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DOE/RL-88-37
Revision 3

Copy No. _____

2727-S Nonradioactive Dangerous Waste Storage Facility Closure Plan

9413293.2148

ATTACHMENT 17 TO THE DANGEROUS WASTE PORTION OF THE RESOURCE CONSERVATION AND RECOVERY ACT PERMIT FOR THE TREATMENT, STORAGE AND DISPOSAL OF DANGEROUS WASTE

United States
Department of Energy
Richland, Washington

Approved for Public Release

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CONTINUATION NOTICE

RECORD NO: 003796 / PART 17 OF 18

This record has been filmed in two parts. To view the beginning portion of this record, see the microfilm reel and frame number listed below.

CONTINUED FROM:

REEL NO: 94-13293 PART I

FRAME NO: 2147

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STATE ENVIRONMENTAL POLICY ACT (SEPA)

ENVIRONMENTAL CHECKLIST FORMS

FOR

2727-S NONRADIOACTIVE DANGEROUS WASTE
STORAGE FACILITY RCRA CLOSURE PLAN

REVISION 1

January 1992

WASHINGTON ADMINISTRATIVE CODE
ENVIRONMENTAL CHECKLIST FORMS
[WAC 197-11-960]

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A. BACKGROUND

1. Name of proposed project, if applicable:

Closure of the 2727-S Nonradioactive Dangerous Waste Storage (NRDWS) Facility under the Resource Conservation and Recovery Act (RCRA) of 1976, as amended, and Chapter 173-303 of the Washington Administrative Code.

2. Name of applicants:

U.S. Department of Energy, Richland Operations Office (DOE-RL); and Westinghouse Hanford Company (WHC)

3. Address and phone number of applicants and contact persons:

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

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

Contact Persons:

R. D. Izatt, Program Manager
Office of Environmental Assurance, Permits and Policy
(509) 376-5441

R. E. Lerch, Manager
Environmental Division
(509) 376-5556

4. Date checklist prepared:

February 24, 1988
Revised: January, 1992

5. Agency requesting the checklist:

State of Washington
Department of Ecology
Mail Stop PV-11
Olympia, Washington 98504-8711

6. Proposed timing or schedule: (including phasing, if applicable):

All stored wastes have been removed from the 2727-S NRDWS Facility. A schedule of 180 days following approval of the closure plan has been proposed to complete closure of the facility.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

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The 2727-S NRDWS Facility will be permanently closed pending the approval of the closure plan, which will be submitted to the Washington State Department of Ecology (Ecology) concurrently with this checklist.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

This SEPA environmental checklist is being submitted to Ecology concurrently with the Interim Status Closure Plan for the facility, which describes the steps necessary for closure of the 2727-S NRDWS Facility in accordance with the regulations promulgated by the Environmental Protection Agency (EPA) and Ecology as authorized by the Resource Conservation and Recovery Act (RCRA) of 1976, as amended, and the Hazardous and Solid Waste Amendments of 1984 (42 United States Code 6901-6987). Pursuant to the National Environmental Policy Act (NEPA) of 1969, an Environmental Evaluation (EE) specific to the 2727-S NRDWS Facility was prepared and submitted to DOE-RL for approval. Approval of the EE was given on October 17, 1988.

Additional environmental information regarding the Hanford Site and the 200 West Area can be found in the Hanford Defense Waste - Environmental Impact Statement. (U.S. Department of Energy. 1987. Final Environmental Impact Statement - Disposal of Hanford Defense High-level, Transuranic and Tank Wastes, DOE/EIS-0113, Richland, Washington).

General environmental information on the Hanford Site is found in Hanford Site National Environmental Policy Act (NEPA) Characterization, PNL-6415 Rev.3, (Pacific Northwest Laboratory, 1990, Richland, Washington).

Archeological information for the 200 Areas is contained in Archeological Survey of the 200 East and the 200 West Areas, Hanford Site, Washington, PNL-7264, (Pacific Northwest Laboratory, 1990, Richland, Washington).

9. Do you know whether applications are pending for government approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No applications are pending for government approvals of other proposals directly affecting the 2727-S NRDWS Facility.

10. List any government approvals or permits that will be needed for your proposal, if known.

Ecology is the only agency authorized to approve or permit closure of the 2727-S NRDWS Facility under requirements authorized by RCRA, and Chapter 173-303 of the Washington Administrative Code. Although the regulatory authority for the Hazardous and Solid Wastes Amendments of 1984 is the EPA's, Ecology will evaluate compliance with these amendments.

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11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.

The 2727-S NRDWS Facility, located in the 200 West Area of the Hanford Site, consists of a building, a concrete storage pad, and surrounding soils. The extent of this facility measures approximately 165 by 300 feet.

The 2727-S NRDWS Facility was used from 1983 to 1986 for container storage of nonradioactive dangerous and extremely hazardous wastes generated in the research and development laboratories, process operations, construction, maintenance, and transportation functions throughout the Hanford Site. All waste previously stored in the facility has been removed and sent to an offsite RCRA Treatment, Storage, and/or Disposal (TSD) site.

The metal building measures 20 by 40 feet and is set over two main cubed concrete cells which segregate the oxidizing waste from corrosive, organic, ignitable, and other waste types. The floor of the building is part of a concrete storage pad which extends beyond the building in all four directions. The concrete storage pad measures approximately 65 feet by 105 feet. Waste was stored both inside the building and outside on the concrete pad on pallets. During a very short operating period, waste drums were also stored on pallets on the soil surrounding the pad.

The proposed activity is closure of the 2727-S NRDWS Facility, which consists of the following: the building, the concrete pad directly under the building, the exterior concrete pad, and six inches of soil directly under the interior concrete pad will be demolished, removed and shipped to an off-site RCRA landfill. Characterization of the 2727-S NRDWS Facility waste will be performed by the receiving RCRA landfill. Exterior surface soil and soil underneath the exterior concrete pad will be sampled to analyze for the presence of contaminants above approved regulatory limits. Soil showing evidence of contamination above those levels will be removed and shipped to an off-site RCRA landfill. After the initial disposal action, verification sampling will be performed at the 2727-S NRDWS Facility to ensure all waste constituents have been removed.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The 2727-S NRDWS Facility is located in the southeast portion of the of the 200 West Area of the Hanford Site. The facility is located near an

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asphalt roadway (Beloit Avenue) within the 200 West Controlled Access Area. Maps and detailed location plans are contained in the closure plan submitted with this checklist. A legal description not available at this time but will be provided in the documentation for final closure certification.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. **General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other_____.**

Flat.

b. **What is the steepest slope on the site (approximate percent slope)?**

The approximate slope of the land at the 2727-S NRDWS Facility is less than two percent.

c. **What general types of soils are found on the site? (for example, clay, sandy gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.**

The general soil type found at the 2727-S NRDWS Facility is fine sand. No farming is permitted on the facility.

d. **Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.**

No.

e. **Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.**

If contaminated soils are found at the 2727-S NRDWS Facility as a result of the sampling and analysis program, the contaminated soils will be removed and backfilled with noncontaminated native soil. The soil will then be compacted and graded. No site has been chosen yet as a source of backfill soil.

f. **Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

The potential for erosion at this site during closure is minimal. The combination of arid climate, high evapotranspiration rates, and minimal slope at the 2727-S NRDWS Facility make damage from

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precipitation, excluding rare high-intensity rain events, very unlikely. Possible wind erosion of exposed soil resulting from the replacement of contaminated soils will be mitigated by revegetation.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

The building, the interior concrete pad, and the exterior concrete pad will be removed and disposed of in a RCRA landfill. No impervious surfaces will be left on the site after completion of closure activities.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

If the soils at the 2727-S NRDWS Facility are found to be contaminated they will be removed. The backfilled soil will be compacted, graded, and revegetated.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities, if known.

The trucks transporting contaminated material from the 2727-S NRDWS Facility, and earthmoving equipment used for facility demolition, will generate dust and gaseous emissions such as carbon monoxide. Removing portions of the concrete pad will create additional dust.

b. Are there any off-site sources of emissions or odors that may affect your proposal? If so, generally describe.

No.

c. Proposed measures to reduce or control emissions or other impacts to the air, if any?

None.

3. Water

a. Surface

1) **Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams,**

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saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

No. The closest year-round body of surface water is the Columbia River, which is approximately 7 miles north of the facility. The closest intermittent, seasonal stream is Cold Creek, which is located approximately 3 miles south of the facility.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

No.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

Does not apply.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No.

b. Ground

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

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2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals...; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

Does not apply.

c. Water Run-off (including storm water)

1) Describe the source of run-off (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Does not apply.

2) Could waste materials enter ground or surface waters? If so, generally describe.

No.

d. Proposed measures to reduce or control surface, ground, and run-off water impacts, if any:

Does not apply

4. Plants

a. Check or circle the types of vegetation found on the site.

___ deciduous tree: alder, maple, aspen, other
___ evergreen tree: fir, cedar, pine, other
X shrubs
X grass: sagebrush/cheatgrass-Sandberg's bluegrass
___ pasture
___ crop or grain
___ wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other
___ water plants: water lily, eelgrass, milfoil, other
X other types of vegetation

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b. What kind and amount of vegetation will be removed or altered?

A small sparsely vegetated area of sagebrush/cheatgrass-Sandberg's bluegrass at the 2727-S NRDWS Facility may be affected by closure activities. All areas denuded of vegetation as a result of removal of contaminated soils will be revegetated.

c. List threatened or endangered species known to be on or near the site.

No state- or federally-listed endangered species are known to be on or near the 2727-S NRDWS Facility. No species of plant or animal, that is federally registered as sensitive, rare, threatened or endangered, is known to depend on the habitats unique to the Hanford Site. Additional information concerning threatened and endangered species on the Hanford Site can be found in the documents referred to in the answer to checklist question A.8.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Wheatgrass vegetation will be used to revegetate the area when contaminated soil is removed as part of the closure effort.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other:.....
mammals: deer, bear, elk, beaver, other:.....
fish: bass, salmon, trout, herring, shellfish, other:.....

Passerine birds, pigeons, ravens, raptors, small animals, and coyotes have been observed on the Hanford Site. Additional information on animals found on the Hanford Site can be found in the documents referred to in the answer to checklist question A.8.

b. List any threatened or endangered species known to be on or near the site.

No state- or federally-listed endangered species are known to be on or near the 2727-S NRDWS Facility. No species of plant or animal, that is federally registered as sensitive, rare, threatened or endangered, is known to depend on the habitats unique to the Hanford Site. Additional information concerning threatened and endangered species on the Hanford Site can be found in the documents referred to in the answer to checklist question A.8.

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c. **Is the site part of a migration route? If so, explain.**

The Hanford Site and the adjacent Columbia River are part of the Pacific Flyway for waterfowl migration; other birds also migrate along the river.

d. **Proposed measures to preserve or enhance wildlife, if any:**

None.

6. **Energy and Natural Resources**

a. **What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.**

None.

b. **Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.**

No.

c. **What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:**

Does not apply.

7. Environmental Health

a. **Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.**

Decontamination and transportation equipment may be exposed to hazardous materials in the building, concrete storage pad, or soils. Precautions will be taken to prevent exposure of personnel and the environment to any hazardous material. Personnel will receive hazardous waste training and be cognizant of applicable health and safety measures.

1) **Describe special emergency services that might be required.**

Hanford Site security, fire response, and ambulance services are on call at all times in the event of an onsite emergency.

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2) **Proposed measures to reduce or control environmental health hazards, if any:**

All samples collected, including decontamination rinseate, that are deemed contaminated will be sent to a TSD facility. At no time will waste materials be discharged directly to the ground.

b. **Noise**

1) **What type of noise exists in the area which may affect your project (for example: traffic, equipment, operation, other)?**

None.

2) **What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.**

Clean up activities such as implementation of demolition and earthmoving equipment may increase the noise levels during normal day shift hours. This activity has a short duration of less than two weeks. The completed project will have no effect on noise levels.

3) **Proposed measures to reduce or control noise impacts, if any:**

None

8. Land and Shoreline Use

a. **What is the current use of the site and adjacent properties?**

The 2727-S NRDWS Facility is part of the Hanford Site owned by the U.S. Government. The facility provided storage for hazardous wastes generated at the Hanford Site from 1983 to 1986. All waste stored at the 2727-S NRDWS Facility has been shipped to a TSD facility. The Hanford Site encompasses 570 square miles used for a variety of DOE-RL projects including waste management and special nuclear materials production.

b. **Has the site been used for agriculture? If so, describe.**

No portion of the Hanford Site, including the site of the proposed facility, has been used for agricultural purposes since 1943.

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c. Describe any structures on the site.

A 20 by 40 foot metal building and a 65 by 105 foot concrete storage pad presently occupy the site.

d. Will any structures be demolished? If so, what?

During the closure process the building and the concrete pad will be demolished and removed.

e. What is the current zoning classification of the site?

The Hanford Site is zoned by Benton County as an Unclassified Use (U) district.

f. What is the current comprehensive plan designation of the site?

The 1985 Benton County Comprehensive Land Use Plan designates the Hanford Site as the "Hanford Reservation." Under this designation, land on the Site may be used for "activities nuclear in nature." Non-nuclear activities are authorized "if and when DOE approval for such activities is obtained."

g. If applicable, what is the current shoreline master program designation of the site?

Does not apply

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

No.

i. Approximately how many people would reside or work in the completed project?

None.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Does not apply.

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l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

See answer to checklist question B.8.f.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

Does not apply.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Does not apply.

b. What views in the immediate vicinity would be altered or obstructed?

None.

c. Proposed measures to reduce or control aesthetic impacts, if any:

Does not apply.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

None.

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b. **Could light or glare from the finished project be a safety hazard or interfere with views?**

Does not apply.

c. **What existing off-site sources of light or glare may affect your proposal?**

None.

d. **Proposed measures to reduce or control light and glare impacts, if any:**

Does not apply.

12. Recreation

a. **What designated and informal recreational opportunities are in the immediate vicinity?**

None.

b. **Would the proposed project displace any existing recreational uses? If so, describe.**

Does not apply.

c. **Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any?**

Does not apply.

13. Historic and Cultural Preservation

a. **Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.**

No places or objects listed on, or proposed for, national, state, or local preservation registers are known to be on or next to the 2727-S NRDWS Facility. Additional information on the Hanford Site environment can be found in the environmental documents referred to in the answer to checklist question A.8.

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b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

There are no known archaeological, historical, or Native American religious sites on or next to the 2727-S NRDWS Facility. Additional information on the Hanford Site environment can be found in the environmental documents referenced in the answer to Checklist question A.8.

c. Proposed measures to reduce or control impacts, if any:

If any evidence of potential historic or cultural value is found when the soil is exhumed, all excavation work will cease pending evaluation of the significance of the find. If the find is determined to be significant, a plan will be devised to mitigate excavation impacts on the find.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

The 2727-S NRDWS Facility lies within the controlled access area of the Hanford Site and is not publicly accessible.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

The 2727-S NRDWS Facility is not publicly accessible and, therefore, is not served by public transit.

c. How many parking spaces would the completed project have? How many would the project eliminate?

None.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

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f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

None.

g. Proposed measures to reduce or control transportation impacts, if any:

Does not apply.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No.

b. Proposed measures to reduce or control direct impacts on public services, if any:

Does not apply.

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other:

The utilities available at the 2727-S NRDWS Facility are electricity and telephone. The utilities will be disconnected before closure activities commence at the facility.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

A portable steam generator may be required for decontamination of sampling equipment and materials.

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SIGNATURES

The above answers are true and complete to the best of my knowledge. We understand that the lead agency is relying on them to make its decision.

R. D. Izatt, Program Manager
Office of Environmental Assurance,
Permits and Policy
U.S. Department of Energy
Field Office, Richland

2/5/92
Date

R. E. Lerch, Manager
Environmental Division
Westinghouse Hanford Company

1-22-92
Date

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THE 2727-S NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY CLOSURE PLAN

FOREWORD

The Hanford Site is operated by the U.S. Department of Energy, Richland Field Office. The Hanford Site manages and produces mixed waste (containing both radioactive and dangerous components). The radioactive component of mixed waste is interpreted by the U.S. Department of Energy to be regulated under the *Atomic Energy Act of 1954*; the nonradioactive dangerous waste component of mixed waste is interpreted to be regulated under the *Resource Conservation and Recovery Act of 1976* (RCRA) and the state of Washington Department of Ecology *Dangerous Waste Regulations*.

The Hanford Site is considered to be a single facility. The single dangerous waste permit identification number issued to the Hanford Site by the U.S. Environmental Protection Agency and the state of Washington Department of Ecology is U.S. Environmental Protection Agency/State Identification Number WA7890008967. This identification number encompasses a number of waste management units within the Hanford Facility. All waste management activities carried out under the assigned identification number are considered to be "onsite" as defined in the state of Washington Department of Ecology *Dangerous Waste Regulations*, Washington Administrative Code 173-303.

Since 1987, Westinghouse Hanford Company has been a major contractor to the U.S. Department of Energy, Richland Field Office and has served as co-operator of the 2727-S Nonradioactive Dangerous Waste Storage Facility, the waste management unit addressed in this closure plan.

Westinghouse Hanford Company is identified in the permit application as a "co-operator" and signs in that capacity. Any identification of Westinghouse Hanford Company as an "operator" elsewhere in this closure plan is not meant to conflict with Westinghouse Hanford Company's designation as a co-operator but is rather based on Westinghouse Hanford Company's contractual status (i.e., as a management and operations contractor) for the U.S. Department of Energy.

The 2727-S Nonradioactive Dangerous Waste Storage Facility Closure Plan (Revision 3) consists of 8 chapters and 9 appendices.

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ACRONYMS AND ABBREVIATIONS

ALARA	as low as reasonably achievable
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1989*
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
DOE-RL	U.S. Department of Energy-Richland Operations Office
DOS	disc operating system
DOT	U.S. Department of Transportation
Ecology	Washington State Department of Ecology
EII	environmental investigation instructions
EPA	U.S. Environmental Protection Agency
ft	foot
gal	gallon
HEIS	Hanford Environmental Information System
in.	inch
mi	mile
mi^2	square mile
mL	milliliter
MS	matrix spiked samples
MSD	matrix spiked duplicate samples
NRDWS	Nonradioactive Dangerous Waste Storage
OSM	Office of Sample Management
PCB	polychlorinated biphenyl
QA	quality assurance
QAPI	quality assurance program index
QAPP	quality assurance project plan
QC	quality control
QI	quality instructions
QR	quality requirements
RCRA	*Resource Conservation and Recovery Act of 1976*
TSD	treatment, storage, and/or disposal (facility)
VOA	volatile organic analysis

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ACRONYMS AND ABBREVIATIONS (Cont)

WAC	Washington Administrative Code
Westinghouse Hanford	Westinghouse Hanford Company
XRF	X-ray fluorescence

2727-S NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY CLOSURE PLAN

1.0 INTRODUCTION

This closure plan describes the activities for final closure of the 2727-S Nonradioactive Dangerous Waste Storage (NRDWS) Facility* at the Hanford Site. The 2727-S NRDWS Facility provided container storage for nonradioactive dangerous and extremely hazardous wastes generated in the research and development laboratories, process operations, and maintenance and transportation functions throughout the Hanford Site. Storage operations began at the 2727-S NRDWS Facility March 14, 1983, and continued until December 30, 1986, when the last shipment of materials from the facility took place. These storage operations have been moved to the new 616 NRDWS Facility, which is an interim status unit located between the 200 East and 200 West Areas of the Hanford Site. The 2727-S NRDWS Facility is owned and operated by the U.S. Department of Energy-Richland Operations Office (DOE-RL). Previously, Rockwell Hanford Operations managed the facility on behalf of the DOE-RL until July 1, 1987, when Rockwell's responsibilities, which included closure of the 2727-S NRDWS Facility, were transferred to Westinghouse Hanford Company (Westinghouse Hanford).

For the convenience of the reviewer, a copy of the March 1987 Dangerous Waste Compliance Checklist/Questionnaire (Chapter 173-303 WAC), Part 6: Closure, is included as Appendix A to this closure plan.

1.1 LOCATIONAL INFORMATION

The Hanford Site is a 560-mi^2 tract of semiarid land (Figure 1). The Hanford Site is located northwest of the city of Richland, Washington, in the Columbia River basin, which is the nearest population center. The center of Richland lies approximately 3 mi from the southernmost portion of the Hanford Site boundary.

In early 1943, the United States Army Corps of Engineers selected the Hanford Site as the location for reactor, chemical separation, and related facilities to produce and purify plutonium for national security and defense activities. Eight graphite-moderated reactors using Columbia River water for once-through cooling and a new type of dual-purpose reactor (N Reactor) using a recirculating water coolant and producing both plutonium and steam for

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*Facility. For purposes of the *Resource Conservation and Recovery Act of 1976*, the Hanford Site is considered to be a single facility consisting of a number of waste management units. The term 'facility' also is commonly used in building nomenclature throughout the Hanford Site (e.g., 2727-S Nonradioactive Dangerous Waste Storage Facility).

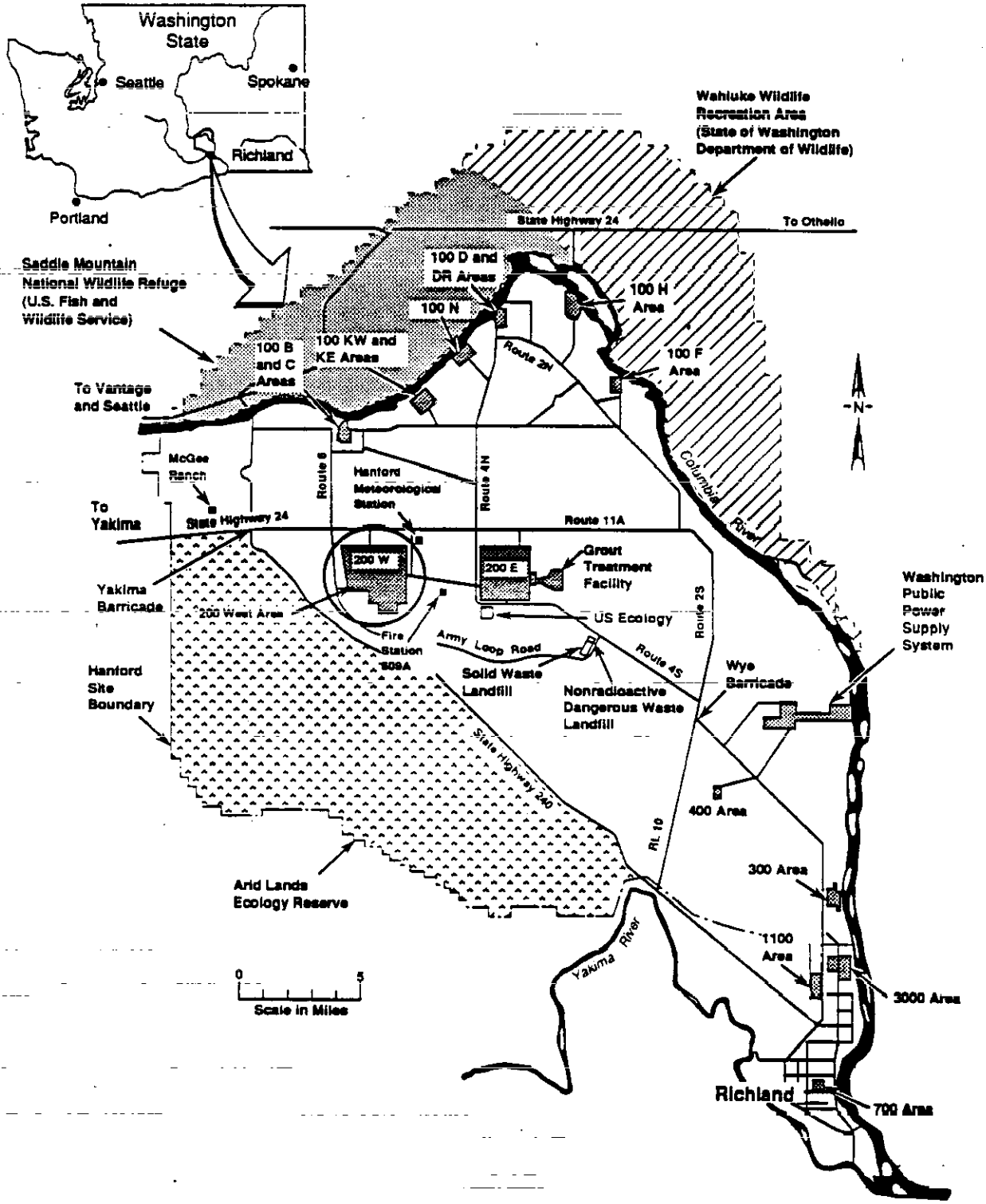

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Figure 1. Regional Map.

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electricity were eventually built along the Columbia River. The graphite-moderated reactors were operated from 1944 to 1971; the N Reactor began operation in 1963 and a decision was made to place the N Reactor in cold standby status in February 1988.

Activities are centralized in numerically designated areas on the Hanford Site. The reactor facilities are located along the Columbia River in the 100 Areas. The reactor fuel processing and waste management facilities are located in the 200 Areas, which are situated on a plateau about 7 mi from the river.

The 300 Area, located adjacent to Richland, contains the reactor fuel manufacturing facilities and the research and development laboratories. The 400 Area, 5 mi northwest of the 300 Area, contains the Fast Flux Test Facility used in the testing of liquid metal reactor systems. The 600 Area covers all locations not specifically given an area designation. Adjacent to north Richland, the 1100 Area contains units associated with administration, maintenance, transportation, and materials procurement and distribution. The 3000 Area, between the 1100 Area and 300 Areas, contains engineering and administrative offices. Administrative buildings also are located in the 700 Area, which is in downtown Richland.

The 2727-S NRDWS Facility is located in the southeast portion of the 200 West Area (Figure 2). The 2727-S NRDWS Facility is located near an asphalt roadway (Beloit Avenue) within the 200 West Controlled-Access Area (Figure 3). This roadway receives work traffic.

1.2 SECURITY

Because of the continuing 200 Area activities and the presence of several radioactive facilities, an effective site security program is maintained in the 200 Areas. Although originally intended for protection of government property, classified information, and special nuclear material, the security program also meets the requirements outlined in the Washington State Department of Ecology (Ecology) Washington Administrative Code (WAC) 173-303-310 (Ecology 1991a) for hazardous wastes. The onsite security systems prevent unknowing entry and minimize the possibility for unauthorized entry of persons, livestock, or wildlife into the 2727-S NRDWS Facility.

Unauthorized or unintended entry to the facility is prevented by 24-hour surveillance systems in the form of manned barricades at the entries to controlled-access areas and fences, gates, locks, and warning signs. The Wye and Yakima Barricades (Figure 4) control access to the 200 West Area. Two barricades at the 200 West Area control direct access to the 2727-S NRDWS Facility. Only personnel who have been granted a security clearance from the DOE (or uncleared employees/visitors escorted by cleared personnel) are permitted to enter Hanford Site controlled-access areas. Hanford Patrol provides surveillance patrols of the controlled areas. In addition, access to the 2727-S Building is controlled by lock and key.

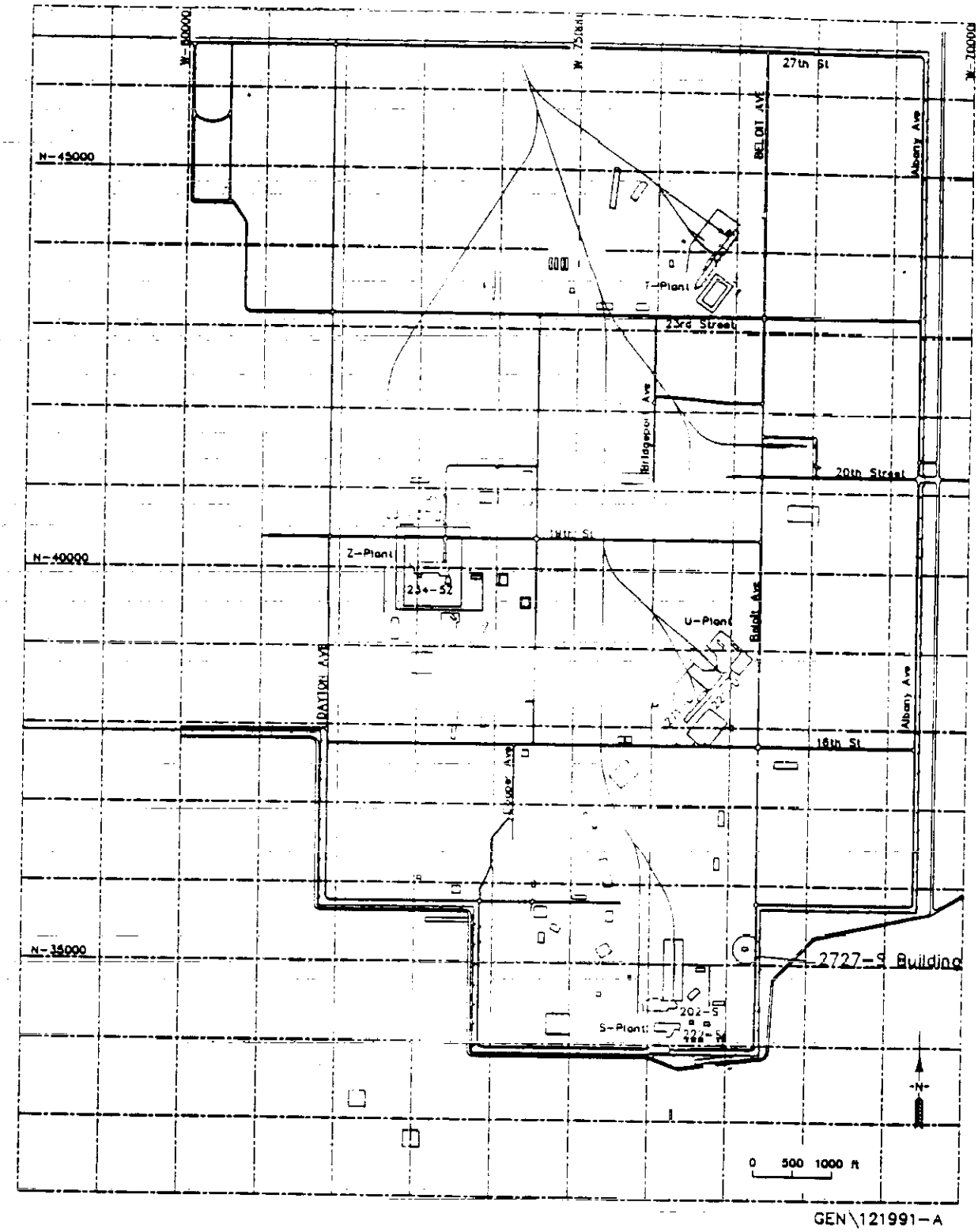

Figure 2. Vicinity Map 200 West Area.

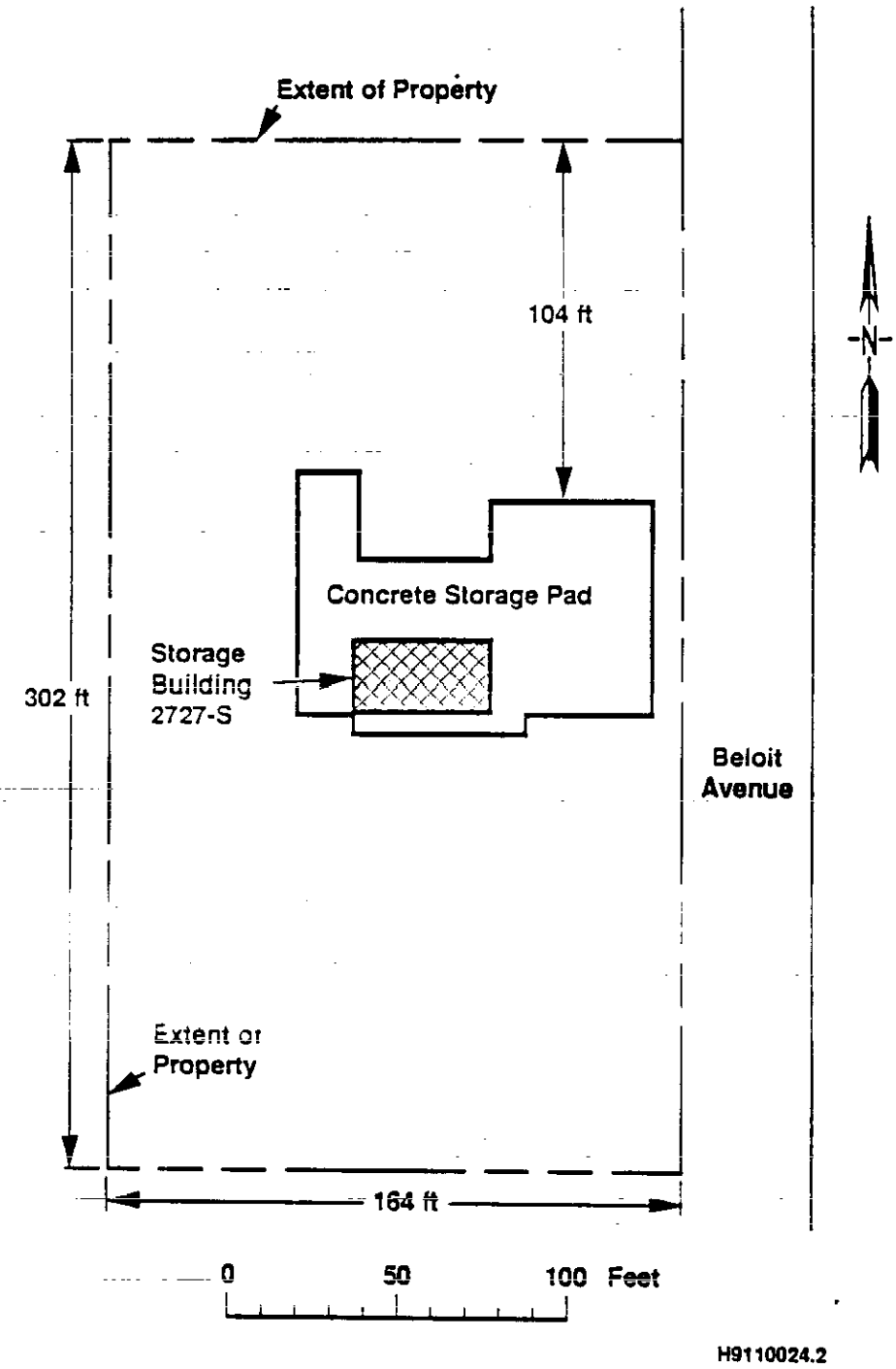

Figure 3. Site Plan 2727-S NRDWS Facility.

