



Section J

Plutonium Finishing Plant

PROJECT MANAGERS

P.M. Knollmeyer, RL
(509) 376-7435

G.W. Jackson, FH
(509) 373-6622

SUMMARY

The Plutonium Finishing Plant (PFP) consists of Project Baseline Summary (PBS) RL-CP03, Work Breakdown Structure (WBS) 3.3.3.

NOTE: The Safety, Conduct of Operations, milestone table and Cost/Schedule data contained herein is as of December 31, 2001. Other information is updated as noted through January 21, 2002.

Fiscal-year-to-date milestone performance (EA, DOE-HQ, and RL) shows that one milestone was completed and one FY 2001 milestone is overdue. Further details can be found in the milestone list.

NOTABLE ACCOMPLISHMENTS

Maintain Safe & Secure SNM WBS 3.3.3.1

The annual International Atomic Energy Agency (IAEA) annual Physical Inventory Verification (PIV) was completed December 21 without anomaly. The Material Balance Area (MBA) 213 bi-monthly inventory was completed. A fuel pin was received from GE Vallecitos that assists completing in their deinventory. Protected Area reconfiguration work remains on hold pending new threat guidance from RL.

Maintain Safe and Compliant PFP WBS 3.3.3.2

Submitted the closure documentation for the 2736-ZB fire Justification for Continued Operation (JCO). The 2736-ZB Stabilization and Packaging Equipment Final Safety Analysis Report was submitted December 26th to RL for approval. The seismic Unreviewed Safety Question Justification for Continued Operation was also submitted to RL for approval. Prepared a National Environmental Policy Act (NEPA) Categorical Exclusion (CX) for receipt of Vallecitos fuel. Provided responses to Washington Department of Health's (WDOH's) follow-up questions and document requests related to WDOH's Level II Inspection of PFP stacks. Assisted Johnson Control Inc. with Ecology Level II inspection of PFP's package boilers. Provided input to Hanford Site Quarterly Portable Temporary Radioactive Air Emission Unit (PTRAEU) report. Provided draft letter to RL, EPA, and WDOH for obtaining approval for the 291-Z-1 sample probe replacement activities. Confirmed all environmental permitting was in place to allow the construction and operation of the new entry control point for 2736-ZB. Provided PFP input to Hanford Site CY 2001 Land Disposal Restriction (LDR) Report's Potential Mixed Waste Table. Provided PFP's input to the Hanford Site's annual estimate of planned CY 2002 asbestos removal activities (i.e., annual Hanford Site Notification of Intent (NOI) to the Benton Clean Air Authority (BCAA) for CY 2002 planned asbestos removal activities). Performed 1,990 surveillance activities for the month of December. Transferred solutions from Tank D-8 to the D-5 Tank. The chemical adjustment was completed on Tank D-5 and samples taken. The 222-S Laboratories are processing the samples.

Stabilization of Nuclear Material WBS 3.3.3.3

Residues — During December 2001, fifty-nine (59) POCs of Hanford Ash were shipped to the Central Waste Complex (CWC). Additionally, 55,159 grams were packaged in forty-five (45) Pipe Overpack Containers (POCs). Six Rocky Flats ash Nondestructive Assay (NDA) batch reports and two Pu/Al alloys NDA batch reports were validated. Another thirteen (13) Rocky Flats NDA batch reports are in the validation process. One Rocky Flats ash Visual Examination (VE) batch report and the Pu/Al alloys VE batch report were validated. Procurement of one hundred and nine Pipe Overpack Containers (POCs) were ordered; fifty-two (52) will be delivered the end of January and another fifty-seven (57) will be delivered the end of February. The Acceptable Knowledge (AK) package, ALARA assessment and informational briefing for SS&C feed shift were completed. The Standard Startup Review for Sand, Slag and Crucible (SS&C) processing was initiated. The Carlsbad Field Office (CBFO) and Environmental

Protection Agency (EPA) surveillance of the NDA and Visual Examination (VE) technique was successfully completed. It is expected that both NDA and VE processes at PFP will be certified. There will be one Corrective Action Report (CAR) and two observations from the surveillance. Also, the surveillance will be held open until the review of the replicate NDA runs is complete.

Solutions ¾ The Solutions Stabilization Project processed 392 liters during December. This included 350 liters through the direct discard process and 42 liters through the oxalate precipitation process. The direct discard plutonium solutions processing campaign (total of 930 liters) was completed on December 28, 2001. Completion of this campaign allowed the Direct Discard team to again focus attention to chemical vulnerabilities. Processing of the product nitrate solution family through the oxalate precipitation was completed January 14, 2002. Criticality Mass Lab (CML) solution processing was then initiated January 14, 2002 and experienced better than expected filtrate losses. The contract to date schedule variance improved by twenty-three percent during the month of December 2001.

Project W-460 ¾ The final phase of Project W-460 construction of the new security entrance into the 2736-ZB building continues. Project completion is expected in the February-March timeframe. Project W-460 was delayed due to a Non Conformance Report (NCR) that was issued against a concrete installation during fabrication of the security entrance wall sections. All issues have been resolved and the NCR has been closed.

Thermal Stabilization & Bagless Transfer System (BTS) ¾ Since the initiating of the hot start on November 29, 2001, SPE operations continue to be executed through a pre-approved start up plan. To date, both the equipment and personnel have performed without incident. Twenty BTC containers were welded and twenty-three furnace runs were completed. A total of 462 BTCs have been made thus far. Thermal treatment of MgOH₂ stored in the RMC line was initiated utilizing available furnace capacity while still giving full support to solutions precipitation, stabilization, and packaging. All criticality analysis and criticality safety specifications needed to process polycubes have been completed and issued. Operator training for polycube processing was completed. Initial testing of the chloride treatment system at PNNL showed promising results with further testing scheduled for January.

