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Final Draft

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*RCRA Interim Status Assessment
Part A Facilities
Hanford Patrol Academy
Demolition Site (DS)*

J-1866-33.10

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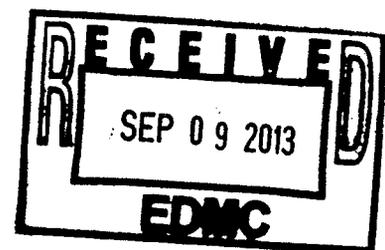
Final Draft

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*RCRA Interim Status Assessment
Part A Facilities
Hanford Patrol Academy
Demolition Site (DS)*

*Prepared for
Westinghouse Hanford Company*

*February 14, 1989
J-1866-33.10*





HARTCROWSER

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Earth and Environmental Technologies

J-1866-33.10

February 14, 1989

Westinghouse Hanford Company
Post Office Box 1970
Richland, Washington 99352

Attn: Mr. David Hutchison

Re: RCRA Interim Status Assessment
Part A TSD Facilities
Hanford Patrol Academy Demolition Site (DS)

Our report on the RCRA Part A TSD Facility Assessment for the Hanford Patrol Academy Demolition Site (DS) 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 the facility and practices directly associated with the TSD units identified in the DS RCRA Part A permit application. The facility and practices were assessed relative to the interim status TSD requirements noted specifically in the report. The facility 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all information provided, there exists the possibility that portions of the information are incorrect, incomplete, or out of date.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.



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February 14, 1989

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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 that reads "Ross D. Potter".

ROSS D. POTTER
Senior Project Professional

A handwritten signature in cursive script that reads "Brian E. Opitz".

BRIAN E. OPITZ
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ERIC B. EGBERS
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LC186610/JOBS

Enclosure

J-1866-33.10

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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 Hanford Patrol Academy Demolition Site (DS) is identified in the Part A permit application as a facility for treating explosive and reactive dangerous wastes by detonation. Thus, the DS must satisfy the general requirements for a dangerous waste management facility.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the general dangerous waste management practices at the DS was determined through interviews of the facility operators, review of facility documents, and a visit at the facility location.

The Hanford Site is considered a single site and has received a single EPA/State identification number. This number applies to the DS.

The DS is currently located about one mile northwest of the Hanford Patrol Academy. The DS consists of a cleared portion of land, with a blast pit near the middle. The ground is primarily sand. Demolition of dangerous wastes is performed in the blast pit. The dangerous wastes handled at the DS are reactive and explosive dangerous wastes that have been found to be unstable or shock sensitive, and thus not amenable for treatment or

disposal through other means. These wastes originate from various operations around the Hanford Site, principally from removal of chemical stocks from laboratories, and are handled infrequently at the DS (e.g., two to three times per year). Future intentions are to try to limit the number of demolition exercises to one per year.

CONCLUSIONS AND RECOMMENDATIONS

- o The DS satisfies the general requirements for dangerous waste management facilities.

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 facility would be required to notify any new Hanford Site operator of the applicable dangerous waste regulations if, in the future, the site operations are assumed by someone other than WHC.

APPLICABILITY

The DS is identified as a dangerous waste treatment facility in the Part A permit application. The DS has in the past and will in the future detonate reactive and explosive dangerous wastes. Thus, the DS must provide the notices required of TSD facilities.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the DS relative to compliance with the notice requirements was determined through interviews of the facility operators, review of facility documents, and a visit at the facility location.

The DS currently does not receive dangerous wastes from any sources other than generators on the Hanford Site. Changes in ownership or operational control of the DS are not anticipated at this time.

CONCLUSIONS AND RECOMMENDATIONS

- o The DS satisfies the required notices regulations.

GENERAL WASTE ANALYSIS

WAC 173-303-300

REGULATIONS AND REQUIREMENTS

Waste Analysis Requirements

The waste analysis requirements assure 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 a waste 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 be 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.

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 waste 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 Analysis 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 undergoing treatment 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 storage cabinet designed to hold up to three hundred gallons of flammable liquids. The waste analysis plan must describe how the facility operator will prevent storage of oxidizers, acids or other wastes that the cabinet is not designed to handle, as well as how exceeding the flammables storage capacity of the cabinet will be prevented.