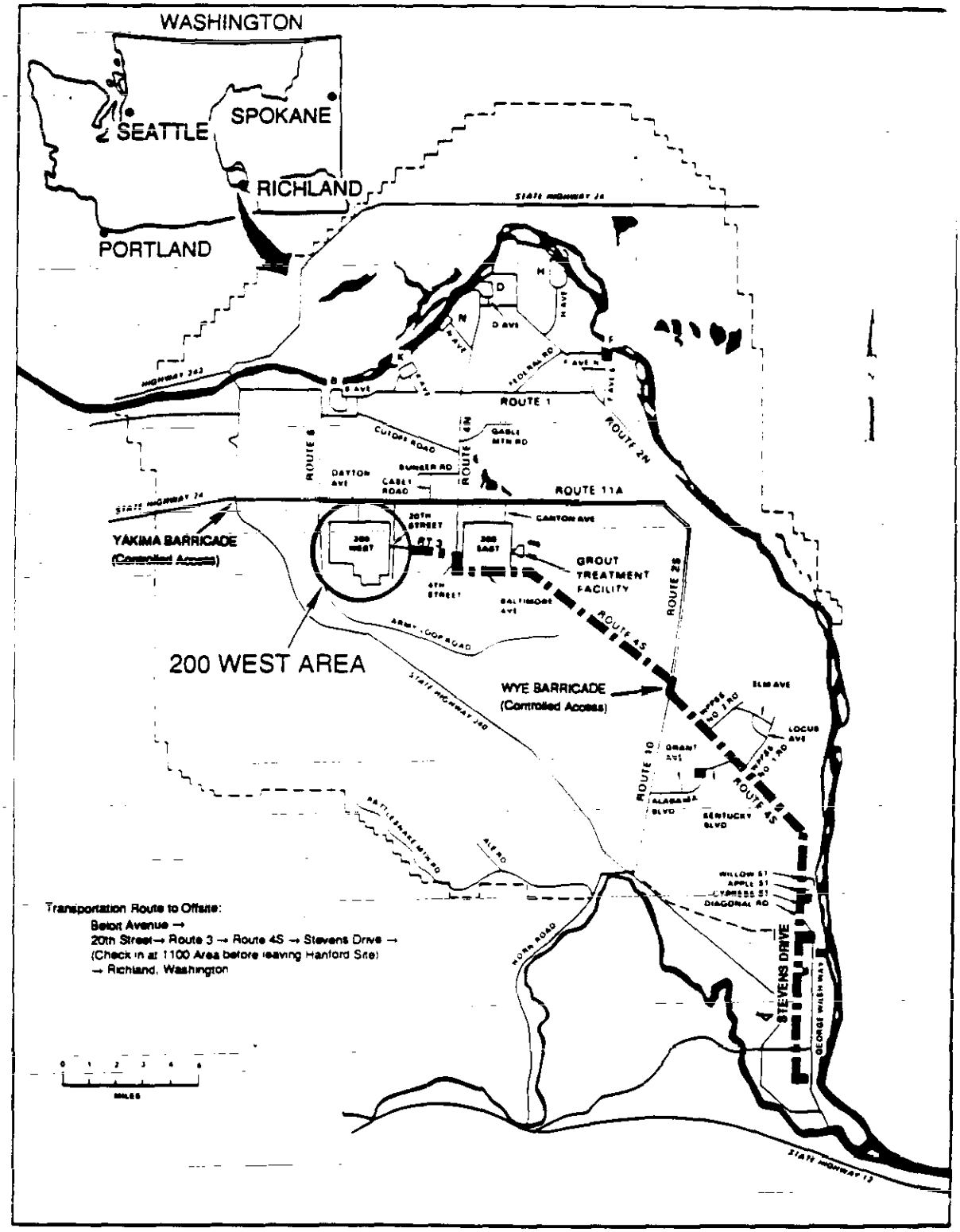

Figure 4. Waste Transportation Route to Hanford Site Boundary.

Site personnel receive training on Hanford Site security regulations in the form of required security education and on-the-job training. Procedures for ensuring personnel compliance with security requirements, providing security education, and training personnel are developed and maintained on the Hanford Site. Performance of periodic security compliance audits and inspections ensures that these procedures are followed.

1.3 FACILITY DESCRIPTION AND OPERATIONS

Nonradioactive dangerous wastes received at the 2727-S NRDWS Facility were stored in a covered metal building (2727-S Building) set around (not atop) two main curbed bays for segregating oxidizing wastes from corrosive, organic, ignitable, and other waste types. The building dimensions are 20 by 40 ft. There is a door at each end of the building and windows on all four walls. The metal building is lined internally with insulation and wallboard. The wallboard covers only the upper half of the walls, while the insulation lines both upper and lower walls. The floors and curbs of the storage bays in the building are concrete. There are some hairline cracks in the floor. The floor of the building is part of a concrete pad that extends beyond the building in four directions. The perimeter of the pad is not curbed (Figure 5). Appendix B contains current photographs showing the concrete pad and the building, both internally and externally. The source of the puddled liquid in the photographs is rainwater. No design or engineering drawings are available to provide additional information on either the building or the concrete pad. Both the building and the pad have been used as chemical and construction storage sites for many years. The exact nature and amounts of previous chemicals stored at the 2727-S NRDWS Facility is not known. There are no operating records available from that time (1960's). In general, new product chemicals were stored in their original shipping containers before distribution around the site. No wastes were stored at the site before its use as the 2727-S NRDWS Facility. A waste inventory, listed in Appendix E, shows the variability of wastes that passed through the 2727-S NRDWS Facility.

Drums were stored on wooden pallets to elevate them off the floor and away from possible accumulated liquids. When wastes were encountered that were not compatible with either bay (as determined from the initial generator waste analysis) or when spatial constraints were exceeded, containers were isolated on wooden pallets outside the 2727-S Building on the concrete pad. On occasion, empty drums were placed directly on the pad. Wastes were segregated outside in a manner similar to that described previously. Drums were never stacked outside the 2727-S Building. Inside the building, small containers (e.g., 5-gal drums, crates, and boxes) of compatible materials were sometimes stacked two containers high. Both hand trucks and forklifts were used to manage the drums at the 2727-S NRDWS Facility. Only hand trucks were used for drum transfer inside the building.

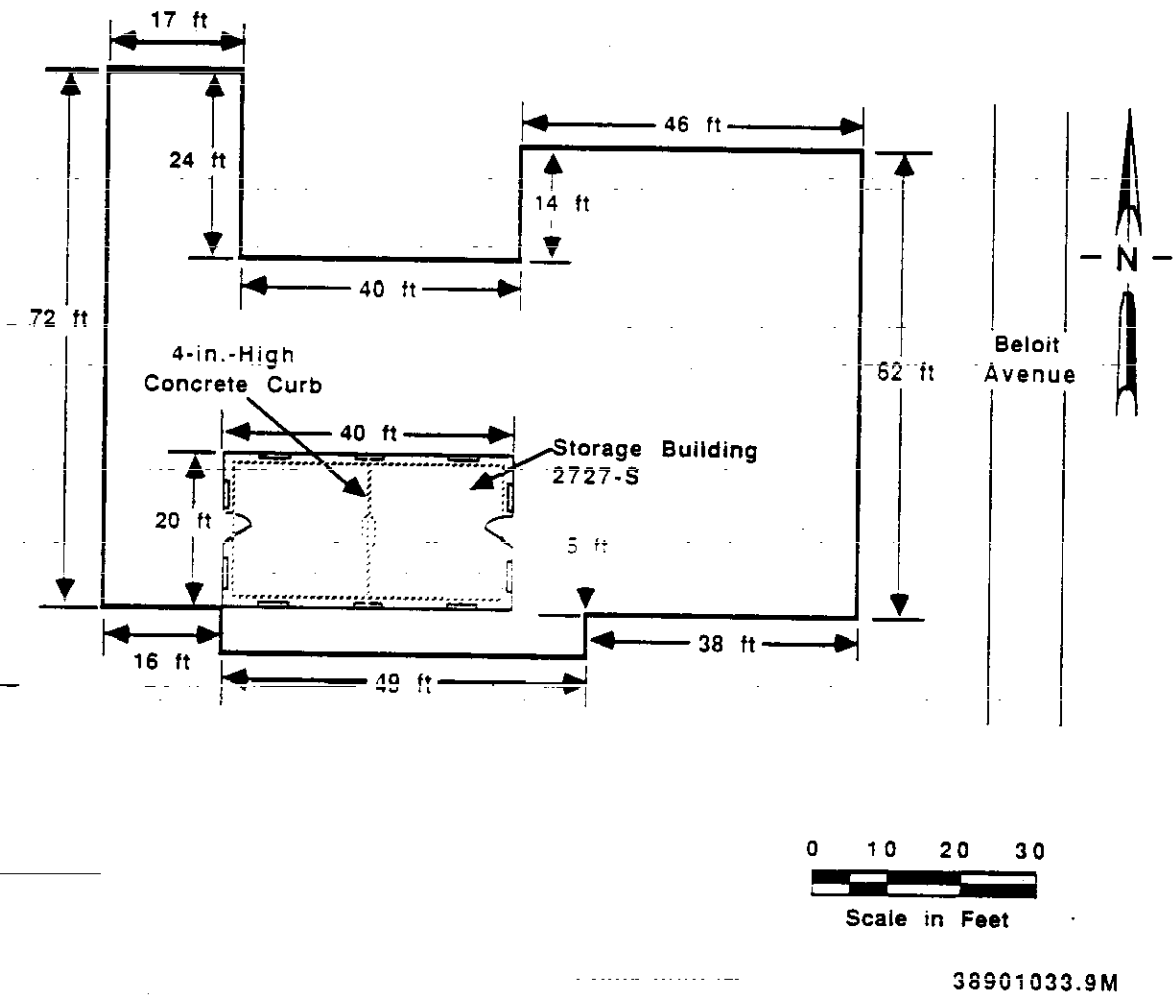

Figure 5 Concrete Pad and Building Plan.

The 2727-S NRDWS Facility was not designed to drain and remove liquids resulting from leaks, spills, or precipitation. Standard spill response procedures included identification of spilled waste, application of a compatible absorbent, and collection of the waste and absorbent for disposal in an overpack drum, in which the originally leaking drum had been placed.

During a period of approximately 1 month, toward the end of the operating life of the 2727-S NRDWS Facility, more drums were stored at the facility than could be held within the 2727-S Building or on the concrete pad. Drums on pallets were placed directly on the ground immediately along the sides of the pad (except on the Beloit Avenue side) and empty, triple-rinsed drums were placed directly on the ground (not on pallets). This practice did not reflect normal operating procedures. Drums were shifted about daily, as they were being organized for loading and shipment from the 2727-S NRDWS Facility. The drums and surrounding areas were inspected twice a day during this month-long period for leaks and spills. No more than 160 drums were ever stored off the concrete pad. This number represents the maximum number of drums that might have been stored off the pad; no drum was stored off the pad for more than one week.

Under normal operating conditions, the 2727-S NRDWS Facility was inspected once a week. Information noted on the inspection log included areas subject to spills, structures, container condition, and safety/emergency equipment. Inspection logs for this 2727-S NRDWS Facility (dated May 9, 1985 through December 22, 1986) were reviewed. Those containing comments or notations regarding spills, leaks, and deteriorated drums are included in Appendix C.

It is recognized that there are several factors associated with the design and operation of the 2727-S NRDWS Facility that may have resulted in contamination of the facility and surrounding soils. These factors include: storage of drums on the soil beyond the concrete pad (exceeding design capacity); lack of curbs around the perimeter of the concrete pad; and cracks, holes, and joints within the concrete pad outside the 2727-S Building. Identification of contamination caused by these factors is addressed in Chapter 4.0.

1.4 WASTES STORED AT THE 2727-S NRDWS FACILITY

Wastes were normally received in U.S. Department of Transportation (DOT) specification 85-, 55-, 30-, and 5-gal drums and DOT specification fiberboard boxes, crates, and containers. No wastes were received at this 2727-S NRDWS Facility in bulk loads. Most of the nonradioactive dangerous wastes received at the 2727-S NRDWS Facility consisted of empty, extremely hazardous material drums, unused pure chemical products, and product mixtures in small laboratory quantities. The 2727-S NRDWS Facility received a variety of chemical waste in its 3 1/2 years of operation. The list includes, but is not limited to, heavy metal, corrosive, ignitable, chlorinated solvent, and reactive wastes. Appendix E provides an inventory of wastes stored at the 2727-S NRDWS Facility. Wastes were designated according to Ecology waste designation regulations WAC 173-303-070 (Ecology 1991b).

The 2727-S NRDWS Facility received regulated wastes from DOE-RL processing, testing, construction, and maintenance units. Individual Hanford Site management contractors contributed waste to this unit under the common DOE-RL identification number. Therefore, the 2727-S NRDWS Facility was, in actuality, receiving onsite (not offsite) generated wastes. Nonetheless, Hanford Site management contractors implemented control procedures similar to those required for offsite treatment, storage, and/or disposal (TSD) facilities to ensure that proper waste identification and Ecology designation were attained at the generating site.

Depending on the waste designation, nonradioactive regulated wastes were either managed onsite or shipped offsite to an appropriate TSD facility. Offsite TSD facilities that received wastes from the 2727-S NRDWS Facility are listed in Table 1. The location of the offsite TSD facility and its permitting status also are given.

Table 1. Offsite Treatment, Storage, and/or Disposal Facilities Receiving 2727-S Wastes.

Facility	Location	Permitting status
Northwest EnviroService, Inc.	Seattle, Washington	Interim
Chem-Security Systems, Inc.	Arlington, Oregon	Final
Crosby & Overton, Inc.	Kent, Washington	Interim

The waste transportation route taken from the 2727-S NRDWS Facility to the Hanford Site boundary is shown on Figure 4. Road names are identified, and the location of the Wye Barricade, a controlled-access barricade, is shown.

2.0 CLOSURE PERFORMANCE STANDARD

Closure of the 2727-S NRDWS Facility, as described in the following sections, is designed to accomplish the following, in accordance with WAC 173-303-610(6):

- Minimize the need for further maintenance
- Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, postclosure escape of dangerous waste, dangerous waste constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere
- Return the land to a condition that will support its intended subsequent use, given the nature of the previous regulated waste activity.

In general, these goals will be accomplished by removing, to background environmental levels, regulated wastes from the 2727-S NRDWS Facility and removing or decontaminating all equipment, bases, structures, liners, soils, or other materials containing or contaminated with dangerous wastes or waste residue from the facility. Postclosure monitoring will not be necessary for the 2727-S NRDWS Facility because no regulated wastes will remain after closure. After closure has been completed, the 2727-S NRDWS Facility will no longer be classified as a TSD unit.

Two copies of this closure plan serve as the official copies of the plan. The official copies will be located at the following office: U.S. Department of Energy Field Office, Richland, Federal Building, 825 Jadwin Avenue, P.O. Box 550, Richland, Washington, 99352. The DOE-RL office will be responsible for amending this plan, as deemed necessary. It will be kept at the DOE-RL office until closure is completed and certified.

Closure activities will be monitored by a registered professional engineer who will certify that, in his or her judgment, closure was accomplished in accordance with the specifications of the approved closure plan as described herein. The professional engineer's report will be submitted to the U.S. Environmental Protection Agency (EPA) and Ecology along with DOE-RL and Westinghouse Hanford certifications of closure. The report and certifications will be sent by registered mail.

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3.0 ESTIMATE OF MAXIMUM INVENTORY OF WASTE

The maximum estimated inventory of containerized waste ever stored at the 2727-S NRDWS Facility was 772 drums. The drums were stored both inside the building and outside on the concrete pad and soil. The drums also varied in sizes (not including over-packs) of 5, 30, and 55 gal. Some of the drums were empty, some contained lab-packs, some were partially full, and some were full. The maximum gallonage potentially ever stored at the 2727-S NRDWS Facility is 42,460 gal (assuming 772 full 55-gal drums).

The discrepancy between the maximum volume of waste presented in this plan and that submitted in the Part A permit application is because the design capacity of the 2727-S NRDWS Facility was exceeded. A copy of the Part A permit application is presented in Appendix D.

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4.0 CLOSURE ACTIVITIES

The 2727-S NRDWS Facility will not require partial closure before final closure of the entire facility. At present, the 2727-S NRDWS Facility is under interim status and is not operating. The waste inventory in Appendix E indicates that the 2727-S NRDWS Facility held both characteristic and listed waste. Characterization samples will be analyzed for the constituents listed in Appendix G. The standard of background environmental levels or levels based on the limits of quantitation have been chosen as the appropriate cleanup level. However, if background threshold values cannot be achieved, health-based standards, such as standards identified in *The Model Toxics Control Act Cleanup Regulation*, (WAC 173-340) (Ecology 1991b), may be used with prior approval from Ecology.

4.1 HOW THE 2727-S NRDWS FACILITY WILL BE CLOSED

The primary strategy for closure of the 2727-S NRDWS Facility is clean closure. The closure operations will consist of the following steps, as necessary.

1. Determine if chemical residues are present in the building materials, concrete pad, and underlying and surrounding soils (and at what levels) by employing judgmental sampling point selection techniques. The selection of individual sampling points was based on guidance from Ecology.

2. Demolish and remove the building, the interior concrete pad, the building support soils (top 6 in. of soil immediately underneath building), and the exterior concrete pad. The building, pad, and soil debris will be disposed of in an offsite *Resource Conservation and Recovery Act of 1976* (RCRA) permitted (or interim status) landfill.

3. Excavate and dispose of any soils that have chemical constituents present above background levels, in an offsite RCRA permitted, (or interim status) landfill.

4. Perform closure verification sampling on the remaining soil as described in the sampling plan.

5. Perform repeated excavation and closure verification sampling as described in the sampling plan.

6. Appropriately decontaminate any equipment used in performing closure activities, as needed.

7. Appropriately dispose of any sampling and decommissioning waste generated during closure activities.

8. Restore the area after closure activities are complete.

9. Certify that closure activities were completed in accordance with the approved closure plan.

The closure activities will be completed in accordance with this closure plan, after approval of this plan by Ecology and EPA. The closure activities to be conducted in accordance with the schedule contained in Chapter 7.0, Figure 10, are explained in the following sections.

4.2 SAMPLING PLAN

There are three media that may require sampling at the 2727-S NRDWS Facility. These are: (1) the building, (2) the concrete pad; both interior and exterior, and (3) the soils beneath the concrete pad and the surrounding perimeter. The basis for determining the need and extent of sampling activities for each of these media is discussed in the following section.

Ecology will be notified at least 7 days in advance of any sampling event taking place at the 2727-S NRDWS Facility. Copies of laboratory analysis results performed on verification samples will be provided to Ecology.

4.2.1 2727-S Building Sampling

Historical data indicates a limited potential for chemical contamination of the structure. However, instead of expending funds to perform an extensive sampling activity, clean closure will be achieved through handling and disposing of the 2727-S NRDWS Facility as a dangerous waste. The DOE-RL and Westinghouse Hanford contend that through process knowledge and historical records the 2727-S NRDWS Facility has received little or no contamination. Any sampling of the 2727-S Building structure will be performed in compliance with the receiving offsite RCRA landfill's waste analysis plan. Copies of any sample analytical report(s) prepared by the receiving offsite RCRA landfill will be promptly transferred to Westinghouse Hanford. Any remaining sample information pertinent for record keeping purposes will be transmitted to Westinghouse Hanford from the receiving offsite RCRA landfill within an acceptable time frame.

4.2.2 Concrete Sampling

4.2.2.1 Interior Pad. The interior pad consists of the concrete pad directly under the building and the section of concrete extending 2 ft outward from the 2727-S Building perimeter. The interior pad will be disposed of in an offsite RCRA landfill.

Historical data indicates a limited potential for chemical contamination of the interior concrete pad. However, instead of expending funds to perform an extensive sampling activity, clean closure will be achieved through handling and disposing of the 2727-S NRDWS Facility as a dangerous waste.

The DOE-RL and Westinghouse Hanford contend that through process knowledge and historical records the 2727-S NRDWS Facility has received little or no contamination. Any sampling of the interior concrete pad will be performed in compliance with the receiving offsite RCRA landfill's waste analysis plan. Copies of any sample analytical report(s) prepared by the receiving offsite RCRA landfill will be promptly transferred to Westinghouse Hanford. Any sample information pertinent for recordkeeping purposes will be transmitted to Westinghouse Hanford from the receiving TSD facility within an acceptable time frame. Concrete coring will be performed on the interior concrete to obtain undisturbed soil samples (Section 4.2.3.1) underneath the pad. The coring procedure being used is documented in Appendix F.

4.2.2.2 Exterior Pad. The exterior pad consists of all portions of the exterior concrete pad not previously addressed in the description of the interior concrete pad. Waste containers were stored outside the 2727-S Building on the exterior pad when the building storage capacity was exceeded. The exterior pad will be disposed of in an offsite RCRA landfill.

Historical data indicates a limited potential for chemical contamination of the exterior concrete pad. However, instead of expending funds to perform an extensive sampling activity, clean closure will be achieved through handling and disposing of the 2727-S NRDWS Facility as a dangerous waste. The DOE-RL and Westinghouse Hanford contend that through process knowledge and historical records the 2727-S NRDWS Facility has received little or no contamination. Any sampling of the exterior concrete pad will be performed in compliance with the receiving offsite RCRA landfill's waste analysis plan. Copies of any sample analytical report(s) prepared by the receiving offsite RCRA landfill will be promptly transferred to Westinghouse Hanford. Any sample information pertinent for recordkeeping purposes will be transmitted to Westinghouse Hanford from the receiving offsite RCRA landfill within an acceptable time frame. Concrete coring will be performed on the exterior concrete to obtain undisturbed soil samples (Section 4.2.3.2) underneath the pad. The coring procedure being used is documented in Appendix F.

4.2.3 Soil Sampling

Soil sampling at the 2727-S NRDWS Facility will encompass the following specific areas.

- The soils along the perimeter fence.

  These samples will be used to establish local background levels for establishing site cleanup criteria.

- The soils beneath the building.

- The soils beneath the exterior concrete pad.

- The soils outside the concrete pad perimeter.

These samples will be used to verify that chemical contamination did not reach the soil beneath the concrete (Table 2).

Table 2. Sample Types and Number.

Sample media	Type of sample	Number of samples
Structural material	None[a]	
Interior concrete pad	None[a]	
Exterior concrete pad	None[a]	
Soils beneath interior pad[d]	Verification[c]	2 - 1 per bay
Soils beneath exterior pad[d]	Verification[c]	10 - 2 per pad sample site
Perimeter soils[d]	Verification[c]	4 - 1 per each side of exterior pad
Soils beneath stained area[d]	Constituent determination[c]	1
Soils beneath stained area[d]	Verification[c]	5
Soils along perimeter fence[d]	Background	3
Total		25 total samples[b]

[a]Any samples taken from these areas will be at the request of the TSD facility selected to dispose of 2727-S NRDWS Facility.

[b]This does not include field quality control samples. These samples will be taken for each matrix as required in the 2727-S NRDWS Facility Quality Assurance Project Plan (QAPP) (Appendix F).

[c]Closure verification samples will be analyzed on an individual basis.

[d]Includes field screening of each sample by X-ray fluorescence.

4.2.3.1 Soils Beneath the Building. The top 6 in. of soil immediately beneath the 2727-S Building pad will be removed and disposed of along with the concrete section immediately above it. The soils beneath the top 6 in., which are not scheduled for removal and disposal, will be sampled to verify the absence of soil contamination below the planned depth of disposal. This will

require access to the soils through the concrete pad. Closure verification sampling will take place before any removal and disturbance of soils at the site.

The 2727-S Building was constructed with the floor divided into two bays. It has been agreed that the soil beneath each bay will be sampled. The selection of sampling points has been made with input from Ecology and can be seen in Figure 6. The sample location in the west bay area is located at the junction of cracks in the floor. This is a likely pathway for any contamination to reach the support soils beneath the 2727-S Building. The sampling point in the east bay of the 2727-S NRDWS Facility is located on a stain in the northerly area of the concrete. This staining is attributed to this point being the lowest in the east bay; therefore, liquids on the floor may have collected at this point. The stain appears to be algae growth from rainwater periodically pooling in the area since the 2727-S Building use ceased.

The procedure outlined in Appendix F will be followed for the removal of concrete cores to obtain access to the soil. After removal of the concrete cores, soil samples will be taken. Soil sampling will follow the guidelines set forth in EII 5.2 "Soil and Sediment Sampling" of WHC-CM-7-7, *Environmental Investigations and Site Characterization Manual*. The sample collection method used to collect samples will be either the use of a thin-walled ('Shelby') tube, a hand auger or scoop, spade, or shovel sampling technique. These methods are discussed in Appendices C and E, respectively, of WHC-CM-7-7. The specific method chosen to take samples will depend on field conditions at the time of sample collection.

Given the extent and nature of storage activities at the 2727-S NRDWS Facility, it is unlikely that any soil with evidence of chemical constituents above background levels will be present. In the event that any constituents above background levels are determined to be present in these closure verification samples, the next 6 in. of soil would be removed and disposed of in an offsite RCRA landfill. If any soil is removed because of chemical contamination (other than the topmost 6-in. layer scheduled for removal with the interior pad), a buffer zone will be implemented. The buffer zone will consist of removing the adjoining soil to a circular distance of 5 ft and a depth of 4 in. past the last known point or area of soil contamination. If evidence of chemical constituents is present, closure verification sampling will be performed by taking 4 samples located in a 5-ft radius around the remediated area (including the buffer zone), and one sample located in the center of the same area.

4.2.3.2 Soils Beneath Exterior Pad. The soils beneath the exterior pad at the 2727-S NRDWS Facility will be sampled in the same manner as the soils beneath the building pad. The difference is in the depths from which soil will be sampled. Samples beneath the exterior pad will be taken from a depth of 0-6 in., and from 18-24 in. These soil samples will be used as closure verification samples for that particular section of the concrete pad. However, unlike the soil removal action under the interior concrete pad, the

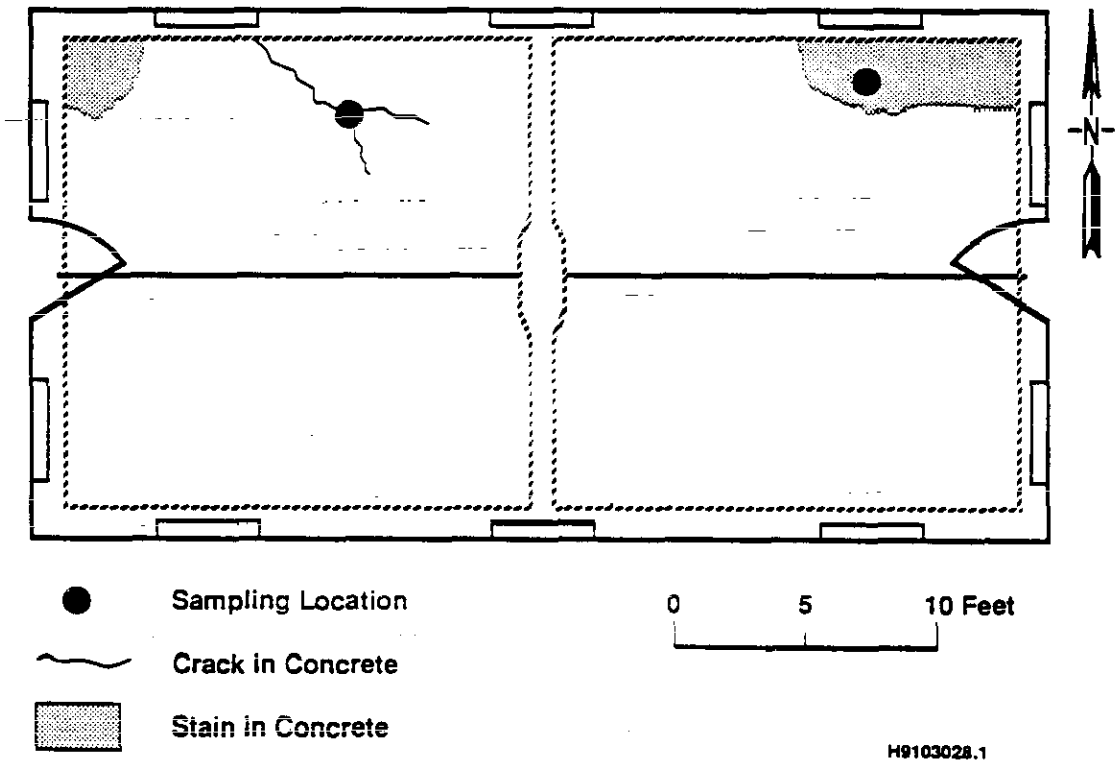

Figure 6. Soil Sampling Locations Within Building.

topmost 6 in. of soil under the exterior pad will not be removed unless evidence of chemical contamination is present. The selection of sampling points has been made with input from of Ecology and can be seen in Figure 7.

The procedures outlined in Appendix F will be followed for the removal of concrete cores to obtain access to the soil. After removal of the concrete cores, soil samples will be taken. Soil sampling will follow the guidelines set forth in EII 5.2 "Soil and Sediment Sampling" of WHC-CM-7-7, *Environmental Investigations and Site Characterization Manual*. The sample collection method used to collect samples will be either a thin-walled ('Shelby') tube, a hand auger or scoop, spade, or shovel sampling technique. These methods are discussed in Appendices C and E, respectively, of WHC-CM-7-7. The specific method chosen to take samples will depend on field conditions at the time of sample collection.

Given the extent and nature of storage activities at the 2727-S NRDWS Facility, it is unlikely that any soil with evidence of chemical constituents above background levels will be present. If any constituents above background levels are determined to be present in the closure verification samples, the next 6 in. of soil would be removed and disposed of in an offsite RCRA landfill.

If any soil is removed because of chemical contamination, a buffer zone will be implemented. The buffer zone will consist of removing the adjoining soil to a circular distance of 5 ft and a depth of 4 in. past the last known point or area of soil contamination. If evidence of chemical constituents is present, closure verification sampling will be performed by taking 4 samples located in a 5 ft radius around the remediated area (including the buffer zone), and one sample located in the center of the same area.

4.2.3.3 Perimeter Soils. Soil surrounding the exterior pad will be sampled to verify that waste handling activities did not affect it. There will be four samples taken from the perimeter soils. The selection of sampling points has been made under the guidance of Ecology Samples will be taken to a depth of 6 in.

The soil sample location for each side of the pad is shown in Figure 8. Each sample location was selected based on the assumption that this would be the side most likely to encounter detectable levels of chemical constituents in the soil. The north and west sample locations are in surface depressions. The east sample location is at the area where the transport trucks entered and left the site. The south sample location is located approximately south of the 2727-S Building and west of the area of discolored soil. The area of discolored soil on the south side of the pad will be sampled, analyzed, and removed as a separate and distinct removal action. If analysis indicates a waste code comparable to the 2727-S NRDWS Facility, it may also be shipped to the offsite RCRA landfill. If found to be a dangerous waste, this area will be subject to the same soil removal criteria as the other portions of the 2727-S NRDWS Facility. The only difference for this area is that once the contaminated soil is removed, only one verification sample, obtained from the center of the this area, is required.

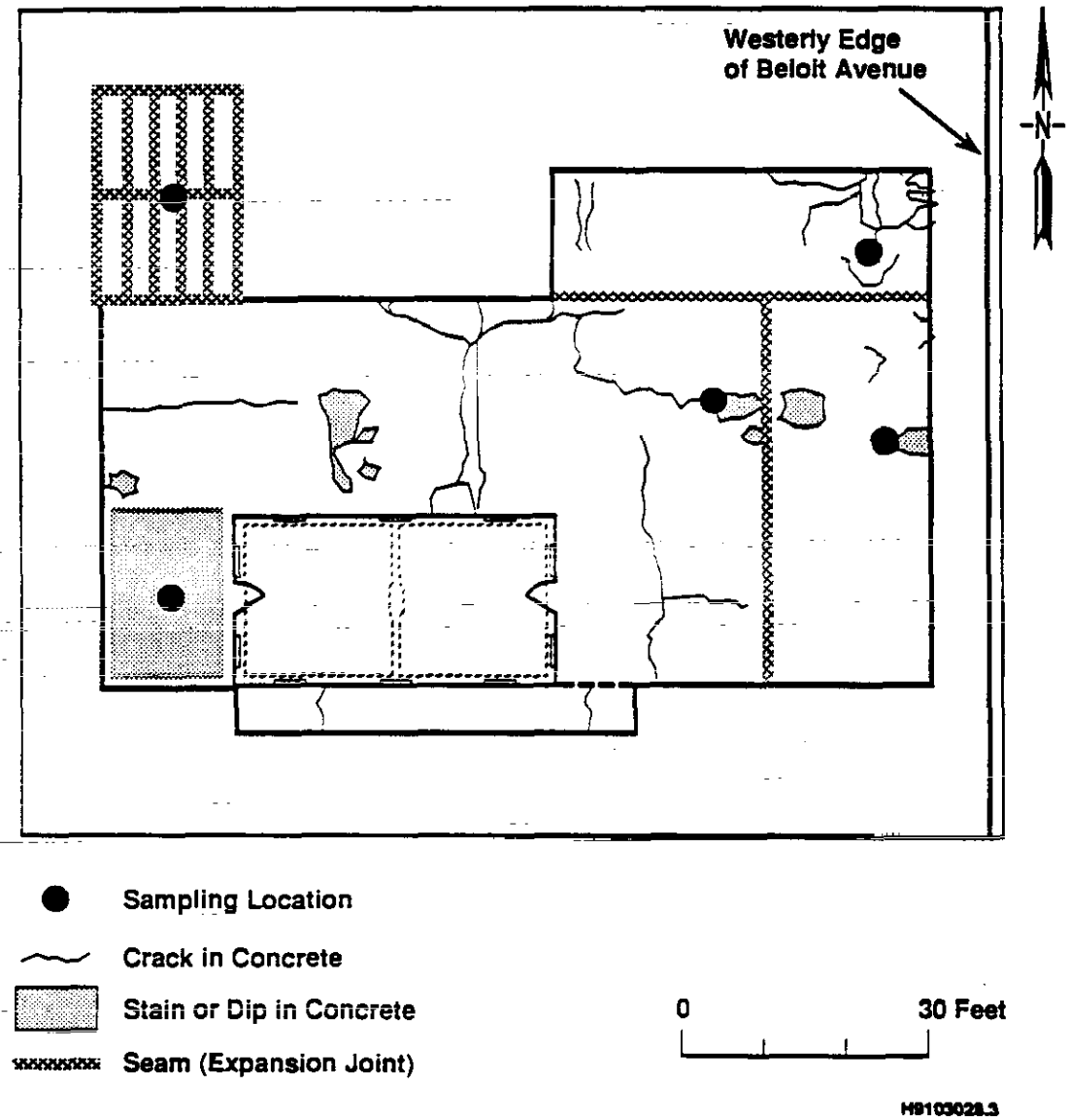

Figure 7. Soil Sampling Locations on Exterior Concrete Pad.

