

Strategy for Meeting the Secretary of Energy and Hanford Site FY 2001 Pollution Prevention Goals

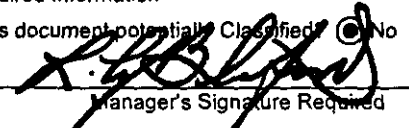
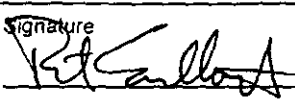
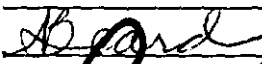
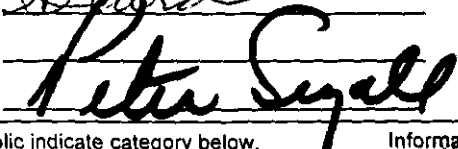
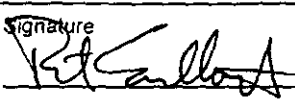
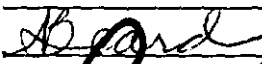
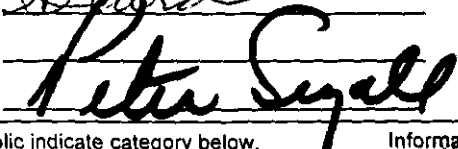
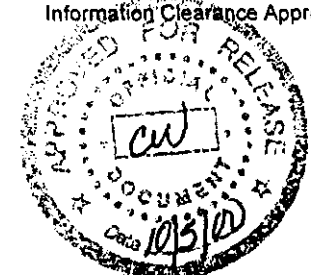
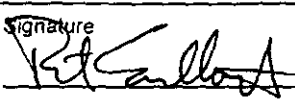
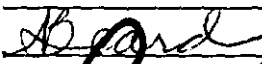
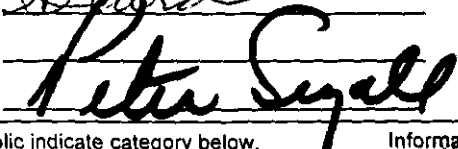
Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200



**United States
Department of Energy**
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Assistant Secretary for Environmental Management

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Strategy for Meeting Goals

Purpose

The purpose of this strategy is to identify the Fiscal Year (FY) 2001 Hanford Site waste reduction, sanitary recycling and affirmative procurement goals and identify the action required to ensure that the Secretary of Energy's FY 2005 pollution prevention and the FY 2001 Hanford Site goals are met.

Background

The Secretary of Energy established pollution prevention/waste minimization (P2/WMin) goals for the U.S. Department of Energy (DOE) Complex including the DOE Richland Operations Office (RL). Achievement of these goals, which use CY 1993 as a baseline year, is required by September 30, 2005. Additional goals have been established for FY 2010. These will be addressed in future strategies. The FY 2005 goals will be used as stepping-stones in achieving the later goals. The goals FY 2005 are for:

Routine Operations*

- Reduce by 80% the generation of Low Level Waste (LLW), and Mixed Low Level Waste (MLLW).
- Reduce by 90% the generation of Hazardous Waste.
- Reduce by 75% Sanitary Waste generation.

Non-Routine Operations**

- Reduce non-routine waste resulting from cleanup, stabilization, and decommissioning activities by 10% on an annual basis using the Hanford Site FY forecast as a baseline.

For All Operations (Routine and Non-Routine)

- Reduce releases of toxic chemicals subject to the Chemical Release Inventory reporting by 90 % by FY 2005.
- Recycle 45% of sanitary waste.

For Affirmative Procurement

- Increase purchases of U.S. Environmental Protection Agency (EPA)-designated items with recycled content to 100 percent, except where they are not commercially available at a reasonable price or do not meet performance standards.

***Routine Operations Waste** – *Normal Operations waste produced from any type of production, operation, analytical and/or Research and Development (R&D) laboratory operations; treatment, storage, disposal operations, 'work for others', or any other periodic and recurring work that is considered ongoing in nature. 'Normal Operations' refers to the type of on-going process (i.e., production, R&D, etc), not the specific activities that produced the waste. Periodic laboratory or facility cleanups that occur as a result of these processes are also considered normal operations.*

****Non-Routine Operations Waste** – *Non-routine operations includes environmental restoration of contaminated media (soil, groundwater, surface water, sediments, etc.), stabilization of nuclear and non-nuclear (chemical) materials, and deactivation and decommissioning (including decontamination) of facilities.*

Non-routine operations waste consists of one-time operations waste produced from environmental restoration activities, including primary and secondary wastes associated with retrieval and remediation

Strategy for Meeting Goals

operations, "legacy wastes", and wastes from decontamination and decommissioning/transition operations. It also includes all Toxic Substances Control Act of 1976 (TSCA) regulated wastes, such as polychlorinated biphenyl-contaminated fluids or equipment (TSCA).

