



# Section D

## *Spent Nuclear Fuel*

### **PROJECT MANAGERS**

P.G. Loscoe, RL  
(509) 373-7465

J.H. Wicks Jr., FH  
(509) 373-9372

## SUMMARY

The Spent Nuclear Fuel (SNF) mission consists of the Spent Nuclear Fuel Project (SNFP) WBS 1.3.1.1 (Project Baseline Summary [PBS] WM01) and the subsequent Canister Storage Building (CSB) Operations Project WBS 1.3.2.1 (PBS WM02), which does not start until FY 2004.

NOTE: Unless otherwise noted, the Safety, Conduct of Operations, Milestone Achievement, and Cost/Schedule data contained herein is as of January 31, 2001. All other information is as of February 20, 2001.

Fiscal year-to-date milestone performance (EA, HQ, and RL) showed that three out of four milestones were completed late and one milestone is overdue.

The Milestone Achievement details, found following the cost and schedule variance analysis, provide further information on all milestone types.

## NOTABLE ACCOMPLISHMENTS

**Spent Nuclear Fuel Project (SNFP) organization** — Initial demobilization of the startup phase project team was completed. Efforts will continue to draw down existing staff and adjust skill mix.

**Fuel Movement Activities** — Completed shipment of the second and third Multi-Canister Overpacks (MCOs). These MCOs were successfully dried and transported to the Canister Storage Building (CSB) for storage. Shipment of the fourth MCO is anticipated the week of March 5, 2001. SNF plans to ship seven MCO's before the April 1, 2001 maintenance outage.

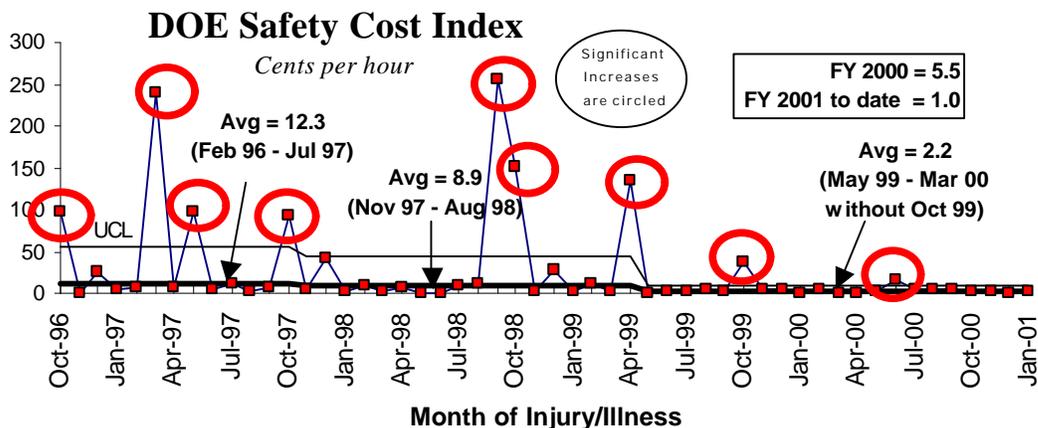
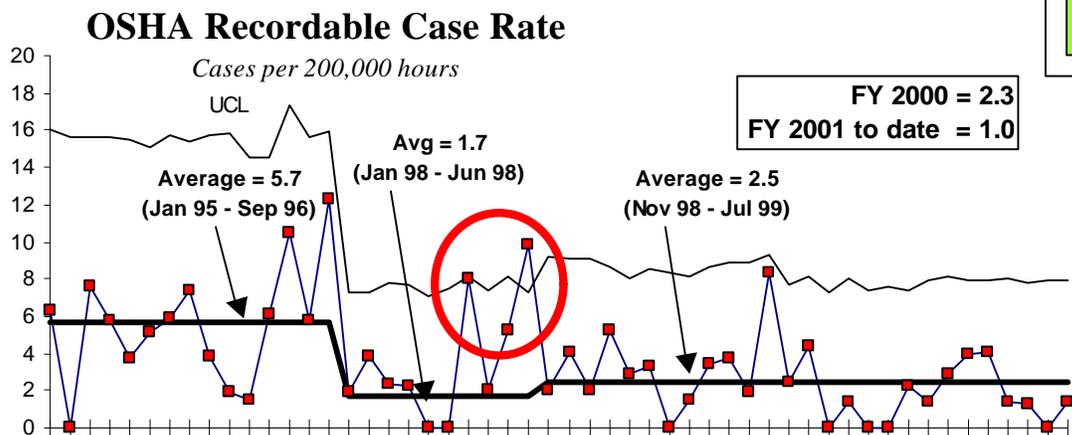
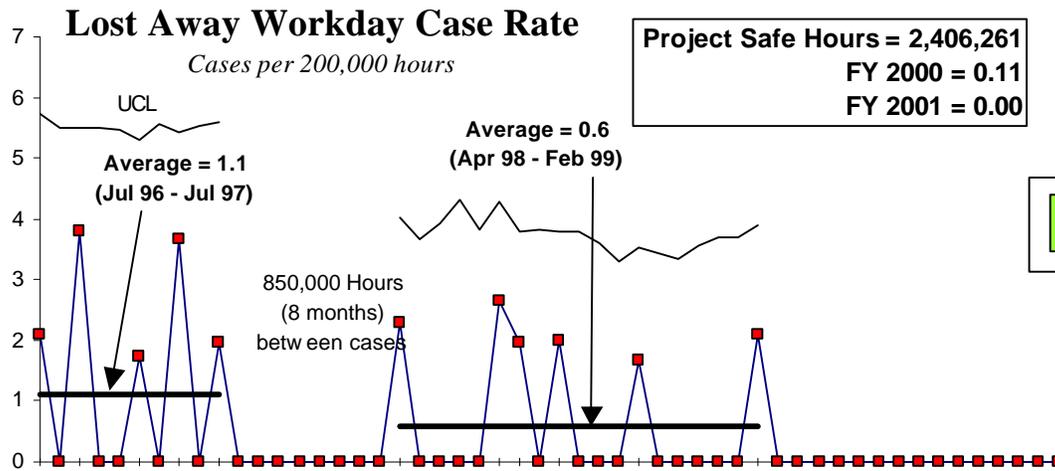
**K East Construction Projects** — Construction work in K East Basin commenced with the removal of 16 stiff back/pole hooks from the Basin. Initiated interior painting of hallways and office areas.