Disposition of Nuclear Material WBS 3.3.3.4

Obtained the necessary information and began assembly of the Nuclear Materials Inventory Assessment report for all Fluor Hanford Special Nuclear Materials. The final classified report is on schedule for delivery to RL January 15, 2002. Thermal calculations, to verify that Pu packages would not exceed the thermal heat specification, continued being performed this month. Wattage calculations for 242 polycube items were submitted in early January. Also, received a request to provide weight fraction wattage calculations for the items, which had previously had thermal calculations provided. Consequently, weight fraction wattage calculations were provided for about 600 items. Produced a literature study providing complex wide reported densities for plutonium oxide. Incorporated the latest particle size distribution data from LANL into a draft document on plutonium respirable fraction. Existing PFP drawings were utilized to develop pipe tunnel sketches for the PFP Legacy Waste subproject.

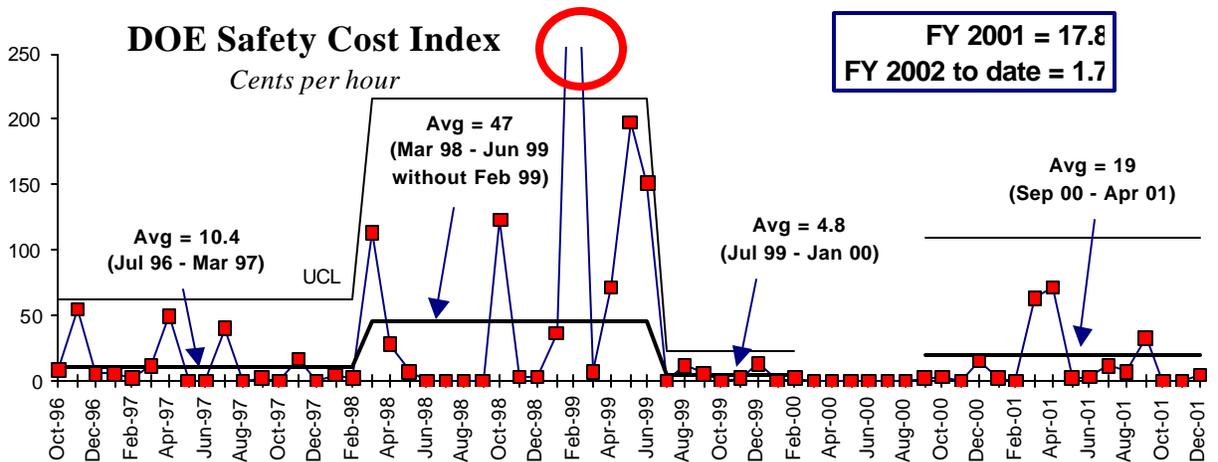
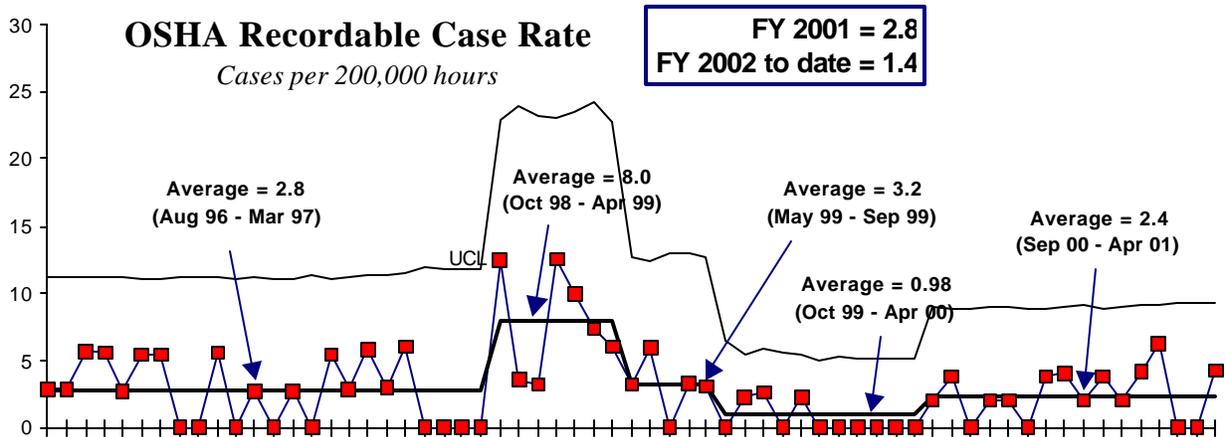
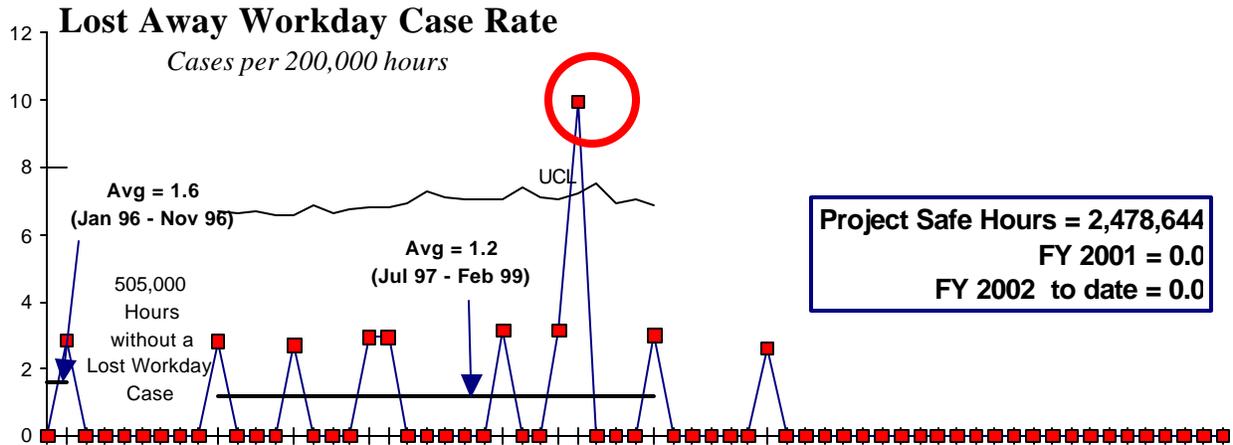
Disposition PFP Facility WBS 3.3.3.5

