

FEB 25 2000

ENGINEERING DATA TRANSMITTAL

S

1. EDT 628380

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) Requirements Planning and Support	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: Letter of Intent/Technical Operations/RP&S/Process Engineering	6. Design Authority/ Design Agent/Cog. Engr.: R. Rex Thompson	7. Purchase Order No.: N/A
8. Originator Remarks: This document is being released into the supporting document system for retrievability purposes.		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: N/A
11. Receiver Remarks: For release.		12. Major Assm. Dwg. No.: N/A
11A. Design Baseline Document? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 02/16/00

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	RPP-5539	N/A	0	Letter of Intent for River Protection Project (RPP) Characterization Program: Process Eng., Hanford Analytical Services, Characterization Project Ops. and Quality Assurance	Q	2	1	1

18. KEY					
Approval Designator (F)		Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)		1. Approval	4. Review	1. Approved	4. Reviewed no/comment
		2. Release	5. Post-Review	2. Approved w/comment	5. Reviewed w/comment
		3. Information	6. Dist. (Receipt Acknow. Required)	3. Disapproved w/comment	6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
		Design Authority									
		Design Agent									
2	1	Cog. Eng. R.R. Thompson	<i>R.R. Thompson</i>	2/16/00		1	1	M.R. Adams	<i>M.R. Adams</i>	2/16/00	12
2	1	Cog. Mgr. J.W. Hunt	<i>J.W. Hunt</i>	2/24/00							
2	1	QA J.B. Hebdon	<i>J.B. Hebdon</i>	2/17/00							
		Safety									
		Env.									

18. A.E. Young <i>A.E. Young</i> 2-16-00 Signature of EDT Date Originator	19. N/A Authorized Representative Date for Receiving Organization	20. J.W. Hunt <i>J.W. Hunt</i> 2/24/00 Design Authority/ Cognizant Manager Date	21. DOE APPROVAL (if required) Ctrl. No. <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
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Letter of Intent for River Protection Project (RPP) Characterization Program: Process Engineering, Hanford Analytical Services, Characterization Project Operations and Quality Assurance

M. R. Adams, J. W. Hunt, R. R. Thompson
CH2M HILL Hanford Group, Inc., Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

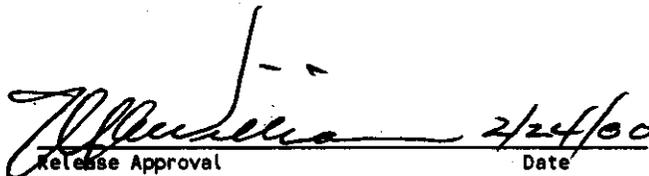
EDT/ECN: EDT-628380 UC: 2070
Org Code: 74B00 CACN/COA: 102213/ES30
B&R Code: EW 3120074 Total Pages: 35

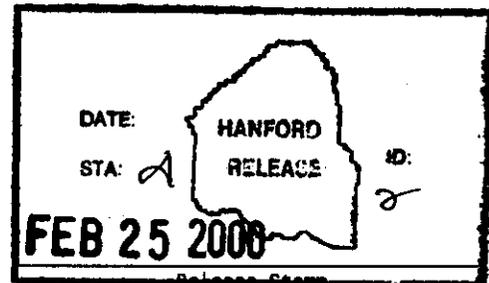
Key Words: Letter of Intent, River Protection Project, RPP,
Characterization Program, Process Engineering, Hanford Analytical
Services, HAS, Characterization Project Operations, CPO, Quality
Assurance, QA

Abstract: N/A

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**Letter of Intent for River Protection Project (RPP) Characterization
Program: Process Engineering, Hanford Analytical Services,
Characterization Project Operations and Quality Assurance**

**M. R. Adams
J. W. Hunt
R. R. Thompson**

CH2M HILL Hanford Group, Inc.

February 2000

Prepared for the U.S. Department of Energy
Office of River Protection
Richland, Washington

Approved by:

Date:

John W. Hunt 2/11/00
J.W. Hunt - Requirements Planning and Support

C. DeFigh Price 2/14/00
C. DeFigh-Price - Process Engineering

L.F. Perkins 2/15/00
L.F. Perkins - WSCF Laboratory

T.A. Brown 2/15/00
T.A. Brown - 222S- Laboratory

Cary M. Seidel 2/15/00
C.M. Seidel - Analytical Program and Client Services

George A. Stanton 2/15/00
G.A. Stanton - Characterization Project Operations

^{2/16/00}
_{4/16/00} *J. B. Hebdon* 2/22/00
J. B. Hebdon - RPP Quality Assurance

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1.0 PURPOSE/SCOPE

The Characterization Project level of success achieved by the River Protection Project (RPP) is determined by the effectiveness of several organizations across RPP working together. The requirements, expectations, interrelationships, and performance criteria for each of these organizations were examined in order to understand the performances necessary to achieve characterization objectives.

This Letter of Intent documents the results of the above examination. It formalizes the details of interfaces, working agreements, and requirements for obtaining and transferring tank waste samples from the Tank Farm System (RPP Process Engineering, Characterization Project Operations, and RPP Quality Assurance) to the characterization laboratory complex (222-S Laboratory, Waste Sampling and Characterization Facility, and the Hanford Analytical Service Program) and for the laboratory complex analysis and reporting of analytical results. It supports the higher level, *Interface Control Document for the Tank Farm System and 222-S Laboratory*, HNF-4483, Revision 0, and replaces HNF-3578, *Fiscal Year 1999 Memorandum of Understanding for the TWRS Characterization Project* (Schreiber 1998).

The signatures on page 2 of this document indicate agreement among the parties that this document reflects the current technical baseline for each system and that the requirements contained in this document will not be revised without the agreement of all parties.

2.0 INTERFACE DESCRIPTION

This section provides a brief summary of each interface and the related responsibilities.

2.1 RPP PROCESS ENGINEERING

RPP Process Engineering, through the Tank Coordinator (TC) role, is responsible for coordinating and providing technical direction to the 222-S Laboratory, Waste Sampling Characterization Facility (WSCF) Laboratory and Characterization Project Operations (CPO). Technical requirements are primarily provided via the Tank Sampling and Analysis Plan (TSAP), although other work-authorizing documents including Letters of Instruction (LOI s) are also used in special circumstances. The TSAP is the primary documentation for initiating field work and analytical services. Additionally, CPO uses a work package as a driver for sampling activity. One TSAP is required for each sampling event in a tank (e.g., core, auger, grab, or vapor sampling), except in those cases where a generic TSAP has been generated. The contents of a TSAP are delineated in the *Process Engineering Desk Instruction and Guidance Manual* (Adams 1999a). The specific analytical methods and method types to be used are elucidated in the TSAP, not in this Letter of Intent.

