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Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

99-EAP-386

AUG 12 1999

Mr. Michael A. Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
P. O. Box 47600
Olympia, Washington 98504



Dear Mr. Wilson:

HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (TRI-PARTY AGREEMENT) M-26-01H, "TRANSMITTAL OF THE STATEMENT OF DISPUTE FOR THE 1998 LAND DISPOSAL RESTRICTIONS (LDR) COMPLIANCE INSPECTION, NOTICE OF CORRECTION (NOC) AT HANFORD"

- References:
1. Letter L. Ruud, Ecology, to G. H. Sanders, RL, "Notice of Correction Resulting from the 1998 LDR Compliance Inspection at Hanford (Tri-Party Agreement Milestone M-26-01H)," dated June 15, 1999. 50881
 2. Letter, G. H. Sanders, RL, to M. A. Wilson, Ecology, "Notice of Correction Arising from the 1998 LDR Compliance Inspection at Hanford (Tri-Party Agreement Milestone M-26-01H)," dated June 10, 1999. 50766 ✓
 3. Letter, L. Ruud, Ecology, to P. W. Kruger, et al., "Notice of Correction Resulting from the 1998 LDR Compliance Inspection at Hanford (Tri-Party Agreement Milestone M-26-01H)," dated June 3, 1999. 50760 ✓
 4. Letter, L. Ruud, Ecology, to G. H. Sanders, RL, "Compliance of Hanford Federal Facility and Consent Order (Tri-Party Agreement), Milestone M-26-01I (99-EAP-263)," dated May 11, 1999. 50704
 5. Letter, M. A. Wilson, Ecology, to L. L. Piper, et al, "Hanford Site Tank Waste Treatment Capacity and Associated Compliance Concerns," dated January 4, 1999. /

On June 3, 1999, the State of Washington Department of Ecology (Ecology), issued an NOC letter (Reference 3) to the U.S. Department of Energy, Richland Operations Office (RL) alleging violations of the Resource Conservation and Recovery Act (RCRA) LDR.

RL believes the alleged violations, concerns, and corrective measures directed by Ecology's letter to be actions that are under the purview of the Tri-Party Agreement. Departure from the Tri-Party Agreement process will lead to inconsistency in addressing such matters. RL notified Ecology on June 10, 1999, of its objections and elected to exercise the dispute resolution provisions as specified by the Tri-Party Agreement (Reference 2).

Mr. Michael A. Wilson
99-EAP-386

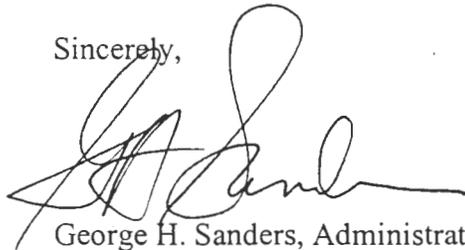
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On June 15, 1999, Ecology formally rejected RL's position. In that letter, Ecology stated their position that RL cannot initiate dispute resolution for violations identified as part of a compliance inspection, under Article VIII of the Tri-Party Agreement (Reference 1).

Since entering dispute resolution, RL and Ecology project managers have engaged in discussion, but have been unsuccessful in fully resolving the issues raised by the NOC. Consequently, by this letter, RL is submitting a Statement of Dispute and gives notice of its election to elevate this matter to the Inter Agency Management Integration Team for further consideration. As expressed in the enclosed Statement of Dispute, RL believes this matter can be resolved to our mutual satisfaction, and looks forward to working constructively with Ecology staff toward that end. If there are any questions, please contact me on (509) 376-6888.

Sincerely,



George H. Sanders, Administrator
Hanford Tri-Party Agreement

EAP:MFJ

Enclosure

cc w/encl: K. R. Fecht, BHI
G. S. Robinson, BHI
J. R. Wilkinson, CTUIR
W. D. Adair, DESH
M. N. Jaraysi, Ecology
L. E. Ruud, Ecology
R. F. Stanley, Ecology
D. Bartus, EPA

J. Boller, EPA
D. Ingemansen, EPA
D. R. Sherwood, EPA
J. S. Hertzfel, FDH
A. M. Miskho, FDH
S. A. Szendre, FDH
M. Reeves, HAB
P. Sobotta, NPT

M. L. Blazek, OOE
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.B. M. Barnes, WMH
D. E. Nester, WMHL
J. A. Winterhalder, WMH
R. Jim, YN
Administrative Record, H6-08

**U.S. Department of Energy
Statement of Dispute**

**Hanford Federal Facility Agreement
and Consent Order**

**Land Disposal Restrictions (LDR) Notice of Correction
Dated June 3, 1999**

I. SUMMARY OF DISPUTE

On June 4, 1999, the U.S. Department of Energy, Richland Operations Office (RL) received a Notice of Correction (NOC) from the Washington State Department of Ecology (Ecology) (Ref. 1). The NOC resulted from a review of the Hanford Land Disposal Restrictions (LDR) Report and a Dangerous Waste Compliance Inspection performed by Ecology from September 29, 1998, to June 3, 1999. The NOC alleges violations of the Hanford Federal Facility Agreement and Consent Order (also referred to herein as the Tri-Party Agreement or TPA) Milestone M-26-01H and 40 CFR 268.7.

The corrective actions specified in Reference 1, to the extent that a factual or legal basis exists for requiring such corrective actions, are activities that are properly the subject of the TPA. Objecting to Ecology's determination, and direction that actions be taken independent of the TPA, RL gave Ecology timely written notice of its objection, and of its election to exercise the dispute resolution provisions of the TPA (Ref. 2). At the June 22, 1999, Inter-Agency Management Integration Team (IAMIT) meeting, EPA discussed the issue with Ecology in RL's presence. No conclusions were rendered at that time.

In a letter dated June 15, 1999, the Ecology inspector and document reviewer, though not the project manager, denied TPA dispute resolution for this matter, citing a position that dispute resolution cannot be initiated "for violations identified as part of a compliance inspection, under Article VIII of the Tri-Party Agreement." Ecology refuses to recognize the validity of RL's exercise of its dispute resolution rights under the TPA. Thus, the parties have failed to resolve the matter at the project manager level within the thirty (30) day time period provided for by the TPA. There being no agreement to extend dispute resolution at the project manager level, RL elects by submission of this Statement of Dispute to elevate this matter to the IAMIT for its deliberation.

II. ALLEGED VIOLATIONS

In its NOC, Ecology alleges that RL is responsible for several violations of LDR requirements. The alleged violations, including the alleged violations of 40 CFR 268.7,

are all related to work performed in support of TPA Milestone M-26-01 for submittal of an annual LDR Report. In addition to the violations alleged in Ecology's NOC, the document also contains thirteen statements of concern about various alleged inadequacies regarding LDR implementation at Hanford. While the accuracy of the facts and validity of the allegations in Ecology's NOC are neither admitted nor denied by this Statement of Dispute, RL believes that the appropriate mechanisms for disposition of corrective actions related to completion of Tri-Party Agreement requirements properly lie within the Agreement itself.

III. U.S. DEPARTMENT OF ENERGY POSITION

The TPA, Milestone M-26-01 requires the submittal of an annual Hanford Land Disposal Restrictions Report using a format based on "*Requirements for the Hanford LDR Plan*" issued by Ecology and EPA on April 10, 1990. M-26-01 also requires that the LDR Report be submitted by RL as a primary document. Article XV of the TPA identifies Section 9.0 of the Action Plan as the procedures that shall be used by DOE, EPA, and Ecology for primary documents. Article XV states, in part, that "[a]ll primary documents shall be subject to Dispute Resolution in accordance with Article VIII where Ecology is the lead regulatory agency...."

It is RL's position that, by the terms of the TPA, Ecology's allegations of noncompliance with LDR requirements are premature, irrespective of potential merit. RL has complied with the requirements of TPA Milestone M-26-01. The LDR Report has been prepared and submitted annually, as a primary document, in a timely manner, consistent with the required content. Despite repeated failure by Ecology to provide timely, formal comments, RL has reformatted the LDR Report in response to Ecology's informal input, and has incorporated informal comments by Ecology on the 1998 report into the 1999 report. A summary of the comment history for the LDR Report is provided (Ref. 3).

The detailed requirements associated with M-26 are not driven by specific regulations, but are instead governed by the language of the document *Requirements for the Hanford LDR Plan* signed by EPA and Ecology, and the language of the M-26 milestone itself.

As documented in the comment history, above, the Hanford LDR Report has been consistent with *Requirements for the Hanford LDR Plan* since 1990. Review of the documented history regarding issuance of the LDR Report demonstrates that RL has annually submitted the LDR Report as a primary document in accordance with Section 9.2.1. Nevertheless, Ecology has chosen to circumvent the prescribed process of the TPA Action Plan, Section 9.2.1 by issuing the NOC. Ecology has not utilized Section 9.2.1 to communicate comments and concerns to RL for proper resolution.

The TPA Action Plan, Section 9.2.1 states:

“Comments may concern all aspects of the document (including completeness) and should include, but are not limited to, technical evaluation of any aspect of the document, and consistency with...applicable regulations, pertinent guidance or written policy. Comments by the lead regulatory agency shall be provided with adequate specificity so that the DOE can make necessary changes to the document.”

Review of the documented LDR Report history demonstrates that RL has performed as required in its development of the report and in its efforts to respond to comments provided by Ecology. Furthermore, such review also demonstrates that Ecology has not met the requirements of Section 9.2.1 for the Hanford LDR Report, which requires use of Figure 9-1 for reviewing and commenting on primary documents. Based on the process flow outlined in Figure 9-1, it is obvious that any unresolved issues regarding primary documents must be handled through dispute resolution.

IV. CONCLUSION

All three signatories have stated in writing that the Tri-Party Agreement is the proper mechanism for establishing requirements pertaining to the storage and treatment of mixed wastes at Hanford (Ref. 4, 5, and 6). Milestone M-26-01 requires the annual submittal of the LDR Report as a primary document. The TPA Action Plan, Section 9.2.1 governs the review and comment process for the LDR Report.

RL has complied with TPA requirements regarding format, content, and comment response for the annual LDR Report. Therefore, any changes to the LDR Report should be in accordance with the Section 9.2.1 process developed for primary documents.

In its Inspection Report issued on March 5, 1999, Ecology acknowledges that its original intent in its inspection was to support its review of the Hanford LDR Report (Ref. 7). In this report, Ecology indicated that the compliance inspection would be “in support of Ecology’s detailed review of U.S. DOE’s 1998 LDR Report, which is to contain the criteria detailed in the Hanford LDR Plan per TPA Milestone M-26.” Ecology also repeatedly informed contractors that the purpose of the inspection was to perform an administrative review of the Hanford LDR Report and to conduct a field-sampling event to assess compliance with characterization requirements for LDR. Because the LDR Report is a primary document, any LDR Report issues from the inspection must be resolved through the process of TPA Action Plan, Section 9.2.1.

Ecology has failed to confirm its understanding of the specific approach that has been documented and followed since the initial agreement regarding mixed waste LDR compliance at Hanford. Some of the specific allegations are in direct conflict with work products that have been provided to Ecology annually since 1990 and essentially

accepted as meeting the agreed-upon requirements. The approach used for the LDR Report has been clarified repeatedly in informal correspondence to assist Ecology in understanding the report. The issuance of an NOC is inappropriate at this time because Ecology has not met the requirements of TPA Action Plan, Section 9.2.1 regarding timely and specific communication to RL to address issues or evaluate potential deficiencies within the LDR Report. Furthermore, Ecology has made no effort to use the TPA change process to seek to incorporate modifications to clarify/amend its expectations for the Hanford LDR Plan.

V. RELIEF SOUGHT

RL respectfully requests that the IAMIT resolve this dispute under the dispute resolution provisions of the Tri-Party Agreement (Article VIII, Resolution of Disputes). RL believes that this dispute can be resolved at the project manager level by the withdrawal of the NOC by Ecology and the issuance of comments to the LDR Report in accordance with the TPA Action Plan Section 9.2.1 process.

In the Notice of Correction, Ecology alleged that RL and its contractors are responsible for several testing and record keeping violations of 40 CFR 268.7. The alleged violations are all related to work performed in support of the Hanford LDR Report. Some items in the LDR Plan, annual reports, and supporting documentation may require modification. These modifications are best accomplished through the Tri-Party Agreement processes where reasonable due dates can be established for any appropriate programmatic corrective actions for the LDR Plan system required by Ecology in the NOC.

RL requests that the IAMIT agree to toll the dispute resolution process at the IAMIT level for an appropriate period of time, and direct the respective Ecology and RL project managers to meet and resolve any misunderstandings regarding the LDR Plan approach. Further, Ecology and RL shall subsequently negotiate a mutually acceptable resolution, including, if necessary, a change control form establishing appropriate milestones and/or target dates addressing any remaining corrective actions after such resolution.

REFERENCES

1. Letter, L. Ruud, Ecology, to P. Kruger, RL, et al., RL, "Notice of Correction Resulting from the 1998 Land Disposal Restrictions (LDR) Compliance Inspection at Hanford (TPA Milestone M-26-01H)," dated June 3, 1999.
2. Letter, G.H. Sanders, RL, to M. A. Wilson, Ecology, "Notice of Correction Arising from the 1998 Land Disposal Restrictions (LDR) Compliance Inspection at Hanford (TPA Milestone M-26-01H)," dated June 10, 1999.
3. "LDR Report of the Comment History."
4. Letter, S. H. Wisness, RL, to P. T. Day, et al., EPA, "Impact of Plan Requirements of the Federal Facilities Compliance Act, PL 102-386, at the Hanford Site," February 10, 1993.
5. Letter, A. Boyd, EPA, to R. Carosino, RL, dated March 18, 1993.
6. Letter, J. Stohr, Ecology, to S. H. Wisness, RL, "Impact of Plan Requirements of the Federal Facility's Compliance Act, PL 102-386, at the Hanford Site," April 15, 1993.
7. Inspection Report, L. Ruud, Ecology, to USDOE, "Nuclear Waste Program Hanford Project Dangerous Waste Compliance Inspection Land Disposal Restrictions (LDRs)," March 5, 1999.

REFERENCE 1



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

1315 W. 4th Avenue • Kennewick, Washington 99336-6018 • (509) 735-7581

June 3, 1999

Mr. Paul Kruger
U. S. Department of Energy
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Fluor Daniel Hanford, Incorporated
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Richland, Washington 99352

Mr. Duane L. Renberger
Waste Management Hanford Incorporated
P.O. Box 700, MSIN: H6-32
Richland, Washington 99352

Dear Ms. Austin and Messrs. Kruger and Adair:

Re: Notice of Correction Resulting from the 1998 Land Disposal Restrictions (LDR)
Compliance Inspection at Hanford (TPA Milestone M-26-01H)

Thank you for the assistance of the U.S. Department of Energy (USDOE), Fluor Daniel Hanford Inc. (FDH), and Waste Management Hanford Inc. (WMH) personnel during the Washington State Department of Ecology's (Ecology) September 29, 1998, inspection in support of the 1998 Report on Hanford Site Land Disposal Restrictions (LDR) for Mixed Waste, per the Tri-Party Agreement (TPA) Milestone M-26-01H.

Based on the information gathered during this inspection, your non-compliance with LDR requirements is very serious. This significant non-compliance persists in spite of the outreach and technical assistance on LDR issues that we have offered you; and, many of the areas of non-compliance identified this year, are similar to those discussed during our technical assistance visit last year.



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Federal laws governing application of RCRA LDR to mixed waste, at facilities like Hanford, allow on-site storage of prohibited mixed waste while treatment capacities and technologies are developed, provided the facility is in compliance with all the requirements of an agreement or order governing the treatment of such waste, per 42 USC 6939C(b)(1)(A)(ii). For Hanford, this includes compliance with the Hanford LDR Plan, established and approved in April 1990, and the annual updates required by TPA Milestone M-26.

The Hanford LDR Plan requirements include:

- a "Storage Report" identifying and describing storage, and assessing compliance with storage requirements
- a "Comprehensive Waste Characterization Plan," including a plan and schedule to characterize all waste stored at Hanford, and all waste streams generated at Hanford
- a "Treatment Report" identifying treatment and disposal technologies and capacities
- a "Treatment Plan" including Milestones, and schedules for developing and implementing treatment technologies
- and a "Waste Minimization Plan" identifying methods to minimize the generation of LDR waste

Implementation of the Hanford LDR Plan (and its sub-plans) is governed by TPA Milestone M-26-01H (for 1998).

Ecology's 1998 LDR inspection documented four (4) violations and thirteen (13) concerns, as follows:

VIOLATIONS

Violation #1: Hanford LDR Plan, Section 1.a., Storage Report Requirements, per TPA Milestone M-26-01H

Section 1.a. of the Hanford LDR Plan requires USDOE to accurately identify and describe, by quantity and physical location, the mixed waste stored at Hanford.

In the 1998 LDR Report, USDOE failed to report the quantity and physical location of all mixed wastes stored at Hanford.

- *During Ecology's inspection, the Project Hanford Management Company (PHMC) representative said, "All RCRA mixed waste streams that are actively managed are included in the 1998 Hanford LDR report." WMH representatives advised Ecology that mixed wastes were accounted for as either inventoried waste, or as waste projected for storage in the Central Waste Complex (CWC). When asked how the projected waste storage estimates were derived for the LDR Report, WMH said the Solid Waste Information Forecast Tracking*

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(SWIFT) report provided that information. However, the SWIFT report does not provide the quantity, physical locations, or methods of storage of the current inventory of mixed waste. Rather, the SWIFT report provides waste forecasts of waste generation. In addition, the SWIFT report states, "Waste streams held at PNNL with no defined disposal pathway were not included in the forecast." All mixed wastes are required to be included in the LDR report. This includes all LDR mixed waste at all locations at Hanford. Referencing the SWIFT report's waste generation projections as documentation of mixed waste storage at Hanford is inaccurate.

Violation #2: Hanford LDR Plan, Section 1.d., Storage Report Requirements, per TPA Milestone M-26-01H

Section 1.d. of the Hanford LDR Plan requires USDOE to assess the compliance status of the storage methods pursuant to applicable State and Federal standards. WMH cited the Facility Evaluation Board (FEB) assessments as the documentation used to satisfy Section 1.d. of the LDR Plan. Review of these assessments revealed that not all dangerous waste storage requirements were assessed by the FEB.

USDOE failed to perform a complete assessment of the compliance status of storage methods.

- *The FEB conducted a "performance-based" assessment of B Plant and the Waste Encapsulation Storage Facility (WESF) in 1997. This assessment did not address storage in tank systems pursuant to Washington Administrative Code (WAC) 173-303-640. Both B-Plant and WESF are interim status facilities and, therefore, require compliance with WAC 173-303-400 interim status facility standards and, by reference, specific sections of 40 CFR 265. (Note: Due to the B Plant transition activities, Ecology previously granted USDOE conditional relief from specific interim status storage requirements for specific storage units at B Plant, i.e., inspection, labeling, secondary containment, leak detection. Based on the transitional status of B-Plant, the need for future assessments in accordance with the Hanford LDR Plan should be discussed with Mr. Shri Mohan, Ecology's Project Manager for Transition.)*
- *The FEB conducted a "performance-based" assessment of the double-shell tanks (DST) and Characterization Project in March 1997. This assessment did not address the compliance status of the DSTs themselves, pursuant to WAC 173-303-640. When asked about this apparent omission, the FEB investigator said that they [his assessment group] assumed the DSTs should meet RCRA rules; therefore, they did not look at their compliant storage status.*

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- *The FEB conducted a "performance-based" assessment of the 222-S Lab and Waste Sampling and Characterization Facility (WSCF) in September 1997. This assessment did not address the compliance status of the interim status 219-S tank system at 222-S, pursuant to WAC 173-303-640. When asked, the FEB investigator said his group did not look at the interim status storage tanks. Also, the report does not suggest that drum storage areas were assessed.*

Violation #3: Hanford LDR Plan, Section 5, Treatment Plan Requirements, per TPA Milestone M-26-01H

Section 5 of the Hanford LDR Plan requires the LDR Plan to include a Treatment Plan for the LDR wastes identified in the Treatment and Storage Reports, as well as all applicable Milestones and associated schedules for developing and implementing treatment, or management technologies, to achieve compliance with LDR requirements for each LDR waste, including, as appropriate, such items as waste characterization data.

USDOE failed to provide applicable Milestones or schedules for developing and implementing treatment technology for each LDR waste. In particular, USDOE's 1998 Treatment Plan for single-shell tanks (SST), and DST waste is inadequate, and does not meet Hanford LDR Plan requirements.

- *On January 4, 1999, Mike Wilson, Ecology's Nuclear Waste Program Manager, issued a letter to USDOE expressing concerns regarding USDOE's compliance with LDRs for tank waste. In this letter, Ecology reaffirmed that no relief has been provided by Ecology from TPA tank waste treatment schedules currently in existence. Ecology expressed concern regarding USDOE's compliance with the TPA regarding the acquisition and operation of tank waste treatment facilities. Specifically, existing schedules require that treatment capacity be acquired either on an agreed to "primary path" requiring two (2) competitive treatment facilities be operational by 2002, or an agreed to "alternate path," requiring initial low activity waste immobilization be operational by 2003, should USDOE deem the primary path to be infeasible. USDOE's intentions do not reflect any efforts underway to meet either of these approved compliance paths. Although USDOE is working towards other paths forward to LDR treatment for tank waste, namely, the Tank Waste Remediation System (TWRS) Privatization effort, this effort is not yet governed by TPA Milestones, and is not reflected in the Hanford LDR Treatment Plan.*

Violation #4: Testing, Tracking, and Recordkeeping Requirements for Generators, Treaters, and Disposal Facilities (40 CFR Part 268.7)

40 CFR 268.7 requires a generator to determine if their waste has to be treated before it can be land disposed, and to retain all data used to make the determination. Ecology reviewed seven (7) Operating Record files; six (6) out of seven (7) had deficiencies associated with determination of

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Underlying Hazardous Constituents (UHCs), assignment of subcategories, and retaining supporting data in the generator's files.