Development of key decision logic for PFP decommissioning continues. Phase I of the DOE-HQ sponsored "Alternate SNM Storage Study" is nearing completion and is expected to be delivered to RL and DOE-HQ in mid January. RL representatives were briefed on the definition of baseline legacy holdup and approach to achieving the Protected Area Reduction goal. Discussions were held with a local vendor viability of using CO₂ blasting and vacuuming to remove legacy plutonium holdup from the Plutonium Reclamation Facility (PRF) canyon floor. The 241-Z-361 Tank Characterization Report was delivered to RL on Wednesday, January 3, 2002 for subsequent transmittal to the Environmental Protection Agency (EPA) that will regulate the tank remediation effort.

SAFETY

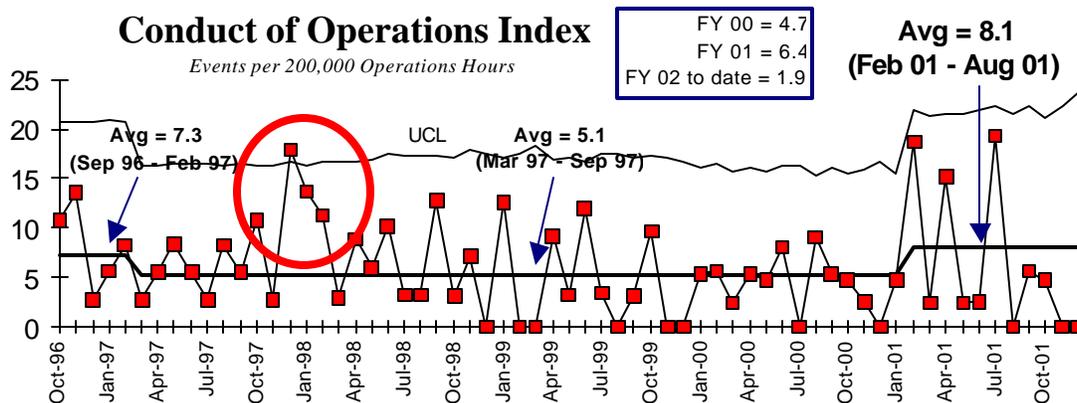


Through December 31, 2001 there were 758 calendar days (approximately 2.5 million staff hours) since the last recorded lost workday injury. There has however, been an increase in the OSHA recordable case rate. Management has increased its presence in the field during all shifts to address this recent trend.



CONDUCT OF OPERATIONS

The Hanford Environmental Health Foundation (HEHF) provided a stress management presentation to PFP employees on January 23, 2002. Additionally, an all day production pause was held January 25, 2002 to reemphasize safety and housekeeping



BREAKTHROUGHS / OPPORTUNITIES FOR IMPROVEMENT

Breakthroughs

Process Improvement ¾ The Criticality Safety Representative (CSR) has proposed that a new Criticality Safety Evaluation Report (CSER) be issued which will be a significant process improvement. The new CSER will eliminate the requirement for spacing between Isolated Transportation Containers (ITR) for single layer floor storage.

Potential Packaging Modification ¾ Plant staff is currently evaluating the possibility that much of the mixed oxide (MOX) originally planned for 3013 containerization may be disposed of via the Pipe and Go process.

Opportunities for Improvement

Sampling Analysis — Over 500 items of oxides, originally thought to require thermal stabilization and packaging, have been selected for discard as a result of investigations into their plutonium content. The database from which the original stabilization inventory was developed omitted the net weights for these items. However, a more in depth investigation revealed them to contain less than 30-weight percent Pu.

UPCOMING ACTIVITIES

Complete repackaging of Hanford Ash in late January 2002.

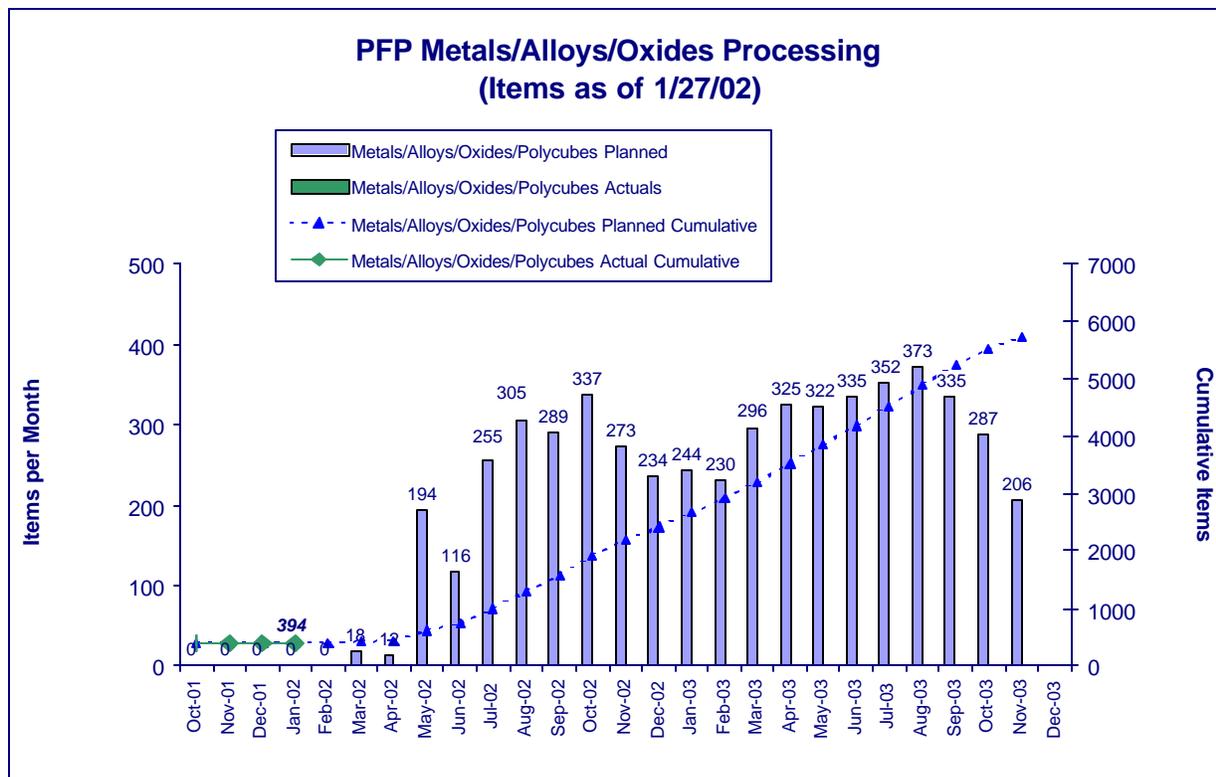
The final phase of W-460 construction is underway with the construction of the new security entrance into the 2736-ZB building. The anticipated construction completion date is in the February-March timeframe. Project W-460 was delayed due to a Non Conformance Report (NCR) that was issued against a concrete installation during fabrication of the security entrance wall sections. All issues have been resolved and the NCR has been closed.