2.2 222-S LABORATORY

The 222-S Laboratory is responsible for providing tank waste analysis results in accordance with the requirements and Quality Control criteria provided in the TSAP. The results of these analyses and quality control protocols are to be in conformance with the *222-S Laboratory Quality Assurance Plan* (Markel 1999), the *Tank Waste Remediation System, Characterization Project, Quality Policies* (Board 1998), and *Hanford Analytical Services Quality Assurance Requirements Document* (DOE-RL 1998), as well as required internal quality control reviews. The standard data reporting formats are discussed in Appendix A of this Letter of Intent. The Characterization Project Schedule will be provided for Analytical Services concurrence whenever it is revised. The Characterization Program management and Analytical Services laboratory management will review and status the schedule weekly.

2.3 WASTE SAMPLING AND CHARACTERIZATION FACILITY (WSCF)

The WSCF Laboratory is responsible for providing tank vapor analysis results and in some cases low activity grab sample analysis in accordance with the requirements provided in the TSAP. The results of these analyses and quality control protocols are to be in conformance the *Tank Waste Remediation System, Characterization Project, Quality Policies* (Board 1998), and *Hanford Analytical Services Quality Assurance Requirements Document* (DOE-RL 1998), as well as required internal quality control reviews. The standard data reporting formats are discussed in Appendix A of this Letter of Intent. Characterization Project sampling and analysis shall be conducted in conformance with these quality assurance (QA) requirements.

Processes, services, activities, and conditions adverse to quality which do not conform to requirements specified in this sampling and analysis plan or references herein shall be controlled to prevent inadvertent use. The Characterization Project Schedule will be provided for Analytical Services concurrence whenever it is revised. The Characterization Program management and Analytical Services laboratory management will review and status the schedule weekly.

2.4 HANFORD ANALYTICAL SERVICE PROGRAM (HASP) - ANALYTICAL PROGRAMS AND CLIENT INTEGRATION

The Hanford Analytical Services Program (HASP) and Client Integration Organization focus on integration of the U.S. Department of Energy (DOE), Client Projects, and analytical services. The organization focuses on both strategic planning and project management to integrate customer needs with services. Project management responsibilities focus onto nine main areas of responsibility:

1. Integrate and establish the processes required to ensure customer projects are properly coordinated with Analytical Services. HASP facilitates project communications and analytical status between the performing organizations including Fluor Daniel Hanford (FDH), Hanford Analytical Services, CH2M HILL Hanford Group, Inc., the U.S. Department of Energy Office of River Protection (DOE-ORP), BNFL, the U.S. Department of Energy, Richland Operations Office (DOE-RL) and other parties to ensure analytical activities are coordinated. This includes identifying special requirements and development of corrective action plans when required. HASP ensures all project work authorizations are in place before work is initiated. Additionally work authorized from ORP or CH2M HILL must also be defined in an external Work Order to FDH. HASP reviews the status of this documentation prior to initiation of work. If the required documentation is not in place, HASP notifies Characterization Project management and works with them to resolve the issue.
2. **Analytical Project Scope Management:** HASP assists the client in the development of acceptable analytical work instructions. HASP ensures the customer understands the information and elements that are required by the laboratory in documentation that directs work, whether it be a Sampling and Analysis plan, Letter of Instruction, or other document format. HASP will author these documents at the clients request or act as an advisor.
3. **Analytical Project Time Management:** HASP communicates customer and laboratory schedules. When conflicts arise HASP works with the parties to identify acceptable alternatives. HASP also statuses both the laboratory analytical activities and the customers sampling against commitments and agreements.
4. **Analytical Project Quality Management:** Customer complaints and issues are recorded and presented to the laboratory for resolution. Quality Assurance issues are directed to FDH Quality Assurance personnel for review and resolution. Minor issues are resolved by the responsible line organization through document engineering change notice (ECN) or other apparent actions. HASP acts as an arbitrator when the customer and analytical facility do not agree on the corrective action to be taken. HASP participates and supports internal and external program audits of analytical activities, including Facility Evaluation Board (FEB), the U.S. Department of Energy, Headquarters (DOE-HQ), Project time and cost, and other audits.
5. **Analytical Project Human Resource Management:** HASP identifies future customer needs and informs the FDH laboratories where current capabilities and capacities do not meet the customers projected requirements. Projections are based on the Tank Sampling Basis/Waste Information Requirements Document and data quality objective (DQO) requirements supplied by RPP Process Engineering and sampling schedules supplied by Characterization Project Operations. Also estimates of analytical full time equivalents (FTEs) required to meet the customers projects capacities are developed from historical information.

6. **Analytical Project Communications Management:** Methods of communication include weekly sampling and analysis production status meeting, Bi-weekly DOE (RL and ORP) interface meetings, monthly status reports, BNFL-ORP ICD-23 (and ICD 19, 20) support. Other activities are supported as required.
7. **Analytical Project Risk Management:** HASP identifies risks to the successful completion of analytical activities and works to develop alternatives to lower or eliminate risks where possible. Such alternatives may include development of alternate technologies, resources, or other approaches that reduce the risk of failure to the customer..
8. **Analytical Project Procurement Management:** HASP takes the lead in identifying and procuring analytical resources, including the procurement of off-site resources when required. Activities include identification of alternate resources, Drafting “Statement-of-Work” documents. Requesting procurement and QA support when required. All off-site procurements of analytical resources require customer concurrence prior to final award.
9. **Analytical Project Cost Management:** HASP is responsible for developing and issuing estimates for analytic project activities. This includes multi-year work plan (MYWP) level program estimates to estimating the costs associated with individual analytical events. Estimates are based on DOE Cost Accounting Board, FDH, and facility guidance. HASP also reviews and reports the status of active accounts monthly to Analytical clients (including CPO) and HASP management.

2.5 CHARACTERIZATION PROJECT OPERATIONS (CPO)

Characterization Project Operations (CPO) performs intrusive work in the waste storage tanks, including the sampling of the tanks to satisfy requirements identified in the TSAP. The TSAP initiates field sampling work and is necessary to transmit requirements not found in the work package, although work packages are the primary documentation necessary to obtain samples from tank farms. All waste intrusive sampling activities are performed in accordance with approved work packages, which must conform to the governing TSAP.

2.6 RIVER PROTECTION PROJECT QUALITY ASSURANCE

Quality Assurance (RPP QA) supports and oversees the quality assurance goals covering Characterization Project activities. RPP QA reviews and approves all TSAPs and ensures compliance with quality assurance requirements while obtaining samples.

3.0 ITEMS PASSED ACROSS THE INTERFACES

This section contains item descriptions and interface requirements associated with items passed across the interfaces described in Section 2.0 above.

3.1 PRESAMPLING PLANNING INTERFACE

The performance measures pertaining to the pre-sampling planning activities performed by RPP Process Engineering, 222-S Laboratory, WSCF Laboratory, HASP, CPO, and RPP Quality Assurance are addressed in this section.

