Submits Final Status Survey Report
- NRC Reviews and Approves FSSRs
- NRC Will Perform Confirmatory Surveys
- The License Is Terminated If the License Termination Plan Was Followed and the Site Meets the Release Criteria

NRC CONTACT INFORMATION

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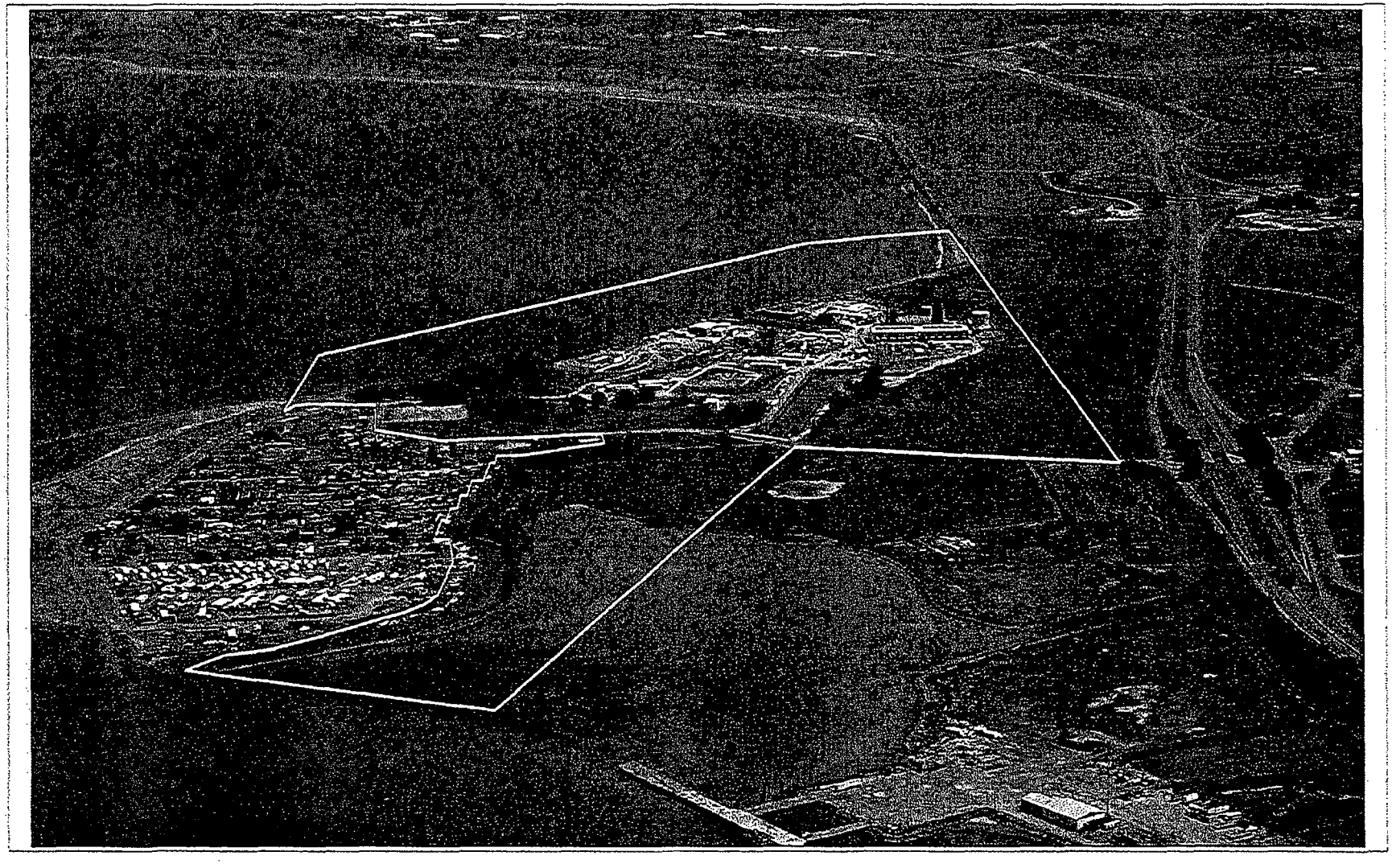
- **NRC Documents are available at:**
  http://www.nrc.gov/reading-rm.html

