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U.S. Department of Energy, Office of River Protection
Environmental Management Division

**LAND DISPOSAL RESTRICTIONS
PROGRAM AND COMPLIANCE
ASSESSMENT**

OF

**TANK FARM DOUBLE-SHELL AND SINGLE-
SHELL TANKS**

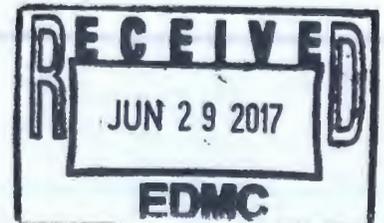


A-01-EMD-TF-09

July through December 2001

ORP MISSION

Retrieve and treat Hanford's tank waste and close
the tank farms to protect the Columbia River



Land Disposal Restrictions Program and Compliance Assessment of Tank Farms Double-Shell and Single-Shell Tanks

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Period of Review: July 1 through December 31, 2001

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EXECUTIVE SUMMARY

This report provides the results of an assessment conducted by the U.S. Department of Energy (DOE), Office of River Protection (ORP), Environmental Management Division (EMD) pertaining to mixed waste storage in 28 double-shell tanks (DSTs) and 149 single-shell tanks (SSTs) against State and Federal Land Disposal Restriction (LDR) and interim status facility standards. The tank system compliance status should be viewed in historical context, and consideration must be given to the provisions of the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). This assessment report is provided to ORP Technical Operations Division (TOD) and the Tank Farm contractor CH2M HILL Hanford Group, Inc. (CHG) as primary customers, but is also intended for the State of Washington Department of Ecology (Ecology) in response to an agreed assessment schedule. In addition to this assessment, a synopsis of a cursory review of the status of the Tank Farm contractor's self-assessment program with regard to LDRs and Interim Status Treatment, Storage, and Disposal (TSD) Dangerous Waste Permit Compliance is enclosed to this report (Enclosure 2).

EMD requested that CHG provide all self assessment and surveillance documents dealing with LDR and TSD permit status requirements conducted in Calendar Years (CY) 2000 and 2001 for review. Based on the documents provided it is apparent that CHG has not targeted part of its self assessment program specifically to LDR TSD requirements, but has conducted surveillances, inspections, and assessments covering items incidental to general Resource Conservation and Recovery Act, Clean Air Act, and radiological requirements and controls. Because of the broad scope of the environmental assessment tools in use, the documents provided did not provide sufficient quantity or quality of specific measurements for CHG to use as indicators to ascertain its operational compliance specifically with LDR.

EMD is aware of Environmental Services (ES) CHG 2002 schedule for environmental functional assessments and surveillances, and of the program improvements outlined in the ES Annual Assessment Program plan for Fiscal Year (FY) 2002. The stated approach of using regulatory area focused functional assessments and to conducting fewer and more targeted surveillances based on specific regulatory requirements pertinent to a given functional assessment may provide a better over all environmental self-assessment program. EMD will request that TOD direct CHG to establish a structured approach as a specific subset of their self-assessment program based on pertinent LDR and interim or final status permit requirements. This subset of assessments should be planned to provide adequate quantity and quality of surveillances, assessments, and inspections to facilitate an accurate status review of LDR and dangerous waste TSD permit compliance on an annual basis. Elements necessary for this self assessment appear to be incorporated in different areas in the existing FY 2002 environmental assessment schedule, and may only need to be reviewed for adequacy to assure a representative subset of units is assessed against all pertinent LDR TSD Permit requirements over the course of the year.

This assessment has been conducted against pertinent Federal and State requirements according to the plan outlined in Section 2 of this report, and ORPID 435.1, per agreement with Ecology. The results of this assessment are categorized as findings or observations. Observations are typically made in areas where shortcomings or deficiencies, as well as, examples of excellence are noted; that are not defined as non-compliance to a requirement. Observations are provided as feedback to the contractor to aid in continuing programmatic improvement. Findings are items found not to be in compliance with a contractual or regulatory requirement.

Findings are always conveyed with specific direction for the contractor to do a root cause analysis and to produce a schedule for corrective action.

The CY 2000 LDR mixed waste storage assessment (A-01-OPD-TANKFARM-011) had one finding concerning inconsistent tagging of re-usable equipment. In response to this finding ORP required a re-usable equipment management plan to be developed by CHG. The plan was developed and issued as HNF-IP-0842, 6 Environmental, Section 2.8, Revision 0, "Environmental Equipment Management Practices."

The results of this assessment are discussed in Section 3 of this report. In general terms, CHG was found to be properly managing stored mixed waste in the tanks according to State and Federal requirements in the context of the Tri-Party Agreement.

Observations and findings extracted from this report are as follows:

Findings:

Finding: A-01-EMD-TF-09-F-01 (page 12) - Re-usable equipment was found improperly managed and labeled. A previous finding about program management in this area is referred to in the executive summary.

Reference: Management of Contaminated Equipment under Radiological Control Requirements HNF-IP-0842, Volume 7, Section 16.11.

Finding: A-01-EMD-TF-09-F-02 (page 17) - Two individuals who should have been identified on the training matrix because their job involved dangerous waste management were not identified.

Reference: Washington Administrative Code 173-303-330 (2) - "The owner or operator must develop a written training plan which must be kept at the facility and which must include the following documents and records: (a) For each position related to dangerous waste management at the facility, the job title, the job description, and the name of the employee filling each job"

Observations:

Observation: A-01-EMD-TF-09-OB-01 (page 12) - Maintenance of tape seals and foam seals is poor in some areas.

Reference: Best Management Practices (BMP) for tank stabilization and air release management outlined in Item 12 in the River Protection Project Environmental Surveillance/Compliance Inspection Checklist used by CHG which notes a requirement for pit cover seam tape to be in good condition and references (State of Washington Department of Health level II inspection report # AIR-99-709).

Observation: A-01-EMD-TF-09-OB-02 (page 13) - The contaminated equipment practices procedure, HNF-IP-0842, Volume 6, Section 2.8, was developed as a corrective action in response to a previous finding on the management of reusable equipment and waste equipment. The procedure does not adequately establish a system to identify used equipment through tagging or labeling, and to document continued control.

Reference: BMP and adequacy of a corrective action.

Observation: A-01-EMD-TF-09-OB-03 (page 14) - Poor management of well caps and riser plugs.

Reference: BMP (Note: This observation was made during the walkthrough inspections and is incidental to the scope of this assessment. The management of the dry wells may not be a CHG responsibility. The observation is listed here to provide an official record and will be referred to the appropriate management contractor).

Observation: A-01-EMD-TF-09-OB-04 (page 17) - The close out procedure ensuring that training deficiencies are corrected and the correction is documented could be improved.

Reference: BMP

Observation: A-01-EMD-TF-09-OB-05 (page 22) - No document controlled written inspection schedules were found at the facility, although uncontrolled schedules were provided to the assessment team. Round sheets and ticklers were found at the facility, and are used to meet the intent of the requirement.

Reference: BMP

Observation: A-01-EMD-TF-09-OB-06 (page 22) - The required periodicity for one cathodic inspection was slightly exceeded.

Reference: CATH-221 "Inspection of Cathodic Protection Rectifier."

Observation: A-01-EMD-TF-09-OB-07 (page 24) - The conceptual understanding and control of an "operating record" as documentation of a specific management system that controls a set of required functions specific to TSD operations, should be better identified in CHG's plans and procedures.

Reference: Contract DE-AC27-99RL14047, Modification MO30, Part 1, Section C(d)(V) as referenced to Part 1, Section H26 (a), Functional assessment (RPP-EFA-00-002), September 2000, "TSD Facility Records Management Report."

Observation: A-01-EMD-TF-09-OB-08 (page 33) - CHG could not produce records documenting the process knowledge used in the SST Part A Form III designation.

Reference: BMP in maintaining an adequate administrative record.

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Applicable to Resource Conservation and Recovery Act Requirements

1.0 INTRODUCTION

The U.S. Department of Energy (DOE), Office of River Protection (ORP) has responsibility for the proper and safe storage and disposal of approximately 53 million gallons of highly radioactive dangerous waste stored in 177 underground tanks in the 200 area of the Hanford reservation. The safe and compliant operation and the eventual closure of these tanks is the responsibility of ORP through the direct management and efforts of CH2M HILL Hanford Group, Inc. (CHG), which currently operates the Tank Farms under contract with the DOE. The 149 single-shell tanks (SST) were constructed and put into use storing waste over a period from 1943 to 1964; pre-dating the Resource Conservation and Recovery Act (RCRA). The construction of the 28 double-shell tanks (DST) pre-dated the implementation of land disposal restrictions (LDR). The old tanks, (SSTs), and some transfer lines were not constructed in compliance with current standards and require active management to prevent environmental release and contamination. A program of interim stabilization was implemented under Milestone M-41 in 1993 to remove free liquid from the SSTs to mitigate against leaking. Approximately a million gallons of radioactive mixed waste is estimated to have leaked from 67 SSTs in the past (Hanlon HFN-EP-0182, Revision 162).

In 1989, DOE entered into agreement with the State of Washington Department of Ecology (Ecology) and U.S. Environmental Protection Agency (EPA) under the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). Part of the stated purposes of this agreement was to "Identify TSD units that require permits; establish schedules to achieve compliance with interim and final status requirements" (Tri-Party Agreement, 89-10 Revision 5, Page 8). Inherent in meeting this purpose is coming to an understanding of the current status of all of the units under management at Hanford with respect to current regulatory requirements through an assessment process.

DOE P 450.5 calls for DOE line management to conduct a compliance oversight program based on review of a strong contractor self assessment program. This self-assessment program has been designed by CHG to review the implementation of environmental and safety requirements as outlined in the Standard/Requirements Identification Document (S/RID), HNF-SD-MP-SRID-001. The practice in CHG's surveillance program has been to look at S/RIDs requirements through functional assessments and for the environmental compliance inspection program to look primarily at general RCRA and air regulation compliance. In order to conduct proper oversight, ORP has developed an integrated assessment program (ORP M 220.1, "ORP Integrated Assessment Program") to provide for a common assessment framework and to assure integrated planning and scheduling of oversight assessments. This program is implemented per the plan outlined in the "Conduct of AMSQ Assessments," ORP PD 220.1-1.

The ORP Environmental Management Division (EMD) schedules environmental assessments and surveillances into the integrated schedule based on an ongoing review of previous internal and external assessments to ascertain perceived needs and weaknesses in the contractor's program. In addition to this, EMD schedules RCRA LDR assessments based on an agreement with the Ecology for assessing the status of mixed waste storage against Federal and State requirements. The requirement to assess mixed waste storage compliance is outlined in Section 1.d of the "Requirements for the Hanford LDR Plan," DOE/RL-90-41, which is stipulated in Milestone M-26 of the Tri-Party Agreement, along with the annual LDR reports. A schedule of LDR assessments

has been agreed to with Ecology to meet this requirement as interpreted by the Director's Final Determination on March 29, 2000.

The schedule includes assessments of mixed waste storage in the SST system. Although the waste was placed into many of the SSTs prior to RCRA implementation and was therefore not initially subject to LDR storage requirements; DOE does have the responsibility to store this waste safely and in a manner protective of human health and the environment. To this end, DOE has submitted a Part A Permit Application for the SST system subjecting all of the tanks to interim status requirements through the Tri-Party Agreement process and is engaged with EPA and Ecology under the Tri-Party Agreement to store the waste in a safe manner working towards closure of the SST system. This assessment will look at the storage of waste in the SST system as well as the DST system against interim status requirements in context of the Tri-Party Agreement milestones.

Section 3021(b) of RCRA as amended by the Federal Facilities Compliance Act requires DOE to prepare Site Treatment Plans (STP) for treating mixed waste so that it can be safely land disposed in compliance with LDR. The plan for Hanford wastes is incorporated into the milestones of the Tri-Party Agreement. This assessment will attempt to status the planned and ongoing characterization efforts in respect to the STP goal of compliant disposal, although this is by definition beyond the scope of assessing for compliant storage.

This LDR assessment, as scheduled per the agreement with Ecology, is being conducted according to the agreed methodology outlined in ORPID 435.1, "Waste Storage Evaluations," as well as, the ORPID 220.1-1, "Conduct of AMSQ Assessments," and the assessment plan as outlined in Section 2 of this report. In addition to this assessment, a cursory review was conducted of CHG's self-assessments performed in the last year pertaining to LDR or interim status permit related requirements. The results of this review are discussed in the Executive Summary and a synopsis is provided in Enclosure 2.

2.0 ASSESSMENT PLAN AND METHODS

The planned approach to this assessment is specified in the five general elements below and the lines of inquiry as outlined. The general methodology required the EMD assessment team to:

1. Develop a comprehensive checklist of readily observable LDR requirements and conduct a physical inspection of all of the DST and SST farms against the checklist. The walkthrough checklist will include interview information from appropriate contractor personnel to clarify questions and immediately report observations. (See Enclosure 1, Examples h and g)
2. Develop lines of inquiry (LOI) based on each of the appropriate State and Federal LDR regulations, and to conduct a records review and interviews against these LOIs for a representative sample subset of units that were scheduled for this years LDR assessments.
3. Report in general terms on areas of conformance and on each specific example of non-compliance found in the assessment.

4. Track and report on each citation of non-compliance to where it is covered under the Tri-Party Agreement work plan. If there are non-compliance issues that are not addressed, those will be forwarded to CHG for corrective action.
5. Ensure that any waste reviewed during assessment is properly reflected in the LDR report.

Lines of Inquiry

1. **GENERAL** - These LOI's are used as tools to supplement the inquiry, which began with the walkthrough inspections. The scope of inquiry is both the DST and SST farms in general unless specifically limited by design as a representative sample subset, or limited by the applicability of the nature of the inquiry. The records, reports, and procedures reviewed for each LOI are referenced along with the names of any persons interviewed, and the scope of the inquiry, if limited. The inquiry tracks the chain of referenced regulations and requirements beginning with general State specific LDR requirements found in Washington Administrative Code (WAC) 173-303-140, followed by the more numerous requirements found in Title 40 Code of Federal Regulations (CFR) Part 268 which is incorporated by reference in WAC 173-303-140.

The second tier of referenced requirements stemming from LDR waste storage prohibitions in 40CFR268.50 include all applicable interim status permit requirements as promulgated in 40CFR265 and adopted in WAC 173-303-400. The application of these far more numerous requirements are queried in an adaptation of a RCRA permit check list which will be employed for the remaining LOI's (see example checklists in Enclosure 1- 1a, 1b, 1c, 1d, 1e, and 1f).

a. State specific LDR requirements WAC-173-303-140.

- i. What Plans, Programs, and Procedures does CHG have in place to manage wastes according the priorities in WAC-173-303-140 (1) (a), i.e., reduce, recycle, treat, incinerate, stabilize, landfill?
- ii. How is waste managed and what procedures and documentation are used for storage, characterization, communication and tracking to assure proper conditions are met for disposal of waste in Washington State certifying:
 1. It is not a solid acid waste;
 2. It does not contain free liquids or bio-degradable sorbants;
 3. It is not an extremely hazardous waste; and
 4. It is not and organic/carbonaceous waste.
- iii. Are there any State only designated wastes in storage that may be subject to emergency LDR exemption petitions?

b. Federal LDR 40 CFR 268

- i. What Programs, Plans, and Procedures are used to meet the testing, tracking, and record keeping requirements in 40CFR268.7. How are these procedures implemented, integrated, and verified.
- ii. How does CHG verify that appropriate treatment standards are met prior to any land disposal of hazardous/dangerous waste (40CFR268.40 through 40CFR268.49). Is a waste analysis plan available and used for the land disposal of mixed waste debris (40CFR268.45 and 40CFR268.7[a][5]). Does this include special provisions for wastes that exhibit a characteristic as defined under rules in 40CFR268.9?
- iii. Storage prohibitions (40CFR268.50). Have LDR prohibited wastes been stored for more than one year in the SST and DST system tanks. Do any stored wastes in the SST or DST tanks contain over 50 parts per million polychlorinated biphenyls. Are the tanks compliant with interim status permit requirements?

c. Interim status requirements

- i. The interim status permit requirements incorporated by reference from 40CFR268.50 are found in those parts of 40CFR265 which are referenced under the standards section in WAC 173-303-400(3). A subset of these requirements was selected based on the relevance to the SST and DST assessment. Performance against these standards are queried through plan, procedure, and performance record document reviews as well as personnel interviews and are guided by general questions and checklist items. The relevant requirements in the regulations include:
 - A. General facility standards in 40CFR265 subpart B as expanded in WAC-173-303 including:
 1. Waste analysis 40CFR265.13 (WAC 173-303-300);
 2. Security 40CFR265.14 (WAC 173-303-310);
 3. Inspections 40CFR265.15 (WAC 173-303-320);
 4. Training 40CFR265.16 (WAC 173-303-330);
 5. General for ignitable, reactive, and incompatible 40CFR265.17 (WAC 173-303-395);
 6. Location Standards 40CFR265.18; and
 7. Construction Quality Assurance (QA) 40CFR265.19.
 - B. Preparedness, Prevention, Emergency, and Contingency Planning (WAC 173-303- 340, 350, 355, and 360).
 - C. Manifest record keeping and Reporting WAC 173-303-370.

- D. Facility record keeping and reporting WAC 173-303- 380 and 390, and 40CFR268.7.
- E. Container Management WAC 173-303-630(3) and (7), and 40CFR265, Subpart i.
- F. Tank Systems WAC 173-303-640(5)(d), and 40CFR265, Subpart j.
- G. Corrective Action WAC 173-303-646.

3.0 RESULTS

3.1 Walk through inspections

Visual inspections were conducted at each of the SST and DST farms beginning in July 2001. Regulatory references and evaluation criteria for the "walk through inspections" are outlined in the checklist items (see Enclosure 1- checklist [1h] for SST visual inspection checklist example and [1g] for the DST inspection checklist example). Those checklist item requirement statements and evaluation criteria are listed below followed by a discussion of the assessment findings from the visual walk down of all of the farms. A summary of additional supplementary information from subsequent interviews and records reviews guided by the Part B checklists, (see examples [1a] through [1f]), are included in pertinent sections under discussion. These additional reviews were conducted specifically on A and AN farms as a representative subset of the SST and DST farms, and more generally where applicable. An expanded discussion of these record reviews is in Section 3.2.

1. Verify that entry to the active portion of the facility is controlled. (40CFR265.14 and WAC 173-303-310).

Criteria: - *A 24-hour surveillance system or fence or natural barrier with controlled access:*
- *Proper signs/labels are posted.*

Discussion: The security control per visual inspection against the stated criteria was found to be satisfactory in all of the tank farms. Each of the farms was controlled by a physical barrier (fence) with appropriate signs, and found to have locked or manned access through the change trailers. Administrative control is maintained through a sign in procedure that limits escorted and un-escorted access to individuals who have met certain training criteria. This training is documented in a data system, which is queried at the access control entry station (ACES) prior to individual admission to a farm. Individuals, (in this case the inspectors) are required to contact the shift manager and report through the "ACE" station prior to gaining entry permission.

A sample review of the operation round sheets for A and AN farms over the first quarter (from January through March 18, 2001) found no citation of issues with the daily inspection of barriers, the weekly inspection of signs, or with access control. See Section 3.2.2.1

There were no findings or observations from the walkthrough inspection for Item 1 above.

2. Verify that safety equipment is easily accessible at the storage facility (40CFR265.30-37 as expanded under WAC 173-303-340).

Criteria: - *Internal communications or alarm system capable of providing immediate emergency instruction to people:*

- *A telephone or hand held two way radio, capable of summoning emergency assistance;*
 - *Portable fire extinguishers and fire control equipment;*
 - *Spill control equipment;*
 - *Decontamination equipment; and*
- *Fire hydrants or other source of water with adequate volume and pressure foam producing equipment, or automatic sprinklers or water spray systems.*

Discussion: The safety equipment accessibility per visual inspection, and review of Section 9 of the "Building Emergency Plan for Tank Farms," HNF-IP-0263-TF against the stated criteria, and interviews with environmental services personnel and shift managers was found to be satisfactory in all of the tank farms. The equipment that was inspected was only that within the boundaries of the tank farms including Self-Contained Breathing Apparatus's in the change trailers, radios used during the inspections, fire extinguishers, hydrogen monitors, continuous air monitors (CAM), and anti-contamination clothing.

A sample review of the operation round sheets for A and AN farms over the first quarter (from January through March 18, 2001) found no reference to emergency equipment as listed in WAC 173-303-340(1) except annulus exhaust CAMs, and standard hydrogen monitors (SHMs) alarms for AN farm, and Standard Hydrogen Monitoring System alarms for A farm which are readily accessible to the operators. An un-controlled, un-numbered inspection schedule copy provided by the contractor includes monthly visual inspections of spill kits, protective clothing, emergency lighting, and fire extinguishers, as well as, operational inspections of emergency sirens, eyewash stations, safety showers, crash alarm telephones, alarm panels, and emergency generators. The round sheets, and these emergency items found in the dangerous waste section of this un-controlled inspection schedule, are kept in a database known as the "tickler." Checklists are generated daily by the operations shift manager from this database that include these items according to the periodicity described in the schedule. The DST portion of this un-controlled schedule is the same one that was submitted in the Part B permit application per WAC 173-303-806(4)(v). The contractor has not demonstrated how this schedule is updated and controlled, however in interviews with the contractor the assessment team was assured that this schedule is included in the next revision of procedure OSD-T-151-00032, currently being finalized (See Section 3.2.2.6 and Observation 5 below).

3. Verify that safety equipment is in working condition at the storage facility (40CFR265.30-37 as expanded under WAC 173-303-340).

Criteria - *Determine if equipment is tested and maintained as necessary to ensure proper operation in an emergency*

Discussion: The safety equipment maintenance per visual inspection and interviews with environmental services personnel and shift managers was found to be satisfactory in all of the tank farms. The equipment that was inspected was only that equipment within the boundaries of the tank farms which had inspection or calibration tags, including fire extinguishers, CAMs, and SHMs. (Note: the CAMs and SHMs are included broadly in the definition of emergency equipment in this assessment because they have alarm capabilities that can serve to warn personnel, which could be interpreted as a form of emergency instruction.)

As stated above the sample review of the operation round sheets for A and AN farms over the first quarter (from January through March 18, 2001) found no reference to emergency equipment as listed in WAC 173-303-340(1) except annulus exhaust CAM and SHMS alarms for AN farm, and SHMS alarms for A farm which could be interpreted to provide "emergency instruction" per WAC 173-303-340(1)(a). The uncontrolled, un-numbered, inspection schedule copy provided by the contractor included monthly visual inspections of spill kits, protective clothing, emergency lighting, and fire extinguishers, as well as operational inspections of emergency sirens, eyewash stations, safety showers, crash alarm telephones, radios, alarm panels, and emergency generators. Checks of the fire sprinkler and deluge systems are performed by the Hanford Fire Department per CM-4-41 Fire Protection Program Manual, Section 4.2. The round sheets, and these emergency items found in the dangerous waste section of the inspection schedule are kept in a database known as the "tickler." Checklists are generated weekly, and provided to the operations shift manager from this database that includes these items according to the periodicity described in the schedule. (See Section 3.2.2.2)

No findings or observation were noted from the walkthrough inspection for Items 2 and 3 above.

4. Precautions are taken to prevent accidental ignition or reaction of ignitable or reactive wastes (40CFR 265.17[a]).

Criteria - Verify from the operating record or observation that the following safe management practices are used:

- *Wastes are separated and protected from sources of ignition or reaction;*
- *Smoking and open flame are confined to specially designated locations when ignitable or reactive waste is handled; and*
- *No smoking signs are used when necessary.*

Discussion: The ignition prevention measures reviewed per visual inspection, and by interviews with environmental services personnel and shift managers, were found to be satisfactory in all of the tank farms. The visual inspection within the boundaries of the tank farms included looking for any possible spark sources or open flames such as welding without a hot work permit or frayed wiring, and by reviewing the functionality of SHMS and the use of exclusion zones.

Records searched included the 2001 annual fire marshals ignitable/reactive waste reports for tank waste and 90 day storage (Kenna, September, 2001) which meets requirements outlined in WAC-173-303-395(1)(d); the waste compatibility program document HNF-SD-WM-OCD-015, and waste transfer records. (See Section 3.2.3.2)

There were no findings or observations noted from the walkthrough inspection of Item 4 above.

5. At all times, an emergency coordinator is on the TSD premises or on call and the TSD must have a contingency plan (40CFR265.54 and .55 as expanded in WAC 173-303-350 and 360).

Criteria - Verify that there is at least one employee at the TSD or on call with responsibility for coordinating emergency response measures:

- *Verify that the emergency coordinator is thoroughly familiar with the TSD, the characteristics of the waste, and the provisions of the contingency plan.*
- *Contingency/Facility emergency plans are maintained at the TSD and submitted to organizations which may be called upon to provide emergency services.*
- *Verify the contingency plan is routinely reviewed and updated.*

Discussion: The emergency plan and implementation roles reviewed per visual inspection and interviews with environmental services personnel and shift managers were found to be satisfactory in all of the tank farms. The visual inspection within the boundaries of the tank farms included verifying that a copy of the "Building Emergency Plan for Tank Farms," HNF-IP-0263-TF, and the "Hanford Emergency Management Plan," (HEMP) along with the DOE Richland Operations Office Emergency Preparedness (RLEP) implementing procedures were located in the shift managers office at Central Command and Control (CCC) in the 2704HV building. The inspection team interviewed shift operations managers concerning their role as Building Emergency Directors (BED), how they would act to implement the "Building Emergency Plan for Tank Farms," HNF-IP-0263-TF as outlined in Section 4 of the plan, and to verify that a BED was always present or on call. See Section 3.2.2 below for expanded discussion.

There were no findings or observations noted from the walkthrough inspection pertaining to Item 5 above.

