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# **HARTCROWSER**

*Earth and Environmental Technologies*

*Final Draft*

*Copy No. 7*

*RCRA Interim Status Assessment  
Part A Facilities  
222-S Laboratory*

*J-1866-33.02*

Cross Ref with: 0003608

Add Milestone: M-020-00

**ACTION SCHEDULE REPORT LEGEND**

**SUA Identification:** The stream, unit, or activity (SUA) identification.

**Reg Citation:** The regulatory requirement applicable to a specific stream, unit, or activity.

**Status:** The compliance status of a stream, unit, or activity with respect to a specific applicable regulation.

**C:** Complete: The task identified with a given report finding is complete.

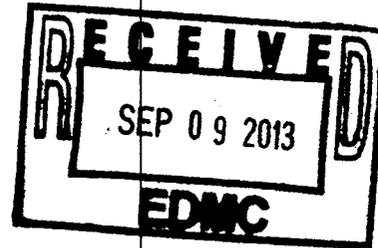
**AR:** Action Required: An action is required to address a given report finding.

**NR:** Not Regulated: The SUA is currently not regulated under the associated applicable regulation.

**Task Description:** A description of the task resulting from an assessment finding.

**Scheduled Comp Date:** The date by which a given task is scheduled to be completed.

**Actual Comp Date:** The date by which an action was performed.



ACTION SCHEDULE

NOVEMBER 1988

SUA Identification	Reg Citation	Status	Task Description	Scheduled Comp Date	Actual Comp Date
222-S LAB (TANKS)	WAC 173-303-300	AR	DEVELOP WASTE ANALYSIS PLAN DESCRIBING WASTE ANALYSIS PROGRAM FOR TANKS.	09/30/89	/ /
222-S LAB (PAD)	WAC 173-303-300	AR	DEVELOP WASTE ANALYSIS PLAN DESCRIBING WASTE ANALYSIS PROGRAM FOR PAD.	03/01/89	/ /
222-S LAB (PAD)	WAC 173-303-300	AR	OBTAIN DETAILED ANALYSIS OF 222-S PAD WASTES.	03/01/90	/ /
222-S LAB (TANKS)	WAC 173-303-300	AR	DETERMINE 219-S TANKS PH PRIOR TO TREATMENT TO CONFIRM CORROSIVITY.	01/15/89	/ /
222-S LAB (TANKS)	WAC 173-303-300	AR	ANALYZE TANK CONTENTS TO DETERMINE IF DANGEROUS FOR REASONS OTHER THAN CORROSIVITY.	12/30/89	/ /
222-S LAB (TANKS)	WAC 173-303-300	AR	CONFIRM WASTE/TANK COMPATABILITY THROUGH WASTE ANALYSIS.	03/01/90	/ /
222-S LAB (TANKS)	WAC 173-303-300	AR	VERIFY PERCENT ADMINISTRATIVE CONTROLS ARE ADEQUATE TO ENSURE SOLVENTS ARE NOT PRESENT.	03/01/89	/ /
222-S LAB (TANKS)	WAC 173-303-300	AR	MONITOR TANK WASTE FOR DANGEROUS WASTE SOLVENTS TO ENSURE PROPER DISPOSAL.	03/01/90	/ /

## ACTION SCHEDULE

NOVEMBER 1988

SUA Identification	Reg Citation	Status	Task Description	Scheduled Comp Date	Actual Comp Date
222-S LAB (TANKS)	WAC 173-303-310	C	"DANGER - UNAUTHORIZED PERSONNEL KEEP OUT" SIGNS ARE POSTED AROUND TANKS.	/ /	08/15/88
222-LAB (PAD)	WAC 173-303-310	C	"DANGER - UNAUTHORIZED PERSONNEL KEEP OUT" SIGNS POSTED AROUND PAD.	/ /	08/15/88
222-S LAB (TSD)	WAC 173-303-320	AR	DEVELOP A WRITTEN INSPECTION PLAN NOTING THE VARIOUS INSPECTIONS AND THE FREQUENCY OF EACH.	01/15/89	/ /
222-S LAB (TSD)	WAC 173-303-320	AR	DEVELOP INSPECTION CHECKLISTS FOR EACH INSPECTION. (PAD AND TANKS)	01/15/89	/ /
222-S LAB (TSD)	WAC 173-303-330	AR	DEVELOP A WRITTEN TRAINING PLAN WHICH NOTES THE PROCESS BY WHICH EACH OF THE EMPLOYEES RECEIVES THE REQUIRED TRAINING.	03/15/89	/ /
222-S LAB (TSD)	WAC 173-303-330	AR	ENSURE ALL OJT INSTRUCTORS ATTEND 006G AND 006S.	01/15/89	/ /
222-S LAB (TSD)	WAC 173-303-330	AR	DEVELOP FACILITY SPECIFIC PROGRAM TO TRAIN SHIFT MANAGERS TO PROPER DANGEROUS WASTE MANAGEMENT PRACTICES.	06/15/89	/ /

ACTION SCHEDULE

NOVEMBER 1988

SUA Identification	Reg Citation	Status	Task Description	Scheduled Comp Date	Actual Comp Date
222-S LAB (TSD)	WAC 173-303-330	AR	MAKE 006H OJT MORE SPECIFIC W/R TO EMERGENCY RESPONSE AND WASTE HANDLING AT TANKS AND STORAGE PAD.	01/15/89	/ /
222-S LAB (PAD)	WAC 173-303-340	AR	PLACE A FIRE EXTINGUISHER, SPILL CONTROL KIT, AND RESPIRATORS NEAR STORAGE PAD.	01/15/89	/ /
222-S LAB (PAD)	WAC 173-303-340	AR	VERIFY THAT PLANT COMMUNICATION SYSTEM IS ADEQUATE IN LUE OF FIRE ALARM.	01/15/89	/ /
222-S LAB (PAD)	WAC 173-303-340	AR	DEVELOP SOP FOR 222-S ACCESS UNTIL EMERGENCY EQUIPMENT IS LOCATED AT STORAGE PAD.	01/15/89	/ /
222-S LAB (TSD)	WAC 173-303-350	AR	MODIFY EXISTING EMERGENCY PLAN TO INCLUDE SPECIFIC TANK AND STORAGE PAD LOCATIONS AND REFERENCE TO EXISTING PROCEDURES.	10/01/89	/ /
222-S LAB (TSD)	WAC 173-303-350	AR	MAINTAIN CURRENT EMERGENCY PLAN AND PROVIDE A COPY TO ALL EMERGENCY SERVICES WHICH MAY PROVIDE ASSISTANCE.	10/01/89	/ /
222-S LAB (TSD)	WAC 173-303-360	AR	ENSURE EMERGENCY COORDINATOR AND ALTERNATES ARE INITIATELY FAMILIAR WITH CONTINGENCY PLAN, LOCATION AND PROPERTIES OF ALL WASTES MANAGED, AND THE LOCATION OF ALL PERTENANT RECORDS.	01/15/89	/ /

ACTION SCHEDULE

NOVEMBER 1988

SUA Identification	Reg Citation	Status	Task Description	Scheduled Comp Date	Actual Comp Date
222-S LAB (TSD)	WAC 173-303-360	AR	TRAIN EMERGENCY COORDINATOR AND ALTERNATES TO TANKS AND STORAGE PAD EMERGENCY PROCEDURES.	01/15/89	/ /
222-S LAB (TSD)	WAC 173-303-360	AR	ENSURE EMERGENCY COORDINATOR AND ALTERNATES ATTEND 006G,006S, AND 2340 EP/APC.	01/15/89	/ /
222-S LAB (TSD)	WAC 173-303-360	AR	DEVELOP FACILITY SPECIFIC TRAINING PROGRAM TO INSTRUCT EMERGENCY COORDINATOR AND ALTERNATES.	01/15/89	/ /
222-S LAB (TANKS)	WAC 173-303-380	AR	MAINTAIN INSPECTION LOGS OF TREATMENT TANKS IN THE FACILITY RECORDS.	01/15/89	/ /
222-S LAB (TSD)	WAC 173-303-380	AR	MAINTAIN FACILITY AND HANFORD SITE EMERGENCY PLAN WITH RECORDS.	01/15/89	/ /
222-S LAB (TSD)	WAC 173-303-380	AR	INCLUDE WASTE ANALYSIS DATA ON TANK AND CONTAINER CONTENTS IN THE FACILITY RECORDS.	03/15/89	/ /
222-S LAB (TSD)	WAC 173-303-390	AR	INCLUDE COST ESTIMATES FOR CLOSURE OF TANKS AND STORAGE PAD IN THE ANNUAL REPORT.	04/01/89	/ /
222-S LAB (PAD)	WAC 173-303-395	AR	INCLUDE STORAGE PAD IN ANNUAL FIRE INSPECTION AND MAINTAIN COPY OF LOG IN THE FACILITY RECORDS.	06/01/89	/ /

## ACTION SCHEDULE

NOVEMBER 1988

SUA Identification	Reg Citation	Status	Task Description	Scheduled Comp Date	Actual Comp Date
222-S LAB (PAD)	WAC 173-303-395	C	"NO SMOKING" SIGNS ARE POSTED AT THE STORAGE PAD.	/ /	08/15/88
222-S LAB (TSD)	WAC 173-303-395	AR	ENSURE THAT INCOMPATIBLE WASTES AND MATERIALS ARE NOT MIXED.	09/30/89	/ /
222-S LAB (TANKS)	WAC 173-303-395	C	TREATMENT TANK COVER BLOCKS ARE LABELED IDENTIFYING MAJOR RISK.	/ /	08/15/88
222-S LAB (TANKS)	40 CFR SUBPART G	AR	PREPARE CLOSURE PLAN FOR TREATMENT TANKS (SEE REPORT FOR DETAILS).	12/01/91	/ /
222-S LAB (PAD)	40 CFR SUBPART G	AR	PREPARE CLOSURE PLAN FOR PAD (SEE REPORT FOR DETAILS)	12/01/91	/ /
222-S LAB (PAD)	40 CFR SUBPART I	AR	PROVIDE SECONDARY CONTAINMENT FOR THE STORAGE PAD.	06/30/90	/ /
222-S LAB (PAD)	40 CFR SUBPART I	AR	INSPECT PAD ANNUALLY IN THE PRESENCE OF A PERSON KNOWLEDGEABLE IN THE UFC AND MAINTAIN DOCUMENTATION.	06/01/89	/ /
222-S LAB (TANKS)	40 CFR SUBPART J	AR	RESOLVE RCRA/AREA INCONSISTENCIES FOR WEEKLY INSPECTIONS OF TANKS.	05/31/89	/ /

ACTION SCHEDULE

NOVEMBER 1988

SUA Identification	Reg Citation	Status	Task Description	Scheduled Comp Date	Actual Comp Date
222-S LAB (TANKS)	40 CFR SUBPART J	AR	INCLUDE TANK INSTRUMENTATION DATA IN THE DAILY FACILITY INSPECTION PROGRAM.	01/15/89	/ /
222-S LAB (TANKS)	40 CFR SUBPART J	C	TANK COVER BLOCKS ARE LABELED WITH CONTENTS MAJOR RISKS.	/ /	08/15/88

## 222- S TREATMENT TANK & STORAGE PAD RCRA INTERIM STATUS COMPLIANCE ASSESSMENT

<u>REQUIRED ACTIONS</u>	<u>ACTION CATEGORY</u>	<u>COMPLETION DATE</u>
8	WASTE ANALYSIS	3/90
2	SECURITY	COMPLETE
3	INSPECTIONS	1/89
4	TRAINING	6/89
9	EMERGENCY PREPAREDNESS	10/89
6	RECORDKEEPING/ REPORTING	3/89
4	FIRE PREVENTION/INCOMPATIBLES	9/89 (1 COMPLETE)
2	LABELING	1/89
2	CLOSURE PLANS	2/91
1	SECONDARY CONTAINMENT	6/90
<u>1</u>	INSPECTION INCONSISTENCY	6/89
42		

WE'RE MAKING SURE

Mr. R. E. Gerton  
Page 2

8857342

The report is scheduled to be transmitted to the EPA and Ecology on December 16, 1988. Prior to transmittal, the report must be cleared for public release. Please have the appropriate individual sign the second page of the Document Clearance Form under the DOE Program Sponsor and return the form to D. P. Hutchison (6-5969) by December 14, 1988.

If you have any questions about the report or associated material, please contact C. R. Stroup or D. P. Hutchison on 373-5093 or 376-5969, respectively.

Very truly yours,



*for* J. R. Knight, Manager  
Chemical Processing Division

slg

Attachment

DOE-RL - R. D. Izatt  
A. W. Kellogg (w/o attachment)



Westinghouse  
Hanford Company

P.O. Box 1970 Richland, WA 99352

December 13, 1988

8857342

Mr. R. E. Gerton, Director  
Waste Management Division  
U.S. Department of Energy  
Richland Operations Office  
Richland, Washington 99352

Dear Mr. Gerton:

RESOURCE CONSERVATION AND RECOVERY ACT INTERIM STATUS ASSESSMENT OF THE  
222-S LABORATORY TREATMENT TANK AND STORAGE PAD

As part of the effort initiated by Westinghouse Hanford Company (WHC) to determine the status of facility operations with respect to the Resource Conservation and Recovery Act (RCRA), the review of the 222-S Laboratory Treatment Tank and Storage Pad is now complete. The purpose of the effort was to document areas of compliance and determine areas where specific actions are required.

The final draft of "RCRA Interim Status Assessment, Part A Facilities, 222-S Laboratory" is attached. The report was prepared for WHC by environmental consultants. The consultants' report reflects the environmental status of 222-S during the specific point in time when the field work was performed. Although specific actions were identified, the report concluded the 222-S Laboratory Treatment Tank and Storage Pad are operated in a manner that poses no imminent or substantial threat to the environment.

The WHC has evaluated the findings in the report. The report calls out areas where specific actions are required such as training, emergency procedures, waste designation, and others. Many of these actions are procedural and simply required changes in the manner of conducting operations to ensure compliance. In all cases WHC is committed to implement appropriate changes and conduct operations in compliance with applicable environmental regulations.