MILESTONE ACHIEVEMENT

Number	Milestone Title	Type	Due Date	Actual Date	Forecast Date	Status/ Comments
TRP-01-501	Package Alloys for disposition to WIPP or stabilize & package per DOE-STD-3013 criteria	DNFSB	06/30/2001		Moisture Measurement Resolution + 60 Days	
TRP-04-505	Hot Startup of the 2736-ZB Stabilization & Packaging System	PI	11/27/2001	11/29/2001	11/29/2001	Complete
TRP-01-500	Complete Stabilization & Packaging of Plutonium Solutions	DNFSB	07/31/2002		10/16/2002	BCR NMS-02-003
TRP-02-501	Complete Stabilization & Packaging of Polycubes	DNFSB	08/31/2002		03/21/2003	BCR NMS-02-003
TRP-02-504	Complete Repackaging & Shipment of Hanford Ash to CWC	TPA	08/31/2002			On Schedule
TRP-04-506	Completion of all PU Stabilization & Packaging	PI Stretch	11/30/2003		02/18/2004	BCR NMS-02-003
TRP-03-500	Complete Stabilization & Packaging of Residues	DNFSB	04/30/2004			On Schedule
TRP-05-500	Complete Stabilization & Packaging of Oxides >30% Pu/U	DNFSB	05/31/2004			On Schedule
TRP-08-500	Dismantlement NEPA/ CERCLA Decision Document Complete	RL	09/30/2005			On Schedule
TRP-06-501	Complete 100% of Legacy Pu Holdup Removal & Disposition	PI Stretch	09/30/2006			On Schedule
TRP-06-502	232-Z & PPSL Annex Demolished to Slab-on-Grade	PI Stretch	09/30/2006			On Schedule
TRP-06-503	Protected Area Reduced to 2736-Z/ZB and Yard Storage	PI Stretch	09/30/2006			On Schedule
TRP-06-504	Relocate SNM Required to Reduce the PFP Protected Area	PI Stretch	09/30/2006			On Schedule