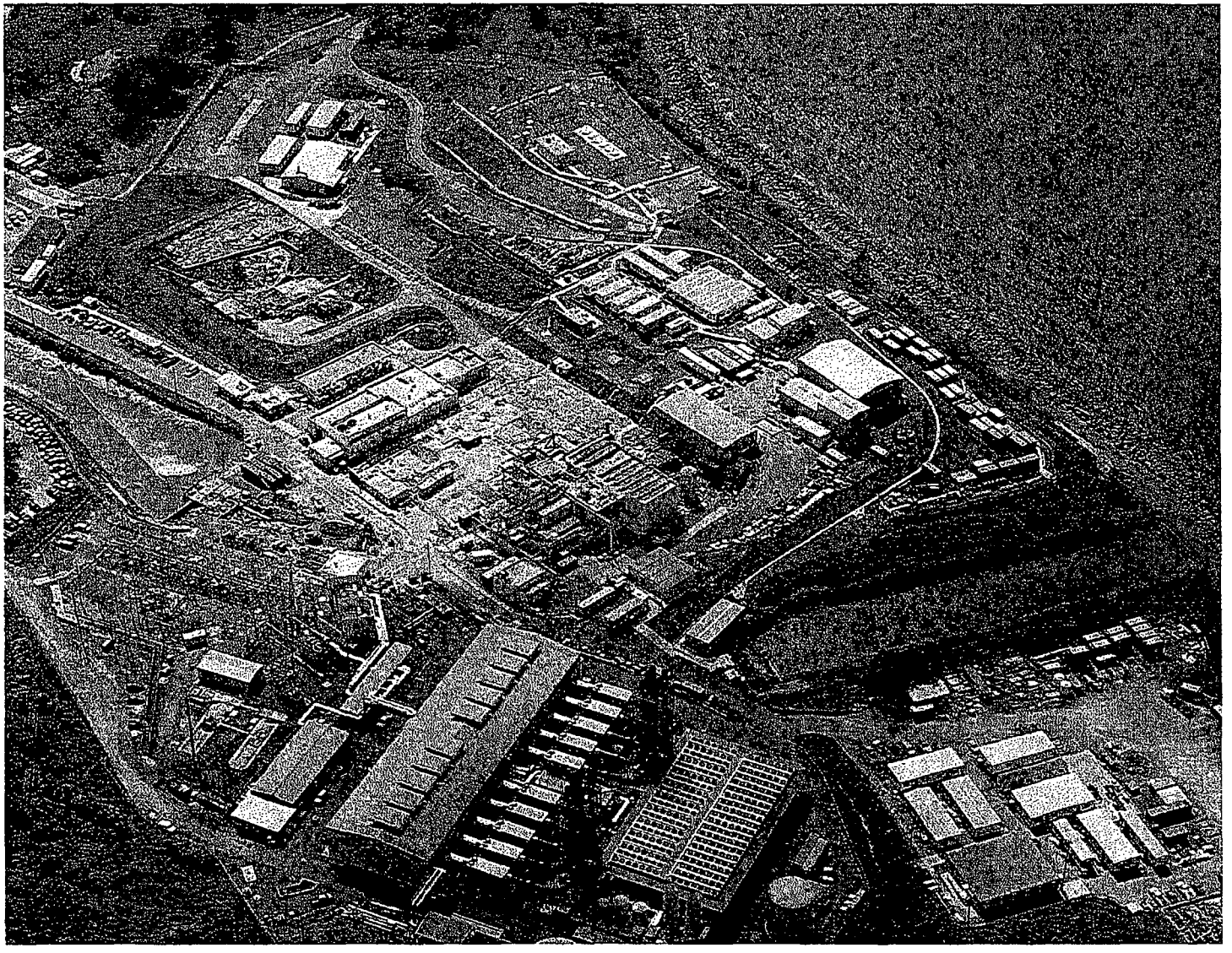
NRC Public Meeting
HBPP Decommissioning and License Termination Plan Update

