



# NRC - PG&E Meeting

April 3, 2003

Humboldt Bay ISFSI Project (HBIP)



# Agenda

1. HBIP History
2. Schedule and Planning
3. GTCC Concept
4. Approach for Confinement Analysis
5. HBIP Design Concepts
6. Future Discussions & Meetings



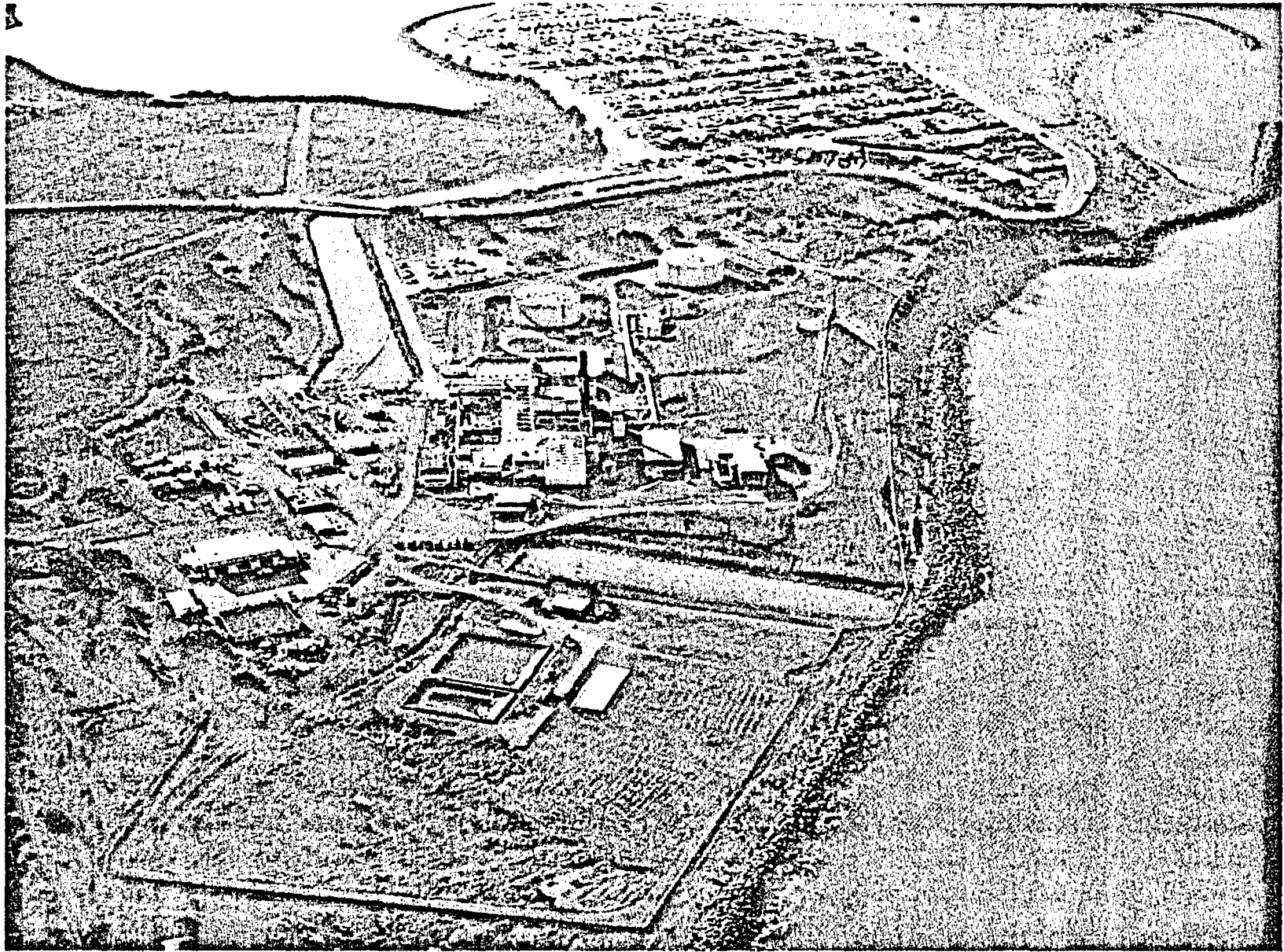
# HBIP History

- Overview of Humboldt Bay
- Brief Summary of Previous NRC Meetings



# History Overview

- Humboldt Bay Unit 3 Shutdown in 1976
- Entered SAFSTOR 1988
- Decision for Dry Storage 1997-1998
- Authorized to use Decom Trust Fund 1999
- Delayed to request additional Funding 2000
- Completed Seismic Design Criteria 2002
- Signed Contract with Holtec 2003



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# Previous NRC Meetings

- April 1999, ISFSI QA Plan (72.140) HBL-99-010
- November 1999, Public Access Across 100m Controlled Area (72.106)
- March 2000, potential need to use probabilistic techniques for Part 50 and 72 activities
- June 6<sup>th</sup> 2002, Licensing Basis and Design Concept



# HBIP Schedule and Planning

- Design Effort
  - Final Design of Vault, HiStarHB, MPCHB and Davit scheduled for Mid 2003.
  - Completion of Part 50 accident analyses Mid 2003
  - Completion of Part 72 accident analysis scheduled to complete 3<sup>rd</sup> Quarter 2003.
- Licensing Effort