USDOE failed to properly complete LDR testing, tracking, and recordkeeping requirements for six (6) out of seven (7) container files reviewed.

Container #225B-98-000006 – T Tank

- *On the Land Disposal Notification and Certification form used for container #225B-98-000006 (T Tank), space #6a was checked stating "Underlying Hazardous Constituent Determination not Applicable." However, the T Tank designation indicates the presence of characteristic waste (D002); therefore, generators must determine the UHCs that are reasonably expected to be present in the waste (unless a container is being managed as a labpack in accordance with the requirements of 40 CFR 268.42[c]).*

Container #9403139 – Tank Farms

- *On the Land Disposal Notification and Certification for container #9403139, the description of subdivisions (subcategory) is not complete for D006 and D008 waste codes. Line 6a of the form should include D003 with the list of codes requiring the generator to check for Underlying Hazardous Constituents. Line 6a and line 6b were not completed, indicating the generator did not check for the presence of UHCs.*

Container #9521493 – Plutonium Finishing Plant (PFP)

- *The generator records for container #9521493 did not contain adequate supporting data to make the determination regarding the concentration of silver (D011) in the waste. The generator records report a D011 concentration of 100 ppm (equivalent to approximately 100 mg/kg). However, no indication is given of how this concentration was determined. (Analyses from Paragon Laboratories resulted in silver at 1,330 mg/kg. Analysis from WSCF resulted in silver at 5,700 mg/kg.)*
- *The generator records for container #9521493 did not include the proper waste code for corrosivity. Specifically, the Washington Solid Corrosive Code WSC2 was used. Waste codes from designation are determined at the point of generation, not after being divided or diluted, or in this case, after a liquid corrosive is absorbed in diatomaceous earth. The proper waste code of D002 was not assigned.*

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Container #9601762 – Bechtel Hanford Inc. (BHI)

- *The generator records for container #9601762 did not contain adequate supporting data to make the determination regarding the concentrations of contaminants in the waste. Criteria for designation appears to have been based on a weight percent calculation; however, this file does not contain information on how weight percent values were determined. WMH staff stated the designation was based on process knowledge gained from review of written analytical procedures that generated the waste and the specific constituent quantities were derived from these procedures. The container file did not contain any reference to such written analytical procedures. (NOTE: The waste in this container had been designated with the following waste codes: D002, D004, D006, D007, D008, D009, D010, D011. The analyses from WSCF resulted in pH<1 for the three (3) sample sets representing the contents of this waste container. No constituent was found that exceeded regulatory designation or UHC limits.)*
- *On the Land Disposal Notification and Certification form for container #9601762, the description of subdivisions (subcategory) is not complete for D006, D008, and D009 waste codes.*

Container #9700906 – 222-S Laboratory

- *The Land Disposal Notification and Certification Form for container #9700906 includes the waste codes D036 and U169. The form states that the generator had reviewed the Universal Treatment Standards (UTS) list and determined UHCs are present in the waste. This determination was based on the generator's knowledge of the waste and analysis. The generator identified nitrobenzene as a UHC; but nitrobenzene is not the underlying hazardous constituent, it is the primary hazardous constituent. Also, the generator assigned the waste code of U169; however, this waste is not a discarded chemical product. The waste was identified as "contaminated rad liquid waste" in the generator file. Also, an independent laboratory analysis (from Paragon Laboratories) revealed the presence of lead (.38 mg/kg) in the sample. Further, the file does not contain adequate process knowledge to determine if the nitrobenzene was used for its solvent properties, in which case the F004 code would be applied to the waste.*

Container #9800899 – Pacific Northwest National Laboratory (PNNL)

- *The generator records for container #9800899 did not contain adequate supporting data to determine the concentrations or presence of contaminants in the waste. Criteria for designation appears to have been based on a weight percent calculation; however, this file does not contain information on how this weight percent was determined. Also, the waste was assigned the waste code D030 indicating the presence of 2,4 Dinitrotoluene; however, this contaminant does not appear on any of the associated paperwork for the waste. (NOTE: The presence/absence of 2,4 Dinitrotoluene is particularly important due to its potential for explosion when heated.) Further, the file does not contain the proper information for assessing the dangerous waste criteria for toxicity.*

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- *The Land Disposal Notification and Certification Form for container #9800899 includes waste codes D002, D011, and D030 (the codes associated with the samples analyzed from the two [2] inner containers chosen for this inspection). The form also includes the code D006, associated with another inner container. The description of subdivisions (subcategory) is not complete for D006. In addition, the analysis from WSCF for inner container #3908 indicates that 2,4 Dinitrophenol, o-Nitrophenol, and Chloroform levels exceed the regulatory limits for UHCs; however, these constituents did not appear on the generator's UHC paperwork for this container. WSCF analysis also found acetone and methylene chloride levels that exceed regulatory limits for UHCs. These constituents were identified on the UHC paperwork for the drum, but were attached to waste with F001 and F002 codes assigned to different inner containers.*

CONCERNS

Concern #1: Section 3 of the Hanford LDR Plan requires that the LDR Report include a comprehensive Waste Characterization Plan, that includes a plan and schedule to characterize all waste stored at Hanford. WMH informed Ecology that the characterization schedule provided with the LDR Report was only a target schedule, despite its being presented by USDOE in a document required to be compliant with TPA Milestone M-26-01H. USDOE failed to completely implement their schedule for characterizing all waste stored at Hanford.

- *Ecology was provided a characterization schedule; however, WMH reported that the schedule was not funded for characterizing waste in 1999, nor were all waste streams characterized as scheduled in FY 1998.*
- *The characterization schedule did not include all waste stored at Hanford. Notably missing are characterization schedules for DST and SST waste. The TWRS Regulatory Data Quality Objective (DQO) does not include a schedule for completing characterization on the waste tanks selected for vitrification under Phase I of the Privatization Contract. Also, there is no schedule in place for characterizing waste in the remaining DSTs and SSTs (selected for vitrification under Phase II of the Privatization Contract).*
- *M-19-00 deals with contact-handled low-level mixed waste. WMH provided a report in response to Ecology's question of which waste streams and volumes are being used to satisfy M-19-00. This report indicates a schedule is not complete for characterization of approximately 3,500 cubic meters of mixed waste currently in storage from seven (7) waste streams. Failure to characterize the mixed waste could jeopardize the schedule for non-thermal treatment, or direct disposal, under TPA Milestone M-19-00.*
- *M-91-12 calls for the initial treatment of at least 600 cubic meters of currently stored and newly generated contact-handled low-level mixed waste, by December 2005. WMH provided a report in response to Ecology's question of which waste streams and volumes are being thermally treated under M-91-12. This report identifies more than 3,700 cubic meters of mixed waste from three (3) waste streams that are candidates for thermal treatment under TPA Milestone M-91-12 (forecasted through 2002). Characterization is not complete for approximately 900 cubic meters of this waste currently in storage from two (2) waste*

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streams. Failure to characterize the mixed waste could jeopardize the schedule for thermal treatment under TPA Milestone M-91-12.

- *According to the WMH report identifying which waste streams are destined for which treatment options, 1,749 cubic meters of transuranic mixed waste is planned for treatment under the M-91-02, 03, 06, and 08 Milestones (forecasted through 2002). Characterization is not complete for 347 cubic meters of transuranic mixed waste currently in storage from three (3) waste streams.*

Concern #2: The waste stream identification system used in the 1998 LDR Report does not coincide with the waste stream identification system used on site, i.e., the Waste Specification Records (WSRD) system.

- *During Ecology's inspection, WMH staff acknowledged this inconsistency and committed to reconciling this discrepancy in future reporting and tracking activities.*

Concern #3: Requested records were not received in a timely manner.

- *Five (5) container records were requested by Ecology on October 6, 1998. These records were to be provided to Ecology by October 9, 1998. Three (3) files were received on October 12, 1998; two (2) were received October 14, 1998. These delays caused unnecessary rescheduling and poor coordination for the sampling event, e.g., establishing container-specific sampling needs, assessing transportation requirements for samples, setting up radiological controls at T Plant.*
- *A report on the number of containers and volume, by waste stream, of all containers at CWC was requested on September 29, 1998. The complete report was not provided to Ecology until October 16, 1998. The WMH representative said the delay was due to the report being reviewed to ensure it was a "clean" list. Ecology informed WMH that the request was for the data as it appeared on the date requested, not after being reviewed, and perhaps altered, prior to submission to Ecology.*

Concern #4: The schedule and means for reporting waste characterization data is unclear.

- *Page 2-4 of the 1998 LDR Report cites Section 9.6 of the TPA for the schedule and means for reporting waste characterization data. The LDR Report further states that USDOE will notify Ecology and EPA of data availability in the Hanford Environmental Information System (HEIS), including the time and location of sampling, the type of data available, and a list of the sample parameters, or target compounds. WMH provided a Data Management Support table in response to Ecology's question as to where mixed waste data is stored. In a subsequent meeting, Ecology asked if this meant chemical screening information would be in HEIS. WMH staff said "No, that information would be in hard copy in the individual container files." WMH staff said the 1999 version of the LDR Report would be corrected to accurately reflect how this data is stored.*

Ms. Austin; Messrs. Kruger and Adair
June 3, 1999
Page 9

Concern #5: Sampling practices for collecting volatiles and semi-volatiles were not adequate to minimize the loss of volatile components to the atmosphere.

- *During the sampling event at T Plant, several liquid waste volumes were poured into a bowl and allowed to remain open to the atmosphere for up to an hour while volatile and semi-volatile samples were drawn. Ecology acknowledges the difficulties involved with sampling radioactive waste in a greenhouse environment; however, sample collection methods should be reviewed and improved.*

Concern #6: Ecology's review of performance agreements associated with characterizing waste stored in CWC resulted in concerns over the completeness of required actions.

- *Two (2) performance agreements associated with characterizing waste stored in CWC (WM1.1.1, Section 4 and WM1.1.1, Section 5) were reviewed. Based on the WMH report to USDOE on completion of the performance agreements, WMH identified that the waste containers had "... the waste summary verified, underlying hazardous constituents identified, and have been characterized adequately to allow for determination of a treatment path." However, when reviewing the associated container list, it appeared that not all containers had gone through such a characterization process. Rather, it appeared some containers had been merely sorted to reflect the appropriate category of waste awaiting such characterization.*

Concern #7: Waste minimization activities were not well documented in the FEB reports.

- *The 1998 LDR Report states that waste minimization programs are audited regularly via the FEB assessment. Review of the FEB assessment suggests waste minimization assessment activities were minimal. Ecology's 1998 inspection did not focus on a detailed review of the waste minimization requirements detailed in the LDR Plan. However, Ecology will focus on waste minimization in an upcoming inspection.*

Concern #8: The planned treatment and/or disposal of forecasted long-length contaminated equipment is not identified.

- *During the investigation, Ecology requested information as to which LDR wastes streams are being used to satisfy M-19-00. This report identifies more than 8,000 cubic meters of waste from fourteen (14) waste streams that are candidates for non-thermal treatment or direct disposal under TPA Milestone M-19-00 (forecasted through 2002). This report does not identify the planned treatment and/or disposal of 1,532 cubic meters of forecasted long-length contaminated equipment.*

Concern #9: The 1999 LDR Report should reference the characterization plan in place for DST and SST waste.

Ms. Austin; Messrs. Kruger and Adair
June 3, 1999
Page 10

- *When addressing DST and SST waste characterization, the 1998 Hanford LDR Plan states the DSTs and SSTs are being characterized per the M-44 Milestone and work plan. However, for purposes of characterizing tank waste to meet LDR requirements, the criteria are detailed in the Regulatory DQO developed under M-60-14 in support of the TWRS Privatization Phase I contract, which covers treatment of all Phase I tank wastes. Characterization criteria for Phase II tank wastes (the remaining DST and SST tanks not treated during Phase I) have not yet been determined. The 1999 LDR Report should reference the characterization plan developed by the DQO for M-60-14.*

Concern #10: Generator recordkeeping for the following containers is inaccurate and unclear.

- *The generator's Solid Waste Storage/Disposal Record for PFP container #9521493 is inaccurate and unclear. Regarding the inaccuracy, page 2, item 66, asks the generator to identify the weight percent of the hazardous constituents within the container. The total of constituents equals 219%. Regarding the unclear portion, page 2, item 61, asks the generator to provide an article description, with estimated volume % and estimated weight. The articles described are not broken out per inner container. The reader has no way to know the accurate description of each individual package within the container.*
- *The generator's Hazardous Waste Packing Slip for PNNL container #9800899 incorrectly identifies the federal/Environmental Protection Agency (EPA) waste code F003 as a Washington State Department of Energy (WDOE) code.*

Concern #11: Processes for shipping waste samples to Ecology's off-site laboratory need to be refined.

- *Despite advance planning of the sampling event, there were several problems and delays associated with sending Ecology's waste samples from Hanford to Paragon Laboratories, Ecology's laboratory in Colorado. These concerns are associated with receiving radiological screening data from WSCF, arranging off-site transportation, and collecting the required sample volume. In several cases, holding times were not met.*

Concern #12: The Waste Profile sheets are not complete.

- *The Waste Profile Sheets provided in the LDR Report do not identify the number of containers for each waste stream (Section 3.3 of the Profile Sheet).*

Concern #13: Milestone M-26-01 requires that the annual LDR Report be submitted as a primary document, i.e., one that represents the final documentation of key data and reflects decisions on how to proceed.

- *Neither USDOE nor Ecology has managed the LDR Report as a primary document per Section 9 of the TPA. USDOE and Ecology need to take the necessary steps to manage the 1999 LDR Report, and future annual reports, as primary documents.*

Ms. Austin; Messrs. Kruger and Adair
June 3, 1999
Page 11

- (NOTE: The 1999 LDR Report is being managed as a primary document.)

CORRECTIVE MEASURES

In order to correct the violations identified in this Notice of Correction, please complete the following corrective measures within the time frames specified. Please be advised that an order and/or penalty is pending for Violations #1, #2, and #3, pursuant to authority granted under the Hazardous Waste Management Act (RCW 70.105.080 and/or.095), and recognized in the TPA (e.g., Article XLVI). A request for additional time to complete the corrective measures identified in the Notice of Correction must be in writing and received by me for consideration no later than August 2, 1999.

Corrective Measure #1: USDOE failed to report all mixed waste stored at Hanford in the 1998 LDR Report.

1. Within ninety (90) days from receipt of this letter, USDOE, FDH, and WMH must submit to Ecology an addendum to the 1999 Storage Report that identifies and describes all mixed waste stored at Hanford. This addendum must contain the following information for all mixed waste not already identified in the 1999 LDR Report, and/or to complete information on mixed waste provided in the 1999 LDR Report. This addendum, according to the Requirements for Hanford LDR Plan, must contain:
 - a. An identification and description of the mixed waste
 - b. The quantity of waste identified and described
 - c. The physical location and method of storage
 - d. The USDOE's assessment of the compliance status of the storage methods pursuant to applicable State and Federal standards
 - e. Identification of any releases of hazardous waste or hazardous constituents into the environment from the storage units
 - f. Identification of LDR waste generation rates, an estimate of the storage capacity and when storage capacity will be reached, including an identification of the bases and assumptions used in making such an estimate
 - g. Plans to submit requests for variance(s), case-by-case extension(s) of LDR requirements, or other exemptions pursuant to Section 3004 of RCRA, for those wastes identified in the Storage Report

Corrective Measure #2: USDOE failed to perform a complete assessment of the compliance status of storage methods.

1. Within ninety (90) days from receipt of this letter, USDOE must report to Ecology the responsible party/organization that will carry out the assessment. Also, USDOE must report to Ecology the schedule for when inspections will be carried out to meet assessment requirements of the 2000 LDR Report.

Ms. Austin; Messrs. Kruger and Adair
June 3, 1999
Page 12

2. Within ninety (90) days from receipt of this letter, USDOE, in conjunction with the responsible party/organization that will carry out the assessment, must implement a written procedure to be used to assess the compliance status of the storage methods (i.e., satellite storage, ninety (90) day storage, interim status storage, and final facility storage) per applicable State and Federal regulations and Section 1.d. of the Requirements for Hanford LDR Plan. This procedure must include WAC 173-303 requirements for storage (as a generator, interim status facility, or final facility), including, by reference of WAC 173-303-400, the interim status storage requirements set forth in 40 CFR Part 265. The written procedure must be submitted to Ecology.

Corrective Measure #3: USDOE failed to provide applicable Milestones or schedules for developing and implementing treatment technology for each LDR waste.

1. Within ninety (90) days of receipt of this letter, USDOE, FDH, and WMH must submit to Ecology an addendum to the 1999 Treatment Plan that identifies Milestones and schedules for the development and implementation of treatment technologies for all LDR waste. This addendum must be based on the universe of LDR waste identified after completion of Corrective Measure #1, which appears on page #11, to meet the Requirements of the Hanford LDR Plan, and must contain the following:
 - a. For mixed wastes *for which treatment technologies exist*, a schedule for submitting all applicable permit applications, entering into contracts, initiating construction, conducting systems testing, commencing operations, and processing backlogged and currently generated mixed wastes
 - b. For mixed wastes *for which no treatment technologies exist*, a schedule for identifying and developing such technologies, identifying the funding requirements for the identification and development of such technologies, submitting treatability study exemptions, and submitting research and development permit applications. If constraints to this requirement exist, such constraints must be identified
 - c. For all cases where USDOE proposes radionuclide separation of mixed wastes or materials derived from mixed wastes, an estimate of the additional volume of dangerous waste generated by these activities
2. Within ninety (90) days of receipt of this letter, USDOE, FDH, and WMH must submit to Ecology an addendum to the 1999 Waste Characterization Plan that includes a plan and schedule to characterize all waste stored at Hanford and all waste streams generated at Hanford. This addendum must be based on the universe of LDR waste identified after completion of Corrective Action #1 above, must meet the Requirements of the Hanford LDR Plan, and must contain the following:
 - a. Existing plans and schedules for characterizing all waste stored at Hanford and all waste streams generated at Hanford, including an inventory of each type of waste that has not been characterized by sampling and analysis

Ms. Austin; Messrs. Kruger and Adair
June 3, 1999
Page 13

- b. A proposed plan and schedule, for Ecology review and approval, to characterize all waste stored at Hanford and all waste streams generated at Hanford not already under an existing plan or schedule
3. Within ninety (90) days from receipt of this letter, USDOE, FDH, and WMH must identify and report to Ecology the mixed waste for which the requirements for Corrective Action #3 will be satisfied through the development of Project Management Plans under Milestones M-91.

Corrective Measure #4: USDOE failed to properly complete LDR testing, tracking, and recordkeeping requirements for six (6) out of seven (7) container files reviewed.

1. Within ninety (90) days from receipt of this letter, USDOE, FDH, and WMH must review and correct the specific LDR testing, tracking, and recordkeeping deficiencies identified in Violation #4, and provide to Ecology copies of the corrected portions of the Operating Records.

Corrective Measure #5: USDOE failed to properly complete LDR testing, tracking, and recordkeeping requirements for six (6) out of seven (7) container files reviewed.

1. Within ninety (90) days from receipt of this letter, USDOE, FDH, and WMH must submit to Ecology a status report on actions taken, since receipt of this letter, to ensure the LDR testing, tracking, and recordkeeping requirements of 40 CFR 268.7 are being met for existing waste containers, as well as newly generated waste containers. The report must include, at a minimum, the number of container files reviewed from specific facilities and waste streams; summaries from self-audits, focusing on review of LDR paperwork; the number of staff, by facility, who have been trained within the last twelve (12) months, or are currently scheduled to be trained in LDR regulations; and the development of any training or workshops to educate staff on proper completion of LDR paperwork.

Ms. Austin; Messrs. Kruger and Adair
June 3, 1999
Page 14

Please complete and return the attached Certificate of Compliance to me by September 3, 1999.
If you have any questions regarding this letter, please contact me at (509) 736-5715.

Sincerely,



Laura Ruud
Permitting Specialist
Nuclear Waste Program

LR:ld

Enclosure

cc: Jack Boller, EPA
Kim Ogle, EPA
Dave Bartus, EPA
Doug Sherwood, EPA
George Sanders, USDOE
Jim Rasmussen, USDOE
Gloria Williams, USDOE
Beth Bilson, USDOE
Steve Szendre, FDH
Tony Miskho, FDH
Dean Nester, WMH
Brett Barnes, WMH
Dale Black, WMH
Harold Tilden, PNNL
Karl Fecht, BHI
Administrative Record:

Please complete and return by September 8, 1999, to:

**Laura Ruud, Permitting Specialist
Washington State Department of Ecology
1315 West Fourth Avenue
Kennewick, Washington 99336**

CERTIFICATE OF COMPLIANCE

As a legal representative of the U.S. Department of Energy, I certify to the best of my knowledge, that the compliance status of the Hanford Facility, Richland, Washington, #WA7890008967, is as shown below.

COMPLIANCE STATUS

Corrective Measure	Due Date	Date Completed	Initials	Comments
#1	9/1/1999			
#2	9/1/1999			
#3	9/1/1999			
#4	9/1/1999			
#5	9/1/1999			

Signature, USDOE-RL Representative

Printed Name

Title

Date

REFERENCE 2



50766 ✓

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

99-EAP-353

JUN 10 1999

Mr. Michael A. Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504

Dear Mr. Wilson:

**NOTICE OF CORRECTION ARISING FROM THE 1998 LAND DISPOSAL
RESTRICTIONS (LDR) COMPLIANCE INSPECTION AT HANFORD (TPA MILESTONE
M-26-01H)**

This is in reference to the letter from Laura Ruud, State of Washington Department of Ecology (Ecology), to P. W. Kruger, U.S. Department of Energy, Richland Operations Office (RL), B. A. Austin, Fluor Daniel Hanford, Inc. (FDH), and D. L. Renberger, Waste Management Hanford (WMH), dated June 3, 1999, same subject, that was received by RL on June 4, 1999. RL believes that Ecology's letter addresses issues and specifies corrective measures that are properly the subject of the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement).