Material Compatibility The waste analysis plan must show the compatibility between the wastes and all materials that come (or could be expected to come) in contact with the wastes. For example, the compatibility between the wastes and any 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 when sampling of wastes is an element of the waste analysis plan. 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 (when sampling is performed) 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 DS is identified as a dangerous waste treatment facility in the Part A permit application. The DS has in the past and will in the future detonate reactive and explosive dangerous wastes. Thus, the DS must satisfy the general waste analysis requirements.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the general waste analysis practices at the DS was determined through interviews of the facility operators, review of facility documents, and a visit at the facility location.

The waste analysis program for the DS is not performed at the DS facility site. Rather, it is the responsibility of each individual generator to identify and determine the designation and hazards of their dangerous wastes. This evaluation is performed in concert with SHWPE staff who ensure that proper waste analysis is performed. Assessment of the responsibilities and performance of the SHWPE staff are outside the scope of this report.

When a generator, in conjunction with the SHWPE staff, determines that a dangerous waste has been identified as appropriate for demolition, the operators of the DS are notified. The DS operators participate in confirming that the waste is unstable enough to warrant detonation in lieu of alternative treatment or disposal.

Actual analyses (e.g., sampling and chemical testing) of these wastes are not performed prior to detonation, due to the unstable nature of the wastes and the potential risk of explosion that could be posed during a sampling and analysis effort. Identification of the chemicals involved depends on information provided by the responsible generators. Development or assessment of this generator-supplied information through their respective waste analysis plans is outside the scope of this assessment report.

CONCLUSIONS AND RECOMMENDATIONS

- o (Waste Analysis) Develop a program to ensure that dangerous wastes subject to the land disposal bans are not detonated at the DS unless destruction of the wastes will be complete enough to eliminate potential for residues to remain in the soils.

- o (Waste Analysis Plan) Include in a written waste analysis plan a complete description of the representative sampling techniques, analysis parameters, and testing methods used to check soils in the vicinity of the blasting pit for dangerous waste residues.

SECURITY
WAC 173-303-310

REGULATIONS AND REQUIREMENTS

The Active Portion Must Be Secured

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

Artificial or natural barriers with controlled access points can also be used to 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 DS is identified as a dangerous waste treatment facility in the Part A permit application. The DS has in the past and will in the future detonate reactive and explosive dangerous wastes. Thus, the DS must satisfy the security requirements.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the DS relative to compliance with the security requirements was determined through interviews of the facility operators, review of facility documents, and a visit at the facility location.

Access to the DS is controlled by the overall Hanford Site security. During demolition activities, the area is barricaded and secured by the Hanford Patrol until all activities have been completed. There were no warning signs located at the DS or at areas where there could be access to the DS.

CONCLUSIONS AND RECOMMENDATIONS

- o (Signs) Post signs warning personnel of the dangerous nature of the DS around the demolition area, at such points and sufficient number to be seen from any approach to the area. Alternatively, demonstrate to the regulatory agencies that posting of signs is not required, pursuant to WAC 173-303-310(1).

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, backup power 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; and
- 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 emergency eye wash stations", as an example. Rather, each eye wash station should be checked for adequate supplies of water, ease of access in case of need (e.g., no equipment or containers blocking access), and for potential problems that could cause it to fail if needed (e.g., eyecup falls off when used). 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 section addressing the container requirements. Additional inspection requirements for facilities that handle ignitable or reactive dangerous wastes are discussed in the Other General Requirements section.

APPLICABILITY

The DS is identified as a dangerous waste treatment facility in the Part A permit application. The DS has in the past and will in the future detonate reactive and explosive dangerous wastes. Thus, the DS must satisfy the general inspection requirements.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the general inspection practices at the DS was determined through interviews of the facility operators, review of facility documents, and a visit at the facility location.

Inspections are conducted at the DS during and immediately after demolition activities. The DS is not inspected at times other than when demolition activities are occurring. There is no written inspection plan, with schedules, for inspecting safety, emergency response, and communications equipment.