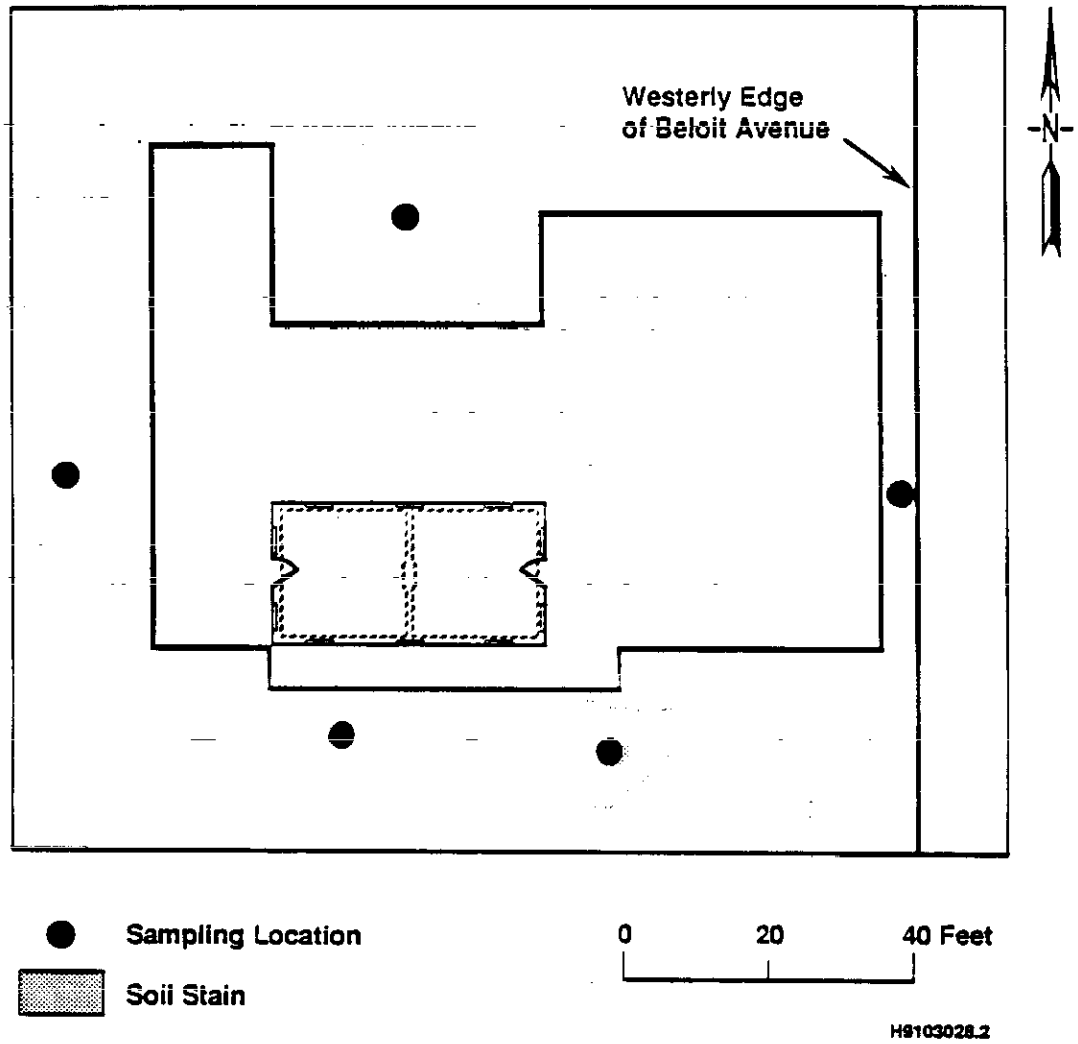

Figure 8. Specific Perimeter Sampling Site Plan, Soil.

If any soil is removed because of chemical contamination in the remaining four perimeter locations, a buffer zone will be implemented. The buffer zone will consist of removing the adjoining soil to a circular distance of 5 ft and a depth of 4 in. past the last known point or area of soil contamination. If evidence of chemical constituents is present, closure verification sampling will be performed by taking 4 samples located in a 5 ft radius around the remediated area (including the buffer zone), and one sample located in the center of the same area.

Soil sampling will follow the guidelines set forth in EII 5.2 "Soil and Sediment Sampling" of WHC-CM-7-7, *Environmental Investigations and Site Characterization Manual*. The sample collection method used to collect samples will be either the use of a thin-walled ('Shelby') tube, a hand auger or scoop, spade, or shovel sampling technique. These methods are discussed in Appendices C and E, respectively, of WHC-CM-7-7. The specific method chosen to take samples will depend on field conditions at the time of sample collection.

Closure verification sampling will then be done at five locations. Four of the closure verification samples will be located within 5 ft of the perimeter of the remediated area: one each to the north, south, east, and west. The fifth closure verification sample will be located in the center of the remediated area. Any closure verification sample with chemical constituents present above background levels will have the soil removed and disposed of in the same manner discussed previously. This process would continue as necessary until verification of adequate soil removal is achieved.

4.2.3.4 Soil Background. The soil located along the perimeter fence of the 2727-S NRDWS Facility will be sampled to determine background level of chemical constituents. There will be three samples taken from within the perimeter fence. The amount and selection of sampling points has been made with input from Ecology and can be seen in Figure 9. One sample will be obtained from each portion of the fence not bordered by Beloit Avenue. Hence, the northern, western, and southern fence line will have one sampling location each. The exact location will be chosen by the responsible Westinghouse Hanford field sampling personnel.

Soil sampling will follow the guidelines set forth in EII 5.2 "Soil and Sediment Sampling" of WHC-CM-7-7, *Environmental Investigations and Site Characterization Manual*. The sample collection method used to collect samples will be either a thin-walled ('Shelby') tube, a hand auger or scoop, spade, or shovel sampling technique. These methods are discussed in Appendices C and E, respectively, of WHC-CM-7-7. The specific method chosen to take samples will depend on field conditions at the time of sample collection.

An X-ray fluorescence device will be used as a field screening technique onsite (Appendix F). To calibrate the X-ray fluorescence device for local background constituents, an additional three sampling locations along the perimeter fence is required. Exact locations will be chosen at the discretion of the personnel responsible for calibration of the device; however, they will be in the proximity of the three original perimeter fence sample locations.

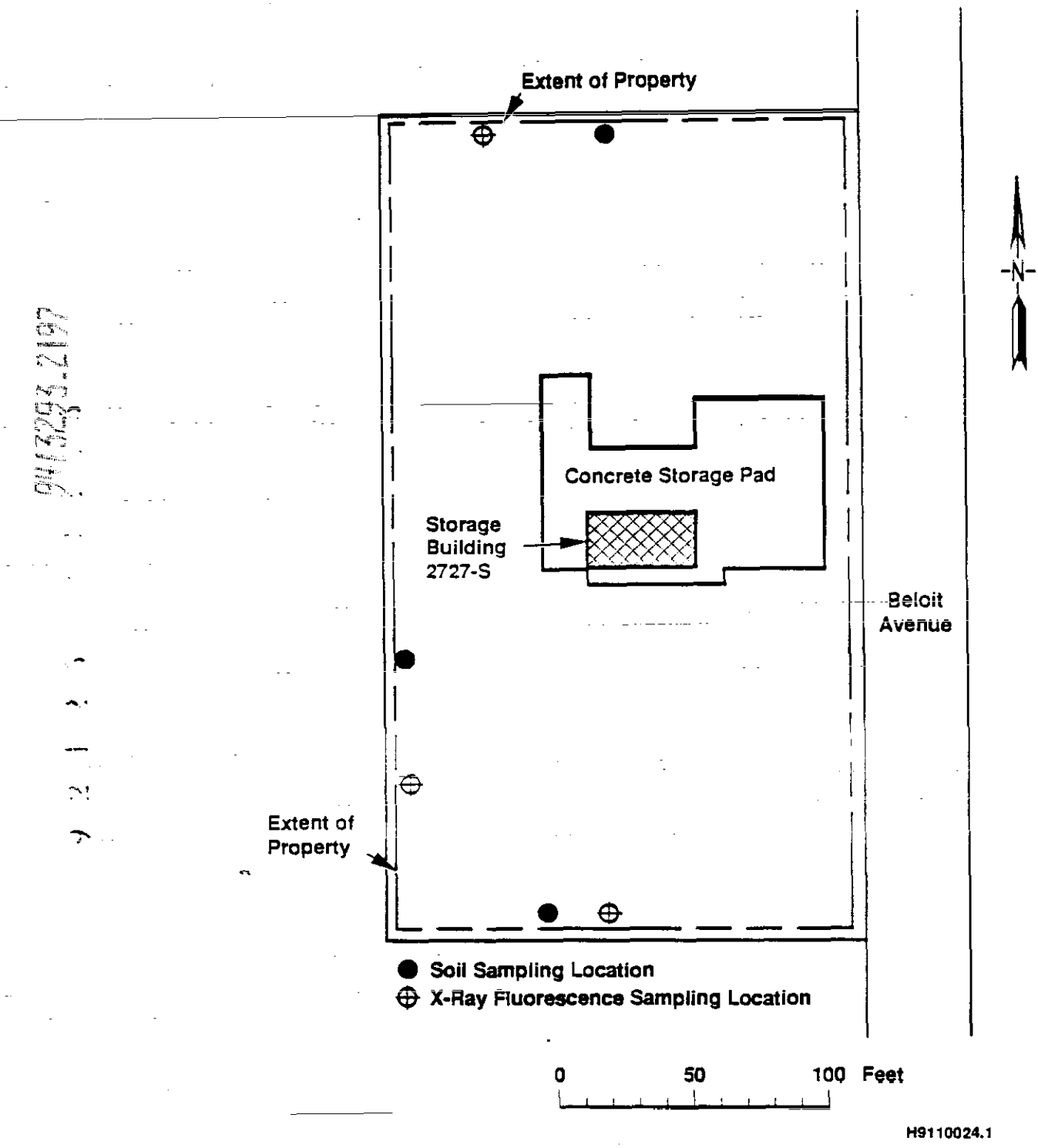

Figure 9. Background Soil Sampling Plan.

*NOTE: All sampling locations are approximations.

4.3 DISPOSAL REQUIREMENTS

4.3.1 The 2727-S Building Disposal

The 2727-S Building is a 20 by 40 ft metal structure with interior wallboard, insulation, and electrical wiring.

The 2727-S Building has a personnel door at each end and windows on all four walls. The structure is lined internally with insulation and wallboard. Trained personnel visually inspected the building and no evidence of asbestos was indicated. This conclusion was supported by process knowledge of the personnel responsible for building operations. The wallboard covers only the upper half of the walls, while the insulation lines both upper and lower walls. Because of the possible presence of polychlorinated biphenyls (PCBs), any fluorescent light ballasts present in the building will be removed before disposal of the building in an offsite RCRA landfill. Any fluorescent light ballasts from the 2727-S Building will be placed in an onsite PCB warehouse. Discarded fluorescent light tubes are considered a dangerous waste because of the presence of phosphorus. Discarded fluorescent light tubes from the 2727-S Building will be removed and managed in accordance with Westinghouse Hanford onsite treatment procedures.

4.4 EQUIPMENT DECONTAMINATION

Care will be taken in field sampling to ensure that there is no cross contamination of samples by sampling equipment. To prevent this source of contamination, freshly cleaned and decontaminated sampling tools will be used. When equipment must be reused in the field, it will be cleaned as thoroughly as practical. For this purpose, stringent laboratory cleaning procedures have been modified for field conditions as documented in WHC-CM-7-7, Environmental Investigation Instruction (EII) 5.5, "Decontamination of Equipment for RCRA/CERCLA Sampling."

4.5 RESTORATION

Upon removal of waste residues and contaminated structures or soil, including waste generated during closure, the site may require some degree of reclamation. This may be justified to control dust, erosion, and surface water run-off and to promote postclosure usage. Site restoration will include backfilling disturbed soil areas with noncontaminated native soils, compaction, grading, and revegetation.

4.6 COST ESTIMATES

It is DOE-RL's understanding that federal facilities are not required to comply with WAC 173-303-620 (1991a). However, projections of anticipated costs of closure will be provided annually during closure activities (starting October 1992).

4.7 CERTIFICATION

Within 60 days of completion of closure of the 2727-S NRDWS Facility, certifications will be submitted. Suggested certification statements are contained in Appendix I. The independent registered professional engineer who will be monitoring closure will visit the site at least at the commencement and end of each activity described in the closure plan (e.g., soil sampling, building removal, soil excavation, etc.). The professional engineer will review all records, notes, analyses, files, manifests, etc. relating to the closure activities. After the final professional engineer closure certification has been executed and the appropriate local zoning authority has received a copy of the survey plan indicating the location of the 2727-S NRDWS Facility, a responsible DOE official will certify that the facility has been closed in accordance with the closure plan. The responsible government official(s) is identified in Appendix I.

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5.0 CONTINGENCY PLAN

A health and safety plan (HASP) is required for all hazardous waste sampling sites. This plan is intended to specify information pertinent to field assignments and to be a guide in unusual situations or emergencies. A site-specific version of the general RCRA/CERCLA investigation health and safety plan will be developed by Westinghouse Hanford to be used for RCRA sampling at the 2727-S NRDWS Facility. This plan will be developed and completed before initiation of RCRA sampling activities in accordance with EII 2.1, "Preparation of Health and Safety Plans."

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6.0 TRAINING REQUIREMENTS

6.1 PERSONNEL TRAINING

All personnel involved with the closure activities of the 2727-S NRDWS Facility will receive a minimum level of dangerous waste training.

- Managers and supervisors are responsible for supervising, coordinating, and directing the closure activities and personnel.
- Nuclear Process Operators and Decommissioning and Decontamination workers are responsible for sampling, packaging, and handling of dangerous waste, nonradioactive, and radioactive material.
- Health Physics Technicians are responsible for surveying for radiological and dangerous waste contamination.
- Crafts personnel are responsible for specialized work. The various crafts include carpenters, electricians, ironworkers/riggers, heavy equipment operators, crane operators, millwrights, pipefitters, and painters.

In addition to the personnel mentioned, any person entering a TSD unit during closure must have the 40 hours hazardous workers training.

Table 3 contains a matrix that relates job categories to the individual training course. Appendix H contains brief descriptions of the training courses, including descriptions of the target audience, instructional technique, evaluation method, length of course, and frequency of retraining.

Table 3. Company-General Training Matrix.

Course title	Type	Target/Audience			
		MS	NPO	HPT	CR
Generator Hazards Safety Training	I	X	X	X	X
Hazardous Waste Worker Safety Training	I	X	X	X	X
Hazardous Waste Worker Safety Training, Refresher	C	X	X	X	X
Hazardous Materials/Waste Job Specific Training	I	X	X	X	X
Scott SKA-PAK* MSA PAPR	C	X	X	X	X
Self-Contained Breathing Apparatus (SCBA) Training (optional)	C	X	X	X	X
Radiation Safety Training	C	X	X	X	X
On-the-Job Training	C	X	X	X	X
Cardiopulmonary Resuscitation	C	X	X	X	X
Noise Control (optional)	C	X	X	X	X
Hazardous Waste Site Supervisor/ Manager Safety Management Training	I	X			

C = continuing course.
CR = crafts.
HPT = health physics technicians.
I = introductory course.
MS = manager and supervisors.
NPO = nuclear process operators and decommissioning and decontamination workers.
X = required course.

*SKA-PAK is a trademark of Figgie International, Incorporated.

7.0 CLOSURE PLAN SCHEDULE

Closure of the 2727-S NRDWS Facility will begin upon notification by Ecology of plan approval. Closure of the 2727-S NRDWS Facility will proceed according to the schedule presented in Figure 10.

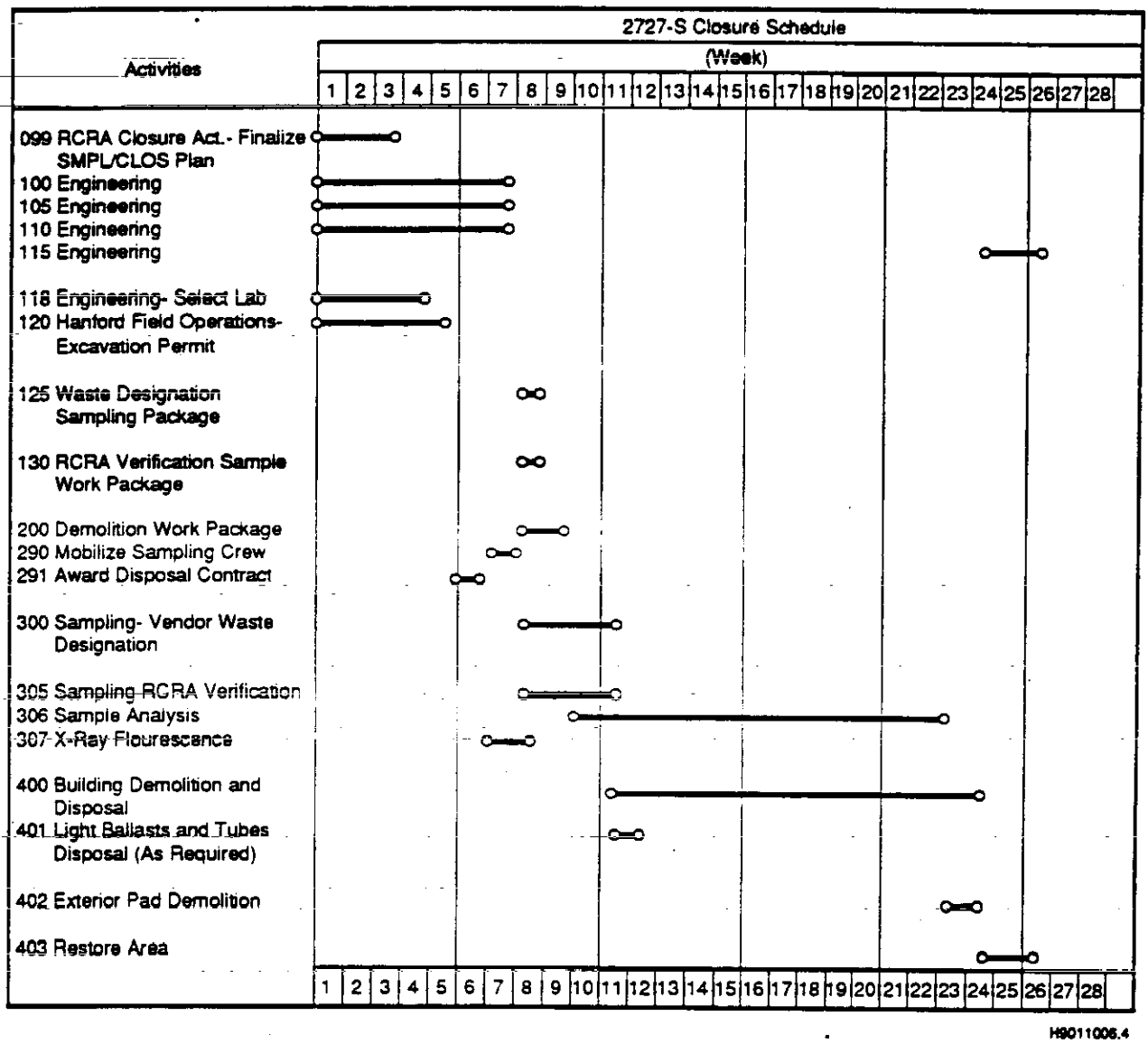

Figure 10. The 2727-S NRDWS Facility Closure Plan Schedule.

8.0 REFERENCES

Ecology, 1991a, *Dangerous Waste Regulations*, Washington Administrative Code 173-303, Washington State Department of Ecology, Olympia, Washington.

Ecology, 1991b, *The Model Toxics Control Act Cleanup Regulation*, Washington Administrative Code 173-340, Washington State Department of Ecology, Olympia, Washington.

Resource Conservation and Recovery Act of 1976, as amended, Public Law 94-580, 90 Stat. 2795, 42 USC 6901 et seq.

WHC, 1989a, *Environmental Investigations and Site Characterizations Manual*, WHC-CM-7-7, Westinghouse Hanford Company, Richland, Washington.

WHC, 1989b, *Nonradioactive Dangerous Waste Packaging and Disposal Requirements*, WHC-CM-5-16, Westinghouse Hanford Company, Richland, Washington.

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APPENDIX A

DANGEROUS WASTE COMPLIANCE CHECKLIST/QUESTIONNAIRE
CHAPTER 173-303 WAC

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DANGEROUS WASTE COMPLIANCE CHECKLIST/QUESTIONNAIRE CHAPTER 173-303 WAC
March 1987

* *

Part 6: Closure

This part of the checklist/questionnaire is applicable to all dangerous waste management facilities operating under interim status. Dangerous waste facilities may include containers, tanks, surface impoundments, waste piles, thermal treatment, chemical, physical and biological treatment, land treatment, incinerators, and landfills.

The abbreviation "O/O" is used frequently throughout this checklist/questionnaire and stands for the words "owner and/or operator."

The questions in the checklist have been written in a manner such that they can be answered either "Yes" or "No." However, the answers to some questions may require additional explanation. The space provided for comments at the end of each section may be used for explanations. If a question does not apply to a particular facility, simply write "NA" (not applicable) next to the question.

CLOSURE PLAN CHECKLIST

6.1. GENERAL FACILITY INFORMATION

Facility Name: 2727-S NRDWS **EPA/State I.D.:** #WA7890008967

Inspectors Name: _____ **Date:** _____

Check the type(s) of unit operations that the O/O manages at his facility (refer to 6.3 for Unit Specific Requirements):

	Page No.
• Containers	13
• Tanks	14
• Surface Impoundments	15
• Piles	16
• Land Treatment	17
• Landfills	18
• Incinerators	19
• Thermal Treatment	20
• Chemical, physical and biological treatment	21

6.2. GENERAL CLOSURE REQUIREMENTS

	Yes	No
1. WRITTEN PLAN		
A. For facilities without approved plans, is a written closure plan available during your site inspection? (265.112(a))	X	
B. Does the closure plan identify and describe each dangerous waste management unit that was active as of 11/19/80 and how each will be closed to (1) minimize the need for further maintenance, and (2) control, minimize or eliminate to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated run-off, or dangerous waste decomposition products to ground or surface waters or to the atmosphere?	X	
C. Does the closure plan include general information about the facility which would be helpful in reviewing the plan, including (Note: regulations do not presently require the inclusion of the following information. However, inclusion of this information will aid in the review of the plan.):		
a. facility size s	X	
b. facility type s	X	
c. descriptions of all on-site equipment	X	
d. topography	X	
e. waste characterization	X	
f. soil type	X	
g. description of surrounding land use	X	
h. surrounding population	X	
i. size of facility (acres)	X	
j. volume of impoundment	N/A	
k. type(s) of treatment/processing	N/A	
l. description of liner	N/A	
m. leachate collection system	N/A	
n. gas collection system	N/A	
o. dredging procedures/schedules, etc.	N/A	
p. incinerator specifications	N/A	
q. other (specify _____)	N/A	

Comments: _____

_____

_____

_____

9 2 1 1 1 7 1 9 3 2 3 2 2 1 4

2. MAXIMUM EXTENT OF OPERATION (40 CFR 265.112(a)(1))

	Yes	No
A. Does the plan identify the MAXIMUM EXTENT OF OPERATION which will be unclosed during the life of the facility?		N/A
B. Is the MAXIMUM EXTENT OF OPERATION estimate exceeded by current operations?		N/A
C. Does the MAXIMUM EXTENT OF OPERATION estimate include:		
a. the maximum area of landfill or land treatment ever containing wastes?		N/A
b. inactive areas open because of operating problems or contingencies?		N/A
c. maximum area of land ever used for land spreading?		N/A
d. the most extensive treatment required for land spreading?		N/A
e. the maximum area used for storage?	X	

Explain each "NO" answer.

Comments: _____

3. MAXIMUM INVENTORY (40 CFR 265.112(b)(1))

	Yes	No
A. Is there an estimate of the MAXIMUM INVENTORY of wastes in storage or treatment at any time during the life of the facility? (Note: write NA for those cases where there is no storage or treatment prior to disposal.)	X	
B. Does the MAXIMUM INVENTORY estimate include the maximum amount of on-site wastes?		
a. requiring pre-treatment?		N/A
b. requiring treatment?		N/A
c. requiring disposal?		N/A
C. Does the MAXIMUM INVENTORY estimate include the maximum amount of on-site:		
a. wastes in surface impoundments?		N/A

	Yes	No
b. wastes in partially-closed non-disposal surface impoundments?	N/A	
c. wastes in tanks?	N/A	
d. wastes in piles?	N/A	
e. wastes in drainage pits?	N/A	
f. wastes in containers?	X	
g. standing liquids?	N/A	

C. **Does the MAXIMUM INVENTORY estimate include the maximum amount of on-site:** (continued)

	Yes	No
h. sludge?	N/A	
i. contaminated soil from land treatment fields?	N/A	
j. contaminated soil from around tanks, containers, piles?	X	
k. contaminated soil from around tanks, containers, piles?	N/A	
l. process residues?	N/A	
m. decontamination residues?	X	

D. **Does the plan discuss the type(s) of TESTING AND CRITERIA to be used to determine:** Note: the regulations do not require closure plans to include information on waste testing and criteria. Write "NA" for situations where soil contamination, decontamination residues, or process residues are not relevant.

	Yes	No
a. whether soil is contaminated?	X	
b. whether decontamination residues are hazardous?	X	
c. whether process residues are hazardous?	N/A	

E. **Are INCOMPATIBLE WASTES identified and provisions described for keeping them separate during closure (Note: write "NA" only if there are no incompatible wastes being managed at the facility.)** — See comment below

Comments: No wastes are on site. Closure will consist of sampling and decontamination of the walls of the building, the concrete pad and the surrounding soil as well as disposal of all closure activity wastes.

	Yes	No
4. CLOSURE STEPS		
A. Does the plan clearly identify the STEPS TO CLOSE		
a. at any point during the intended operating life? (40 CFR 265.112(b))	N/A	
b. at the end of the intended operating life? (40 CFR 265.112(b))	X	
B. Do the STEPS TO CLOSE in the plan include:		
a. removal of wastes? (40 CFR 265.112(b))	N/A	
b. treatment of wastes? (40 CFR 265.112(b))	N/A	
c. transportation of all wastes? (40 CFR 265.112(b))	N/A	
d. waste disposal? (40 CFR 265.112(b))	N/A	
e. identification of and the type of off-site dangerous waste management unit to be used? (40 CFR 265.112(b))	N/A	
f. waste containment?	N/A	
g. cover? (40 CFR 265.310(a))	N/A	
h. removal or decontamination of contaminated containment system components, equipment, structures, and soil? (40 CFR 265.112(b)(4))	X	
i. groundwater monitoring?	N/A	
j. closure certification? (40 CFR 265.115)	X	
k. maintenance of leachate program?	N/A	
l. maintenance of gas collection program?	N/A	
m. security requirements?	X	
C. With respect to the REMOVAL, TREATMENT, OR DISPOSAL of waste, does the plan identify:		
a. the source and type of materials and equipment needed?	N/A	
b. the amount of labor required?	N/A	
c. the capacity, number, and location of trenches or cells needed?	N/A	
d. the area required for landspreading?	N/A	
D. Does the plan describe the DECONTAMINATION (40 CFR 265.112(b)(4); 265.114) of facility equipment and structures, including:		
a. a list of equipment, containers, containment systems, and structures requiring disposal or decontamination?	X	
b. decontamination procedures?	X	
c. method of treatment or disposal of residues?	X	

	Yes	No
d. sampling and testing program?	X	
e. criteria to be used for determining the extent of decontamination necessary to satisfy the closure performance standards?	X	
E. With respect to MONITORING, does the closure plan describe:	**Yes**	**No**
a. details of the groundwater monitoring program during closure?	N/A	
b. soil testing and monitoring?	X	
c. maintenance of monitoring equipment during closure?	N/A	
d. other (specify: _____	N/A	
F. With respect to CERTIFICATION of closure (40 CFR 265.115), does the closure plan describe scheduled or estimated number of inspections?	X	
G. If a system for COLLECTING LEACHATE is present, does the closure plan:	N/A	
a. describe leachate removal, treatment, and disposal during closure?		
b. identify the approximate volume of leachate collected?		
c. provide for maintenance of the leachate collection system during closure?		
H. If a GAS COLLECTION SYSTEM is required during operation, does the closure plan?	N/A	
a. describe procedures for collecting gas during closure?		
b. describe monitoring samples and analysis during closure?		
c. describe maintenance of gas collection system during closure?		
I. If SECURITY (ex: fencing) is required, does the closure plan:	N/A	
a. describe the maintenance of security equipment during the closure period?		
b. describe the installation of appropriate equipment at closure?		
c. state the dimensions of the fence and the area to be enclosed?		

Comments: _____

5. **FINAL CLOSURE: SCHEDULE**

	Yes	No
A. For O/O of facilities without approved closure plans, or who use a trust fund to demonstrate financial assurance, does the plan identify the YEAR when final closure is expected to occur? (40 CFR 265.112(b)(7))	X	
• What is the expected year of closure?	N/A	
B. Is there a SCHEDULE for closure activities for each management unit? (40 CFR 265.112(b)(6))	X	
IF "NO" SKIP TO COMMENTS SECTION.		
C. Does the SCHEDULE for closure of each management unit include:		
a. total time required to close?	X	
b. the time for intervening closure activities? (40 CFR 265.112(b)(6))	X	
c. time required for key steps:		
i. waste inventory treatment? (40 CFR 265.112(b)(6))	N/A	
ii. waste inventory disposal? (40 CFR 265.112(b)(6))	N/A	
iii. removal of waste inventory and residues?	N/A	
iv. decontamination of facility equipment and structures?	X	
v. installation of containment and diversion structures?	N/A	
vi. placement of final cover? (40 CFR 265.112(b)(6))	N/A	
vii. planting vegetation?	N/A	
viii. closure certification?	X	
ix. other (specify: _____)	N/A	
D. Does the SCHEDULE for closure of each management unit:		
a. encompass more than 90 days for treatment, removal, or disposal of wastes after receipt of final volume of dangerous wastes or after approval of the closure plan? (40 CFR 265.113(a))	N/A	

	Yes	No
b. encompass more than 180 days for completion of closure plan activities after receipt of final volume of dangerous wastes or after approval of the closure plan? (40 CFR 265.113(b))		X
E. Does the schedule identify any management units to be closed before final closure (e.g., partial closure)?		X

Comments: _____

6. GENERAL CLOSURE COST ESTIMATE

	Yes	No
A. Is there a written closure cost estimate?	N/A	
B. What is the amount of the closure cost estimate?	$ N/A	
C. Is there documentation supporting the cost estimate?	N/A	
a. work-ups?	N/A	
b. contractor bids?	N/A	
c. operating history?	N/A	
d. other _____	N/A	

Note: The closure cost estimate cannot incorporate any salvage value that may be realized by the sale of dangerous waste, facility structures or equipment, land, or any other facility assets. (40 CFR 265.142(a)(3))

D. Has the cost estimate been adjusted by the 9% inflation factor or by recalculating the cost estimate in current dollars:		
i. within 30 days after the end of the latest fiscal year for O/O using financial tests?	N/A	
ii. or within 60 days prior to the anniversary date of establishment of all other financial instruments? (40 CFR 265.142(b))	N/A	

E. Does the cost estimate cover all the activities in the closure plan including costs of labor? ___N/A___

F. Does the closure cost estimate cover all required closure activities? (40 CFR 265.142(a)) ___N/A___

G. Are the costs based on hiring a third party to close the facility? ___N/A___

If "NO" specify in comments below:

Comments: _____

6.3 UNIT SPECIFIC REQUIREMENTS

This section addresses requirements which are specific to individual TSD units. In an effort to simplify the checklist, the requirements in this section have been organized into unit specific modules. This enables the inspector to select only those requirements which are specific to the particular facility under investigation.

Please note that with respect to surface impoundments, waste piles and land treatment units, if if O/O either cannot or elects not to remove all waste residues, contaminated soils, structures, and equipment, he must close the facility and perform post-closure care in accordance with the closure and post-closure requirements that apply to landfills.

