September 27, 1999

MEMORANDUM TO: Susan F. Shankman, Deputy Director
Licensing and Inspection Directorate
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

FROM: Stephen C. O'Connor, Project Manager
Licensing Section (Original Signed by:)
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

SUBJECT: SUMMARY OF SEPTEMBER 9, 1999, MEETING WITH ENERGY NORTHWEST (TAC NO. L22968)

On September 9, 1999, representatives of the U.S. Nuclear Regulatory Commission (NRC), Energy Northwest, and Holtec International (Holtec) met to discuss Energy Northwest's plans to store spent fuel at its WNP-2 plant using the Holtec HI-STORM dry storage system under the general license provisions of 10 CFR Part 72. Energy Northwest stated that it plans to use the Holtec MPC-68 canister to store fuel in the HI-STORM shielded overpack. An attendance list is included as Attachment 1. Attachment 2 consists of the handouts provided by Energy Northwest at the meeting. This meeting was noticed on August 31, 1999.

Energy Northwest lost full core offload reserves in the WNP-2 spent fuel pool in May 1998. The WNP-2 pool has 2654 slots available for spent fuel storage. The pool currently has 2381 slots filled: 1960 spent fuel assemblies and 421 slots with other components (e.g., blade guides). Energy Northwest is planning to remove some of the components currently stored in the 421 slots to make additional pool space available prior to receipt of fresh fuel in 2001 and regain full core offload reserves.

The independent spent fuel storage installation is planned to initially consist of two concrete storage pads with eighteen HI-STORM casks on each pad (2448 fuel assemblies). Energy Northwest plans to begin cask loading in January 2002.

Energy Northwest is considering the Holtec HI-STAR 100 transportation cask to eventually ship the loaded MPC-68 canisters to a long-term storage facility. However, 582 of the fuel assemblies planned for the initial loading campaign have enrichment levels that are below the allowed level for transportation in the HI-STAR 100 cask. In addition, some current WNP-2 fuel exceeds (and most future WNP-2 fuel will exceed) burnup limits allowed for the HI-STORM storage system and the HI-STAR 100 shipping cask. The Holtec representative stated that they are aware of the need to potentially amend the certificates of compliance for the HI-STORM and HI-STAR 100 to address these issues.

Docket No. 72-35, 50-397

Attachments: 1. Attendance List
2. Meeting Handouts

Distribution: (closes TAC No. L22968/Control No. 010S)

Dockets	NRC File Center	PUBLIC	NMSS R/F	SFPO R/F
LKokajko	WHodges	EWBrach	JCushing, NRR	BSpitzberg, R-IV
VEverett, R-IV	PEng	FLyon, NRR	NJensen, OGC	NRC Attendees
VTharpe (4)	ANorris, PMDA	SGagner, OPA	ELeeds	

OFC	SFPO	E	SFPO	E				
NAME	SO'Connor SCO		CRChappell CRC					
DATE	9/23/99		9/27/99					

C = COVER E = COVER & ENCLOSURE N = NO COPY

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September 9, 1999, Meeting
between Energy Northwest
and Nuclear Regulatory Commission