CONCLUSIONS AND RECOMMENDATIONS

- o (Inspection Plan) Develop a written inspection plan for the DS that addresses the following items:
 - Inspection and maintenance of the DS area on a regular basis (e.g., monthly) to ensure that security measures are in place, and that other, non-demolition-related activities are not adversely affecting the DS area.
 - Inspection and maintenance of the equipment used during demolition activities to prevent hazards and respond to emergencies (e.g., communication devices, fire suppression equipment). If the inspection and maintenance of these items are the responsibility of other entities (e.g., Hanford Fire Department, Hanford Patrol, City of Richland Police Department (Bomb Squad)), then their inspection and maintenance procedures should be cited or described.

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 employee's 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 verifying that a particular dangerous waste is compatible with the materials, liners, other wastes, soils, etc. that may come into contact with the waste in the same storage or treatment area.

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 DS is identified as a dangerous waste treatment facility in the Part A permit application. The DS has in the past and will in the future detonate reactive and explosive dangerous wastes. Thus, the DS must satisfy the personnel training requirements.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the DS relative to the personnel training requirements was determined through interviews of the facility operators, review of facility documents, and a visit at the facility location.

There is no written training plan specific for the DS facility operators. Training needs are tracked and identified, and records of completed training are maintained and updated on the overall Hanford Site personnel training record computer database. The records for the current DS facility operators indicate that appropriate training is obtained and maintained on a regular basis.

CONCLUSIONS AND RECOMMENDATIONS

- o (Training Plan) Develop a written training plan that specifically describes the types of training necessary to fulfill the various responsibilities of the DS facility operators. The required training for each position, and the requisite skills, education, and other qualifications must be described.

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

The TSD facility is required to have and maintain the following emergency response 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 must 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 must be documented and noted in the facility operating record.

APPLICABILITY

The DS is identified as a dangerous waste treatment facility in the Part A permit application. The DS has in the past and will in the future detonate reactive and explosive dangerous wastes. Thus, the DS must satisfy the preparedness and prevention requirements.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the preparedness and prevention practices at the DS was determined through interviews of the facility operators, review of facility documents, and a visit at the facility location.

Dangerous wastes are physically managed at the DS only two or three times each year, and possibly less frequently in the future. During actual detonation operations, emergency communication and instruction devices, fire control equipment, and water or other fire suppression chemicals are present at the DS site. The operations are conducted so that visual and voice contact is maintained with all involved personnel at all times.

Maintenance of aisle space is not pertinent to the DS. Arrangements with local and emergency response authorities exists under the Hanford Site's overall emergency plan.

CONCLUSIONS AND RECOMMENDATIONS

- o The DS satisfies the preparedness and prevention requirements.

**CONTINGENCY PLAN AND
EMERGENCY PROCEDURES
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 addresses;
- 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 waste 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.

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. A copy of the contingency plan must also be submitted to the local and state authorities that may be expected to respond in case of emergencies (e.g., police, fire department, hospitals, etc.), as discussed under the Preparedness and Prevention requirements of WAC 173-303-340.

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 DS is identified as a dangerous waste treatment facility in the Part A permit application. The DS has in the past and will in the future detonate

reactive and explosive dangerous wastes. Thus, the DS must satisfy the contingency plan and emergency procedures requirements.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the DS relative to compliance with the contingency plan and emergency procedures requirements was determined through interviews of the facility operators, review of facility documents, and a visit at the facility location.

A safety plan has been prepared for the DS. The plan describes how detonation operations are to be conducted, safety practices to be followed, how access to the DS will be controlled during operations, responses to specific contingencies (e.g., premature detonation, shift in winds), certain restrictions (e.g., use of radios), and other aspects related to the performance of the detonation operations. The plan is specific to detonation operations, and does not address contingencies that may occur at times other than during these operations.

CONCLUSIONS AND RECOMMENDATIONS

- o (Contingency Plan) Include in the DS safety plan descriptions of the responses that will be taken for the following contingencies:
 - Fires break out after the fire response equipment has left (e.g., undetected smoldering can go on for many hours and then catch fire). Reference to the emergency fire response actions described in the overall Hanford Site emergency plan, if applicable and appropriate, would satisfy this contingency item.
 - Accidental detonation occurs while the dangerous waste is being transported and under the care of DS facility personnel. If the overall Hanford Site emergency plan adequately addresses such

contingencies, then reference to the applicable plan items would be satisfactory.