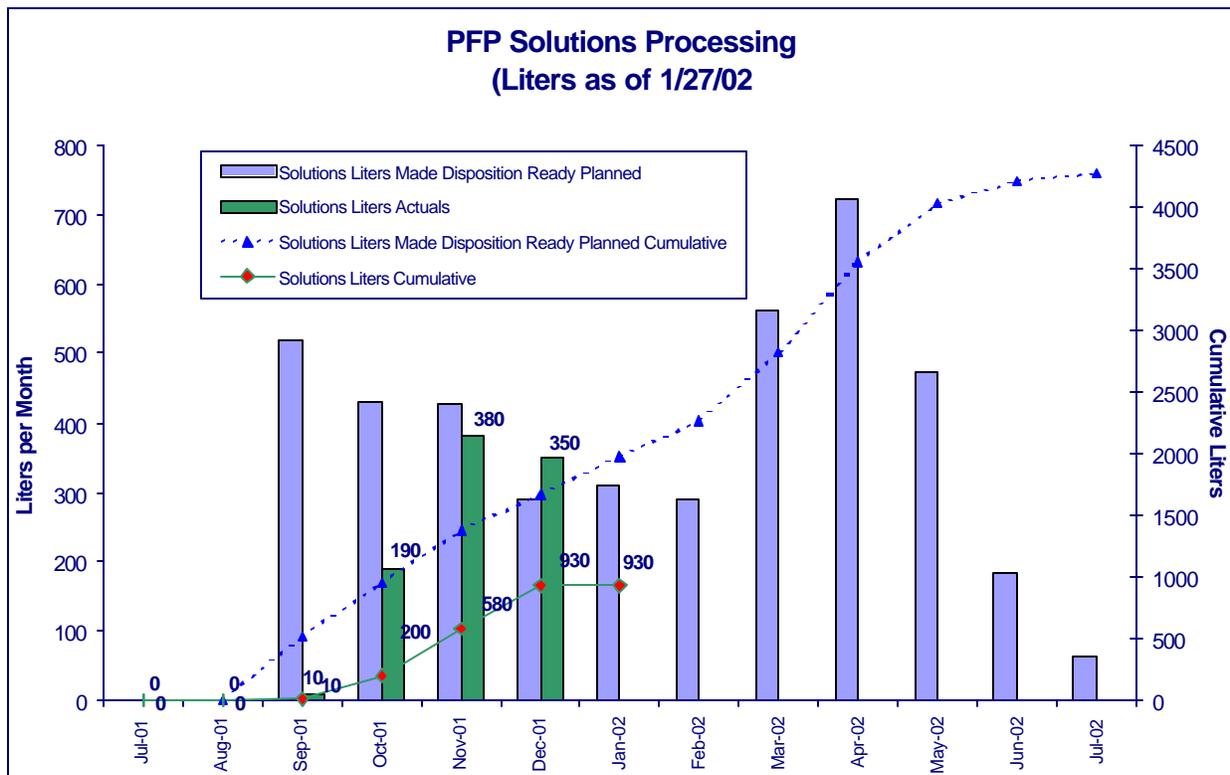
PERFORMANCE OBJECTIVES

METALS/ALLOYS/OXIDES STABILIZATION



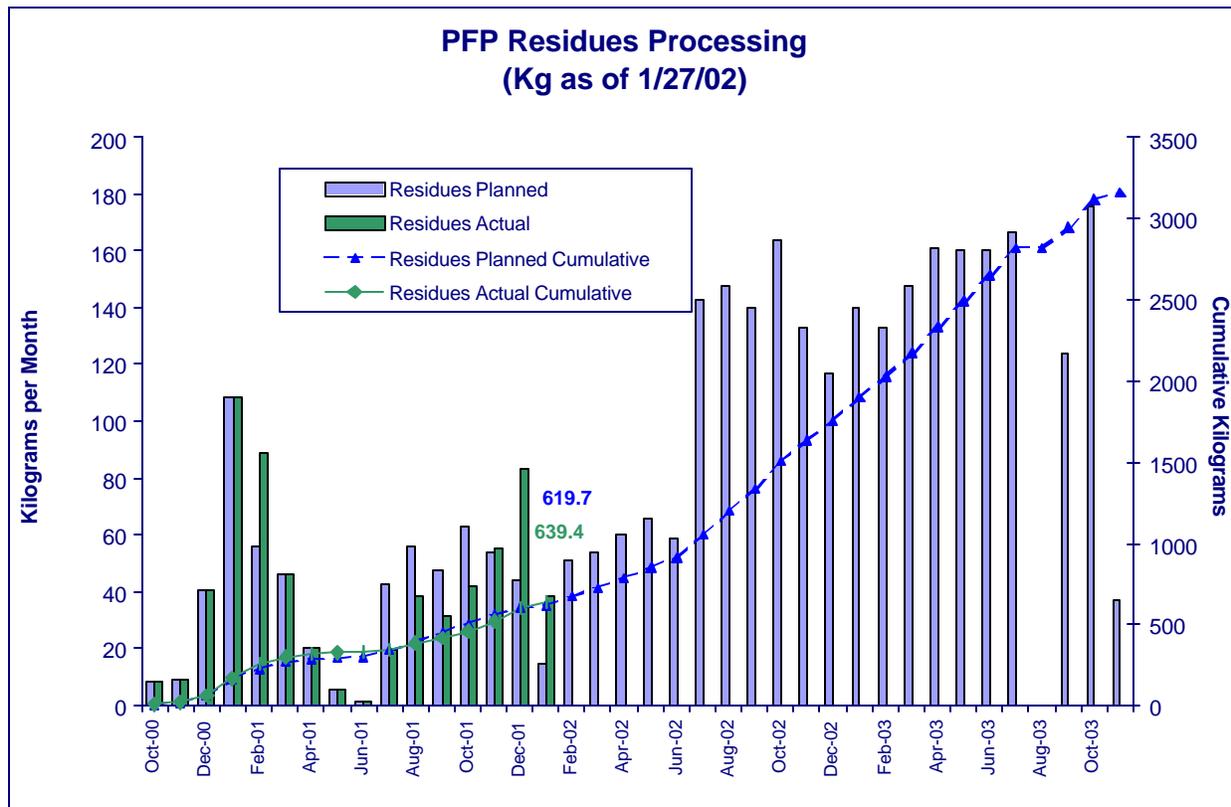
Slightly behind schedule due to the lack of an approved moisture measurement method for impure oxides that prevented the completion of stabilization and packaging of alloys and the thermal stabilization and packaging of magnesium oxide precipitated plutonium solutions.

SOLUTIONS STABILIZATION



Solutions Stabilization is currently behind schedule to the DNFSB milestone completion date of July 31, 2002 due to a lack of an approved moisture measurement system. However, October and November 2001 production rates have shown steady improvement.

RESIDUE STABILIZATION



Hanford Ash processing is currently behind schedule due to intermittent calibration problems with the Segmented Gamma Scan Assay System (SGSAS). Recent production rates indicate repackaging of Hanford ash may be completed in mid to late January 2002.

FY 2002 SCHEDULE / COST PERFORMANCE – ALL FUND TYPES FISCAL YEAR TO DATE STATUS – (\$000)

By PBS	BCWS	BCWP	ACWP	SV \$	CV \$	SV %	CV %	BAC	EAC
Maintain Safe and Secure SNM	1,179.1	982.4	857.5	(196.7)	124.9	-17%	13%	5,211.1	4,639.5
Maintain Safe and Compliant PFP	6,203.8	6,267.8	6,371.0	64.0	(103.2)	1%	-2%	26,544.4	27,756.3
SNM Stabilization	8,299.9	5,863.6	6,071.1	(2,436.3)	(207.5)	-29%	-4%	29,881.4	30,982.1
Disposition SNM	961.8	1,101.6	613.4	139.8	488.2	15%	44%	4,178.9	4,205.4
Disposition PFP Facility	375.5	277.5	83.9	(98.0)	193.6	-26%	70%	1,635.6	1,635.6
PFP Project Management and Support	3,922.0	3,980.3	4,071.9	58.3	(91.6)	1%	-2%	11,099.8	17,878.3
Total:	\$20,942	\$18,473	\$18,069	(\$2,469)	\$404	-12%	2%	\$78,551	\$87,097

FY TO DATE SCHEDULE / COST PERFORMANCE

The unfavorable twelve percent schedule variance is attributable to residue Pipe Over pack Container procurement delays supporting the Residues Stabilization Project, delayed startup of the 2736-ZB SPE due to a change in moisture measurement, and continued resolution of the Outer Can Welder porosity issue.