**MCO Production Rate Improvement Activities** — Funding was identified for upgrades to K West to increase production activities. Project delivery work commenced to procure and install process improvements into K West Basin.

## SAFETY

The Project achieved over 2.4 million safe work hours. No Lost Away Workday Cases have been reported in the last seventeen months.

The SNF OSHA recordable case rate for FY 2001 to date is 1.04, which is less than half of SNF's rate at this time last year, when the rate was 3.42. Continued improvement in all areas is being experienced; i.e., in January 2000, the number of recordables was ten, compared to three during January 2001.

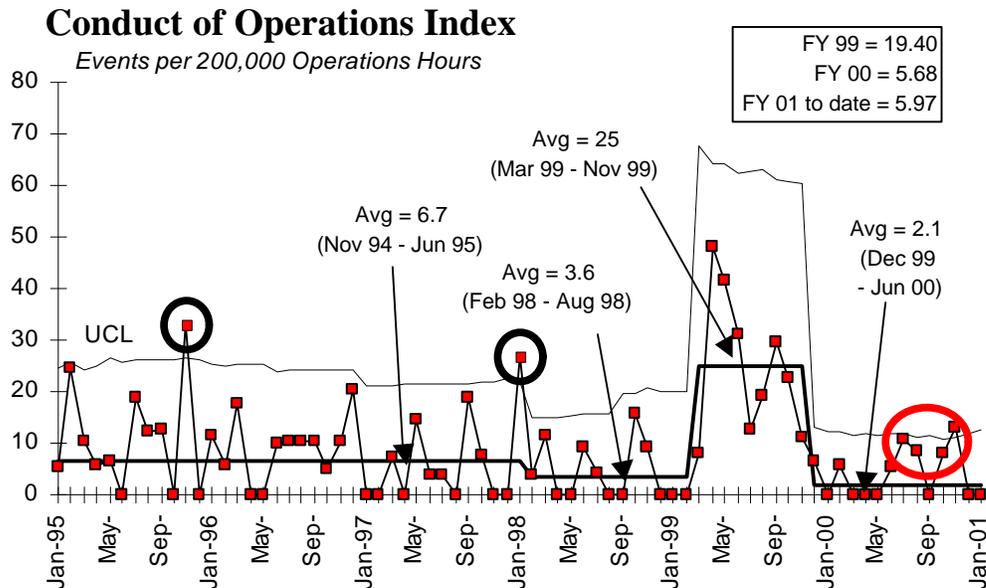


## ISMS STATUS

Nothing to report at this time.