- Contamination is detected in the soils around the blast pit. At a minimum, response to this contingency should include follow-up sampling and analysis, and procedures for removing or treating contaminated soils, or preparations for closure as a landfill. The responses to be taken should also be discussed or cited in the closure plan.

- o (Contingency Plan) Include in the DS safety plan (or provide in the plan reference to the location and availability of) the description of arrangements with local and emergency response authorities.

- o (Emergency Coordinator) Identify in the DS safety plan the individual(s) who will act as the emergency coordinator(s) for specific emergencies. Provide their names, and office and home telephone numbers and addresses.

- o (Emergency Equipment) Include in the DS safety plan a list of and description of capabilities for all emergency equipment and devices that are at the DS facility during detonation operations.

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 familiar with the dangerous waste management activities at the facility including the following:

- 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 or else available on call at all times. 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 reoccur 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 DS is identified as a dangerous waste treatment facility in the Part A permit application. The DS has in the past and will in the future detonate reactive and explosive dangerous wastes. Thus, the DS must satisfy the emergencies requirements.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the emergencies practices at the DS was determined through interviews of the facility operators, review of facility documents, and a visit at the facility location.

The procedures to be followed for emergencies are described in a safety plan for the DS. Numerous individuals and their respective

responsibilities are identified in the plan. The individuals and authorities likely to respond in the event of emergencies have a high level of training relative to emergency situations.

CONCLUSIONS AND RECOMMENDATIONS

- o (Emergency Coordinator) Identify the individual(s) who will act as emergency coordinator(s) in the event of emergencies at the DS facility.

- o (Notification and Reports) Although not specifically required by the regulations, describe in the DS safety plan the procedures that will be followed to notify the regulatory agencies and provide followup reports in the event of unplanned fires, explosions, or releases at the DS facility.

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 usually does not receive 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 the regulatory agency explaining the discrepancy is required if the conflict is not resolved within 15 days. The facility is also required to submit reports to the regulatory agency for waste shipments that arrive without the required manifests.

APPLICABILITY

The DS is identified in the Part A permit application as a facility for treating explosive and reactive dangerous wastes by detonation. In general, the DS has only received wastes generated on the Hanford Site. However, the wastes have been shipped on right-of-ways to which the public had access (i.e., transport was not entirely "on-site"). Thus, the DS was subject to the manifest system requirements.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the dangerous waste manifest practices at the DS was determined through interviews of the facility operators, review of facility documents, and a visit at the facility location.

During our review, we found that shipments of dangerous, reactive, or shock-sensitive compounds originated in the 300 Area and were transported south along Stevens Drive and then west along Horn Rapids Road to the DS. The City of Richland Police Bomb Squad is used as the transporter from the 300 Area to the DS.

WHC's current legal opinion is that shipments on rights-of-way north of the 300 Area constitute on-site transport. Shipments to the DS have occurred south of the 300 Area, on public access highways, and are therefore subject to the manifest requirements. If shipments were received without manifests, then unmanifested waste reports should have been submitted to the regulatory agencies.

Requests for disposal are maintained by the SHWPE who notifies waste generators and DS personnel of the need for disposal. Documentation including waste description, date, quantity, and age, accompany waste material during shipment. Records of final approval and detonation confirmation are maintained by facility personnel. Presently, no specific manifest practice is being implemented.

CONCLUSIONS AND RECOMMENDATIONS

- o Develop and implement a standard manifest procedure which includes:
 - Signatures and dates;
 - Methods to handle discrepancies between the manifest information and the shipment;
 - Copies for the transporter;
 - Copies for the generator;
 - Copies for the facility operating file;
 - Reasons and methods to refuse a shipment; and,
 - Methods to handle and report unmanifested shipments.

Until such time as it is determined that shipments from the 300 Area constitute on-site transport, the manifest procedures must comply with the manifest system regulations.

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 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;
- 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 reactive liquid detonated at the DS would be referred to as T18 (management code for "Other" thermal treatment) of a D003 (reactive) 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 DS is identified in the Part A permit application as a facility for treating explosive and reactive dangerous wastes by detonation. Thus, the facility recordkeeping requirements apply to the DS.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the DS relative to compliance with the facility recordkeeping requirements was determined by reviewing available documentation, discussions with facility personnel, and a visit at the facility location.

