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DISCLAIMER

Task Title: Pu Glass Fabrication and Product Consistency Testing		TTR Number: PuVit TTR-05-0001	TTR Date: 6/28/05
Task Leader: J.C. Marra	Signature: James C. Marra	Organization: ITS	Date: 7/13/05
Technical Reviewer (if required): D.K. Peeler	Signature: David K. Peeler	Organization: ITS	Date: 7/14/05
Level 4 Manager (or designee): D.A. Crowley	Signature: Dwight A. Crowley	Organization: ITS	Date: 7/14/05
Customer: M.K. Hackney	Signature: Mark K. Hackney	Organization: OBU NMM	Date: 7/19/05
ITS QA Coordinator: T.K. Snyder	Signature: Tracy K. Snyder	Organization: ITS	Date: 7-14-05
SRNL QA Representative: J.P. Vaughan	For J.J. Connelly	Organization: SRNL QA	Date: 13 Jul 05
SRNL Shielded Cells Manager: R.W. Dunn	for A.C. Carraway	Organization: SRNL LSD	Date: 19 July 05

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I. INTRODUCTION

The DOE/EM plans to conduct the Plutonium Vitrification Project at the Savannah River Site (SRS). An important part of this project is to reduce the attractiveness of the plutonium by fabricating a plutonium glass form and immobilizing the Pu form within the high level waste (HLW) glass prepared in the Defense Waste Processing Facility (DWPF). This requires that a project schedule that is consistent with EM plans for DWPF and cleanup of the SRS be developed. Critical inputs to key decisions in the vitrification project schedule are near-term data that will increase confidence that lanthanide borosilicate (LaBS) glass product is suitable for disposal in the Yucca Mountain Repository.

A workshop was held on April 28, 2005 at Bechtel SAIC Company facility in Las Vegas, NV to define the near term data needs. Dissolution rate data and the fate of plutonium oxide and the neutron absorbers during the dissolution process were defined as key data needs. A suite of short-term tests were defined at the workshop to obtain the needed data. The objectives of these short-term tests are to obtain data that can be used to show that the dissolution rate of a LaBS glass is acceptable and to show that the extent of Pu separation from neutron absorbers, as the glass degrades and dissolves, is not likely to lead to criticality concerns. An additional data need was identified regarding the degree of macroscopic cracking that occurs during processing of the Pu glass waste form and subsequent pouring of HLW glass in the DWPF. A final need to evaluate new frit formulations that may increase the durability of the plutonium glass and/or decrease the degree to which neutron absorbers separate from the plutonium during dissolution was identified. This task plan covers testing to support a near term data need regarding glass dissolution performance. Separate task plans will be developed for testing to address the degree of macroscopic cracking and the development of alternative frit formulations.

The Product Consistency Test (PCT) was identified as a means to provide some of the near term performance data. The PCT is a static test method in which known masses of crushed glass and demineralized water are reacted for a desired duration [1].There are two reasons to perform the PCT. The first is that the results are used as a measure of acceptance in the *Waste Acceptance Product Specifications Document (WAPS)* [2]. The second is the need for long-term static test results that can be used to verify the applicability of the degradation model. Thus, the primary focus will be on the use of the PCT Method B (PCT-B) to study the formation and stability of colloids and to study alteration phases formed on the glass surface. The standard 7-day PCT in demineralized water (PCT-A) will be included to demonstrate compliance with the waste acceptance criterion and determine the value of the k_E rate parameter for comparison with the *Defense HLW Glass Degradation Model* [3].