Compliance with LDR requirements of the Resource Conservation and Recovery Act is addressed by the Tri-Party Agreement and has been made part of the Tri-Party Agreement Work Plan via the development and implementation of an LDR Plan. RL believes that any action necessary to correct alleged deficiencies in the LDR Plan, updates of the LDR Plan, annual reports issued in connection with the LDR Plan, or actions taken to satisfy requirements of the LDR Plan, should be handled under the terms of the Tri-Party Agreement. RL believes that Ecology and RL have clearly agreed that, with very limited exception, differences on issues subject to the Tri-Party Agreement will be addressed under the terms of, and via mechanisms provided by the Tri-Party Agreement, and that departure from those processes will only lead to confusion and inconsistency in addressing such matters now and in the future.

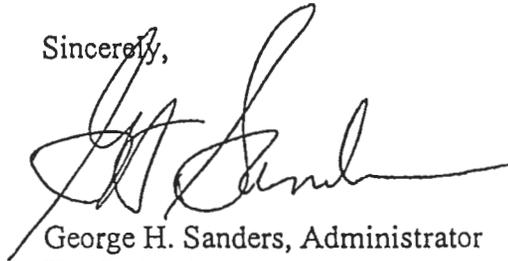
As a result of its objections to the facts asserted and the allegations expressed in Ecology's above referenced letter, and its belief that the underlying issues are properly the subject matter of the Tri-Party Agreement rather than a notice of correction letter, RL hereby gives notice of its election to exercise its dispute resolution rights set forth in Tri-Party Agreement Article VIII.

RL looks forward to working collaboratively and amicably with Ecology to resolve our differences in this matter. Our differences notwithstanding, RL is responding quickly to Ecology's letter by evaluating and, where determined appropriate, correcting verified deficiencies and otherwise addressing the concerns expressed regarding the LDR inspection results.

JUN 10 1999

We look forward to meeting with Ecology's representatives to discuss how issues raised in its letter can best be addressed under Tri-Party Agreement processes. If you have questions, please contact me on (509) 376-6888.

Sincerely,



George H. Sanders, Administrator
Hanford Tri-Party Agreement

EAP:MFJ

cc: K. R. Fecht, BHI
G. S. Robinson, BHI
J. R. Wilkinson, CTUIR
M. N. Jaraysi, Ecology
L. E. Ruud, Ecology
R. F. Stanley, Ecology
D. Bartus, EPA
J. Boller, EPA
D. Ingemansen, EPA
D. R. Sherwood, EPA
W. D. Adair, FDH
J. S. Hertzell, FDH
A. M. Miskho, FDH
S. A. Szendre, FDH
M. Reeves, HAB
P. Sobotta, NPT
M. L. Blazek, OOE
H. T. Tilden, PNNL
B. M. Barnes, WMH
D. E. Nester, WMH
J. A. Winterhalder, WMH
Administrative Record

REFERENCE 3

REFERENCE 3

LDR REPORT COMMENT HISTORY

- **1990 LDR Plan** – Prepared with the assistance of Westinghouse Environmental and Geotechnical Services, Inc. under subcontract from Westinghouse Hanford Company. Transmitted to the regulators by Oct 31, 1990. No regulator comments received.
- **1991 LDR Report** – Transmitted to regulators Oct 31, 1991 or earlier. PRC Environmental Management, Inc. reviewed the report for the EPA and provided several general and 70 specific comments on the report. Due to the timing of receipt of the comments from the EPA, not all comments could be fully addressed in the 1992 report. (The Tri-Party Agreement milestone due date was changed from October 31 to April 30, and as a result the 1992 report was issued 6 months after the 1991 report). A TPA change request was submitted and approved, changing the due date for future reports to April 30 and consolidating TPA milestones M-25-00 (required an annual treatment alternatives report) and M-26-02 (required the inclusion of proposed new milestones in the LDR report) into a revised (and still current) M-26-01 milestone.
- **1992 LDR Report** – Transmitted April 24, 1992. Several general and 32 specific comments were received by RL via letter on June 9, 1992 from the EPA. Responses were sent to EPA and Ecology by RL on July 2, 1992. An RL letter with changes to 1992 report, to be kept with each copy of 1992 report and incorporated into 1993 report, was issued Oct. 27, 1992. (EPA approved this method of change in a letter dated Aug. 3, 1992).
- **1993 LDR Report** – Transmitted April 28, 1993. EPA submitted 2 general and 13 specific comments in a letter dated July 7, 1993. Responses were transmitted to the EPA and Ecology in a letter dated August 5, 1993.
- **1994 LDR Report** – Transmitted April 26, 1994. No regulator comments received.
- **1995 LDR Report** – Transmitted April 24, 1995. No regulator comments received.
- **1996 LDR Report** – Transmitted April 26, 1996. No regulator comments received.
- **1997 LDR Report** – Transmitted April 28, 1997. Ecology sent 29 comments in a letter dated Sept. 19, 1997. RL and the contractors worked informally with Ecology to resolve the comments and modify the report format over the next several months. An RL comment response was sent Jan. 28, 1998 stating the attached resolutions would be incorporated into the 1998 report.
- **1998 LDR Report** – Transmitted April 29, 1998. The format was completely revised based on 1997 report comments and discussions between the report author and Laura Ruud of Ecology. (Waste Stream Profile Sheet format adopted, and Ecology's informal comments on the draft profile sheet format were incorporated into the final product). There were no formal comments on the 1998 report received prior to transmittal of the 1999 LDR report. There was an LDR report-based site inspection by Ecology, which included follow-up meetings where concerns were presented verbally. In addition, the Ecology Notice of Correction, received June 4, 1999, about 7 weeks after transmittal of the 1999 LDR report, included alleged violations and concerns that were stated to be applicable to the 1998 report.
- **1999 LDR Report** – Current report, transmitted April 15, 1999. Ecology's verbal and informally-transmitted concerns on the 1998 report were incorporated to the extent possible. (Text/information was changed or added for each comment in an effort to satisfy the intent of the commenter). Ecology sent a May 11, 1999 letter stating that the 1999 LDR report was incomplete, and deficiencies on the 1999 report mirrored those in the 1998 report. Ecology subsequently transmitted their Notice of Correction letter (received June 4, 1999).

REFERENCE 4



Department of Energy

Richland Field Office

P.O. Box 550

Richland, Washington 99352

FEB 10 1993

93-SWT-027

Mr. Paul T. Day
Hanford Project Manager
U. S. Environmental Protection Agency
712 Swift Boulevard, Suite 5
Richland, Washington 99352

Mr. David B. Jansen, P.E.
Hanford Project Manager
State of Washington
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Dear Messrs. Day and Jansen:

IMPACT OF PLAN REQUIREMENTS OF THE FEDERAL FACILITIES COMPLIANCE ACT,
PL 102-386, AT THE HANFORD SITE

PL 102-386 requires most U.S. Department of Energy (DOE) facilities to prepare a Plan for Development of Treatment Technologies for transmission to the Governor of the host state. The Richland Field Office (RL) has reviewed the Federal Facilities Compliance Act, and has determined that the site specific plan requirement in section 105(b) does not apply to Hanford because the 1990 amendments to the Hanford Federal Facility Compliance Agreement and Consent Order (Tri-Party Agreement) established a site specific agreement for achieving compliance with mixed waste storage and treatment requirements. The attachment to this letter provides further clarification. Therefore, RL does not presently contemplate submitting a plan separate from the M-26 Milestone established by the Tri-Party Agreement 1990 amendments. Information on mixed waste at RL, however, will be contained in the Inventory report as provided for in section 105(a) of the Act.

RL requests that you indicate whether the above policy is consistent with your agency's interpretation of PL 102-386.

Messrs. Day and Jansen
93-SWT-027

-2-

FEB 10 1993

Please direct any questions that you may have on this subject to
D. W. Claussen of my staff on 372-0938.

Sincerely,
ORIGINAL SIGNED BY
STEVEN H. WISNESS

WMD:RFG

~~June M. Hennig, Director
Waste Management Division~~

*Steven H. Wisness
Hanford Project Manager*

Attachment
cc w/att:
J. O. Skolrud, WHC
J. O. Boda, EM-322

bcc: SWT OFF FILE 4.3 w/att
WMD RDG FILE
SWT RDG FILE
AMW RDG FILE
DW CLAUSSEN w/att
RF GUERCIA W/ATT
CCC RDG FILE
OCC RDG FILE w/att
RG HOLT, EAP w/att
TPA RDG FILE

RECORD NOTE: Requests EPA clarification on their interpretation of the M-26 report vs RL's interpretation.

RECEIVED
FEB 11 1993
DOE-RL/CCC

EPAM26.110

ICE >	WMD	WMD	EAP	OCC	WMD	EAP
SURNAME >	CLAUSSEN	GUERCIA	HOLT	CAROSTINO	HENNIG	WISNESS
DATE >		01/19/93	01/26/93	2/01/93	2/9/93	2/10/93

(Please Return To Midori Turner, A5-21, 6-6407)



12S 20133 RL

REFERENCE 5



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

RECEIVED

MAR 22 1993

OFFICE OF CHIEF COUNSEL
DOE - RL

March 18, 1993

Reply To
Attn Of: SO-155

Robert Carosino
Office of Chief Counsel
U.S. Department of Energy
P.O. Box 550, A4-52
Richland, Washington 99352

Dear Mr. Carosino:

This is in response to a letter, dated February 10, sent to Paul Day by Steve Wisness, the Department of Energy's (DOE) Hanford Project Manger. Paul Day has asked me to respond.

The letter indicated that DOE has determined that the site specific plan requirement in Section 105(b) of the Federal Facilities Compliance Act (FFCA) does not apply to Hanford because an agreement for achieving compliance with mixed waste storage and treatment requirements already exists as part of the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). The letter requested a U.S. Environmental Protection Agency (EPA) response to the DOE determination.

I have reviewed section 105(b), and have discussed this matter with our Hanford office. We concur that the section 105(b) requirement for a plan for each DOE facility does not apply at Hanford. This is because the Tri-Party Agreement, and more specifically Milestone M-26, qualifies as an existing agreement or administrative order governing the treatment of mixed wastes, and because the state is a party to that agreement. This of course does not preclude EPA or the State from seeking to impose additional or different requirements for the treatment of mixed wastes under the Tri-Party Agreement, should EPA or the State decide that such action is appropriate.

The DOE is not exempt from other applicable requirements of the FFCA. These include the requirement to include information on Hanford in the national waste inventory report which must be submitted to EPA and the states. It does appear that much of the inventory information for Hanford is also required under Milestone M-26 of the Tri-Party Agreement, and therefore should be readily available. Inventory information that is not required under Milestone 26 includes the requirement for an estimate of the amount of mixed waste DOE expects to generate at Hanford over the next five years.

In closing, I would like to point out that this response does not necessarily represent the views of the State of Washington. It is my understanding that the State is also preparing a response. If you have any questions, or would like to discuss this matter further, I can be reached at (206) 553-1222.

Sincerely,



Andrew Boyd
Associate Regional Counsel

cc: T. Barnet, Office of Attorney General, Ecology Division
S. Wisness, DOE
D. Jansen, Ecology
D. Nylander, Ecology

REFERENCE 6



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

April 15, 1993

Mr. Steve Wisness
Hanford Project Manager
U.S. Department of Energy
P.O. Box 550
Richland, WA 99352-0550

Dear Mr. Wisness:

Re: Impact of Plan Requirements of the Federal Facility's Compliance Act,
PL102-386, at the Hanford Site

We have reviewed your letter to Dave Jansen dated February 10, 1993, concerning the above related subject. We have not had the opportunity to perform a complete legal analysis of PL102-386; however, in general it is our expectation that the Tri-Party Agreement will cover most, if not all, of the requirements under §105(b) of that Act. If, in the future, deficiencies are identified or other issues need to be covered (such as the establishment of regional treatment and disposal facilities), we would first consider amending the Tri-Party Agreement to deal with any outstanding issues before establishing a separate agreement.

In summary, although we reserve the right to propose revisions to the Tri-Party Agreement if we identify unresolved requirements under PL102-386, we are comfortable that it satisfies most of the requirements of that law. If you have any questions, please call me at (206) 459-6451.

Sincerely,

A handwritten signature in cursive script, appearing to read "Joe Stohr".

Joe Stohr
Acting Program Manager
Nuclear and Mixed Waste Management

JS:DJ:jr

cc: Paul Day, EPA
Tanya Barnett, AG's Office

RECEIVED

APR 28 1993

DOE-RL/CCC

193-TPA-125

410.14.7 8

REFERENCE 7



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

1315 W. 4th Avenue • Kennewick, Washington 99336-6018 • (509) 735-7581

**Nuclear Waste Program
Hanford Project
Dangerous Waste Compliance Inspection
Land Disposal Restrictions (LDRs)**

1. Introductory Information:

Name & Address of Owner:

ID Number: WA7890008967

U.S. Department of Energy
Richland Operations Office
P. O. Box 550
Richland, Washington, 99352

Operator:

Date & Time of Inspection(s):

Fluor Daniel Hanford (FDH) Company
P. O. Box 1000
Richland, Washington, 99352

Waste Management Hanford (WMH) Company
P.O. Box 700
Richland, Washington, 99352

September 29, 1998, 0900 - 1130 hours
September 30, 1998, 0830 - 1030 hours
October 6, 1998, 1300 - 1530 hours
October 13, 1998, 0900 - 1200 hours
October 14, 1998, 1000 - 1045 hours
October 19, 1998, 0845 - 1100 hours
October 21, 1998, 0800 - 1500 hours
October 22, 1998, 0800 - 1500 hours
October 26, 1998, 0800 - 1500 hours
October 29, 1998, 0900 - 1500 hours
November 19, 1998, 1300 - 1530 hours
February 25, 1999, 1030 - 1130 hours, closeout

Phone Number & Contact:

Date of Inspection Report:

Steve Szendre, FDH (509) 376-7776
Dean Nester, WMH (509) 373-4155

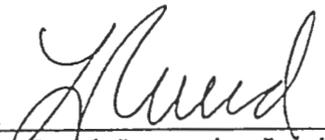
March 5, 1999

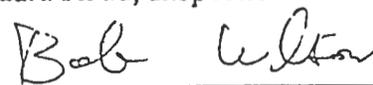
Type and Reason for Inspection:

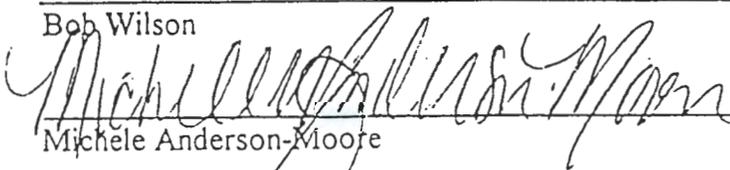
The reason for this compliance inspection was to determine compliance with the requirements called for under Tri-Party Agreement Milestone (TPA) M-26, specifically with the Requirements for Hanford LDR Plan, issued by EPA and the Washington State Department of Ecology (Ecology) on April 10, 1990. This inspection was to support Ecology's detailed review of the 1998 Report on Hanford Site Land Disposal Restrictions for Mixed Waste (DOE/RL-98-09), which is to contain the criteria detailed in the Hanford LDR Plan. The U.S. Department of Energy (USDOE) submitted the 1998 LDR Report to Ecology in April 1998 to satisfy M-26 requirements.

Report Prepared by: Laura Ruud
Inspection Conducted by: Laura Ruud
Bob Wilson
Michelle Anderson-Moore

This inspection was conducted by the following representatives from the Washington State Department of Ecology, Nuclear Waste Program, Kennewick Office:

 3/5/99

Laura Ruud, Inspection Lead
 03/16/99

Bob Wilson
 3/8/99

Michele Anderson-Moore

Personnel contacted during this inspection include:

FDH:

Steve Szendre Don Beagles Tony Miskho
Mark Watkins Doug Smith

WMH:

Glen Triner Mark Ellefson Chris Haas Kent McDonald
Cindy Stratman Dean Nester Ken Hladek Susan Stitt
Brett Barnes Dale Black Nancy Shoemaker Stuart Mortensen
Seana Addleman Jeff Ahlers Joyce McGuffey Owen Berglund
Jackson Ellis Rodney Bell Paul Martin

USDOE:

Gloria Williams

Terry Winward

Greg Sinton

2. Background:

In April 1990, the Environmental Protection Agency (EPA) and Ecology issued Requirements for Hanford LDR Plan (Attachment), which describes the criteria required for compliance with Land Disposal Restrictions at Hanford. Compliance with these requirements is established through the TPA, Milestone M-26.

In 1992, Congress passed the Federal Facilities Compliance Act (the Act). The Act waived the federal government's sovereign immunity under the Resource Conservation and Recovery Act (RCRA) and provided a three-year delay for violations of the land disposal storage prohibition that involves the storage of mixed wastes at USDOE facilities. Although this three-year delay has passed, RCRA continues to grant sovereign immunity to USDOE, provided their agency is in compliance with a plan submitted, approved and in effect, pursuant to RCRA Section 3021(b), and there is an order requiring compliance with that plan. However, if the USDOE facility is subject to an existing agreement, permit, administrative order, or judicial order, and an existing agreement is in place, then the requirement for a plan under RCRA Section 3021(b) is not required. Since the TPA and Milestone M-26 are in place, USDOE is not subject to RCRA Section 3021(b) requirements, provided USDOE complies with the Hanford LDR Plan. Any violation of the Hanford LDR Plan subjects USDOE to the waiver of sovereign immunity.

The Hanford LDR Plan calls for annual reports/updates that include:

- A Storage Report identifying and describing the mixed waste at Hanford (e.g., quantity, physical locations, methods of storage, USDOE's assessment of compliance with State and Federal standards, waste codes, identification of releases into the environment, requests for variances);
- Submission of requests for case-by-case extensions, variances, and other exemptions of the LDR requirements;
- A Comprehensive Waste Characterization Plan that includes a plan and schedule to characterize all waste stored at Hanford and all waste streams generated at Hanford, and to report characterization results to EPA and Ecology;
- A Treatment Report identifying treatment and disposal technologies/capacities;
- A Treatment Plan for the LDR wastes identified in the Storage Report and Treatment Report. The Treatment Plan is to include all milestones and schedules for developing and implementing treatment or management technologies to achieve compliance with LDR requirements;
- A Waste Minimization Plan identifying methods for minimizing the generation of LDR waste. The Waste Minimization Plan is to include projections for reducing newly generated waste and a schedule for implementing waste minimization procedures.

USDOE submitted the LDR Plan in 1990, and annual LDR reports have been submitted since then. Ecology was first charged with reviewing USDOE's annual reports in 1997. Ecology completed this task in 1997 by: 1) performing a detailed review of the 1997 LDR Report; and 2) conducting a technical assistance visit.

Ecology's Review of the 1997 LDR Report

Ecology's detailed review of USDOE's 1997 LDR Report resulted in a September 19, 1997, letter sent to USDOE and their contractors, Fluor-Daniel Hanford (FDH), Pacific Northwest National Lab (PNNL), and Bechtel Hanford Incorporated (BHI), with 29 comments (Attachment). The comments included deficiencies with the data; problems with report format; and inadequacies with the Storage Report, Waste Characterization Plan, the Treatment Report, the Treatment Plan, and Waste Minimization Plan. On January 28, 1998, USDOE sent a letter to Ecology responding to the comments (Attachment). Ecology worked with USDOE and their contractor Waste Management Hanford (WMH), from September 1997 through early 1998 to develop an acceptable reporting format and to clarify expectations for the 1998 LDR Report.

Ecology's 1997 Technical Assistance Visit

Ecology's July 1997 technical assistance visit resulted in an August 28, 1997 letter to USDOE and their contractors (FDH, PNNL) that identified five findings and five comments (Attachment). The findings involved problems with testing, tracking, and recordkeeping requirements for generators, treaters, and disposal facilities, as well as one finding for records that were not made available and furnished upon request to Ecology. The comments involved training requirements, overestimated waste projections to Central Waste Complex (CWC), characterization funding needs, treatment for waste not covered under existing milestones, and generator paperwork requirements. On September 24, 1997, Ecology met with USDOE, FDH, and PNNL and agreed that USDOE would draft proposed recommended actions and schedules for resolving the findings. Ecology agreed to meet again with USDOE to discuss the proposed recommendations and finalize corrective actions (Attachment). These recommendations were finalized in a March 3, 1998, letter from Ecology to FDH (Attachment).

3. Description of Inspection:

On September 14, 1998, I notified Mr. Steve Szendre (FDH) that I would be leading a compliance inspection in support of Ecology's detailed review of USDOE's 1998 LDR Report, which is to contain the criteria detailed in the Hanford LDR Plan per TPA Milestone M-26. I stated the inspection would be in two parts: 1) an administrative review of the 1998 LDR report, and 2) a field sampling event to assess compliance with characterization requirements for LDR. The inspection was planned for the week of October 12, 1998. (The schedule was later changed postponing the start of sampling to October 19, 1998). I informed Mr. Szendre that Ecology would also be doing some pre-inspection work on site to gather data for selecting containers to sample.

September 29, 1998

Bob Wilson, Michelle Anderson-Moore, and I arrived at mobile office building 279 (MO-279) at 0900 hours. We were met by Don Beagles (FDH), Gloria Williams (USDOE), Glen Triner (WMH), Mark Ellefson (WMH), and Chris Haas (WMH).

I explained that Ecology was preparing for an upcoming LDR compliance inspection, which will include a sampling event, and that the purpose of our visit was to select containers for sampling. I discussed the 1998 Hanford LDR report and described Ecology's activities last year regarding review of the 1997 LDR report and the associated technical assistance visit.