1. CONTAINERS	Yes	No
A. Does the closure plan describe the following:		
a. the procedure for removing dangerous waste containers from the facility;	N/A	
b. inspection of waste containers for leaks;	N/A	
c. the procedure for transferring dangerous wastes from leaking containers to non-leaking containers;	N/A	
B. Have provisions been made for the decontamination of equipment and structures?	X	
C. Does the plan describe the testing program needed to judge the success of the decontamination efforts?	X	
D. Does the testing program include:		
a. sampling methods	X	
b. testing parameters	X	
c. analytical procedures	X	

Comments: _____

2. TANKS (40 CFR 265.197)

	Yes	No
A. Does the closure plan describe procedures for removing dangerous wastes from the tank, discharge control equipment and discharge containment structures?	N/A	
B. Does the plan describe procedures for decontaminating the tank, associated piping, discharge control equipment, and discharge confinement structures (including underlying containment systems)?	N/A	
C. Have criteria been established to determine the effectiveness of the decontamination process?	N/A	
D. Have test procedures been included to determine the effectivenss of the decontamination procedures?	N/A	
E. Does the testing procedure include:		
a. sampling methods	N/A	
b. testing parameters	N/A	
c. analytical procedures	N/A	

Comments: _____

3. SURFACE IMPOUNDMENTS (40 CFR 265.228) — Yes / No

A. Upon closure, does the O/O plan to remove from the impoundment:

a. standing liquids — N/A
b. waste and waste residue — N/A
c. underlying and surrounding contaminated soil — N/A
d. the liner (if any) — N/A

B. Does the closure plan provide a detailed plan for the removal of:

a. all hazardous wastes — N/A
b. the containment system (if applicable) — N/A
c. contaminated soil — N/A

C. Does the closure plan describe a testing program to determine if the site is clean? — N/A

D. Does the closure plan provide an estimate of each quantity of material to be removed from the site? — N/A

Comments: _____

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4. WASTE PILES (40 CFR 265.258(a))

	Yes	No
A. Does the closure plan provide a detailed plan for the removal of:		
a. all dangerous wastes and residues	N/A	
b. the contaminated containment system (if applicable)	N/A	
c. contaminated soil	N/A	
d. structures and equipment with waste and leachate	N/A	
B. Does the closure plan describe the procedures to be used to decontaminate equipment and structures?	N/A	
C. Have criteria been established to judge the effectiveness of the decontamination procedures?	N/A	
D. Does the closure plan describe a testing program to determine if the site is clean?	N/A	

Comments: _____

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5. LAND TREATMENT (40 CFR 265.230) — Yes / No

A. Does the closure plan address the following objectives and explain how they will be achieved?

a. control of migration of hazardous wastes and constituents into groundwater. — N/A
b. control of the release of contaminated run-off into surface water. — N/A
c. control of the release of airborne particulate contaminants caused by wind erosion. — N/A
d. protection of food chain crops. — N/A

B. Does the closure plan include at least a narrative statement indicating that the following factors were considered in addressing the closure objectives?

a. type and amount of waste. — N/A
b. mobility and rate of migration — N/A
c. site location, topography, and surrounding land use. — N/A
d. climate, including precipitation. — N/A
e. characteristics of the cover, including material, final surface contour, thickness, porosity, permeability, slope, vegetation. — N/A
f. geological and soil profiles and surface and subsurface hydrology. — N/A
g. unsaturated zone monitoring. — N/A
h. type, concentration, and depth of hazardous constituent migration as compared to background concentrations. — N/A

Comments: _____

6. LAND DISPOSAL (40 CFR 265.310) — Yes / No

A. Does the closure plan address the following objectives and explain how they will be achieved with respect to cover design and construction?

a. provide long-term minimization of migration of liquids through the closed landfill; — N/A
b. function with minimum maintenance; — N/A
c. promote drainage and minimize erosion or abrasion of the cover;
d. accommodate settling and subsidence so that the cover's integrity is maintained; and — N/A
e. have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present. — N/A

B. Does the closure plan include at least a narrative statement indicating that the following factors were considered in addressing the closure objectives? — N/A

a. type and amount of waste — N/A
b. mobility and rate of migration — N/A
c. site location, topography, and surrounding land — N/A
d. climate, including amount, frequency and pH of precipitation — N/A
e. characteristics of the cover, including material type, final surface contour, thickness, porosity, permeability, slope, and type of vegetation — N/A
f. geologic characteristics, soil profiles, and surface and sub-surface hydrology — N/A
g. unsaturated zone monitoring — N/A
h. type, concentration, and depth of hazardous constituent migration as compared to background concentrations — N/A

Comments: _____

7. INCINERATORS (40 CFR 265.351)

	Yes	No
A. Does the closure plan address the removal of:		
a. all wastes	N/A	
b. ash	N/A	
c. scrubber waters	N/A	
d. scrubber sludges	N/A	
B. Are procedures for decontaminating the incinerator, ash collection equipment, and emission control equipment, described or referenced in the closure plan?	N/A	
C. Does the closure plan address the disposal of all contaminated equipment, residues, solvents, and contaminated cleaning agents?	N/A	
D. Has the plan included criteria to be used to judge the success of the decontamination efforts?	N/A	
E. Does the closure plan describe a testing program to determine if the standards of decontamination has been met?	N/A	

Comments: _____

8. THERMAL TREATMENT (40 CFR 265.381)

	Yes	No
A. Does the closure plan address the disposal of all wastes and residues?	N/A	
B. Does the closure plan describe the procedure for decontamination of the thermal treatment equipment and surrounding structures?	N/A	
C. Does the closure plan describe a testing program to determine if the standard of decontamination has been met?	N/A	

Comments: _____

0022639 7 9 1 2 6

9. CHEMICAL, PHYSICAL AND BIOLOGICAL TREATMENT (40 CFR 265.404) — Yes / No

A. Does the closure plan address the disposal of all wastes and residues? ___N/A___

B. Does the closure plan describe the procedures for decontamination of the thermal treatment equipment and surrounding structures? ___N/A___

C. Does the closure plan describe a testing program to determine if the standard of decontamination has been met? ___N/A___

Comments: _____

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9 2 1 1 2 6 7 4 9 4 2 2 2 2

APPENDIX B

PHOTOGRAPHS

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9 2 1 2 7 0 9 1 3 9 3 2 2 3 1

1 Nonradioactive Dangerous Waste Storage Facility 2727-S/200 West Area

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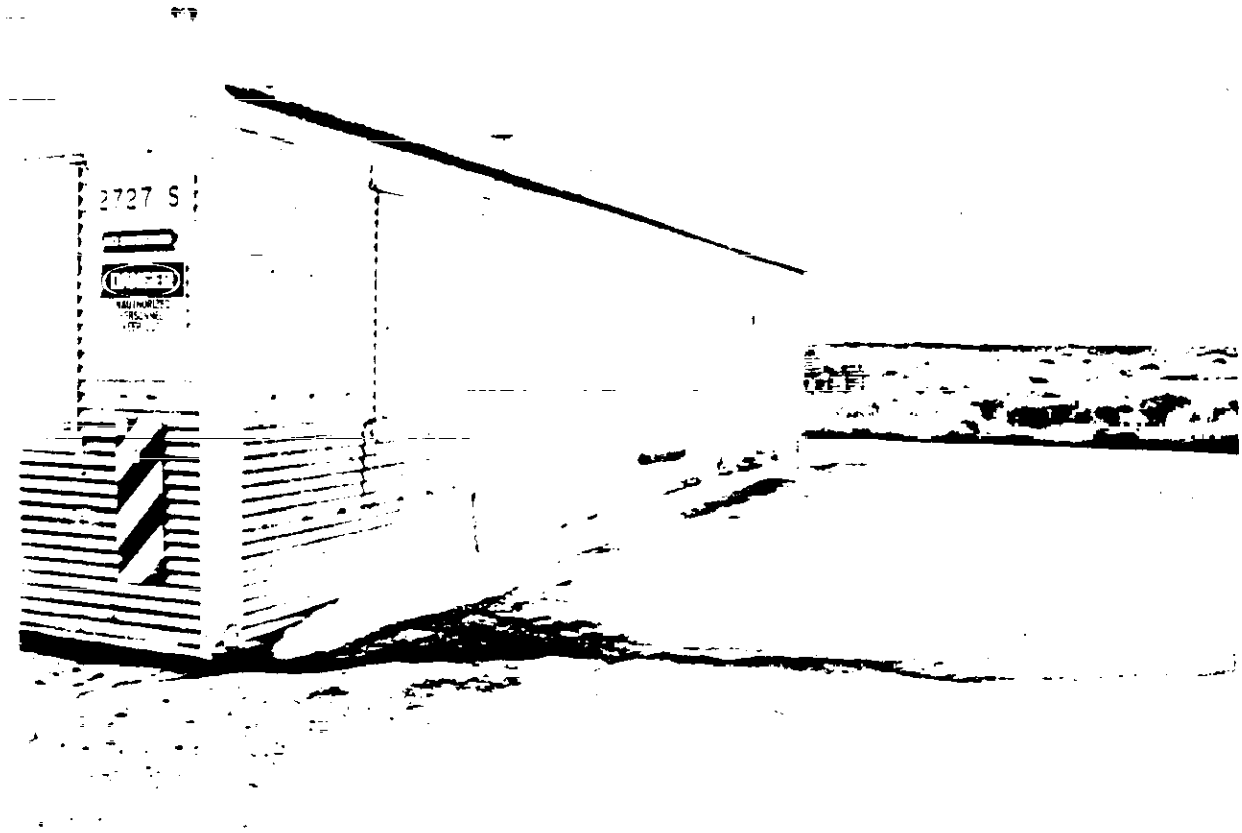

1 North Side of the 2727-S Building Looking West

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1 South Side of the 2727-S Building

910608.1443

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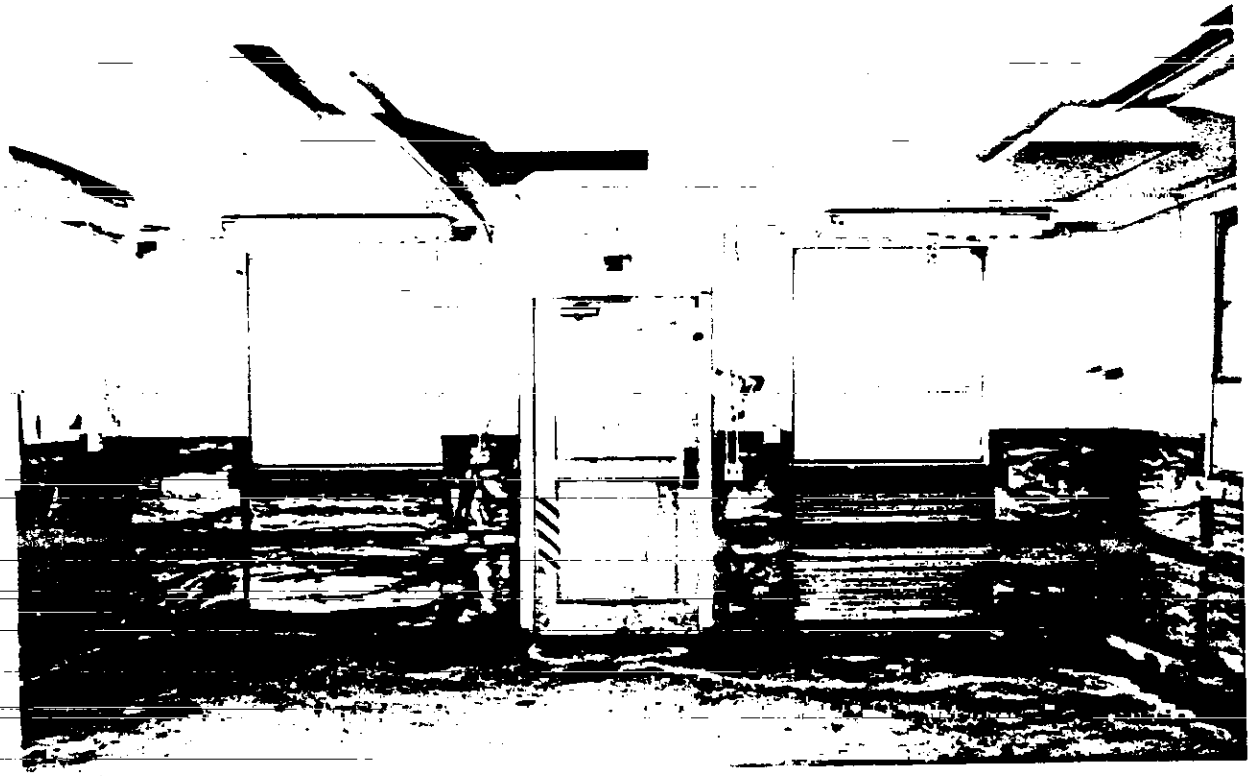

1 The Rear of the 2727-S Building From the Inside

910608.1443

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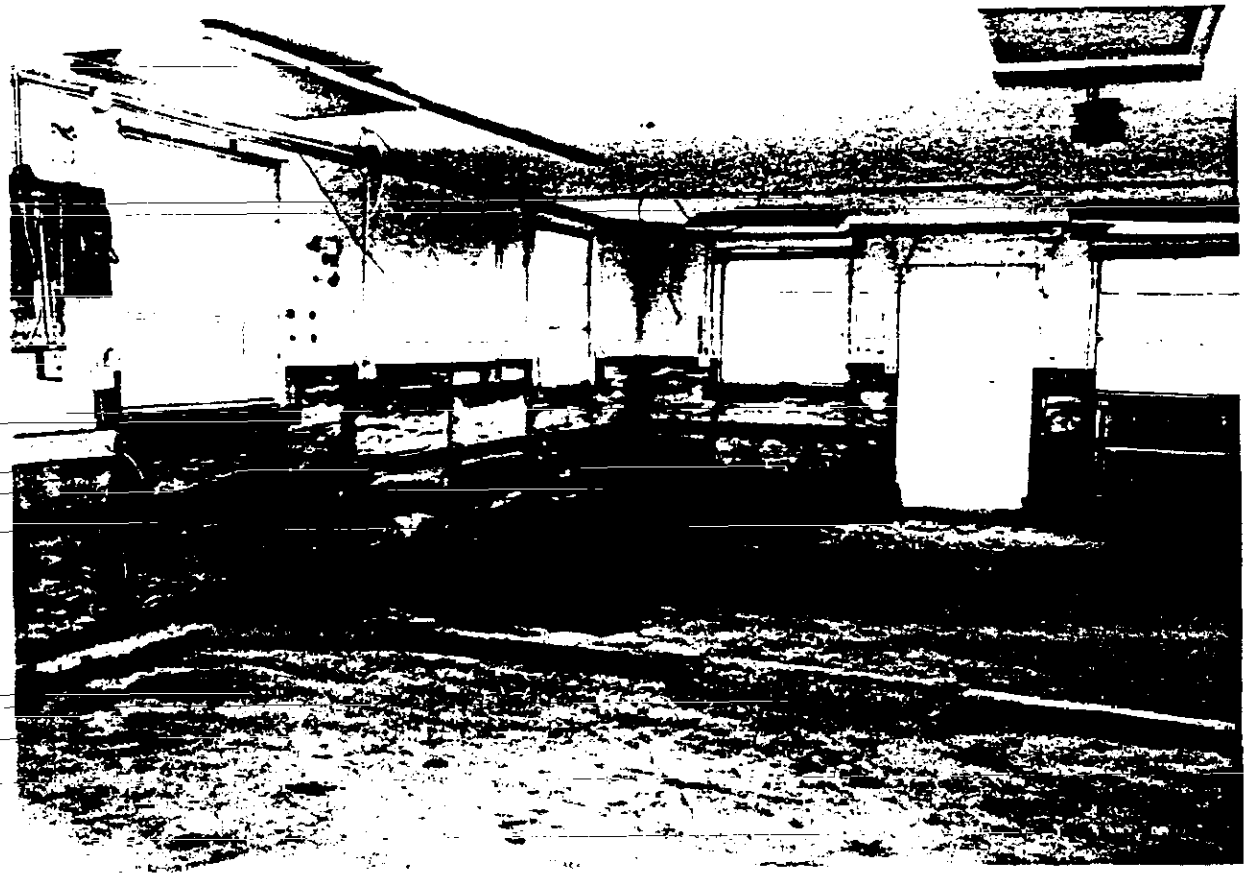

Inside the 2727-S Building Showing the Insulation and Wallboard Lining the Metal Building. The concrete pad is curbed to isolate incompatible wastes

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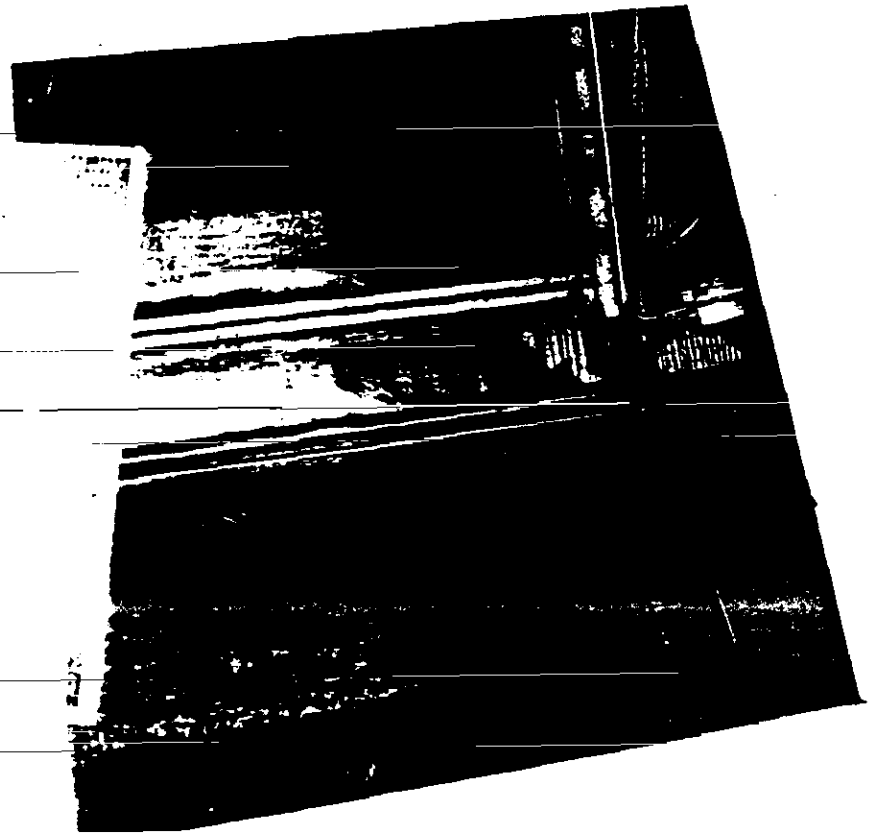

A Photograph of the Ceiling of the 2727-S Building Showing that the Insulation Extends Through the Upper Portion of the Wall Into the Ceiling

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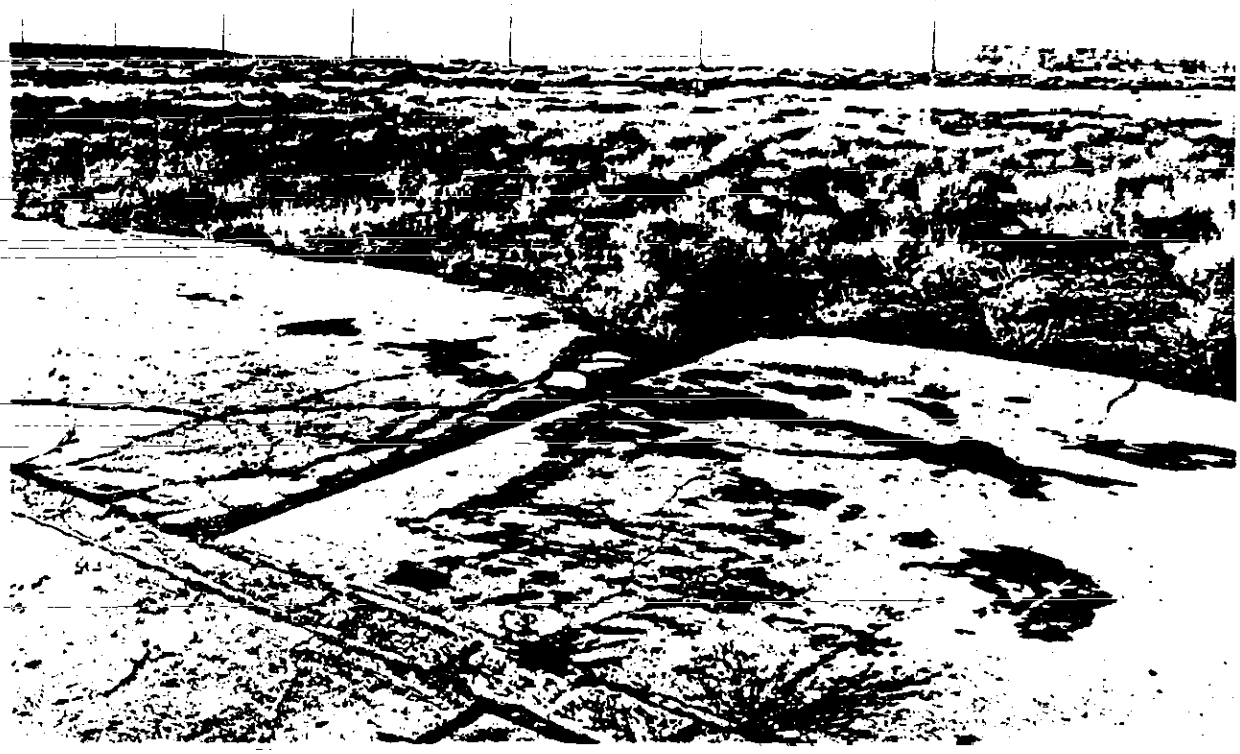

I North Edge of 2727-S Exterior Concrete Pad Showing Deterioration

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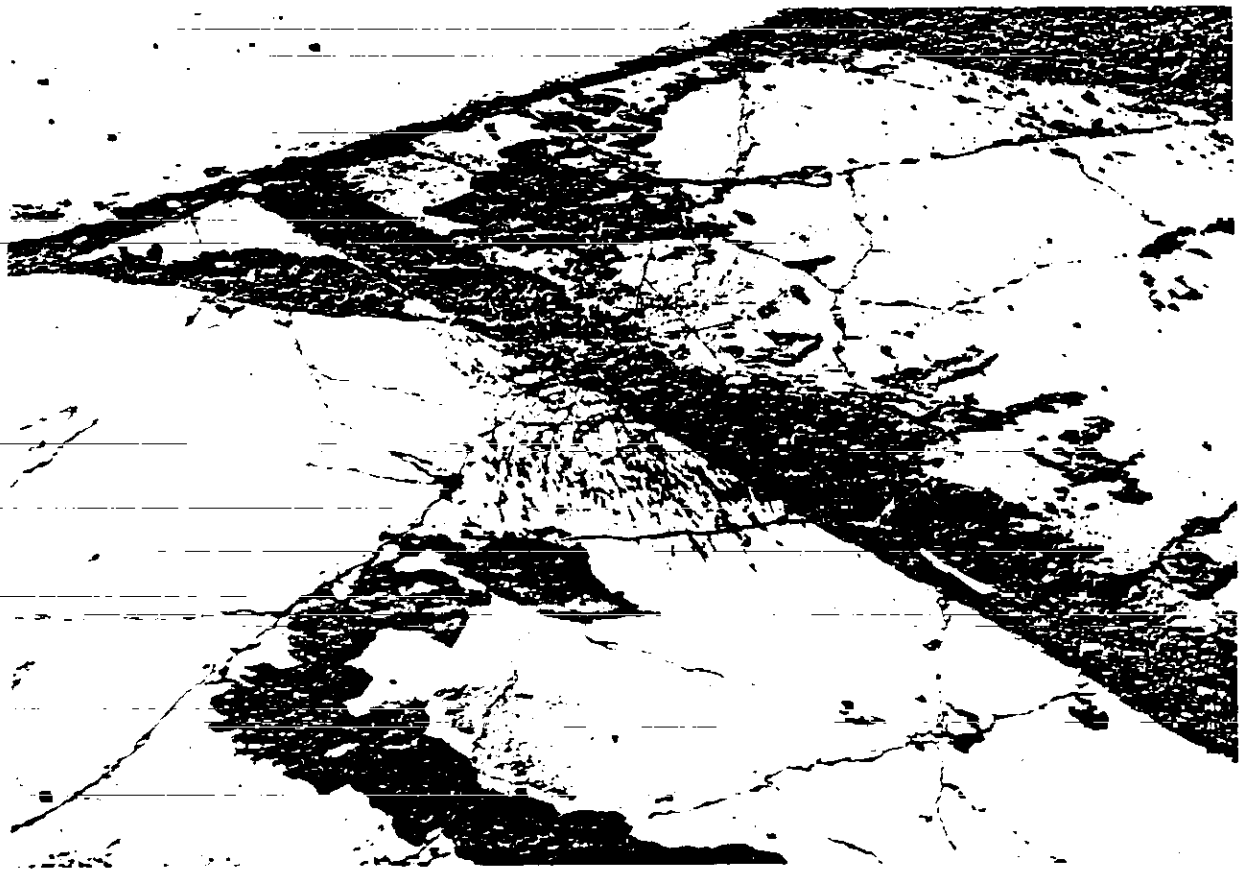

1 Concrete has Deteriorated on Seams of the 2727-S Exterior Pad
2 and a Few Stains are Visible

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An Offshoot of the 2727-S Exterior Concrete Pad on the North Side. Seams in the pad have deteriorated.

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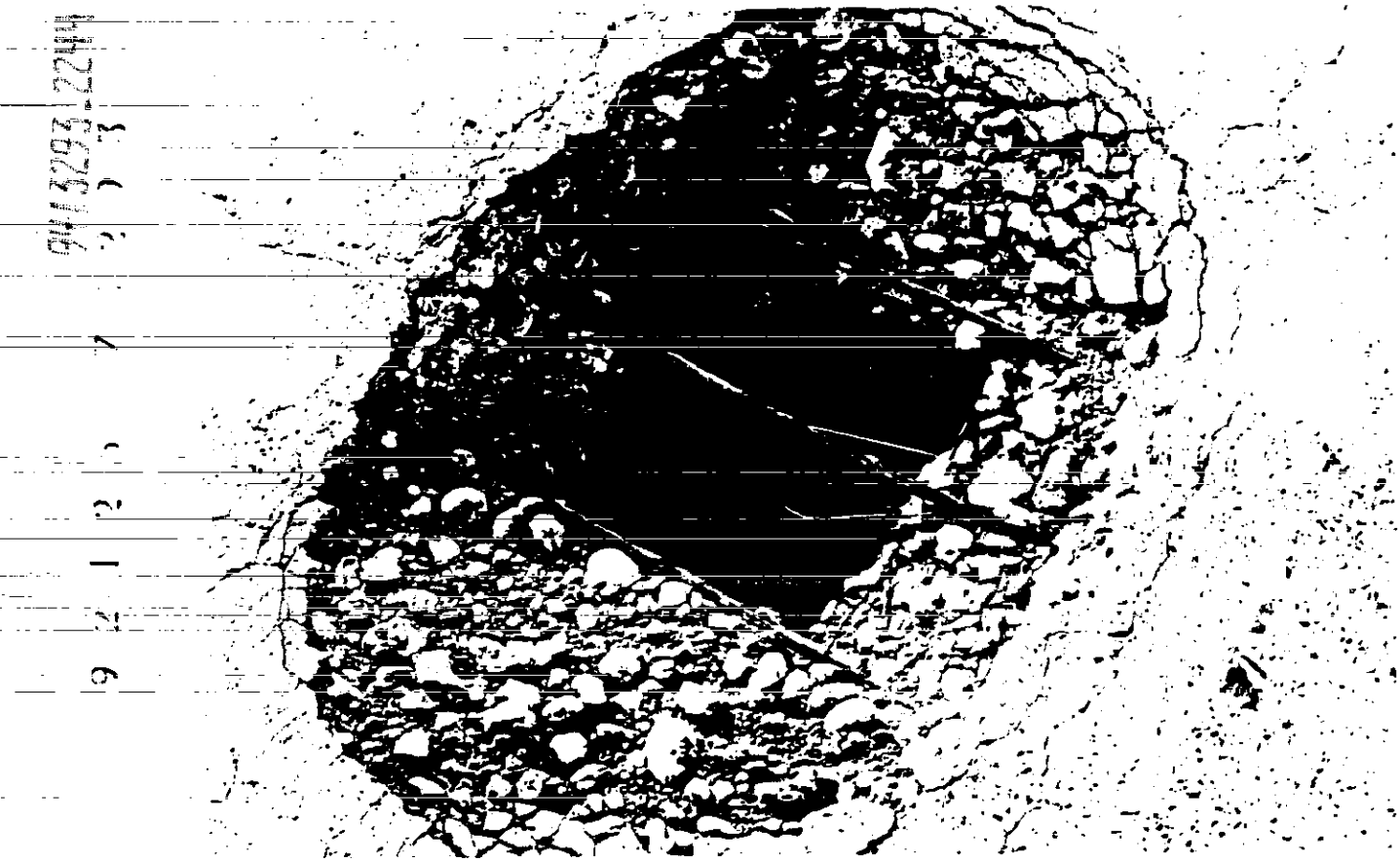

1 A Dip in the 2727-S Exterior Concrete Pad Outside Near Beloit Avenue

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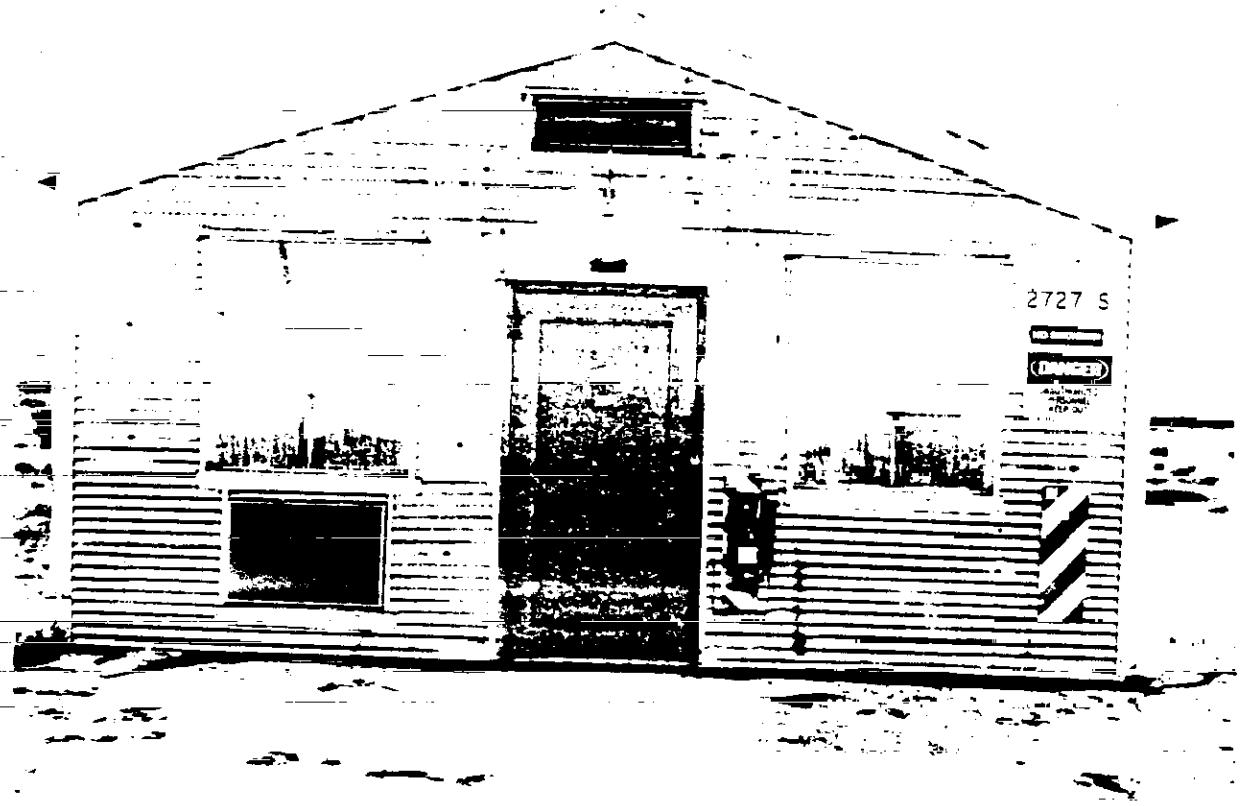

1 Front (East) Side of the 2727-S Building

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1 Back (West) Side of the 2727-S Building

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APPENDIX C

SPILL REPORTS

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1

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: 6-27-86

TIME: 10 am

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	✓	☐	☐
2. STRUCTURES			
A. CEMENT PAD	✓	☐	☐
B. CURBING	✓	☐	☐
C. ROOF/WALLS	✓	☐	☐
D. SIGNS	✓	☐	☐
3. CONTAINER CONDITION			
A. CLOSED	✓	☐	☐
B. STRUCTURAL DEFECTS	✓	☐	☐
C. CORROSION	✓	☐	☐
D. LABELS REQUIRED	✓	☐	☐
E. EVIDENCE OF LEAKAGE	✓	☐	☐
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	✓	☐	☐
B. OVERPACK DRUMS	✓	☐	☐
C. EYEWASH	✓	☐	☐
D. FIRE EXTINGUISHER	✓	☐	☐
E. TWO-WAY RADIOS	✓	☐	☐
F. PROTECTIVE CLOTHING	✓	☐	☐
G. GLOVES	✓	☐	☐
H. RESPIRATORS/CARTRIDGES	✓	☐	☐
I. ESCAPE PACK	NA	☐	☐

5. COMMENTS

6. INSPECTOR SIGNATURE

MB WALMSLEY
PRINT NAME

MB Walmsley
SIGN NAME

2K8508-3.1

910606.1138

1

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: 7-2-86

TIME: 2 20

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A LOADING/UNLOADING AREAS	✓		
2. STRUCTURES			
A CEMENT PAD	✓		
B CURBING	✓		
C ROOF/WALLS	✓		
D SIGNS	✓		
3. CONTAINER CONDITION			
A CLOSED	X		
B STRUCTURAL DEFECTS	X		
C CORROSION	X		
D LABELS REQUIRED	X		
E EVIDENCE OF LEAKAGE	X		
4. SAFETY/EMERGENCY EQUIPMENT			
A ABSORBENTS	✓		
B OVERPACK DRUMS	✓		
C EYEWASH	✓		
D FIRE EXTINGUISHER	✓		
E TWO-WAY RADIOS	✓		
F PROTECTIVE CLOTHING	✓		
G GLOVES	✓		
H RESPIRATORS/CARTRIDGES	OK		
I ESCAPE PACK	✓ NA		

5. COMMENTS

6. INSPECTOR SIGNATURE

MB WALMSLEY
PRINT NAME

SWP + DU
SIGN NAME

2K8508-3 1

910606.1138

1

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: 7-11-86

TIME: 9:15 am

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	✓		
2. STRUCTURES			
A. CEMENT PAD	✓		
B. CURBING	✓		
C. ROOF/WALLS	✓		
D. SIGNS	✓		
3. CONTAINER CONDITION			
A. CLOSED	✓		
B. STRUCTURAL DEFECTS	✓		
C. CORROSION	✓		
D. LABELS REQUIRED	✓		
E. EVIDENCE OF LEAKAGE	✓		
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	✓		
B. OVERPACK DRUMS	✓		
C. EYEWASH	✓		
D. FIRE EXTINGUISHER	✓		
E. TWO-WAY RADIOS	✓		
F. PROTECTIVE CLOTHING	✓		
G. GLOVES	✓		
H. RESPIRATORS/CARTRIDGES	✓		
I. ESCAPE PACK	NA		

5. COMMENTS

6. INSPECTOR SIGNATURE

M. J. WALUSIEWICZ
PRINT NAME

M. J. Walusiewicz Supt DLL
SIGN NAME

2K8508-3.1

910606.1138

1

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: 7-17-86

TIME: 2 30 pm

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	✓		
2. STRUCTURES			
A. CEMENT PAD	✓		
B. CURBING	✓		
C. ROOF/WALLS	✓		
D. SIGNS	✓		
3. CONTAINER CONDITION			
A. CLOSED	✓		
B. STRUCTURAL DEFECTS	✓		
C. CORROSION	✓		
D. LABELS REQUIRED	✓		
E. EVIDENCE OF LEAKAGE	✓		
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	✓		
B. OVERPACK DRUMS	✓		
C. EYEWASH	✓		
D. FIRE EXTINGUISHER	✓		
E. TWO-WAY RADIOS	✓		
F. PROTECTIVE CLOTHING	✓		
G. GLOVES	✓		
H. RESPIRATORS/CARTRIDGES	✓		
I. ESCAPE PACK	NA		

5. COMMENTS

6. INSPECTOR SIGNATURE

M. B. WALLISLEY
PRINT NAME

SIGN NAME

2K8508-3.1

910606.1138

1

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: [illegible]

TIME: [illegible]

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	☐	☐	☐
2. STRUCTURES			
A. CEMENT PAD	☐	☐	☐
B. CURBING	☐	☐	☐
C. ROOF/WALLS	☐	☐	☐
D. SIGNS	☐	☐	☐
3. CONTAINER CONDITION			
A. CLOSED	☐	☐	☐
B. STRUCTURAL DEFECTS	☐	☐	☐
C. CORROSION	☐	☐	☐
D. LABELS REQUIRED	☐	☐	☐
E. EVIDENCE OF LEAKAGE	☐	☐	☐
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	☐	☐	☐
B. OVERPACK DRUMS	☐	☐	☐
C. EYEWASH	☐	☐	☐
D. FIRE EXTINGUISHER	☐	☐	☐
E. TWO-WAY RADIOS	☐	☐	☐
F. PROTECTIVE CLOTHING	☐	☐	☐
G. GLOVES	☐	☐	☐
H. RESPIRATORS/CARTRIDGES	☐	☐	☐
I. ESCAPE PACK	☐	☐	☐

5. COMMENTS

Inside of 2727-S building has been cleaned out immediately since June 1985.

6. INSPECTOR SIGNATURE

[illegible]
PRINT NAME

[illegible]
SIGN NAME

2K8508-3.1

910606.1138

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WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: July 29, 1986

TIME: 2:00 pm

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	X		
2. STRUCTURES			
A. CEMENT PAD	X		
B. CURBING	X		
C. ROOF/WALLS	X		
D. SIGNS	X		
3. CONTAINER CONDITION			
A. CLOSED	X		
B. STRUCTURAL DEFECTS	X		
C. CORROSION	X		
D. LABELS REQUIRED	X		
E. EVIDENCE OF LEAKAGE	X		
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	X		
B. OVERPACK DRUMS	X		
C. EYEWASH	X		
D. FIRE EXTINGUISHER	X		
E. TWO-WAY RADIOS	X		
F. PROTECTIVE CLOTHING	X		
G. GLOVES	X		
H. RESPIRATORS/CARTRIDGES	X		
I. ESCAPE PACK	NA		

5. COMMENTS

Building will be completely empty Soon.