Records for the facility are maintained both by SHWPE and by the facility personnel. SHWPE is notified first of a disposal need upon receipt of a request for disposal notification from the generator. The request for disposal notification is kept by SHWPE personnel who then notify DS personnel. Records of final approval for detonation and detonation confirmation records are maintained by DS personnel. Facility operating records are located in the offices of the personnel from the respective organizations (i.e., SHWPE and DS) since there is no physical building or structure at the demolition site.

CONCLUSIONS AND RECOMMENDATIONS

- o (Operating Record) Develop and maintain an operating record for DS. Include all information that is required by regulation to be maintained in the facility operating record. In particular, address the following elements:
 - Records of the types and quantities of dangerous wastes managed at the DS. Include all information that was provided by the waste generators and SHWPE and other relevant information that might be available.
 - The origin of the wastes and their final disposition, including cross references to manifest numbers (i.e., some wastes are detonated; others are shipped as dangerous waste and are collected as the shipment is leaving the area).

- Past inspection records, and any reports prepared on correcting deficiencies identified at the DS.
- Waste analysis records for the soils around the DS area.
- o (Record Location and Access) Maintain a complete operating record at one central location (duplicate records can be made available to other staff members requiring the information on a regular basis). Develop and implement procedures to ensure that all subsequent records will be channeled to and incorporated into the operating record (e.g., inspection reports, waste disposition reports). Although not specifically required by the regulations, maintain a duplicate copy of the facility operating record in case the original is destroyed or lost.

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 in general, rarely receives dangerous waste from off-site, most 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 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 DS is identified in the Part A permit application as a facility for treating explosive and reactive dangerous wastes by detonation. Thus, the DS must satisfy the reporting requirements.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the DS facility reporting practices was determined through reviews of available documentation and interviews of facility personnel.

Annual reports are submitted to the regulatory agencies via the Hanford Site dangerous waste annual report. The DS has, in the past, received

waste without the required manifest. The DS facility has not provided unmanifested waste reports to the regulatory agencies for these unmanifested shipments.

CONCLUSIONS AND RECOMMENDATIONS

- o (Unmanifested Waste Reports) Until such time as all dangerous waste shipments to the DS are determined to be on-site transport, prepare and submit unmanifested waste reports to the regulatory agency for dangerous waste shipments that travel along an uncontrolled public right-of-way and which arrive at the DS without uniform manifests. The report form and instructions in the Unmanifested Dangerous Waste Report - Form 6 (available from Ecology) must be used for this report.

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 there is a hazard from ignitable or reactive wastes; 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 (UFC). 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 DS is identified in the Part A permit application as a facility for treating explosive and reactive dangerous wastes by detonation. Thus, the other general requirements apply to the DS.

INFORMATION REVIEWED AND CURRENT STATUS

The status of the DS relative to compliance with the other general requirements was determined by reviewing available documents, discussions with facility personnel, and a visit to the facility location.

During active operation, the DS treats explosive and reactive dangerous waste by detonation. All wastes are treated in the same area regardless of compatibility. Wastes are placed in a low depression in the surface area and are detonated for treatment. Once treatment has occurred, there are no ignitable, reactive, or incompatible wastes present at the DS.

At this time, the principal risk of fires or reactions is associated with the actual detonation of the wastes being treated. The potential exists that inadvertent or unintended explosions could occur while the wastes are being handled or prepared for treatment. A high degree of care is taken by the operators of the DS to minimize this potential.

There are no storage containers or tanks at the DS, so the labeling requirements do not apply once treatment has been completed. The containers that arrive at the DS have labels identifying their contents. The DS receives dangerous waste to be treated and unloads them in areas safe for detonation.

Asbestos disposal does not occur at this facility. Ignitable and reactive wastes are not stored at the DS, so the inspection against the UFC is not required.

CONCLUSIONS AND RECOMMENDATIONS

- o The DS facility satisfies the other general requirements.

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 DS has been identified in the Part A permit application as a facility for treating explosive and reactive dangerous waste by detonation. Thus, DS may be subject to the future facility 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 DS is identified in the Part A permit application as a facility for treating explosive and reactive dangerous wastes by detonation. Thus, the general performance standards apply to the DS.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the facility relative to the performance standards was determined by reviewing available documentation, discussions with facility personnel, and a tour of the facility location.