## CONDUCT OF OPERATIONS

Green



The increase in the number of events for FY 2001 is indicative of the SNFP transition from construction and testing to operations. During the period, the project completed two new nuclear facilities and refurbished one existing facility. All three of these nuclear facilities were thoroughly tested and went through several Operational Readiness Reviews prior to the commencement of operations. As a result of the knowledge gained during the transition to operations, many actions were taken, and are in progress, to improve and monitor the conduct of operations at all four SNFP facilities as the Project safely moves into a more focused and efficient operation.

## BREAKTHROUGHS / OPPORTUNITIES FOR IMPROVEMENT

### Breakthroughs

Green

**Alternate Fuel Transfer Strategy (AFTS)** — The AFTS will move fuel from the K East Basin to the K West Basin for processing in lieu of processing fuel in the K East Basin as currently baselined. A Comprehensive Plan and Baseline Change Request (BCR) encompassing all MCO production rate improvements were submitted on February 21, 2001. Fluor presented an executive-level briefing of the entire plan on Thursday, February 22, 2001. Briefings of principle stakeholders are in progress as part of the BCR approval process.

## Opportunities for Improvement

Green

**Multi-Canister Overpack (MCO) Production Rate Improvements** – The Spent Nuclear Fuel Project is currently analyzing the reduction of fuel processing, loading, and drying times in an effort to meet and improve the baseline schedule for MCO processing.

**SNF Accelerated Closure Team (ACT)** – The ACT is evaluating improvements and breakthroughs to further reduce fuel removal processing times and accelerate the completion of the project.

## UPCOMING ACTIVITIES

- Continue MCO shipments through FY 2001.
- Conduct first maintenance outage of the fuel processing system the first week of April.
- Complete definitive design for KE Integrated Water Treatment System (IWTS)/Sludge loadout system by April 2001.
- Take receipt of the first Shippingport Spent Fuel Canister in April 2001.
- Submit Annual Debris Report to Washington State Department of Ecology (Ecology) and Environmental Protection Agency (EPA) in May 2001.
- Initiate K West Basin spent nuclear fuel canister cleaning operations August 2001.

## MILESTONE ACHIEVEMENT

Green

| M I L E S T O N E T Y P E | FISCAL YEAR-TO-DATE |                             |                   |         | REMAINING SCHEDULED |                            |                  | T O T A L<br>F Y 2 0 0 1 |
|---------------------------|---------------------|-----------------------------|-------------------|---------|---------------------|----------------------------|------------------|--------------------------|
|                           | Completed<br>Early  | Completed<br>On<br>Schedule | Completed<br>Late | Overdue | Forecast<br>Early   | Forecast<br>On<br>Schedule | Forecast<br>Late |                          |
| Enforceable Agreement     | 0                   | 0                           | 1                 | 0       | 0                   | 0                          | 0                | 1                        |
| DOE-HQ                    | 0                   | 0                           | 0                 | 0       | 0                   | 0                          | 0                | 0                        |
| RL                        | 0                   | 0                           | 2                 | 1       | 0                   | 1                          | 0                | 4                        |
| <b>Total Project</b>      | 0                   | 0                           | 3                 | 1       | 0                   | 1                          | 0                | 5                        |

Only TPA/EA milestones and all FY2001 overdue and forecast late milestones are addressed in this report. Milestones overdue are deleted from the Milestone Exception Report once they are completed. The following chart summarizes the FY2001 TPA/EA milestone achievement and a Milestone Exception Report follows. The last milestone table summarizes the first six months of FY 2002 TPA/EA milestones.