A. Task Definition

The objectives of this task are to prepare Pu loaded LaBS glass for testing, perform PCTs under varying conditions, and analyze the leachates and solids from the PCTs. Plutonium containing LaBS glass with the Frit B composition (Table 1) will be prepared at the Savannah River National Laboratory (SRNL) for testing. The glass will be characterized to ensure homogeneity and dissolution of the PuO_2 within the glass matrix. A series of PCTs will be conducted with varying exposed surface area and test durations. The leachates from these tests will be analyzed to determine the dissolved concentrations of key elements. Additionally, the leachate solutions will be ultrafiltered in an attempt to quantify colloid formation. The PCT vessels will be acid stripped and the strip solution will be analyzed to facilitate quantifying the dissolved element concentrations. The leached solids will also be examined to evaluate the Pu and neutron absorber release behavior from the glass and the formation of alteration phases on the glass surface.

B. Customer/Requester

The customer for this work is Nuclear Materials Management (NMM) Engineering and the point of contact is M. K. Hackney. The request is detailed in PuVit TTR-05-0001 [4]. This work will involve research and development that is considered baseline.

C. Task Responsibilities

SRNL/Immobilization Technology Section (ITS):

J.C. Marra has primary responsibility for managing the task. This includes developing detailed schedules, preparing the necessary task initiation documentation, identifying resource needs/issues, and ensuring that the scope is executed according to this plan. Specific responsibilities of J.C. Marra include:

- Prepare a Task Technical and Quality Assurance Plan,
- Plan and direct task activities and ensure that they are completed in a timely manner,
- Provide frequent status updates of the task to NMM-Engineering, and
- Interface with other National Laboratories on technical aspects of this work.

J.C. Marra, C.L. Crawford and N.E. Bibler are responsible for executing the experimental scope of this task. This includes completing the Conduct of Research and Development review, completing necessary preparations to fabricate the Pu loaded glasses, preparing the glasses, conducting the PCTs, and analyzing the leachates and solids from the PCTs. This also includes interpreting and documenting results and conclusions from the experimental work.

J.C. George will be responsible for interfacing with the Shielded Cells organization for scheduling and planning the work. J.C. George will also be responsible for coordinating the shipping of Pu glass samples to other National Laboratories. In this capacity, she will work with the designated SRNL radioactive materials "Shipper."

ITS technicians will be responsible for batching, melting and sizing of LaBS frit to support Pu glass fabrication. Additional responsibilities will include assisting in the transfer of materials for testing and analysis from the SRNL Shielded Cells facility.

The ITS Mobile Lab will be responsible for analyzing the frit to validate the composition of the frit.

SRNL/Actinide Technology Section (ATS)
ATS personnel will prepare PuO_2 to support Pu glass fabrication. They will assist in transfer of the PuO_2 to the Shielded Cells facility. They will also assist in handling Pu glass samples for further testing or analysis, as needed.

SRNL/Shielded Cells Operations (SCO):
Shielded Cells Operations personnel will be responsible for performing Pu glass batch preparation and melting in the Shielded Cells. They will be responsible for grinding and sieving glasses for the PCTs. SCO personnel will also be responsible for transferring samples from the Shielded Cells for further testing or analysis.

SRNL/Analytical Development Section (ADS):

ADS personnel will be responsible for compositional analysis, microstructural analysis and crystallinity determination of glasses resulting from Pu glass fabrication efforts. They will also be responsible for analysis of leachate solutions and analysis of solids from the PCTs. Responsibilities include calibrating instrumentation involved in this task, analyzing the samples in a timely manner, and reviewing the sample results prior to sending them to the Task Leader identified in this task plan.

SRNL/ITS Manager, or designee will:

- Review and approve this Task Technical and Quality Assurance Plan,
- Assess the preparedness to carry out this task, and
- Review and approve all reports.

SRNL/ITS Quality Assurance (QA) Coordinator will:

- Review and approve this Task Technical and Quality Assurance Plan,
- Obtain the necessary training and qualification records for ITS and ADS personnel for this task, if required for surveillance/audits,
- Assist in the preparation of records,
- Coordinate all surveillances,
- Interface with SRNL QA during overview activities and corrective actions, and
- Provide working copies of the latest revisions for ITS Procedure Manuals upon request, if required.