Presented by Loren Sharp
and Bill Barley
Aug. 20, 2013

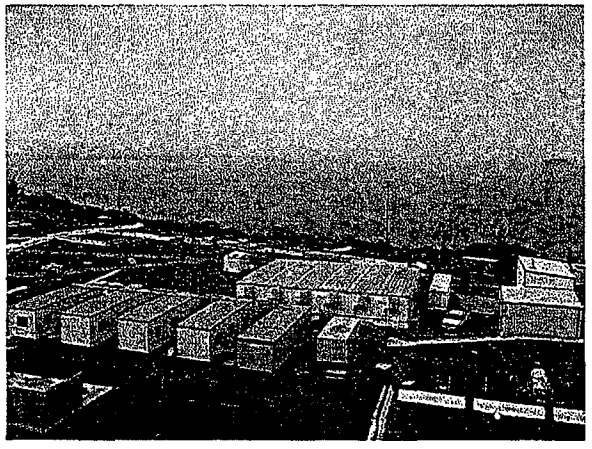
PG&E Property Boundary



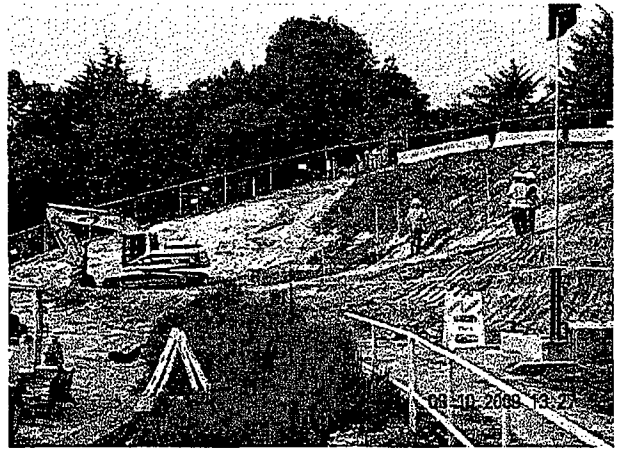
PG&E Property



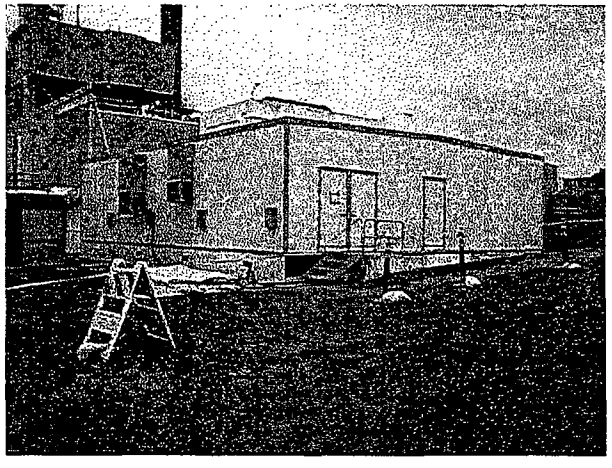
Site Infrastructure Improvements



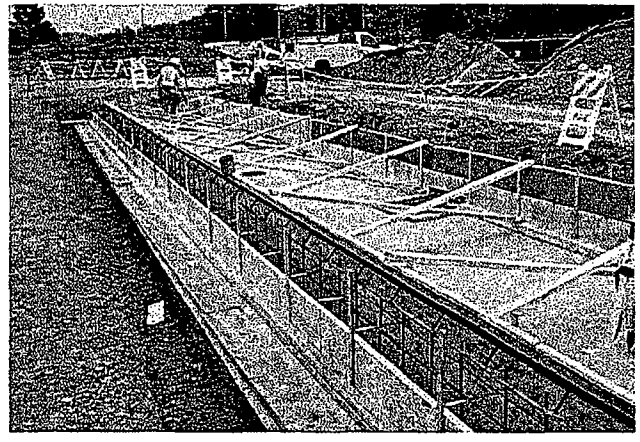
Installation of planning trailers 2008



Construction of new access road Sep. 2009

