[DOE-RL LETTERHEAD]

June 30, 1994

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
Suite 700
625 Indiana Avenue, NW
Washington, D. C. 20004

Dear Mr. Conway:

TRANSMITTAL OF WESTINGHOUSE HANFORD COMPANY DOCUMENTS TITLED "ISSUE PLAN TO UPGRADE LAN L LABORATORY TO READY-TO-SERVE MODE FOR HANFORD SITE ANALYTICAL REQUIREMENTS, INCLUDING ANY NEPA NEEDS," IN ACCORDANCE WITH COMMITMENT 5.10 OF THE DEPARTMENT OF ENERGY IMPLEMENTATION PLAN FOR BOARD RECOMMENDATION 93-5.

The enclosed WHC memo (12000-94-009) dated March 24, 1994, with attached plan has been reviewed and accepted by the Department of Energy, Richland Operations Office (RL). This fulfills the requirement for commitment 5.10. The plan defines the actions and schedules, and costs for readying analytical services at the Los Alamos National Laboratory (LANL) to support characterization of Hanford's high level tank wastes.

A subsequent DNFSB submittal addresses the TWRS strategy for off-site lab utilization, including use of the LANL laboratory. The submittal is part of RL TWRS correspondence 94-OCH-065.

If you have questions please contact me or John M. Clark, Acting Manager of the TWRS Office of Characterization, on (509) 376-2246.

Sincerely,

T. R. Sheridan, Acting Program Manager
Office of Tank Waste Remediation System

Enclosure

cc:

Ken Lang, EM-36, HQ, w/ encl.
C. Defigh-Price, WHC, w/o encl.

Westinghouse/Hanford Company
Internal Memo

From:	Analytical Services
Phone:	373-3026 T6-16
Date:	March 24, 1994
Subject:	PLAN FOR LANL SUPPORT OF HANFORD TANK WASTE CHARACTERIZATION
To:	C. Defigh-Price, R2-31 cc: See Attached Distribution CRS File/LB
Reference:	Recommendation 93-5 Implementation Plan, DOE/RL 94-0001

The attached plan responds to Commitment No. 5.10 of the Reference, "Issue plan to upgrade LANL laboratory to ready-to-serve mode for Hanford Site Analytical requirements including any NEPA needs by March 1994." The plan has been developed jointly with representatives of LANL's Chemical Science and Technology group. Tank Waste Remediation (TWR) approval and transmittal of the plan to DOE is requested.

Highlights of the plan include a review of the need for off-site analytical support, the basis for utilization of LANL laboratories, a discussion of their existing capabilities, and the definition of needed upgrades. NEPA issues associated with shipping material to LANL and use of LANL facilities will be resolved by July 1994 for process development support.

Support activities at Hanford include determination of NEPA requirements and procurement of certified shipping containers for't'ransport of tank waste samples to LANL. Program costs and schedules are presented.

The plan sets five milestones:

Determination of NEPA Requirements	February 1994 (open item)
Complete LANL Upgrades	February 1995
Type A Containers and Type B Casks Available	October 1994
LANL Ready-to-Serve	February 1995
Type B Casks Certified	January 1995

Several uncertainties are recognized with respect to approval and implementation of the plan. The major uncertainties in implementing the plan are the extent of NEPA documentation required; the availability and timing of funding for laboratory upgrades and operation; and the time required to obtain NRC review and issuance of a Certificate of Compliance for the Type B shipping casks.

If you have questions or need more information, please call Curtis Stroup at 372-0816.