SRNL Quality Assurance personnel will:

- Review and approve this Task Technical and Quality Assurance Plan,
- Provide guidance and oversight for this task as needed, and
- Notify ITS QA Coordinator of all surveillances/audits.

NMM Engineering personnel will:

- Review and approve this Task Technical and Quality Assurance Plan,
- Provide written requests to SRNL specifying any changes or additions to the Task Technical Request, and
- Review and approve technical reports resulting from this task.

D. Task Deliverables

1. A Task Technical/Quality Assurance Plan, reviewed and approved by SRNL ITS, NMM Engineering, SRNL QA and SRNL SCO.
2. An Analytical Study Plan reviewed and approved by SRNL ITS and SRNL ADS
3. Frequent updates to NMM Engineering once work has begun.
4. A high-level schedule for completing these tasks.
5. A technically reviewed final report(s) documenting the results.

II. TASK ACCEPTANCE CRITERIA

Per the TTR for this task, acceptance testing is not part of this request. NMM Engineering's signature on the final report will signify that the task has been completed satisfactorily.

III. TASK ACTIVITIES

There are two major task activities associated with this program: (1) fabricate plutonium loaded LaBS glass and (2) perform a series of PCTs on the Pu LaBS glass.

Fabricate Plutonium Loaded LaBS Glass

The objective of this subtask is to fabricate plutonium loaded LaBS glass for subsequent performance testing at SRNL (further described in this Task Technical Plan) and Argonne National Laboratory (ANL):

- Glass will be produced with the current LaBS Frit B composition (Table 1) with a 9.5 wt % PuO_2 loading,
- Produce glass material to support performing PCTs at SRNL,
- Produce glass material to support performing MCC-1 and Vapor Hydration Testing (VHT) at ANL,
- Perform initial characterization to ensure glass homogeneity (Scanning Electron Microscopy (SEM) and X-ray Diffraction (XRD)), and
- Perform detailed chemical analyses to determine composition.

Table 1. LaBS Frit B Composition

Oxide	Mass %
Al_2O_3	21.3
B_2O_3	11.6
Gd_2O_3	12.8
HfO_2	6.6
La_2O_3	8.1
Nd_2O_3	8.2
SiO_2	28.9
SrO	2.5

LaBS frit and PuO_2 at a 9.5 wt % loading will be combined and melted to produce the plutonium loaded LaBS glass. The protocol defined in "Standard Laboratory-Scale Melting Procedures for Plutonium Containing LaBS Glasses" will be utilized to make the glasses [5]. As described in [5], LaBS frit will be batched with oxide chemicals, melted and sized. The frit will be combined with PuO_2 and thoroughly mixed. The resulting batch will be melted at 1500° C, with an isothermal hold for four hours and quenched by removing the crucible from the furnace and placing in a pan of water. The resulting glass will be crushed and remelted to obtain the needed glass for performance testing.

The glass needed to support the PCTs to be performed at SRNL will be melted in a Pt alloy crucible and quenched as described above. Cracking of the glass is not a consideration since the glass will be further size reduced for performing the PCTs. Specific glass samples will be taken for the initial homogeneity analysis as described in [5]. Additional samples will be taken for the detailed microstructural and chemical analyses. Note: due to program funding constraints glass may need to be prepared at SRNL for testing at Pacific Northwest National Laboratory (PNNL). Glass produced for testing at PNNL will be prepared in the same manner as glass prepared for SRNL testing.

The glasses needed to support the VHT and MCC-1 testing at ANL will be melted in Pt alloy boats. The boats will be used to provide the "bar-shape" sample geometry needed to prepare samples for the VHT and MCC-1 testing. To minimize cracking in the bars, glass samples will be annealed at nominally 600-700° C. The samples will be packaged and shipped to ANL in accordance with all required shipping procedures and requirements.