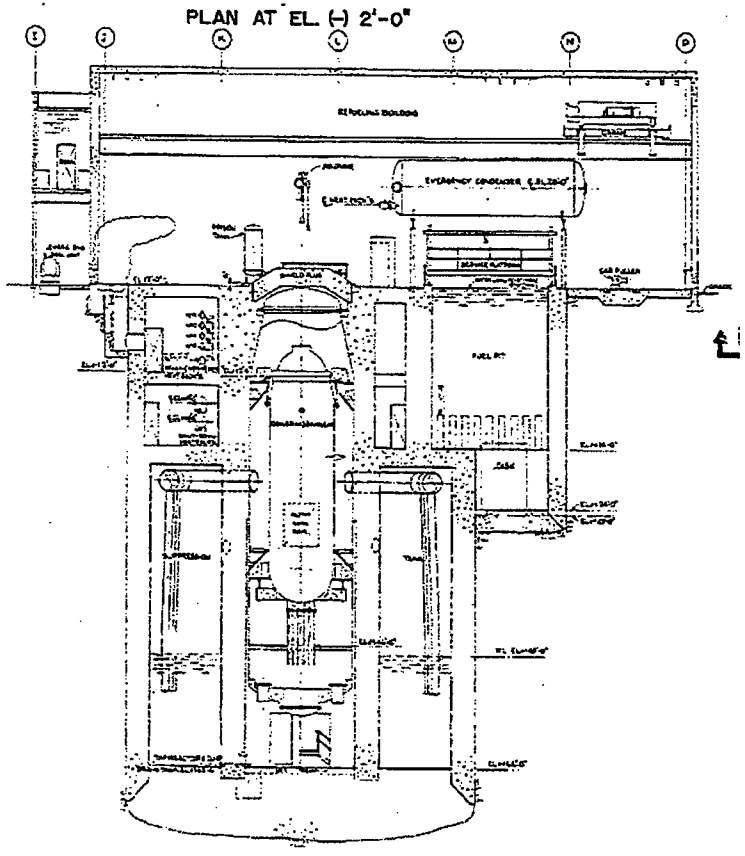


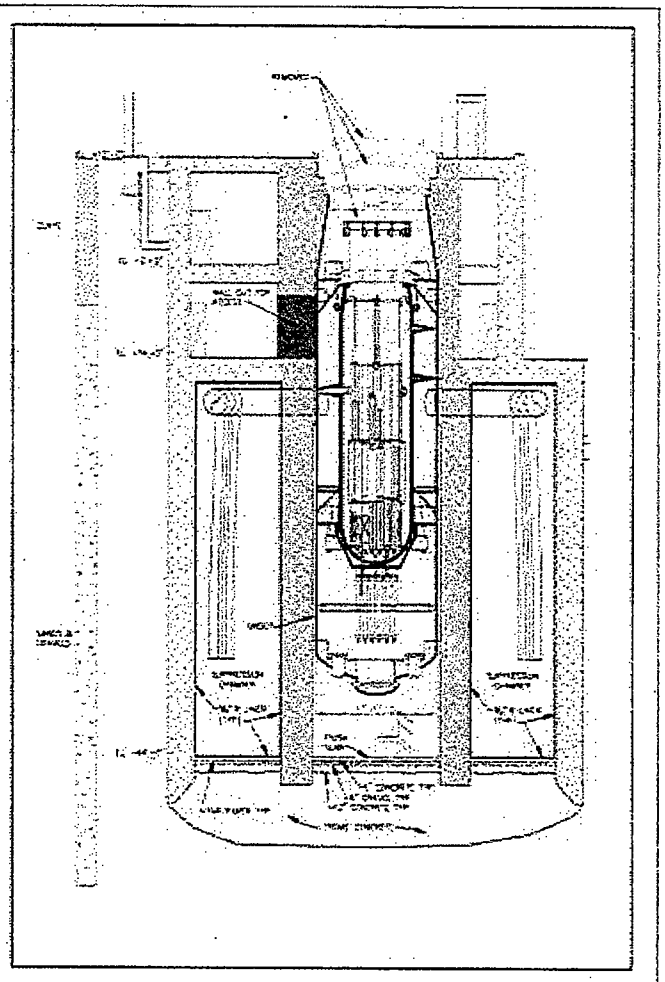
New Access Control Apr. 2010



Portal monitor and truck scale Sep. 2010

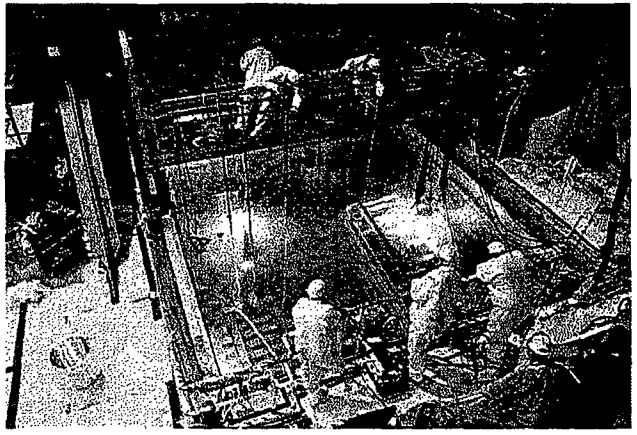
HBPP: A Unique Decommissioning



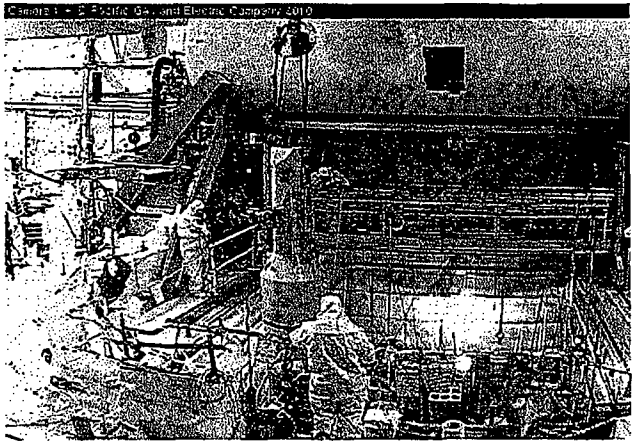


The reactor vessel is located inside the drywell, below grade within the Refueling Building