**FY 2001 Tri-Party Agreement / EA Milestones**

| Number                   | Milestone Title   | Status   |
|--------------------------|---|--|
| M-34-16 (S00-01-900)     | "Initiate Removal of K West Basin Spent Nuclear Fuel"                   | Due 11/30/00 – Completed on December 7, 2000.   |
| M-34-06-T01 (S04-99-521) | "Initiate K West Basin Spent Nuclear Fuel Canister Cleaning Operations" | Due 12/31/00 – Forecast late, August 31, 2001.  |
| M-34-05-T01 (S04-01-515) | "Submit DOE Approved Report Debris to Ecology/EPA"                      | Due 05/31/2001 – On schedule                    |

**DNFSB Commitments**

|                                 |
|---------------------------------|
| Nothing to report at this time. |
|---------------------------------|

**MILESTONE EXCEPTION REPORT**

| <u>Number/WBS</u> | <u>Level</u> | <u>Milestone Title</u> | <u>Baseline Date</u> | <u>Forecast Date</u> |
|-------------------|--------------|------------------------|----------------------|----------------------|
|-------------------|--------------|------------------------|----------------------|----------------------|

**Overdue – 1**

|                     |    |   |          |         |
|---------------------|----|---|----------|---------|
| S04-99-521<br>1.3.1 | RL | Start K West Canister Cleaning Operations | 12/31/00 | 8/31/01 |
|---------------------|----|---|----------|---------|

**Cause:** Suspended design last summer to simplify system and reduce costs. SNF Project made a project management decision to defer work to FY 2001 and focus on near-term critical path items.

**Impact:** No impact to any other SNF Project baseline schedule activities or TPA/DNFSB milestones.

**Corrective Action:** Currently in design and on schedule; to be started by August 31, 2001.

**Forecast Late – 0**

**FY 2002 Tri-Party Agreement / EA Milestones**

| Number                    | Milestone Title  | Status                        |
|---------------------------|--|-------------------------------|
| M-34-12 (S04-97-621)      | "Complete Construction of K East Basin Integrated Water Treatment System (IWTS) to Support Spent Nuclear Fuel Removal" | Due 03/31/2002<br>On Schedule |
| M-34-13B-T01 (S04-98-356) | "Complete Construction & Installation of K East Basin Spent Nuclear Fuel Retrieval System (FRS)"                       | Due 03/31/2002<br>On Schedule |
| M-34-14B-T01 (S06-97-012) | "Complete KE Basin Cask Facility Mods"   | Due 02/28/2002<br>On Schedule |

**DNFSB Commitments**

|                                 |
|---------------------------------|
| Nothing to report at this time. |
|---------------------------------|

## PERFORMANCE OBJECTIVES

Outcome Performance Indicator Status

Restore the River Corridor for Multiple Uses

### MOVE FUEL AWAY FROM THE RIVER

#### *Transfer K-Basin Facility to River Corridor Contractor*

**Base:** Remove spent fuel by 07/31/04, sludge by 08/31/04, canister and racks from the basins by 01/31/05, and water from the basins by 08/31/06.

**Expectation 1:** Complete removal of spent fuel from K-Basins by 07/31/04. (M-34-18A & M-34-18B)

**Expectation 2:** Consolidate site wide non-production reactor fuel in 200 Area dry storage by 02/28/05.

**Expectation 3:** Complete removal or capture of sludge from K-Basins. Removed sludge shall be placed into T-Plant by 08/31/04. (M-34-10).

**Expectation 4:** Complete water removal from the K-Basins and transfer it to the 200 Area Liquid Effluent Retention Facility (LERF) by 08/31/06. (M-34-24)

**Expectation 5:** Remove racks and canisters from K-Basins by 01/31/05. (M-34-09-T01)

**Expectation 6:** Complete Transition Activities for CVD and other Facilities by 09/30/06.

**Stretch:** Complete water removal by 04/30/06, and transfer to River Corridor contractor by 09/30/06.

**Expectation 7:** Remove fuel, sludge, water, and debris removal and transfer K-Basins to the River Corridor Contractor by

**Expectation 8:** Remove racks and canisters from K-Basins by 01/31/05. (M-34-09-T01)

**Superstretch:** Complete all fuel, sludge, water, and debris removal and transfer the K-Basins to the River Corridor contractor by 09/30/05.

**Expectation 9:** Accelerate Expectation No. 7 – Complete fuel, sludge, water, and debris removal and transfer the K-Basins to River Corridor contractor by 09/30/05.