3.1.1 RPP Process Engineering Performance Criteria

The operational objective of the RPP Process Engineering organization is to have at least two TSAP (s) completed and issued for each sampling type or truck at all times to facilitate flexibility in the field. To reach this goal, RPP Process Engineering should provide the TSAP to the performing laboratory and CPO at least eight (8) working days prior to the beginning of the sampling event. If the date of the scheduled sampling event is accelerated such that the TSAP cannot be completed and delivered at least eight (8) working days prior to the event, the TSAP shall be generated and transmitted as soon as possible after Process Engineering is notified of the sampling schedule change. The tank specific sampling information must be provided by CPO as identified in Section 3.3 of this Letter of Intent at least nine (9) working days prior to the start of sampling or the TSAP cannot be issued at least eight (8) working days prior to the start of the sampling event. If the tank specific sampling information is received nine (9) days or less before the sampling event, the TSAP will be issued within one (1) day of receiving the sampling information from CPO. If any of the tank specific sampling information identified in Section 3.3 of this Letter of Intent must be revised by CPO, this information will be transmitted to RPP Process Engineering within one (1) day for immediate inclusion into a TSAP revision. The TSAP should then be revised within 1 day of receiving this information. If the TSAP cannot be revised in this timeframe, sampling activities may proceed with concurrence of the changes and electronic mail direction from the TC. In this case, revision of the TSAP will be performed in parallel with the sampling activity.

The TSAP will reference all applicable DQOs which are approved and released when the TSAP is generated. If a DQO is issued or revised during generation of the TSAP or after the TSAP is issued, and these DQO additions or changes are sampling-related (as determined by the TC), these changes will be incorporated into the TSAP prior to initiation of sampling. If the DQO additions or changes are laboratory-related, the TC must evaluate whether there is sufficient time to incorporate the DQO additions or changes into the TSAP without delaying the start of the sampling and analysis event, or if the TSAP should be issued and subsequently revised. RPP Process Engineering must determine that the continuation of the sampling and analysis event will not adversely affect the quality of the data produced. If the TC determines that the continuation of sampling and analysis will not adversely affect the data produced, CPO may initiate sampling

and ship samples in accordance with the original TSAP, with electronic mail concurrence from the TC. The performing laboratory must work in accordance with the original TSAP until the TSAP revision is complete.

When changes to the TSAP are necessary, an ECN shall be generated against the TSAP by RPP Process Engineering in accordance with LMH-PRO-440, Rev. 3, *Engineering Document Change Control Requirements* (LMHC 1999). The 222-S Laboratory Operations Manager or the WSCF Project Support Lead, HASP Analytical Programs and Client Information and CPO managers will be on distribution for all TSAP ECN(s). Concurrence and acceptance of all ECN s by the performing laboratory is required before any change can be implemented by the laboratory.

In addition to transmitting the TSAP to the Laboratory, RPP Process Engineering will also send a Request for Special Analysis (RSA) prior to sampling. The RSA is required by the Laboratory sample receiving procedure and communicates to the laboratory information regarding the known waste listings of the samples.

3.1.2 Laboratory Performance Criteria

Estimates of cost, schedule, and laboratory capacity will be based upon the program Multi-Year Work Plan, DQO (s), the Technical Sampling Basis-Waste Information Requirements Document (TSB-WIRD), the TSAP(s), and the sampling schedule. RPP Process Engineering will provide approved copies of these documents to HASP as applicable when requesting estimates.

The performing laboratory is responsible for reviewing and approving each TSAP prior to issuance (as stated in Section 3.1.1). Concurrence and acceptance of all ECNs by the performing laboratory is required before any change can be implemented by the laboratory.

Unless special arrangements are made between the laboratory and RPP Process Engineering (i.e., when a shorter turnaround time is required), the laboratory should have at least five (5) working days to review each TSAP and provide comments to RPP Process Engineering.

3.1.3 Characterization Project Operations Performance Criteria

Characterization Project Operations (CPO) is responsible for preparing the risers for sampling and issuing the work package prior to sampling. Riser preparations should be completed ten (10) working days prior to the sampling event for core samples, and two days prior to the sampling event for grab samples. Once this activity is completed, the riser numbers to be sampled and the work package number corresponding to the tank sampling event will be transmitted to RPP Process Engineering within one (1) working day for inclusion into the TSAP. Any changes with respect to the riser numbers to be sampled or the work package number to be used will be transmitted to RPP Process Engineering within one (1) working day for inclusion into a revision of the TSAP. No work may be initiated until the TC has concurred with the changes and has determined that these changes will not adversely affect the quality of the data produced.

Characterization Project Operations is also responsible for reviewing and approving each TSAP prior to issuance. Unless special arrangements are made between CPO and RPP Process

Engineering (i.e., when a shorter turnaround time is required), CPO should have five (5) working days to review each TSAP and provide comments to RPP Process Engineering.

In order to ensure that all appropriate blanks (lithium bromide and field) are obtained during a sampling event, CPO will place a procedural step in each work package instructing the CPO field crews to take these blanks.

3.1.4 RPP Quality Assurance Performance Criteria

RPP QA is responsible for reviewing and approving each TSAP prior to issuance. Unless special arrangements are made between RPP QA and RPP Process Engineering (i.e., when a shorter turnaround time is required), RPP QA should have five (5) working days to review each TSAP and provide comments to RPP Process Engineering. Review of the TSAP will be in accordance with the TSAP content requirements in Section 5.3 of Adams (1999a). Only original TSAP(s) and quality-affecting revisions (such as DQO additions) require RPP QA review and approval.

3.2 LABORATORY/CHARACTERIZATION PROJECT OPERATIONS INTERFACE

The expectations and performance measures pertaining to the activities performed by the laboratory and CPO once a sampling event has been initiated are summarized in this section.

3.2.1 Laboratory Performance Criteria

In an effort to preclude generating a backlog of samples, the 222-S Laboratory commits to providing an average capability to extrude five (5) core segments per week. For processing purposes, a grab sampling event is counted as three (3) core segments.

The 222-S Laboratory will distribute the Hot Cell daily report to CPO, RPP Process Engineering, and HASP Analytical Programs and Client Integration. This report will include at least twelve (12) hour notification of when samples are to be extruded and when empty onsite transfer casks, PIGs, and doorstops are ready for pick-up by CPO. In general, PIGs are to be emptied and be ready for pick-up by CPO within ten (10) days of receipt at the 222-S Laboratory. However, the PIG turnaround time associated with high volume grab samples (one liter volume or greater) shall be negotiated on a case-by-case basis.

If problems are encountered (e.g., regarding chain-of-custody records or sample cask issues), the Laboratory will call CPO within two (2) hours for assistance. For questions regarding vapor or grab samples, the point of contact is the Manager of CPO Field Sampling. The Manager of CPO Truck Sampling is the point of contact for questions regarding rotary and push mode core samples. This verbal notification must be followed within one (1) hour by a confirmatory electronic mail message to the CPO point of contact. Additionally, HASP Analytical Programs & Client Integration representative will be notified of any problems in order to facilitate resolution with CPO.

At the WSCF laboratory analytes that exceed notification limits shall be reported by the Project

Coordinator or delegate by calling the Tank Farms Shift Operations manager as soon as the data are obtained and reviewed by the responsible scientist. This verbal notification must be followed within one hour by electronic notification to the Tank Farms Shift Operations manager, the Industrial Hygiene and Safety point of contact, the RPP Process Engineering Data Development and Interpretation manager, the On-Call Process Engineer, the laboratory Client Representative, and the Process Engineering point of contact for vapor sampling. WSCF shall provide the results of radiological screening analyses using the standard WSCF analytical laboratory report format. These results shall be faxed to the Process Engineering vapor sampling point of contact within 48 hours of receipt of the samples and followed by transmittal of a copy of the results via plant mail.