6. Verify that containers used to store hazardous waste at TSDs are in good condition and not leaking, and that containers are made of, or lined with, materials compatible with the waste stored in them (40CFR265.171). Verify that personnel conduct weekly inspections of storage areas (40CFR265.174).

Criteria - Containers are not leaking, bulging, rusting, damaged, or dented.

- *Containers are compatible with waste stored in them; strong caustics and acids are not stored in metal drums.*

- *Inspection(s) conducted weekly; look for leaking containers and signs of deterioration of containers.*

Discussion: An EMD assessment team member accompanied waste management services personnel on July 16 and 17, 2001, on a weekly inspection of the 90 day storage pad and each of the satellite accumulation areas to visually confirm the condition and appropriate composition of all of the containers used for temporary storage and accumulation of dangerous waste generated at the farms. All containers were found to be of appropriate composition and in satisfactory condition per inspection procedure TO-100-045.F-O. (See also Section 3.2.2.5)

There were no findings or observations noted from the walkthrough inspection for Item 6 above.

7. Verify that each TSD has a formal written inspection schedule and a log of inspection results. (40CFR254.15)

Criteria - a written inspection schedule exists for inspecting monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are important to preventing detecting or responding to environmental or human health hazards.

- *Schedule is kept at the TSD and lists types of problems to be looked for during the inspection.*
- *Areas subject to spills, such as loading and unloading areas, are inspected daily when in use.*
- *Verify that any deterioration or malfunction identified by the inspection has been corrected.*
- *Verify that logs, or records of the inspections are kept for three years and include the following: 1) date and time of inspection; 2) name and signature of inspector; 3) notation of observations made; 4) account of spills or discharges, 5) date and nature of any repairs or remedial actions.*

Discussion: The assessment team received and reviewed operator round sheets and a written un-numbered, uncontrolled copy of the dangerous waste inspection schedule. A complete review of the assessment for this requirement is found in Sections 3.2.2.4 and 3.2.2.6)

There were no findings or observations based on the walkthrough review for Item 7 above.

8. Verify that vaults and double walled tanks meet specific standards (40CFR265.190, 193, 198, and 199), tank/ancillary equipment must also be provided with secondary containment (40CFR265.190[a], 40CFR265.190[b]), existing tank systems that do not have secondary containment are required to meet specific requirements for leak test or inspection requirements (40CFR265.190[a], 40CFR265.191[a] through 40CFR265.191[c], and 40CFR265.193[i]), inspections of tank systems and associated equipment are conducted (40CFR265.195) Verify that instrumentation is calibrated and in good working order (40CFR265.193[b]), verify that re-usable equipment is properly stored and labeled (WAC-173-303-070).

Criteria - Vaults/pits:

- *Vaults/Pits: Pits foamed over/observe condition of foam.*
- *Verify prevention of run on and infiltration into secondary containment.*
- *Means to protect against the ignition or formation of vapors within the vault if the waste is ignitable or reactive (note see item 4 above).*

Double walled Tanks:

- *Verify that it is designed as an integral structure so that any release is contained by the outer shell.*
- *It is protected from both corrosion of the primary tank and the external surface with the outer shell if constructed of metal.*

Verify that ignitable or reactive wastes are not placed in a tank unless the waste is treated or stored in such a way that it is protected from material or conditions that may cause the waste to ignite or react

Verify that continuous leak detection, capable of detecting a leak within 24 hours, is provided and operable.

Verify that tanks and ancillary equipment, except for the following, has secondary containment:

- *Above ground piping that is visually inspected for leaks on a daily basis.*
- *Welded flanges, welded joints, and welded connections that are visually inspected for leaks on a daily basis.*
- *Sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis.*
- *Pressurized aboveground piping systems with automatic shutoff valves that are visually inspected for leaks on a daily basis.*

(NOTE: Tank systems with no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)

Verify that existing tank systems without secondary containment meet the following:

- *For nonenterable underground tanks, a leak test is conducted annually.*
- *For other than nonenterable underground tanks, either a leak test is done annually, or an annual schedule and procedure is developed for an assessment of the overall conditions by an independent qualified, registered, professional engineer.*

Verify that a record is maintained of the results of testing and measurements.

- *Verify that a schedule and procedure have been developed and are followed to inspect overfill controls.*
- *Determine if the following inspections are conducted at least once a day:*

1. *Overfill/spill control equipment/ facilities to ensure it is in good working order;*
2. *Above ground portions of tank to detect corrosion or releases;*
3. *Data gathered from tank monitoring equipment and leak detection equipment (e.g. pressure/temperature gauges and monitoring wells); and*
4. *Construction materials and the areas surrounding the tank including the secondary containment system for signs of erosion or leakage (wet spots, dead vegetation).*

Verify that all sources of impressed current are inspected and/or tested every other month. Electrical continuity and isolation should be checked when these features are required as part of the corrosion protection system.

Verify that the inspections are documented. (NOTE: Tank systems with no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)

Level monitoring instrumentation is functional and calibrated:

- *Alarm and alarm response logs for leak detection systems.*
- *A leak detection system is present that is designed and operated to detect failure of either the primary or secondary containment structure or the release of hazardous waste within 24 hours or the earliest practicable time.*

Notes: Ecology letter from S. V. Moore to H. L. Boston, ORP, and M. P. DeLozier, CHG, "Dangerous Waste Compliance Inspection of the Single Shell Tank Facility," dated February 2, 2001, were addressed under Tri-Party Agreement Negotiation (August 7, 2001) and subsequent new Milestones - under M 23. Within the SST system some farms contain double contained receiver tanks (DCRT). These tanks are handled as part of the DST system under the Part A permit and will be closed with the DST's. M-48 Milestones have been developed to address DST integrity assessment obligations contained in Administrative Orders 00NWPKW-1250 and 1251.

Discussion: The inspection team conducted a visual review to assure inactive valve pits were appropriately foam sealed, to look for leaks and deterioration of above ground equipment and to verify tank level readings against recorded levels. The inspection team reviewed leak detection specification and environmental specification procedures (OSD-T-151-00031 and 00032), cathodic protection procedures (3-CATH-357), and integrity assessment procedures (TO-20-141), as well as round sheets (TF-OR-EF et al). The team acknowledged areas where non-compliance areas exist in the SST system in leak detection, integrity assessment, and inspection frequency as cited from Ecology's Dangerous Waste Compliance Inspection # 99-168, such as the fact that OSD-T-151-00031, does not call for daily level readings at each of the SST's. Ecology has been aware of the non-compliant condition of the SST's and is engaged with DOE and the contractor to mitigate these conditions under provisions of the Tri-Party Agreement. These conditions have been negotiated under M-23 Milestones as noted above.

No findings were made under Item 8 above from the walk through portion of this assessment; however the following notations were made that detail findings and observations relative to general LDR scope and other environmental concerns outside of the scope. (See also Sections 3.2.2.6 and 3.2.4.2 below)

Observation: A-01-EMD-TF-09-OB-01 - Maintenance of tape seals and foam seals is poor in some areas.

Reference: BMP for tank stabilization and air release management, outlined in Item 12 in the River Protection Project (RPP) Environmental Surveillance/Compliance Inspection Checklist used by CHG which notes a requirement for pit cover seam tape to be in good condition and references State of Washington Department of Health (WDOH) level II inspection report # AIR-99-709.)

Foam Seal over Cover Blocks Cracked and/or Tape Seal along Cover Block/Pit Seam Degraded

Several vaults were found to have damaged or removed foam covering or degraded tape seals. In one case, foam covering was purposefully removed to expose the cover block and the seam between the cover block and pit was sealed with tape; the tape was degraded and no longer presented a viable seal. Some vaults were not foamed, but had tape seals along margins between the cover block and vault and at other cover block penetrations. In some cases the tape seal was no longer viable.

- A-104 Vault pump pit: foam broken-off along NW corner. The broken portion, however, did not appear to effect the competency of the pit seal.
- AX-101, Pit 01C (leak detection pit) foam cracked or broken.
- A-102 Pit 02C foam cracked. Pit 02D foam seal broken and tape seal degraded. This condition appears to have been noted in a CHG surveillance (RPP-SCI-01-001) dated January 16, 2001, and seems to have persisted for some time.
- 417 Pump Pit, T1 cover block tape seal degraded.

The list above represents items observed during the inspection and may not be a comprehensive list of similar problems in A-complex. The tape seal on the pit covers is used for containment of emissions and to prevention of water intrusion.

Finding: A-01-EMD-TF-09-F-01 - Re-usable equipment was found improperly managed and labeled. Continued observations of improper storage of used equipment will elevate this to a concern based on a previous finding about program management in this area referred to in the executive summary.

Reference: Management of Contaminated Equipment under Radiological Control (RadCon) Requirements HNF-IP-0842, Volume 7, Section 16.11.

Equipment was found in a couple of areas apparently stored inconsistently with the ORP Equipment Policy and RadCon requirements:

- Along the easterly fence line of AX farm, to the east or northeast of Tank AX-101 equipment labeled as "pole used in opening of drain" was found with label broken and faded. Adjacent equipment appeared to be of similar use was found with ripped protective plastic and exposed metal.
- In A-Farm, near A-152 Diversion Box, three pieces of equipment labeled as shield plugs were found. One shield plug was found with plastic covering ripped. Its label was broken off.
- Radiation labels were generally badly faded and sometimes illegible.
- LL equipment box near entrance to AN Tank Farm had "pitce pole" tag that was illegible. Shield plug and another large piece of used equipment not labeled in Tank SY 102.

HNF-IP-0842, Volume 7, Section 16.11, requires surveying and radioactive material tagging of all packaged radioactive materials that are not loaded onto a vehicle for shipping. Missing or illegible tags do not meet the intent of this procedure.

Observation: A-01-EMD-TF-09-OB-02 - The contaminated equipment practices procedure, HNF-IP-0842, Volume 6, Section 2.8, was developed as a corrective action in response to a previous finding on the management of reusable equipment and waste equipment. The procedure does not adequately establish a system to identify used equipment through tagging or labeling, and to document continued control.

Reference: BMP and Adequacy of a Corrective Action.

Reusable tank contacted equipment that is not properly labeled and managed could be interpreted to be undesignated mixed waste. The contaminated equipment procedure HNF-IP-0842, Volume 6, Section 2.8, describes waste equipment as equipment that has been abandoned or intended for discard. The definition of solid waste includes materials that are stored in lieu of being abandoned. A system that properly identifies and controls items of contaminated equipment should tag and date reusable equipment for identification and should document that specific identified stored equipment is reusable equipment, subject to specific controls.

The procedure, HNF-IP-0842, Volume 6, Section 2.8, outlines a definition for how reusable equipment is decontaminated, stored, and the methodology for classifying the equipment as reusable. There are no provisions in this procedure for creating an inventory of reusable equipment, for tagging the equipment to correlate to the inventory, for periodic inspections of the stored equipment containers against any criteria, or for any periodic or event triggered re-evaluation of the status of the equipment as re-usable. These provisions are incorporated in HNF-IP-0842, Volume 7, Section 16.4 dealing with Radioactive Material Area (RMA) management, but there is no specified requirement in HNF-IP-0842, Volume 6, Section 2.8 to manage used equipment in an RMA.

Observation: A-01-EMD-TF-09-OB-03 - Poor management of well caps and riser plugs

Reference: BMP (Note: This observation was made during the walkthrough inspections and is incidental to the scope of this assessment. The management of the dry wells may not be a CHG responsibility. The observation is listed here to provide an official record and will be referred to the appropriate management contractor.)

Dry Well Caps and Riser Plugs missing or broken

Numerous dry wells found with broken well caps, some may have been missing entirely. Most of the damaged risers were assumed to be dry wells because the caps were plastic plugs, offering minimum shielding. However, AX-102-WST-Riser 002U, Air Lift Circulator Riser (per dwg H-14-010609), was found covered by a loose sheet of plywood but without a plug. This riser does not directly penetrate the tank, but contains a ball valve and pipe plug about 8-inches below the surface connected to a 1-inch pipe extending vertically into the tank (per dwg H-2-44676). The 1-inch pipe was used to convey air to the circulator and does penetrate the tank dome. (Note: A similar finding was identified to CHG in surveillance report EMD-TF-2001-04, Finding F-01. Although that finding was identified as the responsibility of another contractor, the monitoring wells were located near the 241-T west fence, and CHG was made aware that this in general terms is a situation of non-compliance.) Because this was not the subject of this assessment, this observation was not investigated completely enough to establish management responsibility. CHG is urged to further investigate this observation and to address the issue if it has management responsibility for any of the caps or plugs in this citation. The maintenance of these caps and plugs could have regulatory implications under WAC 173-160-301. EMD will do a follow up on this observation.

3.2 Results from Records review and Part B Checklist Interviews

General Discussion:

The lines of inquiry outlined in Section 2 refer first to a review of Washington State specific LDR requirements under WAC 173-303-140. CHG was found to have plans to reduce waste generation and properly manage waste including the "Waste Generating Plan" (RPP-MP-609 and HNF-IP-0842 Volume VI, section 4.1) "Mixed Waste Plan" (HNF-IP-0842 Volume XVIII, section 2.7), and the "Solid Waste Management Plan" (HNF-IP-0842 Volume XVIII, section 2.4).

The only dangerous waste generated at the tank farms currently being disposed in Washington State was found to be mixed waste debris that is treated and disposed in the mixed waste burial trenches that are currently permitted for mixed waste disposal. This waste is transported on site to 90 day storage under on site routine radiologic release shipping papers known as blue cards, and to the TSD with manifests and Radiologic Shipping Papers, along with the associated waste profile sheets and land disposal notification and certification sheets. The certification sheets contain the appropriate treatment certification and acknowledgment required in 40CFR268.7(4). A review of waste profile sheet CHM2-930-0002-00 concerning cover blocks potentially contaminated with tank waste from the A and B valve pits at 241 AW describes the treatment of the waste by micro-encapsulation per the debris treatment standard in 40CFR268.45. State designated Extremely Hazardous Mixed waste debris might not be prohibited for land disposal in Washington State at

permitted DOE facilities after treatment to mitigate the hazard based on provisions in Regulatory Code of Washington 70.105.050 (2); although the code in WAC 173-303-140(4) seem to limit the definition of this law to land treatment and emergency situations. Although mixed waste debris carries listed waste codes from the tank waste, the state designation extremely hazardous waste codes applied to stored tank waste do not follow under the designation of the mixed waste debris as outlined in the designation procedure in WAC 173-303-070(3)(a)(iii) because the waste is already RCRA listed with f-code designations. Tank contacted mixed waste debris in general would not be prohibited as an acid waste based on the intentionally alkaline nature of tank waste. The debris in general is not prohibited from land disposal as an organic/carbonaceous waste based on certification that preferred treatment technologies are not available within 1000 miles per WAC 173-303-140(4)(d)(iii), (Ecology letter from M. Jaraysi to J. E. Rasmussen, ORP, "Land Disposal of Hanford Organic/Carbonaceous Mixed Waste," dated January 11, 1999). No state only designated wastes were found to be stored at the tank farms on this assessment.

The other questions outlined in the lines of inquiry are incorporated in the discussion areas specified in the remaining Section 3.2 subsections.

3.2.1 Results on Training: WAC 173-303-330

General Discussion:

The Training Program – The CHG training program is outlined in detail in the "River Protection Project Dangerous Waste Training Plan," HNF-SD-WM-TR-026. The content, frequency, and techniques used in both introductory and continuing training (including an annual review of the initial training) for each employee is presented in Appendix A of the training plan.

The training program is directed by a person trained in dangerous waste management. The training manager, has 15 years of experience in hazardous waste management and chemical operations at the Hanford and Savannah River Sites, and maintains Hazwoper certifications. Facility personnel are instructed in dangerous waste management procedures (including contingency plan implementation) relevant to their position. General Workers, Advanced General Workers, General Managers, and General shippers are required to take classes in Waste Management Orientation and Waste Management Awareness (Waste Handling, Segregation & Packaging course 350560 is equivalent). In addition to these classes, Environmental Waste Operators must complete Waste Management Advanced Training. All courses are described in "River Protection Project Dangerous Waste Training Plan."

Facility personnel are instructed in Emergency Response Organization (ERO) Training (35E001) to respond effectively to emergencies and to become familiar with emergency procedures, emergency equipment, and emergency systems. This course also addresses contingency plan implementation.

The training program also includes the following:

- Procedures for using, inspecting, repairing, and replacing facility alarms.
(Covered in "Tank Farm Routine Operations" course)
- Key parameters for automatic waste feed cut-off systems.

- (Covered in Facility Emergency and Hazard Information Checklist Training [FEHIC])*
- Communications or alarm systems FEHIC
(Covered in FEHIC)
- Response to fires
(Covered in FEHIC)
- Response to groundwater contamination incidents
(Covered in 35E001 ERO)
- Shutdown of operations.
(Covered in 350030 "Routines" course)

Course descriptions relevant to position descriptions were reviewed by assessment team along with interviewing several CHG personnel. Training content appeared to be adequate to meet WAC 173-303-330 requirements.

3.2.1.1 Training Records

Records documenting that the required training has been given to and completed by facility personnel within six months of their employment or assignment to the facility or transfer to a new position within the facility are maintained in the Integrated Training Electronic Matrix (ITEM). ITEM is an electronic database system that manages personnel training requirements. Copies of training record files are stored at RPP Training and the originals are sent to the Hanford Training Center Records Department. A computerized copy is available at each of the Tank Farms for verification purposes. Training record copies and summaries for current support organization employees and former employees are kept and stored as indicated in Section 3.4 of "River Protection Project Dangerous Waste Training Plan."

Employees in a new position are tracked in the ITEM Administration and are given "in-training" status. The amount of time that the individual is in the "in training" category is also tracked (not to exceed six months). Personnel who are "in training" must be accompanied by qualified workers when performing job tasks.

The job title, job description, and name of each employee whose position is related to dangerous waste management has been included in the "River Protection Project Dangerous Waste Training Requirements Matrices," HNF-IP-0974. Training records were reviewed for two operators, one operations engineer, and one shift manager. Dangerous waste courses outlined in the training matrices required for each position were found to be completed and current with the exception of Course 350030 "Tank Farm Routine Operations" which was over 30 days delinquent for one of the two operators. A note in the ITEM printout indicates the individual is on work restriction in accordance with "Integrated Training Electronic Matrix (ITEM) Administration," HNF-IP-0842, Volume III, Section 2.5, Revision 0b. The ITEM procedure directs the training coordinator to generate a Training Work Restriction for any employee who is delinquent over 30 days in a required training course. The work restriction is forwarded to the employee's manager and outlines the work that the employee cannot perform until the training delinquency is corrected. The manager signs the work restriction and forwards it to CHG Training Records for placement in the employee's file.

Finding: A-01-EMD-TF-09-F-02 - Two individuals who should have been identified on the training matrix because their job involved dangerous waste management were not identified.

Reference: WAC 173-303-330 (2); "The owner or operator must develop a written training plan which must be kept at the facility and which must include the following documents and records: (a) For each position related to dangerous waste management at the facility, the job title, the job description, and the name of the employee filling each job"

Discussion: The "River Protection Project Dangerous Waste Training Plan" implements WAC 173-303-330(2). The plan states, "The list of employees currently filling these positions is maintained by HNF-IP-0974 or equivalent electronic system(s)." HNF-IP-0974 is the "River Protection Project Dangerous Waste Training Requirements Matrices" which tracks, documents, and records the job title and job description of each employee whose position is related to dangerous waste. The matrices also include the names and positions of the individuals who are considered dangerous waste workers. The matrices were provided to the assessment team as the auditable record capturing the requirements of WAC 173-303-330(2). The matrices were evaluated and found to be missing at least two individuals who should have been included in the matrices according to their positions and job responsibilities at the time of this assessment (December 2001). The two individuals missing from the training matrices are presumably fully trained personnel whose names, titles, and job descriptions are likely located in "equivalent electronic systems." CHG should take care that the core training documentation, approved and occasionally audited by Ecology, be directly reflected in any "equivalent electronic systems" in use. Electronic systems and core training documentation should contain consistent information.

During factual review of this draft, CHG mentioned that a letter describes an existing agreement with Ecology essentially providing a waiver to maintaining the names associated with each dangerous waste job position. To date, the letter has not been located. In the event that the letter is located and provided to the assessment team, then this finding will be voided.

Observation: A-01-EMD-TF-09-OB-04 - The process used to identify training deficiencies does not require correction and closure of the identified deficiencies.

Reference: BMP

Discussion: Training records are kept by both the employee's manager and by the training administrator. The training organization performs a quarterly audit of 10 percent of the dangerous waste workers to ensure training is kept current. The procedure "RPP Training Purpose and Functions" simply states the 10 percent audit will be conducted but gives no details on the process. Since the audit process is not fully described by a procedure or desk instruction, the process was difficult to evaluate. However, the result of the audit is an e-mail sent to individuals with delinquent training (several e-mails were reviewed for selected individuals). The 10 percent audit is a valuable tool for identification of training deficiencies, but falls short on the corrective action loop. The process increases awareness of the individual and his/her manager regarding delinquent training but does not require an action to correct the deficiency.

The ITEM procedure directs the training coordinator to generate a Training Work Restriction for any employee who is delinquent over 30 days in a required training course. The work restriction is

forwarded to the employee's manager and outlines the work that the employee cannot perform until the training delinquency is corrected. The manager signs the work restriction and forwards it to CHG Training Records for placement in the employee's file. Again, a close out action is not part of the process outlined in the ITEM procedure.

In response to further questioning, the training manager has indicated that closure is a problem with the current system. In the future, these delinquencies could be added to the Problem Evaluation Request (PER) system by the training coordinator. Delinquencies in PER would be reviewed by senior management who may have more of a "hammer" to make sure delinquent training items are closed.

3.2.2 Results for Security and Hazards

3.2.2.1 Security WAC 173-303-310

General Discussion:

All Tank Farms are surrounded with fences (Barrier) which are locked (means to control entry) when unmanned. Entry can be made only with a key (through the change trailers) from the shift office. Individuals with the proper training can be "Aced-in" at the shift offices and are permitted entry by signing in at the change trailers and donning the appropriate personal protective equipment. Inspections of the fences are conducted daily and recorded on operator round sheets. Review of round sheets for A and AN Tank Farm during the period of January through March 18, 2001, indicated no issues with barriers or means to control entry.

"Danger -Unauthorized Personnel Keep Out" signs are in place on Tank Farm Fences. Signs are inspected weekly on operator round sheets. Review of the round sheets for A and AN Tank Farms indicated no issues with warning signs.

3.2.2.2 Emergency Preparedness WAC 173-303-340

Facilities must be designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of dangerous waste to air, soil, surface, or ground water, which could threaten human health or environment. SSTs and some existing transfer lines are not constructed or operated to current standards that would prevent leaking, e.g., "unplanned releases." System upgrade projects such as W-525 are underway for part of the aging infrastructure and some upgrades may be deferred to prioritize resources (e.g., line LIQW-702 reference, Ecology letter from M. J. Brown to J. E. Rasmussen, ORP, "Secondary Containment for Transfer Lines SN-277 through -280, and LIQW-702," dated September 7, 2001). Specific cases addressed by M-23 and M-48 Milestones were discussed previously in Section 3.0.

Tank Farm Facilities were found to be equipped with the required equipment to avoid or mitigate emergency situations. Crash Alarm Telephones, Fire Alarms, and Emergency sirens provide immediate emergency instruction to facility personnel. Two-Way radios located in the shift office

are available for use in the tank farms. Inspections of the radios are performed before each use. Fire Extinguishers are available for use at Tank Farm Instrument Buildings, Tank Farm change trailers, former shift offices (272-AW, 272-WA) and 278-WA, and MO-281. The DST General inspection schedule indicates that spill kit locations are the 201-AR Mechanical Equipment Room and 701-A Compressor Building. This list is incomplete. The BEP Section 9.5 lists 9 locations for spill kits. Other spill kits exist at other locations and should also be inspected monthly. This is discussed under inspections in Section 3.2.2.3 below.

3.2.2.3 Contingency Planning and Emergencies WAC 173-303-350 and 360

The tank farms maintain a facility functional level portion of the contingency plan at the shift office in 2704HV called the "Building Emergency Plan for Tank Farms," HNF-IP-0263-TF. This plan is incorporated into the "Hanford Emergency Management Plan," DOE/RL-94-02 through specific implementing procedures known as "RLEP's" found in DOE-0223, "Emergency Plan Implementing Procedures." Twelve procedures used to implement the BEP, designated as TF-ERP-001 through TF-ERP-012, are listed along with others in appendix A of the BEP and are made available at appropriate tank farm installations. Administrative procedures for using these plans are outlined in HNF-IP-0842, Volume 16, Section 1.1. Hard copies of each of these plans and procedures are kept at the shift office and at other locations as defined in Section 12 of the BEP. The implementing procedure RLEP 1.1, Section 2.2 on the concept of operations addresses how these plans and implementing procedures are used together to meet the RCRA contingency plan requirements as outlined in DOE/RL-94-02, Subsection 1.1. The implementation and use of these procedures as outlined in WAC 173-303-360 (2) (d) is evaluated by the Building Emergency Director/Building Warden (BED/BW), and assessed after an event. These assessments are used to update emergency plans and procedures.

The BEP was evaluated and found to incorporate or appropriately reference all of the required elements in WAC 173-303-350 (3) and procedures under WAC 173-303-360 (2). A useful cross walk table of documentation that is kept to meet WAC-173-303 emergency planning requirements is also found in appendix A of the HEMP. Operational personnel, the BED/BW, and Emergency Response Personnel were found to be adequately trained in the recognition and response to emergency events as discussed in Section 3.2.1 above on training.