### Move Fuel Away from the River

#### **Expectation: Remove spent fuel from K Basins**

Expectation: Remove spent fuel from K Basins

Move first MCO of SNF from KW Basin and transport to the CVDF for processing by December 7, 2000 (TPA M34-16)

Completed on schedule

Move 116 Metric Tons Heavy Metal from K West Basin by end of FY 2001

Status: On schedule.

## FY 2001 COST/SCHEDULE PERFORMANCE – ALL FUND TYPES CUMULATIVE TO DATE STATUS – (\$000)

|               |
|---------------|
| <b>Yellow</b> |
|---------------|

| By PBS   | FYTD             |                  |                  |                   |             |                    |             |                   |                   |  |
|--|------------------|------------------|------------------|-------------------|-------------|--------------------|-------------|-------------------|-------------------|--|
|  | BCWS             | BCWP             | ACWP             | SV                | %           | CV                 | %           | PEM*              | EAC               |  |
| PBS WM01 Spent Nuclear<br>WBS 1.3 Fuel Project | \$ 50,340        | \$ 44,835        | \$ 60,865        | \$ (5,505)        | -11%        | \$ (16,030)        | -36%        | \$ 192,333        | \$ 187,860        |  |
| <b>Total</b>                                   | <b>\$ 50,340</b> | <b>\$ 44,835</b> | <b>\$ 60,865</b> | <b>\$ (5,505)</b> | <b>-11%</b> | <b>\$ (16,030)</b> | <b>-36%</b> | <b>\$ 192,333</b> | <b>\$ 187,860</b> |  |

Authorized baseline as per the Integrated Planning Accountability, and Budget System (IPABS) – Project Execution Module (PEM).  
Note: Above data includes RL contract for Steam.

### FY TO DATE SCHEDULE / COST PERFORMANCE

The unfavorable cost variance of \$16.0 million (36 percent) was due to additional facility start up and engineering required to resolve first-of-a-kind equipment issues at K Basins and the Cold Vacuum Drying Facility and subsequent extension of the Operational Readiness Review process. A staff demobilization plan has been implemented to bring costs in line with the baseline.

The unfavorable schedule variance of \$5.5 million (11%) was due to a delay in K East Basin Project construction. A Baseline Change Request has been submitted which identifies additional shifts being added during construction.

For all active sub-PBSs and TTPs associated with the Operations/Field Office, Fiscal Year to Date (FYTD) Cost and Schedule variances exceeding + / - 10 percent or one million dollars require submission of narratives to explain the variance.

### SCHEDULE VARIANCE ANALYSIS: (-\$5.5M)

#### Spent Nuclear Fuel Project — 1.3.1/ WM01

**Description /Cause:** The unfavorable schedule variance was caused by delays in K East Basin construction activities. Design changes to simplify the canister cleaner system and Integrated Water Treatment System (IWTS) have caused the construction activities to slip.

**Impact:** Delays in the canister cleaner system installation impacts the start of canister removal (TPA milestone) but do not impact the completion date. Without compressing the IWTS construction schedule the completion date would be missed potentially impacting the start of fuel movement in the K East basin.

**Corrective Action:** The IWTS construction effort will be worked on two shifts to maintain the current schedule completion date.