No evidence was found to indicate that current practices pose a threat to human health or the environment. No recent releases of dangerous waste to the environment were observed during our assessment. Extreme care is taken during detonation exercises to prevent risks to facility personnel.

CONCLUSIONS AND RECOMMENDATIONS

- o The DS facility satisfies the general 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.

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 Units

The buffer zone requirements also present minimum distances that new land-based TSD units should attempt to meet (Note - This is not a mandatory requirement). 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 to be consistent with the new siting standards currently being developed.

APPLICABILITY

The DS is identified in the Part A permit application as a facility for treating explosive and reactive dangerous wastes by detonation. Thus, the DS must satisfy the buffer monitoring zone requirements.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the DS buffer zones was determined through observation of the facility and discussions with knowledgeable facility personnel.

The DS is located northwest of the 1100 Area. It is approximately 1/2 mile north of the southern Hanford Site boundary. It is situated approximately 3.5 miles west of the Columbia River and 2.5 miles east of the Yakima River.

CONCLUSIONS AND RECOMMENDATIONS

- o The DS satisfies the buffer zone requirements.

CLOSURE AND POST-CLOSURE
40 CFR PART 265 SUBPART G

REGULATIONS AND REQUIREMENTS

Closure Requirements

When dangerous waste TSD facilities are shut down 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. A plan must address partial closure of units at the facility during its active life (e.g., completion and closure of one cell at a landfill) as well as final closure efforts for the entire facility. 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 management unit at the facility will be closed to achieve the closure performance standard;
- o A description of how final closure of the facility will be conducted to achieve the closure performance standard;
- o An identification of the maximum extent of operations that will be ongoing at any given time during the facility's active life (worst case closure scenario);
- o An estimate of the maximum inventory (both types and volumes) of hazardous waste that will ever be on-site during the facility's active life (worst case closure scenario);
- o Descriptions of the methods for remediating the facility during partial and final 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 containment systems, equipment, structures and soil 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
 - Other activities that may be needed to satisfy the closure performance standard, such as groundwater monitoring, leachate collection and run-on/run-off control; and
- o A schedule for closure of each management unit (partial closure) and for final closure, including at least the total time needed to close each unit 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 decontamination measures, efforts to demonstrate clean closure, (except for landfill portions of the facility) and final condition of the facility upon closure.

Sampling activities must be directed to proving to Ecology and EPA that no hazardous materials (wastes, constituents, and residues) will remain after closure except those that are intended to be left in place.

Analysis represents all of the different tests that will be performed to demonstrate that hazardous materials are not left after closure, or to show that only those materials intended to remain in place are actually present 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. For landfills, this will particularly address areas such as final covers and revegetation.

Materials Staging and Disposition should address all activities associated with containing and preparing, for final disposition, the wastes generated during closure. 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. On-site disposal may be an option for landfills. If this is to be done, then the disposal methods should be accounted for.

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 ground water monitoring system detects hazardous constituents.

APPLICABILITY

The DS is identified in the Part A permit application as a facility for treating explosive and reactive dangerous wastes by detonation. Thus, the DS must develop and maintain a detailed closure plan to ensure proper closure when the unit is taken out of service. At this time, it is not anticipated that the DS facility will be subject to post-closure requirements.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the DS facility relative to the closure requirements was determined from interviews with facility personnel, review of available documentation, and a tour of the facility.

At this time no closure plan has been written for the DS facility.

CONCLUSIONS AND RECOMMENDATIONS

- o (Closure Plan) Prepare a detailed closure plan for the DS facility taking into account all applicable closure requirements.

FINANCIAL REQUIREMENTS
40 CFR PART 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.

CONCLUSIONS AND RECOMMENDATIONS

- o Although not a requirement of the regulations, development of a closure cost estimate is recommended to facilitate federal budget acquisition prior to closure. In addition, current state regulations require operators at federal facilities to comply with the financial requirements under final status.

USE AND MANAGEMENT OF CONTAINERS
40 CFR PART 265 SUBPART I

REGULATIONS AND REQUIREMENTS

Containers and container areas that are used to store 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

Areas where containers are stored 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.