M. L. Bell, Director
Analytical Services

Attachment

PLAN FOR LANL SUPPORT OF
HANFORD WASTE TANK CHARACTERIZATION

Concurrence:

M. L. Bell, Director
Analytical Services
WHC

J. Phillips, Manager
Analytical Chemistry Group
LANL

1.0 OBJECTIVE

The purpose of this plan is to define the actions, schedules, and costs for readying analytical services at the Los Alamos National Laboratory to support characterization of Hanford high level tank wastes. The characterization work is now being done in two analytical laboratories at the Hanford site, the 222-S Laboratory operated by Westinghouse Hanford Company (WHC) and the Analytical Chemistry Laboratory (ACL) operated by Pacific Northwest Laboratories (PNL). Projections of waste characterization analytical needs for the next two years show that additional capacity may be required. To meet these potential needs, utilization of existing laboratories is being considered at the Idaho National Engineering Laboratory (INEL) and Los Alamos National Laboratory (LANL) by making the necessary facility adaptations.

Core samples will be extruded at Hanford hot cells, composited and packaged in sample containers, inserted into shipping containers and loaded onto trucks for shipment to Los Alamos. The work at LANL consists of receiving and preparing the tank core samples for analysis, followed by leaching and/or dissolution; chemical separations; measurement of physical characteristics and inorganic, organic, and radionuclide analyses; and reporting of results. All of these activities will be performed per TWR specifications, as given in the Tank Waste Analysis Plan, specific Tank Characterization Plans, or letters of instruction.

This plan responds to Commitment 5.10 of the Recommendation 93-5 Implementation Plan, DOE/RL 94-0001. The commitment is to "Issue plan to upgrade LANL laboratory to ready-to-serve mode for Hanford Site analytical requirements, including any NEPA needs, by March 1994.H Completion of the actions identified in the plan will support Commitment 5.13, to upgrade LANL Laboratory to ready-to-serve mode by February 1995.

LANL is currently supporting TWR programs in two additional areas, analytical methods development and process development. Methods development is directed toward new or improved analytical techniques for characterizing wastes. Process development is investigating the applicability of various technologies to the treatment of tank wastes for retrieval and disposal. The scope of analytical methods development and process development support work is not included in this plan.

2.0 SUMMARY

Existing facilities at LANL can be adapted for analysis of radioactive tank samples from Hanford. Supporting infrastructure is also available to perform the work. Three hot cells in the Chemistry and Metallurgy Research (CMR) Building will be used ror handling TWR shipping containers and for interim storage of excess sample material. Facility; changes include addition of an alpha containment box in each hot cell and installation of glove boxes adjacent to the cells. Equipment for physical characterization measurements will be procured and modified for remote operation. Samples will be transported to analytical chemistry modules in the CMR Building for analysis. Analytical equipment will be procured to supplement existing capabilities as required.

To ensure that adequate capacity is available to meet Tank Waste Remediation (TWR) needs the following approach is being pursued: 1) upgrading LANL's CST-1 and MTL-5 laboratory for Hanford TWR use by making the necessary facility adaptations, 2) planning to utilize LANL at a rate of six Analytical Equivalency Units (AEU's) in FY 1995 and ten AEU's in FY 1996, and 3) revising this plan as TWR characterization needs are further defined.

This plan details the specific tasks and equipment procurement required to complete upgrades by February 1995. The overall schedule is shown in Appendix II.

Funding requirements for LANL in FY 1994 total S1020K (S610K capital and 5410K operating funds). Funding for FY 1995 will complete the facility modifications, procedure validations, and the implementation of the reporting system. The funding level beyond February 1995 will depend upon the actual workload. For planning purposes the costs associated with the completion of preparation to receive samples by February 1995 are S2,626K (S426K capital and S2,200K operating) and S3,950K for TWR characterization of 6 AEUs. Subsequent year operating costs are estimated at S6,840K annually (S340K capital and S6,500K operating). All costs are based on providing funding to LANL via Financial Plans.

Supporting tasks at Hanford include procurement and certification of two PAS-1 Type B shipping casks, procurement of Type A containers, determination of NEPA requirements for sample shipment and off-site laboratory use, and program coordination.

The major uncertainties in implementing the plan are the extent of NEPA documentation required; the availability and timing of funding for laboratory upgrades and operation; and the time required to obtain NRC review and issuance of a Certificate of Compliance for the Type B shipping casks.