Non-routine operations activities that generate wastes do not necessarily occur at a single point in time, but may last for several years while producing wastes. By definition, these activities are not considered to be routine (periodic and/or on-going), because the waste is a direct result of past operations and activities, rather than a current process. Newly generated wastes that are produced during these "one time operations" are considered a secondary waste stream, and are separately accounted for whenever possible. This secondary (newly generated) waste usually results from common activities such as handling, sampling, treatment, repackaging, shipping etc.

Cleanup/Stabilization Waste has the same definition as Non-routine operations waste.

Summary

The strategy and plan to ensure that the Secretary of Energy's routine waste reduction, recycling, cleanup/stabilization waste and affirmative procurement goals are met consists of four phases. The first phase is to ensure that the infrastructure is in place to support planning and organization. This phase involves ensuring that roles and responsibilities are identified; requirement documents are current; goals and successes are communicated; and accurate and current waste information is available.

Roles and responsibilities are identified and the RL requirement documents (i.e., the *Hanford Site Waste Minimization and Pollution Prevention Awareness Program Plan* and *Hanford Site Guide for Preparing and Maintaining Generator Group Pollution Prevention Program Documentation*) will specify the Secretary of Energy's goals. Goals will be communicated formally and informally via the Hanford Reach, training sessions, meetings and correspondence. Sharing of pollution prevention successes and goal progress are encouraged at the Pollution Prevention/Waste Minimization (P2/WMin) quarterly meetings. Existing site waste generation databases will be utilized to provide current waste generation data.

The second phase of the strategy and plan is to establish and allocate goals by prime contractor (i.e. Fluor Hanford, Inc. (FH), Pacific Northwest National Laboratory (PNNL), Bechtel Hanford Inc. (BHI), and CH2MHill Hanford Group (CHG). This requires determining current status toward meeting the Secretary of Energy's goals; establishing the Hanford Site FY goals, and allocating waste reduction goals by prime contractor.

The third phase of the strategy and plan is goal implementation. This phase involves the identification and implementation of corrective actions for problem areas identified either during the development of the Hanford Site goals or during monthly monitoring of the goals. Areas of concern identified during the development of the goals were the Mixed Low Level Waste (MLLW), Hazardous, and cleanup waste goal.

The fourth phase of the strategy and plan is measuring results. This phase consists of:

- Measuring Results
 - Development of performance measures
 - Reporting progress quarterly

The performance measures have been developed for the tracking of the waste reduction, sanitary recycling, affirmative procurement, and toxic chemical release goals. The first quarter performance measures tracking the recommended goals will be issued by January 31, 2001.

These goals are considered only targets and are not contractual commitments provided to each Prime Contractor.

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PHASE 1-PLANNING AND ORGANIZATION**Roles and Responsibilities**

RL manages FH, PNNL, and BHI contracts and is responsible for ensuring the Secretary of Energy's goals are met. The Office of River Protection (ORP) manages the CHG contract and is responsible for ensuring the Secretary of Energy's goals are met. RL has the primary responsibility for implementing P2/WMin on the Hanford Site and provides the interface with ORP. FH has the role to make the contractors aware of the requirements; measure and track progress, and notify RL of issues and corrective actions. The Hanford Environmental Health Foundation (HEHF) is responsible for meeting the affirmative procurement goal only.

FH has assigned the Waste Management Project the responsibility for coordinating the Hanford Site Pollution Prevention Program and the lead responsibility for implementing the FH P2/WMin Program.

The Waste Management Project has been assigned responsibility for developing the strategy and plan for implementing the Secretary of Energy's goals, developing and recommending goal allocations, assisting the FH contractors in meeting the goals, and monitoring and reporting the progress of the prime contractors and the FH contractors toward meeting the goals.