As indicated, glass samples prepared for testing will be analyzed. A preliminary analysis will be conducted to assess glass homogeneity and ensure dissolution of the PuO_2 in the glass. SEM and XRD

will be used for this assessment. These analyses will be completed prior to performing the PCTs and shipment of glass to other laboratories. If the glass is determined to be homogeneous with no detected undissolved PuO_2, leach testing and glass shipment will commence. Additional samples will be taken for whole element chemical analysis. A separate Analytical Study Plan will be developed to detail the specific microstructural and chemical analyses.

Perform Product Consistency Tests on Pu Loaded LaBS Glass

The objectives of this subtask are to perform PCTs on the plutonium loaded LaBS glass in accordance with the PCT procedure [1]. There are two reasons to perform the PCT. The first is that the results are used as a measure of acceptance in the *Waste Acceptance System Requirements Document (WA-SRD)* [2]. The second is the need for long-term static test results that can be used to verify the applicability of the degradation model. Thus, the primary focus will be on the use of the PCT Method B (PCT-B) to study the formation and stability of colloids, but the standard 7-day PCT in demineralized water (PCT-A) will be included to demonstrate compliance with the waste acceptance criterion and determine the value of the k_E rate parameter for comparison with the *Defense HLW Glass Degradation Model* [3].

The Product Consistency Test Method A (PCT-A) will be conducted on the Pu loaded LaBS glass in accordance with [1]. The PCT-A will be run two ways: 1) according to the standard protocol and 2) with a slight deviation to account for the density of the LaBS glass (the LaBS glass density is about 40% greater than typical alkali borosilicate high level waste glasses). The PCT-A procedure identifies a specific glass mass to leachate volume. Differences in glass density will, thus, impact the volume of glass tested (i.e. the surface area of glass exposed to the leachate). Leachate solutions will be measured for dissolved concentrations of B, Si, Pu, Hf and Gd. The PCT vessels will be acid stripped and the strip solution will be analyzed to facilitate quantifying the dissolved element concentrations. The Environmental Standard (EA) and Approved Reference Material (ARM) glasses will be tested and analyzed along with the Pu loaded LaBS glass.

The Product Consistency Test Method B (PCT-B) will be run for short durations (up to 2 weeks) with high glass surface area to leachate volume ratio (S/V = 20,000 m^{-1}). Planned short term test durations include: 3 d, 7 d and 14 d. These will be single samples with the expectation that the varying test durations will facilitate identifying any outliers in the dataset. Long term (up to 1 year) PCT-B tests will also be conducted. The durations for these long-term PCTs are 38 d, 56 d, 91 d, 182 d, and 364 d. These will also be single samples.

The leachates from the PCT-B tests will be analyzed, at a minimum, for B, Si, Pu, Hf and Gd per [1]. Multi-element standards will be submitted to assess any bias due to analytical measurements. Additionally, leachates will be ultrafiltered using a nominal 6 nm filter to examine for colloid formation. The ultrafiltered leach solutions will also be analyzed for B, Si, Pu, Hf and Gd. The PCT vessels will be acid stripped and the strip solution will be analyzed to facilitate quantifying the dissolved element concentrations. Microscopic analysis (SEM and/or Transmission Electron Microscopy (TEM)) will be conducted on the filter or on samples of the leach solutions. Analysis of the leached glass solids will also be conducted using SEM and/or TEM to look at the characteristics of any alteration phases that may have formed. A separate Analytical Study Plan wil be developed to detail the leachate, colloid, and solids analyses.

Due to the length of these tests, not all tests will be completed by the end of FY05 to support the needed Yucca Mountain Repository near-term License Application (LA) data needs. The data that is available by the end of FY05 will be summarized in a final technical report. A follow-on technical report will be written to summarize the longer term data.

IV. TASK SCHEDULE

A detailed schedule has been developed and integrated into the ITS schedule. More detailed schedules may be added as the program progresses. The following table summarizes the major task objectives or activities and the estimated durations.