Attached is the letter that will transmit the report from the U.S. Department of Energy-Richland Operations Office (DOE-RL) and WHC to the Washington State Department of Ecology (Ecology) and the U.S. Environmental Protection Agency (EPA). Included with that letter is a copy of the action schedule that WHC has developed to address the items identified in the report. Both documents will be bound in the front of the report following DOE-RL approval. Presently, all scheduled actions can be addressed within the existing budget and all actions are scheduled to be complete by June 1990, except for the closure plan which is scheduled to be complete by December 1991.

## DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractor, subcontractors or their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government of any agency thereof.



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# **HARTCROWSER**

*Earth and Environmental Technologies*

***Final Draft***

***Copy No.***

***RCRA Interim Status Assessment  
Part A Facilities  
222-S Laboratory***

***Prepared for  
Westinghouse Hanford Company***

***August 19, 1988  
J-1866-33.02***



# HARTCROWSER

Hart Crowser, Inc.  
1910 Fairview Avenue East  
Seattle, Washington 98102-3699  
206.324.9530

Earth and Environmental Technologies

J-1866-33.02

August 18, 1988

Westinghouse Hanford Company  
Post Office Box 1970  
Richland, Washington 99352

Attn: Mr. David Hutchison

Re: RCRA Interim Status Assessment  
Part A TSD Facilities  
222-S Laboratory

Our report on the RCRA Part A TSD Facility Assessment for the 222-S Laboratory is enclosed. The report presents our understanding of the current compliance status of the facility, as well as recommendations for improving compliance with the applicable federal and state dangerous waste treatment, storage, and disposal (TSD) regulations. The report also presents regulatory guidance for each of the specific sections of dangerous waste regulations that the facility was assessed against.

The assessment was limited to facilities and practices directly associated with the TSD units identified in the 222-S Laboratory RCRA Part A permit application; the 222-S Treatment Tanks and the 222-S Storage Pad. The facilities and practices were assessed relative to the interim status TSD requirements noted specifically in the report. The facilities and practices were not assessed relative to dangerous waste generator or generator accumulation requirements. Regulatory analysis of the facility was not performed.

The conclusions and recommendations in this report are based on information provided to the authors from several sources. Since it was beyond the scope of this project to independently confirm all information provided, there exists the possibility that portions of the information are incorrect, incomplete, or out of date. For example, although a facility operating manual may state that a certain practice is accomplished, we did not actually observe the facility operations to confirm that the specific practice is performed.



Westinghouse Hanford Company  
August 18, 1988

J-1866-33.02  
Page 2

Our conclusions and recommendations are based on our understanding and experience with the federal and state dangerous waste regulations. The conclusions and recommendations should not be construed as legal opinions. Consult legal council for more definitive compliance conclusions.

Sincerely,

HART CROWSER, Inc.

A handwritten signature in cursive script, reading "Ross D. Rieke".

ROSS D. RIEKE, P.E.  
Project Engineer

A handwritten signature in cursive script, reading "Eric B. Egbers".

ERIC B. EGBERS  
Program Technical director

RDR/EBE:clb  
LC186633/JOBS

Enclosure

CONTENTS

	<u>Page No.</u>
GENERAL REQUIREMENTS FOR DANGEROUS WASTE MANAGEMENT FACILITIES WAC 173-303-280	1
REQUIRED NOTICES WAC 173-303-290	4
GENERAL WASTE ANALYSIS WAC 173-303-300	5
SECURITY WAC 173-303-310	10
GENERAL INSPECTION WAC 173-303-320	13
PERSONNEL TRAINING WAC 173-303-330	17
PREPAREDNESS AND PREVENTION WAC 173-303-340	23
CONTINGENCY PLAN WAC 173-303-350	28
EMERGENCIES WAC 173-303-360	33
MANIFEST SYSTEM WAC 173-303-370	37
FACILITY RECORDKEEPING WAC 173-303-380	39
FACILITY REPORTING WAC 173-303-390	43
OTHER GENERAL REQUIREMENTS WAC 173-303-395	46
SITING STANDARDS WAC 173-303-420	51
PERFORMANCE STANDARDS WAC 173-303-430	52
BUFFER MONITORING ZONES WAC 173-303-440	54
GROUNDWATER MONITORING 40 CFR 265 SUBPART F	56
CLOSURE 40 CFR SUBPART G	58
FINANCIAL REQUIREMENTS 40 CFR 265 SUBPART H	70
USE AND MANAGEMENT OF CONTAINERS 40 CFR 265 SUBPART I	71
TANKS 40 CFR SUBPART J	78

GENERAL REQUIREMENTS FOR DANGEROUS WASTE  
MANAGEMENT FACILITIES  
WAC 173-303-280

REGULATIONS AND REQUIREMENTS

General Requirements

The general requirements for dangerous waste TSD facilities note two specific requirements.

- o The facility must be operated in a manner which does not present an imminent or substantial hazard to the public health or the environment.
- o The facility is required to apply for an EPA/state identification number from the regulatory agency.

The requirement to operate the facility in a manner which does not threaten human health or the environment is purposely general so that the agencies can use the requirement as a broad, enforcement tool. If other, more specific regulations can not be applied to a situation where the agency feels a threat exists, this general facility requirement can be used. This requirement is satisfied primarily by preventing or minimizing activities on the site which have a potential to expose the public or the environment to dangerous wastes.

Identification Number

The TSD facility EPA/state identification number is obtained by completing a Washington State notification of dangerous waste activities form, Form No. 2, and submitting the form to the Washington State Department of Ecology. The information requested on the form includes:

- o Name and address of the party handling the dangerous waste;

- o The type of dangerous waste activities;
- o Facility contact persons at the facility;
- o Identification of the dangerous wastes handled at the facility; and
- o The estimated quantity of dangerous wastes handled.

The identification number is used on the annual reports that a TSD facility must submit each year and on manifests which a facility may use to transfer wastes off-site.

#### **APPLICABILITY**

The 222-S Treatment Tanks and Storage Pad have been identified as TSD units in the Part A permit application. Thus, the 222-S facility must satisfy the general requirements for dangerous waste management facilities.

#### **INFORMATION REVIEWED AND CURRENT STATUS**

The current status of the general dangerous waste management practices at the 222-S facility was determined through interviews of the facility operators and a tour of the facility.

The Hanford Site is considered a single site and has received a single EPA/state identification number.

Dangerous wastes are collected in Tanks 101 and 103 from the laboratories in the 222-S building. The wastes are transferred to Tank 102 where the pH is elevated so that the waste can be transferred to and stored at the 200-W area Tank Farms.

Six drums of RMW are being stored at the 222-S Storage Pad until the wastes can be analyzed and shipped to the mixed waste storage facility. The drums are located in a portable storage box located on the pad.

**CONCLUSIONS AND RECOMMENDATIONS**

- o Other than the specific deficiencies identified in the following sections, the 222-S Treatment Tanks and Storage Pad are operated in a manner that poses no imminent or substantial threat to the environment.

**REQUIRED NOTICES**

**WAC 173-303-290**

**REGULATIONS AND REQUIREMENTS**

There are three specific types of notices required of TSD dangerous waste facilities.

- o The Washington State Department of Ecology must be notified at least four weeks prior to the TSD facility receiving dangerous waste from a source outside of the United States.
- o The owner/operator of the TSD facility is required to notify any new owner/operator of the dangerous waste regulations, chapter 173-303 WAC.
- o The TSD facility owner/operator must inform any generator of dangerous waste who ships its waste to the TSD facility that the facility has the appropriate permits to receive the wastes.

Since most of the Hanford Site does not receive wastes from off-site, the required notices requirements generally do not apply to the Hanford facilities. The Radioactive Mixed Waste Storage facility, however, may receive dangerous wastes from off-site and, thus, would be subject to the notification requirements. The facility would also be required to notify any new operator of the Hanford Site if, in the future, the site operations are assumed by someone other than WHC.

**APPLICABILITY**

The 222-S facility does not receive dangerous waste from off-site. Nor does the facility ship dangerous wastes off-site. Thus, the notification requirements are not applicable to the 222-S facility.

GENERAL WASTE ANALYSIS

WAC 173-303-300

REGULATIONS AND REQUIREMENTS

Waste Analysis Requirements

The waste analysis requirements assures that the TSD facility has sufficient understanding of the dangerous wastes to properly treat, store, or dispose of them. The waste analysis requirements include the following:

- o The owner/operator must obtain a detailed chemical, physical, and/or biological analysis of the wastes prior to its management. The analysis must provide the parameters necessary to assure that the material is properly handled. An understanding of the facility processes may be used as an alternative to testing if such knowledge is sufficient to meet the intent of the waste analysis requirements.
- o The wastes must be reexamined if the wastes or the processes generating the wastes change.
- o A written waste analysis plan is required which presents the specific parameters that the waste will be analyzed for, the rationale for selecting the parameters, sampling and test methods, and the frequency with which the initial waste analysis will reviewed or repeated. The plan must be maintained in the facility operating record.
- o If wastes are received from off-site, procedures are required to ensure that the wastes received are as anticipated. (Since most of the Hanford Site does not receive wastes from off-site, this requirement is not applicable for most Hanford facilities.)

The waste analysis requirement is an important step toward effective and safe waste handling procedures. The waste analysis requirement is not

simply a recordkeeping system for analytical data. The facility operator must carefully examine the precise function and nature of the TSD operations to formulate a suitable wastes analysis program.

Waste analysis is necessary for a proper closure plan. An understanding of the wastes is necessary to determine effective methods to remove and/or treat the dangerous wastes and to decontaminate the facility. Similar requirements exist for post-closure and groundwater monitoring activities.

#### Content of the Waste Analyses Plan

Process Control and Monitoring The waste analysis plan must consider the wastes at all stages of the TSD processes where the wastes may differ from one stage to another. For example, a dangerous waste being treated in Tank 102 should be analyzed before and after the treatment process. It should be analyzed prior to the process to ensure that the treatment is appropriate for the waste and does not result in a reactive or otherwise dangerous situation. The waste analysis should be accomplished after the treatment to ensure that the process is successful in effectively treating the waste.

The waste analysis plan must also identify tolerances that the wastes must meet in terms of specific parameters (i.e., measurable chemical or physical properties). The plan must show how the wastes are monitored to ensure that the specific tolerances are met. For example, consider a treatment tank that is designed to receive dangerous waste with a pH of about 3.0 and then butted up to a pH of about 12.0. The waste analysis plan must note the range of pH around the 3.0 and 12.0 target values. The plan must describe in detail how, when, and where the waste will be sampled and tested to ensure that the pH of the incoming and outgoing waste falls within the specified ranges.

Material Compatibility The waste analysis must show the compatibility between the wastes and all materials that come in contact with the wastes. For example, the compatibility between the wastes and any tank materials,

container materials, synthetic liner materials, secondary containment materials, etc. must be documented as a result of the waste analysis program.

Representative Sampling The waste analysis plan must note specifically how representative samples of the wastes will be obtained. Information that must be provided includes:

- o Methods to ensure that the samples properly represent the range of the characteristics of the wastes;
- o Sampling techniques; and
- o Sampling equipment.

Quality Assurance and Quality Control The waste analysis plan must detail the quality assurance/quality control program that ensures that all of the waste analysis information is technically defensible and properly documented. The QA/QC program should address:

- o The number of samples and sample blanks required for statistical completeness;
- o Preparation, maintenance, and cleaning of containers and equipment;
- o Certification of any laboratories used;
- o Chain of custody procedures and proper sample handling;
- o Laboratory testing methods approved by the EPA or state regulatory agency and justifications if non-approved methods are used;
- o Health and safety protocols; and
- o Proper methods of data compilation, review, and presentation.

#### APPLICABILITY

The 222-S Treatment Tanks and Storage Pad have been identified as TSD units in the Part A permit application. Thus, the 222-S facility is required to prepare and implement a waste analysis program for the dangerous wastes managed on-site. The program must be detailed within a written waste analysis plan.

#### INFORMATION REVIEWED AND CURRENT STATUS

The current status of the waste analysis plan and program at the 222-S facility was determined from facility personnel interviews and review of the facility operating file.

The 222-S facility does not possess a waste analysis program or plan specific to their waste management units. Analysis is performed on the effluent from Tank 102 to Tank Farms to verify compatibility. The influent to Tank 102 is not analyzed, however. Additionally, containerized radioactive mixed waste (RMW) currently in storage has not been analyzed, and therefore, it is unknown as to what the containers contain.

#### CONCLUSIONS AND RECOMMENDATIONS

- o (Waste Analysis) Obtain a detailed waste analysis of the waste stored at the 222-S Storage Pad. Since the specific origin of the waste is unknown, laboratory testing according to SW 846 will be required.
- o (Waste Analysis) Determine the pH of the wastes entering the 222-S Treatment Tanks prior to treatment to confirm that the wastes are corrosive dangerous wastes. Analysis must determine if the waste is dangerous for reasons other than corrosivity. Record the data in the facility dangerous waste file.

- o (Waste Analysis) Monitor the wastes in the treatment tanks for dangerous waste solvents to ensure that such wastes are not being disposed of improperly.
  
- o (Waste Analysis) Confirm through the waste analysis that the wastes in the treatment tanks are compatible with the tank materials.
  
- o (Waste Analysis Plan) Develop a detailed waste analysis plan which describes the waste analysis program. Include both the 222-S Treatment Tanks and the 222-S Storage Pad.

**SECURITY**  
**WAC 173-303-310**

**REGULATIONS AND REQUIREMENTS**

Active Portion Security

All TSD facilities must have sufficient security to prevent unknowing entry and to minimize unauthorized entry of people and/or animals to the active portions of the facility. The active portion of a facility is considered the dangerous waste management unit such as a specific tank, container area, or landfill unit within the facility. Transfer areas such as loading and unloading docks are also considered an active portion of the facility. The specific features required of the security system include:

- o Signs around the active portions of the facility; and either
- o A 24-hour surveillance system; or
- o Artificial or natural barriers with controlled access.