The prime contractors (i.e. FH, PNNL, CHG and BHI) are responsible for meeting their share of the Secretary of Energy's goals and developing and implementing their strategy for meeting the goals. The FH projects are responsible for initiating the appropriate actions for meeting the goals assigned.

Requirement Documents

The Hanford Site requirements for a pollution prevention program are addressed in RL documents. The Secretary of Energy and RL goals are appropriately addressed in the RL *Hanford Site Waste Minimization and Pollution Prevention Awareness Program Plan* and the *Hanford Site Guide for Preparing and Maintaining Generator Group Pollution Prevention Program Documentation*. The *Hanford Site WMin and P2 Awareness Program Plan* also specifies that the prime contractors update their Implementation Plans for meeting the goal requirements. The goal setting process in the *Hanford Site Guide for Pollution Prevention Documentation* specifies that routine and non-routine waste generators consider the Secretary of Energy's goals and contractor goals when establishing annual waste reduction goals.

Communication of Goals/Information Exchange

The Secretary of Energy's goals will be communicated both formally and informally. They will be addressed formally to all employees through an article in the Hanford Reach addressing the Secretary of Energy's goals and the FY 2001 Hanford Site P2/WMin goals. Future Hanford Reach articles or a similar method of communication to prime contractor employees will address progress toward the meeting of these goals.

The goals will be addressed in pollution prevention training presentations and Site P2/WMin quarterly meetings where all prime contractors, subcontractors, and RL P2/WMin representatives are invited to attend and to whom the meeting minutes are distributed. The P2/WMin quarterly meetings will be utilized as a forum for P2/WMin representatives to share pollution prevention successes and goal progress. This information sharing is encouraged in order to transfer waste reduction opportunities and savings to other facilities or contractors.

Discussions are being held with PNNL, CHG, and BHI relative to the FY 2001 Hanford Site goals and their ability to meet the recommended goal allocations. To ensure that prime contractor management and FH contractor P2/WMin representatives are aware of the FY 2001 Hanford Site goals, a letter will be sent to all FH P2/WMin contractor representatives and the prime contractor management by October 30, 2000.

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Data Source Analysis

It is important that accurate, timely and current data is available to evaluate the goal status. Three data sources provide the waste generation data for the Hanford Site. The Solid Waste Inventory and Tracking System (SWITS) database provides the waste generation for radioactive and hazardous waste (except for PNNL hazardous waste and radioactive waste), the Sanitary Waste Generation (SWG) database, which is utilized for identifying contractor sanitary waste generation, and the PNNL Hazardous and Radioactive Waste Generation database.

These databases are considered adequate and were utilized to provide the waste generation data to determine current status of the prime contractor or FH contractor/subcontractor toward meeting the Secretary of Energy's goals. As required, manual corrections will be made to the SWITS to delete liquid waste quantities identified. This will allow for a more accurate accounting of solid waste generation quantities. Questions related to categorization of waste as routine or non-routine will be resolved with the waste generator and upon agreement the SWITS database will be corrected.

PHASE 2-GOAL SETTING

Current Status and Recommended Goals

Waste Reduction Goals

For FY 2000 the Hanford Site waste reduction goals are to meet a 5% reduction from the FY 1999 baseline for MLLW, LLW, and hazardous waste. Affirmative Procurement goal of 100% was established as well as a 33% sanitary recycling goal. Specifically the goals are as follows:

•	MLLW	- 138.62 m ³
•	LLW	- 469.37m ³
•	Hazardous waste	- 44.98 mt
•	Sanitary waste recycling	- 33%

The Secretary of Energy's goals for FY 2005, issued in November 1999, have not been incorporated into the Hanford Site Contractors contracts.

Beginning in FY 1999, the Secretary of Energy established a goal calling for a 10% reduction of waste generated from cleanup, stabilization, and decommissioning activities. This waste reduction goal applies to all EM-funded projects. The baseline for the goal will be the total volume projected from all restoration/stabilization projects implemented annually. Exclusions from this baseline include primary wastes such as landfill debris or contaminated soil and groundwater as well as all treatment, storage and disposal activities associated with spent nuclear fuel and high level waste. Specific guidance for the cleanup, stabilization and decommissioning 10% waste reduction goal including waiver and exemption are provided in "Final Guidance Document for Department-Wide Waste Reduction Goal (Cleanup, Stabilization and Decommissioning Activities Waste Reduction Goal Guidance Document June 2, 1999)."