ATTENDANCE LIST

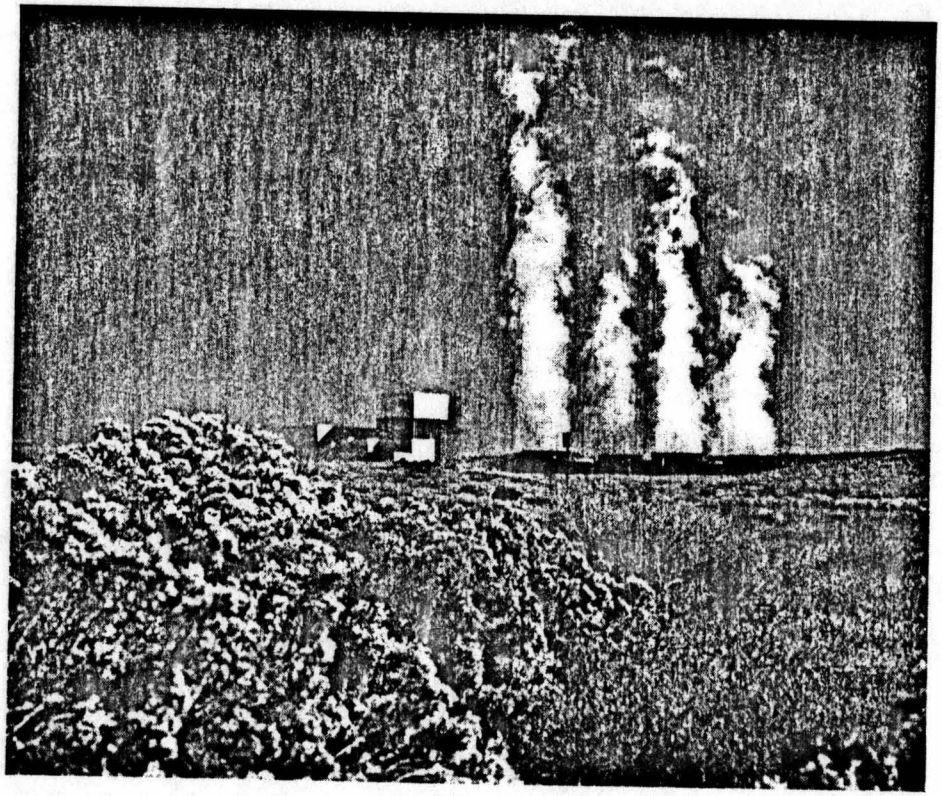
Name	Affiliation
Stephen O'Connor	NRC/SFPO
James Hall	NRC/SFPO
Mark Delligatti	NRC/SFPO
Jack Cushing	NRC/NRR
John Arbuckle	Energy Northwest
David Larkin	Energy Northwest
Brian Gutherman	Holtec International
Steve Schulin	The IBEX Group

Attachment 1

WNP-2 Spent Fuel Storage

USNRC Spent Fuel Project Office

September 20, 1999



Presentation Contents

- WNP-2 spent fuel pool status.
- WNP-2 dry storage project.
  - Technology
  - ISFSI site
  - Project schedule
  - Activities underway
- Spent fuel to be stored - CoC Issues

Plant Spent Fuel Pool Capacity

- Core contains 764 FA with average reload size of 288 FA every 24-months.
- Replaced original spent fuel racks (1,020 FA) with high density racks (2,654 FA) prior to startup in 1984.
- Currently have 1,960 FA is storage, plus blade guides, etc filling 421 slots, leaving 273 free slots.