Signs

The signs around the active portions of the facility are required to satisfy the following:

- o The sign must clearly note the danger associated with the TSD unit and that unauthorized people are not allowed. At a minimum, the sign must read "Danger-Unauthorized Personnel Keep Out".
- o The sign must be legible from a distance of at least 25 feet.
- o A sufficient number of signs must be placed around the active portion of the facility so that a sign is visible from any approach.

- o The sign must be in English as well as any other language predominant in the area around the TSD facility.

#### 24-Hour Surveillance

A 24-hour surveillance system should immediately identify any attempted or inadvertent entry into the active portion of the facility. Continuously monitored closed circuit TV systems and 24-hour guard service are typical types of 24-hour surveillance systems.

#### Artificial or Natural Barriers with Controlled Access

Artificial or natural barriers with controlled access points can also be provide security. Artificial barriers are considered to be items such as 6-foot or higher lockable fences with gates and building enclosures. Natural barriers are such items as rivers, lakes, and steep hillsides. Controlled access points are points where entry and exit to the facility is closely controlled such as lockable or continuously patrolled gates or doors.

#### **APPLICABILITY**

The 222-S Treatment Tanks and Storage Pad have been identified as TSD units in the Part A permit application. Thus, security around these units must satisfy the TSD security requirements.

#### **INFORMATION REVIEWED AND CURRENT STATUS**

The current status and condition of the security around the 222-S Treatment Tanks and Storage Pad was determined from interviews of the facility operators and observation of the units and surrounding area.

Access to the 222-S facility is controlled by the overall Hanford Site security. Access to the 222-S Pad is restricted by the locked doors on the storage box in which the six drums of RMW are stored. The treatment tanks

are located in a vault which is covered by thick, massive blocks. Access to the operations building near the tanks is controlled by a locked door. Signs warning of the danger and instructing unauthorized people from entering are not posted around the 222-S Pad or the 222-S Treatment Tanks.

#### CONCLUSIONS AND RECOMMENDATIONS

- o (Signs) Post signs that bear the legend "Danger - Unauthorized Personnel Keep Out" around the 222-S Pad and the 222-S Treatment Tanks. Post a sufficient number of signs so that one is visible from any approaches to the units.
  
- o The control over access to the facility and the individual units is adequate.

**GENERAL INSPECTION**

**WAC 173-303-320**

**REGULATIONS AND REQUIREMENTS**

Inspection Program

Facilities which treat, store, or dispose dangerous wastes must develop and implement a detailed inspection program. A written inspection plan must be developed and maintained in the facility operating records and must address both general and unit-specific inspection requirements. The general inspection requirements refer to inspection of the portions of the TSD facility other than the actual TSD container, tank, landfill, etc., units. Unit-specific inspection requirements are presented as part of the individual container, tank, landfill, etc., requirements.

The general facility inspection program must consider these items:

- o Safety equipment such as emergency eye wash stations, protective shields, first aid equipment, and respirators;
- o Emergency equipment such as spill control supplies, fire extinguishers, emergency lights, generators, and fire alarms;
- o Monitoring equipment such as thermostats, fire detection equipment, level, pressure, and flow transducers;
- o Security equipment such as fences, signs, lights, and locks;
- o Communication equipment such as radios, intercoms, closed circuit TV systems, and public address systems;
- o Other general facility items such as building floors, walls, roofs, elevators, ramps, and vehicles.

Detailed Inspection Plan

The inspection plan should note in great detail what specific items are to be inspected, when they are to be inspected, and what is to be checked for on each item. The level of detail required in an inspection plan is typically underestimated. It is not sufficient to simply "check the closed circuit TV system," as an example. Rather, each of the cameras should be checked for clarity, mobility, and focusing. Each receiving unit should be checked for cleanliness, picture quality, and picture adjustments. The inspection should reflect all elements which are necessary for the proper functioning of the item.

Inspection Records Records of the inspections must be maintained. At a minimum, the logs must note:

- o The date and time of the inspection;
- o The printed name and signature of the inspector;
- o Notations of the observations made; and
- o The date and nature of any action required as a result of the inspection.

The inspection logs must be maintained in the facility operating records for at least three years.

Checklists Typically, checklists guide the inspection of particular items. The checklists should reflect the level of detail required of the inspections. The checklists should give specific guidance on what to check on each item, how to inspect it, and how to note any deficiencies. Commonly, the inspection checklists serve as the inspection log and include space to note any responses to problems observed during the inspection.

Frequency of Inspections The frequency of the inspections depends on the specific nature and function of the item being inspected. Equipment which continuously prevents dangerous wastes from spilling or leaking should be inspected daily. Equipment which is used only in the case of an emergency, likely needs to be inspected monthly. In general, the more a failure of a piece of equipment poses a threat to the environment or human health, and the more frequently the item is required to perform its function, the more often it should be inspected. Equipment which is inspected less often should be subjected to a more rigorous inspection.

Unit-Specific Inspections Unit-specific inspection requirements are presented in the respective sections addressing landfills, tanks, and container requirements. Additional inspection requirements for facilities that handle ignitable or reactive dangerous wastes are discussed in the Other General Requirements section.

#### **APPLICABILITY**

The 222-S Treatment Tanks and the 222-S Storage Pad have been identified as TSD units in the Part A permit application. Thus, the 222-S facility must satisfy the general inspection requirements,

#### **INFORMATION REVIEWED AND CURRENT STATUS**

The current status of the general inspection program at the 222-S facility was determined through interviews of the facility operators and review of reports of recent facility inspections.

A written inspection plan does not exist for the 222-S facility. Various inspections such as daily gathering of tank level data, container area inspection, and emergency equipment inspections occur at the facility. Documentation of the inspections, however, is either not maintained or is not in a central location.

Dangerous waste management, fire, and industrial safety inspections have recently been performed at the 222-S facility. These inspections, however, are not regularly scheduled on a frequent basis.

**CONCLUSIONS AND RECOMMENDATIONS**

- o (Inspection Plan) Develop a written inspection plan which notes the various inspections and the frequency with which they are accomplished.
- o (Checklists) Develop inspection checklists for each of the inspections.
- o (Inspection Records) Maintain the inspection plan, checklists, and other information relative to the inspections, in the facility dangerous waste file.

PERSONNEL TRAINING

WAC 173-303-330

REGULATIONS AND REQUIREMENTS

Training Program

All employees at a TSD facility who are directly associated with the management of dangerous waste must successfully complete a training program which ensures the facility's compliance with the dangerous waste regulations. The regulations define "facility personnel" as

"All persons who work at, or oversee the operations of a hazardous waste facility, and whose actions or failure to act may result in noncompliance with the requirements (of the regulations)."

The training elements include:

- o The proper methods of handling dangerous wastes in the facility;
- o The proper response to emergencies and implementation of the contingency plan; and
- o Instructors knowledgeable in proper dangerous waste management procedures relative to the specific facility.

New employees should undergo training within 6 months of employment and must be supervised by a trained person until training has been successfully completed. Annually, each employee must review the training program. The facility operating file must include a written training plan and records of each employees completion of the training.

Training Alternatives The regulations offer alternatives for specifically how the training requirements can be met. The training can be accomplished

through a formal course presented either in the facility or by instructors from outside the facility. Alternatively, the training can be accomplished by on-the-job training (OJT) instruction from facility supervisors. It is common for the facility supervisors to attend a course taught by instructors from outside the facility and then to return to the facility to instruct the remaining facility personnel.

The specific elements in the training course should be directed toward the specific wastes, units, and activities at the TSD facility. The training program should address how the types of wastes, units, and management activities relate to the following:

- o The chemical characteristics and associated hazards of the dangerous wastes handled at the facility;
- o Maintenance, inspection, and use of the facility emergency response and monitoring equipment;
- o Proper implementation of the contingency plan including response to a leak, spill, fire, explosion, or groundwater contamination incident;
- o Proper operation, inspection, and maintenance of waste feed cutoff systems;
- o Proper operation, inspection, and maintenance of the facility communication equipment; and
- o Shut down of operations.

For example, the training program should include instruction in how to test the high level alarm on Tank 102 and at what weight factor the alarm should sound. Another example would be instructing the facility personnel in the location of the spill response equipment nearest to the 222-S Pad.

Instructors The training instructor must have thorough knowledge of the dangerous waste regulations and how they relate to the specific nature of the facility and dangerous wastes handled at the facility. Given the ultimate responsibility of the training instructor, it is desirable if the instructor is specifically trained in the field of dangerous waste management. On-the-job training is best taught by the facility supervisor since that person is generally in the best position to judge whether an individual has displayed sufficient skills and knowledge to perform required tasks.

New Employees Each employee required to receive the training must do so within the first 6 months of employment at the facility. Until the training is received, the employee must work under the direct supervision of an individual that has received the training. Thereafter, each employee must complete an annual review of the training, at a minimum. If the facility or facility operations change or if the nature of the wastes handled at the facility change, the employees must be retrained.

#### Training Plan

A training plan documenting the training program must be prepared and included in the facility operating record. The plan should show in detail the specific training procedures and how the training requirements are met at the particular TSD facility. Specifically, the plan must include the following for each position related to the management of dangerous wastes at the TSD facility:

- o Job title and description;
- o Name of employee filling the position;
- o Requisite skills, education, and experience;

- o Detailed, written description of the type and amount of training required for the position including course outlines, handouts, exams, etc.; and
- o Documentation showing that the required training, both initial training and annual reviews, has been received within the required time period.

#### Training Records

Records showing that the training requirements are being satisfied must be maintained in the facility operating records. The training plan should be maintained permanently in the files. Documentation regarding individual employee's completion of the required training must be maintained for at least three years after the employee's last day at the facility. The records should be detailed and complete and include the dates of each employee's training and the courses attended. They should allow an inspector to quickly determine that the facility is meeting the training requirements.

#### **APPLICABILITY**

The 222-S Treatment Tanks and the 222-S Storage Pad have been identified as TSD units on the Part A permit application. Thus, the 222-S facility must satisfy the training requirements with the training program being directed toward the treatment tanks and the storage pad.

#### **INFORMATION REVIEWED AND CURRENT STATUS**

The current status of the training program at the 222-S facility was determined through interviews of the facility operators and review of the current training records for several of the personnel.

The training program at the 222-S facility is based on the training courses provided by Westinghouse Hanford Company on the Hanford Site. All of the employees at the 222-S facility attend Course 006G outside the facility.

This course instructs the personnel on the basic requirements of generators of dangerous wastes. On-the-job training (OJT), noted as Course 006H, is given by the shift managers to their respective personnel. This course provides basic guidance on how to properly handle dangerous wastes at the facility. Each employee also receives OJT Course 2340 which discusses the location and operation of the emergency equipment in the facility. Annual review of the 006H and 2340 material is also given by the shift managers.

Only a few of the employees at the 222-S facility receive Course 006S which provides a more detailed instruction on the proper handling of dangerous wastes. There are some shift managers who have not attended the 006S course but who are instructing the OJT 006H to their facility personnel.

No written training plan exists at the 222-S facility. Records of the employees' training were available.

#### CONCLUSIONS AND RECOMMENDATIONS

- o (Training Plan) Develop a written training plan which notes the process by which each of the employees receives the required training. Include in the training plan the standard operating procedures which the employees are taught and which relate to the TSD units at the facility. Note how the training in the standard operating procedures is combined with the OJT courses to provide the employees adequate dangerous waste training.
- o (Instructors) Have all OJT instructors attend both 006G and 006S, including annual reviews of the 006G and 006H materials. The 006G course by itself does not provide adequate training for instructors of the 006H and 2340 EP/APC OJT courses. Alternatively, develop a facility specific program to train the shift managers in the required knowledge of proper dangerous waste management practices.
- o (Training Program) Review the OJT 006H and 2340 EP/APC course contents to ensure that all of the items required by the training regulations

are being addressed. The OJT 006H course must be more specific toward responses to emergencies at both the treatment tanks and the storage pad, inspection and maintenance of the tank and pad equipment, and the hazards associated with the wastes handled in the treatment tanks and at the pad.

- o (Training Records) Maintain records of each employee's training in the facility dangerous waste file.

**PREPAREDNESS AND PREVENTION**

**WAC 173-303-340**

**REGULATIONS AND REQUIREMENTS**

Preparedness and Prevention Requirements

Dangerous waste TSD facilities must be designed, constructed, maintained, and operated to minimize the possibility of a release of dangerous waste to the environment. Regulations directed toward satisfying this general requirement are presented in terms of four general requirements:

- o Required equipment;
- o Access to communication equipment and alarms;
- o Aisle space; and
- o Arrangements with local authorities.

Required Equipment

- o An internal communication system;
- o An external communication system, such as a telephone, capable of summoning emergency aid;
- o Portable fire control equipment, fire extinguishers, spill control equipment, and decontamination equipment; and
- o Water at sufficient pressure and volume to supply the water hoses, sprinkler systems, foaming equipment, etc.

Internal Communication The internal communication system must allow immediate notification to all employees of any emergency and to inform them of the proper evacuation. The system should also immediately notify emergency response personnel within the facility as to the location and nature of the emergency. Typical internal communication systems include alarms with varying tones, intercom systems, and public address systems. This equipment must be located so that personnel have immediate access, either directly or by visual contact with someone with immediate access, wherever dangerous wastes are being handled.

External Communication External communication systems are required to be able to immediately notify emergency response personnel from outside the facility. In particular, the system should notify the local police and fire departments or local or state response teams as to the location, nature, and extent of the emergency situation. Typically, external communication systems consist of a telephone which is able to call the emergency response personnel. The telephone should be available at the control room or a main office. If only one person is in the facility when it is operating, that person must have immediate access to the external communication system (i.e., a hand held radio phone if the individual is not stationed near a phone).