The assessment team reviewed the Fiscal Year 2001 first quarter limited exercise evaluation report and subsequent corrective action plan (CAP) from the simulated radiological release drill at the AP Tank Farm valve pit. The assessment team also reviewed CHG Emergency Management Drill Reports from drills conducted in February and October 2001. In general, the reports indicated that the emergency response teams responded well, and no deficiencies (failures to meet a requirement) were cited in the quarterly evaluation, although one weakness and eight improvement items were cited along with five good practice commendations. A CAP was developed, and these citations were entered into CHG's action tracking system per procedures outlined in HNF-IP-0842, Volume XI, Section 2.2. Close out packages from the corrective actions were submitted from CHG to the DOE Richland Operations Office through Fluor Hanford, Inc. (FHI). The emergency management drill reports developed drill issues and recommended corrective actions for CHG management. These actions were tracked internally within the CHG emergency management organization unless the correction was deemed to be significant in which case the drill coordinator would submit it into

the CHG action tracking system using procedures in HNF-IP-0842, Volume I, Corrective Action Management, Section 2.4, Revision 6c. This system was changed in the summer of 2001 with the introduction of the Problem Evaluation Request System under management directive RPP-MD-058. All emergency drill issues and subsequent corrective actions are now entered and tracked in this system.

3.2.2.4 General Inspections; WAC 173-303-320

Inspection Schedules:

A facility schedule for inspection of monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards is required to be kept at the facility.

The Dangerous Waste Inspection Schedule for General Inspections and Dangerous Waste Inspection Schedules for specific tank farms were provided as un-numbered, uncontrolled, out-dated documents to the inspection team. The schedules were generally reviewed, and critically reviewed for A and AN Tank Farms. The schedules were found to address the inspection of monitoring equipment, safety and emergency equipment, and security devices, as well as operating and structural equipment that help prevent, detect, or respond to environmental or human health hazards. Dangerous Waste Inspection Schedules for A and AN Tank Farms were found to include descriptions of the types of problems an inspector should look for and the frequency of inspections. These written inspection schedules, however could not be located at shift office or at tank farm locations.

Elements of these schedules were found to be maintained through various procedures and disseminated through the "tickler" system described below. A cross check of the content of the schedules with the contents of the tickler system was not performed. There was no indication of an existing controlling system to ensure that all inspection requirements are being and would continue to be met through round sheets and/or tickler sheets.

Tickler System:

Equipment located in the Tank Farm Contractor (TFC) facilities and maintained by TFC Operations is inspected using rounds sheets which implement the inspection schedule through various procedures. These sheets are maintained on the intranet where they are periodically updated by procedure writers when the procedures change per HNF-IP-0842, Volume 1, Section 2.11. They are printed out at the end of the week from CCC for distribution to the shift managers for use the following week. A log of Procedural Change Actions is kept at the CCC, and the most recent version of the procedure and associated round sheet is tracked by a tracking number kept in the log. Some equipment, such as fire extinguishers or spill kits, is required for safe operation, but is not maintained by TFC Operations. Inspection of these items is managed using the "tickler" system.

A tickler system is maintained as a database. The database Operator uses the system to schedule, assign, and track activities. Ticklers, the forms generated by the system, range from inspections forms (e.g., for inspection of all strip chart recorders) to reminders to complete weekly rounds.

TFC currently has three tickler systems: one addressing SST issues (nine ticklers), one for DSTs (15 ticklers), and one for CCC (86 ticklers). The tickler system process is as follows:

Database Operator:

1. Generates working copies of the ticklers, typically on a weekly or monthly basis.
2. On a daily basis, gives the tickler to the responsible person.

Responsible Person:

3. Conducts inspection (or other activity) per the tickler instructions.
4. Returns the completed tickler record to the Database Operator.

Database Operator:

5. Updates the database to reflect the completed tickler.
6. Ensures tickler is signed by Operations management.
7. Forwards the signed tickler to Records.

3.2.2.5 Container Inspections: 40CFR265.174

Containers and the container storage areas are inspected weekly for leaks, spills, and deterioration caused by corrosion or other factors. Satellite Accumulation Areas are inspected weekly as a BMP and the 90-day pad storage area is also inspected weekly as required. (See Section 3, Item 6).

3.2.2.6 Tank Inspections: 40CFR265.195

Above-ground portions of Tank Systems are inspected daily for spills/releases or leaks (above-ground) or visible damage. Any observations are noted on operator round sheets. Review of the round sheets for A and AN Tank Farm during the period of January through March 18, 2001, indicated no observations of leaks or damage.

Inspections of tank system overflow controls is included in section 3.2.4.2 "Tank Systems."

Data gathered from leak detection equipment is recorded on operator round sheets. Round sheets are reviewed, signed and dated daily by the shift manager (or person-in-charge). See section 3.2.4.2, "Tank Systems" for issues concerning SST leak detection data and frequencies.

The Dangerous Waste Inspection Schedule for Cathodic Protection indicates that all sources of impressed current are inspected bimonthly as required. Bimonthly inspections are performed according to procedure 5-CATH-221, "Inspection of Cathodic Protection Rectifier." The Cathodic protection system is inspected annually according to procedure 3-CATH-357. Bimonthly inspection work packages were reviewed for the past six months. All inspections were noted "satisfactory" except the January 15, 2001, inspection which noted, "No Power – temporarily

locked out for construction.” The frequency of inspections were generally bimonthly except the July 22, 2001, inspection which was actually performed nearly three months after the April 30, 2001, inspection.

Observation: A-01-EMD-TF-09-OB-05 - No document controlled written inspection schedules were found at the facility Round sheets and ticklers were found at the facility and are used to meet the intent of the requirement, but no controlling system exists to ensure that all required inspections are being or will continue to be met through tickler and/or round sheets.

Reference: BMP

Discussion:

The written inspection schedules could not be located at shift offices or at tank farm locations. Tank Farm operator personnel questioned had no idea what the inspection schedules were or where they were kept. Tank Farm environmental personnel could not definitively provide locations of the inspection schedules when asked. Although the intent of the regulation is met through the procedure used to generate the round sheets and the tickler system, there was a lack of adequate knowledge about the requirement and how it was being met. The contractor could not provide evidence of a controlling system that would ensure that all inspection requirements would continue to be met through the evolution of round sheets and tickler sheets.

The written Dangerous Waste General Inspection Schedule provided by the contractor contained out-dated and inaccurate information. For example, the schedule indicates that spill kit locations are the 201-AR Mechanical Equipment Room, and 701-A Compressor Building. As mentioned previously in the emergency evaluation section of this report, this is an incomplete list. Other spill kits exist at other locations and should also be inspected monthly. Tickler sheet number 136.4 lists 20 separate locations for spill kits. A complete written schedule that incorporates all applicable inspection requirements for the SST and DST tank system permitted storage unit should be a controlled document with periodic updates required. A cross check of the schedule provided against that included in the DST permit application per WAC 173-303-806 (4)(v), found it to be the same. Control of this document is being addressed and the dangerous waste portion of the schedule is now incorporated into the next revision of OSD-T-151-00032, currently in process.

Observation: A-01-EMD-TF-09-OB-06 - The required periodicity for one cathodic inspection was slightly exceeded.

Reference: CATH-221, “Inspection of Cathodic Protection Rectifier.”

Discussion:

The Dangerous Waste Inspection Schedule for Cathodic Protection indicates that all sources of impressed current are inspected bimonthly (see 40CFR265.195 (b)(2)). Bimonthly inspections are performed according to procedure 5-CATH-221 “Inspection of Cathodic Protection Rectifier.”

Bimonthly inspection work packages were reviewed for the past year. The frequency of inspections were generally bimonthly except the July 22, 2001, inspection which was actually performed nearly three months after the April 30, 2001, inspection.

3.2.3 Results on Records and Reporting

3.2.3.1 Operating Records

WAC 173-303-360(k) requires the owner or operator to record in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, a written report on the incident must be submitted to DOE. The report must include: i) name, address, and telephone number of the owner or operator; ii) name, address and telephone number of the facility; iii) date, time, and type of incident (e.g., fire, explosion); iv) name and quantity of material(s) involved; v) extent of injuries, if any; vi) an assessment of actual or potential hazards to human health or the environment, where this is applicable; vii) estimated quantity and disposition of recovered material that resulted from the incident; viii) cause of incident; and ix) description of corrective action taken to prevent reoccurrence of the incident. A recent occurrence report that required implementation of the contingency plan was obtained, reviewed, and found to contain the required information listed above. The occurrence report is titled "Release of Contaminated Solution from 241-BY-103 Transfer Line" dated April 3, 2001. Appropriate and timely notifications were made in accordance with HNF-IP-0842, Volume VI, Section 1.3, "Environmental Notification," and HNF-IP-0842, Volume II, Section 4.6.2, "Occurrence Reporting and Processing of Operations Information." (Note: when the revision number is not included with the reference the documents were reviewed against the most recent electronically published procedure, which may have been updated since the creation of the records reviewed. If discrepancies are noted to the current procedure the contractor will be asked to provide a contemporary procedure to the document being reviewed.)

WAC 173-303-380 requires that the owner or operator of a facility keep a written operating record at their facility. The applicable information required by WAC 173-303-380(1)(a) through (o) must be recorded and maintained in the operating record until closure. The location of records found in this assessment were:

- a. A description of, and the quantity of, each dangerous waste received and the methods and dates of its treatment, storage or disposal at the facility can be located in the SST Part A Permit and DST Part A Permit for tank waste and in package identification number (PIN) record files for newly generated waste.
- b. The location of each dangerous waste and the quantity at each location as updated is provided to Ecology in the annual Hanford Site Mixed Waste Land Disposal Restrictions Report (e.g., DOE/RL-2001-20).
- c. Records and results of waste analyses are provided in Tank Waste Information Network System (TWINS) Database or Tank Characterization Reports for tank waste and PIN record files for newly generated waste.

- d. Summaries and details of all incidents that require implementation of the contingency plan are recorded in accordance with "Environmental Notification" Procedure and Occurrence Reporting (HNF-IP-0842).
- e. Records and results of inspections are maintained on operator daily, weekly, quarterly round sheets and through the Job Control System. (see discussion in first paragraph of Section 3.2.3.1 above).
- f. Tank monitoring and testing records are maintained by the Industrial Hygiene Organization. Radiological air emissions monitoring records are maintained in the records holding area on site per HNF-IP-0842, Volume VI, Section 3.4. Tank analytical data is maintained by the on-site laboratories. Corrective Actions which require occurrence reporting are submitted and maintained by Central Files.
- g. No current cost estimates exist for closing the SST or DST systems. (Note: These are not required for government entities.) Cost estimates for the SSTs will be developed as a direct result of the closure work plan activities conducted under Milestones M-45-06-T05 through M-45-06-T07. Cost estimates and schedules for closure will be negotiated upon conclusion of work shops associated with the Draft Part B for the DST system.

Observation: A-01-EMD-TF-09-OB-07 - The conceptual understanding and the control of an "operating record" for use as documentation of an existing management system that controls requirements specific to TSD operations, should be included in CHG's plans and procedures.

Reference: Contract DE-AC27-99RL14047, Mod MO30, Part 1, Section C (d) (V) as referenced to Part 1 sec H26 (a) CHG Functional assessment (RPP-EFA-00-002), September 2000, "TSD Facility Records Management Report."

Discussion:

When questioned in initial interviews, CHG records and environmental services personnel present, were not able to provide information on what was incorporated in the required content of an operating record and instead questioned assessors as to what should be in the operating record and specifically what records were needed for review.

The understanding and control of an "operating record" is indicative of the proper management of a TSD. CHG could not produce a compliance matrix, or other index demonstrating where applicable records constituting an operating record are kept. A management level program plan describing and integrating how TSD dangerous waste operational requirements are satisfied by plans, procedures, desk instructions, and other documents was not found. HNF-1773, Revision 4, "Environmental Program Description for the Tank Farm Contractor," generally describes environmental functionalities of the TFC including a short paragraph on the RCRA permit (Section 5.3.1), but does not describe a management system or reference procedures specific to TSD management. The contractor relies on S/RIDs (HNF-SD-SRID-001), which identifies requirements but does not prescribe a management program. S/RIDs is a comprehensive listing and grouping of standard requirement identification maintained and updated for environmental requirements through administrative procedure HNF-IP-0842, Volume VI, Section 2.2, and generally according to procedure HNF-IP-0842, Volume I, Section 6.4. Although systems exist for accumulation of required data, the TFC personnel interviewed were unable to describe a complete operating record

or to show what records should be accessed and where they are currently kept that contain all of the required operating record information. In subsequent investigation, it was found that the required operating record information sought by the assessment team has been retained by CHG in some form (electronic or hard copy) and in various locations. Some records were easily obtained, while others required a week or even several weeks to obtain.

CHG performed a functional assessment (RPP-EFA-00-002) in September 2000, "TSD Facility Records Management Report." Item #1 on the associated checklist is the requirement for maintaining a written operating record. According to the checklist, the procedure HNF-PRO-5127, Section 2.2, "TSD Unit Activities and Documentation," was reviewed as part of the CHG program that implements parts of this requirement. This procedure includes the following language regarding operating records:

"Managers shall maintain Operating Record documentation in a format that is readily retrievable. The Operating Record Documentation shall be maintained to meet the goal of providing compliance inspection documentation requests before the regulator leaves the field that day... Operating Record documentation can be stored in various onsite locations, but an index shall be maintained to provide a description of the document/data, location of the document/data, and the name and telephone number of the contact to obtain the document/data."

Such an index was not available to support this assessment and likely was not in use at the time of the CHG assessment referenced above. An index is desirable in order to readily retrieve specific operating record information to demonstrate compliance. (Note: a table in HNF-IP-0842, Volume VI, Section 3.4 is maintained to facilitate retrieval of radioactive air emissions records. This table was developed reactively to meet WDOH requirements.) The lack of this tool for TSD records management is symptomatic of an approach that looks only to meeting requirements, without defining and integrating the requirements and implementing procedures to management of the TSD's as a program. (Incidentally, the referenced procedure, HNF-PRO-5127, was not adopted by CHG and is not included in CHG's procedure transition matrix. No similar procedure is used by CHG in lieu of this procedure. The assessment team was informed in subsequent communication with CHG that the reference to this procedure in the functional assessment was in error. This is of concern because Section 7.2.3 of HNF-1773 states that functional assessments are used to "... verify environmental management control systems have been implemented"). The assessment team was unable to find plans and procedures tailored specifically to the operation of the tank farms as TSD units. Although there is no regulatory requirement for a program plan and implementing procedures, the specific applicable permit requirements should be understood and managed as part of an integrated program, which is implied by the requirement that a TSD review performance standards to find if more stringent requirements than those under the WAC must be applied to be protective of health and the environment. Contract language requiring CHG to "Implement a program ..." (DE-AC27-99RL14047, Mod MO30, Part 1, Section C.2[d][1][V]) for environmental compliance issues and requirements that complies with a stipulation that the contractor is responsible for the operation of TSD units (1 Section H26[a]) does not appear to be adequately met. This is a program weakness that can be tied to the performance standard (WAC 173-303-283[2]), and is therefore included in this observation. This weakness and the weakness in control of environmental records were also discussed in functional assessment report # RPP-EFA-01-005 functional areas 4 and 5.

3.2.3.2 Records and Reports (see also finding under Section 3.2.3.1, "Operating Records")

WAC 173-303-390 (2) requires the preparation and submittal of a Dangerous Waste Annual Report. FHI has responsibility for compilation and submittal of Annual Reports through DOE to Ecology. CHG contributes information toward annual reports and maintains copies of the annual reports. Annual Reports were not reviewed as part of this assessment.

40CFR265.110 through 265.120 require that the owner or operator of a dangerous waste management facility must have a written closure plan. Final Closure Plans do not exist for the SST or DST Systems. The SST Closure/Post Closure Work Plan is being updated every two years as uncertainties in the process are resolved. Work plan updates are addressed under Milestones M-45-06-T05 through T07. In 2008, the work plan will become the closure plan for SSTs. Schedules for closure of the DST will be negotiated upon conclusion of workshops associated with the draft Part B and when technical and regulatory based decision making tools are developed and agreed upon and outlined in Chapter 11.0, "Closure Plan," of the draft permit application. Information necessary for development of the closure plan for the DST system are tied to work efforts within the following Tri-Party Agreement Milestone series: M-48 (Integrity Assessments); M-46 (DST Space Evaluation); M-45 (SST Retrieval, Closure and Retrieval Sequence Decisions); M-43 (Tank Farm Upgrades); M-47 (Waste Feed Delivery); and M-62 (Waste Treatment).

Records are retained in accordance with procedure RPP-MP-605, "Document and Records Management Program Description for the Tank Farm Contractor." The S/RIDs document addresses the retention time of five years required by WAC 173-303-210(4). Only the most recent records (2001) were reviewed for this assessment. No records over five years old were reviewed.

Additional Reports required by WAC 173-303-390(4) include:

- a. Reports of releases of dangerous wastes, fires, and explosions are conducted in accordance with HNF-IP-0842, Volume VI, Section 1.3, "Environmental Notification."
- b. Interim status ground water monitoring data as specified in 40CFR265.94 will be included as information obtained via vadose zone and groundwater monitoring to the closure/post closure work plan update submitted under Milestone M-45-06-T05 due June 30, 2002. The groundwater monitoring program is administered by Pacific Northwest National Laboratory (PNNL) and was not investigated as part of this assessment.
- c. Reports of facility closures were not applicable to any Tank Farm facilities.

WAC 173-303-395(1)(d) requires that the operating record include the results of a yearly inspection of those areas of the facility where ignitable or reactive wastes are stored. The date and time of the inspection; the name of the professional inspector or fire marshal; a notation of the observations made; and any remedial actions which were taken as a result of the inspection. The inspection for CY 2001 was conducted by the Hanford Fire Marshall on September 5 and 6, 2001. No discrepancies were noted in the report.

Manifests (WAC 173-303-370) are prepared for on-site and off-site shipments for consistency according to HNF-IP-0842, Volume 18, Section 2.1, "Radioactive Material/Waste Shipments," and HNF-IP-0842, Section 2.2, "Non-radioactive Hazardous Material/Hazardous Waste Shipments." A copy of each manifest is retained according to RPP-DI-WM-004, "Records Management." This procedure requires the manifests to be retained as part of the PIN Record Files. A selection of manifests were reviewed for shipments off-site (Allied Technology Group) and on-site (Central Waste Complex). The manifests were complete and appropriately prepared and maintained. A three year records retention period for manifests is stipulated under procedure in Table 1 to HNF-IP-0842 Volume XVIII, Section 1.2, Revision 0.

WAC 173-303-810 (11)(c) requires the retention of all monitoring records and all original strip chart recordings for continuous monitoring instrumentation for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of DOE at any time. Monitoring information recorded in the operator round sheets includes date, place, and time. The records inventory and disposition schedule currently identifies strip charts as non-record material, since the information they record is also recorded electronically via Tank Monitoring and Control System (TMAC) and daily surveillances. TMACs and Operator round sheets constitute the formal record. Strip charts are discarded after 90 days. Records of analyses were not reviewed as part of this assessment. Review of the operator round sheets indicate occasional problems with chart recordings (paper jams, out of paper, not a legible trace, etc.). When a strip chart recorder malfunction is noted, a work package is issued to an instrument technician to repair. **(Note: the WAC reference is a final status requirement and is listed here because the DST system is applying for a final status permit. This reference is not to a current requirement.)**

40CFR265.191 requires that for each existing tank system, the owner or operator must obtain and keep on file at the facility a written assessment reviewed and certified by an independent, qualified registered professional engineer (IQRPE). Integrity Assessments for SSTs are addressed in Tri-Party Agreement Milestones M-23-24. Integrity Assessments for DSTs are addressed under Tri-Party Agreement Milestone M-48-00, which requires the assessment of the structural integrity of all 28 DSTs at Hanford by September 30, 2006. Currently DST's are inspected remotely using video cameras and ultrasonic equipment. Some opportunistic videos and still photographs have been used for tank inspections. Per Administrative Orders 00NWPKW-1250 and 1251 and the new Tri-Party Agreement Milestone M-48, the IQRPE certified DST System Integrity Assessment is to be submitted to Ecology in 2006. The four reports submitted each year until 2006 are not certified by an IQRPE.

40CFR265.19(b)(5)(ii) for other than non enterable underground tanks and for ancillary equipment, the assessment must include either a leak test or an integrity examination that is certified by an IQRPE that addresses cracks, leaks, corrosion, and erosion. Current leak tests consist of continued measurement of tanks with current instrumentation. Annual hydro or pressure tests are conducted for direct buried transfer lines in service. See discussion on integrity assessment milestones for SSTs and DSTs above.

3.2.4 Results on Container Management and Tank Systems

3.2.4.1 Container Management

See Section 3, Item 6, and Section 3.2.2.5.

3.2.4.2 Tank Systems

Interim Status TSD Facility Standards for Tank Systems are outline in 40CFR265, Subpart J. Each section's requirements and the implementation of the requirements are addressed below.

40CFR265.191 Assessment of Existing Tank System's Integrity

For each existing tank system that does not have secondary containment meeting the requirements of 40CFR265.193, the owner or operator must determine that the tank system is not leaking or is unfit for use. The owner must obtain and keep on file at the facility a written assessment reviewed and certified by an IQRPE. (See also Section 3.2.3.2 above.)

A written assessment of the SST system integrity to determine that the SST System is not leaking by an IQRPE that attests to the tank system's integrity has not been completed. This condition is addressed under corrective measures in Milestone M-23 resulting from Ecology's SST compliance inspection report "Dangerous Waste Compliance Inspection Report #99-168 Single Shell Tank Farms," January 31, 2001, and "Dangerous Waste Compliance Inspection of the Single-Shell Tank Facility," February 2, 2001.

Integrity Assessments for DSTs are addressed under Tri-Party Agreement Milestone M-48-00 which requires the assessment of the structural integrity of all 28 DSTs at Hanford by September 30, 2006. Currently, ultrasonic testing has been conducted for six of the 28 DSTs (AW-103, AN-107, AZ-101, AY-102, AN-105, AN-106). The results from the six tanks were used in preparation of Integrity Assessment Reports for Tank Farms 241-AN, 241-AP, 241-AW, 241-AY, 241-AZ, and 241-SY. (See also Section 3.2.3.2 above.) Integrity Assessment Reports are located in Appendix 4B of the DST Part B Permit Application.

40CFR265.193 Containment and Detection of Releases

In order to prevent the release of hazardous waste to the environment, secondary containment that meets the requirements of this section must be provided for all existing tanks, of known or documentable age, within two years after January 12, 1987, or for systems 15 years old.

Hanford tanks with secondary containment monitoring use level detection instruments in the containment as the means of leak detection. Tanks without secondary containment or without secondary containment monitoring use decreases in primary tank levels as a means of detection. Technical basis and specification limits of leak detection are described in OSD-T-151-00031.

The SSTs and ancillary equipment do not have secondary containment. This condition is addressed under a corrective measure in Milestone M-23 resulting from Ecology's SST compliance inspection report "Dangerous Waste Compliance Inspection Report #99-168 Single Shell Tank Farms," January 31, 2001, and "Dangerous Waste Compliance Inspection of the Single-Shell Tank Facility," February 2, 2001.

The DST PART B Permit Application describes the secondary containment and leak detection capabilities for the DST system in Chapter 4.0.

40CFR265.194 General Operating Requirements and 40CFR265.195 Inspections

The owner or operator must use appropriate controls and practices to prevent spills and overflows from tank or containment systems.

According to the DST Part B Draft Permit Application, tank system overfilling control equipment consists of liquid level monitoring, waste feed monitoring, pump shutdown interlock systems, and waste transfer and routing controls. Since waste is only being transferred out of SSTs, the only applicable control is liquid level monitoring.

The owner or operator must inspect, where present, at least once each operating day:

1. Overfill/Spill control equipment.

Pump interlock systems are operability tested at least quarterly. The testing is scheduled and tracked using the preventative maintenance scheduling (PM/S) system. The procedures that test the master pump shutdown are the functional tests for transfer leak detectors including various pit transfer leak detectors as well as DST annulus conductivity probe leak detectors. Liquid Level monitoring devices such as ENRAFs are on a routine calibration/functional test schedule of 182 days (six months) and are managed under the PM/S system. High-level probes are installed in all DSTs. These probes are on a routine functional test schedule of 365 days managed under the PM/S system.

2. The above ground portions of the tank system.

Inspections are included in daily operator round sheets and are discussed in Section 3.2.2, "Results on Security and Hazards."

3. Data gathered from monitoring equipment and leak detection equipment.

Not all of the SST monitoring equipment and leak detection equipment is inspected at least once each operating day. Inconsistent information exists as to the frequency and the equipment used for monitoring. According to OSD-T-151-00031, the only two Tanks in A Tank Farm with a primary form of leak detection are A-101 and A-103 by weekly Liquid Observation Well (LOW) readings. According to the operator round sheets for A Tank Farm, A-101 liquid levels are monitored daily by ENRAF; no other tanks in A Tank Farm are monitored. According to the inspection schedules for A Tank Farm: A-104 and 106 are monitored quarterly by ENRAF; A-101 and A-103 are weekly by LOW; A-102 quarterly by

FIC; and A-105 is quarterly by Manual Tape. Milestone M-23-22-T01, due February 28, 2002, requires the submittal of a document identifying and describing the existing SST In-Tank Surveillance and Monitoring Program. Milestone M-23-23 further requires a submittal of the SST System Leak Detection and Monitoring Functions Requirements Document for Ecology approval due June 15, 2002. These two submittals should provide the actual monitoring equipment used and their frequencies. These submittals can then be used to correct the apparent inconsistencies found currently in the monitoring documentation above (See Section 3 Item 8).