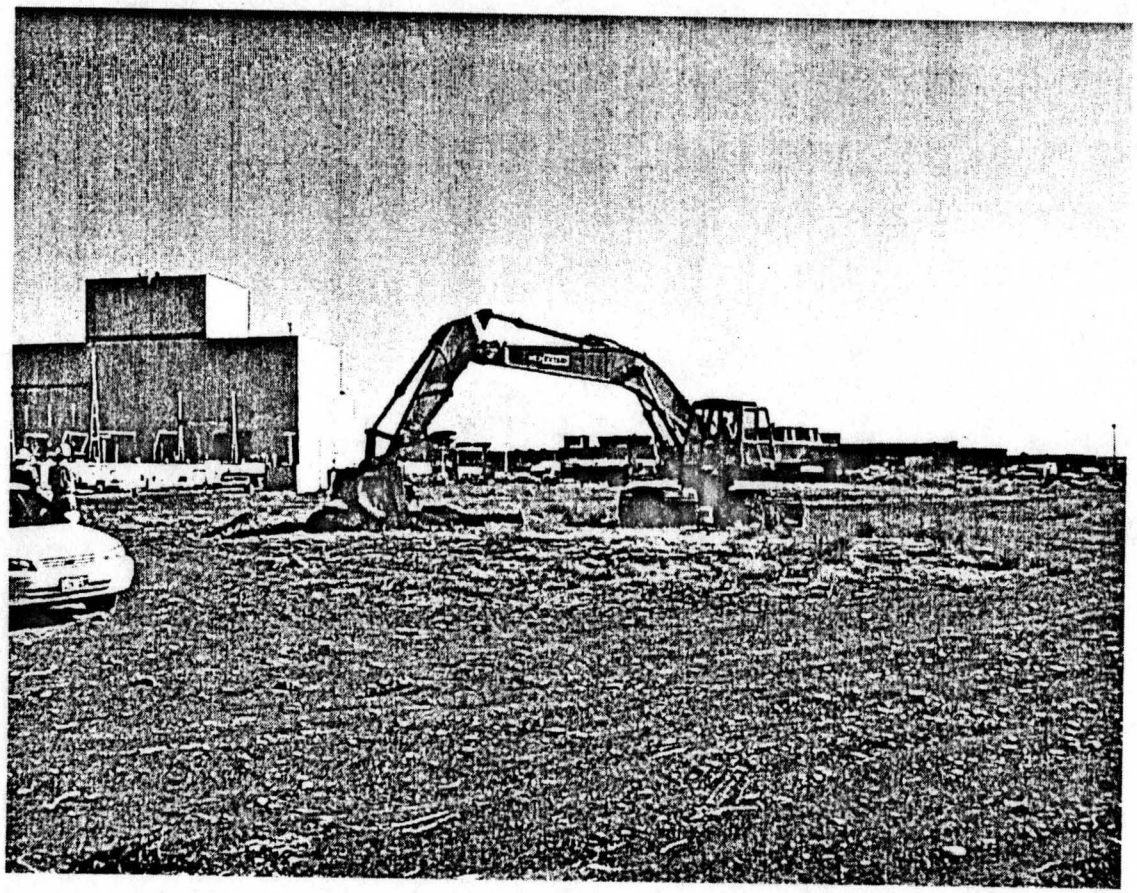
Core Off-Load Capability

- Lost Full-Core Discharge capability, without pool clean-up, in February 1995.
- Lost Full-Core Discharge capability, with pool clean-up, in May 1999.
- Must do pool clean-up prior to receipt of fuel in 2001.
- Last possible refueling in spring 2003.

Spent Fuel Dry Storage Project

- Implement an ISFSI using dual purpose certified cask under a General License.
- Selected Holtec, International's HI-STORM overpack with MPC-68 canisters.
- Initial ISFSI to contain two pads with capacity for 36 HI-STORMs (2,448 FA).
- Expandable to five pads and 90 casks (6,120 FA).