TABLE OF TASK ACTIVITIES	Estimated Durations (Days)
Issue Task Plan	1
Fabricate Plutonium Loaded LaBS Glass	
Prepare facilities for melting/prepare frit	5
Prepare Pu glass batches	5
Melt Pu glasses	5
Ship glasses to ANL	3
Characterize glasses	15
Perform Product Consistency Tests on Pu Loaded LaBS Glass	
Grind and sieve glasses	7
Perform PCTs	364 [1]
Analyze PCT leachates	20 [1]
Analyze PCT solids	20 [1]
Draft / Review Technical Report	15

It should be noted that some of the activities will run in parallel (e.g. performing and analyzing PCTs for various durations). The following assumptions were made in developing the "success oriented" schedule presented in the table above:

1. Other ongoing activities do not impact this schedule.
2. Equipment and supplies are available.
3. Appropriate levels of support from ITS, SCO, ADS and ATS personnel must be supplied when needed.
4. Review of the final draft of the technical reports will be completed within the requested review cycle period.

Any change to the bases listed above will likely result in a day to day slip in the schedule listed above.

V. RESEARCH FACILITY PLANNING

1. **Effect on equipment, personnel, and facilities' physical plant.** The task objectives and/or experiments will have no impact on the equipment and research facilities' physical plant.
2. **Disposition of products and by-products.** Solutions and residual glass generated by this task will be disposed of according to SRNL disposal requirements. All job control waste will be disposed via approved waste streams.
3. **Disposition of Test Equipment.** All major equipment used during this task will be maintained for future work. Any equipment or supplies that cannot be used again shall be disposed of by approved waste streams.
4. **Exposure of Personnel.** The experiments will be completed in the SRNL shielded cells, gloveboxes and radiological laboratory hoods to minimize exposure of personnel to radiological material. Non-radioactive frit preparation (grinding and sieving) will be conducted in laboratory hoods to minimize exposure to fine particulate matter.

VI. PROGRAMMATIC RISK REVIEW

Impact to programmatic cost/schedule. Work may be delayed by the changes in the needs of the ITS section, however this activity is considered high priority. All equipment and raw materials to support fabricating the Pu glass are available. A source of plutonium oxide sufficient to complete this testing has been identified. Any experimental issues that would require reformulation and melting of glasses would require additional PuO_2. The effort to acquire additional PuO_2 would result in a schedule delay and increased costs. Procurements to obtain specialized PCT vessels (if needed) will be expedited.

Equipment failure. The furnace in the SRNL Shield Cells Facility is currently the only high temperature furnace operating in an adequate radiological controlled environment. The furnace is currently in good operating condition. However, a failure of the furnace could delay glass fabrication efforts. Other equipment and analytical capabilities are readily available and a failure should not significantly impact the project schedule.

Personnel absence or illness. There are several qualified personnel within ITS that are capable of performing the glass fabrication and PCT efforts. Additionally, technicians and operators within ITS and the SCO are sufficiently cross-trained to support this work.

VII. R&D HAZARDS SCREENING CHECKLIST

A Conduct of R&D Review [6] will be completed and documented for this work prior to work initiation.

VIII. REFERENCES

1. "Standard Test Methods for Determining Chemical Durability of Nuclear, Hazardous, and Mixed Waste Glasses and Multiphase Glass Ceramics: The Product Consistency Test (PCT)," American Society for Testing and Materials (ASTM), ASTM C1285-02, West Conshohoken, PA. 2002.

2. "Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms," U.S. Department of Energy, Office of Environmental Management, USDOE Document EM-0093, Revision 2, Washington, DC, 1996.

3. "Defense HLW Glass Degradation," Bechtel SAIC Company, Report ANL-EBS-MD-000016 Rev 01, Las Vegas, NV, 2003.

4. M.K. Hackney, "Waste Form Qualification Support for Pu Vit" Technical Task Request, Westinghouse Savannah River Company, PuVit TTR-05-0001, Revision 0, Aiken, SC, 2005.