The favorable two percent cost variance is primarily attributable to a moderate increase in approved staffing levels and concurrent use of overtime. To minimize plant impact, selective overtime was utilized to support fire systems maintenance and safety related tasks as well as for resolution of operational difficulties in the processing areas. Additionally, weld porosity issues with the Outer Can Welder (OCW) that limited outer can production and additional 2736-ZB Stabilization & Packaging (SPE) startup costs due to Project W-460 construction delays are also contributors. Offsetting these additional costs are underruns in the Safe & Secure SNM, Packaging, and Decommissioning areas due to continued staff underruns.

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: (-\$2.5M)

3.3.3.1 Maintain Safe & Secure SNM

Description and Cause: The unfavorable schedule variance is primarily attributable to funding consideration and delays in verifying vendor QA programs supporting the 3013 Canister Monitoring System.

Impact: Impacts associated with the rescope of the Canister Monitoring System are being assessed.

Corrective Action: FH qualification of vendor QA programs has been completed. Cost benefit analysis has resulted in reassessing the benefit of proceeding with the current plan. Current belief will significantly descope this upgrade.

3.3.3.2 Maintain Safe & Compliant PFP

Description/Cause: The current one percent schedule variance is within the reportable threshold.

Impact: None.

Corrective Action: None.

3.3.3.3 SNM Stabilization

Variance cause: The current twenty-nine percent unfavorable schedule variance is attributable to residue Pipe Overpack Container procurement delays supporting the Residues Stabilization Project, delayed startup of the 2736-ZB SPE due to a change in moisture measurement, and continued resolution of the Outer Can Welder porosity issue.

Impact: Thermal drying of $Mg(OH)_2$ has been initiated and will be completed on a capacity available basis. RL has approved these Thermal Gravimetric Analyzers for use in moisture measurement of high purity oxides. These TGAs are expected to be operational in 234-5Z in early March 2002. Use of the TGAs for determining moisture measurement of impure oxides (e.g. alloys) has yet to be approved by RL. There is no impact as a result of the delay in procurement of POCs and only minimal impact to outer can production due to weld porosity issues.

Corrective Action: Two TGA units have been installed as part of Project W460 to replace Super Critical Fluid Extraction system (SFE) as the moisture measurement method in 2736-ZB. TGA systems are also being procured and will be installed in 234-5Z to replace the SFE system. Partial procurement has been placed for one hundred and nine (109) pipe-over pack containers to support residue stabilization with delivery expected in January-February 2002. FH continues to work with Savannah River Technical Center (SRTC) to resolve 3013 container weld porosity issues.

3.3.3.4 Disposition SNM

Description and Cause: The primary cause of the fifteen percent positive variance is attributable to completing FY01 carryover residue storage activities in addition to routine FY 02 planned workscope.

Impact: None.

Corrective Action: None.

3.3.3.5 Disposition PFP Facility

Description and Cause: The twenty-six percent unfavorable variance is primarily attributable to a later than planned transition of staff from Project W-460 and evolving threat guidance from DOE-HQ that has delayed start of FY 2002 workscope.

Impact: None. Now that the Project W-460 2736-ZB stabilization line is operational, additional resources are expected to become available to support Decommissioning workscope.

Corrective Action: None required.

3.3.3.6 PFP Project Management & Support

Description and Cause: The current 1 percent favorable variance is within the reportable threshold.

Impact: None.

Corrective Action: None.

COST VARIANCE ANALYSIS: (+\$0.4M)

3.3.3.1 Maintain Safe & Secure SNM

Description and Cause: The thirteen percent favorable cost variance is attributable to a temporary staff shortage.

Impact: Staffing underruns to date have not impacted scheduled completion of routine work.

Corrective Action: The temporary staff shortage is expected to self-correct in January 2002.

3.3.3.2 Maintain Safe & Compliant PFP

Description/Cause: The two percent unfavorable cost variance is within the reportable threshold.

Impact: None.

Corrective Action: None.

3.3.3.3 SNM Stabilization

Description and Cause: The four percent unfavorable cost variance is within the reportable threshold .

Impact: None.

Corrective Action: None.

3.3.3.4 Disposition SNM

Description and Cause: The forty-four fifty percent favorable cost variance is primarily attributable to efficiently completing work with less than planned staff and late receipt of a contract estimate for update of the Safety analysis report for packaging (SARP).

Impact: None.

Corrective Action: None.

3.3.3.5 Disposition PFP Facility

Description and Cause: The seventy percent favorable cost variance is directly attributable to a temporary staff shortage.

Impact: None.

Corrective Action: The current staff underrun is improving as personnel are becoming available through completion of Project W-460.