The WSCF shall provide vapor sampling support to CPO. Information from sampling activities shall be provided to the Process Engineering vapor sampling point of contact. Electronic transmittal of vapor data to TWINS is specified in a Standard Electronic Format (Adams 1999c). Field sampling information shall be provided within 48 hours of the collection of the last set of samples.

Analytical results from vapor sampling shall consist of two deliverables, preliminary analytical results and a final data package. Preliminary sampling and analytical data shall be delivered within three weeks of the receipt of the samples at the laboratory. The preliminary data shall consist of, at a minimum, data tables reporting sample collection data, particulate filter analysis results, and the results of each analysis performed by the analytical laboratory. A final data package shall be issued as a supporting document within ten weeks of the receipt of the samples at the laboratory.

3.2.2 Characterization Project Operations Performance Criteria

Characterization Project Operations (CPO) will provide the hot cell crew with a one month supply of bails, locking pins, and other spare parts as needed throughout the year such that these items can be replaced without delaying Hot Cell activities.

When problems are encountered at the laboratory and CPO is notified for assistance (see Section 4.1), CPO will correct any required paperwork or problem within two (2) working days of notification, so as not to impact production in the hot cells facilities.

In addition to the actions above, CPO will assist the laboratory in meeting the data package turnaround time stated in Section 6.2 of this Letter of Intent and in the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1989). Specifically, Ecology et al. (1989) requires that all single-shell tank data packages have a turnaround time of 216 days. This turnaround time begins with the date of the "individual sampling activities" (Ecology et al. 1989), which is interpreted as being the date when the last sample is obtained from the tank.

3.3 RPP PROCESS ENGINEERING/ LABORATORY INTERFACE

The expectations and performance measures pertaining to the activities performed by RPP Process Engineering and the laboratory during sample analysis are summarized in this section.

3.3.1 RPP Process Engineering Extrusion Support

In order to provide real-time instructions on sub-sampling, the responsible RPP Process Engineering TC may want to be present in the laboratory hot cell area during sample extrusions. It is the responsibility of the TC to review the hot cell extrusion schedule provided at least twelve (12) hours in advance of the extrusions and make initial contact with the extrusion chemist. However, any extrusion schedule changes must be communicated by the extrusion chemist to the TC. If the TC does not contact the extrusion chemist at least one (1) hour before the event, the extrusion chemist may assume that the TC does not desire to view the extrusion.

Once the Tank Characterization Report is issued for a tank, any remaining samples in the 222-S Laboratory (i.e., in parent or archive jars) will be disposed of per HNF-SD-WM-TRD-006, Technical Basis for Disposition of Tank Waste Samples in Archive (Adams 1997).

3.3.2 222-S Laboratory Extrusion Support

The 222-S Laboratory Project Coordinator (PC) or a designated back-up shall be present during extrusions to assist with sub-sampling instruction. It is the PC's responsibility to ensure that the TSAP analytical and Quality Control requirements are entered into LABCORE and to interface with the TC if issues arise with respect to the sub-sampling or analysis of tank samples. Analytical sub-sample aliquots (stored in T-handle carriers) and preparations may be discarded during the analysis process as required by the laboratory staff with concurrence by the PC.

3.4 DATA REPORTING FUNCTIONS

Data reporting requirements pertaining to characterization sampling and analysis are identified in this section. The guidance provided in this Letter of Intent shall supersede all previously issued memoranda and documentation referring to data reporting formats. In all cases, guidance in a job specific TSAP or LOI shall have precedence over all other documentation.

3.4.1 RPP Process Engineering Performance Criteria

RPP Process Engineering responsibilities for handling a Format I or Format III data package are elucidated in Sections 5.4 and 10.0 of PROC-021 (Adams 1999a).

Once RPP Process Engineering receives a Format IV data package (see Appendix A of this Letter of Intent) from the supporting laboratory, the responsible TC or TCR author (if different from the TC) will prepare the automated-TCR for review by the Department of Energy, Office of

River Protection (DOE-ORP). The automated-TCR format will be in accordance with Section 5.5 of Adams (1999a).

3.4.2 Laboratory Performance Criteria

Format I Reporting: Immediate Notification

If any analytical result exceeds the safety screening notification limit criteria during the analysis process, the results will be reported to the Tank Farm Shift Operations manager and the On-Call Process Engineer immediately by phone. This verbal notification must then be followed within one (1) hour with a confirmatory electronic mail message to the Tank Farm Shift Operations Manager, the RPP Process Engineering Data Development and Interpretation manager, and the responsible TC (see Appendix A of this Letter of Intent, Format I reporting).

Format II Reporting: Process Control

If the data from a program are needed as soon as possible to control a process or operation, see Appendix A3.0 for reporting requirements.

Format III Reporting: Safety Screening

Analyses that were identified in the safety screening data quality objectives effort and measured to support the safety screening activities must be completed within 45 days of receiving the last sample from the sampling event at the laboratory sample receiving/loading dock. The Format III reporting function will consist of a letter to be issued from the laboratory to RPP Process Engineering at such time that the safety screening analyses have been completed. See Appendix A4.0 for additional reporting requirements.

Format IV Reporting: Analytical Services Data Package

In order to support the TCR effort, the laboratory commits to making every effort to complete laboratory data reports according to the schedule specified in the individual TSAP(s). It is recognized that programmatic priorities and project schedules may exceed the limited funding and available resources for a short duration, requiring the delay of some work. When conflicts for resources arise, programmatic priorities will be determined by the Data Development and Interpretation Manager, and samples will be analyzed in accordance with that direction. The clock for these reports begins when the last sample or segment to be analyzed during that project is received at the laboratory loading dock. The Format IV data packages will be released as a Hanford Site Supporting Document which contains laboratory sample and QC results and data, chain-of-custody data, and a laboratory narrative (see Appendix A). All Data Packages will be reviewed by the laboratory Quality Assurance organization prior to release. Format IV reports will be approved for public distribution. A standard distribution list is maintained by HASP as shown in Appendix C. This list will be modified as directed by RPP Process Engineering. Distribution for individual reports can be modified through additional direction in the TSAP. Other data required to complete the DQO objectives (such as calculation of limits on a 95%

confidence intervals on the mean) will not be part of these reports, but will instead be generated by RPP Process Engineering at a later date. If errors are found in the data packages, corrections will be made via ECN(s) to the data packages and issued by the laboratory within five (5) working days of error notification or with concurrence from the customer scheduled for release through prioritization against other activities. When a TSAP has additional analyses added by an ECN(s) after the analytical turnaround time has begun, or a letter of instruction is issued instead of a TSAP for a non-routine project, the turnaround time for the work-scope will be negotiated between RPP Process Engineering and the laboratory on a case-by-case basis.