6. INSPECTOR SIGNATURE

D L Lund
PRINT NAME

D L Lund
SIGN NAME

2K8508-3.1

910606.1138

9 2 1 7 9 4 4 2 9 3 4 2 5 4

1

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: August 4, 1986

TIME: 3:00 pm

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	X		
2. STRUCTURES			
A. CEMENT PAD	X		
B. CURBING	X		
C. ROOF/WALLS	X		
D. SIGNS	X		
3. CONTAINER CONDITION			
A. CLOSED	X		
B. STRUCTURAL DEFECTS	X		
C. CORROSION		8-4-86 →	X
D. LABELS REQUIRED			
E. EVIDENCE OF LEAKAGE	X		
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS			
B. OVERPACK DRUMS			
C. EYEWASH			
D. FIRE EXTINGUISHER			
E. TWO-WAY RADIOS			
F. PROTECTIVE CLOTHING			
G. GLOVES			
H. RESPIRATORS/CARTRIDGES			
I. ESCAPE PACK			

5. COMMENTS

The inspected drum of corrosives had corrosion on the bottom of the drum. Lab personnel (M R Rosas) that one bottle of acid is broken and the drum will be opened and the contents dealt with accordingly.

6. INSPECTOR SIGNATURE

D L Lund
PRINT NAME

[signature]
SIGN NAME

2K8508-3.1

910606.1138

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WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: August 15, 1996

TIME: 11:00 AM

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A LOADING/UNLOADING AREAS	X		
2. STRUCTURES			
A CEMENT PAD	X		
B CURBING	X		
C ROOF/WALLS	X		
D SIGNS	X		
3. CONTAINER CONDITION			
A CLOSED	X		
B. STRUCTURAL DEFECTS	X		
C CORROSION	X		
D LABELS REQUIRED			
E EVIDENCE OF LEAKAGE	X		
4. SAFETY/EMERGENCY EQUIPMENT			
A ABSORBENTS	X		
B OVERPACK DRUMS	X		
C. EYEWASH	X		
D. FIRE EXTINGUISHER	X		
E. TWO-WAY RADIOS	X		
F PROTECTIVE CLOTHING	X		
G. GLOVES	X		
H RESPIRATORS/CARTRIDGES	X		
I ESCAPE PACK	N/A		

5. COMMENTS

Building is close to being empty of waste

6. INSPECTOR SIGNATURE

D L Lund
PRINT NAME

D L Lund
SIGN NAME

2K8508-3 1

910606.1138

1

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: August 20, 86

TIME: 1:35 pm

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	☑	☐	☐
2. STRUCTURES			
A. CEMENT PAD	☑	☐	☐
B. CURBING	☑	☐	☐
C. ROOF/WALLS	☑	☐	☐
D. SIGNS	☑	☐	☐
3. CONTAINER CONDITION			
A. CLOSED	☑	☐	☐
B. STRUCTURAL DEFECTS	☑	☐	☐
C. CORROSION	☑	☐	☐
D. LABELS REQUIRED	☑	☐	☐
E. EVIDENCE OF LEAKAGE	☑	☐	☐
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	☑	☐	☐
B. OVERPACK DRUMS	☑	☐	☐
C. EYEWASH	☑	☐	☐
D. FIRE EXTINGUISHER	☑	☐	☐
E. TWO-WAY RADIOS	☑	☐	☐
F. PROTECTIVE CLOTHING	☑	☐	☐
G. GLOVES	☑	☐	☐
H. RESPIRATORS/CARTRIDGES	☑	☐	☐
I. ESCAPE PACK	☑	☐	☐

5. COMMENTS

- Under supervision of Industrial, Hygiene + Safety personnel, the building is being readied for closure. Drums were being shipped offsite today, and overpacks were used to handle non-specification waste items.

6. INSPECTOR SIGNATURE

MB WALMSLEY
PRINT NAME

MB Walmsley 8-20-86
SIGN NAME / SWPrDU

2K8506-3.1

910606.1138

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WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: Sept. 5, 1986

TIME: 11:00 Am

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	✓		
2. STRUCTURES			
A. CEMENT PAD	✓		
B. CURBING	✓		
C. ROOF/WALLS	✓		
D. SIGNS	✓		
3. CONTAINER CONDITION			
A. CLOSED	✓		
B. STRUCTURAL DEFECTS	✓		
C. CORROSION	✓		
D. LABELS REQUIRED	✓		
E. EVIDENCE OF LEAKAGE	✓		
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	✓		
B. OVERPACK DRUMS	✓		
C. EYEWASH	✓		
D. FIRE EXTINGUISHER	✓		
E. TWO-WAY RADIOS	✓		
F. PROTECTIVE CLOTHING	✓		
G. GLOVES	✓		
H. RESPIRATORS/CARTRIDGES	✓		
I. ESCAPE PACK	NA		

5. COMMENTS

Everything was in order, building is being emptied with the opening of 616-S.

6. INSPECTOR SIGNATURE

D. L. Lund
PRINT NAME

D. L. Lund
SIGN NAME

2K8508-3.1

1

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: Oct. 10, 86

TIME: 1 30 pm

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	✓		
2. STRUCTURES			
A. CEMENT PAD	✓		
B. CURBING	✓		
C. ROOF/WALLS	✓		
D. SIGNS	✓		
3. CONTAINER CONDITION			
A. CLOSED	✓		
B. STRUCTURAL DEFECTS	✓		
C. CORROSION	✓		
D. LABELS REQUIRED	✓		
E. EVIDENCE OF LEAKAGE	✓		
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	✓		
B. OVERPACK DRUMS	✓		
C. EYEWASH	✓		
D. FIRE EXTINGUISHER	✓		
E. TWO-WAY RADIOS	✓		
F. PROTECTIVE CLOTHING	✓		
G. GLOVES	✓		
H. RESPIRATORS/CARTRIDGES	✓		
I. ESCAPE PACK	NA		

5. COMMENTS

The 2727-S facility is still receiving wastes (even though 616 Facility is now operational). Drums, boxes are located at both outside + inside of facility.

6. INSPECTOR SIGNATURE

M. B. WALMSLEY
PRINT NAME

M B Walmsley 11-10-86 T/Az. Waste Unit
SIGN NAME Maint. Engr. Dept.

2K6508-3.1

910606.1138

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: Oct. 17, 86

TIME: 11:30 AM

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	✓		
2. STRUCTURES			
A. CEMENT PAD			✓
B. CURBING	✓		
C. ROOF/WALLS	✓		
D. SIGNS	✓		
3. CONTAINER CONDITION			
A. CLOSED	✓		
B. STRUCTURAL DEFECTS	✓		
C. CORROSION	✓		
D. LABELS REQUIRED	✓		
E. EVIDENCE OF LEAKAGE	✓		
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	✓		
B. OVERPACK DRUMS	✓		
C. EYEWASH	✓		
D. FIRE EXTINGUISHER	✓		
E. TWO-WAY RADIOS	✓		
F. PROTECTIVE CLOTHING	✓		
G. GLOVES	✓		
H. RESPIRATORS/CARTRIDGES	✓		
I. ESCAPE PACK	NA		

5. COMMENTS

#2.A The cement pad outside the facility has been structurally damaged*. No waste was being stored in this area however.

*(2-3 areas were sunken in, approx 1-2' wide).

General info: Drums (three) still located in facility, 9 drums outside storage facility.

6. INSPECTOR SIGNATURE

R B Wiemsky
PRINT NAME

OCT 17, 86
SIGN NAME

Waste Mgt

2K8508-3 1

910606.1138

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: 10-22-86

TIME: 10 am

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	☑	☐	☐
2. STRUCTURES			
A. CEMENT PAD	☐	☐	☑
B. CURBING	☑	☐	☐
C. ROOF/WALLS	☑	☐	☐
D. SIGNS	☑	☐	☐
3. CONTAINER CONDITION			
A. CLOSED	☑	☐	☐
B. STRUCTURAL DEFECTS	☑	☐	☐
C. CORROSION	☑	☐	☐
D. LABELS REQUIRED	☑	☐	☐
E. EVIDENCE OF LEAKAGE	☑	☐	☐
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	☑	☐	☐
B. OVERPACK DRUMS	☑	☐	☐
C. EYEWASH	☑	☐	☐
D. FIRE EXTINGUISHER	☑	☐	☐
E. TWO-WAY RADIOS	☑	☐	☐
F. PROTECTIVE CLOTHING	☑	☐	☐
G. GLOVES	☑	☐	☐
H. RESPIRATORS/CARTRIDGES	☑	☐	☐
I. ESCAPE PACK	☑	☐	☐

5. COMMENTS

(2 of)
Comment from 10-17-86 on damaged, outside areas; there only one area on cement pad which is open (Sump Pump) Drums continues to be stored inside / outside 2727-S

No signature made.

6. INSPECTOR SIGNATURE

M B Wachasek
PRINT NAME

M B Wachasek 10-22-86
SIGN NAME

Haz. Waste Chief
Waste Mgt. Areas
Engr. Group.

910606.1138

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: 11-30-56

TIME: 1:15 pm

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	✓		✓
2. STRUCTURES			
A. CEMENT PAD			✓
B. CURBING	✓		
C. ROOF/WALLS	✓		
D. SIGNS	✓		
3. CONTAINER CONDITION			
A. CLOSED	✓		
B. STRUCTURAL DEFECTS	✓		
C. CORROSION	✓		✓
D. LABELS REQUIRED			
E. EVIDENCE OF LEAKAGE	✓		
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	✓		
B. OVERPACK DRUMS	✓		
C. EYEWASH	✓		
D. FIRE EXTINGUISHER	✓		
E. TWO-WAY RADIOS	✓		
F. PROTECTIVE CLOTHING	✓		
G. GLOVES	✓		
H. RESPIRATORS/CARTRIDGES	✓		
I. ESCAPE PACK	NA		

5. COMMENTS

(1.) Inside & outside facility there were puddles of contaminated rainwater.

(2.) Outside cement pad, there is one area still damaged, (cracked in).

6. INSPECTOR SIGNATURE

MK Hanneley
PRINT NAME

[illegible]
SIGN NAME

2KB506-3.1

910606.1138

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: November ~~13~~ 6 nov, 86

TIME: 9 am

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	☑	☐	☐
2. STRUCTURES			
A. CEMENT PAD	☑	☐	☑
B. CURBING	☑	☐	☐
C. ROOF/WALLS	☑	☐	☐
D. SIGNS	☑	☐	☐
3. CONTAINER CONDITION			
A. CLOSED	☑	☐	☐
B. STRUCTURAL DEFECTS	☑	☐	☐
C. CORROSION	☑	☐	☐
D. LABELS REQUIRED	☑	☐	☐
E. EVIDENCE OF LEAKAGE	☑	☐	☐
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	☑	☐	☐
B. OVERPACK DRUMS	☑	☐	☐
C. EYEWASH	☑	☐	☐
D. FIRE EXTINGUISHER	☑	☐	☐
E. TWO-WAY RADIOS	☑	☐	☐
F. PROTECTIVE CLOTHING	☑	☐	☐
G. GLOVES	☑	☐	☐
H. RESPIRATORS/CARTRIDGES	☑	☐	☐
I. ESCAPE PACK	NA	☐	☐

5. COMMENTS

• #2(A) OUTSIDE CEMENT PAD STILL DAMAGED (AS NOTED IN 10/30 and 10/22).

• GENERAL : OFFSITE SHIPMENT PLANNED FOR 11/7/86, FOR DRUMS stored OUTSIDE FACILITY. (SEVERAL ITEMS INSIDE FACILITY MAY ALSO BE SHIPPED IF SPACE ALLOWS ON TRUCK).

6. INSPECTOR SIGNATURE

M.B. WALMSLEY
PRINT NAME

MB Walmsley - Hazardous Waste Unit 11-6-86
SIGN NAME

2K8508-3.1

910606.1138

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: Nov. 21, 1986

TIME: 1:30 pm

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A LOADING/UNLOADING AREAS	X		
2. STRUCTURES			
A CEMENT PAD	X		
B CURBING	X		
C ROOF/WALLS	X		
D SIGNS	X		
3. CONTAINER CONDITION			
A CLOSED	X		
B STRUCTURAL DEFECTS	X		
C CORROSION	X		
D LABELS REQUIRED	X		
E EVIDENCE OF LEAKAGE	X		
4. SAFETY/EMERGENCY EQUIPMENT			
A ABSORBENTS	X		
B OVERPACK DRUMS	X		
C EYEWASH	X		
D FIRE EXTINGUISHER	X		
E TWO-WAY RADIOS	X		
F PROTECTIVE CLOTHING	X		
G GLOVES	X		
H RESPIRATORS/CARTRIDGES	X		
I ESCAPE PACK	NA		

5. COMMENTS

More waste being shipped week of Dec. 1st

6. INSPECTOR SIGNATURE

D L. Lund
PRINT NAME

D L Lund
SIGN NAME

2K8508-3 1

1

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: Sept. 24, 1986

TIME: 2:00 p.m.

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	X		
2. STRUCTURES			
A. CEMENT PAD	X		
B. CURBING	X		
C. ROOF/WALLS	X		
D. SIGNS	X		
3. CONTAINER CONDITION			
A. CLOSED	X		
B. STRUCTURAL DEFECTS	X		
C. CORROSION	X		
D. LABELS REQUIRED	X		
E. EVIDENCE OF LEAKAGE	X		
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	X		
B. OVERPACK DRUMS	X		
C. EYEWASH	X		
D. FIRE EXTINGUISHER	X		
E. TWO-WAY RADIOS	X		
F. PROTECTIVE CLOTHING	X		
G. GLOVES	X		
H. RESPIRATORS/CARTRIDGES	X		
I. ESCAPE PACK	NA		

5. COMMENTS

No leakage - building is being emptied of waste.

6. INSPECTOR SIGNATURE

D. L. Lund
PRINT NAME

D. L. Lund
SIGN NAME

2K8508-3.1

910606.1138

1

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: [illegible]

TIME: [illegible]

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	✓		
2. STRUCTURES			
A. CEMENT PAD			
B. CURBING	✓		
C. ROOF/WALLS	✓		
D. SIGNS			
3. CONTAINER CONDITION			
A. CLOSED	✓		
B. STRUCTURAL DEFECTS	✓		
C. CORROSION	✓		
D. LABELS REQUIRED			
E. EVIDENCE OF LEAKAGE			
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	✓		
B. OVERPACK DRUMS	✓		
C. EYEWASH			✓
D. FIRE EXTINGUISHER	✓		
E. TWO-WAY RADIOS	✓		
F. PROTECTIVE CLOTHING	✓		
G. GLOVES			
H. RESPIRATORS/CARTRIDGES	✓		
I. ESCAPE PACK	✓		

5. COMMENTS

[illegible] Drainage needed
[illegible] facility (near front door) some leakage from cell [illegible]

6. INSPECTOR SIGNATURE

[illegible]
PRINT NAME

[illegible]
SIGN NAME

910606.1138

1

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: 12-12-36

TIME: 1:30 pm

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	☒	☐	☐
2. STRUCTURES			
A. CEMENT PAD	☒	☐	☐
B. CURBING	☒	☐	☐
C. ROOF/WALLS	☒	☐	☐
D. SIGNS	☒	☐	☐
3. CONTAINER CONDITION			
A. CLOSED	☒	☐	☐
B. STRUCTURAL DEFECTS	☒	☐	☐
C. CORROSION	☒	☐	☐
D. LABELS REQUIRED	☒	☐	☐
E. EVIDENCE OF LEAKAGE	☒	☐	☐
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	☒	☐	☐
B. OVERPACK DRUMS	☒	☐	☐
C. EYEWASH	☒	☐	☐
D. FIRE EXTINGUISHER	☒	☐	☐
E. TWO-WAY RADIOS	☒	☐	☐
F. PROTECTIVE CLOTHING	☒	☐	☐
G. GLOVES	☒	☐	☐
H. RESPIRATORS/CARTRIDGES	☒	☐	☐
I. ESCAPE PACK	☒	☐	☐

5. COMMENTS

6. INSPECTOR SIGNATURE

Paul Siebenaler
PRINT NAME

Paul Siebenaler
SIGN NAME

2K8508-3.1

910606.1138

WEEKLY INSPECTION LOG
NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
2727-S BUILDING/200 WEST AREA

DATE: 12-22-86

TIME: 10 am

	STATUS		
	NO PROBLEMS NOTED	REQUIRED REMEDIAL ACTIONS/DATE	SEE COMMENTS
1. AREAS SUBJECT TO SPILLS			
A. LOADING/UNLOADING AREAS	☑	☐	☐
2. STRUCTURES			
A. CEMENT PAD	☑	☐	☐
B. CURBING	☑	☐	☐
C. ROOF/WALLS	☐	☐	☐
D. SIGNS	☑	☐	☐
3. CONTAINER CONDITION			
A. CLOSED	☑	☐	☐
B. STRUCTURAL DEFECTS	☑	☐	☐
C. CORROSION	☑	☐	☐
D. LABELS REQUIRED	☑	☐	☐
E. EVIDENCE OF LEAKAGE	☑	☐	☐
4. SAFETY/EMERGENCY EQUIPMENT			
A. ABSORBENTS	☑	☐	☐
B. OVERPACK DRUMS	☑	☐	☐
C. EYEWASH	☑	☐	☐
D. FIRE EXTINGUISHER	☑	☐	☐
E. TWO-WAY RADIOS	☑	☐	☐
F. PROTECTIVE CLOTHING	☑	☐	☐
G. GLOVES	☑	☐	☐
H. RESPIRATORS/CARTRIDGES	☑	☐	☐
I. ESCAPE PACK	☑	☐	☐

5. COMMENTS 2727-S building contents (drums, boxes, cans, etc) are being readied for offsite shipment. Some progress is being made to prepare building for closure.

6. INSPECTOR SIGNATURE

M B WILMSLEY
PRINT NAME

M B Wilmsley 12-22-86
SIGN NAME

2K8508-3.1

910606.1138

APPENDIX D

PART A PERMIT APPLICATION

9412293.2269

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FORM 3

DANGEROUS WASTE PERMIT APPLICATION

I. EPA/STATE I.D. NUMBER: W A 7 8 9 0 0 0 8 9 6 7

OFFICIAL USE ONLY

APPLICATION RECEIVED	DATE RECEIVED (mo., day, & yr.)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA/STATE I.D. Number, or if this is a revised application, enter your facility's EPA/STATE I.D. Number in Section I above.

A. FIRST APPLICATION (*place an "X" below and provide the appropriate dates*)

☐ 1. EXISTING FACILITY (*See instructions for definition of "existing" facility. Complete item below.*)

MO. 0 3 | DAY | YR. 8 3 — FOR EXISTING FACILITIES, PROVIDE THE DATE (*mo., day, & yr.*) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED (*see the dates in the left*)

☐ 2. NEW FACILITY (*Complete item below.*)

MO. | DAY | YR. — FOR NEW FACILITIES, PROVIDE THE DATE (*mo., day, & yr.*) OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION (*place an "X" below and complete Section I above*)

☒ 1. FACILITY HAS AN INTERIM STATUS PERMIT

☐ 2. FACILITY HAS A FINAL PERMIT

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Two lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process (*including its design capacity*) in the space provided on the (*Section III-C*).

B. PROCESS DESIGN CAPACITY — For each code entered in column A enter the capacity of the process.
1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER (barrel, drum, etc.)	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D80	GALLONS OR LITERS
LANDFILL	D81	ACRE-FEET (the volume that would cover one acre to a depth of one foot) OR HECTARE-METER
LAND APPLICATION	D82	ACRES OR HECTARES
OCEAN DISPOSAL	D83	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D84	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER (Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Section III-C.)	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECTARES	Q

EXAMPLE FOR COMPLETING SECTION III (*shown in line numbers X-1 and X-2 below*): *A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.*

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (capacity)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G	
X-2	T 0 3	20	E	
	S 0 1	27,000	G	
2				
3				
4				
5				
6				
7				
8				
9				
10				

Continued from the front.

III. PROCESSES (continued)

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESS (code "T04"). FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

S01

The 2727-S NRDWS is located in the southeast portion of the 200 West Area and provides container storage for nonradioactive dangerous wastes generated in the research and development laboratories, process operations, and maintenance and transportation function throughout the Hanford Site.

IV. DESCRIPTION OF DANGEROUS WASTES

A. **DANGEROUS WASTE NUMBER** — Enter the four digit number from Chapter 173-303 WAC for each listed dangerous waste you will handle. If you handle dangerous wastes which are not listed in Chapter 173-303 WAC, enter the four digit number(s) that describes the characteristics and/or the toxic contaminants of those dangerous wastes.

B. **ESTIMATED ANNUAL QUANTITY** — For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non—listed waste(s) that will be handled which possess that characteristic or contaminant.

C. **UNIT OF MEASURE** — For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1. PROCESS CODES:

For listed dangerous waste: For each listed dangerous waste entered in column A select the code(s) from the list of process codes contained in Section III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non—listed dangerous wastes: For each characteristic or toxic contaminant entered in Column A, select the code(s) from the list of process codes contained in Section III to indicate all the processes that will be used to store, treat, and/or dispose of all the non—listed dangerous wastes that possess that characteristic or toxic contaminant.

Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: DANGEROUS WASTES DESCRIBED BY MORE THAN ONE DANGEROUS WASTE NUMBER — Dangerous wastes that can be described by more than one Waste Number shall be described on the form as follows:

1. Select one of the Dangerous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other Dangerous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other Dangerous Waste Number that can be used to describe the dangerous waste.

EXAMPLE FOR COMPLETING SECTION IV (shown in line numbers X-1, X-2, X-3, and X-4 below) — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non—listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002			T03 D80	included with above

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I.D. NUMBER (enter from page 1): WA7890008967

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	D001	15,000	K	S01	Storage
2	D002	18,000			
3	D004	100			
4	D005	15,000			
5	D006	500			
6	D007	5,000			
7	D008	100			
8	D009	1,500			
9	D010	500			
10	D011	100			
11	WT01	12,000			
12	WT02	35,000			
13	WT02	22,000			
14	WP01	10,000			
15	WP02	3,000			
16	WC01	8,000			
17	WC02	3,000			
18	F001	500			
19	F002	500			
20	F003	500			
21	F004	50			
22	F005	500			
23	D003	200			
24	WP03	3,000			
25	F027	50			
26					

Continued from page 2.

NOTE Photocopy this page before completing if you have more than 26 wastes to list.

I.D. NUMBER (enter from page 1)

WA7890008967

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE	A. DANGEROUS WASTE NO. (enter codes)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	U001	50	K	S01	Storage
2	U003				
3	U006				
4	U007				
5	U008				
6	U009				
7	U010				
8	U012				
9	U015				
10	U017				
11	U018				
12	U019				
13	U020				
14	U021				
15	U022				
16	U023				
17	U024				
18	U025				
19	U026				
20	U027				
21	U029				
22	U030				
23	U032				
24	U033				
25	U034				
26	U035				

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I.D. NUMBER (enter from page 1): WA789000896 7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE	A. DANGEROUS WASTE NO. (enter codes)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	U036	50	K	S01	Storage
2	U037				
3	U038				
4	U039				
5	U041				
6	U042				
7	U043				
8	U044				
9	U045				
10	U046				
11	U047				
12	U048				
13	U049				
14	U050				
15	U051				
16	U052				
17	U053				
18	U055				
19	U056				
20	U057				
21	U058				
22	U060				
23	U061				
24	U062				
25	U063				
26	U064				

9112993.2275

Continued from page 2.
NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I.D. NUMBER (enter from page 1): WA789000896 7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE #	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	U066	50	K	S01	Storage
2	U067				
3	U068				
4	U070				
5	U071				
6	U072				
7	U073				
8	U074				
9	U075				
10	U076				
11	U077				
12	U078				
13	U079				
14	U080				
15	U081				
16	U082				
17	U083				
18	U084				
19	U085				
20	U087				
21	U092				
22	U093				
23	U094				
24	U095				
25	U096				
26	U097				

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I.D. NUMBER (enter from page 1)

WA7890008967

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	U099	50	K	S01	Storage
2	U103				
3	U105				
4	U106				
5	U109				
6	U110				
7	U111				
8	U114				
9	U115				
10	U121				
11	U122				
12	U125				
13	U126				
14	U127				
15	U128				
16	U129				
17	U130				
18	U131				
19	U132				
20	U133				
21	U135				
22	U138				
23	U142				
24	U143				
25	U144				
26	U147				

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I.D. NUMBER (enter from page 1)

WA7890008967

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	U190	50	K	S01	Storage
2	U191				
3	U194				
4	U196				
5	U197				
6	U201				
7	U207				
8	U208				
9	U209				
10	U210				
11	U211				
12	U212				
13	U219				
14	U220				
15	U223				
16	U225				
17	U226				
18	U227				
19	U228				
20	U230				
21	U231				
22	U232				
23	U233				
24	U235				
25	U236				
26	U237				

Continued from page 2.
NOTE: Photocopy this page before completing if you have more than 26 wastes (D - 1)

I.D. NUMBER (enter from page 1)

WA789000896 7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	U149	50	K	S01	Storage
2	U151				
3	U152				
4	U153				
5	U156				
6	U157				
7	U158				
8	U160				
9	U163				
10	U165				
11	U166				
12	U167				
13	U168				
14	U169				
15	U170				
16	U171				
17	U174				
18	U176				
19	U177				
20	U178				
21	U179				
22	U183				
23	U184				
24	U185				
25	U188				
26	U189				

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NOTE Photocopy this page before completing if you have more than 26 wastes to list.

I.D. NUMBER (enter from page 1)

WA789000896 7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	U239	50	K	S01	Storage
2	U240				
3	U242				
4	U243				
5	U245				
6	U246				
7	U247				
8	U002				
9	U004				
10	U031				
11	U123				
12	U134				
13	U154				
14	U159				
15	U161				
16	U162				
17	U216				
18	U218				
19	U238				
20					
21					
22					
23					
24					
25					
26					

9412 1 7 0 9 2 2 6 5 7 2 2 0

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NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

ID. NUMBER (enter from page 1)
WA789000896 7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. (enter above)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	P001	50.	K	S01	Storage
2	P002				
3	P003				
4	P004				
5	P005				
6	P007				
7	P008				
8	P009				
9	P010				
10	P011				
11	P012				
12	P013				
13	P014				
14	P015				
15	P016				
16	P017				
17	P018				
18	P020				
19	P021				
20	P022				
21	P023				
22	P024				
23	P025				
24	P026				
25	P027				
26	P028				

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NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I.D. NUMBER (enter from page 1): WA7890008967

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	P029	50	K	S01	Storage
2	P030				
3	P031				
4	P033				
5	P034				
6	P035				
7	P036				
8	P037				
9	P038				
10	P039				
11	P040				
12	P041				
13	P042				
14	P043				
15	P044				
16	P045				
17	P046				
18	P047				
19	P048				
20	P049				
21	P050				
22	P051				
23	P054				
24	P056				
25	P057				
26	P058				

Continued from page 2.
NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

ID. NUMBER (enter from page 1)

WA789000897

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	P059	50.	K	S01	Storage
2	P060				
3	P062				
4	P063				
5	P064				
6	P065				
7	P066				
8	P067				
9	P068				
10	P069				
11	P070				
12	P071				
13	P072				
14	P073				
15	P074				
16	P075				
17	P076				
18	P077				
19	P078				
20	P079				
21	P081				
22	P082				
23	P084				
24	P085				
25	P087				
26	P088				

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NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I.D. NUMBER (enter from page 1): WA7890008967

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. (enter codes)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	P089	50	K	S01	Storage
2	P092				
3	P093				
4	P094				
5	P095				
6	P096				
7	P097				
8	P098				
9	P099				
10	P101				
11	P102				
12	P103				
13	P104				
14	P105				
15	P106				
16	P107				
17	P108				
18	P109				
19	P110				
20	P111				
21	P112				
22	P113				
23	P114				
24	P115				
25	P116				
26	P118				

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NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I.D. NUMBER (enter from page 1)

WA789000897

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	P119	50	K	S01	Storage
2	P120				
3	P121				
4	P122				
5	P123				
6					
7					
8					
9					
10					
11					
12					
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NOTE: *Photocopy this page before completing if you have more than 26 wastes to list.*

I.D. NUMBER (enter from page 1): WA789000896 7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	U002	50	K	S01	Storage
2	U004				
3	U005				
4	U011				
5	U014				
6	U016				
7	U028				
8	U031				
9	U059				
10	U069				
11	U086				
12	U087				
13	U088				
14	U089				
15	U090				
16	U091				
17	U098				
18	U101				
19	U102				
20	U107				
21	U108				
22	U112				
23	U113				
24	U116				
25	U117				
26	U118				

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

ID. NUMBER (enter from page 1)

WA789000897

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	U119	50	K	S01	Storage
2	U120				
3	U123				
4	U124				
5	U134				
6	U136				
7	U137				
8	U139				
9	U140				
10	U141				
11	U145				
12	U146				
13	U148				
14	U150				
15	U154				
16	U155				
17	U159				
18	U161				
19	U162				
20	U164				
21	U172				
22	U173				
23	U180				
24	U181				
25	U182				
26	U186				

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IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

E USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM SECTION D(1) ON PAGE 3.

S01

The 2727-S Storage Facility was used for the storage of dangerous wastes generated on the Hanford Site. These wastes consisted of listed wastes, wastes from non-specific sources, characteristic wastes, andstate-only wastes.

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail)*.

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment, and disposal areas, and areas of future storage, treatment or disposal areas *(see instructions for more detail)*

VII. FACILITY GEOGRAPHIC LOCATION *This information appears on the attached drawing and photog

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*

VIII. FACILITY OWNER

[X] A If the facility owner is also the facility operator as listed in Section VII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B If the facility owner is not the facility operator as listed in Section VII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

NAME *(print or type)*	SIGNATURE	DATE SIGNED
Michael J. Lawrence Manager, Richland Operations United States Department of Energy	Michael J. Lawrence	November 16, 1987

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

NAME *(print or type)*	SIGNATURE	DATE SIGNED
SEE ATTACHMENT		

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

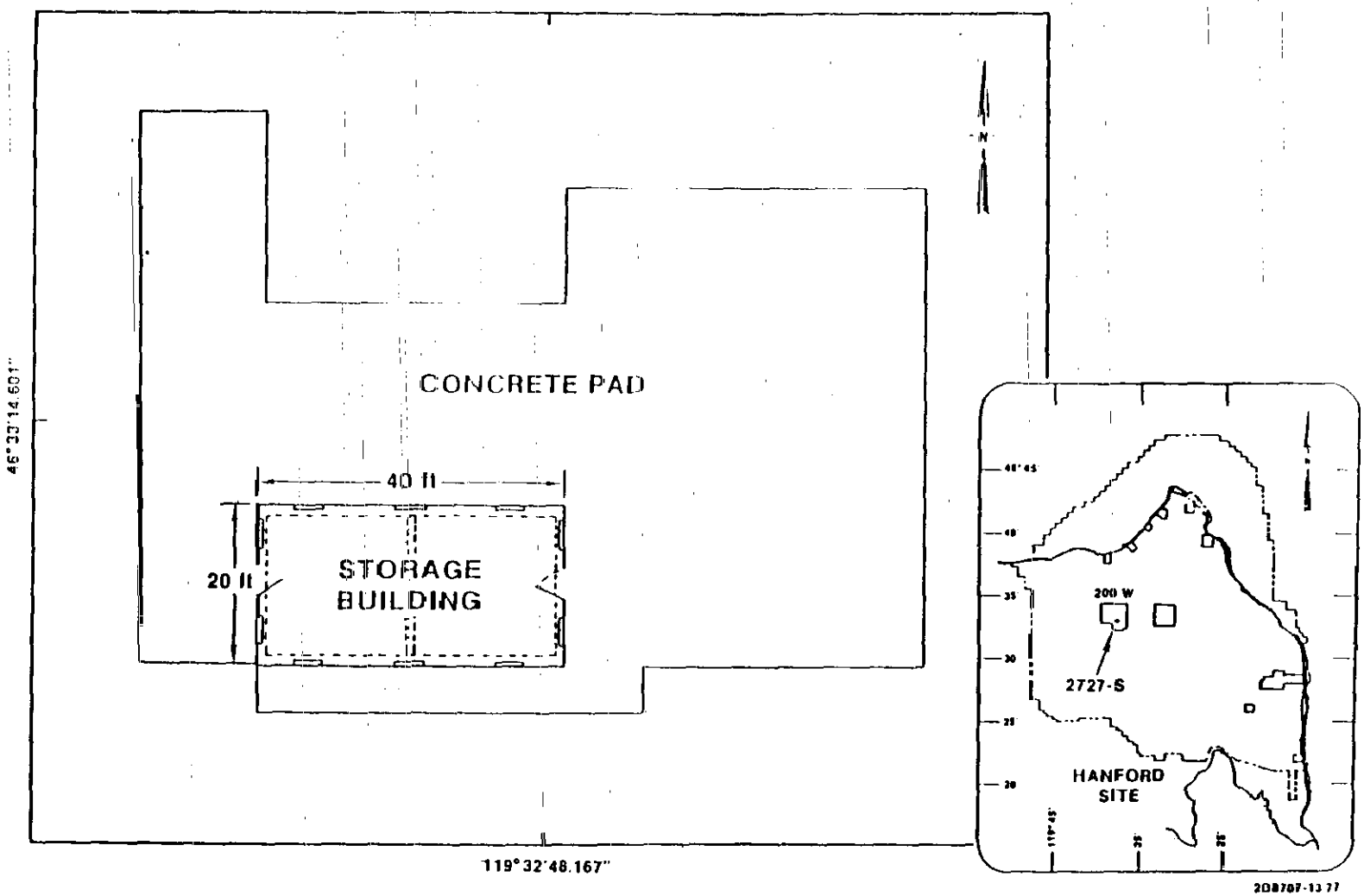
Michael J. Lawrence — 11-16-87
Michael J. Lawrence
Manager, Richland Operations
United States Department of Energy
Date

W. M. Jacobi — 11/16/87
William M. Jacobi
President
Westinghouse Hanford Company
Date

9413293.2289

2727-S NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY

SITE PLAN



NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY 2727-S/200-W AREA

46°33'14.601"
119°32'48.167"

8503045-E27CN

(PHOTO TAKEN 1985)

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APPENDIX E

2727-S NRDWS FACILITY WASTE INVENTORY

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APPENDIX E

2727-S NRDWS FACILITY WASTE INVENTORY

Offsite Shipping Manifest for 1986. (This is the only time period during which these manifests are available.) . . . . . APP E-1

Additional Waste Information for Materials Transported to an Approved Hanford Site Treatment, Storage, and Disposal Facility . . . . . APP E-54