Proposed ISFSI Site

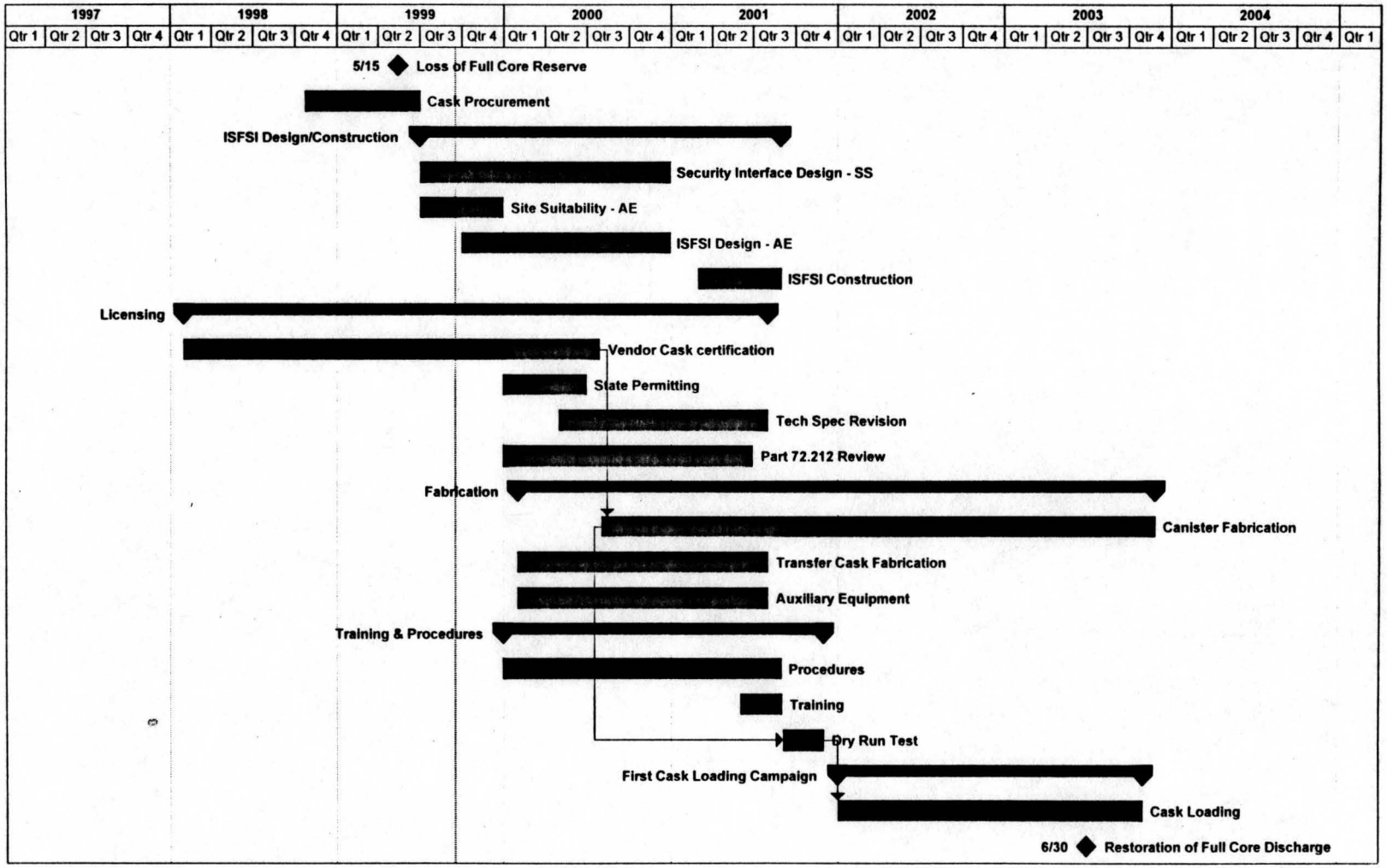


- ISFSI is NW of the plant, outside protected area.
- ISFSI within owner-controlled area.

ISFSI Site Characteristics

- Isolated Hanford site with no permanent population within 3-miles;only 2,096 within 10-miles.
- Large exclusion area (1,950m radius).
- Flat plain, sand and gravel down to 500 feet.
- No potential for liquefaction.
- ~~OBE~~ SSE seismic event has 0.25g value.
- Semi-arid climate; less than 1 tornado/yr in WA.