Following release of a final data package, data shall be uploaded from LABCORE to TWINS via Standard Electronic Format 3.0 within seven (7) days (Adams 1999b). In addition, final data packages shall be sent to the Tank Characterization and Safety Resource Center (TCSRC) at R1-10 in CD format within seven (7) days of release of the data package. TCSRC shall also be on distribution for a hard copy of the lab data package including a hard copy set of the extrusion photos.

Additional reporting requirements for Analytical Services Data Packages are found in Appendix A5.0.

Format V Reporting: Resource Conservation and Recovery Act (RCRA) Data Package

RCRA data packages are intended to support projects and sampling activities wherein the data are to be used to meet regulatory requirements subject to litigation. See Appendix A6.0 for additional requirements for RCRA data package reporting.

All third party validation of data reports is contracted to parties outside of the Analytical Services organization through commercial contracts for services or other agreements.

Format VI Reporting: Special Data Reports

Data reporting requirements that do not fall into the above categories or which take exception to some of the requirements in the above categories may be implemented by incorporating a modified format of reporting into the TSAP or other work-authorizing document (see Appendix A7.0).

4.0 ISSUES LIST

If additional issues arise later, this Letter of Intent will be revised to address issue resolutions.

1. The Laboratories are currently not using a standardized numbering format for identification of sub-samples. 222-S and RPP Process Engineering are currently working to define a protocol for this activity. (Actionee: Keith Fuller and Steve McKinney).
2. RPP Process Engineering has requested that the analytical reports be issued as electronic documents in the near future. HASP is working with the laboratories to define a process and develop an estimate for converting the current reporting formats to electronic deliverables. (Actionee: Larry Lockrem and Steve McKinney).

5.0 REFERENCES

- Adams, M.R., 1997, *Technical Basis for Disposition of Tank Waste Samples in Archive*, HNF-SD-WM-TRD-006, Rev. 0, Lockheed Martin Hanford Corporation, Richland, Washington.
- Adams, M.R., 1999a, *River Protection Project Process Engineering Desk Instruction and Guidance Manual*, HNF-SD-WM-PROC-021, Rev. 3, Lockheed Martin Hanford Corporation, Richland, Washington.
- Adams, M.R., 1999b, *Standard Electronic Format Specification for Tank Characterization Data Loader: Version 3.0*, Rev. 1, Lockheed Martin Hanford Corporation, Richland, Washington.
- Adams, M.R., 1999c, *Standard Electronic Format Specification for Tank Vapor Data MSEXCEL Spreadsheets: Version 1.0*, HNF-3815, Rev. 0, Lockheed Martin Hanford Corporation, Richland, Washington.
- Board, D.C., 1998, *Tank Waste Remediation System, Characterization Project, Quality Policies*, WHC-SD-WM-QAPP-025, Rev. 4, Lockheed Martin Hanford Corporation, Richland, Washington.
- DOE-RL, 1998, *Hanford Analytical Services Quality Assurance Requirements Document*, DOE/RL-96-68, Rev. 2, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Ecology, EPA, and DOE, 1989, *Hanford Federal Facilities Agreement and Consent Order*, 2 vols., Washington State Department of Ecology, U.S. Environmental Protection Agency, U.S. Department of Energy, Olympia, Washington.
- LMHC, 1999, *Engineering Document Change Control Requirements*, LMH-PRO-440, Rev. 0, Lockheed Martin Hanford Corporation, Richland, Washington.
- Markel, L. P., 1999, *222-S Laboratory Quality Assurance Plan*, HNF-SD-CP-QAPP-016, Rev. 3C, Waste Management Federal Services of Hanford, Inc., Richland, Washington.
- May, T. H., 1999, *Interface Control Document Between the Tank Farm System and 222-S Laboratory*, HNF-4483, Rev. 0, Numatec Hanford Corporation, Richland, Washington.
- Schreiber, R. D., 1999, *Fiscal Year 1999 Memorandum of Understanding for the TWRS Characterization Project*, HNF-3578, Rev. 0A, Lockheed Martin Hanford Corporation, Richland, Washington.

APPENDIX A
LABORATORY DATA REPORTING FORMAT REQUIREMENT

A1.0 INTRODUCTION

The results of the analyses required in the Tank Sampling and Analysis Plan (TSAP) for condensed phase waste (i.e., non-vapor) shall be documented using the following reporting formats. Reporting format requirements for vapor sampling and analysis events may be found in (Douglas et al. 1996). Each sampling and analysis event could include data reported using several of these formats. The specific reporting format categories shall be identified in each TSAP or other work-authorizing document. The lowest category of data reporting that meets the program element's requirements shall be specified. All data reports must be:

Legible

Clearly labeled as to tank, core/auger/grab number, and date of issuance

Paginated (Formats III through VI only).

A2.0 FORMAT I REPORTING - IMMEDIATE NOTIFICATION

If the program or sampling activity requires immediate notification of a result that exceeds an established safety or operational threshold limit, the laboratory shall call the appropriate tank farm operations shift manager immediately upon the first review of the laboratory data by the project coordinator and the responsible scientist. This verbal notification must be followed within one (1) hour by electronic notification to the tank farm operations shift manager, the River Protection Project (RPP) Process Engineering Data Development and Interpretation manager, and the tank coordinator responsible for the tank. Tank coordinator responsibilities are detailed in Section 5.4 of Adams (1999a).

This type of reporting does not require any supporting raw data, quality control (QC) information, or documentation of analytical procedure numbers used, and does not have any formal validation requirements. The contacts for reporting when notification limits (as identified in the TSAP or other work-authorizing document) are exceeded are as follows: Double Shell Tank operation shift manager for samples from double shell waste tanks, and Single Shell Tank operation shift manager at for samples from single shell waste tanks. The TSAP shall clearly identify the action limits for each parameter and any other follow up activities (e.g., secondary analyses) that may be required. As noted in the Work Instruction or TSAP, documentation may also identify personnel to be notified in addition to those given above.

A3.0 FORMAT II REPORTING - PROCESS CONTROL

If the data from a program are needed as soon as possible to control a process or operation, it may be reported using a Laboratory Information Management Systems report, by electronic mail, or as a letter report as specified in the TSAP or other work-authorizing document. This type of report may also be used to support development activities or projects. This report does not require that supporting raw data, QC results, or associated analytical procedure numbers be included. Results require review and approval by the cognizant scientist or manager of the laboratory operation. The data do not require third party validation.

A4.0 FORMAT III REPORTING - SAFETY SCREENING

Analyses that were identified in the safety screening data quality objectives (DQO) effort and measured to support the safety screening activities must be completed within 45 days of receiving the last sample from the sampling event at the laboratory sample receiving/loading dock. If no safety screening criteria were exceeded, the laboratory shall electronically notify the Tank Coordinator (TC), which shall be followed with a letter confirming work completion within ten (10) working days.

If any analysis results exceeded the safety screening criteria, a letter identifying the results that exceeded the criteria will be issued by the laboratory to the TC within five (5) working days of the completion of the analysis. At such time, secondary analyses commensurate with the governing TSAP will be performed. These secondary analyses must be completed within 90 days of receipt of the last sample at the laboratory loading dock. When the secondary analyses are complete, the laboratory shall issue a letter to the TC within ten (10) working days confirming work completion. If any secondary analysis notification limits were exceeded, the results that exceeded the limits shall be identified.