### COST VARIANCE ANALYSIS: (-\$16.0M)

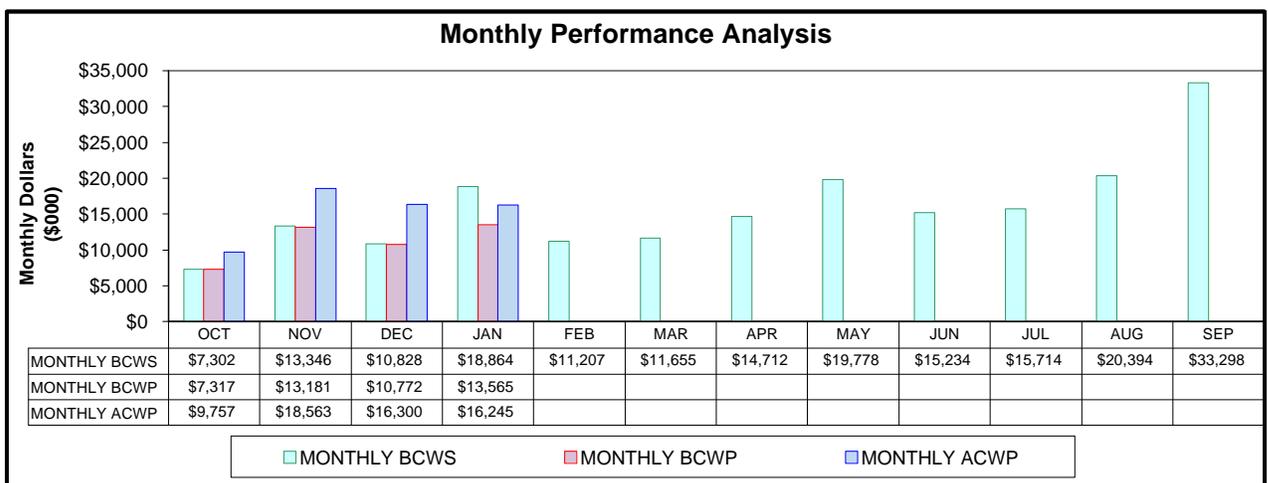
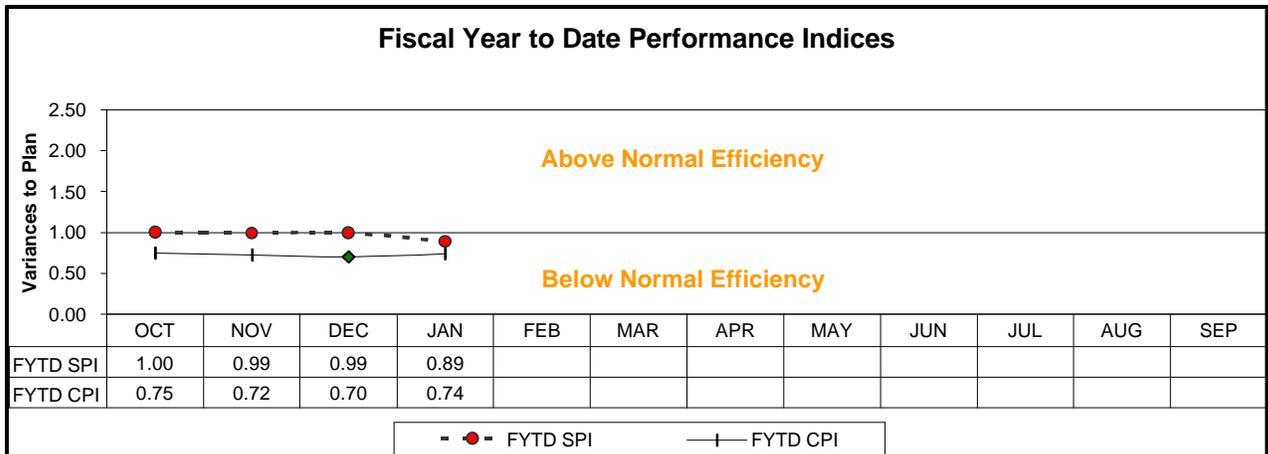
#### Spent Nuclear Fuel Project — 1.3.1/WM01

**Description/Cause:** The unfavorable cost variance was due to additional startup and engineering required to resolve first-of-a-kind equipment issues at the K Basins and CVD facility, and subsequent extension of the Operational Readiness Review process.

**Impact:** Costs will exceed plan without taking corrective action (see below).

**Corrective Action:** A staff demobilization plan has been developed to bring costs in line with the baseline. The demobilization plan has been initiated and the project continues to make improvements to the existing staff and skills mix.

## COST/SCHEDULE PERFORMANCE (MONTHLY AND FYTD)



## FUNDS MANAGEMENT FUNDS VS SPENDING FORECAST (\$000) FY 2001 TO DATE

|   | Project Completion * |                   |             | Post 2006 * |      |          | Line Items * |              |             |
|---|----------------------|-------------------|-------------|-------------|------|----------|--------------|--------------|-------------|
|   | Funds                | FYSF              | Variance    | Funds       | FYSF | Variance | Funds        | FYSF         | Variance    |
| 1.3 Spent Nuclear Fuel<br>WM01 Operating<br>Line Item | \$ 187,860           | \$ 187,860        | \$ -        |             |      |          | \$ 16        | \$ 16        | \$ -        |
| <b>Total Spent Nuclear Fuel Operating</b>             | <b>\$ 187,860</b>    | <b>\$ 187,860</b> | <b>\$ -</b> |             |      |          | <b>\$ 16</b> | <b>\$ 16</b> | <b>\$ -</b> |
| <b>Total Spent Nuclear Fuel Line Item</b>             |                      |                   |             |             |      |          | <b>\$ 16</b> | <b>\$ 16</b> | <b>\$ -</b> |