The Hanford Site has surpassed the Secretary of Energy's sanitary waste recycling goal of 45% since FY 1999. The meeting of this goal in FY 2001 is expected to continue.

The Hanford Site currently meets the FY 2005 Secretary of Energy Goals for waste reduction for LLW and Sanitary waste. Meeting these goals is expected to continue. Table 1 presents a summary of the FY 2005 Hanford Site P2/Wmin goals.

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Table 1 Hanford Site P2/WMin Goals

	1993 Hanford Site Baseline	FY 2001 Hanford Goal	FY 2005 Secretary of Energy Hanford Goal	FY 1999 Hanford Status (Quantity/% Reduction)
LLW (m ³)*	3867	418.45*	773.4	494.08/87.2%
MLLW (m ³)	498	130.96	99.6	145.92/70.7%
Hazardous (mt)	218	38.91	21.8	47.33/78.3%
Sanitary (mt)*	7124	1692*	1781	657.23/91.8%
Toxic Chemical Release (lbs)**	14	0	0	0/100%
Sanitary Waste Recycling	Not applicable-Annual Goal Only	45% (maintain current level)	45%	86.09%
Affirmative Procurement	Not applicable-Annual Goal Only	100%	100%	98.8%
Clean-up Waste Non-routine	19257 m ³ Forecast	17331.3	Annual Goal	Annual Number

* LLW, and Sanitary waste generation currently meet the Secretary of Energy's Goals for waste reduction by FY2005. The table above indicates these. They should be maintained and further reductions should be allocated. Goals for FY2001 are based on a 5% reduction from the FY2000 goals established in November 1999 or the contractors share of the goal whichever is greater. The Clean-up/Stabilization waste reduction goal is established based on annual forecast waste numbers for the Hanford Site. This waste represents a 10% reduction of the forecast amount. **Releases have not exceeded any toxic release limits.

Waste Reduction Goal Allocation Methodology

The Hanford Site currently has four Prime Contractors (Fluor Hanford (FH), Bechtel Hanford Incorporated (BHI), Pacific Northwest National laboratory (PNNL), and CH2MHill Hanford Group (CHG). The recommended distributions of the Secretary's goals are detailed in Table 2 below. The prime contractor (FH, CHG, and PNNL) goals for waste reduction for LLW, MLLW, Hazardous Waste and Sanitary Waste correspond directly to the Secretary of Energy's goal for reduction by FY 2005. The prime contractors are responsible for meeting their share of the Secretary of Energy's goals (based on their 1993 baseline data) and developing and implementing their strategy for meeting the goals.

To allow flexibility for fluctuations in contractor waste generation quantities, a methodology for allocating goals was developed. The contractor waste reduction goals are presented as waste generation ceilings. The ceiling identifies the maximum waste generation quantity, allowable by contractor, in order to meet the recommended Hanford Site FY 2001 waste reduction goals. Based on these ceilings, the Secretary of Energy's routine waste reduction goals are the Hanford Site goals for FY 2001. The ceilings are targets and are not meant for stopping work or waste shipments on site.

Strategy for Meeting Goals

During the goal allocation methodology process, the prime contractors are consulted as to their capability in meeting the recommended FY 2001 goals. Table 2 presents the recommended goal allocations by prime contractor, which were developed using this methodology.

Also, included in Table 2 is the recommended sanitary waste recycling goal of 45% (the Secretary of Energy's goal) for FY 2001. The sanitary waste-recycling goal is a site goal only. Since the FH recycling quantities include PNNL, CHG, and BHI recycling information, which are not currently tracked separately by contractor, a waste recycling percentage for each contractor cannot be presented.

In several instances, various prime contractors have met their obligation for reducing separate waste streams for the Secretary's FY 2005 Ceiling. In these instances the goals were established based on a 5% reduction per annum. The affirmative procurement goal, for each of the aforementioned prime contractors, and the Hanford Environmental Health Foundation (HEHF) is 100%. Additionally, since the waste reduction for non-routine forecast waste (cleanup waste) is not tracked to a level amenable to identify prime contractors, it is a site goal only.