Significant Radiological Activities



Spent Fuel Pool Racks Feb 2010

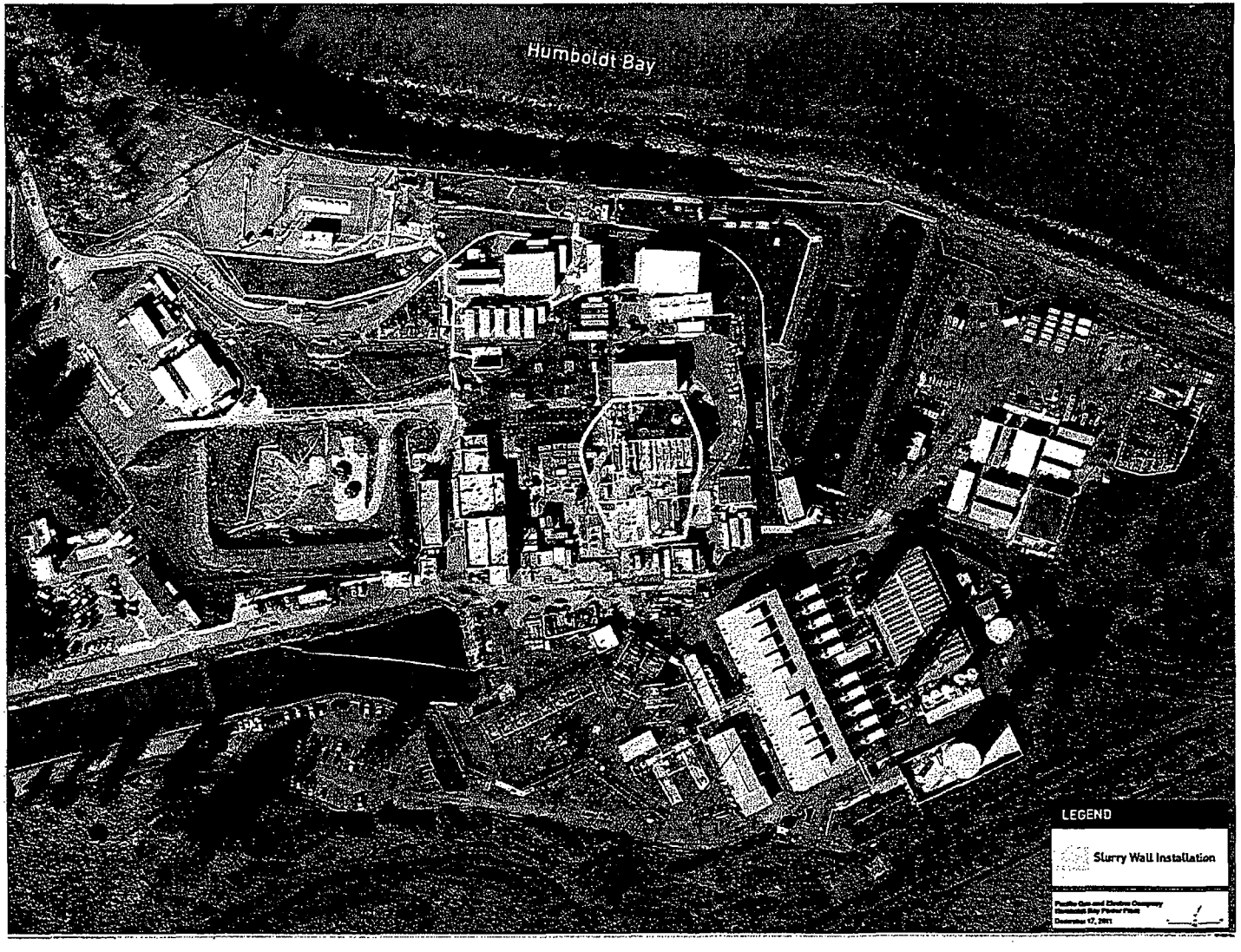


Control Rod Blades Aug 2010

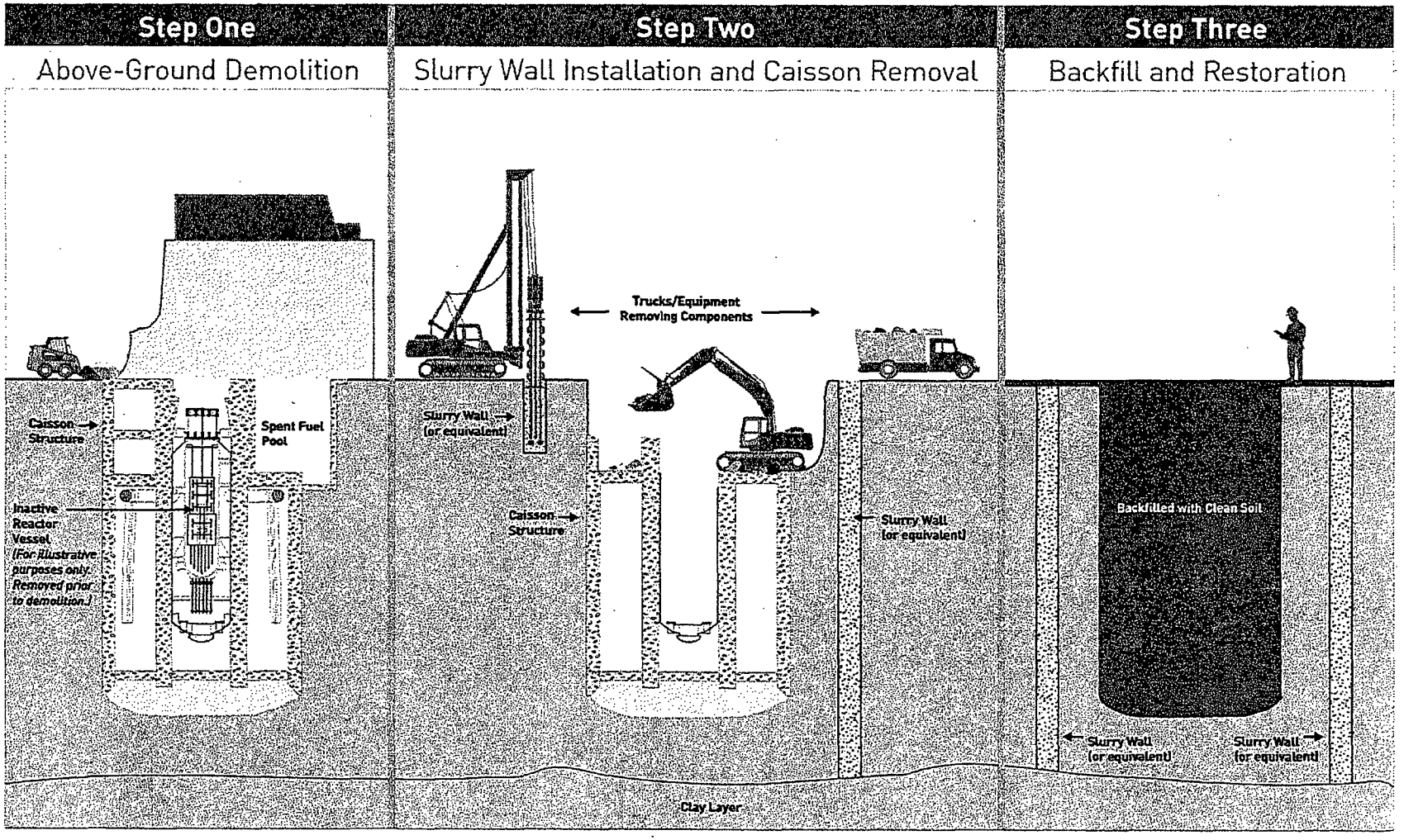
Reactor Head Main Steam Line Apr 2010

Lower core shroud removed March 2013

Unit 3 Slurry Wall Work Area



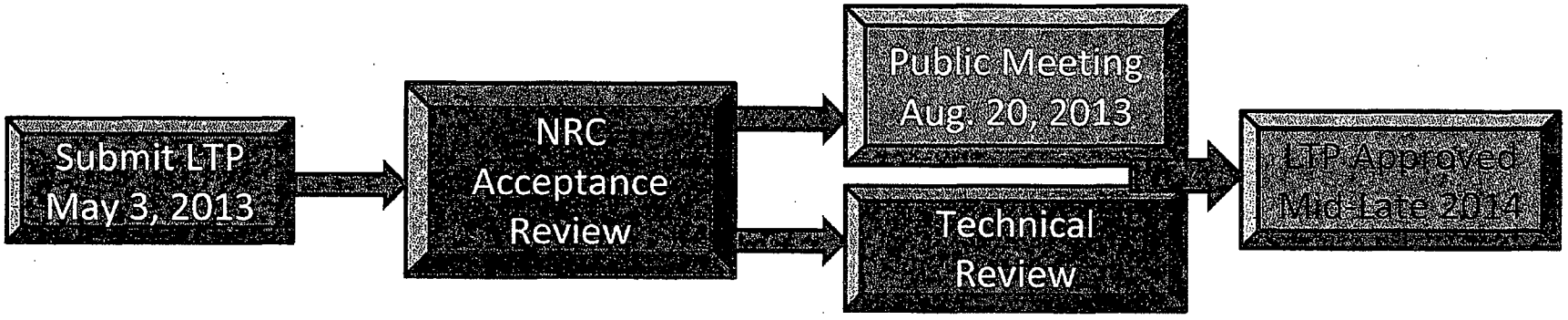
Unit 3 Caisson Removal



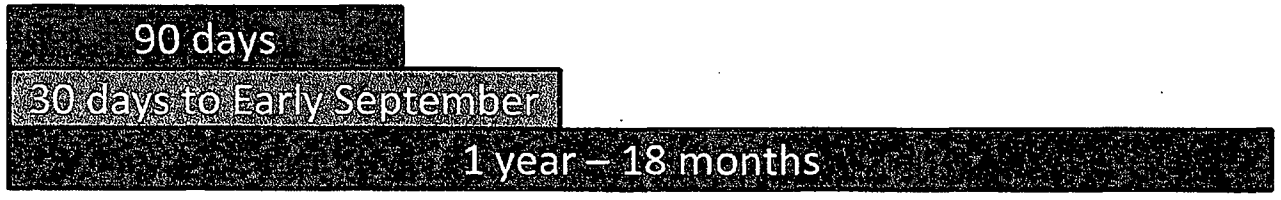
For illustrative purposes. Image not to scale.

NRC Approval and Public Meeting

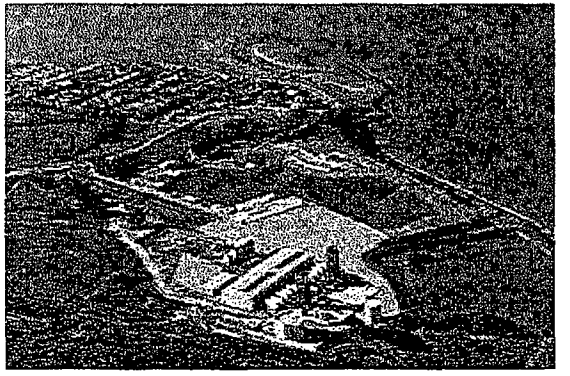
LTP Process



Approximate Timeline



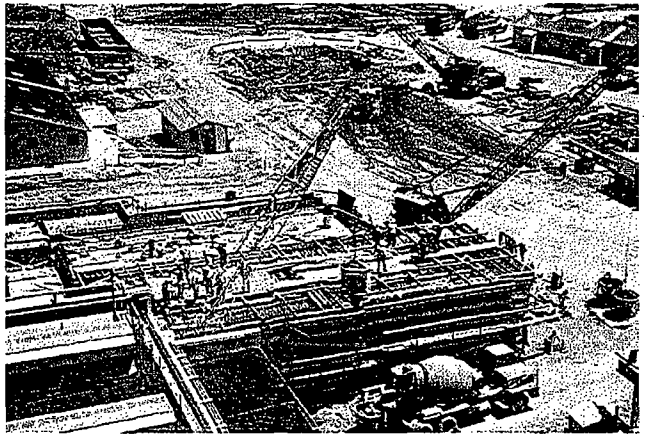
LTP Chapter 1
General Site Information



- Chapter 1 provides information about the site and lays out the licensing notification and approval requirements relating to any deviations from or changes to the LTP.

- Addresses historical information about the site as well as summarizing the content of the remaining seven chapters

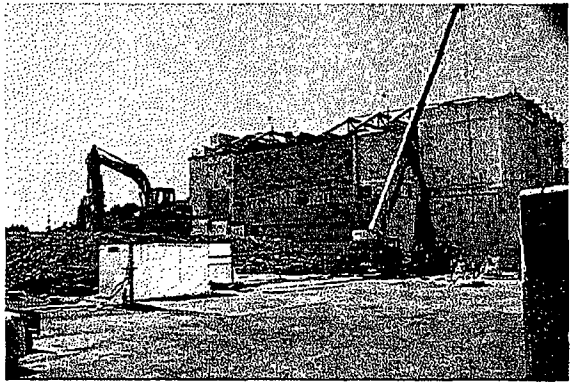
LTP Chapter 2
Site Characterization