9413293.2294

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WA/B9000089671

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Source Code	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Method Code	K. For TSD Facility Use Only
1	16198	07 21 86		L	O	Toxic, carcinogenic, persistent solution of methylene chloride, trichloroethylene and methyl methacrylate from plant operations	F001 WP01	WT01 WC01	ENW	19	A	
2	16198	07 21 86		S	I	Toxic potassium fluoride from laboratory	WT02		DW	8	A	
3	16198	07 21 86		L	I	Toxic metallic mercury from broken thermometers in laboratory	U151 WT01	D009	ENW	0.5	A	
4	16198	07 21 86		L	O	Trichloroethylene empty drums	U228 WP01	WT01 WC01	ENW	0	A	
5	16198	07 21 86		L	O	Persistent oil solution with 0.16% trichloroethane from automotive operation	F002	WP02	DW	45	A	
6	16198	07 21 86		L	O	Carcinogenic solution of mixed organics from plant operations	WC02		DW	220	A	
7	16198	07 21 86		L	O	Toxic ethylene glycol solutions from automotive operation	WT02		DW	880	A	
8	16198	07 21 86		L	O	Spent toxic, persistent carbon tetrachloride solution from plant operations	WP01 F001	WT01	ENW	736	A	
9	16198	07 21 86		L	O	Toxic ethylene glycol solutions from automotive operation	WT02		DW	1,200	A	
10	16198	07 21 86		L	O	Tetrachloroethylene from plant operations	U210 WC01	WT01 WP01	ENW	756	A	
11	16198	07 21 86		L	OI	Toxic triphenyl phosphate ester from plant operations	WT02		DW	238	A	
12	16198	07 21 86		L	I	Toxic solution of photographic waste with silver from photographic laboratory	D011	WT02	DW	213	A	
13	16198	07 21 86		S	I	Toxic absorbed metallic mercury from spill clean up in laboratory	WT01	D009	ENW	7	A	
14	16198	07 21 86		S	O	Carcinogenic, solidified polyvinyl alcohol from laboratory	WC01		ENW	20	A	
15	16198	07 21 86		S	I	EP toxic, dried paint residue with lead and chromium from paint operation	D007	D008	ENW	16	A	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 030-28 (Rev. 11/85) 280-864

9413293.2295

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA7890008967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD005836715 2

NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD005836715 2

NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. WICOD CODE	K. For TSD Facility Use Only
1	16,198	07-21-86		S	I	Toxic lead contaminated paper and rags from construction operation	D008	WT01	EHW	68	K	
2	16,204	07-25-86	L	L	O	Acetone from plant operations	U022 D001	WT02	DW	110	K	
3	16,204	07-25-86		L	O	Spent toxic, flammable acetone from plant operations	D001 WT02	F003	DW	344	K	
4	16,204	07-25-86		L	O	Flammable butyl acetate from laboratory	D001		DW	34	K	
5	16,204	07-25-86		L	O	Toxic, persistent, ignitable labpack of stoddard solvent, dimethyl formamide, ethylene glycol monomethyl ether, and pentachlorophenol mixed with oil from laboratory	D001 WT02	WP01	EHW	5.21	K	
6	16,204	07-25-86	L	L	O	Dioxane from laboratory	U108 WT02	WC02	DW	5	K	
7	16,204	07-25-86	L	L	O	Spent, toxic, persistent (halogenated hydrocarbon) mixed organics with small amount of chlorodane, silvex and 2,4-D from laboratory	F003 D001 D016 WT01 F001	F005 D014 D017 WP01	EHW	25	K	
8	16,204	07-25-86		L	O	Spent, toxic, persistent flammable mixed organic solution with acetone, methylene chloride, nitrobenzene from laboratory	D001 F001 WT01	F003 F004 WP01	EHW	57	K	
9	16,204	07-25-86		L	O	Flammable, toxic labpack of pyridine, xylene solutions, and a nitrobenzene and isoamyl alcohol solution from laboratory	D001 U196 WT01	F003 F004	EHW	17	K	
10	16,204	07-25-86		L	O	Flammable, toxic, carcinogenic, persistent labpack of mixed organics including methylene chloride, benzene and acetone from laboratory	D001 WP01 F003	WC01 F002 WT01	EHW	21	K	
11	16,204	07-25-86	L	L	O	Toxic, flammable labpack containing xylene and diethylamino-ethanol from laboratory	D001 U239	WT01	EHW	33	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM EC- 1 (10-86) 2WS 001

Form 4 P

9413293.2296

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA7890008967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD005836715 2
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD005836715 2
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173 303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Units of Measure	K. For TSD Facility Use Only
1	16204	07-25-86		L	O	Flammable, toxic, persistent, carcinogenic oil mixture with isopropanol, acetone, toluene, trichlorodifluoromethane, and aliphatic hydrocarbons from automotive operation	DD01 WP01 FD05 WT01	F003 F003 WC01	EHW	379	L	
2	16204	07-25-86	L	L	O	Toxic, persistent, flammable solution of acetone, methanol, toluene, methylene chloride, and methyl ethyl ketone from laboratory	FD01 FD05 WP01	F003 WT01 D001	EHW	29	L	
3	16204	07-25-86		L	I	Toxic, carcinogenic, corrosive, igniting agent solution of 50% chromic acid and 50% sulfuric acid from laboratory	WT01 DD07 DD01	WC01 D002	EHW	8	L	
4	16204	07-25-86		L	O	Toxic, flammable, persistent, carcinogenic solutions of mixed organics (dipicted organics include methanol, acetone, methylene chloride, toluene, butanol, trichloroethane and crude oil from laboratory	DD01 FD02 WC01 WT01	F003 F005 WP01	EHW	50	L	
5	16204	07-25-86		L	O	Toxic, polycyclic aromatic hydrocarbon, halogenated hydrocarbon, carcinogenic, flammable organic solution of acetone, methylene chloride, and coal tars from laboratory	DD01 FD01 WC02 WP01	F003 WT01 WP03	EHW	7.6	L	
6	16204	07-25-86	L	L	O	Toxic, persistent, carcinogenic, flammable solution of mixed organics including methanol, acetone, acetonitrile, methylene chloride, methyl isobutyl ketone, chloroform, 1,1,1-trichloroethane, carbon tetrachloride, and 1,1,2-trichlorotrifluoroethane from laboratory	FD02 FD05 WP01 DD01	F003 WT01 WC02	EHW	21	L	
7	16204	07-25-86		L	O	Toxic, persistent, carcinogenic, flammable solution of isooctane, acetonitrile, gasoline, and 1,1,1-trichlorotrifluoroethane from laboratory	FD02 WC02 WF01	D001 WP01	EHW	16	L	
8	16204	07-25-86	L	L	O	Toxic, persistent, flammable solution of 50% hexane, and 50% methylene chloride from laboratory	WP01 DD01	F002 WT02	EHW	28	L	
9	16204	07-25-86		L	O	Toxic, flammable solution of xylene, 2-ethoxyethanol, and surfactants from laboratory	DD01 FD03	WT01	EHW	4	L	

17. COMMENTS (Enter information by section and/or line number — see instructions).

FORM ECY 070-28 (Rev. 11/84) DW 064

9 2 1 7 9413294.2297

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WAD989000867

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Source	D. Physical State (S=Solid L=Liquid O=Sludge G=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Code	K. For TSD Facility Use Only
1	16206	07-25-86	L	L	O	Toxic, persistent, flammable organic solutions, labpacked components include acetone, methanol, pyridine, dichloromethane, and trichloroethane from laboratory	F003 D001 F002	WP01 WT01 F005	EHW	7.6	K	
2	16206	07-25-86	L	L	O	Toxic, carcinogenic, flammable labpack of xylene, and mixed organic solutions with the components hexane, heptane, butanol, methyl t-butyl ether, benzene, acetone, and cyclohexane from laboratory	U239 D001 WT01	F003 WC01	EHW	19.7	K	
3	16206	07-25-86		L	O	Toxic, carcinogenic solution of 90% ethylene glycol with methanol, and rhodamine B from laboratory	F003 WC01	WT02	EHW	40.5	K	
4	16206	07-25-86		L	O	Cyclohexanone from laboratory	U057 WT01	D001	EHW	30	K	
5	16206	07-25-86		G	OI	Toxic, flammable solution of methyl ethyl ketone, vinyl resin and red dye from laboratory	WT02 F005	D001	DW	7.6	K	
6	16206	07-25-86		L	O	Xylene from laboratory	U239 F003	WT01 D001	EHW	11	K	
7	16206	07-25-86		L	O	Toxic, persistent, carcinogenic flammable labpack of mixed organic solutions including acetonitrile, isooctane, chloroform, toluene, methanol, methyl isobutyl ketone, and trichlorotrifluoroethane from laboratory	WT01 WC01 F002 F005	WP01 D001 F003	EHW	13.2	K	
8	16206	07-25-86		L	OI	Toxic, carcinogenic, flammable, corrosive solution of phosphoric acid and isopropyl alochol from laboratory	D001 D002	WT02 WC02	DW	8	K	
9	16206	07-25-86	L	L	O	Toxic, persistent, carcinogenic, flammable solution of mixed organics and toxics including acetone, isooctane, methanol toluene, acetonitrile, chloroform, trichlorotrifluoroethane, methyl isobutyl ketone with endrin, lindane, methoxychlor, toxaphene, and 2,4,5-TP silvex from laboratory	F002 WT01 D001 D013 D015 WP01	F005 WC02 D012 D014 D017 F003	EHW	17	K	

17 COMMENTS (Enter information by section and/or line number—see instructions)

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WA7890008945

14 RECEIVING FACILITY (ISD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

18. LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Quantity	D. Physical State (S=Solid L=Liquid Sl=Sludge Gc=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Units (L=Lb. K=Kg. T=Tons)	K. For ISD Facility Use Only
1	16204	07 25 86	L	L	O	Toxic, persistent, carcinogenic, flammable solution of mixed organics and toxics including methylene, methanol, trichlorotrifluoroethane, acetonitrile, acetone chloride, toluene, methyl isobutyl ketone, acetone with endrin, lindane, methoxychlor, toxaphene, 2,4-SD, and 2,4,5-TP silvex from laboratory	WT01 WP01 F002 F005 D013 D015 D017	WC02 D001 F003 D012 D014 D016	EHW	27	K	
2	16204	07 25 86		S	I	Toxic dried paint sludge of inert resin and chromium from paint operation	D007	WT02	DW	136	K	
3	16204	07 25 86		LG	OI	Toxic, persistent, flammable mixed solvents including toluene, xylene, butanol, methyl ethyl ketone, methyl isobutyl ketone, chlorinated aromatics, aliphatics, and substituted benzenes with resin sludge from paint operation	F003 WT01 D001	F005 WP01 WC01	EHW	136	K	
4	16204	07 25 86		LG	OI	Toxic, flammable mixed solvents including methyl ethyl ketone, methyl isobutyl ketone and aliphatics with resin sludge and chromium from paint operation	F003 F005 D007	WT01 D001	EHW	137	K	
5	16204	07 25 86		LG	OI	Toxic, flammable, persistent mixed solvents including methylene chloride, toluene, xylene, methanol, naphthalene, substituted benzenes, aliphatics, and chlorinated aromatics with resin sludge from paint operation	F002 F005 WP01	F003 D001 WT02	EHW	137	K	
6	16204	07 25 86		LG	OI	Toxic, persistent, flammable mixed solvents including acetone, benzene, toluene, xylene, and aliphatics with resin sludge from paint operation	F003 F005 D001	WT02 WP01 WC01	EHW	137	K	
7	16204	07 25 86		G	OI	Toxic, flammable organic solvents including xylene, toluene, and aliphatics with resin sludge, chromium, and lead from paint operation	D007 F005 WT01	F003 D001 D008	EHW	136	K	
8	16204	07 25 86		LG	OI	Toxic, flammable organic solvents including acetone, methyl ethyl ketone, methyl isobutyl ketone, toluene, xylene, substituted benzenes, and aliphatics with resin sludge and chromium from paint operation	F003 D001 WT01	F005 D007 WC01	EHW	270	K	
9	16204	07 25 86	L	S	I	Carcinogenic hydrated nickel from laboratory	WC01		EHW	312	K	
10	16204	07 25 86		L	O	Flammable, carcinogenic, toxic solution of formaldehyde and methanol from laboratory	D001 WC01	WT02 F003	EHW	11	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 030-36 (Rev. 11/86) 200-864

9 2 1 7 1 9413294-2299

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA7890009967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State (S=Solid, L=Liquid, G=Sludge, M=Compressed Gas)	E. Chemical Nature (O=Organic, I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Wt. Conversion Code	K. For TSD Facility Use Only
1	16204	07-25-86	L	S	O	toxic, carcinogenic, persistent mixture of brominated polyester resin and styrene from construction operation	WP01 WC01	WT01	ENW	276	K	
2	16204	07-25-86	L	L	O	flammable hexane from laboratory	D001		DW	38	K	
3	16204	07-25-86		L	O	flammable naphtha from construction operation	D001		DW	1,137	K	
4	16204	07-25-86	L	L	O	flammable paint thinner (mineral spirits) from paint operation	D001		DW	40	K	
5	16204	07-25-86		LG	OI	flammable, toxic, persistent, carcinogenic mixture of latex and enamel paints, epoxy resin, and adhesives which includes mixed organics, chromium and lead pigments from paint operation	D001 F001 WT01 WC01 D008	F003 F005 WP02 D007	ENW	114	K	
6	16204	07-25-86	L	LG	OI	flammable, toxic, persistent, carcinogenic mixture of latex and enamel paints, epoxy resin, and adhesives which includes mixed organics, chromium and lead pigments from paint operation	F002 F005 WT01 WC01 D008	F003 D001 WP02 D007	ENW	1,037	K	
7	16204	07-25-86		LG	OI	flammable, toxic, persistent, carcinogenic mixture of latex and enamel paints, epoxy resin, and adhesives which includes mixed organics, chromium and lead pigments from paint operation	F002 F005 WT01 WC01 D008	F003 D001 WP02 D007	ENW	1,360	K	
8	16204	07-25-86		LG	OI	toxic, carcinogenic, persistent, flammable labpack of enamel latex paints, adhesives, and thinners which includes mixed organics, chlorinated resins, and lead from paint operation	F003 WT01 D001 WP02	F005 WC02 D008	ENW	198	K	
9	16204	07-25-86	L	L	O	Toluene from laboratory	U220 WT01	D001	ENW	91	K	
10	16204	07-25-86		L	O	Toluene from laboratory	U220 WT01	D001	ENW	83	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 410-21 (7/86) 2000 084

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1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WA7890008967

14 RECEIVING FACILITY (TSD) NAME: Northwest Enviroservice, Inc. ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134
EPA/STATE ID NUMBER: WAD058367152

16 TRANSPORTER NAME: Northwest Enviroservice, Inc. ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134
EPA/STATE ID NUMBER: WAD058367152

18 LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Container	D. Physical State S=Solid L=Liquid G=Sludge C=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173 303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Units of Measure	K. For TSD Facility Use Only
1	16204	07 25 86		L	O	Toluene from laboratory	U220 WT01	D001	ENW	141	K	
2	16204	07 25 86	L	L	O	Toxic, flammable laboratory with acetone and toluene from laboratory	WT01 U220	D001 D002	ENW	46	K	
3	16204	07 25 86	L	L	O	Trichloroethylene from laboratory	U228 WP01	WT01	ENW	239	K	
3	16204	07 25 86		L	O	Butyl alcohol from laboratory	U031	D001	DW	14	K	
4	16204	07 25 86		L	O	Flammable carcinogenic solution of oil and surfactants from automotive operation	WC01	D001	ENW	100	K	
5	16204	07 25 86	L	L	O	Flammable, toxic solution of toluene, methyle ethyl ketone, and butanol from paint operation	F003 D001	F005 WT01	ENW	33	K	
6	16210	08 01 86		L	O	Toxic, persistent, combustible bromobenzene from laboratory	WP01 D001	WT02	ENW	27	K	
7	16210	08 01 86		L	O	Toxic, polycyclic aromatic hydrocarbon, carcinogenic solution of solvent refined coal and surfactants from laboratory	WT01 WP03	WC02	ENW	60	K	
8	16210	08 01 86		L	O	Toxic, polycyclic aromatic hydrocarbon, carcinogenic, persistent, solvent refined coal from laboratory	WT01 WP03	WC02	ENW	107	K	
9	16210	08 01 86		L	O	Toxic, polycyclic aromatic hydrocarbon, carcinogenic solvent refined coal from laboratory	WT01 WP03	WC02	ENW	214	K	
10	16210	08 01 86	L	L	O	Toxic, flammable solution of mixed organics, including toluene from construction operation	WT02 D001	F005	DW	45	K	
11	16210	08 01 86		L	O	Combustible, toxic solution of nonane and trimethyl benzene from paint operation	WT02	D001	DW	198	K	
12	16210	08 01 86		L	O	Toxic, persistent solution of biomass oils, methylene chloride, methylene hydroxide and water from laboratory	F002 WT01	WP01	ENW	211	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 030-26 (Rev. 11/86) 246-666

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1986 **Form 4** **GENERATOR ANNUAL DANGEROUS WASTE REPORT** **Form 4** 1986

13 YOUR EPA/STATE ID NUMBER: WAD089967

14 RECEIVING FACILITY (ISD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Code	K. For TSD Facility Use Only
1	16210	08-01-86		L	O	Combustible labpack of 1-hexanol and 2-ethoxy ethanol from laboratory	D001		DW	13	K	
2	16210	08-01-86		L	O	Toxic, carcinogenic, flammable labpack with containers of pyridine, 4-methyl-2-pentanone, pyrrolidine, propanol, xylene, and a solution of methanol and benzene from laboratory	WC01 D001 U239 U101	U161 U196 F003	EHW	338.6	K	
3	16210	08-01-86	L	L	IO	Toxic solution of sodium/potassium sulfite, hydroquinone, potassium hydroxide, sodium carbonate, potassium bromide, ethylenediamine, and methylamino sulfate from photographic laboratory	WT02		DW	160	K	
4	16210	08-01-86	L	L	O	Toxic, persistent solution of poly(dimethylamino)-ethylene and (dimethylamino) ethylene dichloride from plant operations	WT02	WP01	EHW	209	K	
5	16210	08-01-86		L	IO	Corrosive solution of potassium hydroxide, organophosphates, and sodium polymethacrylates from plant operations	D002		DW	627	K	
6	16210	08-01-86		L	O	Toxic, persistent empty drum that previously contained poly(dimethylamino) ethylene and (dimethylamino)-ethylene dichloride from plant operations	WT02	WP01	EHW	0	K	
7	16210	08-01-86		L	O	Toxic propylene glycol from automotive operation	WT02		DW	106	K	
8	16210	08-01-86		L	O	Toxic aryl phosphate ester from plant operations	WT01		EHW	53	K	
9	16210	08-01-86		L	I	Toxic tribuyil phosphate solution from plant operations	WT02		DW	53	K	
10	16210	08-01-86		L	O	Toxic ethylene glycol solution from automotive operation	WT02		DW	832	K	
11	16210	08-01-86		L	OI	Toxic, persistent solution of water with 10% mixed organics, including 1,1,1-trichloroethane and selenium from paint operation	F002 WT01	WP02 D010	EHW	220	K	
12	16210	08-01-86		L	IO	Toxic aqueous solution of potassium hydroxide, ethylenediaminetetraacetic acid, and organophosphates from plant operations	WT02		DW	53	K	
13	16210	08-01-86		L	OI	Carcinogenic, persistent, polycyclic aromatic hydrocarbon asphalt, water surfactants, and hydrochloric acid solution from laboratory	WP03	WC01	EHW	218	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WAY 3 0 0 0 0 0 3 9 6 7

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME/ADDRESS: Northwest Enviroservice, Inc.
1500 Airport Way South
Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME/ADDRESS: Northwest Enviroservice, Inc.
1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State S=Solid L=Liquid G=Sludge C=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Units	K. For TSD Facility Use Only
1	16210	08-01-86		L	O	Toxic, reactive, carcinogenic polyurethane of diisocyanates from construction operation	WT01 WC01	D003	EHW	431	A	
2	16210	08-01-86		L	I	Toxic tributyl phosphate solution from plant operations	WT02		DW	204	A	
3	16210	08-01-86		L	I	Toxic potassium chloride solution from laboratory	WC02		DW	8	A	
4	16210	08-01-86		L	O	Toxic ethylene glycol (50%) aqueous solution from automotive operation	WT02		DW	44	A	
5	16210	08-01-86		L	I	Toxic empty drum which previously contained aqueous sodium thiosulfate, sodium acetate, and silver from photographic laboratory	D011		EHW	0	A	
6	16210	08-01-86		L	O	Toxic ethylene glycol and oil solution from automotive operation	WT02		DW	727	A	
7	16210	08-01-86	L	L	O	Toxic, persistent carcinogenic solution of cesium chloride, water, chloroform, phenol, ether and ethidium bromide from laboratory	WP01 WC01	WT01	EHW	17	A	
8	16210	08-01-86		L	O	Persistent empty drum previously containing poly(dimethylamino)-ethylene and (dimethylamino) ethylene dichloride from plant operations	WP01		EHW	0	A	
9	16210	08-01-86	L	L	O	Toxic polyvinyl butyral from asbestos encapsulation process	WT02		DW	774	A	
10	16210	08-01-86	L	L	O	Toxic polyethylenetamine from plant operations	WT02		DW	250	A	
11	16210	08-01-86		S	I	Toxic zinc dust from paint operation	WT01		EHW	6	A	
12	16210	08-01-86	L	S	O	Toxic, persistent, carcinogenic mixture of brominated polyester resin and styrene from construction operation	WP01 WC01	WT01	EHW	276	A	
13	16210	08-01-86		L	O	Toxic solution of lubricating oils and greases from automotive operation	WT01		EHW	240	A	
14	16210	08-01-86		L	O	Toxic, flammable mixed solvents including methyl ethyl ketone, acetone and toluene from paint operation	F003 WT01	F005 D001	EHW	113	A	
15	16210	08-01-86	L	S	I	Toxic, persistent dried paint sludge containing chromium, lead, mercury, and vinyl chloride resin from paint operation	WT01 WP01 D009	D007 D008	EHW	75	A	

17. COMMENTS (Enter information by section and/or line number—see instructions).

1986 **Form 4** **GENERATOR ANNUAL DANGEROUS WASTE REPORT** **Form 4** 1986

13. YOUR EPA/STATE ID NUMBER: WA7890008967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State (S=Solid L=Liquid G=Sludge M=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Unit Code	K. For TSD Facility Use Only
1	16210	08-01-86	L	L	O	Phenol from laboratory	U188	WT01	EHW	2.4	K	
2	16210	08-01-86	L	L	O	Toxic, reactive acetone cyanohydrin from laboratory	WT01	D003	EHW	3.5	K	
3	16210	08-01-86		L	O	Toxic, persistent, carcinogenic solution of phenol, chloroform, and ethidium bromide from laboratory	WT01 WC01	WP01	EHW	4	K	
4	16210	08-01-86		L	OI	Toxic, persistent solution of beta-vinyl dichloro amine, sodium chloride, fluoride, and sulfate compounds from basin clean-up operation	WT01	WC01	EHW	36	K	
5	16210	08-01-86	L	L	O	Polycyclic aromatic hydrocarbon oil solution from automotive operation	WP03		EHW	900	K	
6	16210	08-01-86	L	S	OI	Toxic, carcinogenic mixture of tin and thiourea from laboratory	WT02	WC01	EHW	11	K	
7	16210	08-01-86	L	S	O	Thiourea from laboratory	U219 WC01	WT01	EHW	45	K	
8	16210	08-01-86		S	O	Toxic, carcinogenic, absorbed tetrachloroethyene solution from plant operation	U210 WT01	WC02	EHW	227	K	
9	16210	08-01-86	L	L	O	Trichloroethylene from plant operations	U228 WT01	WP01 WC01	EHW	75	K	
10	16210	08-01-86		L	O	1,1,1 trichloroethane - empty drum	U226 WT01	WP01	EHW	0	K	
11	16210	08-01-86		L	I	Toxic, persistent empty drum which previously contained a solution of sodium pentachlorophenate and potassium hydroxide from plant operations	WT01	WP02	EHW	0	K	
12	16210	08-01-86		L	I	Toxic, persistent empty drum which previously contained a solution of sodium pentachlorophenate and potassium hydroxide from plant operations	WT01	WP02	EHW	0	K	
13	16210	08-01-86	L	L	O	1,1,1 trichloroethane - empty drum	U226 WT01	WP01	EHW	0	K	
14	16210	08-01-86		L	I	Metallic mercury from laboratory	D009 U151	WT01	EHW	2.3	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

12 YOUR EPA/STATE ID NUMBER: WA7890008967

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State Use	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173 303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Units of Measure	K. For TSD Facility Use Only
1	16210	08 01 86		L	I	Toxic barium carbonate solution from laboratory	D005	WT02	DW	26.6	K	
2	16210	08 01 86		L	O	Toxic, persistent, carcinogenic labpack containing carbon tetrachloride and 1,1,1 trichloroethane	U211 WP01 U226	WC01 WT01	ENW	6.2	K	
3	16210	08 01 86		L	O	Toxic solution of oil with mixed organics which include methyl ethyl ketone, acetone, and toluene from automotive operation	WT01 F003	F005	ENW	17	K	
4	16325	11 24 86		L	OI	Toxic, carcinogenic, flammable solution of methyl ethyl ketone, hydrocarbons, methanol, paraffin, potassium silicate, potassium phosphate, ammonium hydroxide, isopropanol, and sodium chromate from paint operation	F003 F005 WC01	D007 WT01 D001	ENW	145	K	
5	16325	11 24 86		LG	OI	Toxic, persistent, flammable mixture of solvents including xylene, methyl ethyl ketone, mineral spirits, chlorooctane, and 3 bromoheptane with lead and chromium in resin sludge from paint operation	F005 D001 D008 F003	WP01 D007 WT01	ENW	525	K	
6	16325	11 24 86		L	O	Toxic, flammable methyl ethyl ketone (25%) aqueous solution from paint operation	F005 D001	WT02	DW	198.2	K	
7	16325	11 24 86		L	O	Toxic ethylene glycol (50%) aqueous solution from automotive operation	WT02		DW	800	K	
8	16310	11 07 86		L	OI	Toxic, carcinogenic, flammable paint mixture of epoxy resin, methyl isobutyl ketone, xylene, and lead chromate from paint operation	WT01 D001 D008	WC01 D007 F003	ENW	68	K	
9	16310	11 07 86		G	O	Toxic, carcinogenic, combustible solution of asbestos, xylene, and toluene from construction operation	WT02 WC01 F005	D001 F003	ENW	68	K	
10	16310	11 07 86		L	O	Toxic, carcinogenic, flammable solution of methyl isobutyl ketone, naphtha, xylene, toluene, isopropanol, ethylene glycol monoethyl ether, and diethylene triamine from construction operation	WT02 WC02 D001	F003 F005	DW	710	K	
11	16310	11 07 86		L	I	Toxic solution of manganese hydroxide and ammonium chloride from laboratory	WT02		DW	32	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA7 0 9 0 0 0 8 9 6 7

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP: 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP: 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Discrepancy	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Method Code	K. For TSD Facility Use Only
1	16310	11-07-86		L	I	Carcinogenic solution of ammonium chloride and ferric oxide from laboratory	U001		EHW	21	K	
2	16310	11-07-86		S	I	Toxic, corrosive soil contaminated with phosphoric acid and chromium from tank clean up operation	U102 D002	D007	EHW	2,432	K	
3	16310	11-07-86		L	I	Toxic, corrosive empty drums which previously contained aqueous phosphoric acid and chromium	U102 D002	D007	EHW	0	K	
4	16310	11-07-86		S	I	Toxic, corrosive mixture of insulation contamined with sodium hydroxide from construction operation	U101	D002	EHW	136	K	
5	16310	11-07-86		S	OI	Toxic, corrosive, carcinogenic mixture of asbestos contaminated with sodium hydroxide from construction operation	U101 U001	D002	EHW	136	K	
6	16216	08-08-86	L	L	O	Toxic, carcinogenic, polycyclic aromatic hydrocarbon solution of spent creosote from construction operation	U101 U003	U002	EHW	250	K	
7	16216	08-08-86		L	I	Toxic, corrosive ammonium hydroxide solution (21% aqueous) from blueprint machine	U101	D002	EHW	103	K	
8	16216	08-08-86		L	I	Hydrofluoric acid from laboratory	U134 U102	D002	DW	141	K	
9	16216	08-08-86		L	O	Toxic, flammable spent acetone from laboratory	U102 F003	D001	DW	7	K	
10	16216	08-08-86		S	I	Flammable sodium hydrosulfite from laboratory	D001		DW	0.3	K	
11	16216	08-08-86	L	L	O	Benzene from laboratory	D001 U019	U001 U101	EHW	1.36	K	
12	16216	08-08-86	L	L	OI	Toxic, flammable, corrosive solution of methanol, ethanol, and aqueous sulfuric acid from laboratory	F003 D001	U102 D002	DW	3.6	K	
13	16216	08-08-86	L	L	O	Flammable hexane from laboratory	D001		DW	1.25	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 070-... (1/86) 2ND ...

9413293.2306

1986 **Form 4** **GENERATOR ANNUAL DANGEROUS WASTE REPORT** **Form 4** 1986

13. YOUR EPA/STATE ID NUMBER: WA 9 0 0 0 0 8 9 6 7

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173 303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Unit of Measure	K. For TSD Facility Use Only
1	16216	08 08 86		L	OI	Toxic, flammable corrosive solution of butanol and aqueous perchloric acid from laboratory	WT02	D001	DW	4	k	
2	16216	08 08 86		L	O	Cyclohexane from laboratory	U056 WT01	D001	ENW	1.2	k	
3	16216	08 08 86		L	O	Propargyl alcohol from laboratory	WT01 P102	D001	ENW	6	k	
4	16216	08 08 86		L	O	Corrosive 2 methoxyethylamine from laboratory	D002		DW	7.6	k	
5	16216	08 08 86		L	O	Toluene from laboratory	U220 WT01	D001	ENW	1	k	
6	16216	08 08 86	L	L	OI	Flammable, toxic solution of ethanol and aqueous picric acid from laboratory	WT02	D002	DW	2.2	k	
7	16216	08 08 86		L	O	Toxic, flammable labpack of xylene and methanol from laboratory	U154 WT01	D001 U239	ENW	0.86	k	
8	16216	08 08 86		L	O	Acetone from laboratory	U002 WT02	D001	DW	0.76	k	
9	16216	08 08 86		L	O	Flammable butyl acetate from photographic laboratory	D001		DW	3.8	k	
10	16216	08 08 86		L	O	Flammable hexadone from laboratory	D001		DW	0.08	k	
11	16216	08 08 86		M	O	Persistent gas mixture of trichloromonofluoromethane and dichlorodifluoromethane from plant operations	WP01		ENW.	2.2	k	
12	16216	08 08 86		L	O	Toxic, flammable solution of oil and xylene from laboratory	WT02 D001	F003	DW	3.2	k	
13	16216	08 08 86	L	L	O	Toxic, flammable, corrosive labpack of isoamylalcohol, butanol, and morpholine from laboratory	WT02 D001	D002	DW	3.02	k	
14	16216	08 08 86	L	S	I	Toxic magnesium chloride from laboratory	WT02		DW	7	k	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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APP E-13

DOE/RL 88-37
Revision 3

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA789000896 7

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152

NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD058367152

NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation Dw or Ew	I. Amount of Waste	J. WEC TO GD HF T	K. For TSD Facility Use Only
1	16216	08-08-86		L	O	Xylene from laboratory	U239 WT01	D001	EHW	0.9	K	
2	16216	08-08-86		L	O	Toxic, flammable solution of methanol, methyl isobutyl ketone, and isooctane from laboratory	WT02 D001	F003	DW	1.3	K	
3	16216	08-08-86		L	O	Toxic, persistent, carcinogenic labpack containing methylene chloride and chloroform from laboratory	WT01 WC01 U044	WP01 U080	EHW	5.8	K	
4	16216	08-08-86		L	O	Methanol from laboratory	U154 D001	WT02	DW	2.7	K	
5	16216	08-08-86		L	I	Metallic mercury from laboratory	U151 D009	WT01	EHW	10	K	
6	16216	08-08-86	L	L	I	Flammable, reactive ammonium sulfide aqueous solution from laboratory	D001	D003	DW	3	K	
7	16216	08-08-86		L	O	Corrosive crotonaldehyde from laboratory	WT01 D001	U053 D002	EHW	4	K	
8	16216	08-08-86	L	L	O	Toxic, flammable labpack containing octanol and ethyl acetate from laboratory	D001 WT02	U112	DW	1.71	K	
9	16216	08-08-86		L	O	Methyl alcohol from laboratory	U154 WT02	D001	DW	0.9	K	
10	16216	08-08-86		S	I	Toxic sodium fluoride from laboratory	WT02		DW	10	K	
11	16216	08-08-86		L	O	Toxic, flammable methanol solution (50% aqueous) from laboratory	F003 D001	WT02	DW	4	K	
12	16216	08-08-86		L	O	Toxic, carcinogenic, flammable solution of benzene, pyridine, ethyl ether, and petroleum ether from laboratory	D001 F003 WC01	F005 WT01	EHW	3.8	K	
13	16216	08-08-86		S	I	Corrosive sodium aluminate from laboratory	D002		DW	6.8	K	

17. COMMENTS (Enter information by section and/or line number—see instructions)

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE I.D. NUMBER: WA7890009964

14. RECEIVING FACILITY (TSD) EPA/STATE I.D. NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE I.D. NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE DESIGNATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Quantity	D. Physical State (S=Solid L=Liquid G=Sludge M=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Units (LB, KG, TN)	K. For TSD Facility Use Only
1	16216	08-08-86		L	O	Toxic, corrosive, flammable, carcinogenic solution of potassium hydroxide, pyridine, toluene, pentane, benzene, petroleum ether, and diethyl ether from laboratory	F003 F005 D002	U001 D001 W101	EHW	1	L	
2	16216	08-08-86		L	O	Tetrachloroethylene from laboratory	U210 W101	U001	EHW	1.6	L	
3	16216	08-08-86		L	O	1,1,1-trichloroethane from laboratory	U226 W101	U001	EHW	0.25	L	
4	16216	08-08-86		S	I	Ignitable labpack containing cesium nitrate, sodium nitrate, potassium chlorate, and potassium permanganate from laboratory	D001		DW	5	L	
5	16216	08-08-86		S	I	Ignitable gadolinium nitrate from laboratory	D001		DW	0.5	L	
6	16216	08-08-86		L	O	Combustible butyl glycidyl ether solution from laboratory	D001		DW	4	L	
7	16216	08-08-86		L	O	Combustible, toxic labpack containing cumene and ethylaniline from laboratory	D001 W101	U055	EHW	1.25	L	
8	16216	08-08-86		L	O	Flammable, toxic organic solution of pyridine, methylene chloride, acetone, toluene and hexane from laboratory	F002 F003 W101	F005 D001	EHW	4	L	
9	16216	08-08-86		S	I	Toxic, carcinogenic potassium dichromate from laboratory	D007 W101	U001	EHW	2.7	L	
10	16216	08-08-86		L	O	Combustible labpack of 2-methoxyethyl acetate and tributylamine from laboratory	D001		DW	0.06	L	
11	16216	08-08-86		L	O	Combustible dimethyl formamide from laboratory	D001		DW	0.2	L	
12	16216	08-08-86		S	I	Ignitable potassium nitrate from laboratory	D001		DW	0.8	L	
13	16216	08-08-86		S	I	Toxic, carcinogenic labpack containing sodium dichromate and potassium dichromate from laboratory	W101 D007	U001	EHW	0.13	L	
14	16216	08-08-86		S	I	Toxic, corrosive sodium hydroxide from laboratory	D002	W101	EHW	0.5	L	