  - Part 50 LAR to be submitted 3<sup>rd</sup> quarter 2003
  - Part 72 Application to be submitted end of 2003

# GTCC



- 6<sup>th</sup> container in vault for GTCC storage
- In accordance with ISG-17
- Waste characteristics
  - Form
  - Maximum quantity
  - Radionuclide inventory
- Waste form compatibility with container
- Handling systems same as HI-STAR HB spent fuel casks





# Confinement Approach

- The Holtec MPC is a redundant, welded stainless steel enclosure vessel, acting as the confinement boundary
- Testing was performed in March, 2002 to demonstrate that the MPC meets ANSI 14.5 for leak-tight
- ISG-5, Rev 2 is expected to be issued shortly, classifying such canisters as leak tight based on this test



# HBIP Design Concept

- HBPP Dry Storage Activities (Updated since 6/6/02 meeting)
- ISFSI Vault
- ISFSI Security
- Cask Handling equipment design

*(Davit Design is Proprietary Information)*



# Dry Storage Activities

- Work in the Refueling Building will be under existing licensing basis and using Seismic Design Criteria of 0.5g
  - Accidents evaluations to be based on;
    - Humboldt Bay Unit 3 Living DSAR
    - NRC April 29, 1987 SER for Humboldt unit 3
- All work outside the Refueling Building will be under the new Part 72 Licensing basis with Seismic Design Criteria  $>1.0g$