- Provides information regarding the radiological state of the site using input from the historical site assessment, site spill records and continuing characterization data.

- Characterization will continue to take place and the LTP will be updated as necessary as new data becomes available.

LTP Chapter 3
Remaining Decommissioning Activities



- Describes the methods and sequence of remaining decommissioning work.
- Done at a high level, in other words, major activities are identified and an estimated completion date is provided so the NRC can identify any inspections and technical resources that will be needed.
- The chapter also includes site dose estimates, waste volumes and radiological effluents for the entire decommissioning.

LTP Chapter 4
Site Remediation Plan

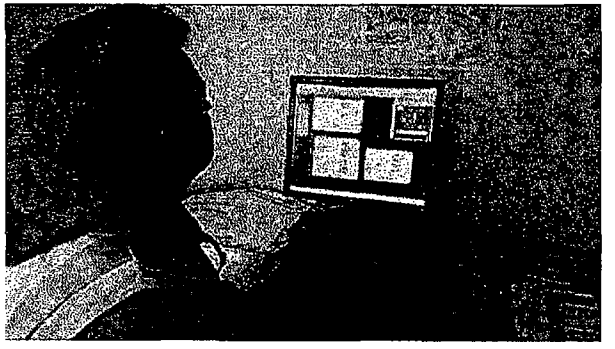
- **Describes the means and methods to accomplish the remaining work scope of remediation to meet the NRC's release criteria.**

- **Include a detailed description of the techniques that will be employed to remove or remediate surface and subsurface soils, groundwater, and surface water and sediments.**