Fire and Spill Control Equipment The facility's fire control equipment should be based on the specific nature of the TSD activities occurring at the site and the associated potential fire hazards. If the wastes handled require a particular method of fire control (special foams, inert gas, dry chemicals, etc.), that type of equipment should be maintained at the facility. Similarly, the type of spill control equipment (e.g., pumps, vacuums, absorbants, etc.) at the facility should reflect the particular nature of the materials that could potentially spill. The equipment should be stored at the facility near the location where its use would be anticipated.

Water System The water system at the facility must provide adequate water pressure and volume to meet any emergency. The facility sprinkler system,

if present, should be designed for the anticipated water pressure and volumes.

Aisle Space The TSD facility must maintain adequate aisle space within the facility to allow the movement of emergency equipment and personnel within the facility. Adequate space should be provided to inspect the units within the facility, move maintenance and emergency equipment to areas where it could be necessary, and allow evacuation of the facility.

#### Consultation with Emergency Aid Agencies

Local agencies that may respond to an emergency at the TSD facility should be consulted to exchange information and make arrangements between the TSD facility and the agencies. Such relationships should particularly be developed with the local police and fire departments, local hospitals, and state emergency response teams. Specific information that should be provided to the local police and fire departments and emergency response personnel include:

- o Layout of the facility;
- o The types, nature, amount, location, and hazards associated with the dangerous wastes handled at the facility;
- o Areas in the facility where personnel are typically working;
- o Entrances into the facility; and
- o Evacuation routes.

Information for local hospitals include the types of dangerous wastes handled at the facility and the associated health dangers associated with the wastes. The health dangers should include burns and the effects of inhalation, skin contact, ingestion, etc.

Where outside agencies decline to enter into such agreements with the TSD facility, their refusal should be documented and noted in the facility operating record.

#### APPLICABILITY

The 222-S Treatment Tanks and Storage Pad have been identified as TSD units in the facilities Part A permit application. Thus, the facility must satisfy the preparedness and prevention requirements.

#### INFORMATION REVIEWED AND CURRENT STATUS

The current status of the preparedness and prevention of the 222-S facility was determined through interviews of the facility operators and a walking tour of the facility. A schematic map of the facility showing the location of some of the emergency equipment was also reviewed.

Emergency equipment such as fire extinguishers, spill control kits, and respirators are located in several areas around the 222-S building. This equipment is not located immediately adjacent to the 222-S Storage Pad or the 222-S Treatment Tanks. Other than a fire extinguisher which is located in the 219-S building, the emergency equipment is located some distance and/or through a lockable door from the TSD units. Fire hydrants are located within 100 feet of the TSD units.

An internal phone and paging system are located adjacent to the pad and treatment tanks. An external telephone is located immediately inside a door near the storage pad.

The storage box at the 222-S Pad held only a few drums other than the six stored RMW drums. The small number of drums allowed easy access and sufficient aisle space. Access to the treatment tanks was limited by the massive cover blocks placed over the vault containing the tanks. The cover blocks as well as the 219-S building are easily accessible.

The Hanford Fire Department has been notified of the general nature of the materials handled at the 222-S facility. Specific information regarding the wastes at the TSD units, location of the TSD units, and the specific hazards associated with the TSD units have not been communicated to the fire department. The Hanford Site has general agreements with local hospitals and police departments. These agreements are not specific to the individual facilities on the Hanford Site.

#### CONCLUSIONS AND RECOMMENDATIONS

- o (Fire and Spill Control Equipment) Place a fire extinguisher, a spill control kit, and respirators near the 222-S Storage Pad. Place fire alarms adjacent to the TSD units.
  
- o (Fire and Spill Control Equipment) Until emergency equipment is located at the storage pad, develop standard operating procedures that ensure that the 222-S building doors are unlocked or that personnel have keys to the door. The purpose of these procedures is to allow access to the emergency equipment.
  
- o (Fire and Spill Control Equipment) Although it is not specifically required by the regulations, it is good practice to maintain records of the inspection, maintenance, and testing of the emergency equipment in the facility dangerous waste file.

CONTINGENCY PLAN

WAC 173-303-350

REGULATIONS AND REQUIREMENTS

Contingency Plan Requirements

Dangerous waste TSD facilities must develop procedures to effectively address emergencies. The procedures should lessen the impact on human health and the environment if fires, explosions, or releases of dangerous wastes to the environment occur. The emergency procedures to be followed in the TSD facility must be presented in a contingency plan. The contingency plan must include the following:

- o A detailed description of the specific actions to be taken if specific emergencies occur;
- o A description of the arrangements made with local agencies which might be required to respond in the event of an emergency;
- o A current list of the emergency coordinator(s) including work and home phone numbers and address;
- o A list of all emergency equipment and its location at the facility; and
- o An evacuation plan for the facility personnel.

Content of the Contingency Plan

Detailed Responses to Emergencies The contingency plan must present detailed instructions to facility personnel on what specific actions to take in the event of specific emergencies. The nature of the TSD facility, its dangerous wastes management units, and the specific activities which

occur in each of the units as well as other portions of the facility need to be considered in postulating what potential emergencies could occur.

Once the potential emergencies are identified, detailed and specific responses to those emergencies must be developed and presented. The contingency plan should be written as instructions to the facility personnel for their use during an emergency. The plan should not be a generic, standard discussion of what to do in the case of an emergency. Simply stating that "If you observe a spill, clean it up" does not satisfy the requirements of a contingency plan. Examples of the level of unit/event specific instructions are required are as follows:

If leak is detected in the sidewalls of Tank 102 take the following steps:

- Alert the emergency coordinator;
- Turn off valve B to stop inflow into tank;
- Confirm that the flow has been stopped by observing flow meter C;
- Turn on pump D to transfer tank contents to Tank 103;
- Confirm that the tank is emptying by observing the tank level indicator;
- Turn on sump pump E to empty the tank containment area.

If you observe a fire in the Conex container storage area, take the following steps:

- Notify emergency services via the PAX phone located along the outside northern wall of the 222-S building;
- Identify the source of the fire and note if drums containing radioactive mixed waste (RMW) are involved. If so, tell the emergency personnel when they arrive;
- If RMW is involved in the fire do not apply water, use fire extinguishers located adjacent to exit door #15 of the 222-S building;
- If RMW is not involved, direct the fire units to the water hydrant north of the Conex.

Authority during Emergencies The plan must also include detailed discussions of who has what authority at what time. For example, the facility emergency coordinator could have the authority over a fire until the fire fighting crews arrive. Then the fire chief assumes prime responsibility.

Agreements with Local Authorities The contingency plan should document all of the arrangements and agreements that have been made with local agencies. These agreements would be those required by the preparedness and prevention requirements (WAC 173-303-340) and include local fire departments, police departments, and local emergency response teams. The nature of the agreements should be provided so that roles and responsibilities in the event of specific types of emergencies can be determined. Copies of the contingency plans are required to be provided to the local agencies with which the facility has agreements.

List of Emergency Coordinators The list of emergency coordinators in the contingency plan must be complete and current. Since the plan will be used as an instruction manual in the event of an emergency, it must be clear from the plan who the emergency coordinator is and how to contact that person.

List of Emergency Equipment The contingency plan must include a list of all of the emergency equipment at the facility. This equipment is noted in the preparedness and prevention requirements (i.e., fire extinguishers, spill control equipment, communication systems, etc.). The plan should list all of the equipment available, its location within the facility, and a physical description of each item. The use(s) and capabilities of the equipment should also be provided. A plot plan is an excellent way to show the location of the emergency equipment. Again, the information should be presented in a manner which helps the facility and emergency personnel effectively respond to specific emergencies in the facility.

Evacuation Routes Emergency evacuation routes and procedures must be presented in detail in the contingency plan. Methods to communicate the

proper routes under specific emergency situations should also be documented. For example, different types of alarms could signify which specific evacuation route is appropriate in particular emergencies.

#### Filing and Modifying the Contingency Plan

A copy of the contingency plan must be maintained in the facility operating record. It should be easily available to inspectors so that they can quickly determine if the facility plan satisfies the contingency plan requirements.

The contingency plan must be amended if it fails during an emergency, if applicable regulations change, if the facility or facility operations change, if the emergency coordinators change, or if the list of emergency equipment changes.

#### **APPLICABILITY**

The 222-S Treatment Tanks and the 222-S Storage Pad have been identified as TSD units in the Part A permit application. Thus, the 222-S facility must develop and maintain on-site a written contingency plan.

#### **INFORMATION REVIEWED AND CURRENT STATUS**

The current status of the 222-S laboratory contingency plan was determined through interviews of the facility personnel and review of the facility operating records.

The 222-S facility does not have a contingency plan which incorporates the necessary emergency procedures for the 222-S Treatment Tanks and 222-S Storage Pad. The plans and operating procedures which were reviewed, when combined, satisfy many of the regulatory requirements identified in WAC 173-303-350. These documents, however, do not address all of the items required in a contingency plan.

#### CONCLUSIONS AND RECOMMENDATIONS

- o (Contingency Plan) Develop a written contingency plan which details the specific actions that facility personnel will follow in the event of specific possible emergencies involving the 222-S Treatment Tanks or the 222-S Storage Pad.
  
- o (Contingency Plan Content) The written contingency plan should:
  - Specifically include the waste management units, Tanks 102, 103, and the container storage pad;
  
  - Describe the arrangements agreed to by the Hanford security, Hanford and neighboring fire districts, emergency response personnel, and hospitals;
  
  - Include the names of the shift managers acting as alternate emergency director (coordinator) and home phone numbers for all personnel designated as director or alternate;
  
  - Include a complete list of emergency equipment, including fire extinguishers, water hydrants, respirators and SCBA, spill control kits and their contents, emergency phones, emergency showers and eyewash stations, and alarms. Incorporate the location of the emergency equipment on a site plan and a brief explanation of its capabilities in the plan narrative.
  
  - Include an evacuation plan which describes the requirements for its use, routes, and alternatives.
  
- o (Filing Contingency Plan) Maintain a current copy of the contingency plan on site and provide it to all emergency services which may provide assistance in the event of an emergency.

**EMERGENCIES**  
**WAC 173-303-360**

**REGULATIONS AND REQUIREMENTS**

Emergency Requirements

Dangerous waste TSD facilities must satisfy specific requirements in the event of an emergency at the facility. These requirements are directed toward minimizing any hazards to human health or the environment resulting from the emergency. Although the contingency plan is to provide facility-specific instructions in the event of specific types of emergencies, the general emergency requirements present particular responses that are required of all facilities during all emergencies.

The Emergency Coordinator

The emergency coordinator identified in the contingency plan must have the authority to commit the necessary resources to respond to an emergency. Thus, the coordinator is typically one of the senior individuals within the facility. The emergency coordinator should be an individual who is closely involved with the day-to-day dangerous waste management activities at the facility. The coordinator must be knowledgeable in:

- o The facility contingency plan;
- o The location and properties of all dangerous wastes handled at the facility;
- o The location of all records within the facility; and
- o The layout of the facility.

Either the emergency coordinator, or an alternate coordinator who meets the above requirements and who reports to the emergency coordinator, must be on-site at all times the facility is operating. Specific procedures should be documented regarding how an alternate coordinator remains in contact with the primary coordinator when the primary coordinator is off-site.

The regulations note specific requirements that the emergency coordinator and owner/operator must satisfy in the event of an emergency. The emergency coordinator, in addition to any other activity required by the facility contingency plan, must immediately:

- o Activate alarms and communication systems and notify state and local response teams if their help is necessary;
- o Identify the nature and extent of any release, fire, or explosion;
- o Assess any potential hazards to human health or the environment resulting from the emergency;
- o Report any potential threat to the area outside the facility to the appropriate local authorities and help determine if the area needs to be evacuated;
- o Take all reasonable measures to stop any releases, fires, or explosions, and ensure that they do not re-occur or spread;
- o Properly treat, store, or dispose of any wastes recovered from spills or releases generated during the emergency; and
- o Clean, repair, or replace any emergency equipment used or damaged by the emergency and ensure that it is in good working order before resuming operations.

Notification and Reports

The owner/operator must notify the regulatory agencies that the facility equipment has been properly cleaned, repaired, or replaced before resuming operations. The owner/operator must also prepare a written report which includes the following:

- o Name, address, and phone number of the facility and the owner/operator;
- o Date, time, and type of emergency;
- o The types and quantities of materials involved in the emergency;
- o The extent of any injuries;
- o An assessment of any hazards to human health or the environment due to the emergency;
- o The amount and disposition of any material recovered from releases during the emergency; and
- o Cause of the emergency and corrective actions taken to prevent reoccurrence of a similar incident.

The report must be submitted within 15 days of the emergency.

**APPLICABILITY**

The 222-S Treatment Tanks and Storage Pad have been identified as TSD units in the Part A permit application. Thus, the 222-S facility is required to comply with the procedures set forth in WAC 173-303-360, Emergencies.

#### INFORMATION REVIEWED AND CURRENT STATUS

The current status of the emergency procedures and responsibilities at the 222-S facility was determined from facility personnel interviews and review of the facility operating records.

The 222-S facility does not at this time have emergency procedures specific to the waste management units, Tanks 102, 103, and container storage pad. Emergency equipment is available at or near the waste management units, however, including a PAX phone outside building exits number 14, 15, and 16, fire extinguishers just inside exits number 15 and 16 and 219-S building, fire alarm and SCBA inside exit number 16, and spill kits, emergency showers, and respirators along corridor 8F of the 222-S building. Two water hydrants are located north of the container storage facility, while one hydrant is located south of the 219-S building and east of the 222-S building.

#### CONCLUSIONS AND RECOMMENDATIONS

- o (Emergency Coordinator) Ensure that the emergency coordinator and alternates are intimately familiar with the contents of the facility contingency plan, location and properties of all wastes managed, and the location of all records pertinent to the management of the waste.
- o (Emergency Procedures) Develop and train the emergency coordinator and alternates in the emergency procedures as they relate to the treatment tanks and storage pad. Have the emergency coordinators attend the dangerous waste training courses 006G, 006S, and 2340 EP/APC. Alternatively, develop a facility-specific training program to instruct the emergency coordinator and alternates.