I discussed the 1998 LDR report, which identified 28 waste streams. Bob asked if these waste streams coincided with WMH's Waste Specification System. Mr. Triner reviewed the LDR report and answered "No." However, Messrs. Triner and Ellefson reviewed the LDR report against a master list of Waste Specification Records (WSRds) and said although the two systems didn't correspond exactly, they were close enough to find WSRds that cover the waste streams described in the LDR report. I requested the master list of WSRds.

NOTE: WMH uses the Waste Specification System to identify waste streams for storage and treatment. Each waste stream is categorized in the Waste Specification System with a document called a Waste Specification Record or WSRd. A WSRd identifies waste streams according to the matrix in which it is contained (i.e., sludges, soils, liquids, organic labpacks, etc.), and identifies the ultimate treatment required for each waste stream (i.e., thermal, incineration, immobilization, etc.).

Bob asked if the Waste Specification System had been revised recently. Mr. Ellefson said "Yes," that WMH had updated and replaced some WSRds and that information on WSRds was available electronically on the Hanford Homepage via the Internet.

I noted that the LDR report Waste Profile Sheets indicate that many waste streams are "fully characterized." I asked what that phrase meant. Mr. Triner said waste accepted for storage at Hanford prior to 1995 was not subjected to the Waste Specification System requirements since this system had not been implemented at that time. He also said regulatory changes had caused some waste in storage to be subject to new rules (i.e., wastes designated toxic per EP Toxics requirements as opposed to TCLP requirements). Mr. Triner said "fully characterized" waste was waste that had been subjected to the requirements of the Waste Specification System and had a WSRd describing the waste. He said this waste was fully characterized for LDR treatment and disposal. I said that I understood from his comments that waste received since 1996 would be fully characterized for LDR. Mr. Triner said "Yes."

Mr. Triner said he has a Sampling and Analysis Plan for completing the characterization of all old waste (pre-1995) (Attachment). Mr. Triner said he also has a list of both old and new WSRd numbers: the old ones correspond to pre-1995 waste and the new ones to post-1995 waste.

I asked Mr. Triner to define the difference between "recharacterization" and "verification." He said recharacterization means that characterization is not complete due to regulatory changes, i.e., recharacterization closes the gap between the first characterization and current characterization requirements. The characterization performed was good for when the waste was generated. Verification is done on containers generated prior to 1995 when the only check of generator accuracy in designation was generator audits. Mr. Triner said WMH has agreed to verify drums on a percentage basis per each batch of waste.

I requested a report identifying the number of containers and volume, by waste stream, of those containers that 1) need recharacterization, 2) need verification, and 3) are fully characterized and awaiting treatment. I asked Mr. Ellefson how many containers are currently stored at CWC. He answered that there were approximately 39,000 containers in CWC. Mr. Triner thought this report could be generated by noon; however, we waited until afternoon and the report was not ready. We agreed to receive it the following morning.

Mr. Triner discussed some specific waste streams. He said granulated activated carbon (GAC)/spent resins do not come to CWC; they are shipped directly off site under a separate contract. He said the ER program sends them mostly debris, labpacks, and maintenance-type waste. Regarding process knowledge, Mr. Triner stated, "In the end, it's easier to take samples."

I picked a waste stream (03B, Organic Labpacks) from the 1998 LDR report as an example to review for selecting candidate waste containers for sampling. Mr. Triner said Mr. Dean Nester (WMH) was the best person with whom to further discuss the LDR report and to review WSRds from which to select containers for sampling. He suggested we go to Mr. Nester's office in north Richland at the 2440 Stevens Drive building. Mr. Triner then made some telephone calls to set up our meeting with Mr. Nester. We agreed to meet at Mr. Nester's office at 0830 the following morning. I concluded the meeting at 1130 hours.

September 30, 1998:

Bob Wilson, Michelle Anderson-Moore, and I arrived at the 2440 Stevens building at 0830 hours. We went to Mr. Nester's office and were then directed to Mr. Kenneth Hladek's (WMH) office where we met Steve Szendre (FDH). We all went to a conference room in the 2440 Stevens building where we met Dean Nester, Cindy Stratman (WMH), and Kent McDonald (WMH).

I conducted an introductory briefing explaining that the purpose of our visit was to select containers for sampling and that the sampling would be conducted the week of October 12th. I referred to the 1998 Hanford LDR report and explained Ecology's involvement with the Hanford LDR program. I stated that Ecology is preparing for a compliance inspection and will assess the administrative requirements of meeting LDRs and said we will also sample some containers to assess the quality of the designation process.

Mr. Nester had the list of WSRds we had requested the previous day. He also had a listing of fully characterized waste containers from the Solid Waste Information Tracking System (SWITS), the electronic database that maintains information on all containers of waste stored at Hanford.

Mr. Nester explained that all the containers identified in the SWITS listing were not stored in the (CWC). He said some of the waste had been disposed in the Environmental Remediation Disposal Facility (ERDF) on Hanford, or was being stored in other Treatment, Storage, and Disposal facilities (TSDs), e.g., WRAP, T-Plant. Mr. Nester said 75 - 80% of the waste containers in the CWC had been fully characterized. He said that significant progress had been made on the remaining 25% requiring additional characterization. He said that of the 12,000 containers requiring additional characterization, 6,000 had been completed, and that there were about 22,000 containers of waste in the CWC. (NOTE: The number of containers in CWC differs from the estimate of 39,000 given the day before by Mr. Ellefson.)

I reiterated that the objective of our LDR effort was to get the waste treated according to LDR requirements and to move waste from storage to disposal.

Bob, Michelle, and I then reviewed the SWITS listing of waste containers against the listing of WSRds. We selected containers for sampling along with alternate choices in case the containers selected were excessively difficult to obtain or presented special handling considerations, e.g., stored at the bottom of a drum storage array or had a high radiological dose rate. The containers selected for sampling and the alternatives were:

Container #	WSRd #	Generator
9317-03-0007, -0010, -0008, or -0007	500-0	Battelle Columbus
9403139 or 9408334	522-0	Tank Farms
9521493	506	PFP
9601762	420	ERC
9700906	406	222-S
9800899	402	PNL
Alternatives for last three drums:		
9517352	420	PNL
9517355	520	PNL
9607992	406	222-S
9700906	406	222-S
9601607*	402	ERC
9521788*	402	PNL

* These two container numbers were provided by Ecology to Mr. Nester on 9/30/98

We left this information with Mr. Nester who said he would generate a SWITS report (310 report) which would give further detailed information on the containers. He said he would check the selected containers against the CWC storage charts to ensure they were easily accessible. Mr. Szendre said he would deliver this information to Ecology's Kennewick office later in the day. I committed to provide a list of questions/concerns for discussion during our LDR inspection by Monday, October 5, 1998. (NOTE: This list of questions/concerns was provided via cc:Mail on October 5, 1998, at 1506 hours. Also provided was an Excel spread sheet highlighting some data gaps for waste streams (Attachment)).

We concluded the day's review at 1030 hours.

NOTE: Ecology was subsequently informed that the six containers selected for sampling were #9317-03-0007, #9403139, #9521493, #9601762, #9700906, and #9800899.

October 6, 1998:

Bob Wilson and I met Brett Barnes (WMH) at CWC at approximately 1300 hours. We accompanied Mr. Barnes to several CWC buildings where the drums selected for sampling were stored. An operator brought the drums to the building entrances where I provided him with evidence tape to seal the container top. After affixing evidence tape across the juncture of the lid to the body of each drum, Bob and I left CWC.

We then went to MO-720 and met Ms. Susan Stitt (WMH) who provided copies of the TSD container files for the six selected containers and also files for the alternate containers. Ms. Stitt said she provided the entire container file kept by CWC, and added that additional information may be kept with the generator. She said the TSD keeps records such as the burial record, LDR paperwork, and manifest. Generator services (Mr. Glen Triner, Manager) keeps the PIN or generator files.

After leaving MO-720, we went to MO-279 and met with Mr. Triner. I gave him the list of containers selected for sampling and asked that he provide the generator container record files. He said he would try to provide them by the end of the week (Friday, October 9, 1998). He noted that he would need to contact PNNL and Environmental Restoration Contractors (ERC) as he does not keep their generator files. I said I would pursue obtaining the Battelle Columbus drum from Ohio.

NOTE: The container records were provided on the following dates:

Container #	Generator	Date File Requested	Date File Received	
9317-03-0007	Battelle Columbus	10/6/98	10/26/98	Written request sent to Ohio, 10/16/98
9403139	Tank Farms	10/6/98	10/12/98	Delivered to Ecology office
9521493	PFP	10/6/98	10/12/98	Delivered to Ecology office
9601762	ERC	10/6/98	10/14/98	Bob obtained on-site
9700906	222-S	10/6/98	10/12/98	Delivered to Ecology office
9800899	PNL	10/6/98	10/14/98	Delivered to Ecology office

October 12, 1998:

I met with Joe Richards, Confederated Tribes of the Umatilla, Bob, and Michelle for a pre-inspection meeting. We discussed our arrangements to meet with Mr. Szendre, et al., tomorrow morning at 0900 at Stevens Center. We discussed roles and responsibilities, noting that Joe's role is as a guest of the State, not an inspector. We reviewed the list of Ecology's questions/concerns

provided to USDOE, et al., on October 5, 1998. We also discussed USDOE's request to postpone the sampling event from October 14th and 15th to October 19th and 20th. I said that Ecology granted this request, and would be performing the administrative portion of the inspection as planned on October 13th, and performing the sampling next week. Michelle said she would not be joining us for the administrative portion of the inspection, but would participate with the sampling event next week.

October 13, 1998:

Joe Richards, Bob Wilson, and I arrived at the 2440 Stevens Center at 0900 hours. We were met by:

Steve Szendre, FDH	Tony Miskho, FDH
Dean Nester, WMH	Dale Black, WMH
R. Terry Winward, USDOE	Glen Triner, WMH

I began with an introductory briefing describing our visit as a compliance inspection of the 1998 LDR report. I said we had received three of the six generator container files we had requested and needed the last three to prepare for sampling next week. Mr. Szendre said he would take the lead in obtaining these generator files. I asked if there were any questions.

Mr. Nester asked if this inspection was to assess if waste was characterized to meet LDR requirements or if the inspection was to assess the characterization process. I said EPA and Ecology agreed to have USDOE submit an LDR Plan in accordance with the Federal Facilities Compliance Act to meet LDR requirements for mixed waste. I said the purpose of the inspection was to assess the completeness of the LDR Plan, which will include reviewing characterization for storage, treatment technologies, and disposal plans.

Mr. Nester said he understood the inspection is to assess meeting the requirements of M-26 (submittal of an annual LDR report/plan). I explained that the inspection is in two parts: an administrative review of the 1998 LDR Report and a field sampling event to determine if LDR characterization has been completed properly. I said Ecology's sampling event would be focused on checking to see if containers listed as "fully characterized" in the LDR report were actually characterized to meet treatment requirements for LDR, not if the drums had been treated and/or disposed yet. Mr. Nester asked if the focus would be on "field characterized" containers. I clarified that Ecology was checking characterization on containers that WMH had determined to be "fully characterized." Mr. Nester said that answered his questions.

Mr. Winward asked how many of the containers selected for sampling were from Tank Waste Remediation System (TWRS). Mr. Nester said one container was generated from TWRS.

Mr. Black distributed a handout he said he had prepared in answer to Ecology's list of questions/concerns sent out by electronic mail message on October 5, 1998, (Attachment). Mr. Black began an item-by-item review of the answers from his handout. The following information complements and/or clarifies the information provided by Mr. Black.

Question #1: *Provide a report on the number of containers and volume, by waste stream, of all containers at CWC. Differentiate between those that 1) need characterization, 2) need verification, and 3) are fully characterized and awaiting treatment.*

Mr. Nester asked if Ecology wanted a listing of all waste in the CWC, of just low level mixed waste, or of all mixed waste in the CWC. I replied that we wanted a list of all mixed waste.

I said Ecology had requested this listing on September 29th, but had only received a partial listing (part 3, a listing of those containers that were fully characterized). Mr. Nester said the complete list requested would be provided by November 30th to ensure it was a "clean" list. I said that was a problem and that Ecology didn't want scrubbed data. I said this list was promised within the week that it was requested (September 29th), that Ecology was told this was simply a SWITS query, and that it should have been provided by now.

ACTION: Mr. Nester said he would get the complete report as soon as possible and before November 30th.

Bob asked if a given WSRd would include containers that were all fully characterized, or if containers covered by a specific WSRd would include some fully characterized containers and some not fully characterized containers. Mr. Nester said WSRds with an alpha-numeric identification indicated the waste stream was not fully characterized; WSRds with a numeric identification indicated the waste stream was fully characterized.

I asked if WMH came across waste that was not covered by a WSRd. Mr. Nester said "Yes." He referred to such waste as "designer waste" explaining that a WSRd would then be designed to cover that particular waste stream. He said this occurred occasionally and consisted of very small waste streams (normally one to three drums from a specific project). He said such waste would then be entered into the next year's LDR report.

Update: Mr. Nester later provided the requested information for Question #1 (attached), which included the following data:

# of containers in CWC	23,134
# of containers fully characterized and ready for treatment or disposal	15,871
# of containers needing additional characterization and/or verification	7,263
Total waste volume in CWC (in cubic meters)	9,132.10

Note: This information conflicts with the information provided for Question 11 below.

Question #3: *Are all mixed wastes stored at Hanford accounted for in the LDR report?*

When asked this question, Mr. Black answered "Yes." I asked if waste stored in 305-B would be covered in the LDR report. Mr. Black said "Yes," that such waste would be included as either inventoried waste (stored in CWC) or in the category of waste projected for storage in the CWC.

Bob asked if this projected waste was the same as waste forecasted to be generated in the coming year by generators. Mr. Nester referred Ecology to the SWIFT report (developed from the Solid Waste Information Forecast Tracking database) which covers generators' waste forecasts for the coming year. He said waste forecasts are wastes destined for storage at the CWC while waste projections are estimates of waste generation. He said the SWIFT report was available on the Hanford internet homepage.

Mr. Nester said he would provide the internet address for the SWIFT report.

Update: Mr. Nester later provided the following internet address for the SWIFT report: <http://www.hanford.gov/docs/ep0918/index.htm>. Ecology's review of the SWIFT report is summarized in the "Document Review" section of this inspection report.

Question #4: *Milestones and/or compliance schedules needed to be established for characterization, treatment, and disposal of each LDR waste stream.*

I asked if the dates for treatment of waste in the LDR report schedule were considered legally binding dates (since DOE presented them in TPA-driven document), or simply target dates. Mr. Black said they were target dates. Mr. Winward added that lots of the scheduling was budget driven, so hard and fast scheduling for characterization was not possible. Mr. Miskho suggested that Ecology include discussions regarding characterization schedules at the monthly waste programs interface meetings. I agreed to speak with Mr. Moses Jaraysi, Ecology's Waste Management Project Manager, about periodically adding this to their meeting agenda.

Question #6: *LDR Report . . . Please provide documentation of the characterization verifications performed on past-practice waste containers from the debris and inorganic particulate waste streams. Container numbers? WSRd Numbers?*

Action: Mr. Nester committed to provide a report identifying which containers were upgraded in 1997 or 1998.

Update: Mr. Nester provided the requested information.

Question #7: *LDR Report . . . This section references a TPA statement regarding data access and delivery requirements. We will discuss where information is stored (e.g., HEIS, other databases) and notification practices.*

I referred to the provision in the LDR report regarding recordkeeping. The LDR report stated that waste information pertinent to LDR was maintained on the HEIS database. I said I was familiar with the HEIS database as used for storage of groundwater data, but not for RCRA waste information. I asked if RCRA LDR data was stored in the HEIS. Mr. Black said he didn't know but would find out.

Update: On November 12, 1998, Mr. Black sent me a message stating that all mixed waste data is not put into HEIS. There is another database, Tank Characterization

Database (TCD), which contains TWRS data. He said TCD and HEIS are the main databases for sample results related to the TPA, but there are numerous other databases. Mr. Black provided a table of electronic data management systems at Hanford called the Data Management Support table. Ecology's review of the Data Management Support table is summarized in the "Document Review" section of this inspection report.

Question #8: *LDR Report . . . Waste minimization programs are audited regularly. Please provide a list of the waste minimization audits performed for the report period, along with the outcomes . . .*

I referred to a provision in the LDR report that stated waste minimization efforts were regularly audited. I requested the audits performed during the period of the 1998 LDR report. Mr. Black said the waste minimization audits referenced in the LDR report are part of the Facility Evaluation Board's (FEB) assessment criteria. Mr. Black said WMH management had decided that it was not appropriate for Ecology to review these internal audits. To rephrase the request, I asked for a list of the internal audits performed pertinent to waste minimization within the 1998 LDR report. Mr. Black said he could provide that information. I said I would select specific audits for review from that list. Mr. Black said he would provide the listing.

Update: On October 12, 1998, Mr. Black provided a list of FEB Final Reports. On November 12, 1998, I called Mr. Black to confirm that this list was indeed the list intended to express the list of waste minimization audits performed. Mr. Black confirmed that it was. November 16, 1997, I requested (via e-mail to Mr. Steve Szendre) copies of report #FEB-97-0007-222S/WSCF and #FEB-FY98-004-DST. (The FEB criteria document and three FEB assessments are attached.)

Ecology's review of FEB assessments is summarized in the "Document Review" section of this inspection report. (See Question #12)

Question #9: *LDR Report . . . As noted in last year's review, please provide a reference where these "true costs" are documented. This information was requested and not provided last year.*

The WMH handout provided in answer to these questions, cited an Internet address that Mr. Black said contains the requested information. I committed to review this site and call Mr. Black if I had further questions.

Update: Mr. Black provided additional information on "true costs" via a document entitled "Return on Investment (ROI), Proposal Preparation Guide." Ecology's review of this document is summarized in the "Document Review" section of this inspection report.

Question #10: *LDR Report . . . Please provide a copy of the 1997-1998 report by the contractor's P2 group to RL on their program's evaluation.*

I requested the report to USDOE from WMH regarding pollution prevention program provision as referenced in the 1998 LDR report. Mr. Black supplied a letter from WMH to FDH that

included, as an attachment, a report of performance agreement status. Mr. Miskho reviewed the letter and said this was not the information requested by Ecology and withdrew the letter from the deliverables for the day. Mr. Black said he would retrieve the correct letter and report and supply it to Ecology.

Update: Mr. Szendre provided the report, which summarized cost savings and waste reductions.

Question #11: *LDR Report . . . Please provide a copy of the schedule for characterization verification referenced in Section 4.1.3.2.*

Mr. Nester said he would provide this information.

Update: The information provided by Mr. Nester states that there are 18,781 containers (7,087 cubic meters) of unverified solid low level mixed waste all of which are scheduled to be characterized through FY 02 (Attachment). See details under the November 19, 1998, field inspection section of this report.

Question #12: *As noted in last year's review, USDOE is required to assess the compliant status of their storage methods. The profile sheets do not provide adequate information. Please provide a list of assessments performed by the FDH Facility Evaluation Board from 1997-1998. Who is on this Board? What is their charter? (Section 3.4)*

Ecology's review of FEB assessments is summarized in the "Document Review" section of this inspection report. (See Question #8)

Questions #14 & #15: *Which waste streams (including volumes) are being used to satisfy M-19 milestones? Which waste streams (including volumes) are planned for the ATG Thermal Treatment Contract beginning in FY 2001?*

Bob asked if waste currently in storage for treatment per M-19 and M-91 had been identified and if these categories of waste could change. Mr. Nester said the waste categories could change (i.e., some waste may satisfy M-91, some may satisfy M-19, some other waste may be treated other than currently identified waste streams and these categories may interchange). He said as regulatory changes occur, waste originally selected for treatment under one milestone or contract may move to another category for treatment under a different milestone or contract. Mr. Nester added that financial incentives to treat more waste than the milestone requires are part of the treatment contracts being negotiated. For example, the contract being negotiated with ATG for thermal treatment includes a cost schedule that requires a minimum of 120 cubic meters per year, and a sliding cost schedule favoring larger quantities of waste on a cubic meter basis. Mr. Triner added that it was WMH's goal to treat more waste than received by the year 2006, and to treat as much waste as received thereafter.

Regarding the issue of changing waste categories, Mr. Nester said alpha numeric WSRds (not fully characterized waste streams) would not be fully characterized until approximately the year within which the waste stream was being considered for treatment. He said rapidly changing regulatory requirements made it prudent to not invest in upgrading WSRds until there is confidence the requirements would not change before the waste was treated. Mr. Triner added there were substantial costs associated with upgrading the WSRds.

I said the information in the LDR report regarding planned treatment schedules was too vague and didn't meet the requirements for waste minimization. I said simply referencing planned treatment to meet M-91 is insufficient and said waste profile sheets needed disposal dates on them. Mr. Nester said he understood this concern.

Mr. Nester said he would provide information on which waste streams are being used to satisfy M-91 and M-19.

Update: Mr. Nester provided a table detailing which waste streams are candidates for TPA Milestone M-19-00 (Non-Thermal Treatment or Direct Disposal) or M-91-12 (Thermal Treatment) (Attachment). The information is based on the 1998 LDR Report Submittal, i.e., based on the end of FY 1997 inventory. (Attachment)

Question #18: *When will be LLBG begin to accept waste in the Subtitle C portion?*

Mr. Nester clarified that their target date is FY 1999, but the TPA date is 6/2001.

Question #20: *... Please provide a copy of the compliance assessment performed in 2/97 (per section 3.4.1).*

A copy of the requested compliance assessment was provided. Ecology's review of the assessment is summarized in the "Document Review" section of this inspection report.