DST liquid levels are monitored daily electronically and results are transmitted automatically to TMACs. Liquid levels are recorded daily on operator round sheets which are reviewed, signed, and dated by the shift manager or person in charge. Liquid Level Monitoring capabilities for the DST System are discussed in detail in Chapter 4.0 of the DST Part B Permit Application.

4. The area surrounding the externally accessible portion of the tank system and secondary containment structure to detect erosion or signs of releases of hazardous waste. Inspections are included in daily operator round sheets and are discussed in section 3.2.2, "Results on Security and Hazards."

The owner or operator must inspect cathodic protection systems. Cathodic protection inspections are discussed in Section 3.2.2, "Results on Security and Hazards."

40CFR265.196 Response to Leaks or Spills and disposition of leaking or unfit-for-use tank systems.

A tank system or secondary containment system from which there has been a leak or spill or which is unfit for use, must be removed from service immediately and the owner or operator must satisfy requirements (a) through (f) listed below.

- a. Cessation of use:

67 of 149 SSTs are known to have leaked. There is an interim stabilization strategy driven by consent decree. No wastes have been added since 1980, with the exception of C-106, which received DST supernatant as the sluicing liquid for C-106 waste retrieval.

- b. Removal of waste from tank system or secondary containment:

All waste has not been removed from the SST system per 40CFR265.196. The Interim Stabilization program removes pumpable liquids. If a leak is determined to exist in a non-stabilized tank, the operator utilizes an emergency-pumping plan, which requires the initiation of waste retrieval. Tri-Party Agreement Milestone M-45 guides the waste retrieval process.

- c. Containment of visible releases to the environment:

Daily rounds in all tank farms are conducted and anomalous conditions are noted on round sheets. Additional work for SSTs includes vadose zone and ground water characterization

as found in Tri-Party Agreement Milestones M-45 and M-24. New leaks (on-surface) are properly collected for disposal. Below-grade or historic spills are not cleaned up and will be dispositioned during closure activities as part of Tri-Party Agreement Milestone M-45.

d. Notifications, Reports:

All notifications of releases to the environment are reported in accordance with the Environmental Notification procedure (See "Results on Records and Reporting," Section 3.2.3).

e. Provision of secondary containment, repair, or closure:

This section requires tank system closure for the SSTs since the release was a leak to the environment from a component of the tank system without secondary containment and secondary containment has not been and will not be added. The SST system has not been closed. SST closure and the development of closure work plans are scheduled within the Tri-Party Agreement Milestone M-45-06 series.

40CFR265.197 Closure and Post Closure Care

See "Results on Records and Reporting," Section 3.2.3, for discussion of milestones related to SST and DST Closure.

40CFR265.198 Special Requirements for Ignitable and Reactive Wastes

See "Waste Characterization Results," Section 3.2.5.2.

40CFR265.199 Special Requirements for Incompatible Wastes

See "Waste Characterization Results," Section 3.2.5.2.

3.2.5 Waste Characterization/Designation

3.2.5.1 Newly Generated Containerized Waste

Applicable regulations: WAC 173-303-070, "Designation of Dangerous Waste;" WAC-173-303-300, "General Waste Analysis;" 40CFR265.13, "General Waste Analysis;" and 40CFR268.7, "Land Disposal Restrictions – Waste Analysis and Record keeping."

This portion applies to tank farms newly generated containerized waste. These "newly generated" wastes are produced incidental to maintenance, construction and upgrade activities in the tank farms, and periodically due to cleanout of laboratories and older installations. These wastes are designated by and managed by the TFC's Waste Management Services (WMS) organization, and

are eventually transferred out of the tank farms for storage, treatment, or disposal in non-TFC facilities.

Chemical Characterizations of tank farms solid waste is based on generator process knowledge, manufacturer information, material safety data sheets, analytical data, and/or tank characterization information. Where process knowledge is limited, chemical analysis of waste samples must be performed to fill the gaps of process knowledge. Where process knowledge is non-existent, extensive chemical analysis is required to adequately characterize the wastes. The chemical characterization program for tank farms is described in HNF-SD-WM-PLN-119, Revision 1, "River Protection Project Solid Waste Hazardous Chemical Characterization Guide." The information derived from the guide is used to characterize and subsequently designate waste.

According to "Waste Generating Plan," RPP-MP-609, WMS has the responsibility of ensuring proper waste designations. WMS prepares and maintains waste profile sheets for mixed and low-level waste and ensures that dangerous waste meets the off-site TSD facility profiles. WMS performs waste designation based on analytical data, Material Safety Data Sheets (MSDSs) and/or process knowledge information. WMS uses desk instructions RPP-DI-WM-001 "Waste Stream Designation Process," and RPP-DI-WM-002, "Completing Land Disposal Restriction Notifications and Certifications," to ensure proper designation and LDR determinations.

According to "Waste Stream Designation Process," RPP-DI-WM-001, waste designation can be done on a container-by-container basis or by establishing a routine profile for consistent waste streams. The designator uses a copy of the Waste Designation Sheet or Solid Waste Engineering Analysis designation sheets to record applicable waste codes and LDR status, the reason for the applicability of the waste code, the date, name and signature of the designator. The designation record is considered a QA record and must be included in the PIN file or referenced in the PIN file. The PIN File consists of the Waste Designation Sheet and all designation specific information including analytical results, field screening results, correspondence, generator inventory information, and MSDSs. PIN Record File DST-01-170-03 and Waste Profile Sheet CH2M-930-0002-00 were reviewed and found to implement the designation procedures referenced above. Both packages included an LDR Notification and Certification Form. For each case a determination was made whether the waste required treatment or not before land disposal in accordance with WAC 173-303-140.

A compatibility assessment is performed by the designator per RPP-DM-WM-005, "Chemical Compatibility Review," for chemicals packaged in labpacks, overpacked liquid, or solid chemical products. The assessment includes container compatibility and is recorded on the waste designation sheet.

TFC's efforts to characterize its dangerous wastes appeared to fulfill the regulatory obligations applicable to each particular waste and handling activity. On a case-by-case basis, for a given dangerous waste in a given circumstance, the TFC appears to be able to perform the necessary characterizations, develop and maintain required records, and comply with other applicable documentation requirements. The TFC has planning, record keeping, and other programmatic elements in place that demonstrate compliance with the applicable regulations. It also appeared that TFC personnel are aware of and working diligently to implement these plans, procedures, and

instructions in order to adequately characterize the dangerous wastes for which the TFC is responsible.

3.2.5.2 Designation and Characterization of Mixed Tank Waste

Applicable regulations: WAC 173-303-070, "Designation of Dangerous Waste;" WAC-173-303-300, "General Waste Analysis;" WAC-173-303-210(3)(a), "Waste Designation Records;" WAC-173-303-806(4)(a)(ii), "Waste analysis for Part B Application;" 40CFR265.13, "General Waste Analysis;" 40CFR265.17(b), "Waste Compatibility;" 40CFR Part268.7, "Land Disposal Restrictions – Waste Analysis and Record keeping."

Characterization of waste supports proper storage, treatment and disposal, as well as safe handling and transfer compatibility considerations.

The assessment team examined records from the waste transfers of 222 -S laboratory waste via Double Contained Receiver Tank 244-S to 241-SY-102 (WMH-9950456), and an assessment of Plutonium Finishing Plant waste compatibility (RPP-9322), against requirements in the Waste Compatibility Program Plan (SD-WM-OCD-015) and the DST Waste Analysis Plan (HNF-SD-WM-EV-053, Revision 6). All requirements were met and properly documented.

Observation: A-01-EMD-TF-09-OB-08 - CHG could not produce records documenting the process knowledge used in the SST Part A Permit Form III designation.

Reference: BMP in maintaining an adequate administrative record.

During this assessment CHG was requested to provide documentation that was used for the original designation of SST and DST mixed waste in the Part A Permit. CHG provided a synopsis of the dangerous waste characteristic designation history for only the DST system provided under Rust Federal Services of Hanford Inc. letter from R. H. Engelmann to L.E. Borneman, Lockheed Martin Hanford Corporation, "Re-Issue of History and Basis for Characteristic Dangerous Waste Numbers Identified for the Hanford Facility Dangerous Waste Part A Permit Application, Double-Shell Tank System," RFSH-9753149, dated April 14, 1997. The document did not include any source documents, and listed only three RCRA metals as being designated with analytical data along with the characteristics of corrosivity and reactivity as the basis for form III part A. All of the organic constituent characteristic codes D018-D043 were listed as protective filings, and the remaining characteristic codes were classified as process knowledge. F003 was added in Revision 3, February 1990 and referenced only as per agreement with Ecology in acknowledgement of past (acetone) discharges to the DST system. The F005 code was added in Revision 4, December 1990 and only obtusely referenced as from analytical data. The addition of F001, F002, and F004 codes was included in Revision 5 to the Part A, dated February 26, 1993. The reference again was a vague description that this was based on the presence of spent halogenated solvents from crane maintenance at B-Plant and decontamination at T-Plant. (Note: the assessment team found a more complete description in the "Tank Farm Solid Waste Characterization Guide," HNF-SD-WM-PLN-119, Revision 1. This guide described the processes, F-listed constituents, and references source documents including internal Westinghouse Hanford Corporation memorandums, reports, and

letters. Each of these documents are dated 1990 and 1992 so they would not apply to the original Part A for the SST system.)

CHG provided no further designation documentation and was not able to tell the assessment team where the "process knowledge" documentation for the SST permit code designations was stored. WAC 173-303-070 3(C)(ii)(A) and (B), in combination with WAC-173-303-210(3)(a) says that process knowledge sufficient for proper designation can be used provided records are retained on site for five years from the date the waste was last transferred. It is unclear to the assessment team if CHG should be required to retrieve the original documentation supporting the SST Part A waste code designations in light of the on going transfer of waste from the SST to the DST systems from interim stabilization.

Generators are required to properly characterize and designate their waste for TSD. The existing tank waste has been designated sufficiently for storage according to the "Tank Waste Remediation System Regulatory Data Quality Objective," PNNL-12040, Revision 0, as reviewed by Ecology. Characterization needs for treatment of the waste will be met according to this Data Quality Objective by the vitrification plant contractor as required under contract deliverables in Items 2.3 and 2.4, table C-5-1.1, Contract No. DE-AC27-01 RV14136.

Areas that have not been addressed completely for characterization include SST and DST tank closures and final treatment equipment disposition and closure. CHG is urged to establish a complete administrative record including all analytical and process knowledge waste designation documentation. This documentation could prove to be valuable in closure decision, regulatory, and risk analyses. Operating and planning based on conservative "protective filing" waste codes could add unnecessary cost and schedule impacts to further characterization, tank closure, and waste management decisions.

4.0 PERSONNEL CONTACTED

Ms. Linda Brown, CHG
Mr. John Doughty, CHG
Mr. Glyn Trenchard, ORP
Mr. Steve Faulk, CHG
Mr. Mark Riess, CHG
Ms. Chris Davis, CHG

Ms. Megan Lerchen, PNNL
Mr. Yousef Shehadeh, CHG
Mr. Tony Mishka, FHI
Mr. Grady Willingham, CHG
Mr. Mike Silvia, CHG
Mr. Bill Parnell, CHG

Mr. Terry Bowman, CHG
Ms. Pamela Powell, CHG
Mr. Phil Miller, CHG
Mr. Chuck Mulkey, CHG
Mr. Jamie Morris, CHG

5.0 CONCLUSIONS

The TFC has a requirements based management system in place and is implementing procedures within the system to adequately manage the storage of mixed waste in the SSTs and DSTs. Federal and state LDR requirements as interpreted for action through the TPA are addressed in the plans and procedures used by the contractor and are generally being well implemented.

Areas of general concern where ORP will be working for improvement with the contractor include first, better definition of integrated TSD operations on a program level, which will entail better

operations record control and integration of the requirements, procedures, and program documents describing management of TSDs as a program. ORP will work with the contractor to design a specific part of the contractors self assessment program towards evaluating TSD management in a vertical slice approach including assessing the adequacy and integration of plans, procedures, and implementation of requirements under a LDR/TSD management program.

The second area where ORP will work with the contractor and require better performance will be in reusable contaminated equipment management

6.0 GENERAL REFERENCES

1. Code of Federal Regulations: 40CFR265 and 268, et al.
2. Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage and Disposal of Dangerous Waste at the Hanford Site, Permit Number WA7890008967, Revision Number 6.
3. DOE/RL-90-39, WD-1, Hanford Facility Dangerous Waste Permit Application, Double-Shell Tank System (Draft), November 1999.
4. Hanford Federal Facility Agreement and Consent Order.
5. Washington Administrative Code, Chapters 173-303, et al.
6. HNF-EP-0182, Waste Tank Summary Report, various months (Hanlon report).

The following records were reviewed for the training portion of this assessment:

1. "River Protection Project Dangerous Waste Training Plan," HNF-SD-WM-TR-026, Revision 15, dated June 14, 2001.
2. Self-Assessment Findings "Tank Farm Remediation System Dangerous Waste Training Requirements Matrices Report," October 2, 2001 and May 5, 2001, and associated e-mail notices.
3. "River Protection Project Dangerous Waste Training Requirements Matrices," HNF-IP-0974, Revision 25, dated September 2001.
4. HNF-IP-0842, Volume III, Training, Section 10.5, Revision 2b, "Operator Qualification Program Description," dated June 25, 2001.
5. HNF-IP-0842, Volume III, Training, Section 4.1, Revision 2f, "Training Analysis Design and Development," dated September 27, 2001.
6. HNF-IP-0842, Volume III, Training, Section 2.5, Revision 0b, "Integrated Training Electronic Matrix (Item) Administration," dated July 30, 2001.
7. HNF-IP-0842, Volume III, Training, Section 1.4, Revision 0a, "Environmental Training," dated July 13, 2001.
8. HNF-IP-0842, Volume III, Training, Section 1.1, Revision 2d, "RPP Training Purpose and Functions," dated March 14, 2000.

Characterization References:

1. "River Protection Project Solid Waste Hazardous Chemical Characterization Guide," HNF-SD-WM-PLN-119, Revision 1, dated April 3, 1997.
2. "Waste Generating Plan," RPP-MP-609, Revision 0, dated November 16, 2001.
3. "Waste Stream Designation Process," RPP-DI-WM-001, Revision 0, dated June 25, 2001.

4. Waste Designation and Land Disposal Restrictions," HNF-IP-0842, Volume 18, Section 2.5, Revision 0b, dated December 6, 2001.
5. "Completing Land Disposal Restriction Notifications and Certifications," RPP-DI-WM-002, Revision 0, dated June 25, 2001.
6. PIN Record File DST-01-170-03 accumulation dated June 26, 2001.
7. Waste Profile Sheet CH2M-930-0002-00, dated December 27, 2001.
8. "Chemical Compatibility Review," RPP-DM-WM-005, Revision 0, dated June 25, 2001.

References reviewed for Container Management and Tank Systems:

1. "Dangerous Waste Compliance Inspection Report #99-168 Single Shell Tank Farms," Steven V. Moore, State of Washington Department of Ecology, dated January 31, 2001.
2. Ecology letter from S. V. Moore to H. L. Boston, ORP, and M. P. DeLozier, CHG, "Dangerous Waste Compliance Inspection of the Single-Shell Tank Facility," dated February 2, 2001.
3. "Operating Specifications for Tank Farm Leak Detection and Single Shell Tank Intrusion Detection," OSD-T-151-00031, Revision D-5, dated May 30, 2001.
4. "Hanford Facility Dangerous Waste Draft Permit Application, Double-Shell Tank System," DOE/RL-90-39, Revision 0a, dated January 2000.
5. Reference for Tri-Party Agreement Milestones M-48, M-45, M-23.
6. Interim Stabilization Consent Decree (Reference).
7. TO-100-045, Revision F-0, "Perform Inspection of Active Containers."
8. TO-100-052, Revision G-2, "Perform Waste generation, Segregation, and Accumulation"

Documents reviewed for Records and Reporting included:

1. HNF-IP-0842, Volume XVIII, Section 2.1, "Radioactive Material/Waste Shipments."
2. HNF-IP-0842, Volume XVIII, Section 2.2, "Nonradioactive Haz. Material/Haz. Waste Shipments."
3. List Selection of Manifests reviewed.
4. List Selection of PIN Record Files reviewed.
5. RPP-DI-WM-004, "Records Management."
6. HNF-IP-0842, Volume VI, Section 1.3, Revision 4a, "Environmental Notification," dated February 13, 2001.
7. "Document and Records Management Program Description for the Tank Farm Contractor" RPP-MP-605.
8. Reference for LDR Annual Report.
9. TWINS Database.
10. Tank Characterization Reports (A and AN Tanks).
11. Job Control System.
12. Applicable SRIDS (HNF-SD-SRID-001).
13. Tri-Party Agreement Milestones M-45, M-48, M-46, M-43, M-47, and M-62.
14. DST Part B Permit, Chapter 11.0, "Closure."
15. DST Part A Form III.
16. SST Part A Form III.
17. SST Closure/Post Closure Work Plan.

18. RP-CHG-TANKFARM-2001-0021, "Release of Contaminated Solution from 241-BY-103 Transfer Line," dated April 03, 2001.
19. "Occurrence Reporting Procedure/Document," HNF-IP-0842 Volume II, Section 4.6.2, Revision 6f.
20. TF-OR-EF-AAX-D, Revision C-41, dated December 12, 2000, "A and AX Tank Farms Daily Rounds."
21. TF-OR-EF-AAX-W, Revision B-0, dated January 12, 2001, "A and AX Tank Farms Weekly Rounds."
22. TF-OR-EF-AN, Revision C-40, date October 31, 2000, "AN Tank Farm Rounds."
23. CHG Functional Assessment RPP-EFA-00-002.
24. "CY2001 Annual Inspection of Ignitable/Reactive Waste Storage."

References Reviewed for Security and Hazards section:

1. Dangerous Waste Inspection Schedule for Cathodic Protection.
2. Dangerous Waste Inspection Schedule for General Inspections (DSTs).
3. Dangerous Waste Inspection Schedule for AN Tank Farm.
4. Dangerous Waste Inspection Schedule for A Tank Farm.
5. Dangerous Waste Inspection Schedule for General Inspections (SSTs).
6. TF-OR-EF-AAX-D, Revision C-41, dated December 12, 2000, "A and AX Tank Farms Daily Rounds."
7. TF-OR-EF-AAX-W, Revision B-0, dated January 12, 2001, "A and AX Tank Farms Weekly Rounds."
8. TF-OR-EF-AN, Revision C-40, dated October 31, 2000, "AN Tank Farm Rounds."
9. 5-CATH-221, "Inspection of Cathodic Protection Rectifier."
10. 3-CATH-357, "Annual Inspection of Cathodic Protection Rectifier."
11. Work Package Data Sheets for "C.P. Rectifier 13 Inspection/General Bimonthly Cathodic Protection Rectifier," Work Completion Dates: January 15, 2001, March 12, 2001, April 30, 2001, July 22, 2001, September 24, 2001, and November 26, 2001.
12. Spill Kit inspections "Monthly Tickler number 136.1."

References Reviewed for Contingency Planning and Emergencies

1. HNF-IP-0263-TF, Revision 6, Building Emergency Plan for Tank Farms.
2. Hanford Emergency Management Plan," DOE/RL-94-02.
3. DOE-0223 Emergency Plan Implementing Procedures.
4. FY 2001 first quarter limited exercise evaluation report and subsequent CAP.
5. HNF-IP-0842, Volume 16, Section 1.1.
6. CHG Emergency Management Drill Reports from drills conducted in February and October 2001.
7. Tickler sheet number 136.4.

Additional Administrative Procedures Consulted

HNF-IP-0842, Administrative Procedures:

Volume VI, Section 1.3, Environmental Notification.

Volume VI, Section 2.2, Environmental Requirements Process.

- Volume VI, Section 2.3, Planning , Preparing for, Conducting, and Reporting Functional Assessments.
- Volume VI, Section 4.2, Revision 0b, Receiving, Storing, and Handling Chemicals.
- Volume IX, Section 4.38, Revision 0, Storing and Handling Chemicals.
- Volume XI, Section 2.1, Quality Assurance Program Plans.
- Volume XV, Section 7.2, Revision 0d, Material Handling and Storage.
- Volume XVIII, Section 2.9, Revision 0, Radioactive Waste.
- Volume XVIII Section 2.1, Revision 0a, Radioactive Material/ Waste Shipments.
- Volume XVIII, Section 1.3, Revision 0, Waste Information Data System Sites Management.
- Volume XVIII, Section 2.6, Revision 0, Dangerous waste Generator Activities.
- Volume XVIII, Section 2.7, Revision 0, Mixed Waste.
- Volume XVIII, Section 1.4, Revision 0, Pollution Prevention/Waste Minimization.
- Volume XVIII, Section 2.4, Revision 0, Solid Waste Management.

**ENCLOSURE 1 TO ATTACHMENT
02-EMD-029**

**RESOURCE CONSERVATION AND
RECOVERY ACT PART B PERMIT
APPLICATION CHECKLISTS USED FOR
DOCUMENT REVIEW
AND
TANK INSPECTION CHECKLISTS**

RCRA Part B Permit Application Checklist. (sheet 1 of 185)

Checklist Section Numbers State/Federal	WAC 173-303 Section Numbers as Revised in 4/91	40 CFR Section Numbers as Amended Through 1/92	Subject Requirements	Application or Not Applicable	Comments
C/C	300		<u>WASTE CHARACTERISTICS</u>		
C-1/C-1	806(4)(a)(H) 300(1)-(5)	270.14(b)(2) 264.13(a)	<u>Chemical and Physical Analyses</u> For each dangerous waste stored, treated, or disposed at the facility, describe the waste, the characteristics, the basis for dangerous designation, and provide a laboratory report detailing the chemical and physical analyses of representative samples. At a minimum the analyses must include all the information which must be known to treat, store, or dispose of the waste in accordance with Parts 264 and 268 requirements or conditions of a permit issued under Part 270.		
C-1b/C-1b	640(2)(c)(II) 640(3)(a)(II)	264.191(b)(2) 264.192(a)(2)	<u>Waste in Tank Systems</u> Provide the dangerous characteristics of wastes to be stored in tank systems.		
C-2/C-2	806(4)(a)(III) 300(5)	270.14(b)(3) 264.13(b)&(c) 268.7	<u>Waste Analysis Plan</u> Provide a copy of the waste analysis plan that describes the methodologies for conducting the analyses required to properly treat, store, or dispose of dangerous wastes and to comply with the land disposal restriction program.		
C-2a/C-2a	300(5)(a)	264.13(b)(1)	<u>Parameters and Rationale</u> List parameters chosen for analysis and explain the rationale for their selection.		
C-2b/C-2b	300(5)(b) 110(3)	264.13(b)(2)	<u>Test Methods</u> Identify and reference (e.g., EPA Test No., WAC 173-303-110 Test No.) the test methods used to test for parameters chosen.		
C-2c/C-2c	300(5)(c) 110(2)	264.13(b)(3) 261, Appendix I	<u>Sampling Methods</u> Identify and reference the sampling methods used to obtain a representative sample of each waste to be analyzed and document that the chosen method is appropriate for the type and nature of the waste. See WAC 173-303-110(2) for a discussion of representative sampling methods.		
C-2d/C-2d	300(5)(d)	264.13(b)(4)	<u>Frequency of Analyses</u>		

Checklist Section Numbers State/Federal	WAC 173-303 Section Numbers as Revised in 4/91	40 CFR Section Numbers as Amended Through 1/92	Subject Requirements	Application or Not Applicable	Comments
			Describe the frequency at which the analyses will be repeated.		
C-2f/C-2f	395(1) 395(2) 380(1)	264.13(b)(6) 264.17	<u>Additional Requirements for Ignitable, Reactive, or Incompatible Wastes</u> Describe the methods used to meet additional waste analysis requirements necessary for treating, storing, or disposing of ignitable, reactive, or incompatible wastes.		
— /C-3a		264.13(a)(1) 268.7	<u>Waste Characterization</u> For each dangerous waste or waste treatment residue stored, treated, or disposed at the facility, provide analytical data necessary to determine whether the waste is a restricted waste and whether the waste is being managed properly under the requirements of 40 CFR Part 268 described below. Alternatively, provide information from knowledge of the waste to determine if the waste is restricted.		
— /C-3a(1)	140(4)(g)&(h)	264.13(a)(1) 268.7(a) 268.30 268.31 268 Appendix I 268.41-268.44	<u>Waste Characteristics: Solvent Wastes and Dioxin-Containing Wastes</u> F001-F005 spent wastes and F020-F023 and F026-F028 dioxin-containing wastes are prohibited from land disposal unless: <ul style="list-style-type: none"> (1)The wastes meet the treatment standards in Subpart D; or (2)An exemption has been granted pursuant to 268.6; or (3)A case-by-case extension has been granted pursuant to 268.5; or (4)Dioxin-containing wastes are regulated by federal regulations contained in 40 CFR Part 268 that restrict the land disposal of dioxin-containing wastes. To determine whether solvent wastes and dioxin-containing wastes exceed the applicable treatment standards in 268.41 through 268.43, the initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste. Alternatively, the generator may use knowledge of the physical and chemical characteristics of the waste to determine whether it is restricted.		Effective 11/90, variance has been granted to the Hanford area pursuant to 268.44. If the waste meets variance conditions it is not prohibited from land disposal.
— /C-3a(4)		268.40	<u>Waste Characteristics: Wastes with Treatment Standards</u> Wastes for which treatment standards have been promulgated are listed in 268.340 Wastes which do not meet the treatment standards in 268.40 are prohibited from land disposal unless (1) an exemption has been granted pursuant to 268.6; or (2) a case-by-case extension has been granted pursuant to 268.5.		