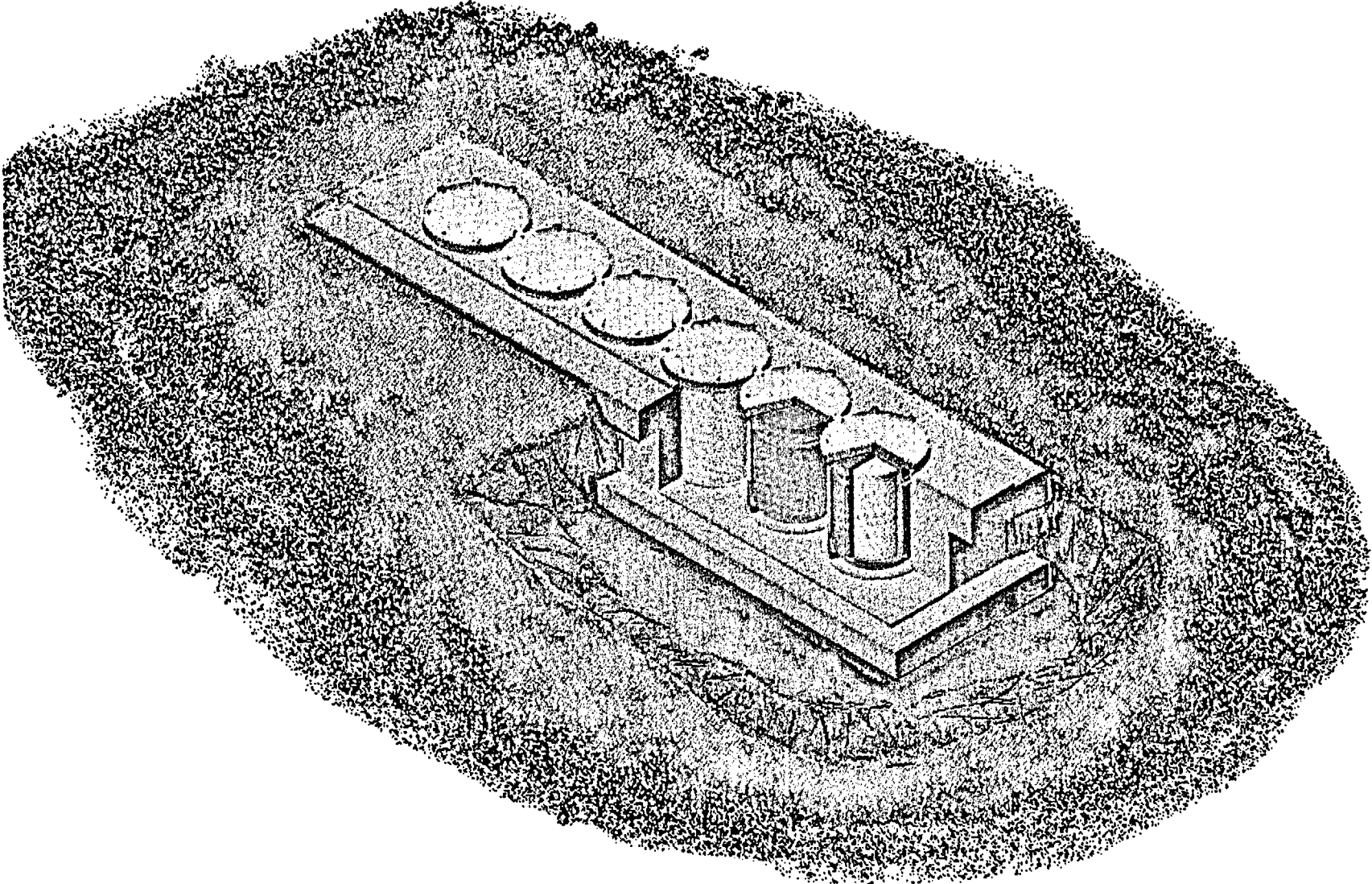
# Cask Handling Concepts

- **Inside Refueling Building (RFB)**
  - **Handling performed Under existing Part 50 licensing basis**
    - **Move Cask into refueling building on cart**
    - **Using special lifting device lower empty cask into pool**
    - **Load cask and set MPC lid in place**
    - **Install MPC lid restraint system**
    - **Lift loaded cask from pool using special lifting device**
    - **Set loaded cask on cart in work location**
    - **Perform MPC welding and remove lid restraint system**
    - **Perform drying and helium backfill procedures.**
    - **Install permanent HI-STAR cover**
    - **Roll cask out of RFB to be received by the transporter**

# Cask Handling Concepts (cont)

- Outside Refueling Building
  - Transportation Casks to ISFSI under Part 72 Licensing basis
    - **Crawler receives cask outside RFB and transports to the ISFSI facility**
- At the ISFSI Facility
  - Handling performed Under Part 72 licensing basis
    - **Crawler lowers the casks into their individual vaults**
    - **Seismic restraints installed inside vault**
    - **Vault Cover installed**

# In-Ground Vault Storage



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# Vault Design

- Concrete Structural Design per ACI-349-01
- Steel Components and Bolting per ASME NF (Equipment Supports and Bolting)
- No bolting of lids into Concrete
- Vault Motion Specified as 3-D DBE (4 seismic events).