A5.0 FORMAT IV REPORTING - ANALYTICAL SERVICES DATA PACKAGE

This category of reporting is aimed at projects where the data are not intended to support regulatory compliance (see Section A6.0 of this Letter of Intent) at the present time, but may need to be used later for regulatory purposes. The objective of the data package is to collect the information from the characterization of the samples that is needed to verify or reproduce the reported results at a later date. This type of report may also be desirable for data that is expected to receive extensive review from organizations outside of RPP. Because the regulatory or end use of the data may not be defined at the time of analysis, no third party validation of the data is required. Therefore, this report resembles a regulatory data package without third-party validation; however, it is subject to internal laboratory QA validation and review. The data package should be prepared by tank and include the data for all core, grab, or auger samples, including composites, segments, sub-segments, drainable liquids, and associated blanks taken and analyzed from the tank during a single sampling activity. The recommended reporting format and the raw data that shall be included for each sampling activity and analysis are

summarized below. This data package shall be issued as a document approved for public release through the document control system. The raw data shall be accessible to the program until the respective waste tank is closed or the waste is treated and in accordance with the laboratory's Records Inventory and Disposition Schedule.

The data package should be organized into two major parts: (1) a summary report section; and (2) a raw data compilation. Both data package sections will be organized according to the type of analyses or activity where the data were generated. The summary report section should be comprised of two subsections: (1) a narrative describing the methods used and any unusual sample or QC results from each analysis or activity; and (2) summary tables of the sample and QC results. Each raw data activity should be organized by analysis type and batch or by the time period when the activity occurred. For most analytical measurements, the batch arrangement should require the least duplication.

A5.1 Summary Report Section

A5.1.1 Narrative

Introduction. The report should contain a summary that either clearly states that no criteria were exceeded or identifies those parameters that exceeded the established criteria. The summary shall identify (1) the tank; (2) core, auger, or grab sample(s); (3) segment or samples and sub-segments or subsamples included in the report; and (4) the TSAP or other work-authorizing documentation used as the basis for the analyses.

Description of the Samples. Briefly describe the sample's physical characteristics (color, homogeneity, texture). Identify any unusual properties of the sample and any problems associated with sub-sampling or preparation. For core samples, the mass of recovered drainable liquid and the mass of recovered solids should be provided.

Discussion of Analytical Results. The following items should be discussed in this section:

- Description of the analytical methods used (e.g., cyanide quantitation by titration or spectrophotometry) and any changes to the TSAP-referenced procedure that may have been necessary to analyze the samples. The procedure number and revision will also be referenced in this section.
- Brief description of digestion/dissolution, preparation/separation, or extraction and analytical methods used.
- Identification of any sample QC or method problems (i.e., precision, accuracy, sensitivity) encountered during the analysis that may impact the results and their use for making safety, operational, or other decisions.
- Discussion of any observations that impact the overall quality of the analytical results (i.e., sample integrity).

- Describe any activities (reruns, replicate analyses, procedure modifications) that may have been used to verify the data.
- Description of any assumptions, corrections applied to the data, use of the method of standard additions, or calculations that may be important to interpretation of the data.
- Identification of any samples not analyzed or analyses required by the respective TSAP or other work-authorizing document that were not performed, and on what sample each missing analysis was to be run.

References. Any references (e.g., the TSAP, letter of instruction (LOI), or notebook used in the hot cells) should be listed in this section.

A5.1.2 Data Summary

The data summaries have many common areas for each type of analysis. These summaries may be presented in different formats depending on the type of analysis and the customer's need. The QC results, which should be reported are those needed to evaluate the sample, results (duplicates, spikes, control standards, and preparation blanks). The following information is considered important to the data summaries for most chemical and radiochemical measurements:

- Sample identification, including the laboratory sample number, sample location (segment/core number, auger or grab sample number), and sample type (composite, sub-segment, drainable liquid, field blank, preparation)
- Laboratory control standard, including percent recovery
- Preparation blanks, including identity and concentration of each constituent identified
- Sample and duplicate results, as well as results from replicate analyses
- Results of spikes and tracers, including amount spiked, percent recovery, and relative percent difference (RPD) for each duplicate sample in the analytical batch
- Surrogate analysis (GC/MS, GC, and HPLC analyses) including amount of spike and percent recovery for each surrogate
- Internal standard results
- Detection limits
- Counting errors

In addition, qualifiers shall be included as outlined in Table 1 of Section 6.2.

A5.2 Raw Data Section

The raw data from each characterization activity or each type of measurement will vary depending on the activity (hot cell, sample receipt) or the analytical instrumentation. The raw data will be used to confirm that the results of the sample and QC analyses were performed and calculated properly and that the analytical system was in control while the data was being generated.

At a minimum, the raw data associated with the results discussed in Section A5.1 are to be included in this section. The record copy of the remaining supporting data for the Format IV data package is retained by the laboratory, although it may not be included in the data package at the discretion of the laboratory. Supporting data includes, but is not limited to, the following information:

- Results of standard additions
- Results of serial dilutions
- All raw data necessary to check calculation of analyte concentration (e.g., calibration data)
- Mass spectrum including spectra of standards (one for each report for each compound detected) and spectra of analytes detected
- Calculation sheets and/or ACE forms for sample and QC sample measurement that document the amount of sample/spike/standard used in the measurement and the instrument data output (if manual). These work sheets shall identify the instrument or analytical system used and any special operating parameters.

A5.3 Recommended Data Package Structure

The preferred organization of the data will depend on the data user. Some users may want to see all the analyte data on a single sample (organized by sample), whereas another data user may want to see a single analyte (organized by analyte) for all the samples taken in the sampling activity. The following outline is recommended for the structure of the data package. If the TSAP does not specify an alternative format, this outline should be used as the default data package format.

- I. Table of contents
 - List of tables
 - List of sample analysis work lists
- II. Narrative
 - Reference to work directives
 - Tank and sample identification
 - Sample description
 - Sub-sample identification
 - Analytical procedures used for each analysis
 - Range or average results per analysis, including any results which exceed the QC specifications or TSAP notification limits
 - Observations, problems, or deviations from the work instruction (TSAP).
- III. Sample breakdown figures or other attachments that are identified in the TSAP
- IV. Data Summary Tables
- V. Sample Photographs (one set of color prints is required)
- VI. Chain-of-Custody Forms
- VII. Raw Data sorted by analysis, including extrusion and sample preparation work lists

A6.0 FORMAT V REPORTING - RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) DATA PACKAGE

This data package is intended to support projects and sampling activities where the data is used to meet regulatory compliance areas and could be subject to litigation. The data package has many of the same requirements for data summaries and narratives as Format IV packages, but also requires that the data be validatable by third-party validation and standalone using validation procedures established for the waste characterization project. This report includes (1) a data summary of the results for sample and QC measurements; and (2) a narrative similar to that described for the Format IV report. All raw data associated with the analysis project shall be included in the Format V report. The recommended reporting format is similar to the Format IV report described above. This data package shall be issued as a document approved for public release through the document control system.