Project Schedule



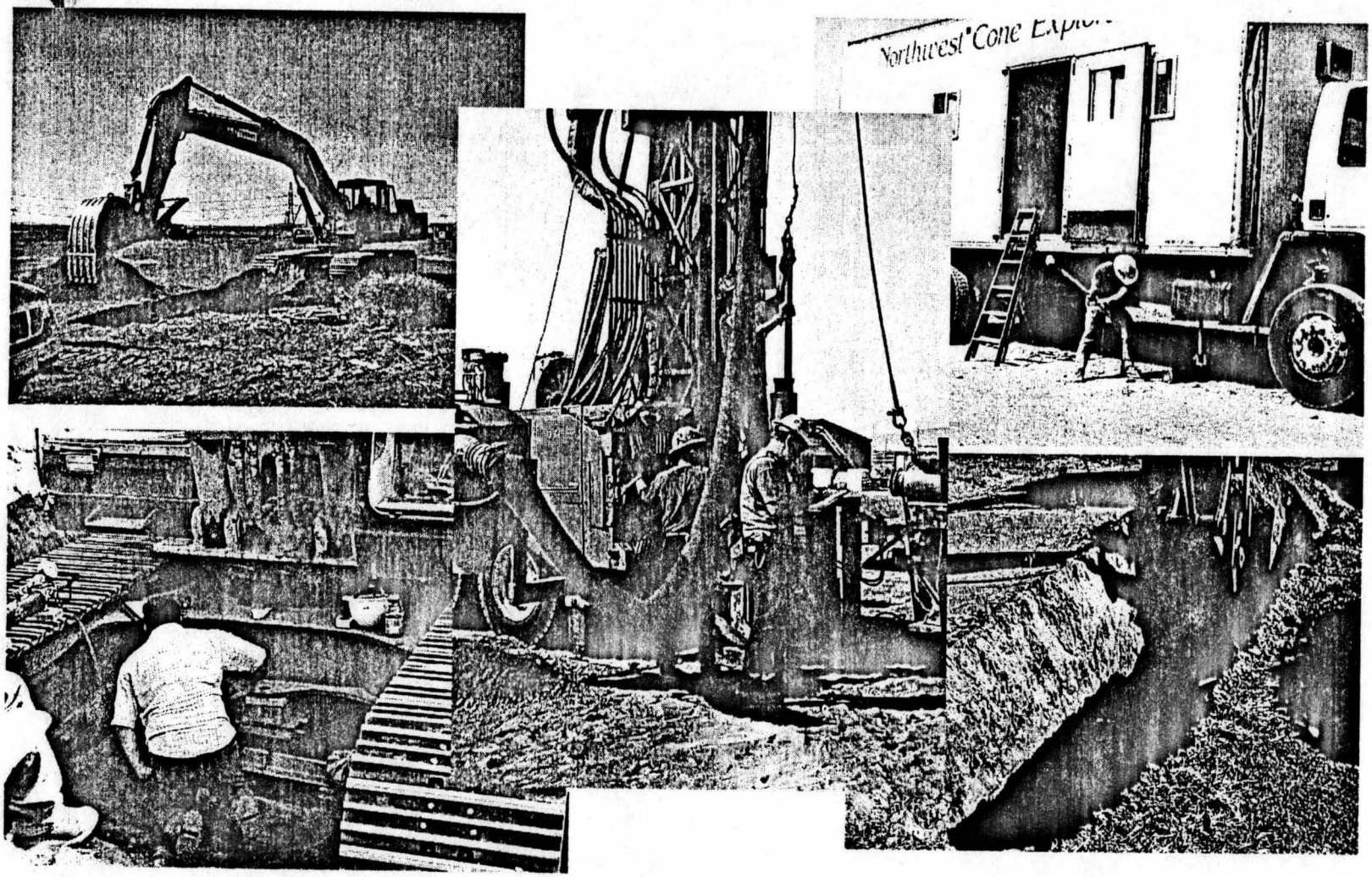
Key Activity Dates

❖ 07/01/99	Contract Execution
❖ 07/01/99 - 12/31/00	ISFSI Design
❖ 03/01/01 - 08/31/01	ISFSI Construction
❖ 08/01/00 - 08/01/01	TS Amendment
❖ 08/01/00 - 11/30/03	Canister Fabrication
❖ 09/01/01 - 11/30/01	Dry Run
❖ 01/02/02 - 10/31/03	Cask Loading
❖ 06/30/03	Restore FCD

Activities Underway

- QA Topical report being revised to cover ISFSI activities.
- ISFSI site suitability studies - geotechnical and dose calculations.
- ISFSI civil design and security system design.