**MANIFEST SYSTEM**

**WAC 173-303-370**

**REGULATIONS AND REQUIREMENTS**

Dangerous waste facilities that receive waste from off-site are required to adhere to specific manifest practices. These manifest practices include signing procedures, recordkeeping, methods to handle discrepancies, and reasons and methods to refuse a shipment.

The Hanford Site rarely receives shipments of dangerous wastes from off-site. Thus, the manifest requirements are not typically applicable to the assessment of Hanford Site facilities. If, however, shipments of dangerous wastes are received from off-site for treatment or disposal, manifest requirements would apply and the facility personnel must:

- o Sign and date each copy of the manifest;
- o Note any discrepancy within the manifest information or between the manifest information and the shipment;
- o Provide the transporter a signed copy of the manifest;
- o Return a signed copy of the manifest to the generator; and
- o Retain a signed copy of the manifest in the facility operating file.

If a discrepancy is noted in the manifest, it must be immediately reconciled and clarified with the generator and/or transporter. A written report to regulatory agency explaining the discrepancy is required if the conflict is not resolved within 15 days.

**APPLICABILITY**

The 222-S facility does not receive dangerous waste from off-site. Nor does the facility ship dangerous wastes off-site. Thus, the manifest requirements are not applicable to the 222-S facility.

FACILITY RECORDKEEPING

WAC 173-303-380

REGULATIONS AND REQUIREMENTS

Facility Recordkeeping Requirements

Dangerous waste TSD facilities must maintain complete and accurate records of all dangerous waste management activities that have occurred at the site. The record system should document all dangerous waste activities and allow easy reconstruction of past dangerous waste management practices. Particularly, the records should be such that an inspector from a regulatory agency can quickly determine whether the facility is operating in compliance with the dangerous waste regulations.

Required Records

Specific items that should be included in the facility records as a minimum are:

- o Records of the amount and nature of dangerous wastes treated, stored, or disposed of at the facility including dates, source, final disposition, methods, etc.;
- o Records of where (what units within the facility) specific wastes have been, or are, treated, stored, or disposed of;
- o Waste analysis results including laboratory test results, waste designation narratives, and any petitions regarding waste designation that have been submitted;
- o Contingency plan, emergency reports, and records associated with past emergency situations at the facility;

- o Inspection logs and records of follow up actions as well as results from inspections by outside inspectors;
- o Groundwater monitoring data and testing results; and
- o Closure and post-closure plans and cost estimates.

#### Waste Identification

Records which document the nature of the wastes and their management must describe the waste by its common name and by its dangerous waste number. The TSD management method codes must also be provided. For example, a waste corrosive liquid stored in a tank would be referred to as S02 (management code for storage in a tank) of a D002 (corrosive) waste.

#### Records Location and Access

The facility dangerous waste records should be maintained in a single location separate from the general facility records so that they can be easily found and reviewed. Although it is not required by the regulations, it is recommended that a duplicate of the dangerous waste records be maintained in a separate location in case the originals are destroyed. The records must be retained at least until closure of the facility.

The records should be maintained under the control of a select few individuals within the facility. Unauthorized personnel should not be allowed access to the dangerous waste records. The records must be available for inspection upon request by the regulatory agencies.

#### **APPLICABILITY**

The 222-S Treatment Tanks and Storage Pad have been identified as TSD units in the Part A permit application. Thus, the facility must satisfy the TSD recordkeeping requirements.

#### INFORMATION REVIEWED AND CURRENT STATUS

The current status of the 222-S facility recordkeeping practices was determined through interviews of the facility operators and a brief review of the existing dangerous waste files at the 222-S facility.

Other than a file of internal dangerous waste shipping manifests located in an operators office, few dangerous waste records are maintained at the 222-S facility. Dangerous waste records such as copies of the Part A permit application, container storage area inspection logs, and treatment tank treatment and transfer data are located in various files around the facility.

#### CONCLUSIONS AND RECOMMENDATIONS

- o (Records Location and Access) Although it is not required by the regulations, maintain all records pertaining to the management of dangerous wastes in a single file (dangerous waste file). Develop a systematic approach to properly file all relevant information so that it can be easily retrieved.
  
- o (Records Location and Access) Although it is not required by the regulations, have the file under the control of only one or two people.
  
- o (Required Records) In addition to the existing TSD records currently maintained in various locations around the facility, include the following dangerous waste information in the single file:
  - Inspection logs of the treatment tanks;
  
  - Contingency plans including both the site plan as well as plans specific to the 222-S facility;

- Waste analysis data on the wastes in the tanks and the drums; and
  - Closure plans as they are developed for the 222-S facility.
- o Although it is not required by the regulations, it is good practice to continue to manifest shipments of dangerous waste to the 616 facility and maintain accurate records of these shipments

**FACILITY REPORTING**

**WAC 173-303-390**

**REGULATIONS AND REQUIREMENTS**

Reporting Requirements

The owner/operator of a dangerous waste management facility must submit reports on various activities at the facility. In particular the following reports are required:

- o Reports documenting unmanifested dangerous waste shipments;
- o Annual reports; and
- o Other additional reports.

Unmanifested Shipments

Facilities must report dangerous waste shipments received from off-site without an accompanying manifest. Since the Hanford Site rarely receives dangerous waste from off-site, the Hanford Site facilities do not typically have cause to submit this type of report.

Annual Reports

By March 1 of each year, dangerous waste TSD facilities must submit annual reports which document the dangerous waste activities at the facility for the previous calendar year. A particular form, Form 5, available from the regulatory agency, is to be used to develop the annual report. Specific information relevant to the Hanford Site facilities that is required on the form includes:

- o The EPA/state identification number, name, and address of the facility;

- o The amount and nature of all dangerous wastes treated, stored, or disposed of at the facility using the dangerous waste numbers;
- o The methods of treatment, storage, or disposal used at the facility using the dangerous waste handling codes; and
- o The most recent closure and post-closure cost estimates.

The Hanford Site submits a single annual report for the entire site. The report includes the TSD activities at each of the individual facilities. The individual facilities submit their annual information to the preparers of the overall Hanford Site annual report.

#### Other Reports

Other reports which may be required of the TSD facilities include reports documenting emergency situations as required in the emergency regulations and any other report that the regulatory agencies require on a case-by-case basis.

#### **APPLICABILITY**

The 222-S Treatment Tanks and Storage Pad have been identified as TSD units in the Part A permit application. Thus, the facility must satisfy the reporting requirements.

#### **INFORMATION REVIEWED AND CURRENT STATUS**

The current status of the 222-S facility reporting practices was determined through interviews of the facility operators, review of the facility operating record, and review of the Hanford Site 1987 Annual TSD Facility Dangerous Waste Report.

The Hanford Annual Report notes that 137,936 kilograms of corrosive dangerous wastes were treated in the 222-S Treatment Tanks during 1987.

The report also notes that 3,000 kilograms of dangerous wastes were stored at the 222-S Storage Pad. The storage pad wastes were noted as corrosive, ignitable, carcinogenic, toxic, reactive, and persistent.

The information in the annual report is consistent with the information noted in the other documents reviewed.

The annual report did not include cost estimates for closure of the facility.

#### CONCLUSIONS AND RECOMMENDATIONS

- o (Annual Report) Include cost estimates for closure of the treatment tanks and the storage pad in the annual report.
- o Otherwise, the 222-S facility reporting practices are adequate.

OTHER GENERAL REQUIREMENTS

WAC 173-303-395

REGULATIONS AND REQUIREMENTS

General requirements that apply to dangerous waste TSD facilities include:

- o Precautions for ignitable, reactive, or incompatible wastes;
- o Labeling for tanks and containers;
- o Relationships with other environmental laws and regulations;
- o Loading and unloading areas; and
- o Storage time limits for impoundments and piles.

Ignitable and Reactive Wastes

The special requirements that pertain to ignitable or reactive wastes apply to wastes which are designated as such by the dangerous waste designation procedures. Specifically, any wastes meeting the characteristics described in WAC 173-303-090(5) or -090(7) are subject to these requirements. The special requirements applicable to ignitable or reactive wastes are:

- o Ignitable or reactive wastes must be separated from sources of ignition such as open flames, sparks, heat, etc.;
- o "No Smoking" signs must be placed wherever ignitable or reactive wastes are being handled; and
- o The facility must be inspected annually by a person knowledgeable in the Uniform Fire Code.

In general ignitable, reactive, or incompatible wastes and materials must be handled in a manner that does not:

- o Generate extreme heat, pressure, fire, explosion, or violent reactions;
- o Produce uncontrolled gases or dusts that are toxic, flammable, explosive, or otherwise threaten human health or the environment; or
- o Damage the structural integrity of the facility or unit containing dangerous waste.

Satisfying the ignitable, reactive, or incompatible waste general requirements typically includes the facility accomplishing the following:

- o Identification of any ignitable, reactive, or incompatible wastes handled within the facility;
- o Identification of potential scenarios and methods that may result in incompatible wastes being combined;
- o Identification of sources of ignition or reaction within the facility;
- o An analyses of handling methods and units storing ignitable, reactive, or incompatible wastes relative to the above items; and
- o An analyses of treatment methods and units used to render the waste nonignitable, unreactive, or compatible.

Identification of Ignitable, Reactive, or Incompatible Wastes The identification of any ignitable, reactive, or incompatible wastes should be made an integral part of the waste analysis plan. The plan should consider the nature of the wastes at intermediary steps in any treatment processes to determine the ignitibility, reactivity, or incompatibility. All materials which come into contact with the wastes should be considered to

determine any potential for incompatibility between the wastes and the materials.

The dangerous waste activities and processes should be reviewed to identify ways that incompatible wastes may inadvertently be allowed to mix. These include containers that are supposedly empty but contain incompatible residue and improperly decontaminating tools and equipment.

Sources of Ignition Sources of ignition may consist of other than open flames and heat. Equipment and tools used around ignitable or reactive wastes should be constructed of non-sparking materials. Ignitable wastes should be segregated from wastes which generate significant amounts of heat when exposed to common materials such as water or air. Sources of static electricity should be avoided, and tanks and containers should be grounded.

Annual Fire Inspection The purpose of the annual fire inspection is to confirm that the facility is designed and operated in conformance with the Uniform Fire Code. The regulations require that facilities that handle ignitable wastes be designed, constructed, and operated in general accordance with the Uniform Fire Code. The annual inspection must be performed by a professional person who is knowledgeable of the code. The local fire marshall or a facility engineer with a background in fire codes typically satisfy this criteria. The inspection should also include checking for practices which present potential for causing fires or explosions.

Tank and Container Labels

Tanks and containers must be marked with a label which notes the contents and the major risks associated with the wastes. Specific requirements are provided in the technological standards for each of the specific types of units.

Other Requirements

Other general requirements note how the dangerous waste regulations relate to other environmental laws. Other laws include those pertaining to the Clean Water Act, Toxic Substances Control Act, and Clean Air Act. Particular requirements for loading and unloading areas and storage time limits for impoundments and piles are also presented.

**APPLICABILITY**

The 222-S Treatment Tank and Storage Pad have been identified as TSD units in the 222-S Part A permit. Thus, the 222-S facility must satisfy the requirements of WAC 173-303-395. The wastes stored in the 222-S Storage Pad are ignitable wastes. Thus, the requirements pertaining to ignitable wastes must also be satisfied at the 222-S facility.

**INFORMATION REVIEWED AND CURRENT STATUS**

The current status of the facility practices pertaining to the other general requirements was determined through interviews of the facility operators and a walking tour of the facility.

The drums which contain the ignitable dangerous waste at the storage pad are labeled "Flammable Liquid Organic Waste". The drums are also marked with a standard dangerous waste label which notes the generator of the waste. A "No Smoking" sign is not posted near the storage pad. The pad is not included in the annual fire inspection that is performed on the other portions of the facility. The drums are protected by the Conex portable storage box which holds the six drums of RMW. Electrical power is not supplied to the box and no other activities occur in the storage box.

The treatment tanks are not marked with a label.

**CONCLUSIONS AND RECOMMENDATIONS**

- o (Annual Fire Inspection) Include the 222-S Pad in the facility's annual fire inspection. Keep a copy of the inspection log in the dangerous waste file.
- o (Ignitible and Reactive Wastes) Post "No Smoking" signs at the 222-S Pad.
- o (Ignitible and Reactive Wastes) Using the waste analyses plan, show that incompatible wastes and materials are not mixed.
- o (Tank and Container Labels) Label the cover blocks overlying the tanks.

**SITING STANDARDS**

**WAC 173-303-420**

**REGULATIONS AND REQUIREMENTS**

Dangerous waste TSD facilities must meet specific standards regarding the physical location of the facility. The siting standards generally address minimum distances that TSD facilities must be from surface waters, public facilities, drinking water supplies, and other sensitive features. Facilities may not be located in earthquake sensitive areas or a floodplain.

The specific siting standards are currently being significantly revised and rewritten. The final form of the siting standards can not, at this time, be anticipated. Thus, it is not possible to assess facilities relative to the dangerous waste facility siting criteria.

**APPLICABILITY**

The 222-S Treatment Tank and Storage Pad have been identified as TSD units in the 222-S Part A permit. Thus, the 222-S facility may be subject to future siting requirements.

**PERFORMANCE STANDARDS**

**WAC 173-303-430**

**REGULATIONS AND REQUIREMENTS**

The general performance standards allow for the regulatory agencies to apply, on a case-by-case basis, standards that are more stringent than those specifically presented in the regulations. The general performance standards require that dangerous waste TSD facilities must be designed, constructed, and maintained in a manner that prevents degradation of human health or the environment. Specific areas of environmental damage noted in the regulations include:

- o Groundwater and surface water quality;
- o Air quality;
- o Slope and soil instability;
- o Flora and fauna;
- o Aesthetics of public or adjoining lands; and
- o Excessive noise.

The general performance standards also require that the facility treat or recycle waste material as much as economically feasible.