In addition to the requirements of the Format IV data package, the Format V data package shall include the following information:

- Laboratory control standard concentrations and all raw data (including notebook pages) needed to check the calculation of the percent recovery

- All raw data needed to check the calculation of the reported blanks
- All raw data needed to check the RPD s and percent recoveries reported
- ICP-OES and ICP-MS sensitivity factors and linear ranges (when applicable)
- Metal interference check-sample results
- Initial and continuous calibration raw data
- Instrument tuning data and instrument run logs
- Column performance check with the standard, including the chromatogram
- Chromatograms (for organic analyses)
 - Sample identification
 - Method identification
 - Retention time of analyte (s) identified
- Quantitative chromatogram report
 - Analyte retention time
 - Amount of sample injected
 - Results of response factors
 - Surrogate recovery results
 - Concentration of analyte found
 - Date and time of injection
- Calibration Data
 - Calibration curve or empirical equation for the curve
 - Correlation coefficient of the linear calibration
 - Concentration and/or response factor data for calibration check standards including dates of analysis
 - GC/MS daily tuning results

Third party validation is contracted to other organizations.

A7.0 FORMAT VI REPORTING - SPECIAL DATA REPORTS

Data reporting requirements that do not fall into the above categories or which take exception to some of the requirements in the above categories may be implemented by incorporating a modified format of reporting into the TSAP or other work-authorizing document.

A8.0 REFERENCES

- Adams, M.R., 1999, *Process Engineering Desk Instruction and Guidance Manual*, HNF-SD-WM-PROC-021, Rev. 3, Lockheed Martin Hanford Corporation, Richland, Washington.
- Douglas, J.G., M. Stauffer, R. D. Mahon, and T. C. Tribble, 1996, *Required Elements and Format for Tank Vapor Sample and Analysis Data Packages*, WHC-SD-WM-RPT-280, Rev. 0, SGN Eurisys Services Corporation, Richland, Washington.

APPENDIX B: TABLE OF CONTACTS

ORGANIZATION	CONTACT
REQUIREMENTS PLANNING AND SUPPORT	J.W. HUNT
WSCF LABORATORY	K.J. GREENOUGH
222-S LABORATORY	T.A. BROWN
ANALYTICAL PROGRAM AND CLIENT SERVICES	C.M. SEIDEL OR K.L. POWELL
CHARACTERIZATION PROJECT OPERATIONS	G.A. STANTON
RPP QUALITY ASSURANCE	W.L. ADAMS
DATA DEVELOPMENT AND INTERPRETATION	J.G. FIELD

APPENDIX C: DISTRIBUTION LIST FOR ANALYTICAL REPORTS

The following list is the distribution list for FORMAT III, IV, and V Analytical Reports. Directions for release of FORMAT I and II reports along with modification to this list for other reports will be found in the work instructions (TSAP or LOI).

Process Engineering

Manager, Data Development and Interpretation	J. G. Field
Tank Characterization and Safety Resource Center (TCSRC)	A. E. Young
Tank Coordinator	
Sampling and Analysis Plan Author	

APPENDIX D: TABLE OF RESPONSIBILITIES (6 Sheets)

FDH - Analytical Services	CHG - Characterization Project Operations (CPO)		CHG - RPP Process Engineering
Primary Scope			
Provide sample analysis results in accordance with documented instructions provided by RPP.	CPO is responsible for overall Program Management of the Characterization Project.	RPP Process Engineering provides management and control program technical direction.	
Hanford Analytical Services Program (HASP) will integrate activities between laboratory management, laboratory QA, laboratory project coordination, and the customer organizations. This integrator role focuses on analytical Project Management techniques to assure that all process steps are performed and to aid in development and implementation of process improvements	Obtain samples from tank farms in accordance with approved work packages, which must conform to the governing TSAP.	Generate tank sampling and analytical plan (TSAPs) for each field sampling and analytical event supporting Characterization Project.	
Project Schedule			
HASP provides a ranking of project analytical priorities.	CPO develops and maintains the sampling schedule.	RPP Process Engineering develops and maintains overall project priorities and a schedule in the Technical Sampling Basis-Waste Information Requirements Document (TSB-WIRD). This document is issued annually and is approved by the Washington State Department of Ecology.	
Each laboratory provides a schedule for completion of the analytical scope in house. These schedules include all major deliverables. The performing laboratory also provides estimated completion dates for planned activities once the scope and sampling dates are defined.			

APPENDIX D: TABLE OF RESPONSIBILITIES (6 Sheets)

FDH - Analytical Services	CHG - Characterization Project Operations (CPO)	CHG - RPP Process Engineering
<p>HASP provides the project weekly, semi-weekly, and monthly progress reports covering analytical activities.</p>	<p>CPO provides the project weekly, semi-weekly, and monthly progress reports covering sampling activities.</p>	<p>RPP Process Engineering provides the project weekly, semi-weekly, and monthly progress reports covering DQOs, TCRs, TSAPs, and deliverables to agencies outside of the program.</p>
<p>Quality Assurance</p>		
<p>Work will be performed in compliance with the <i>Laboratory Quality Assurance Plan</i>; the <i>Tank Waste Remediation System, Characterization Project, Quality Policies</i>; <i>Hanford Analytical Services Quality Assurance Requirements Document</i>; and the customer work instruction (TSAP).</p>	<p>RPP Quality Assurance will support CPO by overseeing the quality assurance goals covering Characterization Project activities</p>	<p>RPP QA will review and approve each TSAP prior to issuance</p>
<p>Work Instruction</p>		
<p>Analytical Service will review and approve or offer alternatives to each TSAP prior to issuance. The goal is that Analytical Services have five (5) working days to review each TSAP and provide comments to RPP Process Engineering.</p>	<p>CPO will review and approve or offer alternatives to each TSAP prior to issuance. The goal is that CPO have five (5) working days to review each TSAP and provide comments to RPP Process Engineering.</p>	<p>RPP Process Engineering provides Technical "Letters of Instruction" (LOI s) or "Tank Sampling and Analysis Plan" (TSAP). The goal is that this instruction be provided at least eight (8) working days prior to the beginning of the sampling event.</p>
	<p>The goal is that CPO provide sampling information to RPP Process Engineering at least nine (9) working-days prior to the start of sampling to support development of the work instruction.</p>	<p>Have at least two TSAP completed and issued for each sampling type at all times. to facilitate flexibility in the field.</p>
		<p>When changes to the TSAP (or other work instructing documentation) are necessary, an Engineering Change Notice (ECN) shall be generated by RPP Process Engineering.</p>

APPENDIX D: TABLE OF RESPONSIBILITIES (6 Sheets)