Checklist Section Numbers State/Federal	WAC 173-303 Section Numbers as Revised in 4/91	40 CFR Section Numbers as Amended Through 1/92	Subject Requirements	Application or Not Applicable	Comments
			To determine whether a waste exceeds the applicable treatment standards in 268.40 the initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste. Alternatively, the generator may use knowledge of the physical and chemical characteristics of the waste to determine whether it is restricted.		
— /C-3b		268.7	<p><u>Notification and Certification Requirements</u></p> <p>The waste analysis plan must present procedures for preparing and/or maintaining applicable notifications and certifications as described below. A treatment facility which generates treatment residues must prepare applicable notifications and certifications. Any facility receiving wastes from off-site must provide procedures in the waste analysis plan for ensuring proper certifications are submitted prior to accepting land disposal restricted wastes.</p>		
— /C-3b(1)		268.7(a)	<p><u>Retention of Generator Notices and Certifications</u></p> <p>The owner/operator of a treatment, storage, or disposal facility managing any waste subject to restrictions must demonstrate that notices and certifications submitted by the initial generator of the waste (where applicable) will be reviewed and maintained.</p>		
— /C-3b(2)		268.7(b)(6)	<p><u>Notification and Certification for Wastes to be Further Managed</u></p> <p>For restricted wastes or treatment residues of such wastes that will be further managed at a different treatment, storage, or disposal facility, the owner/operator of the facility sending the waste off-site must submit a notice and certification in compliance with the notice and certification requirements applicable to generators under 268.7(a) [see also C-3b(1)].</p>		
— /C-3b(4)		268.7(b)(4)&(5)	<p><u>Additional Notification and Certification Requirements for Treatment Facilities</u></p> <p>The treatment facility must submit a notice to the land disposal facility with each shipment of restricted waste or treatment residue of a restricted waste. The notice must include the information listed in 268.7(b)(4)(i) through (iv).</p> <p>The treatment facility must also submit a certification to the land disposal facility with each shipment of a restricted waste or treatment residue of a</p>		Section C-3b no longer applies, and has been deleted from this revision of the checklist.

Checklist Section Numbers State/Federal	WAC 173-303 Section Numbers as Revised in 4/91	40 CFR Section Numbers as Amended Through 1/92	Subject Requirements	Application or Not Applicable	Comments
			restricted waste. The certification must state that the waste or treatment residue has been treated to comply with the applicable treatment standards and prohibition levels.		
— /C-3b(4)(a)		268.7(b)(5)(i)	<u>Wastes with Treatment Standards Expressed as Concentrations</u> For wastes with treatment standards expressed as concentrations in the waste extract or in the wastes (268.40), the treatment facility must submit a certification to the land disposal facility in accordance with 268.7(b)(5)(i).		
— /C-3b(4)(b)		268.7(b)(5)(ii)	<u>Wastes with Treatment Standards Expressed as Technologies</u> For wastes with treatment standards expressed as technologies (268.40), the treatment facility must submit a certification to the land disposal facility in accordance with 268.7(b)(ii).		
— /C-3b(4)(d)		268.7(b)(7)	<u>Recyclable Materials Used in a Manner Constituting Disposal</u> For wastes which are recyclable materials used in a manner constituting disposal, in accordance with 266.20(b), the owner/operator of a treatment facility must submit a notice and certification to the Regional Administrator and not to the receiving facility.		
— /C-3b(5)		268.7(c)(1)	<u>Additional Notification and Certification Requirements for Disposal Facilities</u> The owner/operator of a land disposal facility disposing any waste subject to restrictions must maintain copies of the notice and certifications submitted by the generator and the treatment or storage facilities, if applicable.		
— /C-3c		268.50	<u>Additional Requirements Pertaining to Storage of Restricted Wastes</u> Owner/operators of treatment, storage, or disposal facilities storing dangerous wastes that are restricted from land disposal must demonstrate that (1) they are storing such wastes in tanks or containers and (2) such storage is solely for the purpose of accumulating sufficient quantities of waste to facilitate proper treatment, recovery, or disposal. These requirements do not apply to wastes that: (1) Meet the applicable treatment standards or prohibition levels; or (2) Are the subject of an approved petition under 268.6; or (3) Have received a nationwide variance; or (4) Have received a case-by-case extension under 268.5; or		

Checklist Section Numbers State/Federal	WAC 173-303 Section Numbers as Revised in 4/91	40 CFR Section Numbers as Amended Through 1/92	Subject Requirements	Application or Not Applicable	Comments
			(5) Are the subject of a valid certification under 268.8.		
— /C-3c(1)		268.50(a)(2)(i)	<u>Restricted Wastes Stored in Containers</u> If wastes are stored in containers, the owner/operator must demonstrate that each container will be clearly marked to identify its contents and the date each period of accumulation begins.		
— /C-3c(2)		268.50(a)(2)(ii)	<u>Restricted Waste Stored in Tanks</u> If wastes are stored in tanks, the owner/operator must demonstrate that each tank will be clearly marked with a description of its contents, the quantity of each dangerous waste received, and the date each period of accumulation begins. Alternatively, the owner/operator may demonstrate that such information for each tank will be recorded and maintained in the operating record at the facility.		
— /C-3c(3)		268.50(f)	<u>Storage of Liquid PCB Wastes</u> If liquid dangerous wastes containing concentrations of PCBs greater than or equal to 50 ppm will be stored at the facility, the owner/operator must demonstrate that the facility meets the requirements of 40 CFR 761.65(b). The owner/operator must maintain procedures for removal of these wastes from storage within 1 year and treatment or disposal of the wastes in compliance with land disposal restrictions.		
— /C-3d		264.13(a)(1) 268.7(b)	<u>Additional Requirements for Treatment Facilities</u> The waste analysis plan for treatment facility must provide procedures for testing wastes according to the following requirements.		
— /C-3d(1)		268.40 268.7(b)(3)	<u>Wastes with Treatment Standards Expressed as Concentrations in the Waste</u> For wastes with treatment standards expressed as concentrations in the waste (268.40) the treatment facility must provide procedures for testing the treatment residues (not an extract of such residues) to assure that the treatment residues meet the applicable treatment standards.		
— /C-3d(2)		268.40 268.7(b)(1) 268 Appendix I	<u>Wastes with Treatment Standards Expressed as Concentrations in the Waste Extract</u> For wastes with treatment standards expressed as concentrations in the waste extract (268.40), treatment facilities must provide procedures for testing the treatment residues or an extract of such residues developed		

Checklist Section Numbers State/Federal	WAC 173-303 Section Numbers as Revised in 4/91	40 CFR Section Numbers as Amended Through 1/92	Subject Requirements	Application or Not Applicable	Comments
			using the TCLP, to assure that the treatment residues meet the applicable treatment standards.		
— /C-3e		264.13(a)(1) 268.7(c) 268.32	<u>Additional Requirements for Land Disposal Facilities</u> The owner/operator of a land disposal facility must provide procedures for testing the waste or an extract of the waste or treatment residue or using any methods required for generators under 268.32 to assure that the wastes or treatment residues comply with applicable treatment standards		
— /C-3f		268.5	<u>Exemptions from and Extensions to Land Disposal Restrictions</u>		
— /C-3f(1)	140(6)(a)-(d)	268.5 270.14(b)(21)	<u>Case-by-Case Extensions to an Effective Date</u> A treatment, storage, or disposal facility requesting an extension to the effective date of any restriction in Subpart C of Part 268 must submit an application to the Regional Administrator containing the information and certification described in 268.5(a) and (b). If a case-by-case extension has been approved under 268.5, the owner/operator must submit a copy of the Notice of Approval.		
— /C-3f(2)	910(6)	268.6 270.14(b)(21)	<u>Exemption from a Prohibition</u> A treatment, storage, or disposal facility requesting an exemption from a prohibition for the disposal of a particular restricted waste in a particular unit or units must submit a petition to the Regional Administrator demonstrating that there will be no migration of dangerous constituents from the disposal unit or injection zone for as long as the wastes remain dangerous. The petition must include the demonstration and certification specified in 268.6(a) through (d). If a petition has been approved under 268.6, the owner/operator must provide a copy of the Notice of Approval. Case-by-case exemptions to a land disposal prohibition. Any person may petition the department for an exemption from a prohibition in this section of the WAC for the land disposal of dangerous waste. The procedures to submit a petition to the department are specified in WAC 173-303-910(6). The department may deny any petition if it determines that there is a potential for dangerous waste constituents to migrate from the land		

Checklist Section Numbers State/Federal	WAC 173-303 Section Numbers as Revised in 4/91	40 CFR Section Numbers as Amended Through 1/92	Subject Requirements	Application or Not Applicable	Comments
			disposal facility where the waste is to be placed.		
— /C-3f(3)		268.44	<p><u>Variance from a Treatment Standard</u> A treatment facility may petition the Regional Administrator for a site-specific variance from the treatment standard if a waste cannot be treated to the specified level or where the treatment technology is not appropriate to the waste. The applicant must demonstrate that, because the physical or chemical properties of the waste differ significantly from wastes analyzed in developing the treatment standard, the waste cannot be treated to specified levels or by the specified methods.</p>		
— /C-3f(4)		268.4 264.13(b)(7)	<p><u>Additional Requirements for Surface Impoundments Exempted from Land Disposal Restrictions</u> For treatment surface impoundments exempted from land disposal restrictions under 268.4(a), the following requirements apply.</p>		
— /C-3f(4)(b)		268.4(a)(2)(i)&(iv) 264.13(b)(7)(i)&(ii)	<p><u>Sampling and Testing</u> The facility waste analysis plan must include the procedures and schedules for sampling and analysis of treatment residues and the analysis of test data to determine if the residues meet the applicable treatment standards or prohibitions.</p>		
— /C-3g		270.14(b)(21)	<p><u>Requirements for Land Disposal Facilities with an Approved Exemption or Extension</u> If a case-by-case extension has been approved under 268.5 or a petition has been approved under 268.6, provide a copy of the Notice of Approval.</p>		

RCRA Part B Permit Application Checklist. (sheet 120 of 185)

Checklist Section Numbers State/Federal	WAC 173-303 Section Numbers as Revised in 4/91	40 CFR Section Numbers as Amended Through 1/92	Subject Requirements	Application or not Applicable	Comments
G/G	806(4)(a)(vii) 350	270.14(b)(7) 264.50-264.56 264.52(b)	<u>CONTINGENCY PLAN</u> Provide a copy of the Contingency Plan or Spill Prevention Control and Countermeasures (SPCC) Plan amended for dangerous waste management to describe the actions facility personnel will take in response to fires, explosions, or any unplanned sudden or nonsudden release of dangerous waste or dangerous constituents to air, soil, or surface water at the facility.		1
G-1/G-1			<u>General Information</u> Provide the facility name and location, operator, site plan, and description of facility operations.		2
G-2/G-2	350(3)(d) 360(1)	264.52(d) 264.55	<u>Emergency Coordinators</u> Provide names, addresses, office and home phone numbers, and duties of primary and alternate coordinators and statement of authorization of coordinators to commit necessary resources to plan.		3
G-3/G-3	350(3)(a) 360(2)(d)	264.52(a) 264.56(d)	<u>Implementation</u> Describe how and when the contingency plan will be implemented.		4
G-4/ —			<u>Emergency Response Procedures</u>		
G-4a/G-4a	145(2) 360(2)(a) 360(2)(d)(II)	264.56(a)	<u>Notification</u> Describe the methodology for immediate notification of facility personnel and necessary state or local agencies.		5
G-4b/G-4b	360(2)(b)	264.56(b)	<u>Identification of Dangerous Materials</u> Describe procedures for identification of dangerous materials involved in the emergency.		6
G-4c/G-4c	360(2)(c)&(d)	264.56(c) 264.56(d)	<u>Assessment</u> Describe the criteria used to assess the possible hazards to human health and the environment as a result of a fire, release, or explosion, and the need for evacuation and notification of authorities. The authorities to be notified should include the on-scene coordinator for that area or the National Response Center.		7

RCRA Part B Permit Application Checklist. (sheet 120 of 185)

Checklist Section Numbers State/Federal	WAC 173-303 Section Numbers as Revised in 4/91	40 CFR Section Numbers as Amended Through 1/92	Subject Requirements	Application or not Applicable	Comments
G-4d/G-4d	350(3)(a)	264.52(a)	<u>Control Procedures</u> Specify control procedures to be taken in the event of a fire, explosion, or release.		8
G-4e/G-4e	360(2)(f)	264.56(e)	<u>Prevention of Recurrence or Spread of Fires, Explosions, or Releases</u> Describe the necessary steps to be taken to ensure that fires, explosions, or releases do not occur, reoccur, or spread to other dangerous waste at the facility.		9
G-4f/G-4f	360(2)(h)	264.56(g)	<u>Storage and Treatment of Released Material</u> Provide for treatment, storage, or disposal of any material that results from a release, fire or explosion at the facility.		10
G-4g/G-4g	360(2)(l)(l)	264.56(h)(1)	<u>Incompatible Waste</u> Describe provisions for prevention of incompatible waste from being treated, stored, or located in the affected areas until cleanup procedures are completed.		11
G-4h/G-4h	360(2)(l)(ll)	264.56(h)(2)	<u>Post-Emergency Equipment Maintenance</u> Describe procedures for ensuring that all emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.		12
G-4i/G-4i	350(3) 630(2)	264.52 264.171	<u>Container Spills and Leakage</u> Specify procedures to be used when responding to container spills or leakage, including procedures and timing for expeditious removal of spilled waste and repair or replacement of the container(s).		13

* Notes below corresponding to checklist questions are from interview with Steve Faulk, Mark Riess, Phil Miller, and Mike Sylvia on 11/30/01 and subsequent document reviews. These were left with this checklist as an example of how reference notes from checklists used in interviews are ticklers for follow up.

1. Contingency plan is contained in 2 documents and implementing procedures. The documents are the Hanford Emergency Management Plan, (HEMP) DOE/RL-94-02, and the Building Emergency Plan (BEP), HNF-IP-0263-TF-Rev.6
2. Information is contained in section 1 of the BEP
3. Sections 3.0,3.1, and 3.2 of the plan. On call names and numbers available at Patrol Office
4. Section 4.0 of the BEP- BED makes the call. HNF-IP-0842 Vol. VI, sec. 1.3, rev 5- Notification procedure matrix, Alarm response procedures, OP procedures, FEHIC notifies shift operator, ARP-T-211-0001
5. Same as 4, HNF-IP-0842 Vol. VI, sec. 1.3, rev 5- Notification procedure
6. First responder training for unknowns, 29CFR.120
7. FSAR, emergency action levels, classification procedures- referenced in HEMP 1.3.3.2.1, DOE 0223
8. Same as 7, fire department
9. BEP sec. 7.3
10. Develop plan and work package, recovery procedure section 9.
11. BEP sec. 7.3 and 8.3
12. BEP sec. 8.4, Listing and equipment coordinators
13. Notification procedure figure 1 flowsheet.

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F/F	310 320 340		<u>PROCEDURES TO PREVENT HAZARDS</u>		
F-1/F-1	806(4)(a)(iv) 310	264.14 270.14(b)(4)	<u>Security</u>		
F-1a/F-1a	806(4)(a)(iv) 310(2)	270.14(b)(4) 264.14	<u>Security Procedures and Equipment</u> Unless a waiver is granted, the facility must have <u>either</u> a 24-hour surveillance system <u>or</u> a barrier <u>and</u> a means to control entry.		
F-1a(1)/F-1a(1)	310(2)(b)	264.14(b)(1)	<u>24-hour Surveillance System</u> Demonstrate that the facility has a 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) that continuously monitors and control entry onto the active portion of the facility; or		
F-1a(2) —			<u>Barrier and Means to Control Entry</u>		
F-1a(2)(a)/ F-1a(2)(a)	310(2)(c)	264.14(b)(2)(i)	<u>Barrier</u> Demonstrate that the facility has an artificial or natural barrier (e.g., fence in good repair or a fence combined with a cliff), that completely surrounds the active portion of the facility; and		
F-1a(2)(b)/ F-1a(2)(b)	310(2)(c)	264.14(b)(2)(ii)	<u>Means to Control Entry</u> A means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance, or controlled roadway access to the facility)		
F-1a(3)/F-1a(3)	310(2)(a)	264.14(c)	<u>Warning Signs</u> The facility must have a sign with the legend, "Danger—Unauthorized Personnel Keep Out," which must be posted at each entrance to the active portion of the facility and at other locations, in sufficient numbers to be seen from any approach to this active portion. The legend must be written in English and in any other language predominant in the area surrounding the facility and must be legible from a distance of at least 25 ft. Existing signs with a legend other than "Danger-Unauthorized Personnel Keep Out"		

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			may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and the entry onto the active portion can be dangerous.		
F-1b/F-1b	806(4)(a)(iv) 310(1)	264.14(a)	<u>Waiver</u> If a waiver of the security procedures and equipment requirements is requested, the owner or operator must demonstrate the following.		
F-1b(1)/F-1b(1)	301(1)(a)	264.14(a)(1)	<u>Injury to Intruder</u> Physical contact with the waste, structure, or equipment within the active portion of the facility will not injure unknown or unauthorized persons or livestock that may enter the active portion of a facility; and		
F-1b(2)/F-1b(2)	310(1)(b)	264.14(a)(2)	<u>Violation Caused by Intruder</u> Disturbance of the waste or equipment by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility will not cause a violation of the requirements of this part.		
F-2/F-2	806(4)(a)(v) 320	264.15 270.14(b)(5)	<u>Inspection Schedule</u>		
F-2a/F-2a	806(4)(a)(v) 320(1) 320(2)(a)	270.14(b)(5) 264.15(a)&(b) 264.33	<u>General Inspection Requirements</u> Describe the facility schedule for inspection of monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards. The schedule must be kept at the facility.		
F-2a(1)/F-2a(1)	320(2)(b)	264.15(b)(3)	<u>Types of Problems</u> The schedule must identify the types of problems to look for during the inspection.		
F-2a(2)/F-2a(2)	320(2)(c)	264.15(b)(4)	<u>Frequency of Inspections</u> Describe the frequency of inspection for items on the schedules. The frequency of inspection should be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections. Areas subject to spills, such as		

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			loading and unloading areas, and major features of the site (such as dikes, retention pond conditions, storage conditions, application rates, and general site appearance) must be inspected daily when in use.		
F-2b/ —			<u>Specific Process Inspection Requirements</u>		
F-2b(1)/F-2b(1)	630(6)	264.174	<u>Container Inspection</u> Demonstrate that the containers and the container storage area will be inspected weekly for leaks, spills, and deterioration caused by corrosion or other factors.		
F-2b(2)/F-2b(2)	640(6) 640(4)	264.195	<u>Tank System Inspection</u>		
F-2b(2)(a)/ F-2b(2)(a)	640(6)(b)(i)	264.195(b)(1)	<u>Tank System External Corrosion and Releases</u> Demonstrate that the above-ground portions of the tank system are inspected daily to detect external corrosion or releases of waste.		
F-2b(2)(c)/ F-2b(2)(c)	640(6)(a)	264.195(a)	<u>Tank System Overfilling Control Equipment</u> Develop a schedule and demonstrate that it will be followed for inspecting overfill controls.		
F-2b(2)(d)/ F-2b(2)(d)	640(6)(b)(ii) 640(4)	264.195(b)(2)	<u>Tank System Monitoring and Leak Detection Equipment</u> Demonstrate that data gathered from monitoring any leak detection equipment (e.g., pressure and temperature gauges monitoring wells), is inspected daily to ensure that the tank is operated according to design specifications.		
F-2b(2)(e)/ F-2b(2)(e)	640(6)(c)	264.195(c)	<u>Tank System Cathodic Protection</u> Demonstrate that the proper operation of the cathodic protection system (if present) is confirmed within six months after installation and at least annually thereafter. Demonstrate that all sources of impressed current are inspected and/or tested, as appropriate, at least bimonthly.		
F-3a/F-3a	806(4)(a)(vi) 340(1)	270.14(b) 264.32	<u>Equipment Requirements</u> All facilities must be equipped with the following, unless it can be demonstrated that none of the hazards posed by waste handled at the		

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			facility could require a particular kind of equipment specified below.		
F-3a(1)/F-3a(1)	340(1)(a)	264.32(a)	<u>Internal Communications</u> Describe the internal communications or alarm system used to provide immediate emergency instruction (voice or signal) to facility personnel.		
F-3a(2)/F-3a(2)	340(1)(b)	264.32(b)	<u>External Communications</u> Describe the device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, for summoning emergency assistance from local police departments, fire departments, or state or local emergency response teams.		
F-3a(3)/F-3a(3)	340(1)(c)	264.32(c)	<u>Emergency Equipment</u> Demonstrate that portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment are available at the facility.		
F-3a(4)/F-3a(4)	340(1)(d)	264.32(d)	<u>Water for Fire Control</u> Demonstrate that the facility has water at adequate volume and pressure to supply water hose streams, foam-producing equipment, automatic sprinklers, or water spray systems.		
F-3b/F-3b	340(3)	264.35	<u>Aisle Space Requirement</u> Demonstrate that the facility maintains sufficient aisle space to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of facility operation in an emergency. Requests for a waiver of the aisle space requirement must be accompanied by a demonstration that aisle is not needed for any, or all, or these purposes.		
F-4/F-4			<u>Preventive Procedures, Structures, and Equipment</u>		
F-5a/F-5a	806(4)(a)(ix) 395(1)(a) 395(1)(c)	270.14(b)(9) 264.17(a)	<u>Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste</u> Describe the precautions taken by a facility that handles ignitable or reactive waste to prevent accidental ignition, including separation from sources of ignition such as open flames, smoking, cutting and welding,		

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			hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignitions (e.g., heat-producing chemical reactions), and radiant heat. Demonstrate that when ignitable or reactive waste is being handled, the owner or operator confines smoking and open flames to specially designated locations. "NO SMOKING" signs must be conspicuously placed wherever hazard exists from ignitable or reactive waste. Document compliance with these requirements in the operating record.		
F-5b/F-5b	806(4)(a)(ix) 395(1)(b) 395(1)(c)	270.14(b)(9) 264.17(b)	<u>General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste</u> Describing the precautions taken by a facility that treats, stores, or disposes of ignitable or reactive waste, or accidentally mixes incompatible wastes or incompatible wastes and other materials, to prevent reactions which: (1) generate extreme heat or pressure, fire or explosions, or violent reactions; (2) produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment; (3) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) damage the structural integrity of the device of facility; (5) by similar means threaten human health or the environment. Document compliance with these requirements in the operating record.		
— /F-5c	806(4)(b)(iv) 806(4)(a)(ix) 630(8) 395(1)(b)	270.15(c) 264.176	<u>Management of Ignitable or Reactive Wastes in Containers</u> Provide sketches, drawings, or data demonstrating that containers of ignitable or reactive waste are located at least 15 meters (50 feet) from the facility's property line.		
— /F-5d	806(4)(b)(v) 806(4)(a)(ix) 630(9) 395(1)(b)	270.15(d) 264.177	<u>Management of Incompatible Wastes in Containers</u> Describe the procedures used to ensure that incompatible wastes and materials are not placed in the same containers or in unwashed containers that previously held incompatible waste. If a storage container holds a dangerous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments, document that the wastes are separated from the other material or protected from them by means of a dike, berm, wall or other device.		