Question #21: *T-Tank Waste Profile Sheet... Is this waste fully characterized? Will further characterization be needed prior to treatment?*

I was informed that this waste was fully characterized and that no further characterization will be needed. I requested a copy of the generator container file. Mr. Szendre committed to provide a copy of this file.

Update: Mr. Szendre did provide a copy of the generator file. Ecology's review of this file is summarized in the "Document Review" section of this inspection report.

We reviewed the Excel spreadsheet I provided via e-mail on October 5, 1998. This document was prepared using only the data from Waste Profile Sheets in the 1998 LDR Report. The document summarizes, on a waste stream by waste stream basis, the milestones that currently exist in taking the waste from characterization through disposal. I explained that this document was prepared to help highlight any gaps in milestones and/or commitments, identified by a

question mark in the spreadsheet. I also noted that some of the existing milestones may not be sufficient (e.g., commitments regarding treatment of tank waste are in flux). FDH's written response (attached) stated that their proposed action is to include the latest updated information in the 1999 LDR report, noting that only information that has been developed/negotiated can be included in the report. FDH's written response quoted the relevant sections of the Hanford LDR Plan that require schedules/milestones for characterization and treatment, noting that the LDR requires a "schedule" rather than "milestones" be established for characterizing all waste stored at Hanford. FDH also states that for treatment, LDR Plan requires the report include "applicable milestones and associated schedules." FDH states that it is their opinion that "the only applicable milestones and schedules are those that have been negotiated and approved in the TPA." See the Milestone Review section of this inspection report for further information.

We reviewed action items and document requests resulting from this day's review of the electronic mail questions. I requested Ecology be notified if any of the requested documents could not be delivered by the end of the week (October 16th).

We discussed the upcoming sampling event scheduled for October 19th and 20th. Mr. Triner said the drum selected from the waste stream generated from Battelle Columbus (Ohio) was the only drum in the group that had not be previously opened and sampled by WMH. He said substantial data was available on this waste stream as obtained from WMH's own sampling efforts.

Mr. Triner said the ERC drum #9601762 selected for sampling had a high tritium content that posed special operational difficulties (tritium being a gaseous radionuclide). He requested Ecology select an alternate container from the same waste stream. I said Ecology had not yet received the requested generator container file on this drum and said Ecology would consider an alternate container after reviewing the generator's container file. Mr. Triner said he would follow up on obtaining a copy of the generator's file for Ecology.

Mr. Nester said WMH's sampler, Joyce McGuffey, needed to meet with Jerry Yokel (Ecology chemist) to define sampling parameters. I recommended WMH Ms. McGuffey contact Jerry directly on this issue.

NOTE: Jerry supplied a sampling and analysis plan for this sampling event to WMH the following day (October 14, 1998).

Mr. Nester stated that WMH was not using the Sampling Analysis Plan (SAP) to recharacterize waste in 1999, i.e., no characterization was planned. He said that their 1999 commitment is to revise the SAP. He said this revision would only impact the matrix table, which needs to be updated to reflect the new WSRd numbers.

We concluded the meeting at 1200 hours.

October 13, 1998:

In the afternoon, Jerry Yokel and I called Joyce McGuffey. Jerry explained the sampling event and said he would provide a list of analyses and methods that we would be asking our lab to do so that WMH's lab could mirror the analyses and methods if desired. Jerry also agreed to provide the chain of custody, coolers, containers, labels, and custody tape during our sampling event. (Note: The list of analyses and methods was updated twice to better reflect sampling needs.)

October 14, 1998:

While conducting a separate investigation, Bob met with Glen Triner (WMH), Mark Ellefson (WMH), Rodney Bell (WMH), and Steve Szendre (FDH) at MO-279 from 1000-1045 hours to receive the generator container file for drum # 9601762. Container # 9601762 was a labpack drum selected by Ecology for sampling in the LDR inspection.

Mr. Bell delivered the generator's container for ERC drum # 9601762. In reviewing this documentation Bob noticed the drum had been generated from cleanout of the Environmental Analytical Laboratory (EAL) in the 100N Area of the Hanford Site in 1996. Mr. Bell's signature was on the container inventory sheet from packaging the container at that time. The inner container constituent list in this generator container file listed various metal constituents to five decimal places and was also signed by Mr. Bell. The generator's container file indicated this waste stream included nineteen drums from cleanout of the EAL.

Mr. Triner suggested an alternate to this drum be selected from the same waste stream since the documentation of drum #9601762 indicated tritium content of $4.42E-06$ curies. Bob said after review of the generator's container file for this drum, Ecology would consider an alternate.

Bob asked how the waste had been designated and how the constituents were known to five decimal points. Mr. Bell said the designation was based on process knowledge gained from review of the written analytical procedures that generated the waste and the specific constituent quantities derived from these procedures. Mr. Ellefson added that the constituent quantities were calculated amounts derived from review of the analytical processes that generated the waste. Bob asked if the waste had been sampled and analyzed. Mr. Bell said "No." He said the waste stream consisted of expired chemical reagents, residual waste generated from various analytical procedures, and general lab building cleanout.

Bob asked where the written analytical procedures were stored from which the designations and constituent quantities were derived. Mr. Triner said the client, Bechtel Hanford Company, would have that information.

Bob said he was uncomfortable with designation, and characterization, derived solely from process knowledge and that Ecology was very interested in sampling this container. Mr. Triner reviewed the SWITS data for the other drums in this waste stream and reported that drum #9601762 actually contained one of the lowest levels of tritium in this waste stream. Bob said in that case Ecology would sample drum #9601762.

October 19, 1998:

Michelle Anderson-Moore, Jerry Yokel, Bob Wilson, and I arrived at the T-Plant reception foyer at 0845 hours. Ecology, WMH, FDH, and USDOE were scheduled to begin sampling the six drums previously selected. Brett Barnes (WMH) met us and escorted us to a conference room on the second floor of T-Plant. At the conference room we were met by:

Dean Nester , WMH	Chris Haas, WMH	Joyce McGuffey, WMH
Stuart Mortensen, WMH	Jeff Ahlers, WMH	Owen Berglund, WMH
Gloria Williams, USDOE	Steve Szendre, FDH	Doug Smith, FDH
Mark Watkins, FDH	Nancy Shoemaker, WMH	Jackson Ellis, WMH
Seana Addleman, WMH		

Mr. Nester began the meeting stating he needed a copy of Ecology's laboratory's radiological license (Paragon Laboratories, Colorado) to ensure the samples collected do not exceed the laboratory's radiological requirements. Jerry Yokel said he would fax a copy to Mr. Nester. (Note: Jerry faxed the license later this day.)

Mr. Barnes referred to a table Ecology prepared and sent by electronic mail the previous week to WMH that identified sampling details for each of the six drums selected by Ecology (Attachment). We began a drum-by-drum review of the sampling schedule. Mr. Barnes said T-Plant was ready to sample. Bob asked if all the drums were at T-Plant. Mr. Barnes said they were. Mr. Barnes said Ms. McGuffey needed to know what sampling equipment she needed in order to proceed.

Regarding drum #9601762 from Bechtel Hanford Company, Ms. McGuffey said two (2) gallons of sample were required to provide splits between Ecology and WMH. Jerry Yokel reviewed the analysis requirements and clarified that two sample sizes (one 4-ounce sample and one 16-ounce sample) were all that would be required. Ms. McGuffey concurred.

Regarding drum # 9317-03-0007 from Battelle Columbus, Ms. McGuffey said from her previous experience with this waste stream, that it contained significant amounts of debris (wood, paper, plastic). She said an auger may not penetrate the debris and a cutter may be needed depending on how Ecology wanted to sample the drum. Bob said he understood from Glen Triner (WMH) that this particular drum was the only drum from this waste stream that had not been opened. Ms. McGuffey said that was true. I said a cutter wouldn't be necessary; that taking a sample with the auger would be enough. Bob noticed from the generator's container information that there was a possibility of inner containers. I said that if inner containers were encountered, a sample should be taken from one of the inner containers. All parties agreed.

Regarding drum #980899 from Pacific Northwest National Laboratories (a labpack), Ms. McGuffey said she was concerned about the dose rate listed for inner container #3509. The dose rate was listed as 40 millirem; a dose which would pose problems for shipping. Ecology decided to delete this inner container from sampling leaving two inner containers identified for

sampling (#4054 and #3908). Inner container #4067 was chosen as an alternate if #3908 showed high radioactivity.

Regarding drum #9700906 from the 222-S Laboratory Complex (a labpack), Ms. McGuffey said inner container #11-72-41 identified for sampling may not contain enough waste to provide splits between WMH and Ecology. I agreed to review the file for this drum and select an alternate inner container if needed. (Note: The following day Jerry Yokel advised that a lesser sample amount would provide enough material for the splits if the inner container was not full. I notified WMH to proceed with plans for sampling inner container #11-72-41.)

Regarding drum #9521493 from the Plutonium Finishing Plant (a labpack), Ms. McGuffey said inner container #M330 may not contain enough waste to provide splits between WMH and Ecology. Ms. McGuffey, Mr. Nester, and I agreed to open the container and decide at that time if there was enough material to provide the required samples, and if not to document that the samples were not taken in the sample log for the day.

I asked if sampling was to start on this day. Ms. McGuffey said she had only recently been advised of this sampling event and not been provided with sufficient time to prepare for the sampling, i.e., identify and clean sampling tools, review the sampling plan, receive charge codes for her time, and direction from her management. Therefore, she said she was not prepared to begin sampling until these issues had been resolved.

Mr. Nester said Wednesday (October 21, 1998,) was the best WMH could do to begin sampling. I said Ecology had not been notified that sampling would not begin today and that preparation for the sampling had begun in August 1998. Mr. Nester said WMH had been waiting for specific information from Ecology to prepare for the sampling, but had only recently received that information. I said Ecology had been waiting for WMH to provide the generator's container information in order to prepare the sampling plan, but had not received that information until the past week. I said once the generator's container files had been received, Ecology responded with identification of the containers to be sampled within 24-hours.

I reviewed the history of this sampling event by stating the sampling was originally planned for August 1998, but had been postponed once to accommodate WMH and FDH vacation schedules, and again on WMH's request to accommodate their operations schedules. I said if sampling did not occur during this week (October 19 - 23), that it may be until November before the event could be rescheduled since Jerry Yokel would be out of the office for two weeks beginning Friday, October 23rd.

Jerry asked how long it would take to sample all six drums. Ms. McGuffey said two days. Jerry said he could be available Wednesday and Thursday (October 21 & 22). Mr. Nester said WMH could ship the waste to Ecology's laboratory after release from radiological survey at the 222-S Laboratory Complex. Mr. Nester, Mr. Barnes, and Ecology representatives present agreed to this revised sampling schedule.

Mr. Nester said he had been asked by his management to advise Ecology of the costs associated with this sampling event. He described the costs as follows:

- ~ Laboratory analysis cost = \$5K per sample (9 samples identified for a total analysis cost of \$45K).
- ~ Special handling and associated fees for drum #9601762 containing tritium = \$15K.
- ~ Field activities excluding analyses (green house, sampling personnel, etc.), = \$42K

Mr. Nester said Mr. Ty Blackford (WMH) prepared this information. Mr. Nester said WMH management had advised him that that he could not release the details of the cost analysis to Ecology. We informed Mr. Nester that Ecology would be officially requesting this information. Jerry said Ecology's analysis costs were about \$1.5K per sample. (Note: Later that day I requested this cost information via electronic mail message and telephone call to Steve Szendre.)

Bob asked who should be kept in the communications loop so that no further miscommunication about sampling occurred. Ms. McGuffey gave us her pager number (7574). Mr. Nester said he would coordinate the sampling event for WMH.

Mr. Mortensen asked Bob why Ecology was interested in sampling drum #9601762, i.e., the Bechtel drum containing tritium. Bob said the container was selected after reviewing the generator's container files. He said his review revealed the drum had waste codes of interest to Ecology. Also, the drum was identified (by WSRd number and Mr. Triner) as fully characterized. Also, Bob said the generator was of interest to Ecology as well as the process that generated the waste, i.e., clean out of the EAL labs in 100 N Area. Bob said Glen Triner had reviewed the SWITS information on this particular waste stream on October 14th to see if a drum with lower tritium content could be substituted. Bob said Mr. Triner had advised him that his review indicated other drums in this waste stream had more tritium content than the one selected, so Ecology had decided to keep this drum for sampling.

Jackson Ellis advised that inner containers with high dose rates may be encountered during sampling and that a dose rate cut-off should be established. He said most off-site laboratories would not take samples with dose rates over 10 millirem. We decided to resolve these issues during sampling and note deviations in a sampling log to be kept during the event.

Ms. McGuffey prioritized a sequence for sampling by drum number as follows:

1. #9403139 – Tank Farms drum (visual inspection only)
2. 9521493 – PFP drum
3. 9317-03-0007 – Battelle Columbus drum
4. 9700906 – 222-S Lab drum
5. 980899 – PNNL drum
6. 9601762 – Bechtel drum

Ecology agreed to this sampling sequence. I noted that Ecology wants to inspect the evidence tape on each drum prior to sampling to ensure the seals have not been broken. We concluded the meeting at 1100 hours.

October 21, 1998:

Jerry Yokel, Michelle Anderson-Moore, and Bob Wilson arrived at T-Plant at 0800 hours. Brett Barnes escorted them to the 204 conference room where Seana Addleman (WMH) conducted a pre-job briefing with the T-Plant head end production crew. Ms. Addleman reviewed the radioactive work permits, and directed industrial hygiene and radioactive control technicians (RCTs) to review job safety analysis and special limiting conditions. Ms. Addleman referred to procedure DO-100-035 as the procedure used for opening drums in the greenhouse.

Joyce McGuffey, WMH, led the review of actual drum opening operations which would be conducted inside a ventilated greenhouse set up in the head-end of the T-Plant canyon especially maintained for drum opening operations. Bob instructed the greenhouse crew to be prepared to sample any unexpected inner containers discovered within a drum. Bob said Ecology wanted a piece count of all inner containers from each drum. We completed the pre-job briefing approximately 0945 hours and walked to the head-end of T-Plant where sampling began in the greenhouse at 1030 hours.

The first three drums were brought into the head-end on a forklift. Bob observed all security tape to be intact. The drums were staged in the greenhouse.

The first drum opened was #9403139 from Tank Farms Operations. The drum inventory sheet indicated it contained 10 bags of rags. The sampling crew removed the contents which included debris, e.g., gloves, paper, plastic, wrapped in yellow plastic bags, the ends secured with duct tape, and each bag numbered and holding about 1 to 2 cu. ft. of material. The sampling crew removed all contents and cut open each bag to inspect the contents. Bob verified the piece count from this container to be correct.

Bag #5 contained, in addition to debris, an orange colored crushed 1 liter plastic jug with a product label legible stating the product was "Fast Orange - Cleaner" (photo). Bag # 3 contained, in addition to debris, a spent fuel filter cartridge (photo). Another bag (#1 or #2) contained a 500 ml metal can with a label stating "nickel - anti-sieze." Another bag (number not observed) contained a plastic tarp stained with dried aquamarine paint and some paint cans with dried paint residue on the bottom, one with a paint brush stuck in it. After inventorying the contents the waste was repackaged in new plastic bags and returned to the drum.

The sampling crew then opened drum #9521493 from the Plutonium Finishing Plant. This drum contained two inner containers each wrapped in a plastic bag with the end of the bag secured with duct tape. Inner container # M330 was a small 50 milliliter ampule (photo). Ms. McGuffey said (by handwritten note through the greenhouse window) there was not enough material for the

requested samples. Bob agreed and this container was not sampled. The second inner container (#22) was a jar containing about ½ liter of absorbent material that appeared to be diatomaceous earth (kitty litter). We agreed that Ms. McGuffey would weigh the sample to see how much material was available for analysis. The sampling crew exited the greenhouse for lunch at approximately 1200 hours. Bob verified the piece count from this container to be correct.

Sampling resumed at 1330 hours. Ms. McGuffey weighed the sample material from inner container #22 after which she asked Bob (by note) if Ecology wanted to split the remaining material after taking 4 ounce samples if there was less than 16 ounces remaining each for additional samples. Bob directed her to split the remaining sample amount. Ms. McGuffey split the remaining material equally between Ecology and WMH sampling vials.

At 1400 hours the third drum was opened (#9317-03-0007) from Battelle Columbus. One of the sampling crew used a hollow auger and drilled into the waste in each quadrant of the drum and once in the middle. Each augured sample was collected in a stainless steel mixing bowl and mixed for a composite sample. The material was a sludge-like mass with a lime green, sticky substance intermixed in the dark, almost black waste matrix (photo). The green substance was assumed to be absorbent. A liter sample for Ecology and WMH was taken. The unused material was returned to the drum and the drum closed. The sampling event completed for the day at 1500 hours. I observed Ms. McGuffey sealing the sample bottle lids to the sample bottles with white tape and placing red security tape over the lids of all samples.

(Note: Mr. Szendre gave Bob the original and revised cost estimates prepared by WMH for this sampling event which I had previously requested.)

October 22, 1998:

Bob Wilson and I arrived at T-Plant at 0800 hours. Brett Barnes escorted us to the 204 conference room where Seana Addleman, WMH, conducted a pre-job briefing with the T-Plant head end production crew. Ms. Addleman reviewed the radioactive work permits, and directed industrial hygiene and radioactive control technicians RCTs to review job safety analysis and special limiting conditions. Ms. Addleman said she was concerned the radiological screening required for samples to be shipped off-site would impact holding times of the samples taken from the next drums, since these drums contained some radionuclides with higher dose rates or special handling requirements (strontium, tritium).

Mr. Nester, WMH, said we needed to contact Ecology's off-site laboratory (Paragon Laboratories, Colorado) to ensure the samples taken would not exceed Paragon's radionuclide inventory restriction (a restriction for total amount of specific radionuclides allowable in a laboratory at any one time per the laboratory's radioactive materials license). I agreed and said I would call Paragon as soon as the pre-job meeting adjourned.

Joyce McGuffey discussed drum opening and sampling operations. Ms. McGuffey said the radiological limits may be "pushed" for Paragon labs; her experience was that 10 millirem was the limit for off-site laboratories. She said actual survey readings would be conducted in the Waste

Sampling and Characterization Facility (WSCF). She said this data would be used by calculating the radionuclide profile of each waste from SWITS data using the WSCF survey values to give a more accurate species by species radionuclide content of the waste (rad profile).

Mr. Nester said that Paragon Laboratories needed to confirm that their radionuclide inventory would not be exceeded after receiving the information derived from the WSCF rad screening. He said this may impact holding times for the samples and that samples needed to be delivered to the 1100 Area of Hanford (North Richland) in order to be shipped overnight for receipt by Paragon the following day. I said to proceed with the day's sampling and if the samples were shipped by Monday (October 26th) that would be all right. Ms. McGuffey said Sandra Cobb was the sample custodian. (Note: I called Mr. Lance Steele at Paragon and made arrangements to fax the radiological screening data as soon as it became available from WSCF. Mr. Steele committed to reviewing the data within an hour once he received it and communicating his decision of whether the sample(s) could be accepted.)

Ms. McGuffey said she was not sure if the radiological survey information recorded in the container files for each drum was direct readings (taken from surveys of the actual inner container) or corrected readings (values calculated from survey data and rad profile information).

Regarding drum #980899 from PNNL, Ms. McGuffey said she was concerned about high dose rates listed for three of the inner containers. We agreed to sample inner container #4067 as an alternate if survey readings taken during sampling indicated the pre-selected inner containers had high radiological readings.

Regarding drum #9601762 from BHI, Ms. McGuffey said she was concerned that inner containers #162 and #163 would not contain enough material to provide Ecology and WMH with the requested sample volumes. I said to take half the volume requested for volatile organic analysis if these inner containers were not full. The other six inner containers were listed as containing the same material, so they could be combined for a composite sample and should provide enough material for all requested analyses.

Ms. McGuffey said WMH needed three samples from each container, plus the one for Ecology. I asked if the samples were being split one for one between Ecology and WMH. Ms. McGuffey said the sample amounts collected for Ecology and WMH were different. I said I was concerned that a three-to-one split would impact how much sample volume is available for analysis. Mr. Nester said WMH would take less sample volume (i.e., one-to-one) to ensure Ecology received equal material for its analytical requirements.

The pre-job briefing was concluded, and we walked to the head-end of T-Plant. Sampling began about 1330 hours. Drum #9700906 (a labpack) from the 222-S Laboratory Complex was opened. The drum had the following markings:

WC1 Toxic
Liquid Organic
Wt. = 95 lbs. (43 kg)

LDR
Hazardous Waste Label

RMW-EHW
Radioactive LSA

The inner containers were removed and inventoried. All were accounted for and no unknown inner containers were observed. Inner container #11-72-41 contained about 2/3 liter of a light amber liquid. The generator's container file indicated the material was nitrobenzene. Ms. McGuffey poured the material from the inner container into a stainless steel mixing bowl and showed us the amount available for sampling. We agreed to split the sample 50/50 for volatile organic analysis due to restricted sample material available. Ms. McGuffey had difficulty in ensuring a zero head space and had to redo the sample collection many times. The waste in the mixing bowl was open to the atmosphere for about an hour. (Note: Ms. McGuffey later said the problem was with pre-affixed labels to the sample bottles. The labels were too high on the bottle and interfered with screwing the lids on tightly.)

Sampling concluded for the day about 1500 hours.

October 26, 1998:

Bob Wilson and I arrived at T-Plant at 0800 hours. Mr. Brett Barnes escorted us to the 204 conference room where Seana Addleman, WMH, conducted a pre-job briefing with the T-Plant head end production crew. Ms. Addleman reviewed the radioactive work permits, and directed the industrial hygiene personnel and RCTs to review the job safety analysis and special limiting conditions.