3.0 BACKGROUND

A meeting at Hanford in November 1992 (Letter, R. J. Bliss, WHC, to J. R. Hunter and J. H. Antonnen, RL, n Analytical Services Support for Tank Waste Remediation System (TWRS)", dated Dec. 2, 1992) reviewed TWRS (since renamed Tank Waste Remediation, TWR) needs for characterizing tank wastes and discussed off-site capabilities to support these needs. INEL was selected as the laboratory of choice on the basis of cost and availability of facilities and personnel. Argonne East and LANL were second choices. Subsequent discussions with Argonne identified that significant modifications in their safety and environmental documentation would be required; Argonne East asked to be removed from consideration. The following actions relevant to off-site laboratories ; support were recommended at the conclusion of the meeting:

Fund procurement of licensed shipping casks for shipping wastes off-site, and

Investigate the NEPA issues associated with off-site shipments and laboratory use

The Defense Nuclear Facilities Safety Board (DNSFB) Recommendation 93-5 Implementation Plan, DOE-RL 94-0001 and the TWRS Minimum/Maximum Laboratory Capacity Strategy both state that LANL shout d be readied to provide TWR waste treatment/disposal characterization support, and process development support and safety screening/resolution backup support.

Progress on these actions is summarized below.

Procurement and licensing of shipping casks and containers

The action to obtain licensed shipping casks has been focused on procurement of two PAS-1 casks, with three sets of shielded sample carriers. Responsibility and funding for this task, including actions to revise the PAS-1 Certificate of Compliance, has been assigned to WHC's Packaging Safety Engineering group. Progress to date includes issuance of the Packaging Design Criteria, and award of a contract for fabrication of the casks and modification of the Safety Analysis Report for Packaging, which is required for revising the existing Certificate of Compliance. Inspection of the LANL hot cells is planned to confirm that there will be no lifting capacity problems, dimensional interferences, or other operational difficulties resulting from use of this cask. Oelivery of the first cask to Hanford is scheduled for October 1994. The Certificate of Compliance is expected to be approved by NRC by January 1995. Appropriate interaction with the NRC during the review process will be required to ensure timely issuance of

the Certificate of Compliance.

A work plan and schedule are being developed for the procurement of 20 Type A liquid packaging. Initial shipments of small samples of tank waste are expected to utilize this type of container.

Resolution of NEPA Issues

Transportation plans and the use of off-site facilities are being reviewed with respect to NEPA requirements. Based on this review a strategy will be developed to meet the requirements. If an Environmental Assessment is required, the estimated date of completion is February 1995. Determination of NEPA requirements is the responsibility of DOE with assistance as required from the WHC NEPA Documentation group and LANL.

Planning Bases

The following planning bases are to be used in upgrading and using LANL's CST-1 and MTL-5 laboratories in support of Hanford's TWR mission. The scope of these bases may change as future TWR Data Quality Objective (DQO) requirements are identified. If future changes in scope are deemed necessary, this document will be revised to provide the required authorization.

- All FY 1994 upgrade funding must be provided by Hanford via a Financial Plan and must be received by May 1994.

- To facilitate the development and validation of the analytical methods, WHC will identify and ship to Los Alamos a tank sample by July 1994.

- Hanford's Laboratory Capacity and Resources Utilization Model will be completed in May 1994 for LANL support. LANL will use the capacity model to review the estimated FY 1995 and FY 1996 funding requirements.

- Projected operational funding for LANL during FY 1995 is $2,626K for completion of the upgrades and implementation of the analytical procedures and $3,950K for providing analytical support for 6 AEUs. This funding level may change based upon the finalization of TWR analytical requirements. Projected analytical requirements should be available by May 1994 to establish a LANL workload for FY 1995 (March - September.)