5. D.K. Peeler, "Standard Laboratory-Scale Melting Procedures for Plutonium Containing LaBS Glasses," Westinghouse Savannah River Company, SRT-GFM-97-0010, Revision 0, Aiken, SC, 1997.

6. "SRNL Conduct of Research and Development, Integrated Safety Management for the R&D Environment," Westinghouse Savannah River Company, WSRC-IM-97-00024, Revision 3, Aiken, SC, 2004.

IX. QA PLAN CHECKLIST

The following QA Procedures apply for this task (indicate Yes, No or "AR" - as required). Current revision of the procedure will be used. The QA controls are the procedures identified on the checklist. If the procedures on the matrix are changed, applicable procedures will be followed.

Yes	No	AR	
			1-0 ORGANIZATION
X			1Q, QAP 1-1, Organization
X			L1, 1.02, SRNL Organization
		X	1Q, QAP 1-2, Stop Work
			2-0 QUALITY ASSURANCE PROGRAM
X			1Q, QAP 2-1, Quality Assurance Program
X			L1, 8.02, SRNL QA Program Clarifications, Attachment 8.2-1
X			1Q, QAP 2-2, Personnel Training & Qualification
X			L1, 1.32, Read & Sign
X			1Q, QAP 2-3, Control of Research & Development Activities
X			L1, 8.02, SRNL QA Program Clarifications, Attachment 8.2-3
X			L1, 7.10, Control of Technical Work
X			L1, 7.16, Laboratory Notebooks & Logbooks
	X		1Q, 2-4 Auditor/Lead Auditor Qualification & Certification - does not apply to Immobilization Technology Section Tasks
	X		1Q, 2-5 Qualification & Certification of Independent Inspection Personnel - does not apply to Immobilization Technology Section Tasks
X			1Q, QAP 2-7, QA Program Requirements for Analytical Measurement Systems
			3.0 DESIGN CONTROL
	X		1Q, QAP 3-1, Design Control
	X		L1, 7.10, Control of Technical Work
			4-0 PROCUREMENT DOCUMENT CONTROL
		X	1Q, QAP 4-1, Procurement Document Control
		X	E7, 3.10, Determination of Quality Requirements for Procured Items
		X	7B, Procurement Management Manual (For Reference Only)
		X	3E, Procurement Specification Manual (For Reference Only)
			5-0 INSTRUCTIONS, PROCEDURES & DRAWINGS
X			1Q, QAP 5-1, Instructions, Procedures & Drawings
	X		E7, 2.30, Drawings
X			L1, 1.01, SRNL Procedure Administration
			6-0 DOCUMENT CONTROL
X			1Q, QAP 6-1, Document Control

Yes	No	AR	
X			1B, MRP 3.32, Document Control
			7-0 CONTROL OF PURCHASED ITEMS & SERVICES
		X	1Q, QAP 7-2, Control of Purchased Items & Services
		X	7B, Procurement Management Manual (for reference)
		X	3E, WSRC Procurement Specification Manual (for reference)
	X		1Q, QAP 7-3, Commercial Grade Item Dedication
	X		E7, 3.46, Replacement Item Evaluation/Commercial Grade Item Dedication
			8-0 IDENTIFICATION & CONTROL OF ITEMS
X			1Q, QAP 8-1, Identification & Control of Items
X			L1, 8.02, SRNL QA Program Clarifications, Attachment 8.8-1
	X		**9-0 CONTROL OF PROCESSES - does not apply to Immobilization Technology Section Tasks**
			10-0 INSPECTION & VERIFICATION
	X		1Q, QAP 10-1, Inspection & Verification
	X		L1, 8.10, Inspection
			11-1 TEST CONTROL
	X		1Q, QAP 11-1, Test Control
			12-1 CONTROL OF MEASURING & TEST EQUIPMENT
X			1Q, QAP 12-1, Control of Measuring & Test Equipment
	X		1Q, QAP 12-2, Control of Installed Process Instrumentation
	X		1Q, QAP 12-3 Control & Calibration of Radiation Monitoring Equipment - does not apply to Immobilization Technology Section Tasks
			13-0 PACKAGING, HANDLING, SHIPPING & STORAGE
		X	1Q, QAP 13-1, Packaging, Handling, Shipping & Storage
		X	L1, 8.02, SRNL QA Program Clarifications, Attachment 8.13-1
			14-0 INSPECTION, TEST & OPERATING STATUS
		X	1Q, QAP 14-1, Inspection, Test & Operating Status
		X	L1, 8.02, SRNL QA Program Clarifications, Attachment 8.14-1
			15-0 CONTROL OF NONCONFORMING ITEMS
		X	1Q, QAP 15-1, Control of Nonconforming Items
		X	L1, 8.02, SRNL QA Program Clarifications, Attachment 8.15-1
		X	1B, 4.23, STAR