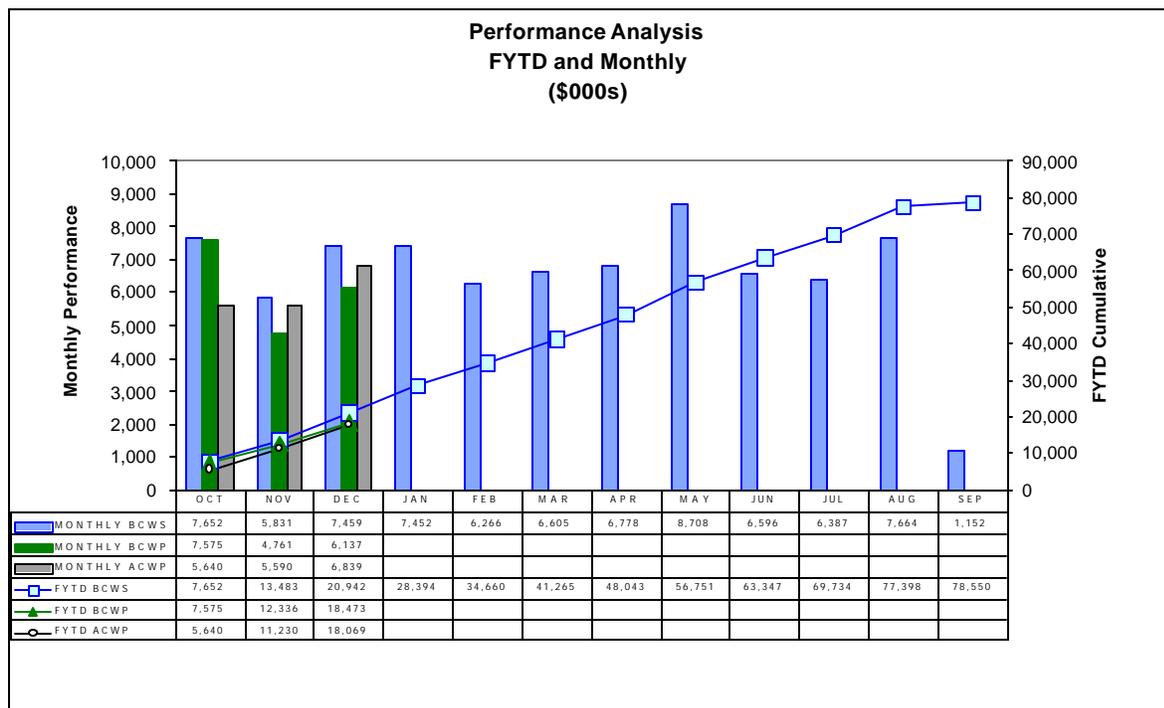
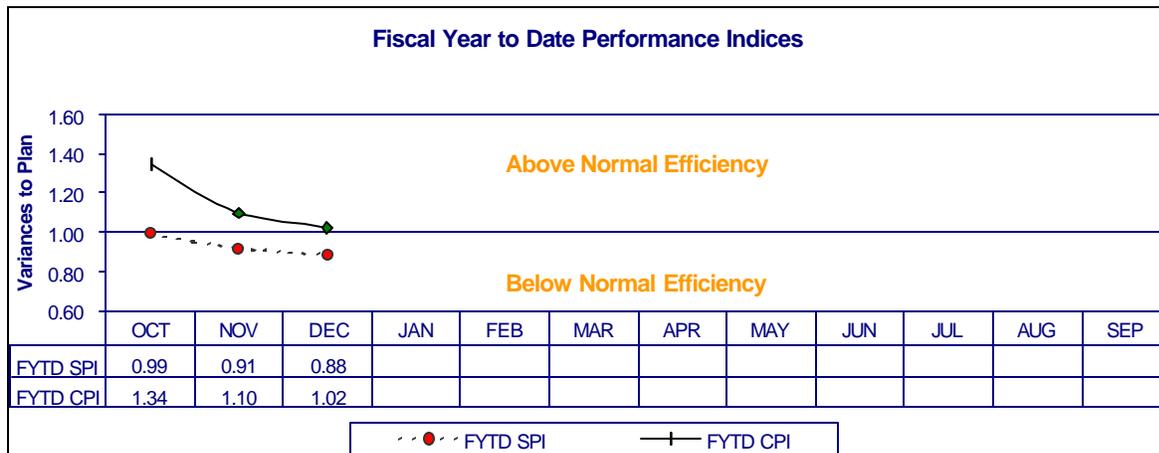
3.3.3.6 PFP Project Management & Support

Description and Cause: The two percent unfavorable cost variance is within the reportable threshold.

Impact: None.

Corrective Action: None.

SCHEDULE / COST PERFORMANCE (MONTHLY AND FYTD)



FUNDS MANAGEMENT

FYTD FUNDS VS SPENDING FORECAST (\$000)

	Expected Funds	FYSF	FH Reallocation	Funds Variance (Expected vs. Reallocation)
3.3.3 Plutonium Finishing Plant				
CP03				
Project Completion - Operating	\$ 73,623	\$ 85,785	\$ 81,891	\$ (8,268)
Line Item	\$ 2,264	\$ 895	\$ 895	\$ 1,369
Total	\$ 75,887	\$ 86,680	\$ 82,786	\$ (6,899)

[Status through December 2001]

NOTE: FH Reallocation reflects an FYSF adjusted for scope deletions, deferrals, and identified savings to address funding shortfalls, additional unplanned scope, and cost increases.

ISSUES

Technical Issues

Issue: Moisture measurement of stabilized oxides via supercritical fluids extraction was disapproved for use by RL. Completion of stabilization and packaging of plutonium alloys and impure oxides is contingent upon installation and testing of alternate moisture measurement equipment.

Impact: As a result, there is no approved method for moisture testing of all the various categories of stabilized oxides. Completion of alloy processing will be completed within 60 days on approval of a moisture measurement method. Analysis is continuing to determine the full impact of this change.

Corrective Action: The Thermogravimetric Analyzer (TGA) has been identified as an alternative plutonium oxide moisture measurement system replacing the Supercritical Fluid Extraction system for pure oxides. To date, two TGAs have been delivered, installed and are operational in 2736-ZB. RL has approved these TGAs for use in moisture measurement of high purity oxides. In addition, the cost and schedule impact due to the absence of an approved moisture measurement methodology for impure oxides is documented in Baseline Change Request NMS-02-003 and is currently in RL approval review. Use of the TGAs for determining moisture measurement of impure oxides has yet to be approved by RL. Three additional TGAs for use in 234-5Z have been procured, delivered and are undergoing testing by plant and vendor personnel. System modification is also underway to provide electrical and compressed gas to these units. These TGAs, to be installed in glovebox HA20-MB, are expected to be available for service in late March 2002.