- All extrusion of cores will be completed at Hanford. LANL will not be requested to perform any extrusion of cores. Such capacity could be easily established at LANL, if requested.

- NEPA issues associated with shipping material to LANL and use of LANL facilities will be resolved by July 1994 for process development support.

- WHC will be able to achieve and maintain core sampling rates consistent with Defense

Nuclear Facility Safety Board (DNFSB) planning assumptions.

- LANL capacity will be upgraded such that priority conflicts with planned LANL site work scope are minimized and Hanford TWR Characterization Program turnaround times are achieved.

- A Statement of Work (SOW) will be provided to LANL which will identify FY 1995 sample types, required analyses, schedules and quality requirements by October 1994.

- All core samples sent to LANL will be extruded and packaged at Hanford laboratories for shipment.

- LANL will upgrade facilities, equipment, procedures and staff to support TWR analytical needs equating to approximately 6 AEU's in FY 1995 and 10 AEU's in FY 1996. This work will consist mainly of analyses identified in the FY 1993 TWR Tank Waste Characterization Plan and TWR guidance memo. These analyses represent a good cross-section of TWR needs for pretreatment studies. Analytical methods used for these determinations will be in accordance with Hanford analytical procedures provided to INEL and LANL in early January.

- Analytical turnaround time to be achieved is 45 days for primary safety screening analyses and 180 days for other analyses. Turnaround times start with the receipt at a Hanford laboratory of the last segment of the last core from the tank being sampled. This means the time to transfer the samples to LANL is included in the turnaround requirement.

- Certain analyses with action limits (flags) associated with the results will be defined by TWR. When these limits are exceeded, WHC will be notified within two hours after the results are obtained.

- Data package deliverables are not yet defined and will be established as part of the WHC DQO effort. Guidance will be provided by May 1994.

- Nominal sample receiving rate should be planned on the basis of two casks per month. Each cask will contain the equivalent of 2-3 cores. Total sample volume will be a maximum of four liters per cask.

- LANL will hold samples one month after sample data is reported prior to shipping unused samples back to Hanford.

- Hanford Analytical Services will perform a quality assurance assessment on LANL's analytical laboratories by December 1994. This will allow two months to close any open issues, ensuring TWR analytical needs are met.

Additional Support Efforts

LANL representatives from CST-1, the Analytical Chemistry Group, have confirmed the availability of appropriate facilities and personnel and provided a

preliminary cost estimate to perform required upgrades.

Work is ongoing to provide LANL with upgrade funding for 1994. WHC is working with LANL in utilizing the Laboratory Capacity and Resource Management Model to support plans for equipment and manpower additions and to ensure that the laboratory will be able to meet TWR program needs after the planned upgrades are completed. In addition, when firm TWR QA, Characterization, and Analysis Plans and data quality requirements are established, WHC will assess LANL's quality assurance program with respect to their ability to meet the requirements.

4.0 RESPONSIBILITIES

The Hanford TWR Program is responsible for the overall characterization effort including defining overall program direction and funding. Hanford Analytical Services is responsible to ensure TWR analytical needs can be met, including upgrade and use of LANL Analytical Laboratories to support TWR needs. LANL's Analytical Chemistry group is responsible for upgrading and operation in support of Hanford TWR needs.

The WHC Packaging Safety Engineering group is responsible for procurement of the PAS-1 casks and sample carriers, and for completion of the COC revision. WHC Packaging Design Engineering is responsible for the acquisition of up to 20 Type A containers. Determination of NEPA requirements is the responsibility of DOE, with assistance as required from the WHC NEPA Documentation group and LANL. DOE and WHC with assistance from LANL will identify requirements and establish funding for decontamination costs at the end of this project.

5.0 LANL FACILITIES, UPGRADE PLANS, AND READINESS REQUIREMENTS

There are currently three separate technical projects at Los Alamos providing direct support to the Hanford TWR Program: Hanford Tank Characterization; Analytical Methods Development; and Process Development. Each of these projects contributes to the overall capabilities to support the waste characterization program. Appendix I provides additional background information relating to the capabilities existing at Los Alamos to support the Hanford TWR program.