LTP Chapter 5
Final Status Survey

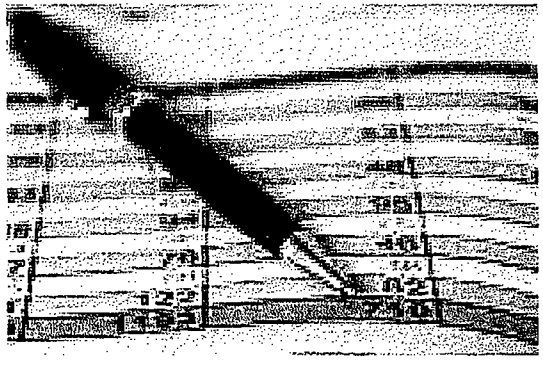
- The LTP describes the final radiation survey plan for demonstrating that the plant and site will meet the release limits.
- The final status survey is the radiation survey performed after an area has been fully characterized, remediation has been completed, and the area is ready to be released.
- The purpose of the final status survey is to demonstrate that the area conforms to the radiological criteria for license termination.

LTP Chapter 6
Compliance With Radiological Criteria



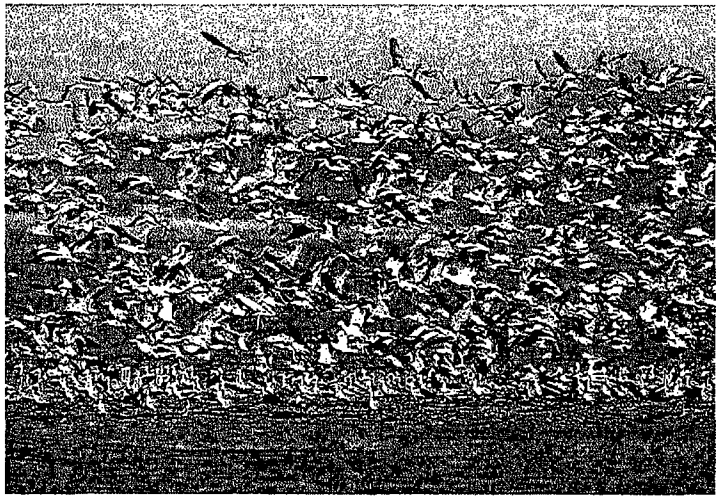
- Most technical of the chapters
- Describes the process implemented to develop the site dose models and Derived Concentration Guideline Levels (DCGLs), including input parameter justification and sensitivity analyses.
- DCGLs are radionuclide-specific values determined by a software program that correlate to the site release criteria.

LTP Chapter 7
Financial Status



- Describes the financing of the decommissioning project, with very detailed cost estimates which usually includes some proprietary information related to contractual information.
- Funding status for the operation of the temporary spent fuel storage is not included in this chapter, however it is required in the annual financial assurance document sent to the NRC.

LTP Chapter 8
Supplement to the Environmental Report



- **Provides an update to the 1984 environmental report. The goal of this chapter is to demonstrate that the project poses no environmental impacts that would exceed those described in the NRC's Generic Environmental Impact Statement.**
- **Describes any new information or significant environmental changes associated with the site-specific termination activities from the time the dismantlement and decommissioning activities began until the license is terminated.**

Questions/Comments

Presented by Loren Sharp
and Bill Barley
September 19, 2012

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NRC Inspection Program for Decommissioning Reactors