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 prior to 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 DS facility does temporarily hold (i.e., store) containers of dangerous waste prior to and during detonation operations at the site, so technically the use and management of containers requirements in 40 CFR Part 265 Subpart I do apply to the DS facility. However, it has been our experience in working with Ecology that, except in certain circumstances, the short period of storage at the DS facility would not require compliance with the Subpart I regulations. EPA typically has deferred to Ecology in this area.

In general, Ecology has identified the following reasons for requiring compliance with the storage requirements:

- o Containers are stored for longer than 24 hours;
- o Containers are stored overnight;
- o Even though not stored overnight nor more than 24 hours, containers are present on the site on a frequent basis;
- o Containers are stored in a manner that would contribute to or promote leakage; and/or

- o Past practices involving containers have led Ecology to conclude that threats to public health and the environment exist that can only be resolved by requiring compliance with the regulations.

Unless the above circumstances become applicable to the DS facility, or Ecology otherwise requires compliance, the DS would not be subject to the container use and management requirements of Subpart I.

THERMAL TREATMENT
40 CFR PART 265 SUBPART P

REGULATIONS AND REQUIREMENTS

Owners/operators employing thermal treatment to treat dangerous wastes must satisfy certain minimum standards. Thermal treatment means the use of a device that primarily uses elevated temperatures to treat a waste. Thermal treatment as addressed in these regulations and requirements is that other than an incinerator (usually an enclosed device using controlled flame combustion); incinerators are regulated under Subpart O. Examples of thermal treatment devices include pyrolysis units, plasma arcs, molten salt destruction, and wet oxidation processes.

The federal requirements for thermal treatment include standards for:

- o General operation;
- o Waste analysis;
- o Monitoring inspections;
- o Closure;
- o Open burning and waste explosives; and
- o Burning particular hazardous waste.

General Operation

The primary general operating requirement is that the owner/operator must be sure the thermal treatment unit is operating at steady state conditions (normal operating conditions) before adding any dangerous waste for treatment. This requirement is meant to ensure complete treatment of any wastes. Steady state conditions include a constant operating temperature achieved through using auxiliary fuel (or other means). This condition is necessary unless the process is a batch thermal treatment that requires a complete thermal cycle to treat a discrete amount of dangerous waste.

Waste Analysis

Besides the general waste analysis required under WAC 173-303-300, additional analyses are required for thermal treatment. These are necessary to ensure the owner/operator has sufficient understanding of the waste to properly treat it. The owner/operator must do at least two things: 1) analyze any waste that he has not previously treated in order to establish steady state or other appropriate (if the treatment is a non-continuous process) operating conditions; and, 2) determine the type of pollutants that might be emitted during treatment. These additional analyses are important for effective and safe waste management, to ensure that any new wastes undergoing treatment will be adequately destroyed, and to ensure that procedures devices, equipment, etc. are in place to manage any generated wastes.

Federal law requires that the additional analyses must at least determine:

- o The heating value of the waste (BTU content);
- o The halogen content and sulphur content; and
- o Concentrations of lead and mercury in the waste undergoing treatment.

The last requirement need not be fulfilled if the owner/operator has written documented data that shows lead and/or mercury are not present.

The information generated from the waste analysis must be placed in the facility operating record.

Monitoring and Inspections

Unit-specific inspections must be performed on thermal treatment devices. As in general inspection requirements (WAC 173-303-320), specific items to be inspected, what is to be checked (types of problems to be noted), and when (or how often) they are to be inspected must be called out in the inspection plan. These include:

- o Existing instruments that relate to temperature and emission control must be monitored at least every 15 minutes. These instruments normally include those that measure waste feed, auxiliary fuel feed, treatment process temperature, and relevant process flow and level controls.
- o The emissions (e.g., stack plume), where present, must be visually observed at least once per hour for normal appearance. This includes color and opacity of emissions.
- o The entire thermal treatment device (the process and associated equipment) including pumps, valves, conveyors, pipes, etc. must be inspected at least once per day for leaks, spills, and fugitive emissions.
- o Any emergency shutdown controls and/or system alarms must be checked at least once per day to assure proper operation.

Corrective actions must be taken immediately to maintain steady state or other appropriate thermal treatment conditions and to return any visible emissions to their normal appearance. These actions can be made automatically by operating equipment or by the operator.

Records of monitoring and inspection must be maintained in the operating log. It is useful to employ a checklist to guide the inspection of the thermal treatment unit. The checklist should reflect the appropriate level of necessary detail and can serve as the inspection log.