## Vault Design (Con't.)

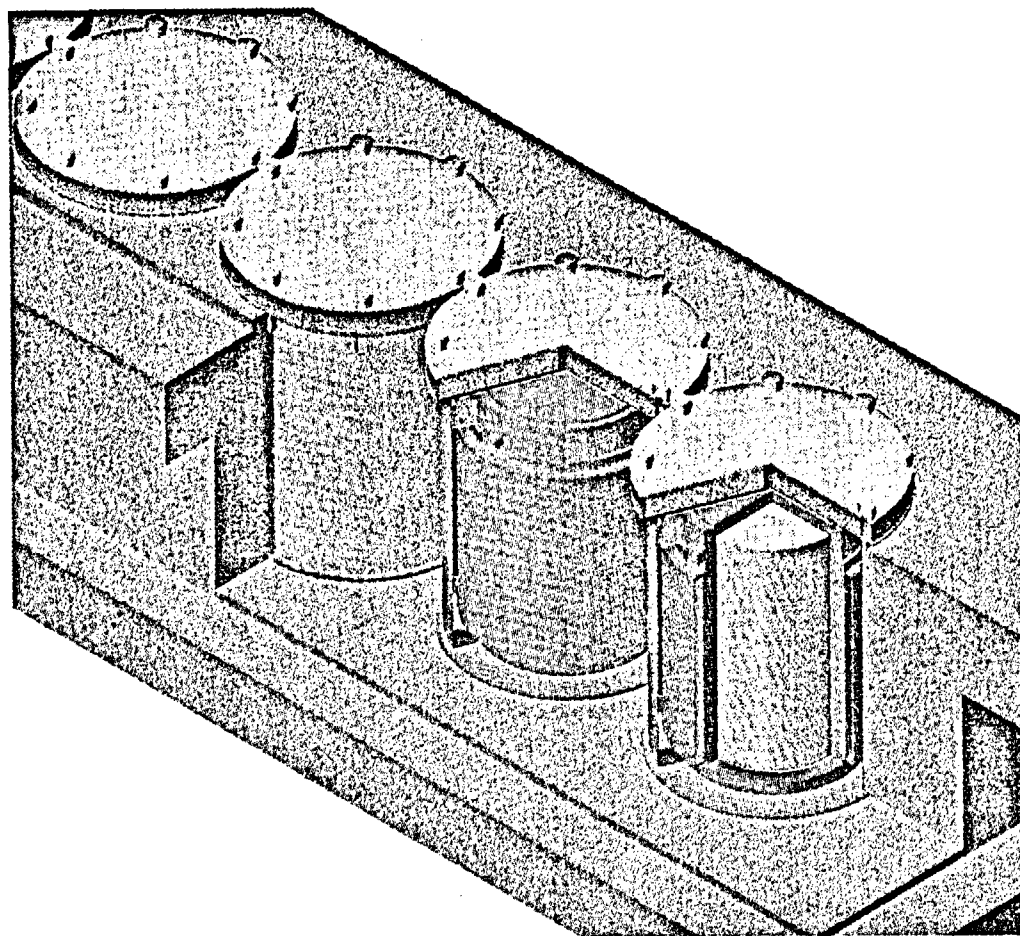


- Impact Loads come from:
  - Cask contact with lid and floor
  - Cask contact with Upper and Lower Spacers
- Separate Dynamic Analysis of Cask plus Contents Provides Impact Loads on Steel Liner.
- Interface Contact simulation chosen to provide upper bound on impact loads between cask and liner and vault lid
- Structural analysis includes 1 to 6 locations filled with casks