Yes	No	AR	
			16-0 CORRECTIVE ACTION SYSTEM
		X	1Q, QAP 16-3, Corrective Action Program
		X	1.01, MP 5.35, Corrective Action Program
		X	1B, 4.23, STAR
			17-0 QA RECORDS MANAGEMENT
X			1Q, QAP 17-1, QA Records Management
X			L1, 8.02, SRNL QA Program Clarifications, Attachment 8.17-1
X			L1, 7.16, Laboratory Notebooks & Logbooks
			18-0 AUDITS
		X	1Q, QAP 18-2, Quality Assurance Surveillance
		X	1Q, QAP 18-3, Quality Assurance External Audits
		X	1Q, QAP 18-4, Management Assessments
		X	12Q, Assessment Manual
		X	1Q, QAP 18-6, Quality Assurance Internal Audits
		X	1Q, QAP 18-7, Quality Assurance Supplier Surveillance
			19-0 QUALITY IMPROVEMENT
		X	1Q, QAP 19-2, Quality Improvement
		X	L1, 8.02, SRNL QA Program Clarifications, Attachment 8.19-2
			20-0 SOFTWARE QUALITY ASSURANCE
		X	1Q, QAP 20-1, Software Quality Assurance
		X	L1, 8.20, Software Management & Quality Assurance
	X		**21-1 ENVIRONMENTAL QUALITY ASSURANCE - does not apply to Immobilization Technology Section Tasks**
			In addition to procedures noted above, if RW-0333P requirements are invoked, the following procedures apply. These procedures may also apply at the discretion of the Task Leader to non-RW-0333P tasks.
X			L1, 8.21, Supplemental QA Requirements for DOE/RW-0333P
			Sample Control:
X			L1, 7.15, Obtaining Analytical Support
			Scientific Investigation:
X			L1, 7.16, Laboratory Notebooks & Logbooks

X. Identify any exceptions or additions to the procedures listed in the QA Matrix:

WSRC-IM-2002-00011, "Technical Report Design Check Guidelines," will be used to help ensure the quality and consistency of the technical review process for technical reports produced by SRNL/ITS.

RW-0333P applies to this task as defined in the TTR [4].

XI. Complete this part only if Section 20 procedures (software) are invoked. Identify who will act in each of the following capacities. If Section 20 is N/A, mark these N/A.

Owner: N/A

Designer: N/A

Maintainer: N/A

Tester: N/A

XII. Document Approval:

Identify documents requiring management, customer or CQF approval

Document	Management		Customer		CQF	
	Yes	**No**	**Yes**	**No**	**Yes**	**No**
Technical & QA Plan	**X**		**X**		**X**	
Analytical Study Plan	**X**		**X**			**X**
Final Report	**X**		**X**			**X**

XIII. Anticipated Records:

The following records are anticipated from this task. Indicate Yes, No or AR (as required):

Yes	No	AR	Description
X			Task Technical & QA Plan
X			Technical Notebooks
X			Task Technical Reports
	X		Data Qualification Reports
		X	Supporting Documentation

XIV. ATTACHMENTS: None