In essence, the general performance standards allow the regulatory agency to control the operations at a TSD facility even if no specific regulation (other than the general performance standards) is being violated. By citing the general performance standards and identifying a "threat to human health or the environment," the agency can undertake enforcement action to correct the source of the threat. Thus, the general performance standards

require that, above all else, the owner/operator identify facility-specific practices that, although may not fail any specific TSD requirement, could present a threat to human health or the environment.

#### **APPLICABILITY**

The 222-S Treatment Tank and Storage Pad have been identified as TSD units in the 222-S Part A permit. Thus, the 222-S facility must satisfy the performance standards.

#### **INFORMATION REVIEWED AND CURRENT STATUS**

The current status of the facility practices pertaining to the performance standards was determined through interviews of the facility operators and a tour of the facility.

Other than the deficiencies noted elsewhere in this report, no evidence of improper practices that pose a threat to the environment or human health were observed. No recent releases of dangerous waste to the environment were reported by the facility operators.

#### **CONCLUSIONS AND RECOMMENDATIONS**

- o The facility is designed and is being operated in general accordance with the performance standards.

**BUFFER MONITORING ZONES**

**WAC 173-303-440**

**REGULATIONS AND REQUIREMENTS**

Ignitible or Reactive Wastes

Dangerous waste TSD facilities that handle ignitible or reactive wastes are required to maintain specific minimum distances between the TSD units and public ways, streets, and property lines. In particular, facilities treating or storing ignitible wastes in tanks must meet buffer zones specified by the National Fire Protection Association Code. The specific reference for the NFPA requirements is discussed in the guidance for tanks.

Explosive Wastes

The regulations also present buffer zone requirements for dangerous wastes that are explosive. Treatment or storage of these wastes must be provided buffer zones equivalent to the Uniform Fire Code's American Table of Distances for Storage of Explosives, Table 77-201, 1979 edition.

New Land-Based Facilities

The buffer zone requirements also present minimum distances that new land-based TSD units are required to meet. The minimum distance is based on the travel time of the wastes from the active portion of the facility to the nearest downgradient well or surface water used for drinking water. The travel times must be longer than 3 years for DW wastes and 10 years for EHW wastes. These buffer zone requirements will likely be changed by the new siting standards currently being developed.

#### **APPLICABILITY**

The 222-S Storage Pad have been identified as a TSD unit handling ignitable wastes. Thus, the storage pad must meet the buffer zone requirements.

#### **INFORMATION REVIEWED AND CURRENT STATUS**

The current status of the 222-S Storage Pad buffer zones was determined through interviews with the facility operators and a tour of the facility.

The 222-S Storage Pad is located immediately north of the 222-S building. The 222-S building is located in the 200-W Area at the Hanford Site. The 222-S Pad is located several miles from the nearest public way, street, or property line.

The site is located within a few miles of the Columbia River.

#### **CONCLUSIONS AND RECOMMENDATIONS**

- o (Ignitable or Reactive Wastes) The facility location provides adequate buffer zones for the storage of ignitable wastes at the 222-S Storage Pad.

**GROUNDWATER MONITORING**

**40 CFR 265 SUBPART F**

**REGULATIONS AND REQUIREMENTS**

Dangerous waste TSD facilities with land-based units must monitor the groundwater in the area of the facility. The following are considered land based units:

- o Landfills;
- o Surface impoundments;
- o Waste piles; and
- o Land treatment units.

Furthermore, tanks which are unable to be "clean closed" (no contamination remaining after closure) must be closed as a landfill and also require a groundwater monitoring program.

The responsibility for the groundwater monitoring program at the Hanford Site is currently outside the authority of the operators of the individual facilities. Furthermore, the groundwater monitoring programs currently existing at the Hanford Site are not necessarily accomplished on an individual facility basis. Since this assessment project is directed toward the individual facilities and individual facility operators, an assessment of the facilities relative to the groundwater monitoring requirements is considered outside the scope of this project.

Elements of a Groundwater Monitoring Program

The groundwater monitoring program should include the following components:

- o Hydrological characterization of the area surrounding the facility;
- o Designing a groundwater monitoring network;
- o Developing and documenting proper monitoring well installation and construction methods;
- o Accomplishing a field inspection program to ensure quality assurance and quality control; and
- o Developing methods to properly sample, test, and report the results of groundwater quality monitoring.

**APPLICABILITY**

The 222-S Treatment Tanks and Storage Pad are not land-based units. Thus, the groundwater monitoring requirements will apply only if the treatment tanks can not be "clean closed". Whether the tanks can be "clean closed" will be determined during closure of the facility.

**CLOSURE**  
**40 CFR SUBPART G**

**REGULATIONS AND REQUIREMENTS**

Closure Requirements

When dangerous waste TSD facilities are shutdown or taken out of service, they must be properly "closed". Closures of TSD facilities are usually aimed at cleaning up all hazardous wastes at the facility and restoring facility to an uncontaminated condition. When it is not possible to remove all dangerous wastes (referred to as "clean closure"), the owner/operator must undertake post-closure care of the facility site.

Performance Standard The regulations set forth a closure performance standard that applies to all facilities. This performance standard requires the owner/operator to close the facility in a manner that:

- o Minimizes the need for further maintenance;
- o Controls, minimizes, or eliminates releases of dangerous wastes after closure to protect public health and the environment; and
- o Complies with the specific closure requirements for individual waste management units (e.g., containers, tanks) set forth elsewhere in the regulations.

For listed and characteristic dangerous waste, clean closure must be to background environmental levels. For other types of dangerous wastes, the contamination must be removed to a certain level depending on the contamination and other factors.

The general intent behind the performance standard is to ensure, to the maximum extent possible when a facility is closed, that it will pose no or

minimal risk to people and the environment after closure. Clean closure is considered by the regulatory agencies to be the best way to achieve this standard. Even when clean closure is not possible, the same general principle of no or minimal risk will usually guide the agencies' reviews and comments on a facility's closure activities. The focus in these cases will be on minimizing risk to people and the environment, and on setting up the post-closure care program such that the facility will continue to pose no or minimal risk during and after the post-closure care period.

Notifications The owner/operator must notify Ecology and EPA in writing at least 60 days before the date closure of a land disposal unit (surface impoundment, waste pile, land treatment, or landfill unit) is expected to begin. Forty-five days notice is required for all other closures.

Once a unit or facility has managed the last volume of hazardous waste, the owner/operator will have 90 days to treat, remove, or dispose of all on-site hazardous wastes in accordance with the closure plan, and 180 days to complete the remaining closure activities specified in the closure plan. Longer time periods for disposition of hazardous wastes and completion of all other closure activities can be allowed if Ecology and EPA approve them. Within 60 days after closure is completed for a land disposal unit or for an entire facility, the owner/operator must submit a written Certification of Closure to Ecology and EPA.

#### Closure Plan Requirements

The device for accomplishing the closure requirements and performance standard is the closure plan. The owner/operator must prepare a written closure plan and submit it to Ecology and EPA as part of the facility Part B permit application.

Closure plans are typically very detailed. The closure plan must take into account all of the different types of waste management units and activities associated with those units when discussing the efforts that will be conducted to close. In addition, certain units (e.g., surface impoundments

and tanks without secondary containment) must have contingency plans in the event that intended clean closure cannot be performed.

The closure plan must describe, in detail, the steps necessary to achieve full closure at any point during the facility's active life. This will usually result in the closure plan assuming a worst case scenario, where full closure might have to be conducted with the maximum amount of hazardous waste present on-site, and when the greatest level of waste management activities is occurring.

The closure plan must include at least the following information:

- o A description of how each tank and container area at the facility will be closed to achieve the closure performance standard;
- o A description of how final closure of the tank and container area will be conducted to achieve the closure performance standard;
- o An identification of the maximum amount of wastes treated in the tanks and the maximum amount of wastes stored at the container area that will be ongoing at any given time during the facility's active life (worst case closure scenario);
- o Descriptions of the methods for remediating the facility during closure, including at least:
  - Removal, transport, storage (temporary and/or permanent), treatment, and disposal (off-site and on-site, where applicable) of hazardous wastes;
  - Identification of the type(s) of off-site waste receiving facilities, where applicable;

- Steps needed to remove or decontaminate hazardous materials (wastes, constituents and residues) such as the concrete vault structure, the portable box holding the drums, and soils that may be contaminated;
- Sampling and analysis that will be used to determine the extent of decontamination needed to meet the closure performance standard; and
- o A schedule for closure of the treatment tanks and the container storage area, including at least the total time needed and for intervening activities so that closure progress can be tracked.

When preparing the closure plan contents described above, the owner/operator must account for, in detail, the activities that will actually need to be conducted to close the facility. Closure can be broken down into the following general activities:

**Material Removal**

- Sampling
- Analysis
- Remediation
- Facility Reclamation

**Materials Staging and Disposition**

- Containment
- Preparation for Disposal
- Transport
- Ensuring TSD Receipt

**Closure Certification**

- Records
- Reports

Specific discussions and guidance for each of these areas are provided in the following paragraphs.

Material Removal are all efforts oriented specifically to removing all hazardous wastes, waste constituents, and residues from the facility which are not intended to be left behind after closure. This must include demolition materials, piping, steam jets, and the drum storage box. Decontamination measures, efforts to demonstrate clean closure, and final condition of the facility upon closure must also be discussed.

Sampling activities must be directed to proving to Ecology and EPA that no hazardous materials (wastes, constituents, and residues) will remain after closure of the tanks and container storage area.

Analysis represents all of the different tests that will be performed to demonstrate that hazardous materials are not left after closure. It must also include chain of custody and QA/QC procedures.

Remediation provides a description of the efforts that will be undertaken to actually remove hazardous materials from the facility and remediate those areas where hazardous materials are not intended to remain. It will specify where and when analysis to check for clean closure will be performed. It will also specify worker, equipment, and other decontamination procedures that will be followed.

Facility Reclamation should address all of the efforts that will be undertaken to return the facility to the appearance and uses of surrounding areas.

Materials Staging and Disposition should address all activities associated with containing and preparing, for final disposition, the wastes generated during closure. These materials will likely include concrete demolition debris, emptied tanks, and steam jets. The methods of transport, likely disposal practices, estimated volumes of hazardous materials to be disposed of, and disposal verification should be addressed.

Containment should describe how the various forms of containment (e.g., container, tank) will be provided for different types of hazardous

materials (including contaminated equipment) while closure is conducted. Hazardous waste containment procedures will likely need to be followed unless the wastes are shown to not be hazardous.

Preparation for Disposal will likely involve arranging for a disposal facility to receive the hazardous materials generated during closure.

Transport should provide a discussion of how off-site transport and disposal will actually be accomplished for materials that will be shipped off-site.

Ensuring TSD Receipt is primarily a matter of checking the hazardous waste manifests (or other documents if only on-site transport is involved) to confirm that the receiving TSD facility has accepted the hazardous materials.

Closure Certification will address those final activities necessary to document and demonstrate that the closure plan was followed and that the closure performance standard has been satisfied.

Records should be sufficient to technically support the certification of closure that must be submitted to the regulatory agencies.

Reports will essentially be all written communication with Ecology and EPA necessary to certify that closure has been performed in accordance with the approved closure plan and that the closure performance standard has been met.

The owner/operator must maintain the closure plan to ensure that it is current and accounts for the anticipated closure activities. The owner/operator must submit a request for modification of the permit to amend the closure plan when the facility operations change and change the closure procedures or the closure schedule changes.

Post-Closure Requirements

A dangerous waste TSD facility generally must comply with the post-closure requirements if hazardous waste remain at that facility after closure at levels in excess of the clean closure criteria. Post-closure is essentially a period of time (typically 30 years) after closure during which certain caretaking activities must occur. The regulations are directed primarily toward land disposal units such as landfills where the dangerous wastes are anticipated to remain after the facility is shutdown. However, certain surface impoundments, tanks, and waste piles also need to have contingent post-closure care even though it may be the intent to remove all wastes at closure.

Intent of Post-Closure The general intent of the post-closure care period is to allow for the detection of failures in the waste containment system after the facility has been closed. Such failures could be indicated by, for example, excessive cap settling, groundwater contamination, or increasing leachate in the collection system. During the post-closure care period, the owner/operator must ensure that the facility's post-closure monitoring and maintenance activities are performed in a manner that will allow for detection of failures (and incipient failures) in the land disposal unit(s). Post-closure use of the property must not disturb the integrity of the waste containment system (e.g., liners, caps) or the monitoring systems.

Notification Requirements When a land disposal unit or facility is closed, two notices must be given. The first required notice is a notice, including a survey plat, to the local land authority, and to Ecology and EPA. The second required notice is a notice in the deed to the property. The basic purpose of these notices is to ensure that the presence of hazardous wastes at the site is identified to future users and purchasers of the property, and to prevent potential disturbance of the disposal units by future activities at the site.

Post-Closure Plan Requirements

The primary device for ensuring that the closed land disposal units are not disturbed, that monitoring is continued, and that maintenance of the closed unit(s) is timely and appropriate is the post-closure plan. The post-closure plan must be submitted to Ecology and EPA as part of the facility's permit application and, upon approval, becomes a condition of the permit. The plan must describe in detail the activities that will be conducted during the post-closure care period, and must address the specific post-closure requirements for each type of unit (e.g., waste pile, landfill).

For each disposal unit at a facility, the post-closure plan must identify the activities (and frequency of those activities) that will be conducted after closure of the unit. The plan's contents must include at least:

- o Descriptions of the planned groundwater monitoring activities and frequencies;
- o Descriptions of the planned maintenance activities and frequencies to ensure:
  - Integrity of the containment structures (e.g., cap);
  - Function of the facility monitoring equipment; and
- o The name, address, and phone number of the person or office to contact regarding the unit or facility during the post-closure care period.

The post-closure plan must be followed until the end of the post-closure care period. At the end of post-closure care for each disposal unit, the owner/operator must submit to Ecology and EPA a certification that post-closure care was performed in accordance with the post-closure plan.