Table 2 – Hanford Site and Prime Contractor Goals for FY 2001

Waste Type			FH		FH		PNNL		PNNL	
	FY 1993 Hanford Baseline	FY 2001 Hanford Site Goal	FY 1993 Base.	FY 1999 Gen.	FY 2000 Goal	FY 2001 Goal	FY 1993 Base.	1999 Gen.	FY 2000 Goal	FY 2001 Goal
LLW m ³	3867	418.45	2940.2 9	187.85	178.46	169.1	747.56	126.71	120.37	114.35
MLLW m ³	498	130.96	217.52	49.76	47.27	44.90	34.84	20.59	19.56	17.86
Hazardous mt	218	38.91	191.73	6.13	5.82	5.52	17.26	40.59	38.56	32.82
Sanitary mt	7124	1692	-	441.03	-	419	-	106.58	-	101.2
Sanitary* Diversion %	-	45%	-	33%	33%	45%	-	33%	33%	45%
Non routine clean up	NA	1925.7 Set Annually	NA	-	NA	-	NA	-	NA	-

NA = Not Applicable

*LLW currently meets the FY2005 ceiling by DOE. Goals represent the maximum of either a 5% per year reduction of waste or the contractor responsibility.

MLLW and Hazardous goals were apportioned based on individual Prime Contractor FY1993 data or a 5% reduction.

Strategy for Meeting Goals

Table 2 – Hanford Site and Prime Contractor Goals for FY 2001 (Continued)

Waste Type			BHI		BHI		CHG		CHG	
	FY 1993 Hanford Baseline	FY2001 Hanford Site Goal	FY 1993 Base.	FY 1999 Gen.	FY 2000 Goal	FY 2001 Goal	FY 1993 Base.	1999 Gen.	FY 2000 Goal	FY 2001 Goal
LLW m ³	3867	418.45	NA	NA	NA	NA	278.41	179.51	170.53	135
MLLW m ³	498	130.96	NA	NA	NA	NA	245.58	75.57	71.79	68.20
Hazardous mt	218	38.91	NA	NA	NA	NA	9.07	0.63	0.60	0.57
Sanitary mt	-	-	-	NA	-	-	-	109.62	-	104.1
Sanitary Diversion %	-	45%	-	33%	33%	45%	-	33%	33%	45%
Non routine clean up	NA	1925.7 Set Annually	NA	-	NA	-	NA	-	NA	-

NA = Not Applicable

*LLW currently meets the FY2005 ceiling by DOE. Goals represent the maximum of either a 5% per year reduction of waste or the contractor responsibility.

MLLW and Hazardous goals were apportioned based on individual Prime Contractor FY1993 data or a 5% reduction.

Toxic Chemical Releases Goal

The goal is to reduce the total releases and off site transfer of toxic chemicals 90%. In CY 1993, the only substance reported for toxic release was 14 pounds fugitive releases for chlorine. Discussions were held and it was confirmed with EM-77 that other releases of substances subsequent to 1994 (excluding chlorine) are not applicable. Therefore the goal is a 90 % reduction in chlorine release to 1.4 pounds fugitive releases should continue to be met as in FY's 1995-2000.

Affirmative Procurement Goal

Separate from the waste reduction goals is the goal to increase purchases of U.S. Environmental Protection Agency (EPA)-designated items with recycled content to 100%, except where they are not commercially available at a reasonable price or do not meet performance standards.

The RL Procurement Division and the Waste Programs Division share responsibility for ensuring the affirmative procurement requirements are met. The prime contractors will report progress against the goal quarterly to RL and annually to DOE-HQ.

PHASE 3-GOAL IMPLEMENTATION PLAN

At this time the Secretary of Energy's September 30, 2005 waste reduction goals for LLW, and sanitary wastes generated from routine operations have been met and are expected to be met in FY 2005. The same is true for the sanitary waste recycling and the toxic chemical release goals. MLLW, Hazardous waste and

Strategy for Meeting Goals

Non-routine cleanup waste along with affirmative procurement will be the main focus area in FY 2001. Emphasis will be continued on waste reductions in the other areas.

Targeted Areas

During the development of the FY 2001 goals, three goals, MLLW, Hazardous, and Non-routine cleanup waste, were identified with the potential of being impacted if no corrective actions/measures were taken. The first area of concern is the MLLW goal. This will require close monitoring of waste quantities to ensure the goal is met. Monthly reviews to verify proper categorization of MLLW as routine or non-routine will continue. Emphasis will be increased to ensure those inputting data on MLLW shipments into the databases are aware of the routine and non-routine category definitions. As in the past MLLW streams will be targeted for waste minimization assessments and the implementation of Return on Investment (ROI) projects.