D. Blair Spitzberg, Ph.D., Chief, Fuels Safety & Decommissioning Branch, NRC Region IV

Public Meeting on Humboldt Bay Nuclear Power Plant

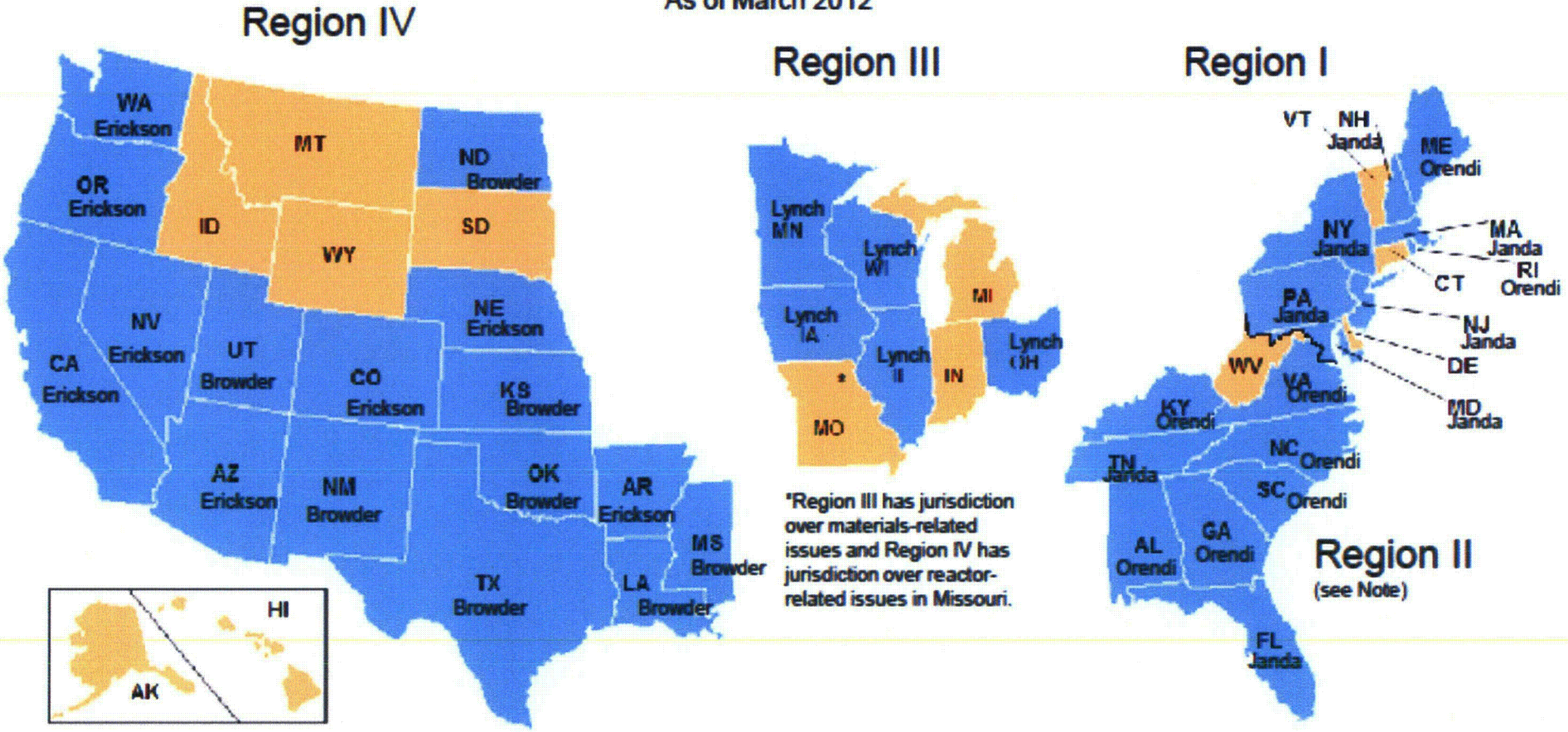
License Termination Process

Eureka, California

August 20, 2013

U.S. NUCLEAR REGULATORY COMMISSION HEADQUARTERS, REGIONAL STATE AGREEMENT, AND LIAISON OFFICER CONTACTS BY REGION

As of March 2012



Agreement States (37)

NRC States (13)

NOTE: This map corresponds to the division of U.S. Nuclear Regulatory Commission Regional Offices by radioactive materials licensing and inspection responsibility. As a result of the October 2003 restructuring of regional roles and responsibilities, fuel cycle inspection functions from all the Regions were consolidated at the Region II office in Atlanta, GA, and all radioactive materials licensing and inspection functions in Region II were transferred to Region I. However, Region II retains its reactor responsibilities.

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How NRC Ensures Safety

- **Establish and ensure adherence to requirements contained in:**
  - **Regulations**
  - **Safety standards**
  - **License**
    - **License conditions**
    - **Technical Specifications**
- **Perform licensing reviews and safety evaluations**
- **Inspection and enforcement**

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Ongoing Inspection Activities at Humboldt Bay

- **Decommissioning inspections**
  - Generally scheduled during periods of higher risk activities
  - Conduct independent radiological measurements to confirm licensee survey methodologies
- **ISFSI inspections**
  - ISFSI is authorized by a separate specific NRC Part 72 license.
  - ISFSI will operate to store the irradiated fuel after the Part 50 reactor license is terminated
- **Physical Security inspections**

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Objectives of the NRC Inspection Program

- Objectively verify safe conduct of licensee activities
- Verify adequacy of licensee controls
- Ensure safety problems and violations are promptly identified and corrected and effective actions are taken to prevent recurrence
- Examine trends in licensee safety performance

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Examples of Core Inspection Procedures for Decommissioning

- Organization, Management and Cost Controls
- Safety Reviews, Design Changes and Modifications
- Self Assessments, Audits and Corrective Actions
- Safety of spent fuel
- Occupational Radiation Exposure
- Inspection of Final Surveys
- Radwaste Treatment, Effluent & Environmental Monitoring
- Transportation of Radioactive Material
- Maintenance and Surveillance
- Physical Security
- Contingency response procedures

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Inspection Planning and Communications

- Routine inspection schedule
  - Planned about a year in advance
  - Coordinated with the program office in FSME
  - Adjustments to schedule made throughout the year as needed
- Inspection planning and execution
  - Inspection may be announced or unannounced
  - Inspection plan approved by Region IV management - Identifies scope, IPs, follow-up issues, participating personnel
  - Exit Meetings - Any significant changes in findings from those communicated in the final exit will require re-exiting with licensee management
- Post inspection debrief of NRC management and staff (Generally the week of return to office)
- Coordinate any enforcement - NRC enforcement policy http://pbadupws.nrc.gov/docs/ML0934/ML093480037.pdf
- Issue Inspection Report
  - 30 day goal for normal inspection reports (post exit)
  - 45 day goal for team inspections (post exit)
- Determine need for any follow-up

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Post Inspection Activities

- **Prompt NRC management debrief**
- **Determination of any significant findings**
- **Need for enforcement?**
- **Issue inspection report**

  To locate reports – go to ADAMS web page (http://www.nrc.gov/reading-rm/adams.html), use advanced search feature with docket number 050-00133
- **Track and follow up on safety issues**

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Humboldt Bay Decommissioning Safety Record

- **How many inspections?**
  - 4 in 2011
  - 6 in 2012 - Included extensive independent radiological surveys conducted by NRC contractor laboratory Oak Ridge Institute for Science and Education (ORISE)
  - 4 in 2013 (3 conducted, 1 underway)

- **Violations, significant enforcement?**
  - There has been one Severity Level III violation in the last two years involving control of security-related information with two examples.
  - Otherwise a good recent enforcement history of licensee's decommissioning work

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Region IV Contacts

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