FDH - Analytical Services	CHG - Characterization Project Operations (CPO)	CHG - RPP Process Engineering
		<p>RPP Process Engineering is responsible for ensuring the work instructions (TSAP) reference all applicable Data Quality Objectives (DQO) which are to be implemented, and identify specific analytical methods to be used.</p>
Other Documentation		
<p>222-S Laboratory will distribute the Hot Cell daily report to CPO, RPP Process Engineering, and HASP Analytical Programs & Client Integration.</p>	<p>CPO is responsible for implementing and maintaining chain of custody from sampling to receipt at the laboratory.</p>	<p>RPP Process Engineering will also provide Analytical Services a Request for Special Analysis (RSA) prior to sampling. The RSA is required to communicate to the laboratory information regarding the known waste listings of the samples.</p>
<p>If errors are found in the data packages issued by the laboratory, corrections will be made via ECN(s) to the data packages and issued by the laboratory within five (5) working days of error notification, or prioritized and scheduled against other laboratory activities. This applies only to data reports issued within the last 12 months</p>		<p>Once the final data package from the supporting laboratory is received, the responsible TC or TCR author will prepare the automated-TCR for review by the Department of Energy, Office of River Protection (DOE-ORP).</p>
<p>Following release of a final data package, data shall be uploaded from LABCORE to TWINS via Standard Electronic Format 3.0 within seven (7) days.</p>		

APPENDIX D: TABLE OF RESPONSIBILITIES (6 Sheets)

FDH - Analytical Services	CHG - Characterization Project Operations (CPO)	CHG - RPP Process Engineering
<p>For grab sampling events the laboratory commits to release the final analytical report within 180 days of the receipt of samples at the laboratory, unless other guidance is defined in the work instructions. This turnaround time is based on a staffing level defined in the current MYWP.</p>	<p>CPO will assist the laboratory in meeting the data package turnaround times stated in the <i>Hanford Federal Facility Agreement and Consent Order</i> (Ecology et al. 1989). Specifically, Ecology et al. (1989) requires that all tank data packages have a turnaround time of 216 days or less. This turnaround time begins with the date of the "individual sampling activities" (Ecology et al. 1989), which is interpreted as being the date when the last sample is taken from the tank.</p>	
<p>For core sampling events the laboratory commits to release the final analytical report within 216 days of the receipt of samples at the laboratory, unless other guidance is defined in the work instructions. This turnaround time is based on a staffing level defined in the current MYWP.</p>		
<p>For vapor samples two analytical reports are required, preliminary analytical results and a final data package. Preliminary sampling and analytical data shall be delivered within three weeks of the receipt of the samples at the laboratory. A final data package shall be issued as a supporting document within ten weeks of the receipt of the samples at the laboratory.</p>		

APPENDIX D: TABLE OF RESPONSIBILITIES (6 Sheets)

FDH - Analytical Services	CHG - Characterization Project Operations (CPO)	CHG - RPP Process Engineering
<p>Finance HASP provides estimates for analytical activities based on charging guidelines provided by each laboratory and historical information.</p>	<p>CPO Characterization Program Management is responsible for providing funding for the actual cost of providing all services defined in this document through the TW-01 MYWP. CPO is responsible for the implementation of change requests and other change control as required.</p>	<p>RPP Process Engineering provides estimates for activities based on historical information and program plans.</p>
<p>Production 222-S Laboratory shall provide an average capability to extrude no less than five (5) core segments per week</p>	<p>CPO will provide the hot cell crew with bails, locking pins, and other spare parts as needed throughout the year such that these items can be replaced without delaying Hot Cell activities.</p>	<p>If the TC does not contact the extrusion chemist at least one (1) hour before the event, the extrusion chemist may assume that the TC does not desire to view the extrusion.</p>
<p>222-S will give RPP Process Engineering at least twelve (12) hour notification of when samples are to be extruded. This is to allow the Tank Coordinators to be present during extrusion.</p>	<p>The Manager of CPO Field Sampling will address are questions regarding sampling and shipping activities.</p>	
<p>Laboratory Project Coordinator (PC) or a designated back-up shall be present during extrusions to assist with sub-sampling instruction. It is the PC's responsibility to ensure that the TSAP analytical requirements are entered into LABCORE</p>		
<p>222-S will give CPO at least twelve (12) hour notification when empty onsite transfer casks, PIGs, and doorstops are ready for pick-up to allow time to schedule drivers.</p>		

APPENDIX D: TABLE OF RESPONSIBILITIES (6 Sheets)

FDH - Analytical Services	CHG - Characterization Project Operations (CPO)	CHG - RPP Process Engineering
<p>If problems are encountered during sample receipt (e.g., regarding chain-of-custody records or sample cask issues), the Laboratory will call CPO within two (2) hours for assistance with resolution.</p>	<p>CPO will correct any required paperwork or problem within two (2) working days of notification,</p>	
<p>All samples that exceed notification limits shall be reported by the Project Coordinator or delegate by calling the RPP Tank Farm Shift Operations Manager as soon as the data is confirmed to by the laboratory. Confirmation includes one over one review by the responsible scientist. This verbal notification must be followed within one hour by electronic notification.</p>		
<p>When radiological screening analyses of vapor samples are required, the results shall be faxed to the Process Engineering vapor sampling point of contact within 48 hours of receipt of the samples and followed by transmittal of a copy of the results via plant mail.</p>		
<p>Analytical Services will maintain the capability to provide vapor sampling support to CPO in the field.</p>	<p>Field sampling information shall be provided within 48 hours of the collection of the last set of samples.</p>	

DISTRIBUTION SHEET

To Distribution	From Requirements Planning and Support	Page 1 of 2 <hr/> Date 02/16/00			
Project Title/Work Order RPP-5539, Rev. 0, "Letter of Intent for River Protection Project (RPP) Characterization Program: Process Engineering, Hanford Analytical Services, Characterization Project Operations and Quality Assurance"		EDT No. EDT-628380 <hr/> ECN No. N/A			
Name	MSIN	Text With All Attach.	Text Only	Attach./Appendix Only	EDT/ECN Only

CH2M HILL Hanford Group, Inc.

M. R. Adams	R2-12	X			
W. L. Adams	S6-15	X			
D. L. Banning	R2-12	X			
R. A. Bechtold	K7-22	X			
J. M. Conner	R2-11	X			
C. DeFigh-Price	R2-12	X			
J. G. Douglas	R2-12	X			
J. E. Ferguson	R2-36	X			
J. G. Field	R2-12	X			
L. A. Fort	R2-12	X			
K. D. Fowler	R2-11	X			
M. D. Hasty	S7-01	X			
J. B. Hebdon	S6-15	X			
K. M. Hodgson	R2-11	X			
N. L. Hulse	R2-12	X			
J. W. Hunt	R2-12	10			
L. Jensen	R2-12	X			
J. Jo	R2-12	X			
N. W. Kirch	R2-11	X			
J. S. Lee	S7-03	X			
S. G. McKinney	R2-12	X			
D. M. Nguyen	R2-12	X			
T. R. Pauley	S7-01	X			
M. A. Payne	R2-58	X			
R. S. Popielarczyk	R2-58	X			
J. H. Rasmussen	R2-12	X			
L. M. Sasaki	R2-12	X			
J. F. Sickels	S7-03	X			
B. C. Simpson	R2-11	X			
G. A. Stanton	S7-01	X			
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