5.1 Facilities

a. Hot cell facilities in the CMR Building

The hot cell facility in Wing 9 of the CMR Building has the capability for cask handling and transport of all projected shipping containers and casks (both Type A and B containers) for the TWR Program. Interim storage capability exists for excess sample material within the hot cell facility. Three hot cells have been

designated for this project.

To meet the projected requirements for handling 10 AEU's, one chemical containment box will be installed in a hot cell and a set of three shielded gloveboxes will be installed adjacent to the hot cells in FY 1994. The chemical containment box is required to perform the dissolution and analysis of high-level samples before transfer of samples to the analytical laboratories. In addition, analytical equipment for physical characterization would have to be procured and modified for remote operation. Minor upgrades to manipulators and remote--handling equipment will need to be completed. Streaming tests on the hot cell and service corridor will be conducted. These upgrades would have to be completed to handle both high level and low level samples from Hanford.

By working with the WHC staff LANL may be able to schedule these upgrades to permit the receipt of samples earlier than the originally scheduled February 1995 date. If low- activity samples (<lR/hr on contact) are available prior to the completion of the hot cell modifications, these samples may be transferred directly to the analytical laboratories.

To perform the physical measurements on the samples, the instruments would have to be purchased and installed in containment boxes.

b. Analytical chemistry facilities

The specific analytical procedures will be performed in Wing 9 or in the adjacent analytical chemistry wings (3, 5, and 7) in the CMR Building. Samples can be transported directly from the hot cell wing to the specific laboratory modules. Required upgrades within the analytical chemistry laboratory modules are dependent upon the appropriate analytical measurements required. Based upon the projected sample load LANL may have to purchase additional analytical instrumentation. At the present time LANL is working with WHC staff to evaluate projected throughput capabilities using the Laboratory Capacity and Resource Management Model developed by C. M. Seidel. Several additional laboratory modules may have to be modified to meet the throughput requirement of AEU's. Current analytical capabilities allow processing of a limited number of Hanford tank samples.

5.2 Equipment Requirements (The requirements for equipment were based upon using the procedures provided by WHC without any considerations for possible improvements in efficiency)

a. Hot cell and physical measurement: capital equipment [1]

FY 1994: March - September

Specific Item	Total Cost [2]
DSC/TGA	$65K
Dissolution - hot cell	16K
Shielded Glove Boxes (3)	43K
Install Glove Boxes	40K
Chemical containment hot cell	150K
Thermal conductivity	85K
Viscosity measurement system	25K
DSC/TGA data acquisition system	75K
Thermal output	20K
Total	$ 519K
Total loaded costs	$ 610K

(1) The Laboratory taxes all capital equipment funds as they arrive to cover non-programmatic support activities (General Indirect and Recharge Equipment [GIRE] - 15%).

(2) The GIRE factor increases the total ca ital equipment costs from $519K to $610K. Laboratory gloveboxes are classified as capital equipment and all costs associated with installation have to be treated as capital costs.

FY 1995: October - February

Specific Item	Total Cost [3]
Rheology	$ 28K
Adiabatic Calorimeter	$ 25K
Miscellaneous capital	$ 25K
Total	$ 78K
Total loaded costs	$ 91K

(3) The GIRE factor increases the total capital equipment cost from $78K to $91K.