Closure

As with containers or tanks, at closure the owner/operator must remove all dangerous waste and residues, including but not limited to ash from the thermal treatment equipment. Generally it will be necessary to remove waste to background environmental levels. The purpose of complete removal is to ensure that the thermal treatment unit will not pose an undue risk to public health and/or the environment.

Open Burning and Waste Explosives

Types of thermal treatment are strictly regulated by the federal government. For instance, open burning of dangerous waste is strictly prohibited. The one exception is that waste explosives may undergo open burning and detonation. Waste explosive and detonation are defined as follows:

- o Waste explosives include waste which has the potential to detonate and bulk military propellants which cannot be safely disposed of through other modes of treatment.
- o Detonation is an explosion in which chemical transformation passes through the material faster than the speed of sound (0.33 kilometers/second at sea level).

If waste explosives are to undergo open burning or detonation, the owner/operator must do so in such a way that does not threaten human health or the environment and in accordance with the following table:

<u>Waste Explosives or Propellants in Pounds</u>	<u>Minimum Distance from Open Burning or Detonation to the Property of Others in Feet (Meters)</u>
0 to 100	670 (204)
101 to 1,000	1,250 (380)
1,001 to 10,000	1,730 (530)
10,001 to 30,000	2,260 (690)

Burning Particular Hazardous Waste

Listed chlorinated wastes (F020, F021, F022, F023, F026, F027) can be burned in thermal treatment units if the unit receives a certification from EPA stating that it can meet the performance standards for final status incinerators (Part 264 Subpart O). In order to obtain certification for a unit, the owner/operator must submit an application demonstrating that the

unit can meet the above referenced performance standards. EPA will issue a tentative decision on whether the thermal treatment unit can perform as stated and then accept public comment for 60 days. A final determination on certification will then be made.

APPLICABILITY

The DS is identified in the Part A permit application as a facility for treating explosive and reactive dangerous wastes by detonation. Thus the DS must comply with the thermal treatment requirements for open burning and waste explosives contained in 40 CFR Part 265 Subpart P.

INFORMATION REVIEWED AND CURRENT STATUS

The current status of the thermal treatment practices at the DS was determined through a review of available documents, discussion with facility personnel, and a tour of the facility location.

The compounds treated at the DS are typically identified by the waste generators as exceeding the dated shelf life of the compound as identified on the compound label. Exceptions to this are if the compound has been treated with an acceptable inhibitor to prevent deterioration of normal compound properties. Compounds which have been treated with an inhibitor must also be monitored for exceeding the inhibited expiration date. Additional inhibitor must be added prior to the date or the compound must be disposed of properly.

A request for disposal notification is sent to SHWPE for compounds which are identified by the generator as needing disposal. The materials are received by the DS personnel and are either detonated or shipped off-site to a dangerous waste disposal unit. Those treated at the DS are detonated through a joint operation of the Hanford Fire and the City of Richland Police (Bomb Squad) Departments, Hanford Patrol, and WHC.

Materials detonated at the DS facility have been identified by responsible personnel as either shock sensitive or reactive, and therefore unable to be opened and treated safely by other management methods without jeopardizing the health of the facility personnel.

The DS facility is located about 1/2 mile from the southern Hanford Site boundary (nearest property line, bordering a public right-of-way). Conservatively, up to 10,000 pounds of explosives could be detonated at the DS and meet the minimum setback distances. The amount of waste detonated at any one time at the DS is well below the allowable quantity.

CONCLUSIONS AND RECOMMENDATIONS

- o (Waste Analysis; Monitoring and Inspections) Maintain detailed records of materials treated at the DS as specified earlier in the facility recordkeeping section. At a minimum, these records must include:
 - Waste analyses information (e.g., material name, contents, date, and volume);
 - Monitoring and inspection records (e.g., inspection logs, results of soils analyses, and responses to detected contamination).

- o (Waste Analysis; Closure) Develop a sampling and analysis plan to monitor the site of detonation within the facility boundary to ensure no residual dangerous waste constituents remain on or below the soils around the area where treatment occurred. In the closure plan, describe how clean closure will be achieved and demonstrated, and what responses will be taken in the event contamination of the soils is detected.