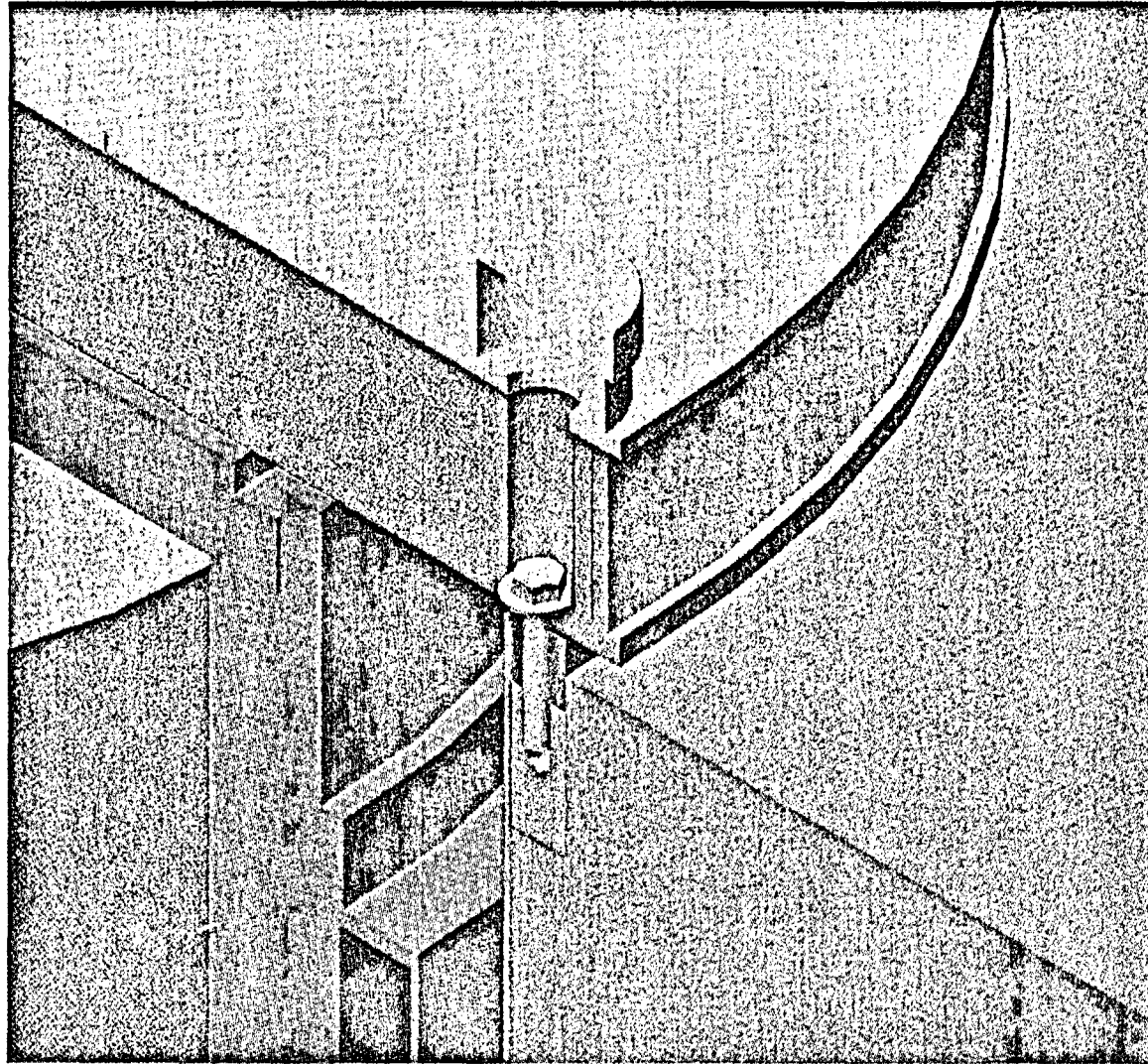


# Detailed Cutaway of Storage Location



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# Lid Attachment Detail



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# Future Discussions and Meeting Subjects

- Potential QA Plan changes
  - Evaluating the revision to the Humboldt ISFSI QA Plan referred to in HBL-99-010
- Probabilistic evaluations for short duration activities
- Geo-technical presentation

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