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— /F-5e	806(4)(a)(ix) 640(9) 395(1)(b) 806(4)(c)(x)	270.16(j) 264.198	<p><u>Management of Ignitable or Reactive Wastes in Tank Systems</u> Describe the operational procedures used for storing such wastes in tank systems that includes specific information on: (1) how the waste is treated, rendered, or mixed before or immediately after the placement in the tank so that it is no longer considered ignitable or reactive and complies with 264.17(b); or the waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to react or ignite; or the tank is used solely for emergencies; (2) how facilities that treat or store ignitable or reactive waste in tanks maintain protective distances between the tank(s) and any public ways, streets, alleys, or adjoining property lines that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code."</p>		
— /F-5f	806(4)(a)(ix) 640(10) 395(1)(b) 806(4)(c)(x)	270.16(j) 264.199	<p><u>Management of Incompatible Wastes in Tank Systems</u> Demonstrate that incompatible wastes and materials are not stored in the same tank or in an unwashed tank that previously held an incompatible waste or material unless 264.17(b) is complied with.</p>		

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R & R			<u>Reporting and Recordkeeping</u>		
			<u>Annual Reports</u>		
	060(5)	264.73 - 264.77	Any person with a current EPA/state ID# must submit an annual report.		
	210(2)		The generator shall keep a copy of each annual report and exception report as required by WAC 173-303-220 for a period of at least five years from the due date of each report. The generator shall keep a copy of his most recent notification (Form 2) until he is no longer defined as a generator under this chapter.		
	220(1)(a)		A generator or any person who has obtained an EPA/state identification number pursuant to WAC 173-303-060 shall submit an annual report to the department, on the Generator Annual Dangerous Waste Report - Form 4 according to the instructions on the form (copies are available from the department), no later than March 1 for the preceding calendar year.		
	220(b)		In addition, any generator who stores, treats, or disposes of dangerous waste on-site shall comply with the annual reporting requirements of WAC 173-303-390, Facility Reporting.		
	390(2)		The owner or operator of a facility that holds an active EPA/state identification number shall prepare and submit a single copy of an annual report to the department by March 1 of each year. The report form and instructions in the TSD Facility Annual Dangerous Waste Report - Form 5 must be used for this report. In addition, any facility which ships dangerous waste off-site must comply with the annual reporting requirements of WAC 173-303-220. The annual report must cover facility activities during the previous calendar year and must include, but is not limited to the following information.		
? Do not anticipate any	610(6)	264.115	<u>Closure Certification</u> Within 60 days of completion of closure of each dangerous waste management unit (including tank systems and container storage areas), and within 60 days of the completion of final closure, the owner or		

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closed units in DST/SST assessment			operator must submit to the department by registered mail, a certification that the dangerous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the owner or operator and by an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to the department upon request.		
?	610(11) 806(4)(a)(xiv) 610(7)(d) 610(10)	264.120 264.117 264.119	<u>Post Closure Certification and Care</u> No later than 60 days after completion of the established post closure care period for each dangerous waste disposal unit, the owner or operator must submit to the department, by registered mail, a certification that the post closure care period for the dangerous waste disposal unit was performed in accordance with the specifications in the approved post closure plan. The certification must be signed by the owner or operator and an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to the department upon request until he releases the owner or operator from the financial assurance requirements for post closure care under.		
	610(3)(a)	264.112(a)(1)&(2)	<u>Closure Plan</u> The owner or operator of a dangerous waste management facility must have a written closure plan. The plan must be submitted with the permit application. A copy of the approved plan and revisions to the plan must be furnished to the department upon request, including requests by mail until final closure is completed.		
	610(8)(a)	264.118(a)	<u>Post Closure</u> The owner or operator of a dangerous waste disposal unit must have a written post closure plan. In addition, certain surface impoundments and certain piles from which the owner or operator intends to remove or decontaminate the dangerous wastes at partial or final closure are required.		
			<u>Contingency Plan</u>		

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	350(2)		Each owner or operator must have a contingency plan at his facility for use in emergencies or sudden or nonsudden releases which threaten the public health and the environment.		
	350(4)		A copy of the contingency plan and all revisions to the plan shall be: (a) Maintained at the facility, and; (b) Submitted to all local police departments, fire departments, hospitals, and state and local emergency response teams that may be called up to provide emergency services.		
			<u>Cost Estimates</u>		
	620(3)(a)	264.142	The owner or operator must have a detailed written estimate, in current dollars, of the cost of closing the facility.		
	620(3)(d)	264.142	During the operating life of the facility, the owner or operator must keep at the facility the latest closure cost estimate.		
	620(5)(a)	264.144	The owner or operator of a facility subject to post closure monitoring or maintenance requirements must have a detailed written estimate, in current dollars, of the annual cost of post closure monitoring and maintenance of the facility.		
	620(d)	264.144	During the operating life of the facility, the owner or operator must keep at the facility the latest post closure cost estimate.		
			<u>Dangerous Waste Numbers</u>		
	070(6)		When a person is reporting or keeping records on a dangerous waste, he shall use all the dangerous waste numbers which he knows are assignable to his waste from the dangerous waste lists, characteristics, or criteria.		
			<u>Emergencies</u>		
	360(2)(d)	264.56(d)	If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health or the environment,		

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			he must report his findings.		
	360(k)	264.56(j)	The owner or operator must note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, he must submit a written report on the incident to the department. The report must include: (i) Name, address, and telephone number of the owner or operator; (ii) Name, address and telephone number of the facility; (iii) Date, time, and type of incident (e.g., fire, explosion) (iv) Name and quantity of material(s) involved; (v) Extent of injuries, if any; (vi) An assessment of actual or potential hazards to human health or the environment, where this is applicable; (vii) Estimated quantity and disposition of recovered material that resulted from the incident; (viii) Cause of incident, and (ix) Description of corrective action taken to prevent reoccurrence of the incident.		
			<u>Generator Exception Reports</u>		
? This may not be applicable because mixed waste is not sent off site	220(2)(a)		A generator who does not receive a copy of the manifest with the handwritten signature of the owner/operator of the designated facility within 35 days of the date the waste was accepted by the initial transporter must contact the transporter(s) and/or facility to determine the status of the dangerous waste shipment.		
Analogous records?	220(2)(b)		A generator must submit an exception report to the department if he has not received a copy of the manifest with the handwritten signature of the owner/operator of the designated facility within 45 days of the date the waste was accepted by the initial transporter.		
?	220(2)(c)		The exception report must include: (i) A legible copy of the manifest for which the generator does not have confirmation of delivery; and (ii) A cover letter signed by the generator or his representative explaining the efforts taken to locate the waste and the results of those efforts.		
			<u>Facility Records</u>		
	380(3)(a)		All facility records, including plans, required by this chapter must be		

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			furnished upon request, and made available at all reasonable times for inspection, by any officer, employee, or representative of the department who is designated by the director.		
			<u>Generator Records</u>		
?	210(4)		Any other records required for generators accumulating wastes on-site as described in WAC 173-303-170(4)(b) (accumulating special waste) or 173-303-200 (accumulated waste) must be retained for at least 5 years, including, but not limited to such items as inspection logs and operating records.		
	210(6)		All generator records, including plans required by this chapter, shall be made available and furnished upon request by the director.		
	210(3)		The director, as he deems necessary under Chapter 70.105 RCW, may require a generator to furnish additional reports (including engineering reports, plans, and specifications) concerning the quantities and disposition of the generator's dangerous wastes.		
			<u>Groundwater Monitoring Data</u>		
	390(3)		The owner or operator shall also report to the department releases of dangerous wastes, fires, and explosions as specified in WAC 173-303-360 (2)(k) and interim status groundwater monitoring data.		
M-24? SST applicability per WAC 648 ?	645(8)(d)	264.97(d)-(f) 264.99(c)-(g)	The ground water monitoring program must include at a minimum, procedures and techniques for: (i) Decontamination of drilling and sampling equipment; (ii) Sample collection; (iii) Sample preservation and shipment; (iv) Analytical procedures and quality assurance and (v) Chain of custody control.		
?	645(8)(j)		Groundwater monitoring data collected in accordance with (g) of this subsection including actual levels of constituents must be maintained in the facility operating record.		

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?	645(9)(c)		The owner or operator must maintain a record of ground water analytical data as measured and in a form necessary for the determination of statistical significance under subsection (8)(h) of this section.		
?	645(9)(d)		A sequence of at least four samples from each well (background and compliance wells) must be collected at least semiannually during detection monitoring.		
?	645(9)(e)		The owner or operator must determine the ground water flow rate and direction in the uppermost aquifer at least annually.		
?	645(10)(c)(ii)		The owner or operator must record groundwater analytical data as measured and information necessary for the determination of statistical significance.		
?	645(10)(f)		A sequence of at least 4 samples from each well (background and compliance wells) must be collected at least semiannually during the compliance period of the facility.		
?	645(10)(g)		The owner or operator must analyze samples from all monitoring wells at the compliance point for all constituents at least annually to determine whether additional dangerous constituents are present in the uppermost aquifer and, if so, as to what concentration.		
?	645(11)(a)		The owner or operator must take corrective action to ensure that regulated units are in compliance with the groundwater protection standard.		
?	645(11)(g)		The owner or operator must report in writing to the department on the effectiveness of the corrective action program. The owner or operator must submit these reports semiannually.		
?	645(12)(a)	264.101(a)	The owner or operator of a facility seeking a permit for the treatment, storage, or disposal of dangerous waste must institute corrective actions as necessary to protect human health and the environment for all releases of dangerous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in such unit.		

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	810(11)(e)		The permittee shall maintain all records of ground water quality and groundwater surface elevations for the active life of the facility, and for the post-closure period as well.		
	395(1)(c)	264.13(b)(6) 264.17	The owner or operator must document that compliance in the operating record required under WAC 173-303-380(1). This documentation may be based on references to published scientific or engineering literature, data from trial tests, waste analyses, or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.		
			<u>Ignitable, Reactive, Incompatible Wastes</u>		
	395(1)(d)	264.17	At least yearly, the owner or operator shall inspect those areas of his facility where ignitable or reactive wastes are stored. This inspection shall be performed in the presence of a professional person who is familiar with the Uniform Fire Code, or in the presence of the local, state, or federal fire marshal. The owner or operator shall enter the following information in his inspection log or operating record as a result of this inspection: (i) The date and time of the inspection; (ii) The name of the professional inspector or fire marshal; (iii) A notation of the observations made; (iv) Any remedial actions which were taken as a result of the inspection.		
	670(7)(c)	264.347(d)	This monitoring and inspection data must be recorded and the records must be placed in the operating log.		
			<u>Inspections</u>		
	320(1)	264.602 264.15(a)&(b)	The owner or operator shall inspect his facility to prevent malfunctions and deterioration, operator errors, and discharges which may cause or lead to the release of dangerous waste constituents to the environment, or a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.		

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	320(2)	264.33 264.15(b)(3)	The owner or operator shall develop and follow a written schedule for inspecting all monitoring equipment, security devices, and operating and structural equipment that help prevent, detect, or respond to hazards to the public health or the environment. In addition: (a) He must keep the schedule at the facility; (b) The schedule must identify the types of problems which are to be looked for during inspections; (c) The schedule shall indicate the frequency based on the rate of possible deterioration of equipment, and the probability of an environmental or human health incident. Areas subject to spills must be inspected daily when in use. The inspection schedule shall also include the applicable items and frequencies required for the specific waste management methods described in 40 CFR Part 264 Subparts F through R for interim status facilities and in WAC 173-303-630 through 173-303-680 for final status facilities and (d) The owner or operator shall keep an inspection log or summary, including at least the date and time of the inspection, the printed name and the handwritten signature of the inspector, a notation of the observations made, an account of spills or discharges in accordance with WAC 173-303-145, and the date and nature of any repairs or remedial actions taken. The log or summary must be kept at the facility for at least five years from the date of inspection.		
	630(6)		At least weekly, the owner or operator must inspect areas where containers are stored, looking for leaking containers and for deterioration of containers and the containment system caused by corrosion, deterioration, or other factors.		
			<u>Labpacks</u>		
	161(6)	264.314(d)(4) 264.316	An itemized listing of the chemicals, their concentrations and quantities per labpack must be kept by the generator and must be readily available in case of an emergency during shipments, and for the purposes of preparing annual reports.		
Currently an exception is held for	140(4)(e)		<u>Land Disposal Restrictions</u> Disposal of organic/carbonaceous waste. (iii) Such certification must be sent to the department by certified mail and		

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incineration not available within 1000 miles. This will change if/when ATG is back on line.			must include: the name, address and telephone number of the person certifying; a brief description of the organic/carbonaceous waste covered by the certification; a discussion of the efforts undertaken to identify available recycling, treatment and incineration facilities; and the signature of the person responsible for the certification and development of information used to support the certification. Records and information supporting the certification must be retained by the certifying person and must be made available to the department upon request.		
?	180		Manifests Before transporting dangerous waste or offering dangerous waste for transport off the site for generation, the generator shall prepare a manifest.		
?	210(1)		The generator shall keep a copy of each manifest signed by the initial transporter in accordance with WAC 173-303-180(3) manifest procedures, for three years, or until he receives a signed copy from the designated facility which received the waste. The signed facility copy shall be retained for at least five years from the date the waste was accepted by the initial transporter.		
? Internal surrogate process	370(2)		If a facility receives dangerous waste accompanied by a manifest, the owner or operator, or his agent, must: (a) Sign and date each copy of the manifest to certify that the dangerous waste covered by the manifest was received; (b) Note any significant discrepancies in the manifest, as described in subsection (4) of this section, on each copy of the manifest; (c) Immediately give the transporter at least one copy of the signed manifest; (d) Within 30 days after the delivery, send a copy of the manifest to the generator; and (e) Retain at the facility a copy of each manifest for at least 3 years from the date of delivery.		
?	370(3)		If a facility receives, from a rail or water (bulk shipment) transporter, dangerous waste which is accompanied by a manifest or shipping paper containing all the information required on the manifest (excluding the EPA/state identification numbers, generator's certification, and signatures), the owner or operator, or his agent must: (a) Sign and date each copy of the manifest or shipping paper to certify that the dangerous waste covered by the manifest or shipping paper was received; (b) Note		

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			any significant discrepancies in the manifest or shipping paper, as described in subsection (4) of this section, on each copy of the manifest or shipping paper. (c) Immediately give the rail or water (bulk shipment) transporter at least one copy of the manifest or shipping paper; (d) Within 30 days after the delivery, send a copy of the signed and dated manifest or shipping paper to the generator. However, if the manifest is not received within 30 days after the delivery, the owner or operator, or his agent, must send a copy of the signed and dated shipping paper to the generator, and (e) Retain at the facility a copy of each shipping paper and manifest at least 3 years from the date of delivery.		
?	370(4)(b)		<u>Manifest Discrepancy</u> Upon discovering a significant discrepancy, the owner or operator must attempt to reconcile the discrepancy with the waste generator or transporter. If the discrepancy is not resolved within 15 days after receiving the waste, the owner or operator must immediately submit to the department a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue.		
	810(11)(c)		<u>Monitoring Records</u> The permittee shall retain records of all monitoring records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the department at any time.		
	810(11)(d)		Records of monitoring information shall include: (i) The date, exact place, and time of sampling or measurements; (ii) The individual(s) who performed the sampling or measurements; (iii) The date(s) analyses were performed; (iv) The individual(s) who performed the analyses; (v) The analytical techniques or methods used; and (vi) The results of such analyses.		
	610(3)(c)(i)	264.112(a)(1)&(2)	<u>Notification of Partial Closure and Final Closure</u> The owner or operator must notify the department in writing at least 60 days prior to the date on which he expects to begin closure of a surface		

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			impoundment, waste pile, land treatment, or landfill unit, or final closure of a facility with such a unit.		
			<u>Operating Record</u>		
	360(2)(k)	264.56(j)	The owner or operator must note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, he must submit a written report on the incident to the department. The report must include.		
	380(1)		The owner or operator of a facility shall keep a written operating record at his facility. The following information shall be recorded, as it becomes available, and maintained in the operating record until closure of the facility: (a) A description of and the quantity of each dangerous waste received or managed on-site, and the method(s) and date(s) of its treatment, storage, or disposal at the facility as required by subsection (2) of this section, recordkeeping instructions; (b) The location of each dangerous waste within the facility and the quantity at each location. For disposal facilities, the location and quantity of each dangerous waste must be recorded on a map or diagram of each cell or disposal area. For all facilities, this information must include cross-references to specific manifest document numbers, if the waste was accompanied by a manifest; (c) Records and results of waste analyses required by WAC 173-303-300, General waste analysis; (d) Summary reports and details of all incidents that require implementing the contingency plan, as specified in WAC 173-303-360(2)(k); (e) Records and results of inspections as required by WAC 173-303-320(2)(d), General inspection (except such information need be kept only for 5 years); (f) Monitoring, testing, or analytical data, and corrective action where required by 40 CFR Part 264 Subparts F through R for interim status facilities, and by WAC 173-303-630 through 173-303-680 for final status facilities; (g) All closure and post-closure cost estimates required for the facility; and (h) For off-site facilities, copies of notices to generators informing them that the facility has all appropriate permits, as required by WAC 173-303-290, Required notices.		
	380(2)		This information shall be kept in the operating record, as follows: (a) Each		

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			<p>dangerous waste received or managed shall be described by its common name and by its dangerous waste number(s) from WAC 173-303-080 through 173-303-104. Where a dangerous waste contains more than one process waste or waste constituent the waste description must include all applicable dangerous waste numbers. If the dangerous waste number is not listed then the waste description shall include the process which generated the waste; (b) The waste description shall include the waste's physical form (i.e., liquid, solid, sludge, or gas); (c) The weight, or volume and density, of the dangerous waste shall be recorded, using one of the units of measure specified in Table 1. (d) And, the date(s) and method(s) of management for each dangerous waste received or managed (treated, recycled, stored, or disposed of) shall be recorded using the handling code(s) specified Table 2.</p>		
	390(3)		<p><u>Releases</u> The owner or operator shall also report to the department releases of dangerous wastes, fires, and explosions and interim status groundwater monitoring data.</p>		
			<u>Required Notices</u>		
	145(2)(a)		<p>For spills and discharges onto the ground or into groundwater or surface water, notify all local authorities in accordance with the local emergency plan.</p>		
	145(2)(b)		<p>For spills or discharges which result in emissions to the air, notify all local authorities in accordance with the local emergency plan. If necessary, check with the local emergency service coordinator and the fire department to determine all notification responsibilities under the local emergency plan.</p>		
	145(2)(d)		<p>For spills or discharges below ten gallons occurring and contained in secondary containment meeting the requirements of this chapter, a brief account must immediately be entered into the operating record, for a TSD facility, or into the inspection log or separate spill log, for a generator. This account must include: the time and date of the spill; the location and</p>		

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			cause of the spill; the type and quantity of material spilled; and a brief description of any response actions taken or planned.		
	201(2)(c)(iv)(C)		In the event of a fire, explosion, or other release which could threaten human health outside the facility or when the generator has knowledge that a spill has reached waters of the state, the generator must immediately notify the department and either the government official designated as the on-scene coordinator, or the National Response Center (using their 24-hour toll free number 800-424-8802). The report must include the following information: (i) The name, address, and EPA/state identification number of the generator; (ii) Date, time, and type of incident (e.g., spill or fire); (iii) Quantity and type of dangerous waste involved in the incident; (iv) Extent of injuries, if any; and (v) Estimated quantity and disposition of recovered materials, if any.		
			<u>Test Results/Waste Analyses</u>		
	210(3)		The generator shall keep records of any test results, waste analyses, or other determinations made in accordance with WAC 173-303-170(1) for designating dangerous waste for at least 5 years from the date that the waste was last transferred for on-site or off-site treatment, storage, or disposal.		
	300(2)		The owner or operator shall obtain a detailed chemical, physical, and/or biological analysis of a dangerous waste before he stores, treats, or disposes of it. This analysis must contain the information necessary to manage the waste. The analysis may include or consist of existing published or documented data on the dangerous waste, or on waste generated from similar processes, or data obtained by testing, if necessary.		
			<u>Training</u>		
	330(1)	264.16(a)(1)&(a)(3)	The facility owner or operator shall provide a program of classroom instruction or on-the-job training for facility personnel. This program must teach personnel to perform their duties in a way that ensures the facility's		

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			compliance with this chapter 173-303 WAC, must teach facility personnel dangerous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed, must ensure that facility personnel are able to respond effectively to emergencies, and shall include those elements set forth in the training plan required in subsection (2) of this section. In addition:		
	330(1)(a)	264.16(a)(2)	Training program shall be directed by a person knowledgeable in dangerous waste management procedures, and must include training relevant to the positions in which the facility personnel are employed;		
	330(1)(b)	264.16(c)	Facility personnel must participate in an annual review of the training provided in the training program;		
	330(1)(c)	264.16(b)	This program must be successfully completed by the facility personnel; (i) Within six months after these regulations become effective; or (ii) Within six months after their employment at or assignment to the facility, or to a new position at the facility, whichever is later.		
	330(1)(d)	264.16(a)(3)	At a minimum, the training program shall familiarize facility personnel with emergency equipment and systems, and emergency procedures. The program shall include other parameters as set forth by the department, but at a minimum shall include where applicable; (i) Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment; (ii) Key parameters for automatic waste feed cut-off systems; (iii) Communications or alarm systems; (iv) Response to fires or explosions; (v) Response to groundwater contamination incidents, and (vi) Shutdown of operations.		
	330(2)	264.16(d)(1)&(d)(2)	The owner or operator shall develop a written training plan which must be kept at the facility and which must include the following documents and records.		
	330(2)(a)	264.16(d)(1)&(d)(2)	For each position related to dangerous waste management at the facility, the job title, the job description, and the name of the employee filling each job. The job description must include the requisite skills, education, other qualifications, and duties for each position;		

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	330(2)(b)	264.16(d)(3)	A written description of the type and amount of both introductory and continuing training required for each position; and		
	330(2)(c)	264.16(d)(4)	Records documenting that facility personnel have received and completed the training required by this section.		
	330(3)	264.18(e)	Training records on current personnel must be kept until closure of the facility. Training records on former employees must be kept for at least 3 years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.		
	300(5)	264.13(b)&(c) 268.7	<p><u>Waste Analysis Plan</u></p> <p>The owner or operator shall develop and follow a written waste analysis plan which describes the procedures he will use to comply with the waste analysis requirements of subsections (1), (2), (3) and (4) of this section. He must keep this plan at the facility, and the plan must contain at least:</p> <p>(a) The parameters for which each dangerous waste will be analyzed, and the rationale for selecting these parameters; (b) The methods of obtaining or testing for these parameters; (c) The methods for obtaining representative samples of wastes for analysis (representative sampling methods are discussed in WAC 173-303-110(2)); (d) The frequency with which analysis of a waste will be reviewed or repeated to ensure that the analysis is accurate and current; (e) The waste analysis which generators have agreed to supply; (f) Where applicable, the methods for meeting the additional waste analysis requirements for specific waste management methods as specified in 40 CFR Part 264 Subparts F through R for interim status facilities and in WAC 173-303-630 through 173-303-670 for final status facilities, and (g) For off-site facilities, the procedures for confirming that each dangerous waste received matches the identity of the waste specified on the accompanying manifest or shipping paper. This includes at least:</p> <p>(i) The procedures for identifying each waste movement at the facility, and</p> <p>(ii) The method for obtaining a representative sample of the waste to be identified, if the identification method includes sampling.</p>		
			<u>Integrity Assessments</u>		

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See milestone M-23 and M-48	640(2)(a)	264.191	For each existing tank system the owner or operator must obtain and keep on file at the facility a written assessment reviewed and certified by an independent, qualified registered professional engineer.		
	640(2)(c)(v)(A)		For nonenterable underground tanks, the assessment must include a leak test that is capable of taking into account the effects of temperature variations, tank end deflection, vapor pockets, and high water table effects.		
	640(2)(c)(v)(B)		For other than nonenterable underground tanks and for ancillary equipment, the assessment must include either a leak test or an integrity examination that is certified by an independent, qualified, registered engineer that addresses cracks, leaks, corrosion, and erosion.		
	640(2)(e)		The owner or operator must develop a schedule for conducting integrity assessments over the life of the tank to ensure that the tank retains its structural integrity and will not collapse, rupture, or fail.		
	640(3)(a)	264.191(b)(2) 264.192(a)&(b)	Owners or operators of new tank systems or components must obtain (and for facilities that are pursuing or have obtained a final status permit, a written assessment, reviewed and certified by an independent, qualified registered professional engineer.		
	640(7)(f)		If the owner/operator has repaired a tank system and the repair has been extensive (e.g., installation of an internal liner; repair of ruptured primary containment or secondary containment vessel), the tank system must not be returned to service unless the owner/operator has obtained a certification by an independent, qualified, registered, professional engineer that the repaired system is capable of handling dangerous wastes without release for the intended life of the system. This certification must be submitted to the department within 7 days after returning the tank system to use.		
	640(8)(a)	264.197 264.112(b)(3)	<u>Closure Plans</u> The closure plan, closure activities, cost estimates for closure, and financial responsibility for tank systems must meet all the requirements specified in WAC 173-303-610 and 173-303-620.		

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	640(8)(c)(i)		The closure plan for the tank system must include both a plan for complying with 640(8)(a) and a contingent plan for complying with 640(8)(b).		
	640(3)(c)	284.192(b)-(e)	Prior to covering, enclosing, or placing a new tank system or component in use, an independent, qualified installation inspector or an independent, qualified, registered professional engineer, either of whom is trained and experienced in the proper installation of tank systems or components, must inspect the system.		
	640(3)(h)		The owner or operator must obtain and keep on file at the facility written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system.		
	640(4)(i)(A)		For nonenterable underground tanks, a leak test that meets the requirements of subsection (2)(c)(v) of this section or other tank integrity method, as approved or required by the department, must be conducted at least annually.		
	640(4)(i)(B)		For nonenterable underground tanks, the owner or operator must either conduct a leak test complying with 640(4)(i)(A) or develop a schedule and procedure for an assessment of the overall condition of the tank system by an independent, qualified, registered professional engineer. The schedule and procedure must detect cracks, corrosion and erosion that may lead to cracks and leaks.		
	640(4)(i)(C)		For ancillary equipment, a leak test or other integrity assessment as approved by the Department of Ecology must be conducted at least annually.		
	640(6)(a)	264.195	The owner or operator must develop and follow a schedule and procedure for inspecting overflow controls.		
	640(6)(b)		The owner or operator must inspect at least once each operating day: (i) Aboveground portions of the tank system, if any, to detect corrosion or releases of waste; (ii) Data gathered from monitoring any leak detection equipment (e.g., pressure or temperature gauges, monitoring wells) to ensure that the tank system is being operated according to its design; and		

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			(iii) The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system (e.g., dikes) to detect erosion or signs of releases of dangerous waste (e.g., wet spots, dead vegetation).		
	640(6)(c)	264.195(c)	The owner or operator must inspect cathodic protection systems, if present, according to, at a minimum, the following schedule to ensure that they are functioning properly: (i) The proper operation of the cathodic protection system must be confirmed within 6 months after initial installation and annually thereafter, and (ii) All sources impressed current must be inspected and/or tested, as appropriate, at least bimonthly, (i.e., every other month).		
	640(6)(d)		The owner or operator must document in the operating record of the facility an inspection of those items in (a) through (c) of this subsection.		
	640(8)(c)(ii)		<u>Post Closure Plan</u> A contingent post-closure plan for complying with 640(8)(b) of this subsection must be prepared and submitted as part of the permit application.		
	640(8)(c)(v)		For the purposes of the contingent closure and post-closure plans, such a tank system is considered to be a landfill, and the contingent plans must meet all of the closure, post-closure, and financial responsibility requirements for landfills under this chapter (WAC 173-303-610 and 173-303-620).		
			<u>Procedures</u>		
	640(3)(c)		The owner or operator of a new tank system must ensure that proper handling procedures are adhered to in order to prevent damage to the system during installation.		
	640(4)(i)(A)		For other than nonenterable underground tanks, the owner or operator must either conduct a leak test or develop a schedule and procedure for an assessment of the overall condition of the tank system by an independent, qualified registered professional engineer. The schedule and procedure		

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			must be adequate to detect obvious cracks, leaks, and corrosion or erosion that may lead to cracks and leaks.		
	640(11)(b)		As part of the contingency plan required by WAC 173-303-350, the owner or operator must specify such procedures for responding to a spill or leak from the tank into the containment system as may be necessary to protect human health and the environment. These procedures shall include measures for immediate removal of the waste from the system and replacement or repair of the leaking tank.		
			<u>Schedule</u>		
	640(3)(b)		The owner or operator must develop a schedule for conducting integrity assessments over the life of the tank to ensure that the tank retains its structural integrity and will not collapse.		
	640(4)(i)(A)		For other than nonenterable underground tanks, the owner or operator must either conduct a leak test or develop a schedule and procedure for an assessment of the overall condition of the tank system by an independent, qualified registered professional engineer. The schedule and procedure must be adequate to detect obvious cracks, leaks, and corrosion or erosion that may lead to cracks and leaks.		
			<u>Spill/Releases</u>		
	640(7)(d)(i)	264.196(d)	Any release to the environment, except as provided in (d) (ii) of this subsection, must be reported to the department within 24 hours of its detection. Any release above the "reportable quantity" must also be reported to the National Response Center pursuant to 40 CFR Part 302.		
	640(7)(d)(iii)		Within 30 days of detection of a release to the environment, a report containing the following information must be submitted to the department: (A) Likely route of migration of the release; (B) Characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate); (C) Results of any monitoring or sampling conducted in connection with the release (if available). If sampling or monitoring data relating to the release		

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			are not available within 30 days, these data must be submitted to the department as soon as they become available; (D) Proximity to downgradient drinking water, surface water, and populated areas; and (E) Description of response actions taken or planned.		
	640(11)(b)		As part of the contingency plan required by WAC 173-303-350, the owner or operator must specify such procedures for responding to a spill or leak from the tank into the containment system as may be necessary to protect human health and the environment. These procedures shall include measures for immediate removal of the waste from the system and replacement or repair of the leaking tank.		