The ROI program funding presents, in itself, its own area of concern. Many opportunities to reduce waste streams on the Hanford Site require specific funding in order to implement them. Without dedicated ROI funds, many potential waste reductions may be lost. Support to RL/ORP and DOE-HQ is obtaining additional funding for the ROI Program must be pursued in order to meet the FY 2001 and FY 2005 goals.

The second area of concern is the 90% reduction in Hazardous Waste by 2005. Close monitoring of the Hazardous Waste will be required to ensure the goal is met. Areas of concern are Hazardous Waste generated as a result of the continued cleaning out of chemicals by facilities with respect to the Chemical Management System. Emphasis must be placed on the use of the excess chemical program and the possibilities of chemical substitutions. Monthly reviews to verify proper categorization of waste types as routine or non-routine will continue. Increased emphasis will be placed on targeting Hazardous Waste streams, especially at PNNL, for waste minimization assessments and implementation of ROI projects.

The third area of concern is the reduction of non-routine cleanup waste. This number has been based solely on forecasted waste generation. A performance indicator to track progress with respect to this goal has been established. In addition, increased emphasis will be placed on identifying large contributors to this waste type and targeting them for waste minimization assessments.

Prime Contractors were designated their share of the Secretary of Energy's goals based on the CY 1993 generation for the prime contractor. In several instances, the individual goals for prime contractors were met. They should maintain and attempt to reduce these generation levels. Reduction of 5% was assigned based on FY 1999 generation.

Goal Implementation Plan

To assist prime contractors in meeting their individual goals and to ensure that the Hanford Site FY 2001 P2/WMin waste reduction, sanitary waste diversion, and affirmative procurement goals are met, the following actions will be implemented:

1. Communication of goals to employees and prime contractors.
2. Review of waste generation data monthly and addressing potential problem areas with prime contractors and RL, when applicable (affirmative procurement and sanitary recycling information available quarterly only).
3. RL to request identification and implementation of corrective actions by prime contractors, when applicable.
4. Monthly reviews of the SWITS waste generation database to assure waste is properly categorized as routine or non-routine. Recommend changes as applicable.
5. Issuance of performance measures quarterly.
6. Continued implementation by the Waste Management Project P2/WMin group to:
 - identify the waste streams of the largest waste generators that should be evaluated for P2/WMin opportunities;

Strategy for Meeting Goals

- conduct P2/WMin assessments to identify opportunities for waste reduction;
 - and assist in preparing project proposals to obtain funding for opportunities identified.
7. Continuation by the Waste Management Project P2/WMin group of the hazardous material substitutions program and assistance to waste generators in identifying potential material substitutes.
 8. Obtain funding for potential ROI Projects.

PHASE 4-MEASURING RESULTS

Performance Measures

Performance measures have been developed for the tracking and reporting of low level, mixed low level, hazardous and sanitary waste reduction and sanitary waste recycling goals. In addition, performance measures have been developed for tracking and reporting the toxic chemical release goal and the affirmative procurement goal. These performance measures comply with the performance measures required by the guidance provided in the *DOE Pollution Prevention Program Plan*.

Reporting of Data

The performance measures will be issued 30 days after the end of each quarter (e.g., January 30th, April 30th, July 30th and October 30th, and transmitted to RL and contractor management for information and for the monitoring of progress. In addition, waste generator FY Quarterly Reports will be closely monitored for the reporting of the status of goal progress.

Conclusion

Sanitary waste recycling, affirmative procurement levels, toxic chemical release and Low Level Waste generation are expected to be maintained at current levels to meet or exceed the FY 2005 Secretary of Energy's ceilings. Mixed Low Level Waste, Hazardous Waste and Non-routine cleanup waste must be tracked frequently to assess progress towards meeting the ceilings in FY 2005. Waste streams and ceilings were allocated among the prime contractors based on their CY1993 baseline generation.

The FH P2/Wmin group will work with the prime contractors and affected subcontractors to develop a recommended corrective action plan, if required. RL will be advised of problem areas and will be advised of corrective actions to be initiated as soon as a plan has been developed. Success is dependent upon prime contractors taking ownership of their waste reduction goals and efforts.