Site Geotechnical Testing



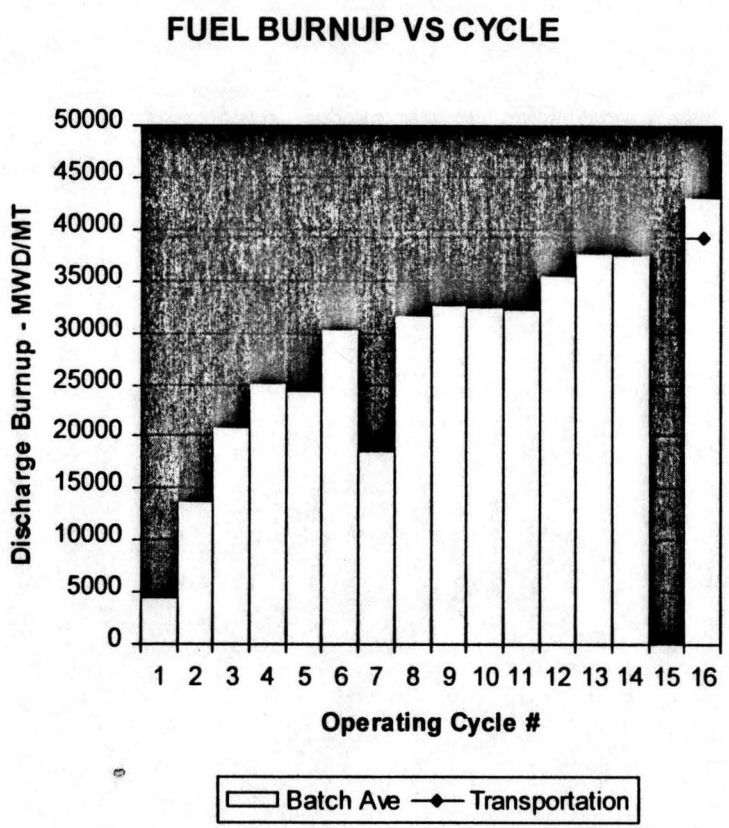
Spent Fuel Characteristics

- Fuel Designs:
  - 764 GE 8x8P initial core fuel assemblies
  - SPC 8x8 reload fuel
  - SPC 9x9-9X reload fuel with water channel
  - ABB SVEA-96 reload fuel with watercross
  - LUA fuel (GE11 and SPC 9x9-IX)

Failed Spent Fuel

- Initial Core Fuel - GE 8x8
  - 6-7 assemblies with holes or cracks
  - 1 assembly with a broken rod
- Reload Fuel
  - Reload fuel in outstanding condition
  - 1 fret hole in a SPC 8x8 fuel assembly
- No failed fuel to be stored during initial campaign

Spent Fuel Burnups



- This cycle batch ave burnup of 37,538 MWD/MT; peak of 41,600 MWD/MT.
- Batch average burnups going to 43,099 MWD/MT for 24-month cycles. Peak at 50,170 MWD/MT.
- Storage TS limit is 41,700 MWD/MT.
- Transportation TS limit is 39,100 MWD/MT.

Minimum Enrichment Levels

- HI-STAR technical specifications provide minimum enrichment levels.
- Majority of BWR initial core fuel falls outside these limits.

# FA	ENR	BURNUP – MWD/MT
92	0.72	1,743 – 3,280
240	1.76	8,953 - 18,000
250	2.19	24,500 – 28,000

CoC Issues for WNP-2

- Need to store 952 FA, or load 14 casks to restore FCD capability and provide room for 2005 reload.
- Will have 1212 FA with sufficient cool times for first campaign.
- But 582 of these will have enrichment levels precluding their shipment. Can store at risk.
- Some current and most future fuel will exceed CoC burnup limits.