Larry Cole (WMH) met us in conference room 204. I asked Mr. Cole when the rad screening samples taken the previous week would be ready from WSCF. Mr. Cole said Mr. Carl D. Pool at WSCF had the quality assurance information for the samples. Ms. McGuffey said the samples went to WSCF on Thursday morning (October 22nd). Mr. Nester said he would pursue getting this data from Mr. Pool.

We had a brief discussion of radiological survey information documented in SWITS. Mr. Nester explained that the information regarding radioactivity in the waste as presented in the SWITS might differ from actual radioactivity as measured while sampling. He said radiological data was gathered by each generator at the point of generation, and that afterward the waste was usually combined with an absorbent which would change (reduce) the radioactive content per unit weight of the resulting waste matrix. He said the SWITS data may represent worst case.

I reviewed the outstanding document requests, specifically pre-job attendance lists and sample log book entries. Ms. Addleson said she would follow up on our request. We concluded the pre-job briefing and walked to the head-end of T-Plant for sampling.

Drum # 980899 (a labpack) was staged in the greenhouse for sampling. Sampling began at 1000 hours. Bob observed the security tape to be intact. The sampling crew removed the inner containers from the drum and the inventory appeared to be complete with no anomalies. A limited description of the some of the inner containers is as follows:

- Inner container #3908 was a one-liter jug full of liquid (photo).
- Inner container #4092 was a one-liter jug ¾ full of a greenish liquid.

- Inner container #5012 was a one-liter jug 2/3 full of a clear liquid.
- Inner container #4054 was a 20-liter jug 2/3 full of a clear liquid (photo).

After a lunch break, sampling resumed at 1300 hours. Samples were taken from inner containers #3908 and #4054. Ms. McGuffey said (by note) that she had used Ecology's pre-completed labels for inner container #4054 on the sample bottles for #3908. We agreed to strike out the incorrect sample number (#4054) from these sample bottles and write in the correct reference number (#3908). Nuclear Process Operator, Mr. Hovley, performed this action in our presence.

Bob asked Mr. Nester why WMH was taking three samples to Ecology's one. Mr. Nester said this was due to the (SAP) written specifically for this sampling event. (Bob had requested an explanation of this uneven split the previous week.) Mr. Nester said Mr. Pool was preparing a written explanation. Bob requested a copy of the SAP used for this sampling event. Mr. Nester and Mr. Szendre acknowledged this request and said a copy of this SAP would be provided to Ecology.

Earlier in the day, Mr. Nester obtained copies of the rad screening from WSCF for one sample from drum #9521493 (PFP drum), one from drum #9317-03-0007 (Battelle Columbus drum), and one from #9700906 (222-S drum). I faxed the rad screening data to Lance Steere at Paragon Laboratory in Colorado. I called him at 1:50 p.m. and he said the rad levels were acceptable for his lab and to go ahead with shipping plans.

I asked Mr. Steere about volume needed to run particular analyses. He gave me the following data on minimum volumes needed:

VOCs = 5 ml	Metals = 50 ml	Reactivity & pH = 10 ml each
SVOCs = 1 liter	Ignitability = 80 ml	TCLP (solids) = 200 grams

This sampling concluded approximately 1500 hours.

October 29, 1998:

Bob arrived at the T-Plant foyer at 0900 with Steve Szendre (FDH). Michelle and I drove out separately and arrived at 0905. Seana Addleman escorted us to conference room 204 where Nancy Shoemaker gave a pre-job briefing for the sampling of drum #9601762 (a labpack) containing wastes generated by BHI in 1996 from clean-out of the Environmental Analytical Laboratory I the 100 N Area of Hanford. After the pre-job briefing we all walked to the head-end of T-Plant where we observed drum #9601762 staged on a pallet (photo). Bob observed Ecology's security tape was unbroken and the drum was moved into the greenhouse in T-Plant's head-end area (photo). The sampling crew led by Ms. McGuffey entered the greenhouse. Sampling began at 0930 hours.

While the sampling crew was opening the drum, Bob and I discussed waste treatment with Mr. Nester. Mr. Nester said a review of a potential waste treatment program called "getting ahead" headed by Ms. Linda Powers, WMH, was considered during federal fiscal year 1998. He said this review focused on getting waste stored at CWC treated, and disposed, and incorporated such elements as treating more waste than received for a period of time (five or six years) until the inventory at the CWC had been reduced. The plan was then to treat waste within the year received. Mr. Nester said this would allow for accurate and timely budgeting for waste treatment and generator charges to accomplish treatment as well as move waste out of storage and to disposal. Bob said he would advise Ecology's Waste Management Project Manager, Mr. Moses Jaraysi, of this effort. Bob said this program appeared to match Ecology's goals of moving waste from storage through treatment to disposal in a timely manner. Mr. Nester further explained how the USDOE accounting system does not allow WMH to charge generators for treatment or disposal unless the treatment or disposal is accomplished with one year of acceptance at CWC. He explained how this differs from strictly hazardous waste, which is sent directly off site, and the generators are charged for this service.

Mr. Nester said that drum #9601762 may also have high beta emitters, and the samples from it could pose a problem for acceptance at our off-site lab. I asked Mr. Nester to have WSCF ready in case they need to run the analyses for this sample set too.

Mr. Cole informed me that he shipped the nitrobenzene samples from #9700906 yesterday, October 28, 1998. Mr. Nester said it could accurately be considered a discarded chemical rather than a wastewater, which would extend the holding time from 7 to 14 days.

Mr. Nester informed me that Mr. Pool and the WSCF chemists want to meet this morning at 1100 to discuss analytical protocols for this effort. I called the Ecology office and talked with Joan Bartz. Joan agreed to call Mr. Pool and discuss any questions or data needs. I left for WSCF with Mr. Nester at 1045. Joan met us at WSCF and provided the chemical support needed for the WSCF chemists to proceed with their analyses. Joan agreed to provide a modified SAP that detailed the changes in analyses decided upon in this meeting.

Meanwhile at T-Plant, Bob observed the sampling crew removing all the inner containers from drum #9601762. Michelle Anderson-Moore observed from a stairway overlooking the greenhouse. Bob coordinated with her to ensure the drum had been emptied and the inventory of inner containers was accurate. Michelle said she observed eight inner containers removed from the drum matching the generator's container inventory. The generator's container file for drum #9601762 indicated the following three groups of wastes were in the inner containers:

- Six inner containers labeled EAL-96-161A through F
- One inner container labeled EAL-96-162
- One inner container labeled EAL-96-163

The inner containers were one-gallon clear glass jugs. Most jugs contained a clear, watery liquid; however, some jugs from the inner container number EAL-96-161 were slightly amber colored. Some jugs from the EAL-96-161 group were full, some 1/8 full, and some 1/3 to 2/3 full (photo).

The waste jug labeled EAL-96-162 was full. The waste jug labeled EAL-96-163 was approximately 2/5 full.

The sampling crew set the containers for waste groups EAL-96-162 and EAL-96-163 on the spill pallet while they sampled from the larger waste group, EAL-96-161. Bob observed handwritten labeling on the waste jugs for EAL-96-162 and 163 as follows (photos):

EAL-96-162: pH=0, (corrosive label),
ICP stds
Water 91.4
HCl 5.5
HNO₃ 1.4
Metals 0.6

EAL-96-163: pH=0
ICP stds
Water 89.65
HCl 5.94
HNO₃ 1.50
Metals 2.91

The sampling crew poured liquid waste from a jug in the EAL-96-161 into a clean stainless steel mixing bowl and drew samples using a pipet into brown glass sampling bottles of 20 ml to 1 liter size.

After sampling from the EAL-96-161 group, the sampling crew broke for lunch about 1145 hours. I returned with Mr. Nester to T-Plant at approximately 1300 hours. Sampling resumed at 1330 hours. Bob observed red security tape placed over all sample bottles from the EAL-96-161 group (photo). A cooler 1/3 full of frozen "blue ice" packets was moved into the greenhouse and the samples were placed in groups of four to five bottles into yellow plastic bags and these placed into the cooler. I observed the waste from EAL-96-162 and 163 sampled in the same manner as the waste from EAL-96-161.

The sampling concluded at 1500 hours.

November 19, 1998:

Bob Wilson and I arrived at the 2440 Stevens Center building at 1300 hours. We met Mark Ellefson (WMH), Steve Szendre (FDH), Greg Sinton (USDOE), Gloria Williams (USDOE), and Dean Nester (WMH) in conference room 1416.

I began the meeting by referring to LDR documents received from WMH and stating that I was interested in discussing the following documents:

- performance agreements (Attachment)
- list of containers upgraded to either new WSRd or appropriate category of old WSRd (Attachment)
- sampling and analysis plan (SAP) used to upgrade WSRds (Attachment)
- list of mixed waste in storage at the CWC needing further characterization (Attachment)
- Hanford's unverified solid LLMW characterization schedule (Attachment)

I asked Mr. Nester about the performance agreements associated with characterizing waste stored in CWC (WM1.1.1, Section 4 and WM1.1.1, Section 5).(Attachment). I said, based on WMH's report to USDOE on completion of the performance agreements, the waste containers they identified had "the waste verified, underlying hazardous constituents identified and have been characterized adequately to allow for determination of a treatment path." However, when reviewing associated list of containers, I said it appears not all containers had gone through such a characterization process. Rather, it appears that some containers were merely sorted to reflect the appropriate category of waste awaiting such characterization. (Attachment)

Mr. Nester said he had no explanation for that discrepancy.

Referring to the list of upgraded containers, I asked what process was used to upgrade these containers from old WSRds to new WSRds. I noted that many of the containers on the list had been subjected to "paperwork review" and that many containers did not change from a lettered WSRd (indicating the container needed further characterization) to a numbered WSRd (indicating characterization was complete). I then referred to the SAP reportedly used for upgrading the containers and asked if this was the process used for the upgrades. Mr. Nester said it was.

I then referred to Table 7 in the SAP that describes sampling protocols used for each category of waste to be upgraded. I asked how the actions taken in the listing compared to the actions described in Table 7 of the SAP.

Mr. Nester said the listing describes one step in the upgrade process. He said the first review of containers listed under old WSRds was by a computer search according to an algorithm developed for this process. He said that is what the "paperwork review" comment in the upgraded listing meant. He said many containers were improperly listed under an old WSRd and recategorized or upgraded to another WSRd; however, the WSRd to which they were upgraded may be a WSRd also requiring further characterization. He explained WMH needed to first get containers categorized with the correct (old) WSRd number. Then, once the characterization process is completed, the container is given a new WSRd. Mr. Nester noted that a number of containers were upgraded to current WSRds in the listing also. Bob asked what the difference was between the descriptions of "chemical screening" and "HazCat" in the upgrading listing.

Mr. Ellefson said there was none. Mr. Ellefson said that chemical screening does not include toxicity characterization or address underlying hazardous constituents.

Mr. Nester said the project file has the documentation of current waste verifications, upgrades of old WSRds. I said Ecology would select a few containers from the listing to research the upgrade process. I said I would pursue this request the week after Thanksgiving. (NOTE: I later decided against performing this additional level of research as part of this inspection.)

I asked Mr. Nester about discrepancies between the list of stored mixed waste at CWC and Hanford's unverified solid LLMW characterization schedule. Mr. Nester explained that the characterization schedule includes 183H waste that had already been characterized in 1998 whereas the list of mixed waste stored at CWC indicates that the 183H waste is ready for disposal.

Mr. Nester said waste characterization activities shown on the schedule have not been funded for 1999. Mr. Ellefson noted -- that did not mean there wasn't any activity in the CWC. He said about 900 containers of transuranic waste were scheduled for preparation to send to the Waste Isolation Project in New Mexico.

I said the 1998 LDR report stated that waste sample and analyses information was in the HEIS database. I asked if this meant chemical screening information would be in HEIS. Mr. Ellefson said "No, that information would be in hard copy in the individual container files." Mr. Nester said the 1999 version of the LDR Report will be corrected to accurately reflect how data is stored.

Mr. Nester gave an update on the analyses being performed at WSCF. He said the results should be ready by the second week in December. He informed us that WMH decided not to run a split of the nitrobenzene sample nor were they running splits on the 5 samples WSCF is analyzing for Ecology.

The meeting concluded at 1530 hours.

4. Document Review

Solid Waste Integrated Forecast Technical (SWIFT) Report, dated 11/7/97

I reviewed the SWIFT report to further research the question of whether all mixed wastes stored at Hanford are accounted for in the LDR report (reference Question #3). On October 13, 1998, when asked whether all mixed wastes stored at Hanford are accounted for in the LDR Report, for example, the 305-B operated by PNNL, WMH personnel said "Yes." Mr. Black stated that such waste would be included as either inventoried waste (stored in CWC), or as waste projected for storage in the CWC. Mr. Nester offered clarification stating waste *forecasts* are wastes destined for storage at CWC while waste *projections* are estimates of waste generation. Mr. Nester said the SWIFT report includes the waste forecast information that has been incorporated into the LDR report. On December 7, 1998, Mr. Fred Ruck provided additional information on this subject via e: Mail (Attachment).

The SWIFT report "provides up-to-date life cycle information about the radioactive solid waste expected to be managed by Hanford's Waste Management (WM) project from onsite and offsite generators," as stated in the *Welcome* paragraphs of the report (Attachment). This report forecasts waste expected to be managed by WM over the life cycle of the site, i.e., through the year 2070. The SWIFT report is linked to forecast reports from specific programs, including PNNL. The SWIFT report is linked to forecast reports from specific programs, including PNNL. However, the program-specific SWIFT reports do not provide the quantity, physical locations, or methods of storage of the current inventory of mixed waste stored at their programs' facilities. The report provides waste *forecasts* as estimates of waste generation. It does not report mixed waste currently in storage. This differs from Mr. Nester's definition of forecasted waste. Further, PNNL's SWIFT report states, "Waste streams held at PNNL with no defined disposal pathway were not included in the forecast." The PHMC's written response to Question #3 states, in part, "To the best of our knowledge all RCRA mixed waste streams that are actively managed are included in this report."

Data Management Support Table

Page 2-4 of the 1998 LDR report cites Section 9.6 of the TPA for the schedule and means for reporting waste characterization data (reference Question 7)(Attachment). The LDR report further states that DOE will notify Ecology and the Environmental Protection Agency ((EPA) of data availability in the HEIS system, including the time and location of sampling, the type of data available, and a list of the sample parameters or target compounds. Mr. Black provided the Data Management Support table in response to Ecology's question as to where mixed waste data is stored.

Return on Investment (ROI), Proposal Preparation Guide (dated September 1998)

Page 2-30 of the 1998 LDR report references a cost accounting system for the "true cost" of waste generated, including the under-use of raw materials found in the waste stream, management of the waste generated, waste disposal, third-party liabilities (Attachment). Associated costs include personnel, recordkeeping, transportation, pollution control, equipment, treatment, storage, disposal, liability, compliance, and oversight. This information is used to provide generators with cost figures for preparing ROI proposals and annual waste reduction savings.

Table 1 is entitled "Sum of Avoidable Costs by Waste Type." The mixed waste portion of this table appears below:

Waste Type	Average Life Cycle Disposal Costs
Mixed Waste	<ul style="list-style-type: none"> • Without treatment - \$9,050 / m³ • Thermally treated - \$15,650 / m³ • Non-thermal treatment with and without debris - \$14,650 / m³

The report explains that the outside dimensions of the container determine the cost for handling and burial. For example, the volume of a standard 55-gallon drum based on outside dimensions equals 0.26 m³. Therefore, the cost avoided in not generating one 55-gallon drum needing

thermal treatment would be approximately \$4069. As of October 16, 1998, there were 9,132.10 cubic meters of mixed waste stored at CWC, most in 55-gallon drums.

Compliance Assessments by FDH's Facility Evaluation Board

Three FDH Facility Evaluation Board (FEB) compliance assessments were reviewed to determine compliance with Section 1.d. of the Hanford LDR Plan which requires DOE to assess the compliance status of the methods used to store mixed waste pursuant to applicable State and Federal standards (reference: Question #12). Also, the 1998 LDR Report states that waste minimization programs are audited regularly. Mr. Dale Black, WMH, said the FEB assessments are the audits referred to in the LDR Report.

On December 3, 1998, I had a telephone conversation with Mr. Tom McLaughlin, environmental auditor with the FEB. Mr. McLaughlin was the lead team member for the environmental compliance portions of the FEB assessments reviewed (B Plant, DST, 222-S). I explained the LDR requirement for USDOE to perform an assessment of the compliance status of the storage methods for mixed waste and read him the excerpt from the LDR Plan. I said that my interest was in determining what the FEB looks for during these assessments, not to follow up on areas of non-compliance identified with their reports. I asked about the FEB's Performance Objectives and Criteria document (HNF-IP-1232, Release #2) which provides the elements, objectives, and criteria for use in their evaluations. Specifically, I asked where in this document are the criteria for assessing compliant storage. I said I had reviewed the RCRA portion of this document and did not find specific criteria dealing with storage requirements. Mr. McLaughlin agreed stating that the criteria are not that specific and that, in some cases, not all dangerous waste storage requirements are assessed. He said, depending on the facility, the FEB uses the performance objectives and criteria as a basis for stating problems, other times they may use WAC requirements. He said that not all requirements are assessed at every facility. Regarding waste minimization requirements, Mr. McLaughlin said that his group does look at waste minimization activities at every facility. However, review of the assessment reports find reporting of waste minimization assessment activities as minimal. Mr. McLaughlin's comments on each of the assessments are included below.

B-Plant WESF Facility Evaluation Board Audit

The FEB conducted a performance-based assessment of B-Plant and WESF in January 1997. Included in their performance assessment was an environmental review that included compliance with dangerous waste management regulations under the following sections of the WAC:

WAC 173-303-200	Accumulating dangerous waste onsite	WAC 173-303-340	Preparedness and prevention
WAC 173-303-210	Generator record keeping	WAC 173-303-350	Contingency plan and emergency procedures
WAC 173-303-320	General inspection	WAC 173-303-630	Use and management of containers
WAC 173-303-330	Personnel training		

Although the assessment appears thorough in specific areas of environmental compliance, the FEB did not adequately assess the compliance status of *storage methods* pursuant to State standards, as required in the Hanford LDR Plan. Specifically, the FEB report does not address storage in tank systems (WAC 173-303-640). Both B-Plant and WESF are interim status facilities and, therefore, require compliance with WAC 173-303-400 interim status facility standards and, by reference, specific sections of 40 CFR 265. (Note: Due to the B Plant transition activities, Ecology previously granted USDOE variances from specific interim status storage requirements for specific storage units at B Plant, i.e., inspection, labeling, secondary containment, leak detection.)

During my conversation with Mr. McLaughlin, FEB, on December 3, 1998, I asked if the compliant tank storage was assessed. He said the FEB's January 1997 assessment of B Plant would have, in theory, included an assessment of tank storage. However, he said tank storage was not assessed in this case, and that the B Plant report was not a good example. When asked why tank storage was not included, Mr. McLaughlin did not provide an answer.

NOTE: Based on the transitional status of B-Plant, the need for future assessments in accordance with the Hanford LDR Plan need to be discussed with Mr. Shri Mohan, Ecology's Project Manager for Transition.

DST Facility Evaluation Board Audit

The FEB conducted a performance-based assessment of the DST and Characterization Project in March 1997. Included in their performance assessment was an environmental review that addressed compliance with leak detection and level monitoring systems in a vault tank; secondary containment, overflow protection, and monitoring in diesel tanks; and accumulating liquids and performing integrity assessments for sumps. Noting the attention to vaults, diesel tanks, and sumps, I asked Mr. McLaughlin if the FEB assessed the compliance status of the DSTs themselves. Mr. McLaughlin said "No," they assumed the DSTs should meet RCRA rules, therefore, they did not look at the DSTs.

222-S Facility Evaluation Board Audit

The FEB conducted a performance-based assessment of the 222-S Lab and WSCF in September 1997. Having noted no attention in the report to the compliance status of the interim status 219-S system at 222-S, I asked Mr. McLaughlin if his group evaluated the tanks. Mr. McLaughlin said "No," his group did not look at the interim status storage tanks. The report does not suggest that drum storage areas were assessed.

T Tank Waste Generator's File

The 1998 LDR Report included a Waste Profile sheet for "T Tank," a 5,000 gallon tanker stored at the T Plant Complex. Ecology requested and received a copy of the container file (Attachment). At the time of the 1998 LDR report, this tank contained only a heel of waste that

had been received from the 219-S tank at 222-S Laboratory. However, in July 1998, waste from WESF was added. The wastes, combined, are currently stored in this tank at T Plant while awaiting transfer to the DST system. The Land Disposal Notification and Certification form in the generator's file is similar to other LDR notification forms used at Hanford; however, this form has omitted information. Specifically, the form jumps from space #4 to space #6a, omitting any reference to space #5. On similar forms, space #5 includes questions regarding California List restrictions. Space #6a includes questions for assessing the presence of Underlying Hazardous Constituents, as required for waste with waste codes D001, D002, and D018-043. Space #6b questions whether the determination for UHCs was based on the generator's knowledge of the waste or through analyses.

On the Land Disposal Notification and Certification form used for T Tank, a space #6a was checked stating "Underlying Hazardous Constituent determination not applicable. However, for characteristic wastes (e.g., D002), generators must analyze for UHCs that are reasonably expected to be present in the waste.

1. Milestone Review

M-26-01 is the milestone series that requires USDOE to submit annual LDR reports in accordance with the Hanford LDR Plan. The 1998 LDR Report was submitted under M-26-01H. M-26-01H milestone requires a description of activities planned and taken to achieve full compliance with LDR requirements. The report shall update all information contained in the LDR plan and prior annual LDR report, including plans and schedules. The milestone requires that this report be submitted as a primary document, i.e., one that represents the final documentation of key data and reflects decisions on how to proceed. The milestone also calls for the report to specify interim milestones for achieving compliance with LDR requirements at mixed waste units. These milestones shall be based on significant events identified in the LDR report and are shown in schedules which are updated annually as part of the report. Appropriate milestones will be incorporated in the agreement via the change process.