Issue: The surface weld porosity of 3013 outer containers exceeds American Society of Mechanical Engineer (ASME) Boiler and Pressure Vessel Code, Section VIII standards of .041-inch diameter for isolated pores and .031 inch for pores within one inch proximity.

Impact: A number of 3013 outer containers may need to be repackaged to meet ASME standards.

Corrective Action: Savannah River Technology Center (SRTC) performed testing on the Outer Can Welder (OCW) system. The initial testing identified the chamfer (gap distance between the lid and the 3013 container) as a critical variable that may contribute/cause porosity in the weld. Other factors currently being evaluated are the rotational speed and weld tacking of the OCW. An additional twenty-five can test run will be conducted in early February 2002 with a smaller chamfer to see if this corrects the weld porosity issue.

Regulatory, External, and DOE Issues and DOE Requests

Issue: No other issues identified at this time.

Impact: None at this time.

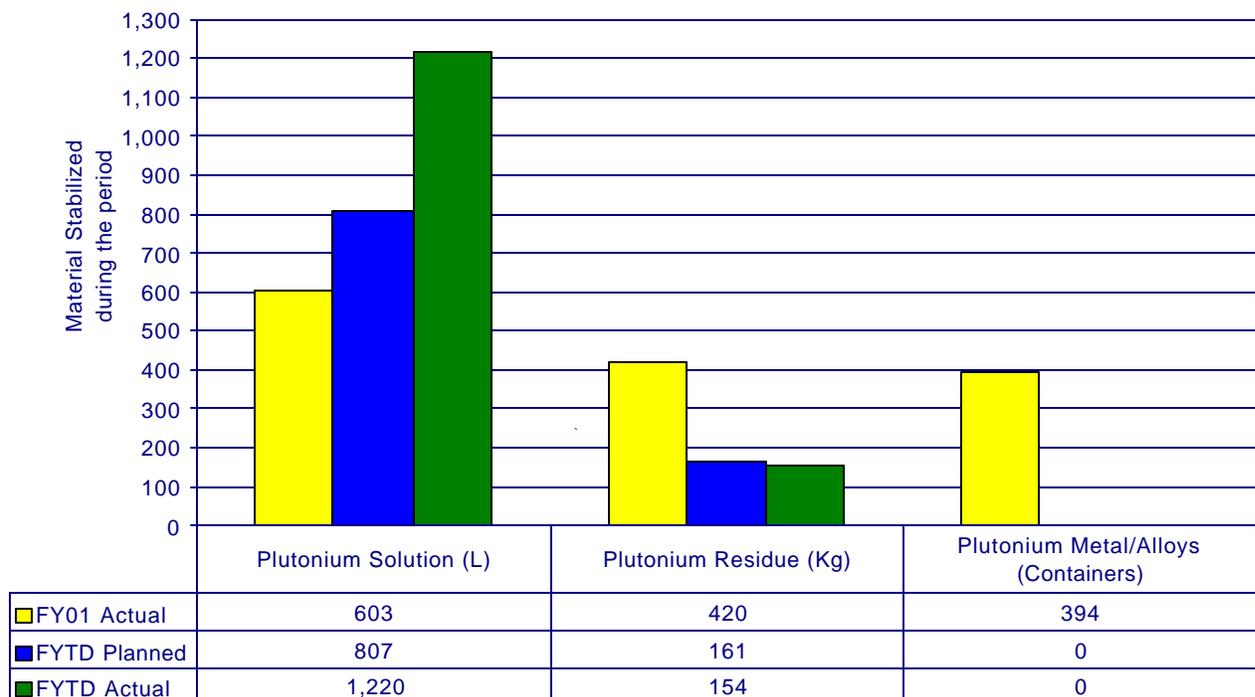
Corrective Action: None at this time.

BASELINE CHANGE REQUESTS CURRENTLY IN PROCESS

Level 4 WBS	BCR No.	Date Originated	Description	Impact		Date Approved	Status
				Days	Dollars (\$000s)		
3.3.3.1 / 3	FSP-01-074	09/18/2001	W-460 Accelerated Closure		664		At DOE
3.3.3.1 / 2 / 3 / 4 / 5 / 6	CP03-02-001	09/30/2001	FY 2002 MYWP Bridge	--	--		At DOE
3.3.3.1 / 3 / 5 / 6	CP03-02-003	11/04/2001	Moisture Measurement Impacts	54	294		At DOE
3.3.3.3	CP03-02-006	11/05/2001	Solutions Milestone	--	--		At DOE
3.3.3.3	CP03-02-009	11/13/2001	Project W-460 TPC Change	--	--		At DOE
3.3.3.2	CP03-02-010	11/13/2001	Revise Maintenance Budget	--	--	12/28/2001	Approved
3.3.3.3	CP03-02-011	12/14/2001	Direct Discard TPA Milestone	--	--		At DOE
3.3.3.3	CP03-02-012	12/14/2001	SS&C TPA Milestone	--	--		At DOE
3.3.3.1	CP03-02-013	01/08/2002	3013 Surveillance System	--	(1,075)		At NMS

NUCLEAR MATERIALS STABILIZED DURING THE CURRENT PERIOD

Nuclear Materials Stabilized During the Current Period



Plutonium Solution: Excellent progress made this quarter do to Direct Discard achieving more liters than planned and oxalate conversion also making excellent progress. Processing remains behind schedule contract to date (i.e., 1,823 liters versus 2,376 liters; plan for FY01 was 1,569 liters).

Plutonium Residues: Within +/- 10% of FY02 plan. Still behind schedule contract to date, but catch back efforts are working. Characterization and equipment calibration have delayed completion of packaging of Hanford Ash.

Plutonium Metal/Alloys: No action planned this quarter (furnaces and canning systems supporting solutions). Lack of moisture measurement method has prohibited completion of alloys to complete FY 01 work scope.