FY 1995: March - October

Specific Item	Total Cost
Miscellaneous capital	$ 25K

Total	$ 25K
Total loaded costs	$ 29K

FY 1996: October - September

Specific Item	Total Cost
Miscellaneous capital	$ 75K
Total	$ 75K
Total loaded costs	$ 88K

b. Analytical measurements: capital equipment

FY 1995: October - February

Specific Item	Total Cost (1)
Gamma-energy analyzer	$50K
Ion chromatograph	35K
X-ray screening system	125K
Install Glove Boxes	25K
Miscellaneous capital	50K
Total	$ 285K
Total loaded costs	$ 335K

(1) The Laboratory taxes all capital equipment funds as they arrive to cover nonprogrammatic support activities (General Indirects and Recharge Equipment (GIRE) - 151). This factor increases the total capital equipment costs from $285K to $335K. Laboratory gloveboxes are classified as capital equipment and all costs associated with installation have to be treated as capital costs.

FY 1996: February - September

Specific Item	Total Cost (1)
Miscellaneous capital	$ 125K
Total	$ 125K
Total loaded costs	$ 147K

FY 1996: October - September

Specific Item	Total Cost (1)
Miscellaneous capital	$ 214K
Total	$ 214K
Total loaded costs	$ 147K

5.3 Receiving and Sample Handling Area

Receiving and unloading will be performed in Wing 9 of the CMR Building. All samples, both high-level and low-level, will be processed through the hot cell facility. Low-level samples will be verified prior to transfer to the shielded glove box system for processing. High-level radioactive samples will be processed in the hot cells with small aliquots removed to the shielded glove box system and to the analytical laboratories. The laboratory has implemented an on-site fixed cost (~1K) for receipt, transfer, and return of shipping containers. This additional cost has been included in the operating cost projections.

5.4 Procedures and Data Reporting

a. Current Quality and Performance Plan meets all the requirements of DOE Order 5700.6C, "Quality Assurance" and DOE Order 5480.19, "Conduct of Operations."

b. The following procedures are completed and approved but may have to be modified for application to Hanford tank characterization samples:

    1. "CST-1 Quality and Operational Performance Plan", CST-1-QAP1-006.
    2. "CST-1 Document Control Plan", CST-1-QAP4-001/0.
    3. "CST-1 Chemical Hygiene Plan", CST-1-OP-9
    4. "CST-1 Chain of Custody and Sample Transfer Plan", CST1-ADM5-008/0
    5. "CST-1 Training and Qualification Plan", CST-1-TRN2-004/0
    6. "CST-1 Process for Procedure Preparation", CST1-ADM4-005/0

c. Review of specific WHC analytical procedures is currently underway. Specific modifications or alternative methods may be implemented based upon the results of the Methods Development Program underway at Los Alamos. All procedures will be reviewed by WHC staff prior to routine implementation.

d. Data analysis and reporting procedures will be established to meet the requirements of Hanford's TWR Characterization Program. LANL has draft procedures for detailed data management for the WIPP Source-Term Test Program ("STTP Data Reduction, Validation, and Reporting Procedure", CST1-STP-QAP5-170/0).

e. Requirements will be defined for cask handling and shipping, and procedures will be written.

f. A Quality Assurance Project Plan will be prepared analyses of Hanford tank samples according to the Quality Objectives specified for each analysis.

5.5 Personnel and Training

a. Hot Cell Operations
General remote operator training is established for the current work force. Established

operators would require additional training to meet any specific requirements for the program. Present additional employee training would be minimal. Job specific training for handling Hanford tank samples would be completed with three (3) months.

b. Analytical Chemistry Operations
Over 120 trained professional staff and technicians are assigned to the laboratory. The current staff can provide limited support of this program immediately. Approximately 30 new employees will be added to support this effort. New employee training would require between 3-6 months, depending upon the level of previous training and the complexity of the specific measurement. LANL has personnel who have performed all the requested analyses on radioactive materials. These individuals would either perform the analyses or serve as a technical resource for the new employees.

5.6 Waste Handling and Sample Returns

a. LANL is evaluating the waste streams associated with the Hanford TWR Program. The preliminary determination by the Laboratory's Waste Treatment Group is that the analytical waste solutions generated for this project and the related Hanford TWR projects can be treated adequately in their facilities.

b. Interim sample storage capability exists in Wing 9. following completion of the analyses, the unused portion of the samples may be returned to Hanford for disposal.