The Hanford LDR Plan also contains milestone/schedule requirements. The LDR Plan requires a comprehensive Waste Characterization Plan that includes a plan and *schedule* to characterize all waste stored at Hanford and all waste streams generated at Hanford. The LDR Plan also requires a Treatment Plan that establishes, for each LDR waste, *milestones and schedules* for the development and implementation of treatment technologies that will result in all LDR wastes being treated to the applicable treatment standard or otherwise managed in accordance with LDR requirements. As noted during the October 13, 1998, inspection meeting summary above, FDH expressed their opinion that "the only applicable milestones and schedules are those that have been negotiated and approved in the TPA." Consequently, USDOE has never proposed new milestones to address characterization and/or treatment through their annual LDR reports, i.e., the only milestones that are included in the reports are those that have already been negotiated. In other words, USDOE is not using the annual LDR reports as a means to evaluate what milestones/schedules may be missing and/or needed. Nor are the reports being used as a means to initiate future milestone/schedule commitments. As noted by Mr. Black during our October 13, 1998, inspection meeting, FDH does not consider the dates for treatment of waste in the LDR

report to be legally binding dates. They are simply target dates and not intended to be in response to milestone and/or schedule drivers that appear in the TPA.

M-19-00 deals with contact-handled low-level mixed waste (CH LLMW). This milestone calls for complete treatment and/or direct disposal of at least 1,644 cubic meters of CH LLMW by September 2002. Direct disposal will be considered equivalent to treatment. Although it appears that Hanford is on schedule to meet the 1,644 cubic meter requirement by 2002, there is much more than 1,644 cubic meters of CH LLMW in need of treatment and/or disposal. Mr. Nester provided a report in response to Ecology's question of which waste streams and volumes are being used to satisfy M-19-00. This report identifies more than 8,000 cubic meters of waste from 14 waste streams that are candidates for non-thermal treatment or direct disposal under TPA milestone M-19-00 (forecasted through 2002). This report does not identify the planned treatment and/or disposal of 1,532 cubic meters of forecasted long-length contaminated equipment. Characterization is not complete for approximately 3,500 cubic meters of mixed waste currently in storage from 7 waste streams. There are no milestones in place for characterization.

M-41-00 calls for single-shell tank stabilization. These milestones have been recently renegotiated.

M-44-00 requires tank characterization reports. USDOE is on schedule with these milestones. However, these milestones call for *reports*, not characterization requirements. When addressing DST and SST waste characterization, the 1998 Hanford LDR Plan states the DSTs and SSTs are being characterized per the M-44-00 milestone and work plan. However, for purposes of characterizing tank waste to meet LDR requirements, the criteria are detailed in the Regulatory DQO developed under M-60-14 in support of the TWRS Privatization Phase I contract, which covers treatment of waste from the first 11 (or so) underground storage tanks. The Regulatory DQO covers all Phase I tank wastes. Characterization criteria for Phase II tank wastes (from the remaining underground storage tanks) have not yet been determined.

M-45-00 calls for complete closure of all single shell tank farms by 2024. Several milestones fall under the M-45 series, including the following.

- M-45-03 calls for complete SST waste retrieval demonstration by 2003.
- M-45-04 calls for initial SST tank retrieval systems by November 2003.
- M-45-05 calls for all waste from SSTs to be retrieved by September 2018.
- M-45-10A calls for data quality objectives for tank waste retrieval that identify the retrieval program's tank characterization needs in support of the TWRS privatization Phase I contract. The M-45-10A milestone is due May 1999.

Milestones M-50, M-51, M-60, and M-61 deal with treating the DST and SST tank waste.

- M-50-00 requires complete pretreatment processing of Hanford tank waste by 2028. Several milestones fall under this series, including M-50-04, which requires the start of hot operations of the high level pretreatment facility by June 2008.
- M-51-00 requires complete vitrification of high level tank waste by 2028, including M-51-03, which requires initiating hot operations of the high level waste vitrification facility by December 2009.
- M-60-00 requires complete pretreatment and immobilization of low activity waste by December 2024, which includes start of hot operations of two Phase I low activity waste pretreatment and immobilization facilities by December 2002. As noted above, M-60-14 addresses the characterization requirements in support of the TWRS Phase I contracts. Characterization is not complete for the SST and DST tank waste. The Regulatory DQO does not include a schedule for completing characterization.
- M-61-00 requires complete pretreatment and immobilization of Hanford's low activity waste.

On January 4, 1999, Mike Wilson, Ecology's Nuclear Waste Program Manager, sent a letter to USDOE expressing Ecology's concerns regarding USDOE's approach to compliance with LDRs for tank waste (Attachment). In this letter, Ecology reaffirmed that no relief has been provided by Ecology from TPA tank waste treatment schedules currently in existence. Ecology expressed concern regarding DOE's compliance under the TPA regarding the acquisition and operation of tank waste treatment facilities. Specifically, existing schedules require that treatment capacity be acquired either on an agreed to "primary path" requiring two competitive treatment facilities be operational by 2002, or an agreed to "alternate path" requiring initial low activity waste immobilization be operational by 2003, should USDOE deem the primary path to be infeasible. Mr. Wilson's letter states that USDOE's intentions do not reflect any efforts underway to meet either of these approved compliance paths. Further, Mr. Wilson wrote that the USDOE's 1998 LDR submittal regarding SST and DST waste treatment is far from adequate and does not meet plan requirements.

M-91-12 calls for the initial treatment of at least 600 cubic meters of currently stored and newly generated CH LLMW by December 2005. Mr. Nester provided a report in response to Ecology's question of which waste streams and volumes are being thermally treated under M-91-12. This report identifies more than 3,700 cubic meters of mixed waste from 3 waste streams that are candidates for thermal treatment under TPA milestone M-91-12 (forecasted through 2002). Characterization is not complete for approximately 900 cubic meters of this waste currently in storage from 2 waste streams. There are no milestones in place for characterization.

M-91 milestones also address transuranic (TRU) and transuranic mixed (TRUM) waste. No volume requirements are stated within the milestone language.

- M-91-02 requires USDOE to initiate processing of CH-TRU/TRUM at the WRAP facility by September 1998. This milestone is reported as complete.
- M-91-03 requires USDOE to submit a Hanford Site TRU/TRUM Waste Project Management Plan by June 2000.
- M-91-06 requires USDOE to award privatized contracts for processing remote-handled (RH) and large size TRU/TRUM by September 2003.
- M-91-08 requires completion of construction and initiation of hot operations of RH large size TRU/TRUM processing facility by June 2005.

According to Mr. Nester's report identifying which waste streams are destined for which treatment options, 1,749 cubic meters of TRUM waste is planned for treatment under the M-91-02, 03, 06, and 08 milestones (forecasted through 2002). Characterization is not complete for the 347 cubic meters of TRUM waste currently in storage from 3 waste streams. There are no milestones in place for characterization.

6. Summary of Analysis Results and Container File Review

#9317-03-0007 – Battelle Columbus (Attachment)

This drum originated at Battelle Columbus in 1993. It contained absorbed liquid. The generator file shows the waste designated as follows:

#9317-03-0007	D023 – o-Cresol (aka 2-Methylphenol) D026 – Cresol (aka 4-Methylphenol)	The generator's file includes analysis that shows 2-methylphenol at 757 mg/l and 4-Methylphenol at 1,133 mg/l. No LDR information was included in the file as the effective date governing organic toxicity characteristic waste (D018-D043) was December 1994. *
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The analysis from WSCF did not detect 2- or 4-Methylphenol in the sample. However, WSCF did detect Bis(2-ethylhexyl)phthalate at 290 mg/kg. The UHC limit for this constituent is 28 mg/kg for non-wastewater. The data from Paragon showed Bis (2-ethylhexyl)phthalate at an estimated concentration of 1500 mg/kg.) However, this compound is a plasticizer and the most likely to be contaminated during the sampling event by contact with plastics such as gloves, containers, sampling equipment, etc. The Paragon data did not detect 2- or 4-Methylphenol in the sample. NOTE: The sample was taken at T-Plant on 10/21/98, yet was not received at WSCF until 11/3/98. The SVOAs were run at WSCF on 12/4/98 and 12/18/98, long past the 14 day holding time. The SVOAs were run at Paragon on November 13, 1998, also past the 14-day holding time.

* Although the effective date of the final rule that included organic toxicity characteristic waste was December 1994, the TSD facility storing the waste (Hanford) must comply with the notice and certification requirements applicable to generators when the waste is sent off-site for treatment.

There were no designation problems noted with the Battelle Columbus container.

Drum #9403139 – Tank Farms (Attachment)

This drum originated at Tank Farms in 1994. As packaged, it contained 10 inner bags including such items as oily rags, filters, paint cans, brushes, HEPA canisters, hand cleaner. The generator file shows the waste to designate as follows:

Bag 1	D018 – Benzene	“Designation data from predetermination list.”
Bag 2	WT02 – WA Toxic	“Toxic data from pre-determination list.”
Bags 3 & 4	D006 – Cadmium D008 – Lead D010 – Selenium	“Designation data from predetermination list.” Also, TCLP from analysis.
Bags 5, 6, 7	Non-Regulated	Bag 5 – means of designation not documented Bag 6 – “From predetermination list.” Bag 7 – “Data from predetermination list.”
Bag 8	D007 – Chromium WT02 – WA Toxic	MSDS & TCLP. No results in file from TCLP analysis.
Bag 9	WT02 – WA Toxic	MSDS
Bag 10	WT02 – WA Toxic	“From predetermination list.”

The Land Disposal Notification and Certification Form lists the five federal waste codes noted above (D006, D007, D008, D010, D018). The description of subdivisions (subcategory) is not complete for D006 and D008 waste codes. Line 6a of the form should include D003 with the list of codes requiring the generator to check for Underlying Hazardous Constituents. Neither line 6a nor line 6b were completed indicating the generator did not check for the presence of UHCs.

This container was visually inspected during the sampling event. Contents matched the container inventory sheets.

Drum #9521493 – Plutonium Finishing Plant (Attachment)

This drum originated at PFP in 1995. It held two inner containers, one of which was sampled (Item #22), contained absorbed nitric acid and silver. The generator file shows the sampled waste to designate as follows:

Item #22	D001 – Oxidizer D011 – Silver WSC2 – WA Solid Corrosive	Generator records report a D011 concentration of 100 ppm. However, no indication is given of how D011 concentration of 100 ppm was determined. Generator recorded "worst case designation, pH unknown, assuming worst case pH less than or equal to 2, oxidizer too." No federal code for corrosivity used.
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The Land Disposal Notification and Certification Form lists the waste codes noted above (D001, D011). The form reported that the generator had reviewed the UST list and determined no UHC were reasonably expected to be in the waste. This determination was based on the generator's knowledge of the waste.

The analyses from Paragon Laboratory resulted in Silver (Ag) at 1330 mg/kg. PFP reported Ag at 100 ppm (i.e., 100 mg/kg). The analysis from WSCF resulted in Ag at 5700 mg/kg. Also from WSCF, the MDLs were too high to determine most SVOAs. In addition, WSCF was out of holding time for SVOAs. The VOA sample from Paragon was compromised at their laboratory.

The generator records for container #9521493 did not include the proper waste code assignment for corrosivity. Specifically, the Washington Solid Corrosive Code WSC2 was used. The WSC2 waste code is used when the waste originates as a solid corrosive, not once a liquid corrosive is absorbed in diatomaceous earth. The proper waste code of D002 was not assigned.

Note: The sample was taken at T-Plant on 10/21/98, was received at WSCF on 10/22/98. The SVOAs were run on 12/18/98, long past the 14 day holding time.

The generator's Solid Waste Storage/Disposal Record is 1) inaccurate, and 2) unclear. Regarding the inaccuracy, page 2, item 66, asks the generator to identify the weight percent of the hazardous constituents within the container. The recorded weight percent totals 219%. Regarding the unclear portion, page 2, item 61, asks the generator to provide an article description, with estimated volume % and estimated weight. The articles described are not broken out per inner container. The reader has no way to know the accurate description of each individual package within the container.

Copies of the Chain of Custody form submitted with the Paragon analyses document that the samples were shipped six days after the samples were taken. Therefore, Paragon did not receive the samples until seven (7) days after the sample had been taken.

Drum #9601762 – Bechtel (Attachment)

This drum originated at the 100-N Environmental Analytical Lab (EAL) in 1996. As packaged, it held 8 inner containers. These containers were grouped into three inner container sets: #1 included 6 separate containers that held the same waste material (EAL-96-161A-F), set #2 was an individual container of unique waste (EAL-96-162), #3 was also an individual container of unique waste (EAL-96-163). The generator file shows the waste to designate as follows:

EAL-96-161A-F	D002 – Corrosive D007 – Chromium D008 – Lead D009 – Mercury WT02 – WA Toxic	Criteria for designation appear to have been based on a weight percent calculation. The file does not contain information on how this weight percent was calculated or determined.
EAL-96-162	D002 – Corrosive D004 – Arsenic D006 – Cadmium D007 – Chromium D008 – Lead D009 – Mercury D010 – Selenium D011 – Silver	
EAL-96-163	D002 – Corrosive D004 – Arsenic D006 – Cadmium D007 – Chromium D008 – Lead D009 – Mercury D010 – Selenium D011 – Silver WT02 – WA Toxic	

The Land Disposal Notification and Certification Form lists the waste codes noted above (D002, D004, D006-D011). The description of subdivisions (subcategory) is not complete for D006, D008, and D009 waste codes. The form reported that the generator had reviewed the UST list and determined UHCs were reasonably expected to be in the waste. This determination was based on the generator's knowledge of the waste. The attached UHC Addendum form is used to identify UHCs; however, the generator did not identify any UHC, rather the original constituents that caused the waste to designate (e.g., arsenic, cadmium). This generator's only code for which it would be necessary to look for UHCs is D002. The LDR paperwork is in error.

The analyses from WSCF resulted in pH < 1 for the three sample sets. No other constituents were found to exceed regulatory designation levels or UHC levels. The generator file contains a

table detailing weight percent (to 5 decimal places) for each hazardous constituent in each container set. It is unclear how this detailed data was obtained.

Drum #9700906 – 222-S Lab (Attachment)

This drum originated at 222-S lab in 1997. It contained 4 inner containers of liquid waste. One inner container was sampled: #11-72-41. The generator file shows the waste to designate as follows:

#11-72-41	D036 – Nitrobenzene U169 – Nitrobenzene WT02 – WA Toxic	Generator file included MSDS for nitrobenzene. The file also identifies the nitrobenzene as "CONTAMINATED RAD. LIQUID WASTE."
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The Land Disposal Notification and Certification Form includes the waste codes noted above (D036, U169). The form states that the generator had reviewed the UST list and determined UHCs were present in the waste. This determination was based on the generator's knowledge of the waste and analysis. The generator identified nitrobenzene as a UHC; however, nitrobenzene is not the underlying hazardous constituent, it is the primary hazardous constituent. Also, the generator assigned the waste code of U169; however, this waste is not an unused chemical product (determined by its identification as "contaminated rad liquid waste" in the generator file) and also the presence of lead (.38 mg/kg) in the sample analyzed by Paragon Laboratory. Further, the file does not contain adequate process knowledge to determine if the nitrobenzene was used for its solvent properties (which would call for an F code).

The analysis from Paragon does confirm the presence of nitrobenzene.

Drum #9800899 – PNNL (Attachment)

This drum originated at PNNL in 1994. As packaged, it contained 11 inner containers of various sizes. All waste in containers is in liquid form. Two inner containers were sampled: #4054 and #3908. The generator file shows the waste to designate as follows:

#4054	D002 – Corrosive D011 – Silver D030 – 2,4 Dinitrotoluene F001,2,3,4,5 WT02 – WA Toxic	Waste designation form lists the composition, by weight %, of the waste. However, it is unclear how this list applies to the containerized waste.
#3908	D002 - Corrosive	Waste designation form lists the composition, by weight %, of the waste. However, it is unclear how this list applies to the containerized waste.

The analyses from WSCF showed the following results:

Item #	Regulatory Driver	Analyte	Result (mg/l)	Reg. Limit (mg/l)
#4054	UHC	Acetone	0.74	0.28
		Chloroform	0.077	0.046
		Methylene Chloride	4.6	0.089
	Toxicity	Silver	433.0 (ICP metals)	5.0 (TCLP)
	Corrosivity	pH	<1	2-12.5
#3908	UHC	2,4 Dinitrophenol	0.12	20.0
		2-Nitrophenol (aka <i>o</i> -Nitrophenol)	0.085	0.028
		Acetone	7.6	0.28
		Chloroform	0.088	0.046
		Methylene Chloride	4.5	0.089
	Corrosivity	pH	1.52	2-12.5

The Land Disposal Notification and Certification Form includes the waste codes noted above (D002, D0011, D030). The description of subdivisions (subcategory) is not complete for D006. The form reported that the generator had reviewed the UST list and determined UHCs were reasonably expected to be in the waste. This determination was based on the generator's knowledge of the waste and analysis. The generator's UHC Addendum form is used to identify UHCs; however, the generator did not identify any UHCs. The generator properly listed the codes D002 and D003, then identified the UHCs as chromium, nickel, methylene chloride, lead, silver, and cadmium—not constituents from the UHC list.

The analysis from WSCF indicates that 2,4 Dinitrophenol, *o*-Nitrophenol, and Chloroform levels exceed the regulatory limits given on the UHC list; however, these constituents did not appear on the generator's UHC paperwork for this container. Acetone and Methylene Chloride is identified on the UHC paperwork, but is attached to waste with codes F001 and F002, codes not assigned to item #3908.

NOTE: Analysis results from Paragon Laboratories and Hanford's Waste Sampling and Characterization Facility are attached.

February 25, 1999:

Bob Wilson, Kathy Conaway, and I met with the following people at the 2430 Building to closeout the field portion of the LDR inspection.

Russ Bisping, FDH	Rick Englemann, WMH	Tony Miskho, FDH
Tony McKarns, DOE	Harold Tilden, PNNL	Diana McMullin, PNNL
Rhonda Connolly, WMH	Cindy Girres, WMH	Greg Sinton, DOE
Dean Nester, WMH		

I introduced Ecology employees and initiated round table introductions. I said the LDR inspection report was complete and that I would be conducting a verbal debrief of inspection violations and concerns. I described Ecology's enforcement process (JFE, peer review) and said enforcement actions would be determined after this process was complete. In addition, I explained that this inspection was very complex and Roger Stanley, Ecology's TPA administrator, would help define the enforcement approach; hopefully the formal correspondence on the LDR inspection would be issued in late March. Today's goal was to inform USDOE and the contractors of the issues raised during the inspection.

I then read through the major portions of the four violations as written in the inspection report. After describing the use of the FEB reports as the documentation presented for assessing compliant storage requirements in the LDR report, I clarified that Ecology did not want to impede the use of self audits through the FEB, but wanted to make it clear that the FEB reports were reviewed only because they were referred to as the source of information regarding compliant storage in the LDR report.

After completing the review of the four violations, Mr. Miskho asked if I planned further discussion of the violations and concerns with USDOE prior to sending out the formal letter. I said "No." Mr. Miskho asked if the current meeting was the last time to discuss these issues prior to a formal letter being sent out and I confirmed that it was.

I then read through the thirteen concerns as written in the inspection report after which Mr. McKarns asked if I was going to issue a letter and then have discussions of the issues with USDOE and the contractors. I said, "Yes."

Mr. Miskho said if there were going to be penalties involved, USDOE and the contractors would need to meet with Ecology as soon as possible. He said if the enforcement action was to be a voluntary compliance letter, there wasn't such urgency. I noted that the enforcement action had not yet been determined. Mr. McKarns said there was information from USDOE that may alter Ecology's actions. In the event there were issues regarding the violations and concerns discussed today, I assured the group that I would be available to discuss them, and I asked USDOE and the contractors to call me at the Ecology office. Mr. McKarns and Mr. Miskho said they would review the information presented and get back to me probably next week. We concluded the meeting and left at 1130.

7. Violations

Violation #1: Hanford LDR Plan, Section 1.a., Storage Report Requirements, per TPA Milestone M-26-01H

Section 1.a. of the Hanford LDR Plan requires USDOE to accurately identify and describe, by quantity and physical location, the mixed waste stored at Hanford.

In the 1998 LDR Report, USDOE failed to report the quantity and physical location of all mixed wastes stored at Hanford.

During Ecology's inspection, the Project Hanford Management Company (PHMC) representative said, "All RCRA mixed waste streams that are actively managed are included in the 1998 Hanford LDR report." WMH representatives advised Ecology that mixed wastes were accounted for as either inventoried waste, or as waste projected for storage CWC. When asked how the projected waste storage estimates were derived for the LDR Report, WMH said SWIFT report provided that information. However, the SWIFT report does not provide the quantity, physical locations, or methods of storage of the current inventory of mixed waste. Rather, the SWIFT report provides waste forecasts of waste generation. In addition, the SWIFT report states, "Waste streams held at PNNL with no defined disposal pathway were not included in the forecast." All mixed wastes are required to be included in the LDR report. This includes all LDR mixed waste at all locations at Hanford. Referencing the SWIFT report's waste generation projections as documentation of mixed waste storage at Hanford is inaccurate.

Violation #2: Hanford LDR Plan, Section 1.d., Storage Report Requirements, per TPA Milestone M-26-01H

Section 1.d. of the Hanford LDR Plan requires USDOE to assess the compliance status of the storage methods pursuant to applicable State and Federal standards. WMH cited the Facility Evaluation Board (FEB) assessments as the documentation used to satisfy Section 1.d. of the LDR Plan. Review of these assessments revealed that not all dangerous waste storage requirements were assessed by the FEB.

USDOE failed to perform a complete assessment of the compliance status of storage methods.