17. COMMENTS (Enter information by section and/or line number—see instructions).

9 2 1 7 9H/3293.2309

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA 0 0 0 0 0 1 9 6 7

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. TRANSPORTER EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Source	D. Physical State (S=Solid L=Liquid G=Sludge G=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation (DW or EHW)	I. Amount of Waste	J. Units of Measure	K. For TSD Facility Use Only
1	16216	08 08 86		S	O	Corrosive sulfamic acid from laboratory	D002		DW	0.002	K	
2	16216	08 08 86		S	I	Corrosive potassium pyrosulfate from laboratory	D002		DW	2	K	
3	16216	08 08 86		SL	I	Toxic, ignitable labpack containing hydrogen peroxide solution, sodium nitrite, aluminum nitrate, sodium nitrate, magnesium perchlorate, potassium nitrite, silver nitrate, lanthanum nitrate, and sodium nitrate solution from laboratory	WT01 D001	D011	EHW	5.45	K	
4	16216	08 08 86		L	OI	Combustible solution of tributyl phosphate and kerosene from laboratory	D001		DW	0.6	K	
5	16216	08 08 86		L	I	Ignitable, carcinogenic solution of hydrogen peroxide from laboratory	D001	WC02	DW	1.59	K	
6	16216	08 08 86	L	S	I	Ignitable, toxic ferric nitrate from laboratory	WT01	D001	EHW	1.58	K	
7	16216	08 08 86		S	I	Ignitable ammonium nitrate from laboratory	D001		DW	2.25	K	
8	16216	08 08 86		S	I	Toxic nickel chloride from laboratory	WT02		DW	4	K	
9	16216	08 08 86		L	I	Toxic, corrosive, reactive sodium sulfide solution from laboratory	D002 D003	WT02	DW	3	K	
10	16216	08 08 86		L	I	Corrosive, spent sulfuric acid solution from laboratory	D002		DW	1.3	K	
11	16216	08 08 86		S	I	Corrosive lithium hydroxide from laboratory	D002		DW	2.3	K	
12	16216	08 08 86		S	I	Toxic, corrosive barium hydroxide from laboratory	WT01 D002	D005	EHW	2.3	K	
13	16216	08 08 86		L	I	Toxic, corrosive, carcinogenic solution of sulfuric acid, nitric acid, and sodium bichromate from laboratory	D002 D007	WC01 WT01	EHW	0.5	K	
14	16216	08 08 86		S	O	Corrosive citric acid from laboratory	D002		DW	2.25	K	
15	16216	08 08 86	L	L	O	Combustible labpack containing decahydronaphthalene and ethylene glycol monomethyl ether from laboratory	D001		DW	0.35	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 070-30 (80) 2NB 0864

9413293.2310

1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WA7890009993

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

16 WASTE DENOMINATION

LINE	A Manifest Document Number	B Manifest Shipment Date (MM DD YY)	C. Reuse	D Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G Dangerous Waste Number (see instructions and WAC 173 303)		H Waste Designation DW or EHW	I. Amount of Waste	J Units (Gal or Lb)	K For TSD Facility Use Only
1	16216	08-08-86		L	O	Combustible, toxic persistent solution of pump oil and methylene chloride from laboratory	F002 WP01	D001 WT01	EHW	3.8	L	
2	16216	08-08-86		L	O	Combustible, toxic solution of nonane and trimethylbenzene from photographic laboratory	D001	WT02	DW	3.8	L	
3	16216	08-08-86		G	OI	Toxic, combustible mixture of petroleum distillates and metallic zinc from laboratory	WT01	D001	EHW	3	L	
4	16216	08-08-86		L	O	Toxic, combustible solution of butylcellosolve, butanol, pine oil, and petroleum oil from laboratory	D001	WT02	DW	4	L	
5	16216	08-08-86		L	I	Toxic, corrosive aqueous ammonium hydroxide from blueprint machine	WT01	D002	EHW	15.2	L	
6	16216	08-08-86		S	I	Ignitable potassium nitrate from laboratory	D001		DW	50	L	
7	16216	08-08-86		L	O	Combustible 2 ethoxy ethanol from laboratory	D001		DW	2	L	
8	16216	08-08-86		S	I	Ignitable labpack of sodium nitrate, potassium chlorate, and toxic, carcinogenic chromium oxide from laboratory	WC01 D007	D001 WT01	EHW	5.6	L	
9	16216	08-08-86		L	IO	Toxic, corrosive solution of aqueous phosphoric acid and diethyl-thiourea from laboratory	D002	WT02	DW	19.0	L	
10	16216	08-08-86		L	I	Corrosive solution of aqueous sulfuric and hydrofluoric acid from laboratory	D002		DW	3.8	L	
11	16216	08-08-86		L	IO	Corrosive solution of aqueous sulfuric acid with trace amounts cadmium sulfate, ferric chloride, methylene blue, and para-amino dimethyl aniline from laboratory	D002		DW	10	L	
12	16216	08-08-86		L	I	Corrosive, reactive sodium sulfide aqueous solution from laboratory	D002	D003	DW	5.65	L	
13	16216	08-08-86		L	I	Toxic, corrosive sodium hydroxide aqueous solution with lead from laboratory	D002 D008	WT02	DW	1	L	
14	16216	08-08-86		L	I	Toxic, corrosive aqueous chromic acid solution from laboratory	WT01 D002	D007	EHW	6	L	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 030-26 (Rev. 11-86) 2MU 864

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APP E-17

DOE/RL 88-37
Revision 3

9 2 1 7 9413293.2311

1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WAD989000867

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Envroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Envroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Method Code	K. For TSD Facility Use Only
1	16216	08-08-86		L	I	Reactive potassium ferrocyanide solution from laboratory	D003		DW	0.9	K	
2	16216	08-08-86		L	I	Corrosive surfuryl chloride aqueous solution from laboratory	D002		DW	2	K	
3	16216	08-08-86		L	O	Toxic, corrosive acetic anhydride from laboratory	WT01	D002	ENW	1	K	
4	16216	08-08-86		L	I	Toxic, corrosive potassium hydroxide aqueous solution from laboratory	WT01	D002	ENW	2.5	K	
5	16216	08-08-86		L	I	Toxic, corrosive zinc chloride aqueous solution from laboratory	WT01	D002	ENW	1	K	
6	16216	08-08-86		L	I	Toxic, corrosive sulfuric acid aqueous solution from laboratory	WT02	D002	DW	3	K	
7	16216	08-08-86		L	O	Toxic, persistent, corrosive trichloroacetic acid solution from laboratory	D002 WP01	WT02	ENW	0.1	K	
8	16216	08-08-86		L	O	Benzene from laboratory	U019 WT01	D001 WC01	ENW	3.5	K	
9	16216	08-08-86		L	I	Toxic, corrosive, carcinogenic solution of sulfuric acid, nitric acid and sodium bichromate from laboratory	D002 D007	WC01 WT01	ENW	0.5	K	
10	16216	08-08-86		L	I	Toxic, carcinogenic, corrosive solution of aqueous sulfuric acid and potassium dichromate from laboratory	WT02 WC01	D002	ENW	5	K	
11	16216	08-08-86		L	I	Toxic, corrosive aqueous sodium hydroxide solution from laboratory	WT02	D002	DW	3	K	
12	16216	08-08-86		L	I	Toxic, corrosive phosphorous trichloride solution from laboratory	D002	WT01	ENW	0.9	K	
13	16216	08-08-86		S	I	Corrosive, reactive phosphorous pentoxide from laboratory	D002	D003	DW	1.59	K	
14	16216	08-08-86		L	OI	Toxic, ignitable, corrosive solution of xylene and di-2-ethyl hexyl phosphoric acid from laboratory	F003 D001	D002 WT01	ENW	0.05	K	
15	16216	08-08-86		S	I	Toxic, corrosive sodium metasilicate from laboratory	WT02	D002	DW	3	K	
16	16216	08-08-86	L	S	I	Corrosive, reactive phosphorous pentoxide from laboratory	D002	D003	DW	7.2	K	
17	16216	08-08-86	L	L	I	Toxic, corrosive sodium metasilicate pentahydrate from laboratory	WT02	D002	DW	11.3	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 040 (88) 240-004

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APP E-18

DOE/RL 88-37
Revision 3

9413293.2312

1986 **Form 4** **GENERATOR ANNUAL DANGEROUS WASTE REPORT** **Form 4** 1986

13 YOUR EPA/STATE ID NUMBER: WA7 8 9 0 0 0 8 9 6 7

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16 WASTE REMEDIATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Stream	D. Physical State S=Solid L=Liquid Q=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173 303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Yes to Code H	K. For TSD Facility Use Only
1	16216	08 08 86	L	S	I	Corrosive, reactive, toxic potassium cyanide from laboratory	P098 D003	WT01 D002	EHW	0.2	X	
2	16216	08 08 86		L	I	Corrosive nickel sulfate aqueous solution with trace of boric acid from laboratory	D002		DW	6.7	X	
3	16216	08 08 86		L	I	Toxic, corrosive solution of aqueous sulfuric acid, aluminum sulfate, ammonium thiosulfate, boric acid, and sodium acetate from photographic laboratory	D002	WT02	DW	1	X	
4	16216	08 08 86		L	I	Corrosive aqueous solution trace amounts of picric and hydrochloric acids from laboratory	D002		DW	1.4	X	
5	16216	08 08 86		S	I	Toxic, corrosive titanium tetrachloride from laboratory	WT02	D002	DW	2.1	X	
6	16216	08 08 86		L	I	Toxic, corrosive aqueous solution with 1% nitric and 1% hydrofluoric acid from laboratory	WT02	D002	DW	2.8	X	
7	16216	08 08 86		S	01	Toxic, corrosive sludge containing ethanolamine and sodium hydroxide from laboratory	WT01	D002	EHW	1.95	X	
8	16216	08 08 86		S	10	Toxic, corrosive mixture of sodium hydroxide, sodium carbonate, and sodium hydroxyethylene diamine triacetate from laboratory	WT01	D002	EHW	1.35	X	
9	16216	08 08 86		L	I	Corrosive sodium hypochlorite aqueous solution from laboratory	D002		DW	5.4	X	
10	16216	08 08 86	L	L	I	Toxic, corrosive, aqueous solution of sodium difluoride and sodium nitrate from laboratory	D002	WT02	DW	1.45	X	
11	16216	08 08 86		S	O	Toxic, corrosive oxalic acid from laboratory	D002	WT01	EHW	2	X	
12	16216	08 08 86		S	O	Toxic, corrosive absorbed oxalic acid solution from laboratory	D002	WT01	EHW	2	X	
13	16216	08 08 86		L	10	Corrosive, carcinogenic aqueous solution of hydrochloric acid (5%) and formaldehyde (0.2%) from laboratory	WC02	D002	DW	4	X	
14	16216	08 08 86	L	L	I	Corrosive aqueous solution with 1% hydrochloric and 0.2% picric acids from laboratory	D002		DW	0.5	X	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 030-18 (Rev. 11/86) 340-044

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APP E-19

DOE/RL-88-37
Revision 3

9 2 1 7 9W3293.2313

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WAD000896 7

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP: 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WA1058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP: 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Quantity	D. Physical State (S=Solid L=Liquid G=Sludge M=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Method (Code No.)	K. For TSD Facility Use Only
1	16216	08-08-86	L	S	O	Corrosive absorbed citric acid solution from laboratory	D002		DW	2.25	K	
2	16216	08-08-86		L	O	Corrosive phosphoric acid bis-(2-ethylhexyl ester) from laboratory	D002		DW	0.45	K	
3	16216	08-08-86	L	S	I	Toxic, ignitable ferric nitrate from laboratory	D001	WT01	EHW	1.5	K	
4	16216	08-08-86		S	I	Corrosive lithium hydroxide from laboratory	D002		DW	1	K	
5	16216	08-08-86	L	L	O	Labpack of n-(aminothioxomethyl)-acetamide and hexachlorocyclohexane from laboratory	P002 WT01 U129	WP01 WC01	EHW	3.75	K	
6	16216	08-08-86		L	I	Toxic graphite and water solution with trace of ammonia from laboratory	WT02		DW	0.9	K	
7	16216	08-08-86		L	I	Toxic, reactive, aqueous solution of silicates, metal chlorides, mercury, arsenic, and mercuric thiocyanate from photographic laboratory	WT01 D009	D003	EHW	4.4	K	
8	16216	08-08-86		L	I	Carcinogenic aqueous solution with traces of sodium thiosulfate, potassium chloride, hydrochloric acid, beryllium sulfate, and thorium nitrate from laboratory	WC02		DW	5.4	K	
9	16216	08-08-86		L	I	Carcinogenic aqueous solution with traces of sodium thiosulfate, potassium chloride, hydrochloric acid, beryllium sulfate, and thorium nitrate from laboratory	WC02		DW	8	K	
10	16216	08-08-86		L	O	Toxic, carcinogenic, polycyclic aromatic hydrocarbon solution of coal tar distillates from laboratory	WT01 WC02	WP03	EHW	9	K	
11	16216	08-08-86	L	L	O	Persistent solution of poly(dimethylamino)-ethylene and (dimethylamino)-ethylene dichloride from plant operations	WP01		EHW	1	K	
12	16216	08-08-86		L	I	Toxic, corrosive sodium silicate solution from laboratory	WT02	D002	DW	0.4	K	
13	16216	08-08-86	L	S	I	Toxic, carcinogenic labpack containing beryllium sulfate and cupric sulfate from laboratory	WC01	WT01	EHW	3.5	K	
14	16216	08-08-86		L	I	Reactive, EP toxic lead sulfide aqueous solution from laboratory	D008	D003	EHW	10	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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Form 4 Page 12

APP E-20

DOE/RL 88-37
Revision 3

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WAD 9 0 0 0 0 4 9 6 7

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Source	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation D.W. or EHW.	I. Amount of Waste	J. Unit of Measure	K. For TSD Facility Use Only
1	16216	08 08 86		L	O	Toxic, persistent labpack containing a solution of carbon tetrachloride and dibutyl phosphonate, and a solution of tetrachloroethylene and tributyl phosphate from laboratory	F002	WP01	EHW	0.135	L	
2	16216	08 08 86		LS	O	Toxic, carcinogenic, labpack of trisodium phosphate and dimethoxybenidine from laboratory	WT02 U091	WC01	EHW	1.65	L	
3	16216	08 08 86		L	O	Toxic labpack containing persistent, carcinogenic solution of tributyl phosphate and carbon tetrachloride and a container of dinitrophenol from laboratory	WT01 WC01 P048	WP01 F001	EHW	8.85	L	
4	16216	08 08 86		S	I	Toxic copper sulfate from laboratory	WT01		EHW	5	L	
5	16216	08 08 86		L	I	Toxic, carcinogenic solution of aqueous potassium dichromate and trace sulfuric acid from laboratory	WC01	D007	EHW	2	L	
6	16216	08 08 86		L	I	Reactive potassium ferrocyanide from laboratory	D003		DW	1	L	
7	16216	08 08 86		L	O	Toxic, persistent solution of 1,1,1-trichloroethane and inert resin from laboratory	WT01 WP01	F001	EHW	0.5	L	
8	16216	08-08 86		L	O	Labpack containing toxic tributyl phosphate solution and containing persistent methylene chloride from laboratory	WT02	WP01	EHW	1.75	L	
9	16216	08-08 86		L	O	Toxic, persistent methane sulfonyl chloride from laboratory	WP01	WT01	EHW	1	L	
10	16216	08-08 86		L	O	Aniline from laboratory	U012 D001	WT01	EHW	2.5	L	
11	16216	08-08-86		L	I	Toxic, reactive solution of aqueous silicates, metal chlorides and mercuric thiocyanate from photographic laboratory	WT01 D009	D003	EHW	2.2	L	
12	16216	08 08 86		S	I	Toxic silver chloride from laboratory	D011		EHW	0.2	L	
13	16216	08-08-86	4	S	I	Toxic labpack containing magnesium chloride, silver citrate, chromium chloride, barium sulfate, and a carcinogenic alloy of bismuth, cadmium, tin, and lead from laboratory	WT01 D006 D011 D005	WC01 D008 D007	EHW	1.95	L	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WA 0 0 0 0 0 3 9 6 7

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk	D. Physical State (S=Solid L=Liquid G=Sludge C=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation (DW or EHW)	I. Amount of Waste	J. Was Code Used	K. For TSD Facility Use Only
1	16216	08 08 86		S	I	Labpack of toxic mercuric oxide and toxic, carcinogenic arsenic trioxide from laboratory	D009 P012 WT01	D004 WC01	EHW	1	X	
2	16216	08 08 86		S	I	Arsenic trioxide from laboratory	P012 WT01	D004 WC01	EHW	1.35	X	
3	16216	08 08 86		L	I	Toxic potassium mercuric iodide solution from laboratory	D009	WT01	EHW	1	X	
4	16216	08 08 86		S	I	Reactive potassium ferrocyanide from laboratory	D003		DW	0.45	X	
5	16216	08 08 86		S	I	Potassium cyanide from laboratory	P098	WT01	EHW	0.85	X	
6	16216	08 08 86		SL	I	Toxic, carcinogenic labpack containing barium chloride, chromic oxide, chromic acetate, lead acetate, nickel sulfate, and phenyl mercuric acetate from laboratory	WT01 D005 WC01 P092	D007 U144 D008 D009	EHW	3.72	X	
7	16216	08 08 86	L	S	I	Arsenic acid from laboratory	P010 WT01	D004	EHW	0.1	X	
8	16216	08 08 86	L	S	I	Toxic, reactive zinc dust from laboratory	WT01	D003	EHW	3.18	X	
9	16216	08 08 86	L	S	O	Toxic labpack containing 1-acetyl-2-thiourea and carcinogenic 1,3-diethyl-thiourea from laboratory	WT01 WC02	P002	EHW	1.55	X	
10	16216	08 08 86		L	I	Toxic tributyl phosphate solution from laboratory	WT02		DW	1	X	
11	16216	08 08 86	L	S	IO	Toxic mixture of 1% silver with rags, tubing and other clean up material from laboratory	WT01	D011	EHW	3.6	X	
12	16216	08 08 86		L	I	Toxic aqueous solution of lead nitrate from laboratory	WT01	D008	EHW	2	X	
13	16216	08 08 86		S	I	Toxic metallic lead from laboratory	WT01	D008	EHW	1.4	X	
14	16216	08 08 86		S	I	Toxic mixture of bismuth, lead, tin, and cadmium	WT01 D006	D008	EHW	0.5	X	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 070 (Rev. 2/86) 2NU 864

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

12 YOUR EPA/STATE ID NUMBER: WAD 989008967

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

16 WASTE INFORMATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Units (Kg or Lb)	K. For TSD Facility Use Only
1	16216	08 08 86		S	I	Toxic mixture of copper, zinc, and aluminum from laboratory	WT01		EHW	0.5	K	
2	16216	08 08 86		S	I	Vanadium pentoxide from laboratory	P120	WT01	EHW	0.5	K	
3	16216	08 08 86		L	O	Nitrobenzene from laboratory	U169 D001	WT01	EHW	3	K	
4	16216	08 08 86		S	I	Arsenic acid from laboratory	P010 D004	WC01 WT01	EHW	0.01	K	
5	16216	08 08 86		S	I	Arsenic trioxide from laboratory	P012 D004	WC01 WT01	EHW	0.05	K	
6	16216	08 08 86		S	I	Toxic, carcinogenic cadmium chloride from laboratory	WT01 WC01	D006	EHW	2.1	K	
7	16216	08 08 86		L	I	Toxic aqueous solution of 1% mercury and trace amounts of sulfuric, nitric, hydrochloric and phosphoric acid from laboratory	D009	WT01	EHW	2	K	
8	16216	08 08 86		S	O	Benzapyrene from laboratory	U022 UP03	WC01	EHW	0.003	K	
9	16216	08 08 86		S	I	Toxic rags used to absorb 1% of a solution of ammonium thiosulfate, sodium acetate, trace silver oxide and sulfuric acid from photographic laboratory	WT02		DW	7.5	K	
10	16216	08 08 86		L	OI	Toxic, reactive aqueous solution of silver, cyanide, and ethylenediamine from laboratory	D003 WT01	D011	EHW	1	K	
11	16216	08 08 86	L	S	I	Reactive potassium ferrocyanide from laboratory	D003		DW	1.5	K	
12	16216	08 08 86	L	L	I	Toxic aqueous solution with 80 ppm selenium from laboratory	WT02	D010	DW	2	K	
13	16216	08 08 86		S	I	Toxic fabpack containing sodium phosphate, dibasic and sodium phosphate, tribasic from laboratory	WT02		DW	0.5	K	
14	16216	08 08 86		S	I	EP toxic sodium arsenate from laboratory	D004		EHW	4	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE I.D. NUMBER: WA 0 9 0 0 0 1 9 6 7

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WA 0 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WA 0 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State (S=Solid L=Liquid G=Sludge M=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Method Code	K. For TSD Facility Use Only
1	16216	08-08-86		L	I	Hydrazine, 34-40% aqueous solution, from laboratory	U133 D002 WC01	D003 WT01	EHW	6	K	
2	16216	08-08-86		S	I	Toxic absorbed aqueous solution of sodium acetate and ammonium thiosulfate from photographic laboratory	WT02		DW	2.7	K	
3	16216	08-08-86	L	LS	I	Toxic, ignitable, corrosive solution of nitric acid, hydrochloric acid, and hydrofluoric acid with sodium nitrate, sodium sulfate, ferric nitrate, and aluminum nitrate precipitate from laboratory	WT01 D001	D002	EHW	1.83	K	
4	16216	08-08-86	L	L	I	Metallic mercury from laboratory	WT01 D009	U151	EHW	1	K	
5	16216	08-08-86	L	L	IO	Toxic, carcinogenic, corrosive solution of chromous chloride, zinc chloride and hydrochloric acid with trace of octanol from laboratory	WT01 D002	D007 WC02	EHW	1	K	
6	16216	08-08-86	L	L	I	Metallic mercury from laboratory	U1512 D009	WT01	EHW	1.8	K	
7	16353	12-23-86		L	O	Toxic, persistent, flammable mixed organics including methyl ethyl ketone, 1,1,1-trichloroethane, and mineral spirits from paint operation	WT01 WP02 F001	D001 F005	EHW	200	K	
8	16353	12-23-86		L	OI	Toxic, persistent, carcinogenic aqueous solution of methylene chloride, cresylic acid, and sodium bichromate from automotive operation	F001 F004 WC01	WP01 WT01 D007	EHW	112	K	
9	16353	12-23-86		L	I	Toxic, persistent, corrosive aqueous solution of chlorinated hydrocarbons, and cresylic acid from automotive operation	D002 F004	WT01 WP01	EHW	446	K	
10	16353	12-23-86		L	O	Methyl alcohol from automotive operation	U154 D001	WT02	DW	74	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 070-044 (11/86) 200 984

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1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA 9 0 0 0 0 9 6 7

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

18. WASTE MINIMIZATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Status	D. Physical State (S=Solid L=Liquid Sl=Sludge G=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation (DW or ENW)	I. Amount of Waste	J. Waste Code	K. For TSD Facility Use Only
1	16353	12 23 86		LG	OI	Toxic, carcinogenic flammable aqueous solution of methyl ethyl ketone, methanol, aliphatics hydrocarbons, isopropyl alcohol, sodium chromate, ammonium hydroxide paraffin wax and potassium silicate and phosphate from paint operation	F005 WC01 D007	WT01 D001 F003	ENW	145	1	
2	16353	12 23 86		L	OI	Toxic, persistent flammable aqueous solution of methyl ethyl ketone, mineral spirits 1,1,1 chloroactane, and 3 bromoheptane with 19.5 ppm chromium and 5 ppm lead from paint operation	F005 D001 D008	WP01 D007 WT01	ENW	175	1	
3	16353	12 23 86		L	OI	Toxic, flammable aqueous solution of mineral spirits, methyl ethyl ketone and chromium from paint operation	F005 D007	WT01 D001	ENW	175	1	
4	16353	12 23 86		L	OI	Toxic, flammable aqueous solution of mineral spirits, methyl ethyl ketone, xylene, chromium and lead from paint operation	F003 F005 D007	WT01 D001 D008	ENW	175	1	
5	16353	12 23 86		L	O	Toxic, flammable aqueous methyl ethyl ketone (25%) solution from paint operation	WT02	D001	DW	199	1	
6	16353	12 23 86		L	O	1,1,1 trichloroethane from plant operations	U226 WT01	WP01	ENW	70	1	
7	16353	12 23 86		L	OI	Toxic, carcinogenic aqueous solution of biphenyl a-glycinal ether, aromatic amine, and glass fiber from construction operation	WC01	WT02	ENW	69	1	
8	16353	12 23 86		L	O	Toxic, ignitable aqueous solution of biphenyl a-glycinal ether, phenol and aromatic hydrocarbons from construction operation	D001	WT02	DW	51	1	
9	16353	12 23 86		L	IO	Toxic, corrosive aqueous solution of alkali metasilicates and carbonates, sodium hydroxide, ethylene diamine tetraacetic acid, and surfactants from plant operations	D002	WT02	DW	195	1	
10	16353	12 23 86		L	O	Toxic, persistent, flammable solution of wood tar, xylene, acetone, and methylene chloride from laboratory	F002 F003 WT01	WP01 D001	ENW	7.6	1	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 030-76 (Rev. 11/86) 2SA 061

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA 0 0 0 0 0 8 9 6 7

14. RECEIVING FACILITY (ISD) EPA/STATE ID NUMBER: WAD058367152
NAME, ADDRESS: Northwest Enviroservice, Inc.
1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME, ADDRESS: Northwest Enviroservice, Inc.
1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State Use	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Code Code	K. For ISD Facility Use Only
1	16353	12-23-86		L	O	Toxic, persistent, carcinogenic, flammable solution of methylene chloride, acetone, benzene and hexane from laboratory	F002 F003 WT01	WC01 WP01 D001	ENW	7.6	K	
2	16353	12-23-86		L	O	Toxic, carcinogenic flammable solution of benzene and hexane from laboratory	WC01 WT01	D001	ENW	3.8	K	
3	16353	12-23-86		L	O	Toxic, carcinogenic, persistent, flammable solution of methylene chloride, acetonitrile, acetone, hexane, chloroform, ethanol, and benzene from laboratory	F002 WP01 WT01	F003 WC01 D001	ENW	3.8	K	
4	16353	12-23-86		L	O	Toxic, persistent, carcinogenic, flammable solution of methylene chloride, benzene and hexane from laboratory	F002 WP01 WT01	WC01 D001	ENW	3.8	K	
5	16353	12-23-86		L	O	Toxic, carcinogenic, persistent, flammable solution of methylene chloride, hexane, acetone, chloroform, and pentane from laboratory	F002 F003 D001	WP01 WC01 WT01	ENW	3.8	K	
6	16353	12-23-86		L	O	Toxic, persistent, carcinogenic, flammable solution of hexane, methyl t-butyl ether and chloroform from laboratory	WP01 WT01	WC01 D001	ENW	3.8	K	
7	16353	12-23-86		L	O	Toxic, persistent, carcinogenic, corrosive, flammable solution of acetic acid, acetone, acetonitrile, chloroform, hexane, benzene and methylene chloride from laboratory	WT01 WP01 F003 D002	WC01 F002 D001	ENW	8	K	
8	16353	12-23-86		L	O	1,1,1-trichloroethane from laboratory	U226 WT01	WP01	ENW	10	K	
9	16353	12-23-86		L	O	Toxic solution of water, methanol, and formaldehyde from laboratory	WT01	F003	ENW	15	K	
10	16353	12-23-86		L	O	Toxic, flammable solution of toluene from laboratory	F005 WT01	D001	ENW	4.5	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA7890008967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State (S=Solid L=Liquid O=Sludge M=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation (DW or EHW)	I. Amount of Waste	J. Units (G or K)	K. For TSD Facility Use Only
1	16353	12-23-86		L	O	Toxic, flammable, carcinogenic, persistent solution of mixed organics which includes methanol, tetrahydrofuran, diethyl ether, carbon tetrachloride, dioxane, acetone, chloroform, pyridine borane, isooctane, hexane, ethyl t butyl ether, toluene, benzene, ethanol, butanol, and methylene chloride from laboratory	F002 F005 WP01 D001	F003 WC01 WT01	EHW	9.9	K	
2	16353	12-23-86		L	O	Toxic, carcinogenic, ignitable aqueous solution of isopropanol, methanol and phenol from laboratory	F003 WT01	WC01 D001	EHW	5	K	
3	16353	12-23-86		L	O	Toxic solution of dihydroxy acetone, benzyl alcohol, methanol and isooctane from laboratory	F003	WT02	DW	0.9	K	
4	16353	12-23-86		L	O	Toxic, persistent, carcinogenic, reactive, flammable solution of isooctane, boron trifluoride, methanol, hexane diisocyanate, chloroform, methylene chloride, benzene, acetone, carbon disulfide, trichlorotrifluoroethane and acetonitrile from laboratory	F002 F003 WC01 WT01	F005 WP01 D001 D003	EHW	13	K	
5	16353	12-23-86		S	I	Toxic, solution of sulfuric and nitric acids, neutralized and absorbed with lead, mercury, silver, arsenic and cadmium from laboratory	D008 D004 D011	D009 D006 WT02	EHW	20	K	
6	16353	12-23-86		L	O	Cyclohexanone from laboratory	U057 D001	WT01	EHW	34	K	
7	16353	12-23-86		G	OI	Toxic, ignitable mixture of naphtha and silicone from construction operation	WT01	D001	EHW	40	K	
8	16353	12-23-86		L	O	Ignitable, toxic, carcinogenic solution of xylene, benzene, naphthalene and mixed aliphatic hydrocarbons from laboratory	F003 D001	WT01 WC01	EHW	250	K	
9	16353	12-23-86		L	O	Ignitable, toxic, persistent solution of trichloromonofluoromethane, cresols, and mixed aliphatic hydrocarbons from laboratory	D001 F004 WP01	F002 WT01	EHW	250	K	
10	16353	12-23-86		S	I	Toxic sodium tetraborate from laboratory	WT02		DW	48.8	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA7890008967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Quantities	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. WCD ADDITIVE	K. For TSD Facility Use Only
1	16353	12-23-86		S	I	Toxic, carcinogenic, reactive labpack containing cadmium, cadmium cyanide, cadmium oxide and zinc chloride from laboratory	WT01 WC01	D006 D003	EHW	23.1	K	
2	16353	12-23-86		LS	IO	Toxic labpack containing barium chloride and a carcinogenic formaldehyde solution from laboratory	WC01 WT01	F003 F005	EHW	3.74	K	
3	16353	12-23-86		L	I	Toxic aqueous sodium sulfite (95%) solution from laboratory	WT02		DW	8	K	
4	16353	12-23-86		L	I	Toxic, corrosive, carcinogenic solution of aqueous sulfuric and chromic acids from laboratory	D002 WC01	D007 WT01	EHW	33	K	
5	16353	12-23-86		L	I	Toxic, corrosive, aqueous hydrochloric acid (0.36%) solution from laboratory	WT02	D002	DW	1.8	K	
6	16353	12-23-86		L	I	Toxic, corrosive, aqueous phosphoric acid (80%) solution from laboratory	WT02	D002	DW	3.8	K	
7	16353	12-23-86		L	O	1,1,1-trichloroethane from plant operations	U226 WT01	WP01	EHW	38	K	
8	16353	12-23-86		S	I	Toxic, carcinogenic sodium chromate from laboratory	D007 WC01	WT01	EHW	26	K	
9	16353	12-23-86		S	I	Toxic, reactive mixture of aluminum oxide, calcium chloride, sulfur, and calcium sulfate from laboratory	WT02	D003	DW	7.93	K	
10	16353	12-23-86		S	O	Corrosive, toxic acetic anhydride from laboratory	WT01	D002	EHW	0.94	K	
11	16353	12-23-86		L	O	Toxic aqueous ethylene glycol (50%) solution from automotive operation	WT02		DW	800	K	
12	16353	12-23-86		L	I	Toxic, corrosive aqueous solution with trace amounts of potassium iodide, mercuric iodide and sodium hydroxide from plant operation	D002 WT02	D009	EHW	250	K	
13	16353	12-23-86		L	I	Reactive toxic, corrosive aqueous solution with trace amounts of mercuric sulfur cyanide, ferrous nitrate, and nitric acid from plant operations	WT02 D002	D009 D003	DW	250	K	
14	16353	12-23-86		L	IO	Corrosive aqueous solution with trace amounts of methanol, hydrochloric acid, and p-dimethylamino benzaldehyde from plant operations	F003	D002	DW	250	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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APP E-28

DOE/RL 88-37
Revision 3

9412293.2522

1986 **Form 4** **GENERATOR ANNUAL DANGEROUS WASTE REPORT** **Form 4** 1986

13. YOUR EPA/STATE ID NUMBER: WA7890008967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE MINIMIZATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Method Code	K. For TSD Facility Use Only
1	16353	12-23-86		L	I	Toxic, corrosive aqueous solution with trace amounts of barium chloride and sodium hydroxide from laboratory	D002 WT02	D005	DW	114	K	
2	16353	12-23-86		L	I0	Corrosive aqueous solution with trace amounts of sulfuric acid, potassium dichromate, acetone and diphenyl carbazide from laboratory	D002	D005	DW	15	K	
3	16353	12-23-86		L	I0	Toxic, corrosive aqueous solution of potassium hydroxide and surfactants from plant operation	WT01	D002	EHW	400	K	
4	16353	12-23-86		L	I0	Corrosive aqueous solution of ethylenediaminetetraacetic acid and sodium polymethacrylate from plant operations	D002		DW	200	K	
5	16353	12-23-86		L	I	Hydrazine aqueous (H_2O) solutions from plant operations	U133 WC01	WT01	EHW	100	K	
6	16353	12-23-86		L	I0	Toxic, carcinogenic, corrosive aqueous solution sodium hydroxide, sulfuric acid, hydrochloric acid, nitric acid, formaldehyde, selenium, mercury and beryllium from laboratory	WT01 D002 D009	WC02 D010	EHW	4	K	
7	16353	12-23-86	L	L	I	Toxic, corrosive sulfuric acid solution from automotive operation	WT02	D002	DW	15	K	
8	16353	12-23-86	L	L	I	Toxic sodium hypochlorite (5%) aqueous solution from laboratory	WT01		EHW	2	K	
9	16353	12-23-86		L	O	Toxic, corrosive, persistent solution of chloroform and phenol from laboratory	WT01 WP01	WC01	EHW	20	K	
10	16353	12-23-86	L	S	I	Sodium azide from laboratory	P105 D003	WT01	EHW	0.1	K	
11	16353	12-23-86		L	I	Toxic aqueous solution with aryl polyhydric alcohol and p-tertiaryoctylphenoxy polyethyl alcohol from photochemical laboratory	WT02		DW	0.23	K	
12	16353	12-23-86		S	I	Toxic ammonium chloride from laboratory	WT02		DW	0.45	K	
13	16353	12-23-86		L	O	Toxic, persistent, flammable solution of stoddard solvent, methyl benzene, propane, butane, methylene chloride, toluene and hydrocarbon solvent from paint operation	WT01 WP01	D001	EHW	20	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 020-20 (Rev. 11/86) 200 866

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1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA7890000967