5.7 Permitting Requirements

a. The NEPA issues for sample shipment are being addressed by DOE personnel at Idaho Falls, Richland, and Albuquerque. an Environmental Assessment (EA) is determined to be required, the routine shipment of samples may be delayed until February 1995. A project-wide EA will be prepared under the direction of the DOE Richland Operations Office.

b. The project is currently being evaluated as an Unreviewed Safety Question Determination (USQD) with respect to the safety envelope as determined by the CMR authorization basis.

c. An ES&H Questionnaire has been completed and has been submitted for determination of permit requirements.

6.0 COST AND SCHEDULE

The availability of LANL hot cells and laboratories is dependent upon the receipt of the requested funds in FY 1994. As stated above LANL would be able to receive specific samples in early FY 1995. The specific types of samples (activity levels and form) would have to be negotiated with the WHC staff. An ES&H Questionnaire for test samples has been submitted in support of the Methods Development Program. It is anticipated that the evaluation will result in a Categorical Exclusion for NEPA, as well as a negative USQD. Therefore, LANL would be able to receive test samples for methods developments and

process development activities in late FY 1994. All costs are based upon the preliminary sample information that has been provided by WHC personnel.

6.1 FY 1994 Cost and Schedule

Total estimated loaded costs (March - September) $ 1020K

Permitting and capacity model	$ 150K
Waste Stream Analysis	20K
Capital Equipment	610K
Operating Costs	240K

Complete the permitting activities related to NEPA, NESHAPS, and USQO.
Complete the analysis of the waste streams associated with the program.
Initiate the purchase of long-lead time capital equipment.
Prepare the hot cells for the receipt of samples.
Purchase and prepare the glove boxes for receipt of samples.
Complete the evaluation of WHC analytical procedures.
Initiate the preparation of procedures, QA plan, and associated documentation.
Appoint a project leader to manage and coordinate the project.

6.2 FY 1995 Cost and Schedule

Total Estimated Costs (October - February)$ 2626K

Hot Cell Operations and Analyses Implementation of procedures Training and certification of staff	$ 575K
Analytical Chemistry Operations Implementation of procedures Training and certification of staff	$1150K
Capital equipment - hot cell group	90K
Capital equipment - analytical chem.	335K
Projected management	125K
Documentation (QA, reporting)	350K

Total estimated loaded costs (March - September)$ 3950K

Hot cell operations and analyses	$ 1450K
Analytical chemistry operations	$ 2665K
Projected management	$ 225K
Capital equipment	$ 340K

6.3 FY 1996 Cost and Schedule

Total estimated costs (October - September)

Hot cell operations and analyses	$ 1450K
Analytical chemistry operations	$ 4500K
Documentation, process, etc.	$ 200K
Projected management	$ 350K
Capital equipment	$ 340K

(1) The estimated for FY 1996 are based upon the assumption that the work load will be 10 AEUs at $ 650K/AEU. The actual costs will depend upon the analytical support required.

7.0 UNCERTAINTIES

7.1 NEPA Issues

The National Environmental Policy Act (NEPA) requires an assessment of any proposed activity to determine if the project will have an adverse effect upon--the environment. At the present time LANL believes that they will be successful in obtaining a Categorical Exclusion (Cat X) for the analysis of samples shipped to Los Alamos. The project will require only minimal modifications of the laboratory and hot cell facilities in the CMR Building. Similar analyses have been routinely performed on samples in support of other DOE and DOD programs.

7.2 Purchase and Installation of capital equipment

The project will require the purchase and installation of some additional analytical instrumentation. If TWR delays providing the necessary capital equipment funds, LANL's ability to provide analytical support will be adversely affected or delayed. However, delays in providing the requested funds are not anticipated.