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D-1a(1)/D-1a(1)	395(6) 630(2) 630(3) 630(4)	264.171 264.172	<u>Description of Containers</u> Provide the following information about the containers used to treat/store dangerous waste: approximate number of each type of container, construction materials, dimensions and useable volumes, DOT specifications or other manufacturer specifications, liner specifications (if applicable), container condition (new, used, reconditioned) and markings and labels.		
D-1a(2)/D-1a(2)	630(5) 340(3)	264.173	<u>Container Management Practices</u> Describe the container management practices used to ensure that dangerous waste containers are always kept closed during storage, except when adding or removing waste, and are not opened, handled, or stored in a manner that may cause them to rupture or to leak.		
D-1a(3)/D-1a(3)	806(4)(b)(i)(A) 630(7)(a)	270.15(a)(1) 264.175(a) 264.175(d)	<u>Secondary Containment System Design and Operation</u> Provide design and profile drawings of the existing or planned container storage area(s), showing the secondary containment system. Indicate on the drawings the areas in which incompatible wastes will be stored. Note that the secondary containment system requirements also apply to storage areas holding wastes F020, F021, F022, F023, F026, and F027, whether or not the wastes contain free liquids.		
D-1a(3)(a)/ D-1a(3)(a)	630(7)(a)(i)	264.175(b)(1)	<u>Requirement for the Base or Liner to Contain Liquids</u> Demonstrate the capability of the base to contain liquids, including: <ul style="list-style-type: none"> • Statement that the base is free of cracks or gaps • Demonstration of imperviousness of base to wastes and precipitation • Base design and materials of construction • Engineering evaluation of structural integrity of base • Discussion of compatibility of base with wastes. 		
D-1a(3)(b)/ D-1a(3)(b)	806(4)(b)(i)(B) 630(7)(a)(i)&(ii) 630(7)(c)	270.15(a)(2) 264.175(b)(2)	<u>Containment System Drainage</u> The base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids.		

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D-1a(3)(c)/ D-1a(3)(c)	806(4)(b)(i)(A)&(C) 630(7)(a)	270.15(a)(3) 264.175(b)(3)	<u>Containment System Capacity</u> Provide calculations which demonstrate that the containment system will have sufficient capacity to contain 10% of the volume of the containers or the volume of the largest container, whichever is greater. This demonstration must discuss the volume of largest container, total volume of containers, containment structure capacity, and volume displaced by containers and other structures in the containment system.		
D-1a(3)(d)/ D-1a(3)(d)	806(4)(b)(i)(D) 630(7)(b)	270.15(a)(4) 264.175(b)(4)	<u>Control of Run-on</u> Run-on into the containment system must be prevented, unless the collection system has sufficient excess capacity in addition to that required in the above paragraph to contain any run-on that might enter the system. Describe the dikes, berms, drainage system, etc., used to prevent run-on or provide calculations demonstrating that the containment system has sufficient excess capacity to contain run-on. (A 24-hr, 25-yr storm event can be used as the basis for the calculations).		
D-1a(3)(e)/ D-1a(3)(e)	806(4)(b)(i)(E) 630(7)(a)(ii)	270.15(a)(5) 264.175(b)(5)	<u>Removal of Liquids from Containment System</u> Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in a timely manner to prevent overflow of the containment system. Describe the procedures and equipment used during liquids removal. Provide sump, pump, and piping drawings, if applicable. Specify the methods for determining whether the removed material is a dangerous waste and for handling it as such.		
D-1b/D-1b			<u>Containers Without Free Liquids</u>		
D-1b(1)/D-1b(1)	806(4)(b)(ii) 630(7)(c)	270.15(b)(1)	<u>Tests for Free Liquids</u> Submit the test procedures and results or other documentation or information to show that the wastes to be stored in the containers storage area do not contain free liquids.		
D-1b(2)/D-1b(2)	630(2),(3)&(4) 806(4)(b)(iii)	264.171 264.172	<u>Description of Containers</u> The containers used to store dangerous waste must be labeled in a manner which adequately identifies the major risk(s) associated with the contents of the containers for employees, emergency response personnel		

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			and the public. Provide a description of the procedures for labeling containers.		
D-1b(3)/D-1b(3)	630(5)	264.173	<u>Container Management Practices</u> Describe the container management practices used to ensure that dangerous waste containers are always kept closed during storage, except when adding or removing waste, and are not opened, handled, or stored in a manner that may cause them to rupture or to leak. Indicate the aisle space maintained between rows of containers and provide the volume of containers for each area in which containers are stored.		
D-1b(4)/D-1b(4)	806(4)(b)(ii) 630(7)(c)	270.15(b)(2) 264.175(c)	<u>Container Storage Area Drainage</u> Describe how the storage area is designed or operated to drain and remove liquids unless containers are otherwise kept from contact with standing liquids.		
D-1c/ —	806(4)(b)(i)(F) 630(7)(d)		<u>Protection of Extremely Dangerous Waste in Containers</u> Demonstrate that any EHW that is stored in containers is protected from the elements by means of a building or other protective covering that allows adequate inspection.		
D-1d/ —			<u>Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes in Containers</u>		
D-1d(1)/ —	806(4)(b)(iv) 630(8)(b)	270.15(c) 264.176	<u>Management of Ignitable and Reactive Waste in Containers</u> Provide sketches, drawings, or data demonstrating that containers of reactive waste exhibiting a characteristic specified in WAC 173-303-090(7)(vi), (vii), or (viii) are stored in a manner equivalent to the Uniform Fire Code's "American Table of Distance for Storage of Explosives," Table 77-201, 1979 edition.		
D-1d(2)/ —	806(4)(b)(iv) 630(8)(b)	270.15(c) 264.176	<u>Management of Ignitable and Reactive Waste in Containers</u> Provide sketches, drawings, or data demonstrating that container storage of ignitable waste and reactive waste is designed, operated, and maintained in a manner equivalent with the Uniform Fire Code (UFC). Where no specific standards are specified in the UFC, or in existing state or local fire codes, applicable sections of the NFPA Pamphlet #30,		

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			"Flammable and Combustible Liquid Code" shall be used.		
D-1d(3) —	806(4)(b)(v) 630(9)	270.15(d) 264.177	Management of Incompatible Wastes in Containers Describe the procedures used to ensure that incompatible wastes and materials are not placed in the same containers or in an unwashed container that previously held incompatible wastes. If a storage container holds a dangerous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments, document that the wastes are separated from the other material or protected from them by means of a dike, berm, wall, or other device. Document that containment systems for incompatible wastes are separate.		
D-2/D-2	806(4)(c) 640	270.16 264.191-264.194	Tank Systems		
— /D-2a	806(4)(a)(i) 640(1)	270.14(b)(1)	Tank Systems Description Provide a description of the type (i.e., aboveground, underground), material of construction, volume, and number of tanks, as well as the specific location of each tank.		
— /D-2a(1)	806(4)(c)(ii)	270.16(b)	Dimensions and Capacity of Each Tank Provide the dimensions and capacity of each tank.		
— /D-2a(2)	806(4)(c)(iii) 806(4)(c)(ix) 640(5)(b)(ii)	270.16(c) 264.194(b)	Description of Feed Systems, Safety Cutoff, Bypass Systems and Pressure Controls Provide a description of the feed systems, spill prevention controls, safety cutoff, bypass stems, and pressure controls (e.g., vents).		
— /D-2a(3)	806(4)(c)(iv)	270.16(d)	Diagram of Piping, Instrumentation and Process Flow Provide a diagram of piping, instrumentation and process flow for a typical tank system.		
— /D-2a(4)	806(4)(a)(ix) 806(4)(c)(x) 640(9)&(10)	270.16(j) 264.17(b) 264.198 264.199	Ignitable, Reactive, and Incompatible Wastes Indicate whether ignitable, reactive or incompatible wastes are to be managed in the tanks. Indicate the operating pressure and temperature of tanks.		

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			<p>If ignitable or reactive wastes are to be managed in tanks,</p> <ul style="list-style-type: none"> • Demonstrate that waste is treated, rendered, or mixed before or immediately after placement in the tank systems so that it no longer is ignitable or reactive and that 264.17(b) is complied with (see checklist item F-5b), or • Demonstrate that the waste is stored or treated in a manner such that it protects against ignition or reaction, or • Demonstrate that the tank system is used solely for emergencies <p>If incompatible wastes are managed in tanks, demonstrate that they are not placed in the same tank system unless 264.17(b) is complied with. Provide procedures assuring that dangerous waste will not be placed in a tank that previously held an incompatible waste or material unless it has been decontaminated or unless precautions have been taken per 264.17(b) to prevent reactions.</p>		
— /D-2b	640(2)		<u>Existing Tank System</u>		
— /D-2b(1)	806(4)(c)(i) 640(2)	264.191 270.16(a)	<p><u>Assessment of Existing Tank System's Integrity</u> Provide a written assessment that is reviewed and certified by an independent, qualified, registered professional engineer, on the structural integrity and suitability of each tank system for handling dangerous waste. At a minimum, this assessment must consider the following: (1) design standard(s), if available, according to which the tank and ancillary equipment were constructed; (2) dangerous characteristics of the wastes that have been and will be handled; (3) existing corrosion protection measures; (4) documented age of the tank system, if available (otherwise, an estimate of the age); and (5) results of a leak test, internal inspection, or other tank integrity examination.</p>		
— /D-2d	640(4)	264.193	<u>Containment and Detection of Releases</u>		
— /D-2d(1)	640(4)(b) 806(4)(c)(vii)	264.193(b)-(f) 270.16(g)	<u>Plans and Description of the Design, Construction, and Operation of the Secondary Containment System</u>		

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— /D-2d(1)(a)	806(4)(c)(vii) 640(4)(a)	264.193(a) 270.16(g)	<p><u>Tank Age Determination</u> Specify the age of all existing tank systems so that EPA can determine when requirements for secondary containment and leak detection will take effect. If the age of a tank system cannot be determined, indicate the reason.</p>		
— /D-2d(1)(c)	640(4)(d) 806(4)(c)(vii)	264.193(d)&(e) 270.16(g)	<p><u>Requirements for External Liner, Vault, Double-Walled Tank or Equivalent Device</u> Show that secondary containment for each tank includes at least one of the following: a liner external to the tank, a vault, a double-walled tank, or an equivalent device approved by the Regional Administrator.</p> <p>For each external liner system, provide the following information.</p> <ul style="list-style-type: none"> • Present calculations to show that the external liner system is designed or operated to contain 100 percent of the capacity of the largest tank within its boundary. • Show that the external liner system is designed or operated to prevent run-on infiltration of precipitation. Alternatively, show that the collection system has sufficient excess capacity to contain run-on and precipitation from a 25-yr, 24-hr rainfall. • Show that the external liner system is free of cracks or gaps. • Demonstrate that the system is designed and installed to surround the tank completely and to cover all surrounding soil likely to come in contact with the wastes if they were released from the tank(s). <p>For each vault system, provide the following information:</p> <ul style="list-style-type: none"> • Present calculations to show that the vault system is designed or operated to contain 100 percent of the capacity of the largest tank within its boundary. • Show that the vault system is designed or operated to prevent run-on or infiltration of precipitation. Alternatively, show that the collection system has sufficient excess capacity to contain run-on and precipitation from a 25-yr, 24-hr rainfall. 		

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			<ul style="list-style-type: none"> • Demonstrate that the vault system is constructed using chemical-resistant water stops in place at any joint. Specify the material used. • Demonstrate that the vault is provided with an impermeable interior coating or lining that is compatible with the stored waste and that will prevent migration of waste into the vault material. Specify coating or lining used, and provide the manufacturer's data sheet. 		
— /D-2d(1)(c) (continued)	640(4)(d) 806(4)(c)(vii)	264.193(d)&(e) 270.16(g)	<ul style="list-style-type: none"> • Specify the method used to protect against the formation and ignition of vapors within the vault, if the waste being stored or treated is ignitable or reactive. • Specify the exterior moisture barrier used, and provide the manufacturer's data sheet. Alternatively, describe how the vault is designed or operated to prevent the migration of moisture into the vault if the vault is subject to hydraulic pressure. <p>For each double-walled tank, provide the following information:</p> <ul style="list-style-type: none"> • Demonstrate that the unit is designed as an integral structure so that any release from the inner tank is contained by the outer shell. • If the unit is metallic, specify the type(s) of corrosion protection used for both the internal and external shell. • Describe the leak detection system used including the principle of operation, design, and operating characteristics. Demonstrate that it is a continuously operating unit, capable of detecting a release within 24 hours. If the prevailing site conditions or detection technologies will not allow detection of a release within 24 hours, then specify the earliest practical time that detection can take place. Indicate why this longer period does not pose a threat to human health and environment. 		
— /D-2d(1)(d)	640(4)(f) 806(4)(c)(vii)	264.193(f) 270.16(g)	<p><u>Secondary Containment and Leak Detection Requirements for Ancillary Equipment</u></p> <p>Demonstrate that each tank system's ancillary equipment is provided with</p>		

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			<p>secondary containment such as jacketing, double-walled piping, or a trench. Note that demonstration need not be made for: (1) aboveground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected daily, (2) welded flanges, joints, and connections that are visually inspected daily, (3) sealless or magnetic coupling pumps that are visually inspected daily, and (4) pressurized aboveground piping systems with automatic shut-off devices that are visually inspected daily.</p> <p>Describe the containment system, and demonstrate that it has been (will be) designed, installed, and operated to prevent any migration of waste or accumulated liquid to the soil, groundwater, or surface water at any time during its use. Also, demonstrate that the containment system can detect and collect releases and accumulated liquids. This demonstration must include at least the following:</p>		
— /D-2d(1)(d) (continued)	640(4)(f) 806(4)(c)(vii)	264.193(f) 270.16(g)	<ul style="list-style-type: none"> • Specify the materials of construction used to construct or line the system. Show that these materials are compatible with the waste in the tank system. • Demonstrate that the system has sufficient strength and thickness to prevent failure caused by any of the following: <ul style="list-style-type: none"> - pressure gradients - physical contact with the wastes - climatic conditions - stress of daily operation. • Present calculations to prove that the secondary containment system is placed on a foundation or base that is capable of providing support, resisting pressure gradients above and below the system, and preventing failure due to settlement, compression, or uplift. • Provide a description of the leak detection system, including its operating principle, design features, and operating procedures. Demonstrate that the leak detection system will detect the failure 		

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			<p>of either the primary or secondary containment structure or the presence of any release of dangerous waste or accumulated liquid in the secondary containment system within 24 hours. If the prevailing site conditions or detection technologies will not allow detection of a release within 24 hours, then specify the earliest practicable time that detection can take place. Indicate why this longer period does not pose a threat to human health and the environment.</p> <ul style="list-style-type: none"> • Show how the secondary containment system is sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. • Document how it will be ensured that spilled or leaked wastes and precipitation will be removed from the secondary containment system within 24 hours. If wastes and precipitation cannot be removed within 24 hours, then specify the earliest practicable time that removal can take place. Indicate why this longer period does not pose a threat to human health and the environment. 		
— /D-2d(2)	640(4)(h)(i)	264.193(i)	<p><u>Requirements for Tank Systems Until Secondary Containment is Implemented</u></p> <p>For non-enterable underground tanks, present the results of a leak test (or other tank integrity test approved by the Regional Administrator). Indicate the procedures that will be repeated annually until secondary containment is provided. For other than non-enterable underground tanks, provide the results of a leak test or present a schedule and procedures for assessing the overall condition of the tank system by an independent, qualified registered professional engineer until secondary containment is provided. For ancillary equipment, present the results of a leak test (or other integrity assessment measures approved by the Regional Administrator). Indicate the procedures that will be used to ensure that such tests will be repeated annually until secondary containment is provided.</p>		
— /D-2d(3)	640(4)(g)&(h) 806(4)(c)(viii)	264.193(g) 270.16(h)	<p><u>Variance from Secondary Containment Requirements</u></p>		

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— /D-2d(3)(a)	640(4)(g)(i) 806(4)(c)(viii)(A)	264.193(g)(1) 264.193(h) 270.16(h)(1)	<p><u>Variance Based on a Demonstration of Equivalent Protection of Groundwater and Surface Water</u></p> <p>Provide detailed plans and engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any dangerous waste or dangerous constituents into the groundwater or surface water during the life of the facility.</p>		
— /D-2d(3)(b)	640(4)(g)(ii) 806(4)(c)(viii)(B)	264.193(g)(2) 264.193(h) 270.16(h)(2)	<p><u>Variance Based on a Demonstration of No Substantial Present of Potential Hazard</u></p> <p>Provide a detailed assessment of the substantial present or potential hazards posed to human health or the environment, should a release enter the environment.</p>		
— /D-2d(3)(c)	140(4)(b)(iii)	264.190(a)	<p><u>Exemption Based on No Free Liquids and Location inside a Building</u></p> <p>Demonstrate that tanks used to store or treat dangerous waste contain no free liquid as defined by the Paint Filter Test (EPA Method 9095 as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," EPA Publication No. SW-846). Show that such tanks are situated inside a building with an impermeable floor.</p>		
— /D-2e	640(5) 806(4)(c)(ix)	264.194(a)&(b) 264.195 270.16(i)	<p><u>Controls and Practices to Prevent Spills and Overflows</u></p> <p>Provide adequate information to ensure that the dangerous wastes or treatment reagents placed in a tank system will not cause any element of the system to rupture, leak, corrode, or otherwise fail.</p> <p>Provide a detailed description of controls and practices used to prevent spills and overflows. At a minimum, this must include: (1) spill prevention controls (e.g., check valves, dry disconnect couplings); (2) overflow prevention controls (e.g., level sensing devices, high level alarms, automatic feed cutoff, or bypass to a standby tank); and (3) maintenance of sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind action or by precipitation.</p> <p>Provide detailed plans for the schedule and procedure for inspecting the following: (1) overflow controls; (2) aboveground portions of the tanks</p>		

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			system; (3) data from monitoring and leak detection equipment; (4) construction materials and the area immediately surrounding the externally accessible portion of the entire tank system; and (5) the cathodic protection system.		
— / —	806(4)(c)(xl)		<u>Marking or Labeling</u> Provide a description of the marking and/or labeling of tanks.		
— /D-8b	680(2)(a)(l) 680(2)(b)(l) 680(2)(c)(l)	264.601(a)(1) 264.601(b)(1) 264.601(c)(1)	<u>Waste Characterization</u> Provide information on the volume and concentration of the waste in order to determine release potential. Provide the physical and chemical characteristics of the waste in order to determine (1) the toxicity of the waste; (2) the ability of the waste to be contained, immobilized, degraded or attenuated or to migrate in various soils and materials; (3) the probability of reactions taking place among wastes or between wastes and liners or other containment structure; and (4) the potential of the waste to react or evaporate to form gaseous, aerosol, or particulate products that enter the atmosphere.		
— /D-8d(1)	680(2)(a) 806(4)(i)(v)	264.601(a) 270.23(b)&(c)	<u>Protection of Groundwater and Subsurface Environment</u>		
— /D-8d(2)	680(2)(b) 806(4)(i)(v)	264.601(b) 270.23(b)&(c)	<u>Protection of Surface Water, Wetlands, and Soil Surface</u>		
— /D-8d(3)(b)	283	264.601	<u>Performance Standards</u> Based on the assessments, performance standards must be developed and maintained. These must include: (1) design and operating requirements; (2) detection and monitoring requirements of 264.602; and (3) requirements for response to releases of dangerous waste or dangerous constituents from the unit.		
— /D-8e	680(3)	264.602	<u>Monitoring, Analysis, Inspection, Response, Reporting, and Corrective Action</u>		
— /D-8e(1)	680(3) 320	264.602	<u>Elements of a Monitoring Program</u> A monitoring program must include procedures for sampling, analysis,		

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			<p>and evaluation of data, suitable response procedures, and a regular inspection schedule. The following elements must be included:</p> <ul style="list-style-type: none"> • Location of monitors • Constituents to be monitored and frequency of monitoring • Procedures to maintain integrity of monitoring devices • Sample collection and preservation • Analytical methods • Applicable procedures for evaluation of data • Appropriate response procedure. 		
— /D-8e(2)	680(3)	264.602	<p><u>Air Monitoring Alternatives</u> For situations in which ambient air monitoring would be unsafe or impractical, possible alternatives may include analysis of waste, emissions measurements, and periodic monitoring with portable detectors.</p>		
G-4j/G-4j			<p><u>Tank Spills and Leakage</u></p>		
G-4j(1)/G-4j(1)	640(7)(a)	264.196(a)	<p><u>Stopping Waste Addition</u> For a tank system or secondary containment system from which there has been a leak or spill, or which is unfit for use, document that the owner or operator will immediately stop the flow of dangerous waste into the tank system or secondary containment system and inspect the system to determine the cause of the release.</p>		
— /G-4j(2)	640(7)(b)	264.196(b)	<p><u>Removing Waste</u> Specify that if the release was from the tank system, the owner/operator will, within 24 hours after detection of the leak, or if the owner/operator demonstrates that it is not possible, at the earliest practicable time, remove as much of the waste as is necessary to prevent further release of dangerous waste to the environment and to allow inspection and repair of the tank system to be performed. If the material released was to a secondary containment system, specify that all released materials will be removed within 24 hours or in as timely a manner as possible to prevent harm to health and the environment.</p>		
— /G-4j(3)	640(7)(c)	264.196(c)	<p><u>Containment of Visible Releases</u></p>		

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			Specify that a visual inspection of the release will immediately be conducted. Demonstrate that based on the visual inspection, further migration of the leak or spill to soils and surface water will be prevented. Indicate that any visible contamination of the soil or surface water will be removed and properly disposed.		
— /G-4)(4)	640(7)(d) 145(2)	264.196(d)	<p>Notifications, Reports</p> <p>Demonstrate that any release to the environment (except a leak or spill that is less than or equal to one pound and immediately contained and cleaned up) will be reported to the Regional Administrator within 24 hours of its detection.</p>		
— /G-4)(5)	640(7)(e)	264.196(e)	<p>Provision of Secondary Containment, Repair, or Closure</p> <p>If the release has not damaged the integrity of the system, demonstrate that the released waste will be removed and repairs, if necessary, will be made, prior to returning the system to service.</p> <p>If the cause of the release is from the primary tank system into the secondary containment system, demonstrate that the primary tank system will be repaired before returning it to service.</p> <p>If the source of the release is a leak to the environment from a component of a tank system without secondary containment, demonstrate that secondary containment (satisfying 264.193) will be provided for the component from which the leak occurred, unless the component is an aboveground portion of a tank system that can be inspected visually. If the source is an aboveground component that can be inspected visually, demonstrate that the system will not be returned to service without a certification by an independent, qualified, registered, professional engineer [in accordance with 270.11(d)] that the repaired system is capable of handling dangerous wastes without release for the intended life of the system. If a component is replaced to comply with the requirements of this subparagraph, demonstrate that the component will satisfy the requirements for new tank systems or components in 264.192 and 264.193. Additionally if a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection (e.g., the</p>		

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			bottom of an inground or onground tank) demonstrate that the entire component will be provided with secondary containment in accordance with section 264.193 prior to being returned to use.		