\* Control Point

## ISSUES

### Technical Issues

**Issue:** Nothing to report at this time.

**Impacts:** None.

**Corrective Action:** None at this time.

### Regulatory Issues

**Issue:** CSB Operations — The Washington State Department of Health (WDOH) agreed to interim operating conditions that will allow the CSB to receive spent nuclear fuel prior to replacement of two backdraft dampers on the main ventilation exhaust system that do not meet the American Society of Mechanical Engineers (ASME) N509 code.

**Impacts:** WDOH also agreed to a number of deviations with stipulated conditions from the N509 code for operation of the CSB.

**Corrective Action:** The CSB backdraft dampers were successfully replaced and tested on January 12, 2001, which is ahead of the February 13, 2001 deadline. Closure documentation was submitted to RL in response to this issue. *(No further status to be provided.)*

### External and DOE Issues and DOE Requests

**Issue:** Nothing to report.

**Impacts:** None at this time.

**Corrective Action:** None at this time.

## BASELINE CHANGE REQUESTS CURRENTLY IN PROCESS (\$000)

| PROJECT CHANGE NUMBER | DATE ORIGIN. | BCR TITLE  | FY01 COST IMPACT \$000 | S C H | T E C H | DATE TO FH CCB | CCB APR'VD | RL APR'VD | CURRENT STATUS                 |
|-----------------------|--------------|--|------------------------|-------|---------|----------------|------------|-----------|--------------------------------|
| SNF-2001-003          | 11/13/00     | SNF Alternate Fuel Transfer Strategy                               | N                      | Y     | Y       | 12/6/00        | 12/6/00    |           | Cancelled; other options being |
| SNF-2001-004          | 11/14/00     | WM02/CP02 Revision Planning Basis - Continuing CSB Operations      | N                      | Y     | N       | 1/3/01         | 1/3/01     |           | Awaiting RL approval.          |
| SNF-2001-007          | 12/1/00      | FY01 Carryover Budget and Funds Reconciliation                     | 3587                   | Y     | Y       | 1/29/01        | 1/31/01    | NA        | Approved                       |
| SNF-2001-010          | 1/15/01      | FY01 Base Ops Reduction Budget Reconciliation                      | -3855                  | N     | N       | 1/26/01        | 2/9/01     |           | Awaiting RL approval           |
| SNF-2001-011          | 1/17/01      | FY01 Cost Savings and Budget Reconciliation to Funding Limitations | -603                   | N     | Y       | 1/24/01        | 2/9/01     | NA        | Approved                       |
| SNF-2001-012          | 2/9/01       | Fuel/Sludge Processing Improvements                                | N                      | Y     | Y       | 2/21/01        | 2/21/01    |           | Pending RL approval            |

| ADVANCE WORK AUTHORIZATIONS |  |                    |  |  |  |  |  |  |  |
|-----------------------------|--|--------------------|--|--|--|--|--|--|--|
|                             |  | Nothing to report. |  |  |  |  |  |  |  |

## KEY INTEGRATION ACTIVITIES

- Spent Nuclear Fuel (SNF) final disposition interface activities, including Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance (QA) Program implementation, are ongoing with the National SNF Program.
- The SNFP and Waste Management Project continued preparations for Shippingport (PA) Pressurized Water Reactor Core 2 SNF removal.
- The SNFP and the River Corridor Project interfaced on contracting strategies and records management for 324 Building (B Cell) SNF removal. SNFP reviewed and approved River Corridor Project Technical Specification for light water reactor SNF storage systems.
- Neutron Radiography Facility Training Research and Isotope Production General Atomics (TRIGA) and Fast Flux Test Facility (FFTF) SNF relocation planning is ongoing with the FFTF Project.