- The FEB conducted a "performance-based" assessment of B Plant and the Waste Encapsulation Storage Facility (WESF) in 1997. This assessment did not address storage in tank systems pursuant to Washington Administrative Code (WAC) 173-303-640. Both B-Plant and WESF are interim status facilities and, therefore, require compliance with WAC 173-303-400 interim status facility standards and, by reference, specific sections of 40 CFR 265. (Note: Due to the B Plant transition activities, Ecology previously granted USDOE conditional relief from specific interim status storage requirements for specific storage units at B Plant, i.e., inspection, labeling, secondary containment, leak detection. Based on the transitional status of B-Plant, the need for future assessments in accordance with the Hanford LDR Plan should be discussed with Mr. Shri Mohan, Ecology's Project Manager for Transition.)*
- The FEB conducted a "performance-based" assessment of the double-shell tanks (DST) and Characterization Project in March 1997. This assessment did not address the compliance status of the DSTs themselves, pursuant to WAC 173-303-640. When asked about this apparent omission, the FEB investigator said that they [his assessment group] assumed the DSTs should meet RCRA rules; therefore, they did not look at their compliant storage status.*

- *The FEB conducted a "performance-based" assessment of the 222-S Lab and Waste Sampling and Characterization Facility (WSCF) in September 1997. This assessment did not address the compliance status of the interim status 219-S tank system at 222-S, pursuant to WAC 173-303-640. When asked, the FEB investigator said his group did not look at the interim status storage tanks. Also, the report does not suggest that drum storage areas were assessed.*

Violation #3: Hanford LDR Plan, Section 5, Treatment Plan Requirements, per TPA Milestone M-26-01H

Section 5 of the Hanford LDR Plan requires the LDR Plan to include a Treatment Plan for the LDR wastes identified in the Treatment and Storage Reports, as well as all applicable Milestones and associated schedules for developing and implementing treatment, or management technologies, to achieve compliance with LDR requirements for each LDR waste, including, as appropriate, such items as waste characterization data.

USDOE failed to provide applicable Milestones or schedules for developing and implementing treatment technology for each LDR waste. In particular, USDOE's 1998 Treatment Plan for SST and DST waste is inadequate, and does not meet Hanford LDR Plan requirements.

On January 4, 1999, Mike Wilson, Ecology's Nuclear Waste Program Manager, issued a letter to USDOE expressing concerns regarding USDOE's compliance with LDRs for tank waste. In this letter, Ecology reaffirmed that no relief has been provided by Ecology from TPA tank waste treatment schedules currently in existence. Ecology expressed concern regarding USDOE's compliance with the TPA regarding the acquisition and operation of tank waste treatment facilities. Specifically, existing schedules require that treatment capacity be acquired either on an agreed to "primary path" requiring two (2) competitive treatment facilities be operational by 2002, or an agreed to "alternate path," requiring initial low activity waste immobilization be operational by 2003, should USDOE deem the primary path to be infeasible. USDOE's intentions do not reflect any efforts underway to meet either of these approved compliance paths. Although USDOE is working towards other paths forward to LDR treatment for tank waste, namely, the TWRS Privatization effort, this effort is not yet governed by TPA Milestones, and is not reflected in the Hanford LDR Treatment Plan.

Violation #4: Testing, Tracking, and Recordkeeping Requirements for Generators, Treaters, and Disposal Facilities (40 CFR Part 268.7)

40 CFR 268.7 requires a generator to determine if their waste has to be treated before it can be land disposed, and to retain all data used to make the determination. Ecology reviewed seven (7) Operating Record files; six (6) out of seven (7) had deficiencies associated with determination of

Underlying Hazardous Constituents (UHCs), assignment of subcategories, and retaining supporting data in the generator's files.

USDOE failed to properly complete LDR testing, tracking, and recordkeeping requirements for six (6) out of seven (7) container files reviewed.

Container #225B-98-000006 – T Tank

- *On the Land Disposal Notification and Certification form used for container #225B-98-000006 (T Tank), space #6a was checked stating "Underlying Hazardous Constituent Determination not Applicable." However, the T Tank designation indicates the presence of characteristic waste (D002); therefore, generators must determine the UHCs that are reasonably expected to be present in the waste (unless a container is being managed as a labpack in accordance with the requirements of 40 CFR 268.42[c]).*

Container #9403139 – Tank Farms

- *On the Land Disposal Notification and Certification for container #9403139, the description of subdivisions (subcategory) is not complete for D006 and D008 waste codes. Line 6a of the form should include D003 with the list of codes requiring the generator to check for Underlying Hazardous Constituents. Line 6a and line 6b were not completed, indicating the generator did not check for the presence of UHCs.*

Container #9521493 – Plutonium Finishing Plant (PFP)

- *The generator records for container #9521493 did not contain adequate supporting data to make the determination regarding the concentration of silver (D011) in the waste. The generator records report a D011 concentration of 100 ppm (equivalent to approximately 100 mg/kg). However, no indication is given of how this concentration was determined. (Analyses from Paragon Laboratories resulted in silver at 1,330 mg/kg. Analysis from WSCF resulted in silver at 5,700 mg/kg.)*
- *The generator records for container #9521493 did not include the proper waste code for corrosivity. Specifically, the Washington Solid Corrosive Code WSC2 was used. Waste codes from designation are determined at the point of generation, not after being divided or diluted, or in this case, after a liquid corrosive is absorbed in diatomaceous earth. The proper waste code of D002 was not assigned.*

Container #9601762 – Bechtel Hanford Inc. (BHI)

- *The generator records for container #9601762 did not contain adequate supporting data to make the determination regarding the concentrations of contaminants in the waste. Criteria for designation appears to have been based on a weight percent calculation; however, this file does not contain information on how weight percent values were determined. WMH staff stated the designation was based on process knowledge gained from review of written analytical procedures that generated the waste and the specific constituent quantities were derived from these procedures. The container file did not contain any reference to such written analytical procedures. (NOTE: The waste in this container had been designated with the following waste codes: D002, D004, D006, D007, D008, D009, D010, D011. The analyses from WSCF resulted in pH<1 for the three (3) sample sets representing the contents of this waste container. No constituent was found that exceeded regulatory designation or UHC limits.)*
- *On the Land Disposal Notification and Certification form for container #9601762, the description of subdivisions (subcategory) is not complete for D006, D008, and D009 waste codes.*

Container #9700906 – 222-S Laboratory

- *The Land Disposal Notification and Certification Form for container #9700906 includes the waste codes D036 and U169. The form states that the generator had reviewed the Universal Treatment Standards (UTS) list and determined UHCs are present in the waste. This determination was based on the generator's knowledge of the waste and analysis. The generator identified nitrobenzene as a UHC; but nitrobenzene is not the underlying hazardous constituent, it is the primary hazardous constituent. Also, the generator assigned the waste code of U169; however, this waste is not a discarded chemical product. The waste was identified as "contaminated rad liquid waste" in the generator file. Also, an independent laboratory analysis (from Paragon Laboratories) revealed the presence of lead (.38 mg/kg) in the sample. Further, the file does not contain adequate process knowledge to determine if the nitrobenzene was used for its solvent properties, in which case the F004 code would be applied to the waste.*

Container #9800899 – Pacific Northwest National Laboratory (PNNL)

- *The generator records for container #9800899 did not contain adequate supporting data to determine the concentrations or presence of contaminants in the waste. Criteria for designation appears to have been based on a weight percent calculation; however, this file does not contain information on how this weight percent was determined. Also, the waste was assigned the waste code D030 indicating the presence of 2,4 Dinitrotoluene; however, this contaminant does not appear on any of the associated paperwork for the waste. (NOTE: The presence/absence of 2,4 Dinitrotoluene is particularly important due to its potential for explosion when heated.) Further, the file does not contain the proper information for assessing the dangerous waste criteria for toxicity.*

- *The Land Disposal Notification and Certification Form for container #9800899 includes waste codes D002, D011, and D030 (the codes associated with the samples analyzed from the two [2] inner containers chosen for this inspection). The form also includes the code D006, associated with another inner container. The description of subdivisions (subcategory) is not complete for D006. In addition, the analysis from WSCF for inner container #3908 indicates that 2,4 Dinitrophenol, o-Nitrophenol, and Chloroform levels exceed the regulatory limits for UHCs; however, these constituents did not appear on the generator's UHC paperwork for this container. WSCF analysis also found acetone and methylene chloride levels that exceed regulatory limits for UHCs. These constituents were identified on the UHC paperwork for the drum, but were attached to waste with F001 and F002 codes assigned to different inner containers.*

8. Concerns

Concern #1: Section 3 of the Hanford LDR Plan requires that the LDR Report include a comprehensive Waste Characterization Plan, that includes a plan and schedule to characterize all waste stored at Hanford. WMH informed Ecology that the characterization schedule provided with the LDR Report was only a target schedule, despite its being presented by USDOE in a document required to be compliant with TPA Milestone M-26-01H. USDOE failed to completely implement their schedule for characterizing all waste stored at Hanford.

- *Ecology was provided a characterization schedule; however, WMH reported that the schedule was not funded for characterizing waste in 1999, nor were all waste streams characterized as scheduled in FY 1998.*
- *The characterization schedule did not include all waste stored at Hanford. Notably missing are characterization schedules for DST and SST waste. The TWRS Regulatory Data Quality Objective (DQO) does not include a schedule for completing characterization on the waste tanks selected for vitrification under Phase I of the Privatization Contract. Also, there is no schedule in place for characterizing waste in the remaining DSTs and SSTs (selected for vitrification under Phase II of the Privatization Contract).*
- *M-19-00 deals with contact-handled low-level mixed waste. WMH provided a report in response to Ecology's question of which waste streams and volumes are being used to satisfy M-19-00. This report indicates a schedule is not complete for characterization of approximately 3,500 cubic meters of mixed waste currently in storage from seven (7) waste streams. Failure to characterize the mixed waste could jeopardize the schedule for non-thermal treatment, or direct disposal, under TPA Milestone M-19-00.*
- *M-91-12 calls for the initial treatment of at least 600 cubic meters of currently stored and newly generated contact-handled low-level mixed waste, by December 2005. WMH provided a report in response to Ecology's question of which waste streams and volumes are being thermally treated under M-91-12. This report identifies more than 3,700 cubic meters of mixed waste from three (3) waste streams that are candidates for thermal treatment under TPA Milestone M-91-12 (forecasted through 2002). Characterization is not complete for approximately 900 cubic meters of this waste currently in storage from two (2) waste*

streams. Failure to characterize the mixed waste could jeopardize the schedule for thermal treatment under TPA Milestone M-91-12.

- *According to the WMH report identifying which waste streams are destined for which treatment options, 1,749 cubic meters of transuranic mixed waste is planned for treatment under the M-91-02, 03, 06, and 08 Milestones (forecasted through 2002). Characterization is not complete for 347 cubic meters of transuranic mixed waste currently in storage from three (3) waste streams.*

Concern #2: The waste stream identification system used in the 1998 LDR Report does not coincide with the waste stream identification system used on site, i.e., the Waste Specification Records (WSRd) system.

- *During Ecology's inspection, WMH staff acknowledged this inconsistency and committed to reconciling this discrepancy in future reporting and tracking activities.*

Concern #3: Requested records were not received in a timely manner.

- *Five (5) container records were requested by Ecology on October 6, 1998. These records were to be provided to Ecology by October 9, 1998. Three (3) files were received on October 12, 1998; two (2) were received October 14, 1998. These delays caused unnecessary rescheduling and poor coordination for the sampling event, e.g., establishing container-specific sampling needs, assessing transportation requirements for samples, setting up radiological controls at T Plant.*
- *A report on the number of containers and volume, by waste stream, of all containers at CWC was requested on September 29, 1998. The complete report was not provided to Ecology until October 16, 1998. The WMH representative said the delay was due to the report being reviewed to ensure it was a "clean" list. Ecology informed WMH that the request was for the data as it appeared on the date requested, not after being reviewed, and perhaps altered, prior to submission to Ecology.*

Concern #4: The schedule and means for reporting waste characterization data is unclear.

Page 2-4 of the 1998 LDR Report cites Section 9.6 of the TPA for the schedule and means for reporting waste characterization data. The LDR Report further states that USDOE will notify Ecology and EPA of data availability in the Hanford Environmental Information System (HEIS), including the time and location of sampling, the type of data available, and a list of the sample parameters, or target compounds. WMH provided a Data Management Support table in response to Ecology's question as to where mixed waste data is stored. In a subsequent meeting, Ecology asked if this meant chemical screening information would be in HEIS. WMH staff said "No, that information would be in hard copy in the individual container files." WMH staff said the 1999 version of the LDR Report would be corrected to accurately reflect how this data is stored.

Concern #5: Sampling practices for collecting volatiles and semi-volatiles were not adequate to minimize the loss of volatile components to the atmosphere.

During the sampling event at T Plant, several liquid waste volumes were poured into a bowl and allowed to remain open to the atmosphere for up to an hour while volatile and semi-volatile samples were drawn. Ecology acknowledges the difficulties involved with sampling radioactive waste in a greenhouse environment; however, sample collection methods should be reviewed and improved.

Concern #6: Ecology's review of performance agreements associated with characterizing waste stored in CWC resulted in concerns over the completeness of required actions.

Two (2) performance agreements associated with characterizing waste stored in CWC (WMI.1.1, Section 4 and WMI.1.1, Section 5) were reviewed. Based on the WMH report to USDOE on completion of the performance agreements, WMH identified that the waste containers had "... the waste summary verified, underlying hazardous constituents identified, and have been characterized adequately to allow for determination of a treatment path." However, when reviewing the associated container list, it appeared that not all containers had gone through such a characterization process. Rather, it appeared some containers had been merely sorted to reflect the appropriate category of waste awaiting such characterization.

Concern #7: Waste minimization activities were not well documented in the FEB reports.

The 1998 LDR Report states that waste minimization programs are audited regularly via the FEB assessment. Review of the FEB assessment suggests waste minimization assessment activities were minimal. Ecology's 1998 inspection did not focus on a detailed review of the waste minimization requirements detailed in the LDR Plan. However, Ecology will focus on waste minimization in an upcoming inspection.

Concern #8: The planned treatment and/or disposal of forecasted long-length contaminated equipment is not identified.

During the investigation, Ecology requested information as to which LDR wastes streams are being used to satisfy M-19-00. This report identifies more than 8,000 cubic meters of waste from fourteen (14) waste streams that are candidates for non-thermal treatment or direct disposal under TPA Milestone M-19-00 (forecasted through 2002). This report does not identify the planned treatment and/or disposal of 1,532 cubic meters of forecasted long-length contaminated equipment.

Concern #9: The 1999 LDR Report should reference the characterization plan in place for DST and SST waste.

When addressing DST and SST waste characterization, the 1998 Hanford LDR Plan states the DSTs and SSTs are being characterized per the M-44 Milestone and work plan. However, for purposes of characterizing tank waste to meet LDR requirements, the criteria are detailed in the

Regulatory DQO developed under M-60-14 in support of the TWRS Privatization Phase I contract, which covers treatment of all Phase I tank wastes. Characterization criteria for Phase II tank wastes (the remaining DST and SST tanks not treated during Phase I) have not yet been determined. The 1999 LDR Report should reference the characterization plan developed by the DQO for M-60-14.

Concern #10: Generator recordkeeping for the following containers is inaccurate and unclear.

- *The generator's Solid Waste Storage/Disposal Record for PFP container #9521493 is inaccurate and unclear. Regarding the inaccuracy, page 2, item 66, asks the generator to identify the weight percent of the hazardous constituents within the container. The total of constituents equals 219%. Regarding the unclear portion, page 2, item 61, asks the generator to provide an article description, with estimated volume % and estimated weight. The articles described are not broken out per inner container. The reader has no way to know the accurate description of each individual package within the container.*
- *The generator's Hazardous Waste Packing Slip for PNNL container #9800899 incorrectly identifies the federal/Environmental Protection Agency (EPA) waste code F003 as a Washington State Department of Energy (WDOE) code.*

Concern #11: Processes for shipping waste samples to Ecology's off-site laboratory need to be refined.

Despite advance planning of the sampling event, there were several problems and delays associated with sending Ecology's waste samples from Hanford to Paragon Laboratories, Ecology's laboratory in Colorado. These concerns are associated with receiving radiological screening data from WSCF, arranging off-site transportation, and collecting the required sample volume. In several cases, holding times were not met.

Concern #12: The Waste Profile sheets are not complete.

The Waste Profile Sheets provided in the LDR Report do not identify the number of containers for each waste stream (Section 3.3 of the Profile Sheet).

Concern #13: Milestone M-26-01 requires that the annual LDR Report be submitted as a primary document, i.e., one that represents the final documentation of key data and reflects decisions on how to proceed.

Neither USDOE nor Ecology has managed the LDR Report as a primary document per Section 9 of the TPA. USDOE and Ecology need to take the necessary steps to manage the 1999 LDR Report, and future annual reports, as primary documents.

9. Attachments

1. Requirements for Hanford LDR Plan, signed by Paul T. Day, EPA, and Timothy L. Nord, Ecology, April 10, 1990.

2. Letter, Laura Ruud, Ecology, to John Wagoner, USDOE, et al., "Ecology's Review of USDOE's 1997 Report on Hanford Site Land Disposal Restrictions for Mixed Waste (DOE/RL-97-14)," dated September 19, 1997.
3. Letter, James E. Rasmussen, USDOE, to Laura Ruud, Ecology, "Responses to State of Washington Department of Ecology (Ecology) Comments on the 1997 Report on Hanford Site Land Disposal Restrictions for Mixed Waste (DOE/RL-97-14)," dated January 28, 1998.
4. Letter, Laura Ruud, Ecology, to James E. Rasmussen, USDOE, et al., "HB 1010 Technical Assistance Visit on Land Disposal Restrictions for Mixed Waste at Hanford," dated August 28, 1997.
5. Letter, Laura Ruud, Ecology, to James E. Rasmussen, USDOE, et al., "Land Disposal Restrictions (LDR) Meeting, September 24, 1997," dated October 9, 1997.
6. Letter, Laura Ruud, Ecology, to Fred A. Ruck III, FDH, "HB 1010 Technical Assistance Visit on Land Disposal Restrictions for Mixed Waste at Hanford," dated March 3, 1998.
7. WHC-SD-WM-TP-442, Rev. 0, "Sampling and Analysis Plan for Mixed Waste Treatment," dated April 1996.
8. Excel spread sheet prepared by Ecology to identify information gaps in 1998 LDR Report Waste Profile Sheets.
9. Electronic Mail Message, Laura Ruud, Ecology, to Fred Ruck III, et al., "Questions/Concerns for Upcoming LDR Investigation," dated October 5, 1998.
10. Draft PMHC Annotations of WDOE's 10/05/98 List of "Questions/Concerns to Address During Ecology's LDR Investigation," provided by PMHC during October 13, 1998 meeting.
11. "Stored Mixed Waste Residing @ the CWC Characterization/Verification Status," dated October 16, 1998.
12. HNF-IP-1232, "PMHC Performance Objectives and Criteria, Functional Area, Environmental Protection, Release #2," dated September 12, 1997.
13. Listing of Facility Evaluation Board Final Reports, dated October 12, 1998.
14. Facility Evaluation Board Charter, Rev. 2., dated November 14, 1997.
15. Facility Evaluation Board Report, B Plant/WESF, dated June 19, 1997.
16. Facility Evaluation Board Report, Double Shell Tanks/Characterization Project, dated April 30, 1998.
17. Facility Evaluation Board Report, 222-S Analytical Laboratory/Waste Sampling Characterization Facilities, dated December 10, 1997.
18. "Hanford's Unverified Solid LLMW Characterization Schedule, Supplemental Information for the 1998 Hanford LDR Report," dated October 16, 1998.
19. "Hanford's Solid LLMW/TRUM Treatment/Disposal Disposition, Based on the 1998 LDR Report Submittal," dated October 16, 1998.
20. Electronic Mail Message, Laura Ruud, Ecology, to Steve Szendre, et al., "Additional Details for Monday's LDR Sampling Event," dated October 16, 1998.
21. WMH-9858166, "Completion of Fiscal Year 1998 Performance Agreement (PA) WM1.1.1, Section 4, 'Increased Performance,' dated December 13, 1997," dated September 29, 1998.
22. WMH-9854212, "Completion of Characterization and disposition of at least 10,100 Drums Fiscal Year 1998 Performance Agreement (PA) WM1.1.1, Section 5, Criterion 2, dated December 13, 1997," dated April 17, 1998.
23. Computer printout of the list of containers upgraded to either new WSRd or appropriate category of old WSRd, dated October 19, 1998.

24. Electronic Mail Message, Fred Ruck III, FDH, to Laura Ruud, Ecology, "Laura Ruud's Concern re: 305B Waste."
25. "Solid Waste Integrated Forecast Technical (SWIFT) Report: FY 1998 to FY 2070, Revision 3," dated December 12, 1997. (<http://www.hanford.gov/docs/ep0918/index.htm>)
26. Fax, Dale Black, WMH, to Laura Ruud, Ecology, Note regarding the LDR Report statements on data in HEIS, and Data Management Support Table, dated November 12, 1998.
27. DOR/RL-97-12, "Return on Investment (ROI)," dated September 1998.
28. DSI, C.R. Haas, WMH, to Fred Ruck III, FDH, "Information on the Tanker at the T Plant Complex," dated November 24, 1998.
29. Letter, Mike Wilson, Ecology, to Lloyd Piper and Jackson Kinzer, USDOE, "Hanford Site Tank Waste Treatment Capacity and Associated Compliance Concerns," dated January 4, 1999.
30. Container file #9713-03-0007, Battelle Columbus
31. Container file #9403139, Tank Farms
32. Container file #9521493, Plutonium Finishing Plant
33. Container file #9601762, Bechtel Hanford
34. Container file #9700906, 222-S Laboratory
35. Container file #980899, Pacific Northwest National Laboratory