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H/H	806(4)(a)(xii) 330	270.14(b)(12) 264.16	<u>PERSONNEL TRAINING</u>		
H-1/H-1	330(1)(d) 806(4)(a)(xii)	264.16(a)(1)	<u>Outline of the Training Program</u> Provide an outline of both the introductory and continuing training programs by owners or operators to prepare personnel to operate or maintain the facility in a safe manner. Include a brief description on how training will be designed to meet actual job tasks. (Note: On-the-job training may be used to comply with these requirements.)		
H-1a/H-1a	330(2)(a)	264.16(d)(1) 264.16(d)(2)	<u>Job Title/Job Description</u> Provide the job title and job description of each employee whose position at the facility is related to dangerous waste management.		
H-1b/H-1b	330(1)(b) 330(2)(b)	264.16(c) 264.16(d)(3)	<u>Training Content, Frequency, and Techniques</u> Describe the content, frequency, and techniques used in both introductory and continuing training (including an annual review of the initial training) for each employee.		
H-1c/H-1c	330(1)(a)	264.16(a)(2)	<u>Training Director</u> Demonstrate that the program is directed by a person trained in dangerous waste management.		
H-1d/H-1d	330(1)(a)	264.16(a)(2)	<u>Relevance of Training to Job Position</u> Demonstrate that facility personnel are instructed in dangerous waste management procedures (including contingency plan implementation) relevant to their position.		
H-1e/H-1e	330(1) 330(1)(d)	264.16(a)(3)	<u>Training for Emergency Response</u> Demonstrate the facility personnel are able to respond effectively to emergencies and are familiar with emergency procedures, emergency equipment, and emergency systems. The training program should include the following, if applicable: <ul style="list-style-type: none"> • Procedures for using, inspecting, repairing, and replacing facility • Key parameters for automatic waste feed cut-off systems • Communications or alarm systems 		

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			<ul style="list-style-type: none"> • Response to fires • Response to groundwater contamination incidents • Shutdown of operations. 		
H-2/H-2	330(1)(c) 330(2)(c) 330(3)	264.16(b) 264.16(d)(4) 264.16(e)	<p><u>Implementation of Training Program</u> Indicate that training has been successfully completed by facility personnel within 6 months of their employment or assignment to the facility or transfer to a new position within the facility, whichever is later. Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements. Records documenting that the required training has been given to and completed by facility personnel must be maintained.</p>		

TANK INSPECTION CHECKLISTS

Mixed Waste Compliance Inspection Checklist			Facility:	Date:
			Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
General				
Verify that entry to the active portion of the facility is controlled. (40 CFR 265.14)	Security: A 24-hour surveillance system or fence or natural barrier with controlled access. Proper signs/labels posted			
Verify that safety equipment is easily accessible at the storage facility (40 CFR 265.30-37)	-Internal communications or alarm system capable of providing immediate emergency instruction to people - A telephone or hand held two way radio, capable of summoning emergency assistance - portable fire extinguishers and fire control equipment - spill control equipment - decontamination equipment - Fire hydrants or other source of water with adequate volume and pressure foam producing equipment, or automatic sprinklers or water spray systems.			
Verify that safety equipment is in working condition at the storage facility (40 CFR 265.30-37)	Determine if equipment is tested and maintained as necessary to ensure proper operation in an emergency			

¹ S = satisfactory; U = unsatisfactory; N/A = not applicable in reviewers professional judgement

² Identification of individuals, by position, contacted, and identification of procedures, work packages, inspection data sheets, and other documents reviewed

Mixed Waste Compliance Inspection Checklist			Facility:	Date:
			Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
<p>Precautions are taken to prevent accidental ignition or reaction of ignitable or reactive wastes (40 CFR 265.17(a))</p>	<p>Verify from the operating record or observation that the following safe management practices are used:</p> <ul style="list-style-type: none"> - wastes are separated and protected from sources of ignition or reaction - smoking and open flame are confined to specially designated locations when ignitable or reactive waste is handled - No smoking signs are used when necessary. 			
<p>At all times, an emergency coordinator is on the TSD premises or on call (40 CFR 265.55)</p>	<p>Verify that there is at least one employee at the TSD or on call with responsibility for coordinating emergency response measures</p> <p>Verify that the emergency coordinator is thoroughly familiar with the TSD, the characteristics of the waste, and the provisions of the contingency plan.</p>			
<p>Look for Evidence of leak(s) or spill(s)</p>				
<p>General housekeeping</p>				

Mixed Waste Compliance Inspection Checklist		Facility:		Date:	
		Reviewer(s):			
Assessment Criteria -		Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
TSD must have a contingency plan (40 CFR 265.50 -54)	Contingency/Facility emergency plans maintained at TSD and submitted to organizations which may be called upon to provide emergency services. Verify the the contingency plan is routinely reviewed and updated.				
Containers					
Verify that containers used to store hazardous waste at TSDs are in good condition and not leaking (40 CFR 265.171)	Containers are not leaking, bulging, rusting, damaged, or dented.				
Verify that containers are made of, or lined with, materials compatible with the waste stored in them. (40 CFR265.171)	Containers are compatible with waste stored in them; strong caustics and acids are not stored in metal drums.				
Less than 90 day accumulation areas (WAC 173-303-200)	- verify generation date on containers is ≤90 days old - appropriate labeling and marking on containers - condition of containers is good - liquid bearing containers in appropriate secondary confinement - minimum 30 inch between rows of containers, rows no more than two drums wide				

Mixed Waste Compliance Inspection Checklist			Facility:	Date:	
			Reviewer(s):		
Assessment Criteria -		Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
Satellite accumulation areas:	Waste log/inventory sheets maintained - appropriate markings and labeling - spill kit & control equipment available - Locked, Controlled, or have appropriate security - condition of containers				
Verify that personnel conduct weekly inspections of container storage areas (40 CFR 265.174)	Inspection(s) conducted weekly, look for leaking containers and signs of deterioration of containers				

Mixed Waste Compliance Inspection Checklist		Facility:	Date:
Assessment Criteria -		Reviewer(s):	
	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)
<p>Verify that each TSD has a formal written inspection schedule and a log of inspection results. (40 CFR 254.15)</p>	<ul style="list-style-type: none"> - a written inspection schedule exists for inspecting monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are important to preventing detecting or responding to environmental or human health hazards. - schedule is kept at the TSD and lists types of problems to be looked for during the inspection - areas subject to spills, such as loading and unloading areas, are inspected daily when in use - verify that any deterioration or malfunction identified by the inspection has been corrected - verify that logs, or records of the inspections are kept for three years and include the following: 1) date and time of inspection; 2) name and signature of inspector; 3) notation of observations made; 4) account of spills or discharges, 5) date and nature of any repairs or remedial actions. 		
Tank Systems			

Mixed Waste Compliance Inspection Checklist			Facility:	Date:
			Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
<p>Verify that vaults and double walled tanks meet specific standards.(40 CFR 265.190, 193, 198, and 199)</p>	<p>Vaults/pits: - Vaults/Pits: Pits foamed over / observe condition of foam - Verify prevention of run on and infiltration into secondary containment - means to protect against the ignition or formation of vapors within the vault if the waste is ignitable or reactive.</p> <p>Double walled Tanks: - verify that it is designed as an integral structure so that any release is contained by the outer shell - it is protected from both corrosion of the primary tank and the external surface with the outer shell if constructed of metal.</p> <p>Verify that ignitable or reactive wastes are not placed in a tank unless the waste is treated or stored in such a way that it is protected from material or conditions that may cause the waste to ignite or react</p> <p>Verify that continuous leak detection, capable of detecting a leak within 24 hours, is provided and operable.</p>			

Mixed Waste Compliance Inspection Checklist			Facility:	Date:
			Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
<p>Tank /ancillary equipment must also be provided with secondary containment (40CFR 265.190(a) 40CFR 265.190(b))</p>	<p>Verify that tanks and ancillary equipment, except for the following, has secondary containment:</p> <ul style="list-style-type: none"> - aboveground piping that is visually inspected for leaks on a daily basis - welded flanges, welded joints, and welded connections that are visually inspected for leaks on a daily basis - sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis - pressurized aboveground piping systems with automatic shutoff valves that are visually inspected for leaks on a daily basis <p>(NOTE: tank systems with no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)</p>			

Mixed Waste Compliance Inspection Checklist

Facility:

Date:

Reviewer(s):

Assessment Criteria -

**Criteria Met?¹
S, U, or N/A**

**Contacts and
References²**

**Assessment notes and comments (how evaluation
is made for this item)**

Existing tank systems that do not have secondary containment are required to meet specific requirements for leak test or inspection requirements (40 CFR 265.190(a), 265.191(a) through 265.191(c), and 265.193(i)).

Verify that existing tank systems without secondary containment meet the following:
- for nonenterable underground tanks, a leak test is conducted annually
- for other than nonenterable underground tanks, either a leak test is done annually, or an annual schedule and procedure is developed for an assessment of the overall conditions by an independent qualified, registered, professional engineer.
Verify that a record is maintained of the results of testing and measurements.

NA

All double shell tanks have secondary containment.

Mixed Waste Compliance Inspection Checklist		Facility:	Date:
Assessment Criteria -		Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)
<p>Inspections of tank systems and associated equipment are conducted (40CFR 265.195)</p>	<p>- Verify that a schedule and procedure have been developed and are followed to inspect overfill controls.</p> <p>- Determine if the following inspections are conducted at least once a day:</p> <ol style="list-style-type: none"> 1) overfill/spill control equipment/ facilities to ensure it is in good working order. 2) above ground portions of tank to detect corrosion or releases 3) data gathered from tank monitoring equipment and leak detection equipment (e.g. pressure/temperature gauges and monitoring wells) 4) construction materials and the areas surrounding the tank including the secondary containment system for signs of erosion or leakage (wet spots, dead vegetation) <p>Verify that all sources of impressed current are inspected and/or tested every other month. Electrical continuity and isolation should be checked when these features are required as part of the corrosion protection system.</p> <p>-Verify that the inspections are documented. (NOTE: tank systems with no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)</p>		

Mixed Waste Compliance Inspection Checklist		Facility:	Date:
Assessment Criteria -		Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)
<p>Verify that instrumentation is calibrated and in good working order. (40 CFR 265.193 (b))</p>	<ul style="list-style-type: none"> -Level monitoring instrumentation is functional and calibrated - Alarm and alarm response logs for leak detection systems - A leak detection system is present that is designed and operated to detect failure of either the primary or secondary containment structure or the release of hazardous waste within 24 hours or the earliest practicable time. 		
<p>Tank Farm Equipment</p>	<p>Storage/management: How reusable equipment is being stored, surveyed, labeled, and packaged.</p>		

Mixed Waste Compliance Inspection Checklist			Facility:	Date:
			Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
General				
Verify that entry to the active portion of the facility is controlled. (40 CFR 265.14)	Security: A 24-hour surveillance system or fence or natural barrier with controlled access. Proper signs/labels posted			
Verify that safety equipment is easily accessible at the storage facility (40 CFR 265.30-37)	-Internal communications or alarm system capable of providing immediate emergency instruction to people - A telephone or hand held two way radio, capable of summoning emergency assistance - portable fire extinguishers and fire control equipment - spill control equipment - decontamination equipment - Fire hydrants or other source of water with adequate volume and pressure foam producing equipment, or automatic sprinklers or water spray systems.			
Verify that safety equipment is in working condition at the storage facility (40 CFR 265.30-37)	Determine if equipment is tested and maintained as necessary to ensure proper operation in an emergency			

¹ S = satisfactory; U = unsatisfactory; N/A = not applicable in reviewers professional judgement

² Identification of individuals, by position, contacted, and identification of procedures, work packages, inspection data sheets, and other documents reviewed

Mixed Waste Compliance Inspection Checklist		Facility:		Date:	
		Reviewer(s):			
Assessment Criteria -		Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
Precautions are taken to prevent accidental ignition or reaction of ignitable or reactive wastes (40 CFR 265.17(a))	<p>Verify from the operating record or observation that the following safe management practices are used:</p> <ul style="list-style-type: none"> - wastes are separated and protected from sources of ignition or reaction - smoking and open flame are confined to specially designated locations when ignitable or reactive waste is handled - No smoking signs are used when necessary. 				
At all times, an emergency coordinator is on the TSD premises or on call (40 CFR 265.55)	<p>Verify that there is at least one employee at the TSD or on call with responsibility for coordinating emergency response measures</p> <p>Verify that the emergency coordinator is thoroughly familiar with the TSD, the characteristics of the waste, and the provisions of the contingency plan.</p>				
Look for Evidence of leak(s) or spill(s)					
General housekeeping					

Mixed Waste Compliance Inspection Checklist			Facility:	Date:
			Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
TSD must have a contingency plan (40 CFR 265.50 -54)	Contingency/Facility emergency plans maintained at TSD and submitted to organizations which may be called upon to provide emergency services. Verify the the contingency plan is routinely reviewed and updated.			
Containers				
Verify that containers used to store hazardous waste at TSDs are in good condition and not leaking (40 CFR 265.171)	Containers are not leaking, bulging, rusting, damaged, or dented.			
Verify that containers are made of, or lined with, materials compatible with the waste stored in them. (40 CFR265.171)	Containers are compatible with waste stored in them; strong caustics and acids are not stored in metal drums.			
Less than 90 day accumulation areas (WAC 173-303-200)	- verify generation date on containers is ≤90 days old - appropriate labeling and marking on containers - condition of containers is good - liquid bearing containers in appropriate secondary confinement - minimum 30 inch between rows of containers, rows no more than two drums wide			

Mixed Waste Compliance Inspection Checklist			Facility:	Date:	
			Reviewer(s):		
Assessment Criteria -		Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
Satellite accumulation areas:	Waste log/inventory sheets maintained - appropriate markings and labeling - spill kit & control equipment available - Locked, Controlled, or have appropriate security - condition of containers				
Verify that personnel conduct weekly inspections of container storage areas (40 CFR 265.174)	Inspection(s) conducted weekly, look for leaking containers and signs of deterioration of containers				

Mixed Waste Compliance Inspection Checklist			Facility:	Date:
			Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
<p>Verify that each TSD has a formal written inspection schedule and a log of inspection results. (40 CFR 254.15)</p>	<ul style="list-style-type: none"> - a written inspection schedule exists for inspecting monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are important to preventing detecting or responding to environmental or human health hazards. - schedule is kept at the TSD and lists types of problems to be looked for during the inspection - areas subject to spills, such as loading and unloading areas, are inspected daily when in use - verify that any deterioration or malfunction identified by the inspection has been corrected - verify that logs, or records of the inspections are kept for three years and include the following: 1) date and time of inspection; 2) name and signature of inspector; 3) notation of observations made; 4) account of spills or discharges, 5) date and nature of any repairs or remedial actions. 			
Tank Systems				

Mixed Waste Compliance Inspection Checklist			Facility:	Date:
			Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
<p>Verify that vaults and double walled tanks meet specific standards.(40 CFR 265.190, 193, 198, and 199)</p>	<p>Vaults/pits: - Vaults/Pits: Pits foamed over / observe condition of foam - Verify prevention of run on and infiltration into secondary containment - means to protect against the ignition or formation of vapors within the vault if the waste is ignitable or reactive.</p> <p>Double walled Tanks: - verify that it is designed as an integral structure so that any release is contained by the outer shell - it is protected from both corrosion of the primary tank and the external surface with the outer shell if constructed of metal.</p> <p>Verify that ignitable or reactive wastes are not placed in a tank unless the waste is treated or stored in such a way that it is protected from material or conditions that may cause the waste to ignite or react</p> <p>Verify that continuous leak detection, capable of detecting a leak within 24 hours, is provided and operable.</p>	<p>N/A</p> <p>Within the Single Shell Tank Farms all double wall receiver tanks are handled as part of the DST System. Will be closed under that system and are in the DST Part A.</p>		

Mixed Waste Compliance Inspection Checklist		Facility:	Date:
Assessment Criteria -		Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)
<p>Tank /ancillary equipment must also be provided with secondary containment (40CFR 265.190(a) 40CFR 265.190(b))</p> <p>(NOTE: The Single-Shell Tank System does not have secondary containment for all tanks and ancillary equipment. See next checklist item.)</p>	<p>Verify that tanks and ancillary equipment, except for the following, has secondary containment:</p> <ul style="list-style-type: none"> - aboveground piping that is visually inspected for leaks on a daily basis - welded flanges, welded joints, and welded connections that are visually inspected for leaks on a daily basis - sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis - pressurized aboveground piping systems with automatic shutoff valves that are visually inspected for leaks on a daily basis <p>(NOTE: tank systems with no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)</p>	<p>N/A</p> <p>See note in first column</p>	

Mixed Waste Compliance Inspection Checklist		Facility:	Date:	
Assessment Criteria -		Reviewer(s):		
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
Existing tank systems that do not have secondary containment are required to meet specific requirements for leak test or inspection requirements (40 CFR 265.190(a), 265.191(a) through 265.191(c), and 265.193(i)).	<p>Verify that existing tank systems without secondary containment meet the following:</p> <ul style="list-style-type: none"> - for nonenterable underground tanks, a leak test is conducted annually - for other than nonenterable underground tanks, either a leak test is done annually, or an annual schedule and procedure is developed for an assessment of the overall conditions by an independent qualified, registered, professional engineer. <p>Verify that a record is maintained of the results of testing and measurements.</p>	<p>N/A</p> <p>This requirement is currently under TPA Negotiation to become a TPA Milestone-M 23</p>	<p>See February 2, 2001 letter to Harry Boston and Fran Delozier from Steven Moore of the Washington State Department of Ecology</p>	

Mixed Waste Compliance Inspection Checklist			Facility:	Date:
			Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
<p>Inspections of tank systems and associated equipment are conducted (40CFR 265.195)</p>	<p>- Verify that a schedule and procedure have been developed and are followed to inspect overfill controls.</p> <p>- Determine if the following inspections are conducted at least once a day:</p> <p>1) overfill/spill control equipment/ facilities to ensure it is in good working order.</p> <p>2) above ground portions of tank to detect corrosion or releases</p> <p>3) data gathered from tank monitoring equipment and leak detection equipment (e.g. pressure/temperature gauges and monitoring wells)</p> <p>4) construction materials and the areas surrounding the tank including the secondary containment system for signs of erosion or leakage (wet spots, dead vegetation)</p> <p>Verify that all sources of impressed current are inspected and/or tested every other month. Electrical continuity and isolation should be checked when these features are required as part of the corrosion protection system.</p> <p>-Verify that the inspections are documented. (NOTE: tank systems with no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)</p>	<p>N/A</p> <p>None of the Single Shell Tanks have cathodic protection</p>		

Mixed Waste Compliance Inspection Checklist			Facility:	Date:
			Reviewer(s):	
Assessment Criteria -	Criteria Met?¹ S, U, or N/A	Contacts and References²	Assessment notes and comments (how evaluation is made for this item)	
Verify that instrumentation is calibrated and in good working order. (40 CFR 265.193 (b))	<ul style="list-style-type: none"> -Level monitoring instrumentation is functional and calibrated - Alarm and alarm response logs for leak detection systems - A leak detection system is present that is designed and operated to detect failure of either the primary or secondary containment structure or the release of hazardous waste within 24 hours or the earliest practicable time. 	<p>N/A</p> <p>Under TPA Negotiations to be determined as a TPA Milestone M-23</p>	See February 2, 2001 letter to Harry Boston and Fran Delozier from Steven Moore of the Washington State Department of Ecology	
Tank Farm Equipment	Storage/management: How reusable equipment is being stored, surveyed, labeled, and packaged.			

Mixed Waste Compliance Inspection - Tank Checklist

Facility: 241-BX TANK FARM

Date:

Reviewer(s):

Tank Number	Assessment Criteria									
	Criteria Met? <i>S</i> – Satisfactory; <i>U</i> – Unsatisfactory; or <i>N/A</i> – Not applicable in reviewers professional judgement									
	Level Monitoring	Daily Inspections	Leak Detection	Cathodic Protection	Operational	Bi-monthly check of CP	Signs of leaks and spills	Signs of corrosion	General Housekeeping	Comments
Tank 241-BX-101										
Tank 241-BX-102										
Tank 241-BX-103										
Tank 241-BX-104										
Tank 241-BX-105										
Tank 241-BX-106										

Mixed Waste Compliance Inspection - Tank Checklist				Facility: 241-BX TANK FARM				Date:		
				Reviewer(s):						
Tank Number	Assessment Criteria									
	<i>Criteria Met? S – Satisfactory; U – Unsatisfactory; or N/A – Not applicable in reviewers professional judgement</i>									
	Level Monitoring	Daily Inspections	Leak Detection	Cathodic Protection	Operational	Bi-monthly check of CP	Signs of leaks and spills	Signs of corrosion	General Housekeeping	Comments
Tank 241-BX-107										
Tank 241-BX-108										
Tank 241-BX-109										
Tank 241-BX-110										
Tank 241-BX-111										
Tank 241-BX-112										

Mixed Waste Compliance Inspection - Tank Checklist					Facility: 241-BX TANK FARM			Date:		
					Reviewer(s):					
Tank Number	Assessment Criteria									
	<i>Criteria Met? S – Satisfactory; U – Unsatisfactory; or N/A – Not applicable in reviewers professional judgement</i>									
	Level Monitoring	Daily Inspections	Leak Detection	Cathodic Protection	Operational	Bi-monthly check of CP	Signs of leaks and spills	Signs of corrosion	General Housekeeping	Comments
244-BX Double Contained Receiver Tank										

**ENCLOSURE 2 TO ATTACHMENT
02-EMD-029**

**EVALUATION OF FISCAL YEAR 2001
CH2M HILL HANFORD GROUP, INC.
SELF-ASSESSMENTS APPLICABLE TO
RESOURECE CONSERVATION AND
RECOVERY ACT REQUIREMENTS**

**Evaluation of Fiscal Year 2001 CH2M HILL Hanford Group, Inc. Self-Assessments
Applicable to Resource Conservation and Recovery Act Requirements**

CH2M HILL Hanford Group, Inc. (CHG) was requested to provide the U.S. Department of Energy, Office of River Protection (ORP) any self-assessment reports and documentation pertinent to review of Land Disposal Restriction (LDR) Resource Conservation and Recovery Act (RCRA) requirements. CHG provided Environmental Surveillance Checklists (RPP-SCI-00 and 01-xx) from the period of March 2000 through February 2001, and the following documents in response to ORP's request:

- Functional Assessment RPP-EFA-01-001, "Environmental Protection Quality Assurance Pertaining to NESHAPS Requirements," dated January 2001;
- Functional Assessment RPP-EFA-00-002, "TSD Facility Records Management Report," dated September 2000.
- Functional Assessment RPP-EFA-01-005, "Environmental Protection Quality Assurance Pertaining to Environmental Protection," dated October 2001;
- Hanford Fiscal Year 2001 First Quarter Limited Exercise Evaluation Report;
- Tank Farm Contractor Environmental Services Assessment No. RPP-EFA-01-005, "Environmental Protection Quality Assurance Report," dated October 24, 2001;
- CHG Emergency Management Drill Report, FDH-01-07, 2704-HV/209E Waste Pad, dated February 12, 2001; and
- CHG Emergency Management Drill Report, FDH-02-01, 2704-HV/S Tank Farm, dated October 18, 2001.

The assessment RPP-EFA-01-001 reviewed the quality assurance (QA) requirements in the Standards/Requirements Identification Document (S/RID), Tank Waste Remediation System Environmental Protection, in regards to radionuclide air emissions from tank farm emission sources. The assessment was reviewed against the RCRA Part B Permit Application Checklist, Revision 0, dated April 1992. The assessment was found not to be applicable to the LDR RCRA requirements. The assessment RPP-EFA-01-002 reviewed program plans in regard to Treatment, Storage, and Disposal (TSD) records management. The assessment found the plans to be in place to manage Environmental Protection with regards to TSD records management. This assessment was not supported by the Tank Farms Assessment and is specifically referenced under an operating records finding in that assessment. The assessment RPP-EFA-01-005 reviewed the QA requirements in the S/RID for Environmental Protection with regards to integration into the Environmental Management Programs implemented by CHG. The findings were of a general programmatic nature and not specifically tied to regulatory requirements. Findings on records management, corrective action management, and assessment adequacy from this functional assessment were also noted in the LDR assessment this is enclosed to.

The Hanford Fiscal Year 2001 First Quarter Limited Exercise Evaluation Report performed by CHG on November 16, 2000, shows applicability to:

- Washington Administrative Code (WAC) 173-303-330(1), WAC 173-303-330(1)(d), and Title 40 Code of Federal Regulations (CFR) Part 364.16(a)(3), Training for Emergency Response.

The above references (WAC 173-303-330[1], WAC 173-303-330[1][d], and 40CFR364.16[a][3]) require that "... the facility personnel are able to respond effectively to emergencies and are familiar with emergency procedures, emergency equipment, and emergency systems." The exercise conducted on November 16, 2001, which involved a spray leak from AP Tank Farm, showed that CHG personnel were able to respond to the emergency and use the CHG Facility Emergency Response Procedure, TF-ERP-001, "Take Cover/Personnel Accountability/and Evacuation."

Both CHG's Independent Performance Evaluation for Comparison to Highest Industry Standards, Tank Waste Project Delivery Organization, Final Report, Revision 1, dated February 20, 2001, and the Performance Enhancement Plan, Revision 0, dated July 5, 2001, were reviewed. The performance and compliance evaluation was applicable to:

- WAC 173-303-330(1)(c), WAC 173-303-330(2)(c), WAC 173-303-330(3), 40 CFR 264.16(b), 40 CFR 264.16(d)(4), and 40 CFR 264.16(e), Implementation of Training Program.

The above references (WAC 173-303-330[1][c], WAC 173-303-330[2][c], WAC 173-303-330[3], 40 CFR 264.16[b], 40 CFR 264.16[d][4], and 40CFR264.16[e]) require that "Records documenting that the required training has been given to and completed by facility personnel must be maintained." The Independent Performance Evaluation assessed the training records management and identified that several people were not current on their training assignments.

The assessment team generally reviewed CHG's surveillance checklists and found that they pertained specifically to chemical management, radiological air, waste accumulation and container management, as well as a few general environmental areas. The only specific references tying regulatory citations to TSD considerations other than Satellite Accumulation Area or container management, included security postings and barricades WAC 173-303-310 (Items 8 and 9 of the Environmental checklist). Other pertinent environmental surveillance checklist items were tied to procedures or referenced letters and included Item 1 on re-usable equipment, and Items 2 and 3 on spills. There were very few notes in the comments section of these checklists and it was difficult to determine specifics on what was looked at and how it met the criteria.

The records provided were not found to be of sufficient quantity or quality to provide an indication of the contractor's compliance status with LDR/RCRA requirements.