When preparing the post-closure plan for a unit or facility, the owner/operator should consider all of the activities that are likely to be

necessary to actually provide post-closure care for the unit or facility. The following activities should be considered and, as appropriate, addressed in the plan.

Monitoring and Inspection

- Leachate
- Groundwater
- Containment System Integrity

Maintenance and Corrective Measures

- Containment Systems
- Monitoring Systems

The following paragraphs provide brief discussions of the types of considerations to include when addressing these activities in the post-closure plan.

Monitoring and Inspection should identify all activities necessary to detect escape of hazardous wastes, constituents, or residues into the environment, and to detect any breakdown in the integrity of the containment systems or the monitoring systems. Containment systems include liners, caps, covers, and in the case of land treatment units, the treatment zone itself.

Leachate may be generated during the post-closure care period. The leachate collection system should be inspected for excessive leachate generation, failure of the leachate removal system, or other related problems that could indicate loss of hazardous materials (wastes, constituents, or residues) to the environment.

Groundwater monitoring must be conducted during post-closure. The post-closure plan should be in compliance with the state and federal groundwater monitoring regulations. Inspection of the monitoring wells and locations should be conducted to ensure that they are maintained in good condition.

Containment System Integrity should be monitored and inspected to detect failures when they occur, and to identify signs of incipient failure so that preventive efforts can be undertaken prior to failure. Signs of potential failure to look for include: excessive settling of the cap; excessive erosion or loss of vegetation; damage to the cap from burrowing animals or plants; and, for land treatment, unexpected changes in the treatment zone.

Maintenance and Corrective Measures should specify the actions that will be taken in the event that the containment systems fail or may be failing, that the monitoring systems are not operating correctly, or that monitoring indicates potential escape of hazardous materials to the environment.

Containment Systems should be corrected if signs of failure or incipient failure occur, and should be maintained to prevent failure from becoming a potential problem. For example, maintenance and corrective measure for the containment systems might include: maintaining the vegetative cover; maintaining any security systems in place; replacing soils lost through erosion; and even digging up an entire cell to replace the liner system.

Monitoring Systems should be corrected if problems occur that compromise their operation, and maintenance and corrective measures should be planned for in the event that the monitoring systems indicate release of hazardous materials to the environment. For example, consideration should be given to what actions will be taken if: the leachate detection system fails; or, the groundwater monitoring system detects hazardous constituents.

#### **APPLICABILITY**

The 222-S Treatment Tanks and Storage Pad have been identified as TSD units in the Part A permit application. Thus, the tanks and storage area must be properly closed when they are taken out of service.

#### INFORMATION REVIEWED AND CURRENT STATUS

The current status of the 222-S facility closure plan was determined through interviews of the facility operators and review of the facility operating file.

Closure plans for the 222-S Treatment Tanks or the Storage Pad have not been written. Existing information presents a cursory estimate of the maximum amount of wastes the two units are anticipated to manage annually. This information can be used to satisfy one of the requirements of a closure plan which states that the plan must include an estimate of the maximum amount of waste that a unit will manage during its service life.

#### CONCLUSIONS AND RECOMMENDATIONS

- o (Closure Plan) Prepare a closure plan for the 222-S Treatment Tanks. Since the tanks have secondary containment, a contingency post-closure plan is not required. A clean closure is anticipated. All piping connected to the tanks must be included in the closure plan. Other points to consider in the plan are:
  - o How to accommodate the radioactivity while performing the closure;
  - o How to demolish and dispose of the thick concrete structure without spreading any contamination that might be on the concrete;
  - o Chemical testing of the concrete to determine the level of contamination on it for disposal purposes; and
  - o Confirmation sampling and testing of the soils beneath the vault floor to show that contamination has not passed through the floor.
- o (Closure Plan) Prepare a closure plan for the 222-S Storage Pad. Unless there is a future release of dangerous wastes from the drums, the closure activities can likely be limited to the removal and

disposal of the Conex portable storage box. Include in the closure plan chemical testing of the Conex walls, floors, and the concrete surface the box sits on to determine what contamination, if any, has occurred.

**FINANCIAL REQUIREMENTS**

**40 CFR 265 SUBPART H**

**REGULATIONS AND REQUIREMENTS**

Dangerous waste TSD facility owners/operators must demonstrate that they have sufficient financial assets to ensure that the facility can be properly closed and, if necessary, and properly maintained during post-closure. The documentation required can include certificates of insurance, proof of self insurance, or sufficient liquid financial assets. In addition, owners/operators must have insurance for their facilities to cover accidents, releases, and other incidents.

The regulations specifically exclude federally owned facilities from the financial requirements. It has been assumed that governmental agencies have sufficient financial ability to properly close their TSD facilities, pay for post-closure care where necessary, and cover costs arising from unexpected incidents. Since the Hanford Site is a federally owned facility, it is exempt from the TSD financial requirements.

**APPLICABILITY**

The 222-S facility is located on the Hanford Site which is owned by the U.S. Department of Energy. Since it is owned by the federal government, it is exempt from the financial requirements.

USE AND MANAGEMENT OF CONTAINERS  
40 CFR 265 SUBPART I

REGULATIONS AND REQUIREMENTS

Containers and container areas that are used to store or treat dangerous wastes must satisfy certain minimum standards. Containers are defined as portable devices in which dangerous wastes are treated or stored. Thus, items such as tank trucks and tank trailers, as well as typical drums, are considered containers. The regulations apply to both containers and container areas.

The requirements for containers and container areas include standards for:

- o Container integrity;
- o Compatibility between the container and the waste(s);
- o Handling or management of the containers;
- o Inspection of the containers and container area;
- o Management of ignitable, reactive, or incompatible wastes in containers;
- o Labeling of the containers; and
- o Secondary containment.

Container Integrity

Containers used to handle dangerous wastes must be in good condition. The container should not be damaged structurally and should be relatively free of corrosion. Other types of distress that must be prevented include dents, pitting, punctures, and separation of seams. Containers that

experience these kinds of distress, leak, or are otherwise unable to contain the wastes safely, must be emptied of dangerous wastes and not used until sufficiently repaired.

#### Waste/Container Material Compatibility

Wastes handled in the containers must be compatible with the container. Contact between the container and the wastes can not result in excessive heat, fire, explosion, or any other reaction that will damage the container. Similarly, the wastes must be compatible with the materials of construction of the container area itself. For example, if a particular waste generates toxic gases when it comes into contact with concrete, the floor of the container area should not be constructed of concrete.

The waste analyses plan demonstrates that the container/waste compatibility requirements are satisfied. It should show that the wastes, the container materials, and the container area materials are compatible. The facility operating procedures should include what particular type of containers should be used for each type of dangerous waste generated at the facility.

#### Management of Containers

Containers handling dangerous wastes must be managed to prevent damage to the container and prohibit release of the waste from the container. Specifically, the regulations require that containers be kept closed at all times except when waste is being added or removed. The lids of the containers should be secured so that if the container were to tip, wastes would not spill. Other practices which are consistent with these requirements include:

- o Place drums vertically rather than horizontally so that the drum is more stable and not able to roll;
- o Elevate containers off of the floor so that liquids will not accumulate around the base of the container;

- o Stack drums no greater than 2 high to reduce the potential for the drums to become unstable and fall; and
- o Protect container storage areas from damage by objects such as fork-lift trucks by using barriers or fences.

### Inspections

Containers and container areas must be inspected at least weekly for leaks, spills, corrosion, or container distress. The inspection program should include inspection checklists which give detailed, complete guidance to the inspector regarding what specific items are to be inspected and what they are to be inspected for. The checklists should also consider the specific area to be inspected. For example, an inspection checklist for a container area where drums are stacked on pallets should include checking for rot in the wood pallets which may result in failure of the pallet and falling of the container.

The inspection checklists must be maintained in the operating file. The inspection logs, checklists, and other records should be of sufficient detail to allow an inspector to quickly determine that the facility is satisfying the container and container area inspection requirements.

### Ignitable, Reactive, or Incompatible Wastes

Containers that handle ignitable or reactive wastes must be managed in accordance with special requirements for such types of wastes. The regulations specifically require that containers holding ignitable or reactive wastes be placed at least 50 feet from the facility property line. The wastes must also be handled in a manner that prevents the ignitable or reactive wastes from igniting or reacting. This includes keeping the containers away from open flames or other sources of heat.

Container areas storing ignitable wastes must be inspected annually by an individual knowledgeable in the Uniform Fire Code.

Incompatible wastes are not to be mixed together in a container. Dangerous wastes are not to be placed in a container that once held an incompatible waste unless the container is washed or unless the wastes placed in the container will not generate uncontrolled reactions, fumes, heat, etc. In addition, containers which contain incompatible wastes must be stored in areas that are separated by a dike, berm, or other device that prevents the mixing of the incompatible wastes.

In general, the storage or treatment of ignitable, reactive, or incompatible wastes in containers must adhere to the requirements of WAC 173-303-395, Other General Requirements.

#### Labeling

The Washington State addenda to interim status container requirements include specific requirements for labeling of containers handling dangerous waste. The containers must be marked with a label which notes the contents of the container and the risks associated with the wastes.

#### Secondary Containment

The Washington State dangerous waste regulations present secondary containment requirements for interim status container areas. These requirements are considered addenda to the federal Subpart I requirements.

Container areas that were constructed or installed after September 30, 1986 are required to have secondary containment. Furthermore, existing container areas that the regulatory agency believes present a potential threat to public health or to the environment can be required to have secondary containment by the agency. A history of releases from the containers or repeated nonconformance with the container regulations are typical justifications for the agency to require secondary containment for existing container areas.

Secondary containment for container areas typically consists of an impervious floor with impervious curbs. The materials used to construct the containment area must be compatible with the wastes handled in the containers. Secondary containment areas must be protected from run-on. In other words, rainfall, snow melt, or other water must be prevented from flowing in to the containment area. Similarly, the containment must have sufficient volume to contain the rainfall from a 25-year, 24-hour storm without allowing the precipitation to flow out of the containment area.

Liquids accumulated in the containment area must be removed in a timely manner. If accumulated precipitation is drained out of the containment area, the draining should occur only after the accumulated liquid is determined to be non-dangerous. The drainage valve should be maintained in a locked position and only opened to drain non-dangerous liquid.

#### **APPLICABILITY**

The Part A permit application has identified the container pad immediately northwest of the 222-S Building as a container storage area. Thus, the pad must meet the storage container and container area requirements.

#### **INFORMATION REVIEWED AND CURRENT STATUS**

The current status and condition of the 222-S Pad was determined through interviews of the facility operators, observation of the pad and containers, and review of a requisition order for the portable storage unit.

The 222-S Pad consists of six drums of low level radioactive, organic wastes. The specific nature of the wastes have not been determined but they are anticipated to be ignitable. The wastes were generated in the 222-S Laboratories and are packaged in individual lab packs within DOT 17H steel drums. The drums are lined with a 90 mil polyvinyl liner and the interstitial space between the lab packs are filled with absorbent pads.

The drums have been placed in an 8-foot by 20-foot by 8-foot-high portable aluminum Conex storage box. The box has a wooden floor and rests on a concrete pad. Access to the box is through lockable double doors at one end of the box. The drums rest directly on the floor of the box and the lids of the drums were secured. The box doors are locked except when the drums are inspected or wastes are being moved.

Secondary containment is not provided for the drums. Leaks or spills from the drums can travel across the sloped box floor, out the box doors, and off the concrete pad. The container area was constructed and brought into service after September 30, 1986.

The 222-S Pad and drums are inspected at least weekly. Standard operating procedures also require that the drums be inspected prior to wastes being placed in them. The drums are marked with a labeled that notes the contents of the drum and the risks associated with the wastes.

#### CONCLUSIONS AND RECOMMENDATIONS

- o (Secondary Containment) Provide secondary containment for the 222-S Pad. The box may be used as secondary containment if a waste-compatible floor and containment curbs are installed in the box. The floor or walls of the box can not leak. Leak detection can be by visual inspection.
- o (Inspection) Inspect the drums and storage box at least annually in the presence of a person knowledgeable in the Uniform Fire Code. Document the inspection in the facility dangerous waste file.
- o (Management of Containers) Although it is not specifically required, it is good practice to place the drums on pallets. This keeps the base of the drums away from any liquids that might accumulate around the base.

- o The weekly inspections, container integrity, and labeling are adequate. The lack of drum distress suggests that the waste are sufficiently compatible with the lined drums.
  
- o Although it is not required by the regulations, place some means of identification on the Conex box holding the drums. The number will allow easier reference to the container storage area in the contingency plan, inspection plan, and other documentation pertaining to the 222-S Storage Pad.

TANKS  
40 CFR SUBPART J

REGULATIONS AND REQUIREMENTS

State and Federal Regulations

Tanks which handle dangerous wastes are currently regulated under Washington State Regulations (WAC 173-303-200 and -400). Federal regulations (40 CFR Subpart J), promulgated since Washington incorporated state-specific tank standards, present much more stringent tank requirements. Since the State of Washington has been authorized to administer its own dangerous waste program, most of the more stringent federal tank regulations will not apply in Washington until the state incorporates the new standards into the state regulations.

To remain authorized, Washington must (within about two years) include in its regulations tank standards which are at least as stringent as the federal standards. If the state fails to adopt the federal tank standards, they would automatically go into effect in about two years, regardless. Thus, the more stringent federal tank regulations were considered in this assessment.

Specific standards are presented for the following aspects of dangerous waste tank systems:

- o Design and construction standards for new tank systems;
- o Assessment of existing tank systems;
- o Secondary containment;
- o Spill and overflow protection;

- o Inspections;
- o Responses to leaks or spills;
- o Closure and post-closure requirements; and
- o Particular requirements for ignitable, reactive, or incompatible wastes.

#### Design and Construction of Dangerous Waste Tank Systems

New tank systems which are constructed under interim status are required to adhere to specific design, construction, and installation standards. These requirements apply only to new tanks placed into service under interim status. The requirements are not applicable to existing dangerous waste tanks.