7.3 Availability of laboratory personnel

To meet the projected date for receipt of samples in February 1995, LANL must initiate the hiring and training of approximately 30 laboratory staff. LANL' senior management is supportive of this project, but a commitment is required as soon as possible to ensure the availability of trained staff.

7.4 Preparation of final documentation and reports

If LANL is to prepare the final analytical data package, WHC will provide assistance in establishing the reporting requirements.

7.5 Timeliness of NRC review and issuance of PAS-1 Certificate of Compliance

The January 1995 milestone for issuance of the revised COC is not under WHC control, because the COC is issued by the Nuclear Regulatory Commission. Issuance of the COC is contingent upon NRC review and acceptance of the PAS-1 cask vendor's amendment to the Safety Analysis Report for Packaging. The vendor's control over the NRC amendment review process is also limited. Support to the vendor by WHC, RL, DOE-HQ, and or the DNFSB may be required to establish priority and expedite the NRC-review process. In the interim, WHC and the vendor are pursuing opportunities to expedite the schedule of obtaining the casks and the revised COC.

APPENDIX I - LOS ALAMOS BACKGROUND

Los Alamos National Laboratory is supporting the TWR Program in three separate projects: Analytical Methods Development; Hanford Tank Characterization; and Process Development. The Analytical Methods Development Project includes developing and evaluating new analytical procedures in the following areas:

ICP-MS/ICP-AES	Project to analyze TWR samples dissolved in microwave dissolution system. Integrate ion chromatography with ICP analyses.
I-129	Establish method for I-129 by negative ion mass spectrometry.
Laser Ablation ICP-MS	Determine feasibility and applicability of picosecond laser ablation for ICP-MS analyses.
Determination of Chelators	Determination of chelators by HPLC and LC-MS.
Waste Mitigation	Study to establish effective methods for treatment of Laboratory wastes to yield nonhazardous wastes.
TIC/TOC	Study to determine applicability of x-ray absorption fine structure method for identification of molecular species.
Acoustic Imaging	Feasibility study to establish density of tank contents by acoustic imaging techniques.

The Process Development Project evaluates the applicability of various technologies to the treatment of the materials in the Hanford storage tanks. This year the primary efforts are devoted to the hydrothermal option (supercritical water treatment).

The hot cell facility contains 16 hot cells and occupies 18,000 ft^2 of laboratory space. The hot cell facility has been recently upgraded to support the isotope production program. The facility also supports a variety of other technical projects: Fire-Resistant Pit testing program; PuBe source reclamation project; remote-handled waste containerization; and the WIPP Source-Term Test Program. All of these programs contribute to the support of a highly-trained group of hot cell operators and professional engineers who have many years of applicable experience. This multi-purpose facility is one of the more modern hot cell facilities in the country.

The analytical chemistry laboratories occupy nearly 25,000 ft^2 af floor space capable of handling significant quantities of transuranic materials (U, Np, Pu, Am, Cm, etc.), fission and activation products, and hazardous materials. The Analytical chemistry Group has over 400 containment boxes (glove boxes, open-front boxes, and hoods) for handling radioactive and hazardous materials. The total staff consists of 230 individuals with 46 professional chemists, 56 chemical laboratory technicians, 12 post-doctoral research associates, and 6 administrative staff with an average professional experience of 17 years. The Analytical Chemistry Group is also part of the largest chemistry research -organization in the country (approximately 1100 personnel). The remainder of the chemistry division provides a readily available resource to address nearly any potential chemical problem associated with this project.

During the past year LANL has added over $3.5M of new analytical instruments that are available to support special analytical samples that may arise from the Hanford Tank Characterization Program. This is the second year of a major program supporting WIPP R&D programs. This program has established many of the documentation, training, quality assurance, certification, and analytical procedures that will be directly transferred to the Hanford Tank Characterization Program. This infrastructure will significantly reduce the amount of time required to begin receiving samples for characterization. **[To receive a faxed copy of the Hanford Tank Characterization Readiness chart please call (202) 586-1857 or 3887.]**