#### Assessment of Existing Tank Systems

Existing tank systems without secondary containment must be assessed for structural integrity and satisfaction of the tank requirements within 1 year of the effective date of the regulations. For tanks handling non-radioactive dangerous waste at the Hanford Site, the assessment deadline has passed. If these tanks do not have secondary containment and have not been assessed, then they are out of compliance. Tanks that contain radioactive dangerous wastes only recently became regulated under the federal standards and must be assessed during the current calendar year.

The purpose of the assessment is to determine if an existing tank without secondary containment is suitable for continued use under the new tank regulations. The assessment is quite detailed in nature and includes structural assessments, leak tests, and compatibility analyses.

Dangerous waste tanks which have suitable secondary containment are not required to be subjected to an integrity assessment.

Secondary Containment

All tanks that handle dangerous wastes must have secondary containment, eventually. The specific date by which secondary containment must be provided depends on the age of the tank. Tanks constructed after the effective date of the regulations must have secondary containment. Existing tanks must have secondary containment within two years of the effective date or when the tank is 15 years old, whichever is later. Until secondary containment is provided, existing tanks must be leak tested or visually inspected each year in accordance with the assessment requirements noted above.

Typical secondary containment for tanks include the following:

- o Vaults in which the tank sits;
- o Double wall tanks with interstitial monitoring;
- o Impermeable liners; and
- o Concrete bases with berms.

Ancillary equipment must also be provided secondary containment. However, the following types of ancillary equipment are not required to have secondary containment if the equipment is inspected daily:

- o Non-pressurized above-ground piping;
- o Welded connections;
- o Sealless or magnetic-coupling pumps; and
- o Pressurized above-ground piping that has automatic shutoff devices.

Typical secondary containment systems for ancillary equipment includes:

- o Impermeable trenches;
- o Jacketed pipes; and
- o Double wall pipes.

The secondary containment system must be constructed with materials that are compatible with the wastes. The containment system must also be able to support the weight of any wastes which may be contained as well as external loads.

The secondary containment system must include a leak detection system which is capable of detecting the presence of a release within 24 hours. The leak detection system can consist of automatic sensing devices or simply a program of daily visual inspection. Automatic leak detection systems include:

- o Thermal conductivity sensors;
- o Electrical resistivity sensors; and
- o Vapor detectors.

These sensors should be connected to an alarm system which, when initiated, alert the facility personnel that a release has occurred.

#### Spill and Overflow Prevention

Dangerous waste tanks must have spill and overflow prevention devices. Proper practices during transfer of wastes to and from the tank are also required. The regulations allow some flexibility in the specific types of spill and overflow prevention devices used on specific tanks. Spill and overflow prevention devices include:

- o Level sensors and gages;
- o High and low level alarms;
- o Automatic shutoff devices for feed lines;
- o Bypass systems;
- o Curbing, paving, and catchment facilities at loading and unloading areas; and
- o Use of dry disconnect and ball valve systems.

Level sensors can range from simply noting the liquid level on a marked ruler in the tank to automatic electronic devices which provide a continuous record of the liquid level. Any type of level sensing system is acceptable if it effectively prevents overflowing of the tank. For example, if manual visual methods are used for level monitoring, the facility operating procedures should include how often the tank level is to be checked, who is responsible for checking it, and what actions should be undertaken if excessive level are noted. The times when the level is checked should be directed toward those times when the tank is being filled or emptied.

High and Low Level Alarms High and low level alarms are considered part of the spill and overflow prevention system on dangerous waste tanks. The alarms are commonly integrated with the automatic level sensing devices and initiate when a predetermined high or low level is noted by the level sensor. Alternatively, the alarm systems can be separate from the level sensor and consist of a simple float switch.

Automatic Cutoffs An automatic cutoff system should stop all feeds to the tank when the tank is full. Generally this is accomplished by integrating the cutoff system with the high level alarm and level sensing systems. For example, an integrated system consists of one where upon noting a high

level condition in the tank, the high level alarm is sounded and pumps feeding the tank are automatically shut off. Another type of automatic cutoff system is one where all pumps are shut down in the event that a release is detected. This type of cutoff system is typically integrated with the release detection system in the secondary containment system. Automatic shut down of pumps in the event of a sudden loss of pressure in the piping, as would be expected if a major piping failure has occurred, is another type of automatic cutoff system.

Bypass Systems A bypass system is necessary when a tank or ancillary equipment becomes inoperable and must be bypassed to complete or safely shut down the process. A sufficient number of redundant tanks and ancillary equipment should be provided so that wastes can be routed around failed equipment safely. The bypass system can be integrated with the level sensing, high level alarm, and release detection systems so that the wastes are rerouted in the event of a high level condition or a release to the secondary containment system.

Delivery Areas Areas where wastes are transferred to tanks using nonpermanent connections (i.e., hoses from a delivery truck) should be paved and bermed to prevent the release of any spills to the environment. The areas should have a sump where any spills or overflows are collected and returned to the tank. Such sumps should have a release detection system and be constructed of waste compatible materials. Connections in the delivery system should be designed to minimize the amount of wastes spilled when disconnecting from the tank.

### Inspections

Inspection Program Dangerous waste tank systems must be inspected on a regular basis. Specifically, the following items must be inspected at least once during each operating day:

- o Overfill and spill control equipment;

- o Above ground portions of the tank and ancillary equipment;
- o Leak detection and other monitoring data; and
- o Area around the tank and secondary containment system.

Corrosion protection systems must be checked within 6 months of their installation and annually thereafter. Sources of impressed current used in the corrosion protection system are required to be checked bimonthly.

Inspection of the spill and overflow prevention system should include:

- o Level sensing devices;
- o High and low level alarm systems;
- o Automatic cutoff systems; and
- o Bypass systems.

Each of these systems should be checked for proper operation daily. Although it is not required to actually test each system daily, some method of confirming daily that the systems are properly operating should be developed. Periodic (although not necessarily daily) testing of the alarm and cutoff systems should also be performed.

The above-ground portions of the tank system must be inspected daily for signs of corrosion or release (or potential release) of wastes. This inspection is directed toward checking the tank structure and ancillary equipment for distress such as leaks, cracks, buckles, bulges, discoloration, etc. Valves, pipes, fittings, hoses, pumps, and compressors should also be checked daily for:

- o Leaks;

- o Corrosion;
- o Excessive vibration or swaying;
- o Foundation cracks;
- o Leaky seals;
- o Safety equipment; and
- o Sufficient lubricating oil.

Data gathered from monitoring equipment should be reviewed at least daily. The data should be checked for evidence of a release (or potential release) of waste to the environment or to the secondary containment system. The data should also be checked to verify that the system is operating properly. The inspection checklist should include the range of acceptable values for each of the parameters recorded and the specific actions to accomplish if the observed data are outside the acceptable range. Monitoring data that should be included in the daily inspection includes:

- o Leak detection sensor data;
- o Level indicator data;
- o Temperature and pressure data;
- o Flow rate data; and
- o Initiated alarms.

The area around the tank system must be checked daily for evidence of releases of dangerous wastes or erosion. Such evidence includes wet spots or dead vegetation around the tank system. Other items to check for

include erosion around the base of the tank and the secondary containment system or erosion in a dike surrounding the tank.

All of the inspections are required to be detailed and consider all portions of the tank system. It is not sufficient to simply state that "the tank system will be inspected". Rather, inspection of the above items should include checking specific features of the tank system for specific types of distress or evidence of distress.

Documenting the Inspection Program The inspection program that addresses the above requirements should be developed and documented as part of the facility operating procedures. Inspection checklists and logs should give specific, detailed guidance to the inspectors. For example, instead of simply stating "Check tank for distress," the daily inspection checklist for the inspection of the above-ground portions of the tank system should say;

"Check Tank B, the feed and outflow piping, pumps 101 and 102, and the secondary containment vault for:

- o Cracks;
- o Corrosion;
- o Discoloration; and
- o Excessive vibration or noise."

The detail and completeness of the inspection checklist should allow an inspector to immediately note that the inspection program satisfies the inspection requirements for dangerous waste tanks.

The inspection checklists and logs from past inspections should be maintained in the facility operating record. The logs should note the date of the inspection, the inspector's name, and the results of the inspection. If any items requiring attention were disclosed as a result of the inspection, the log should note what actions were taken.

Response to Leaks or Spills

The dangerous waste tank regulations require specific responses to leaks or spills. The responses in the tank regulations are unit-specific addenda to the response procedures in the Emergency requirements documented in the contingency plan. The required responses to a leak or spill from a tank system include:

- o Cessation of use, stopping flow into the tank;
- o Removal of wastes from the tank (if the tank is leaking) and/or removal of the wastes from the secondary containment system;
- o Containing visible releases to the environment;
- o Repair of the tank system; and
- o Reporting.

The failed portion of the tank system should be isolated from the other portions of the system by use of the bypass system. Thus, if a leak occurs in a tank, the level of wastes in the tank should be lowered to a level below the hole in the tank. The regulations note that such waste removal must be accomplished within 24 hours of detection of the release or at the earliest practicable time if it is not possible to do so within 24 hours. The removal of wastes also applies to waste released to, and contained in, the secondary containment system.

The response to a leak or spill must also include steps to immediately contain and cleanup any visible releases to the environment. Containing the release may include construction of temporary berms or closing channels to catch basins. Cleanup of visible releases could include excavation and disposal of contaminated soil or decontamination of the secondary containment system.

If the leak or spill was the result of the tank or ancillary equipment failing, the equipment must be repaired or replaced prior to be returned to service. Major repairs and replacements must be certified as being accomplished in accordance with the dangerous waste tank design and construction requirements by an independent, registered professional engineer. If the release was from an underground, non-enterable tank, secondary containment must be provided to the tank prior to returning it to service.

If the quantity of wastes released is greater than 1 pound or if the release is not immediately cleaned up, the release must be reported to the regulatory agency within 24 hours. Within 30 days of a release to the environment, a report summarizing the following must be submitted to the regulatory agency:

- o Migration route of the released wastes;
- o Characteristics of the surrounding area including population, surface waters, drinking water supplies, soils, and hydrogeology;
- o Results of monitoring; and
- o Description of response.

#### Closure and Post-Closure

When a dangerous waste tank is permanently removed from service, it must be closed in accordance with specific tank closure requirements. The tank-specific closure requirements are addenda to the general dangerous waste closure requirements presented in 40 CFR Subpart G. Thus, a closure plan must be developed for the tank system.

Closure of a dangerous waste tank must include either complete removal of all contaminated equipment and materials or the tank must be closed as a landfill and be subject to post-closure care requirements. Post-closure

requirements include financial assurance, groundwater monitoring, inspection, and maintenance. Closure plans for tanks must include closure as a landfill as a contingency closure procedure in the tank closure plan. As discussed in the guidance for the general closure requirements, the closure plan must describe, in detail, the specific steps that will be taken to properly close the tank system.

#### Ignitable, Reactive, or Incompatible Wastes

Dangerous waste tanks that handle ignitable, reactive, or incompatible wastes must satisfy additional, specific requirements. The requirements are directed toward reducing the potential for fires, explosions, or uncontrolled reactions occurring in the facility. The requirements are applicable only to tanks that handle wastes that are ignitable, reactive, or incompatible, as defined in WAC 173-303-090.

#### Labels

The state dangerous waste regulations provide addenda to the federal dangerous waste tank labeling requirements. The state regulations note that dangerous waste tanks must be marked with a label that notes the contents of the tank and the risks associated with the wastes. The label must be legible from at least 50 feet.

#### **APPLICABILITY**

Tanks 102 and 103 are identified as dangerous waste treatment tanks on the Part A permit application submitted by the 222-S Laboratories. The tanks are used to treat laboratory wastes prior to shipment to the tank farms. The wastes are corrosive (pH less than 2) and are, thus, dangerous wastes. These tanks are required to satisfy the dangerous waste tank standards.

**INFORMATION REVIEWED AND CURRENT STATUS**

The current status and condition of Tanks 102 and 103 were determined through interviews of the facility operators and review of the facility operating file.

The exterior top of the tank cell was also observed during a site visit. It was not possible to observe the interior of the 219-S Building at the time of the site visit.

Tanks 102 and 103 are stainless steel tanks with capacities of 3,300 and 1,260 gallons, respectively. Ancillary equipment to and from the tanks are also constructed of stainless steel. Stainless steel is anticipated to be compatible with the wastes. The tanks are located in an underground vault immediately south of the 219-S Building. The 1-1/2- to 2-1/2-foot-thick reinforced concrete vault provides secondary containment for the tanks and is equipped with automatic leak detection devices. Secondary containment for the ancillary equipment is provided by concrete lined pipe trenches which drain into the vault.

Both tanks have two level indicators and a high level alarm. The alarm initiates both a light and a horn. Tank 102 also has a temperature indicator. Recent ultrasonic testing of Tank 102 did not disclose any distress in the tank.

Tanks 102 and 103 are not inspected on a regular basis. Inspection of the actual tanks is difficult due to the radioactivity associated with the wastes. No major leaks or spills have occurred recently. The tanks are not labeled. The tanks are operating and have not been closed.

**CONCLUSIONS AND RECOMMENDATIONS**

- o (Inspection Requirements) Apply for a waiver to the RCRA daily inspection requirements for the tanks. Note in the application the conflict between the RCRA inspection requirements and the ALARA requirements.
- o (Inspection Requirements) Include tank instrumentation data in the daily facility inspection program. Note the tank levels, sump liquid levels, alarms initiated, tank temperature, and any other data available from the tank instrumentation. Such practices will aid in acceptance of inspection waiver application discussed in the previous recommendation.
- o (Labeling Requirements) Place labels identifying the tanks, the contents of the tanks, and the major risks associated with the wastes on the exterior of the cover blocks.
- o (Spill and Overflow Protection Requirements) Although it is not specifically required by the regulations, repair the tank level indicator recorders so that they can maintain a continuous record of the liquid levels. Otherwise, spill and overflow protection is adequate.
- o Secondary containment and response to releases requirements are adequate.