14. RECEIVING FACILITY (ISD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 99134

15. TRANSPORTER EPA/STATE ID NUMBER: WA005836715 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk Waste	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Type Code	K. For ISD Facility Use Only
1	16353	12-23-86		L	10	Toxic aqueous solution of potassium hydroxide, hydroquinone, sodium/potassium carbonate, sodium/potassium sulfite and ethylenediamine from photographic laboratory	WT02		DW	127	K	
2	16353	12-23-86		S	I	Toxic, carcinogenic crushed fluorescent cadmium and mercury light bulbs from maintenance operation	D006 WC02	D009 WT02	EHW	91	K	
3	16353	12-23-86		G	I	Toxic, ignitable aqueous slurry of metal nitrates including lead nitrate, chromium nitrate and barium nitrate from laboratory	WT02 D005 D008	D001 D007	DW	200	K	
4	16353	12-23-86		G	I	Toxic, ignitable aqueous slurry of metal nitrates including barium nitrate, cadmium nitrate, chromium nitrate, selenium nitrate, and silver nitrate from laboratory	D001 D006 D010 WT01	D005 D007 D011	EHW	350	K	
5	16353	12-23-86		S	I	Toxic, ignitable aluminum nitrate from laboratory	D001	WT02	DW	182	K	
6	16353	12-23-86		S	I	Toxic, ignitable silver nitrate from laboratory	D001 D011	WT01	EHW	20	K	
7	16353	12-23-86		G	I	Toxic, ignitable slurry of metal nitrates including barium nitrate, chromium nitrate and lead nitrate from laboratory	WT01 D008	D005	EHW	210	K	
8	16353	12-23-86		L	I	Toxic, corrosive glacial hydrochloric acid from laboratory	D002	WT02	DW	0.9	K	
9	16353	12-23-86		L	I	Toxic, corrosive aqueous solution of hydrofluoric and nitric acids from laboratory	D002	WT01	EHW	0.5	K	
10	16353	12-23-86		L	O	Toxic aqueous solution with alkyl hydroxylamine and hydroquinone from plant operations	WT02		DW	200	K	
11	16353	12-23-86	L	L	10	Toxic, corrosive labpack containing glacial acetic acid and glacial hydrochloric acid from laboratory	D002	WT01	EHW	7	K	
12	16353	12-23-86		S	I	Ignitable potassium nitrate from laboratory	D001		DW	1.1	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WAY 1 9 0 0 0 8 9 6 7

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD 0 5 8 3 6 7 1 5 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State (S=Solid L=Liquid G=Sludge M=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173 303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Units (Lb. Kg. Gal. Ltr.)	K. For TSD Facility Use Only
1	26213	08 08 86		L	I	Hydrazine 30 34% aqueous empty drums	U133 D002	WT01 WC01	EHW	0	L	
2	26213	08 08 86		L	I	Hydrazine 30 34% aqueous empty drums	U133 D002	WT01 WC01	EHW	0	L	
3	26213	08 08 86		L	I	Hydrazine 30 34% aqueous empty drums	U133 D002	WT01 WC01	EHW	0	L	
4	26213	08 08 86		L	10	Toxic, carcinogenic solution of automotive oil and hydrazine from plant operations	WT01	WC01	EHW	180	L	
5	26213	08 08 86		L	I	Toxic, ignitable cadmium nitrate (98%) aqueous solution from plant operations	D001 D006	WT01	EHW	0	L	
6	26213	08 08 86		L	I	Toxic, ignitable cadmium nitrate (98%) aqueous solution from plant operations	D001 D006	WT01	EHW	0	L	
7	26213	08 08 86	L	L	O	Toxic, flammable, organic solution of methyl ethyl ketone, acetone, toluene, xylene and mineral spirits from paint operations	F003 F005	WT01 D001	EHW	230	L	
8	26213	08 08 86		L	01	Toxic, persistent organic solution of halogenated hydrocarbons and lead from paint operations	WP02 D008	WT01	EHW	150	L	
9	26213	08 08 86		L	10	Toxic, flammable solution of methyl ethyl ketone with lead and chromium pigments from paint operation	D001 D007 F005	WT01 D008	EHW	827	L	
10	16213	08 01 86		L	I	Corrosive, EP toxic aqueous nitric acid (2%) solution with selenium from laboratory	D002 WT02	D010	DW	20	L	
11	16213	08 01 86		L	I	Corrosive, EP toxic aqueous nitric acid (2%) solution with arsenic from laboratory	D004 WT02	D002	DW	20	L	
12	16213	08 01 86		L	I	Toxic, corrosive aqueous nitric acid (2%) solution with arsenic, lead, and selenium from laboratory	D008 D004 WT01	D010 D002	EHW	20	L	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 020-20 (Rev. 11/86) 2NW 064

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA9000162967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Quantity	D. Physical State S=Solid L=Liquid S=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Unit of Measure	K. For TSD Facility Use Only
1	16213	08-01-86		L	I	Toxic, corrosive aqueous sulfuric acid solution from laboratory	D002	WT02	DW	8.6	K	
2	16213	08-01-86		L	I	EP toxic, corrosive selenic acid solution from laboratory	D010	D002	EHW	1	K	
3	16213	08-01-86		L	I	Corrosive aqueous solution with 1% nitric and hydrofluoric acids from laboratory	D002		DW	2.8	K	
4	16213	08-01-86		L	I	Toxic, corrosive aqueous solution of potassium hydroxide, sodium polymethacrylate and organophosphonates from plant operations	D002	WT02	DW	280	K	
5	16213	08-01-86		L	I	Toxic, corrosive aqueous sodium hydroxide (30%) solution from laboratory	WT01	D002	EHW	209	K	
6	16213	08-01-96		L	I	Toxic, corrosive aqueous ammonium hydroxide (21%) solution from blueprint machine.	WT01	D002	EHW	33.25	K	
7	16213	08-01-86		L	O	Methylene chloride empty drums	U080 WP01	WP01	EHW	0	K	
8	16213	08-01-86		L	O	Toxic, ignitable solution of nonane and trimethylbenzene from paint operation	D001	WT02	DW	168	K	
9	16213	08-01-86		L	O	Toxic, flammable solution of aliphatic hydrocarbons with trimethylbenzene and tetramethylbenzene from paint operation	WT02	D001	DW	340	K	
10	16213	08-01-86		L	O	Labpack of xylene and pyridine from laboratory	U239 D001	U196 WT01	EHW	23.8	K	
11	16213	08-01-86		L	I	Toxic, corrosive, ignitable solution of metal nitrates with chromium from from laboratory	D001 D002	D007 WT02	DW	15.7	K	
12	16213	08-01-86		L	O	Persistent solution of oil in freon drums from automotive operation	WP01		EHW	200	K	
13	16213	08-01-86		L	OI	Toxic, carcinogenic solution of oil in hydrazine drums from automotive operation	WC01	WT01	EHW	848	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM RCV (7/86) 2nd use

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9413293.2326

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 — 1986

13. YOUR EPA/STATE ID NUMBER: WA7890008967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD005883671152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WAD005883671152
NAME: Northwest Enviroservice, Inc
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State (S=Solid L=Liquid G=Sludge M=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Code	K. For TSD Facility Use Only
1	16213	08 01 86		L	I	Toxic aqueous solution of n-alkyl dimethyl benzyl ammonium chloride, and bis(tri n butyltin) oxide from plant operations	WT02		DW	206	K	
2	16213	08 01 86	L	L	O	Toxic polyethylenemine from laboratory	WT02		DW	238	K	
3	16213	08 01 86		L	O1	Toxic, persistent aqueous solution of potassium hydroxide and sodium pentachlorophenate from plant operations	WP02 WT01	F027	EHW	0	K	
4	16213	08 01 86		L	10	Toxic aqueous solution of acetic acid, oxalic acid, sodium chloride, and sodium sulfate from laboratory	WT02		DW	227	K	
5	16213	08 01 86		S	O	Toxic, carcinogenic, persistent mixture of brominated polyester resin and styrene from construction operation	WT01 WC01	WP01	EHW	205	K	
6	16213	08 01 86		L	I	Hydrazine 30 35% aqueous empty drums	U133 D002	WT01 WC01	EHW	0	K	
7	16213	08 01 86		L	I	Hydrazine 30 34% aqueous solution from plant operations	U133 D002	WT01 WC01	EHW	270	K	
8	16213	08 01 86		L	I	Toxic, corrosive aqueous sulfuric acid solution from laboratory	WT02	D002	DW	33.3	K	
9	16213	08 01 86		L	I	Toxic, corrosive sodium hydroxide (50%) aqueous solution from plant operations	D002	WT02	DW	159	K	
10	16213	08 01 86		S	I	Toxic, corrosive, carcinogenic mixture of sodium hydroxide in hydrazine drum from plant operations	D002 WT01	WC01	EHW	110	K	
11	16213	08 01 86		L	O	Toxic, in solution of methyl ethyl ketone from laboratory	F005	WT02	DW	948	K	
12	16213	08 01 86		L	O	Ignitable, toxic, in solution of methyl ethyl ketone from laboratory	F003 WT02	D001	DW	149.7	K	
13	16213	08 01 86		L	I	Ignitable, corrosive, in solution of nitric acid from laboratory	D001	D002	DW	16.0	K	
14	16213	08 01 86		S	I	Toxic, lead oxide, chromium nitrate from laboratory	D001 D007	D008 WT01	EHW	10.5	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM ECY 030-30 (Rev. 11/85) 2nd ed.

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1986 - Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 - 1986

13 YOUR EPA/STATE ID NUMBER: WA/B 9 0 0 0 0 8 9 6 7

14 RECEIVING FACILITY (ISD) EPA/STATE ID NUMBER: WAD058367152
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk Waste	D. Physical State (S=Solid L=Liquid G=Sludge M=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Unit of Measure	K. For ISD Facility Use Only
1	16233	08-01-86		L	I	Ignitable toxic, solution of aluminum nitrate from laboratory	D001	WT01	EHW	1,136	K	
2	16233	08-01-86		L	O	Toxic, ignitable, organic solution of acetone, toluene, methyl ethyl ketone and mineral spirits from paint operations	F003 F005	WT01 D001	EHW	400	K	
3	16233	08-01-86		L	O	Ignitable, solution of naptha from construction operations	D001		DW	250	K	
4	26353	12-23-86		S	I	Toxic, antimony trioxide from laboratory	WT02		DW	4.5	K	
5	26353	12-23-86		L	IO	Persistent, ignitable, reactive, ethyl chloride from laboratory	WP01 D003	D001	EHW	0.1	K	
6	26353	12-23-86	L	L	O	Benzene from laboratory	U019 WT01	WC01 D001	EHW	0.22	K	
7	26353	12-23-86		L	O	Dioxane from laboratory	U108 D001	WT02	DW	0.35	K	
8	26353	12-23-86		L	O	Formaldehyde from laboratory	WT01 WC01	U122	EHW	0.9	K	
9	26353	12-23-86	L	L	O	Formaldehyde from laboratory	U122 WC01	WT01	EHW	30	K	
10	26353	12-23-86		L	O	Ignitable, hexane solution from laboratory	D001		DW	0.3	K	
11	26353	12-23-86		L	O	Ignitable, kerosene from laboratory	D001		DW	3.6	K	
12	26353	12-23-86		L	O	Methyl alcohol from laboratory	U154 D001	WT02	DW	0.18	K	
13	26353	12-23-86		L	O	Ignitable, aluminum metallic powder from laboratory	D001		DW	0.05	K	
14	26353	12-23-86		L	I	Ignitable, magnesium perchlorate from laboratory	D001		DW	0.45	K	
15	26353	12-23-86	L	S	I	Toxic, ignitable, mercuric nitrate from laboratory	WT01 D001	D009	EHW	1.01	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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APP E-34

DOE/RL 88-37
Revision 3

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WA7890008967

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Type of Container	K. For TSD Facility Use Only
1	26353	12-23-86	L	S	I	Toxic, ignitable chromium, cobalt, ceric ammonium nitrates from laboratory	D001	D007	ENW	0.67	A	
2	26353	12-23-86		S	I	Ignitable, sodium nitrate, cerium nitrate from laboratory	D001		DW	0.55	A	
3	26353	12-23-86		S	I	Ignitable, potassium nitrate from laboratory	D001		DW	1.1	A	
4	26353	12-23-86	L	S	I	Toxic, ignitable potassium nitrite from plant operations	WT02	D001	DW	18	A	
5	26353	12-23-86	L	S	I	Ignitable, potassium permanganate from laboratory	D001		DW	0.1	A	
6	26353	12-23-86		S	I	Ignitable, reactive sodium perchlorate from laboratory	D001	D003	DW	0.45	A	
7	26353	12-23-86		L	O	Methylene chloride from laboratory	WT01 U080	WP03	ENW	0.5	A	
8	26353	12-23-86		L	O	Methylene chloride from plant operations	U080 WP01	WT01	ENW	0.2	A	
9	26353	12-23-86		L	O	Toxic, persistent, carcinogenic, methylene chloride in solution from plant operations	WT01 WP01	WC01	ENW	0.9	A	
10	26353	12-23-86	L	S	I	Lead acetate from plant operations	U144	WT01	ENW	6.5	A	
11	26353	12-23-86	L	L	O	Phenol from laboratory	U188	WT01	ENW	0.5	A	
12	26353	12-23-86		S	I	Potassium cyanide from laboratory	P098 WT01	D003	ENW	0.2	A	
13	26353	12-23-86	L	L	OI	Corrosive, toxic, carcinogenic, formaldehyde, heavy metals, hydrochloric acid, nitric acid, sulfuric acid from plant operations	D002 D006 D010 WT01	D007 D009 WC02	ENW	2.2	A	
14	26353	12-23-86	L	L	OI	Corrosive, toxic, carcinogenic, beryllium, mercury, formaldehyde, hydrochloric acid from plant operations	D002 D009	WC02 WT01	ENW	2.2	A	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA 1 1 1 1 1 1 1 1 1 1 1 1

14. RECEIVING FACILITY (TSD) — EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

15. TRANSPORTER — EPA/STATE ID NUMBER: WA0058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Quantity	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Y/C/O/D/R/I	K. For TSD Facility Use Only
1	26353	12-23-86	L	S	I	Corrosive, carcinogenic, potassium hydroxide, hydrazine sulfate from laboratory	D002	WC01	ENW	0.55	K	
2	26353	12-23-86	L	S	I	Corrosive, toxic, barium hydroxide from laboratory	D002 D005	WT01	ENW	0.5	K	
3	26353	12-23-86	L	S	O	Corrosive, 4 hexylresorcinol from laboratory	D002		DW	0.01	K	
4	26353	12-23-86		S	O	Corrosive, toxic, m cresol, oxalic acid from laboratory	U052 D002	WT01	ENW	0.3	K	
5	26353	12-23-86		L	I	Corrosive, lithium hydroxide, in solution from laboratory	D002		DW	0.45	K	
6	26353	12-23-86		S	I	Corrosive, toxic, sodium hydroxide from laboratory	WT02	D002	DW	0.05	K	
7	26353	12-23-86		S	O	Corrosive, carcinogenic, polystyrene polymer divinyl benzene sulfonic acid/water from laboratory	WC02	D002	DW	0.8	K	
8	26353	12-23-86		S	I	Corrosive, reactive, toxic, lithium hydroxide, thiocyanic acid, boron phosphate from laboratory	D002 D003	P030 WI01	ENW	5.4	K	
9	26353	12-23-86		S	I	Corrosive, sodium calcium hydrate from laboratory	D002		DW	1.0	K	
10	26353	12-23-86		S	I	Corrosive, sodium hydroxide from laboratory	D002		DW	0.45	K	
11	26353	12-23-86		S	01	Corrosive, toxic, ammonium oxalate, oxalic acid, sodium dodecyl benzene sulfonate from plant operations	D002	WT02	DW	3	K	
12	26353	12-23-86		S	I	Corrosive, toxic, carcinogenic, potassium hydroxide, potassium permanganate, potassium chromate from plant operations	D002 D007	WC01 WT01	ENW	3	K	
13	26353	12-23-86	L	L	O	Ignitable, corrosive, 1,6-hexanediamine, ethylenediamine, in solution from laboratory	D001	D002	DW	0.52	K	
14	26353	12-23-86		L	10	Corrosive, methylene chloride, formic acid, cresylic acid in solution from laboratory	F002	D002	ENW	0.5	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

9412293.2550

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 — 1986

13 YOUR EPA/STATE ID NUMBER: WA 7890008963

14 RECEIVING FACILITY (ISD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Solids	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173 303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Units (Gal or Lb)	K. For ISD Facility Use Only
1	26353	12 23 86		L	O	N cresol from laboratory	U052 D002	U101	ENW	1.0	K	
2	26353	12 23 86		L	O	Corrosive, persistent solution of trichloroacetic acid from laboratory	D002	U201	ENW	0.1	K	
3	26353	12 23 86	L	L	I	Corrosive solution of sodium hydroxide, potassium permanganate from plant operations	D002		DW	7.6	K	
4	26353	12 23 86	L	L	I	Corrosive, solution of sulfuric acid, nitric acid, hydrofluoric acid from plant operations	D002		DW	6	K	
5	26353	12 23 86	L	L	I	Corrosive, carcinogenic toxic, solution of sulfuric acid, hydrochloric acid, chromium from plant operations	D002 D007	U002 U101	ENW	7	K	
6	26353	12 23 86	L	L	OI	Corrosive solution of hydrofluoric acid, sulfuric acid, methanol, butanol from plant operations	D002		DW	3.6	K	
7	26353	12 23 86	L	L	I	Corrosive, solution of sulfuric acid, hydrofluoric acid from plant operations	D002		DW	4.5	K	
8	26353	12 23 86	L	L	I	Corrosive, solution of hydrofluoric acid, sulfuric acid, nitric acid from plant operations	D002		DW	45	K	
9	26353	12 23 86	L	L	I	Corrosive, solution of sulfuric acid, nitric acid from plant operations	D002		DW	5	K	
10	26353	12 23 86		S	I	Reactive, ferric chloride from laboratory	D003		DW	0.9	K	
11	26353	12 23 86		S	I	Reactive, corrosive, phosphorus tribromide from laboratory	D003	D002	DW	0.9	K	
12	26353	12 23 86		S	I	Toxic, sodium hydrogen sulfate from laboratory	U102		DW	0.45	K	
13	26353	12 23 86		S	I	Toxic, corrosive, sodium hydroxide from plant operations	U101	D002	ENW	16*	K	
14	26353	12 23 86		L	I	Corrosive, toxic, solution of sodium hydroxide from laboratory	D002	U102	DW	0.85	K	
15	26353	12 23 86	L	L	O	Toxic, persistent, carcinogenic, solution of carbon tetrachloride from plant operations	U211 U001	U201 U101	ENW	0.9	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

9 2 1 7 9W3393,2531

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WA7890008967

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP: 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP: 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Code	K. For TSD Facility Use Only
1	26353	12-23-86	L	L	O	Corrosive, reactive, solution of thioglycolic acid from laboratory	D002	D003	DW	0.72	K	
2	26353	12-23-86		N	O	Ignitable, compressed gas of petroleum distillates, mixed glycol ethers, hexylene glycol, isopropanol, carbon dioxide from laboratory	D001		DW	0.3	K	
3	26353	12-23-86		L	OI	Ignitable, reactive solution of hexane diisocyanate from laboratory	D001	D003	DW	0.03	K	
4	26353	12-23-86	L	L	O	Ignitable, corrosive, solution of isoamyl alcohol, 1-butanol, morpholine from laboratory	D001	D002	DW	3.02	K	
5	26353	12-23-86	L	L	O	Ignitable, solution of cyclohexane from laboratory	D001		DW	0.25	K	
6	26353	12-23-86		L	O	Ignitable, solution of naptha, methanol, ethanol, cellosolve from laboratory	D001	F003	DW	10.05	K	
7	26353	12-23-86		L	O	Ignitable, reactive, solution of 2-ethoxy ethyl ether from laboratory	D001	D003	DW	1	K	
8	26353	12-23-86		L	I	Ignitable, toxic, solution of cadmium, boron from laboratory	F003 D001	D006 WT01	EHW	1.9	K	
9	26353	12-23-86		L	O	Ignitable, toxic, solution of methanol, xylene from laboratory	F003 WT01	D001	EHW	0.86	K	
10	26353	12-23-86		L	O	Ignitable, toxic, solution of acetone, toluene from laboratory	F003 D001	F005 WT01	EHW	0.5	K	
11	26353	12-23-86		L	OI	Ignitable, toxic, solution of toluene, silica, butanol from laboratory	D001 WT01	F003 F005	EHW	0.5	K	
12	26353	12-23-86		L	O	Ignitable, persistent, toxic, solution of epoxy polyamide from plant operations	D001 WP03	F003 WT02	EHW	3.8	K	
13	26353	12-23-86		S	I	Toxic, ammonium fluoride from laboratory	WT01		EHW	1.5	K	
14	26353	12-23-86		S	I	Corrosive, toxic, zinc chloride from laboratory	D002	WT01	EHW	0.9	K	
15	26353	12-23-86		L	O	Sodium azide from laboratory	P105	WT01	EHW	10	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

FORM 4(c) (1/86) Zone 004

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APP E-38

DOE/RL 88-37
Revision 3

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA7890000967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058336715 2
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16. TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Quantity	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or ENW	L. Amount of Waste	J. Type of Container	K. For TSD Facility Use Only
1	26353	12 23 86		S	I	Toxic, reactive, sodium cyanide, potassium cyanide, mercuric chloride from laboratory	P016 P098 U010	D003 D009	ENW	0.8	K	
2	26353	12 23 86		S	I	Toxic, carcinogenic potassium cyanide, mercuric oxide, arsenic pentoxide from laboratory	U101 D004 D009	P098 P011 U001	ENW	1	K	
3	26353	12 23 86	L	L	O1	Ignitable, corrosive solution of acetaldehyde, nitric acid from laboratory	D001	D002	DW	0.5	K	
4	26353	12 23 86		S	I	Ignitable, ammonium persulfate from laboratory	D001		DW	0.45	K	
5	26353	12 23 86		L	O	Corrosive, solution of phosphoric acid, bis(2-ethy hexyl ester) from laboratory	D002		DW	0.45	K	
6	26353	12 23 86		L	O	Formaldehyde from laboratory	U001 D001	U122	ENW	0.2	K	
7	26353	12 23 86	L	S	I	Toxic, ignitable, barium nitrate from laboratory	D005 D001	U101	ENW	3	K	
8	26353	12 23 86		S	I	Ignitable, corrosive, chromic acid from laboratory	D001 D002	D007 U102	DW	0.45	K	
9	26353	12 23 86		L	I	Ignitable, toxic, corrosive, carcinogenic, solution of chromic acid from laboratory	D001 D002 U001	D007 U101	ENW	14.1	K	
10	26353	12-23-86		S	O	Toxic, paraformaldehyde from laboratory	U102		DW	1	K	
11	26353	12-23-86	L	L	I	Corrosive, cupric sulfate, sodium/potassium tartrate, sodium hydroxide from laboratory	D002		DW	0.58	K	
12	26353	12-23-86	L	L	I	Corrosive, cupric sulfate, sodium/potassium tartrate, sodium hydroxide from laboratory	D002		DW	0.58	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

1986 **Form 4** **GENERATOR ANNUAL DANGEROUS WASTE REPORT** **Form 4** 1986

13. YOUR EPA/STATE ID NUMBER: WA7890008967

14. RECEIVING FACILITY (ISD) EPA/STATE ID NUMBER: WAD055836715 2
NAME/ADDRESS: Northwest Enviroservice, Inc.
1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WA005836715 2
NAME/ADDRESS: Northwest Enviroservice, Inc.
1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (Mo Dy Yr)	C. Bulk	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Code	K. For ISD Facility Use Only
1	26353	12-23-86		L	I	Toxic, reactive, corrosive, solution of potassium ferrocyanide, potassium hydroxide from plant operations	WT02 D002	D003	DW	1	K	
2	26353	12-23-86	L	L	I	Toxic, corrosive, solution of silver, lead, cadmium, selenium, arsenic, chromium, cobalt, vanadium, beryllium, and acids from laboratory	D004 D006 WT01	D007 D008 D002	EHW	9.7	K	
3	26353	12-23-86		L	I	Corrosive, toxic, solution of mercury, sulfuric acid from laboratory	D002 D009	WT01	EHW	16	K	
4	26353	12-23-86	L	L	I	Corrosive, toxic, carcinogenic, solution of sodium dichromate, sulfuric acid from laboratory	D002 D007	WC01 WT01	EHW	0.7	K	
5	26353	12-23-86	L	L	O	Corrosive, solution of n-vinyl-2-pyrrolidone/maleic acid copolymer from laboratory	D002		DW	0.8	K	
6	26353	12-23-86		S	I	Reactive, ferric chloride from laboratory	D003		DW	0.45	K	
7	26353	12-23-86		L	I	Corrosive, toxic, solution of lead, selenium from plant operations	D002 D008	D010 WT02	DW	20	K	
8	26353	12-23-86		L	I	Corrosive, toxic, solution of lead, chromium, cadmium, selenium from plant operations	D006 D007 D010	D008 WT01 D002	EHW	20	K	
9	26353	12-23-86		L	I	Corrosive, toxic, solution of nitric acid, selenium, from plant operations	D002 D010	WT02	DW	20	K	
10	26353	12-23-86		L	OI	Corrosive, solution of sulfuric acid, ferric chloride, para-amino diethyl aniline from plant operations	D002		DW	7	K	
11	26353	12-23-86		L	I	Corrosive, toxic, solution of nitric acid, heavy metals from plant operations	D002	WT02	DW	20	K	
12	26353	12-23-86		L	I	Corrosive, toxic, solution of lithium borate, nitric acid, clay components from plant operations	D002	WT02	DW	17	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

12 YOUR EPA/STATE ID NUMBER: WA7890008967

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South, Seattle, Washington ZIP 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Source	D. Physical State (S=Solid L=Liquid G=Sludge N=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Code	K. For TSD Facility Use Only
1	26353	12 23 86		L	OI	Corrosive, carcinogenic, toxic, solution of hydrochloric acid, formaldehyde, methanol from plant operations	D002 WC02	WT02	DW	4.1	k	
2	26353	12 23 86		L	IO	Corrosive, toxic, solution of oxalic acid from plant operations	D002	WT01	ENW	2	k	
3	26353	12 23 86		L	I	Corrosive, solution of hydrochloric, picric acids from plant operations	D002		DW	1	k	
4	26353	12 23 86		L	I	Corrosive, toxic, solution of hydrofluoric acid from plant operations	U134 D002	WT02	DW	6	k	
5	26353	12 23 86		L	I	Toxic, solution of sodium hypochlorite from laboratory	WT02		DW	0.01	k	
6	26353	12 23 86	L	L	O	Ignitable, solution of decaline from laboratory	D001		DW	0.02	k	
7	26353	12 23 86		L	OI	Toxic, ignitable, carcinogenic, solution of methylene chloride, formic, cresylic acids from laboratory	F002 D001	WC02 WT02	DW	0.5	k	
8	26353	12 23 86		L	I	Ignitable, solution of gandolinium from laboratory	D001		DW	0.08	k	
9	26353	12 23 86		L	OI	Ignitable, solution of mineral oil, stearic acid, cetyl alcohol from laboratory	D001		DW	0.23		
10	26353	12 23 86		L	O	Toxic, carcinogenic, persistent, solution of perchloroethylene, petroleum distillates, methylene chloride from laboratory	F001 F002 WT01	WC01 WP01	ENW	31.1	k	
11	26353	12 23 86		L	O	Toxic, carcinogenic, ignitable, solution of asbestos, xylene, toluene from plant operations	F003 D001	WC01 WT01	ENW	33.75	k	
12	26353	12 23 86		L	O	Toxic, carcinogenic, ignitable, solution of asbestos, xylene, toluene from plant operations	F003 D001	WC01 WT01	ENW	101.24	k	
13	26353	12 23 86		S	O	Toxic, maleic acid from laboratory	WT02		DW	0.6	k	
14	26353	12 23 86		L	I	Corrosive, toxic, solution of ammonium hydroxide from plant operations	D002	WT01	ENW	20.46	k	
15	26353	12 23 86		S	I	Corrosive, metabisulfite from laboratory	D002		DW	0.35	k	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

13. GENERATOR EPA/STATE ID NUMBER: WA 0 9 0 0 0 0 8 9 6 7

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

15. TRANSPORTER EPA/STATE ID NUMBER: WA0058367152
NAME Northwest Enviroservice, Inc.
ADDRESS 1500 Airport Way South
Seattle, Washington ZIP 98134

16. WASTE DESCRIPTION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Code	K. For TSD Facility Use Only
1	26353	12-23-86		L	I	Toxic, mercury from laboratory	WT01	D009	EHW	12.9	K	
2	26353	12-23-86	L	S	I	Toxic, selenium oxide from laboratory	D010	WT01	EHW	0.02	K	
3	26353	12-23-86		S	I	Toxic, sodium phosphate, tribasic from laboratory	WT02		DW	0.45	K	
4	26353	12-23-86	L	L	I	Toxic, carcinogenic, solution of mercury, nickel, chromium, arsenic, cadmium, lead, hydrochloric acid from laboratory	D004 D006 WC02	D008 D009 WT01	EHW	3.6	K	
5	26353	12-23-86	L	L	10	Toxic, solution of lead, acetic acid, from laboratory	D008	WT01	EHW	7.25	K	
6	26353	12-23-86		L	01	Persistent, toxic, carcinogenic, chloroform, methyl isobutyl ketone, methylene chloride, isooctane, benzene, acetone, trichlorotrifluoroethane, methanol, gasoline, light hydrocarbons, hexane, carbon disulfide from laboratory	WP03 WC02	WT01	EHW	22	K	
7	26353	12-23-86		S	0	Persistent, L-cysteine hydrochloride hydrate from laboratory	WP01		EHW	0.1	K	
8	26353	12-23-86		L	10	Toxic, carcinogenic, solution of chromium, nickel, vanadium, tin, zinc, beryllium, antimony, formaldehyde, acetic acid, cadmium, lead from laboratory	D006 D007 WT02	D008 WC02	EHW	12	K	
9	26353	12-23-86	L	S	0	Toxic, p-nitrophenol from laboratory	WT01		EHW	0.1	K	
10	26353	12-23-86	L	S	0	Persistent, chloramine-t from laboratory	WP01		EHW	0.25	K	
11	26353	12-23-86	L	S	I	Reactive, sodium nitroferrocyanide from laboratory	D003		DW	0.1	K	
12	26353	12-23-86	L	L	10	Toxic, carcinogenic, solution of mercuric chloride, acetic acid, potassium dichromate, sodium sulfate from laboratory	D007 D009	WC01 WT01	EHW	0.25	K	
13	26353	12-23-86	L	S	01	Toxic, carcinogenic, sodium cacodylate, sodium dimethyl arsenate from laboratory	D004 WC01	WC01	EHW	0.28	K	
14	26353	12-23-86	L	S	I	Carcinogenic, nickel oxide from laboratory	WC01		EHW	0.2	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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APP E-42

DOE/RL 88-37
Revision 3

1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WA7890008967

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD058367152
NAME ADDRESS: Northwest Enviroservice, Inc. 1500 Airport Way South Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME ADDRESS: Northwest Enviroservice, Inc. 1500 Airport Way South Seattle, Washington ZIP 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Blank	D. Physical State S=Solid L=Liquid G=Sludge C=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173 303)		H. Waste Designation DW or EMW	I. Amount of Waste	J. Y/N Tank Storage	K. For TSD Facility Use Only
1	26353	12-23-86		S	I	Toxic, sodium phosphate, tribasic from laboratory	WT02		DW	0.45	K	
2	26353	12-23-86		S	I	Toxic, cupric sulfate from laboratory	WT01		EMW	1.45	K	
3	26353	12-23-86		L	O	Carcinogenic, solution of 2,4,7,9-tetramethyl-5-decyne-4,7 diol (TMDD) from laboratory	WC02		DW	8.5	K	
4	26353	12-23-86		L	O	Persistent, solution of trimethylbromide from laboratory	WP01		EMW	1	K	
5	26353	12-23-86		L	I	Toxic, solution of nickel sulfate, ammonium chloride, boric acid from laboratory	WT02		DW	0.4	K	
6	26353	12-23-86		L	I	Ignitable, toxic, carcinogenic, solution of nickel sulfate, nickel chloride, boric acid from laboratory	D001 WC02	WT02	DW	0.54	K	
7	26353	12-23-86		L	O	Toxic, solution of alkyl polyhydric alcohol, p-tertiary-octyl-phenoxy-poly-ethyl alcohol from laboratory	WB02		DW	0.23	K	
8	26353	12-23-86		LN	O	Toxic, persistent, benz(a)pyrene, dibenzanthrene, 1,4-diphenyl benzene, 1,2,3,4-dibenzanthracene, pentacene, 1,4-diphenyl benzene, 1,5-dimethyl napthalene, 2,6-dimethyl napthalene, 2,3-dimethyl napthalene, 2-ethyl napthalene, 2,3 benzanthrene from laboratory	WC01 WP01	WT02 WT01	EMW	1.28	K	
9	26353	12-23-86		L	OI	Carcinogenic, toxic, solution of tributyl tinhydride/coumarin from laboratory	WC02	WT02	DW	1.2	K	
10	26353	12-23-86		S	O	Carcinogenic, toxic, coumarin from laboratory	WC02	WT02	DW	0.017	K	
11	26353	12-23-86		S	OI	Toxic, DOIC perchlorate, cyanide, rhodamine, xanthene, distearyl diphenyl from laboratory	WT02		DW	0.011	K	
12	26353	12-23-86		S	O	Toxic, acetophenone from laboratory	WT01		EMW	0.2	K	
13	26353	12-23-86		S	I	Toxic, lead oxide from laboratory	D008	WT01	EMW	1	K	
14	26353	12-23-86		L	OI	Persistent, solution of propylfiodone, carminic acid, mechlorethamine from laboratory	WP01	WP03	EMW	1	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WA7890009672

14 RECEIVING FACILITY (ISD) EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

15 TRANSPORTER EPA/STATE ID NUMBER: WAD058367152
NAME: Northwest Enviroservice, Inc.
ADDRESS: 1500 Airport Way South
Seattle, Washington ZIP 98134

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173 303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Wt Vol Unit	K. For TSD Facility Use Only
1	26353	12 23 86		L	I	Toxic, barium chloride/cadmium oxide/chromium acetate/cupric sulfate solution from laboratory	D007	WT01	EHW	1.35	L	
2	26353	12 23 86		S	10	Toxic, phenyl mercuric acetate from laboratory	D009	WT01	EHW	0.05	L	
3	26353	12 23 86		S	10	Toxic, phenyl mercuric chloride from laboratory	D009		EHW	0.05	L	
4	26353	12 23 86		L	O	Carcinogenic, toxic, solution of benzaldehyde, formaldehyde from plant operations	WC01	WT02	EHW	5	L	
5	26353	12 23 86		L	O	Toxic, solution of biphenyl, epichlorohydrin from plant operations	WT02		DW	0.5	L	
6	26353	12 23 86		S	I	Toxic, zinc chloride, tin chloride, tin fluoride from plant operations	WT02		DW	0.5	L	
7	26353	12 23 86		S	O	Toxic, ethylene glycol from plant operations	WT02		DW	20	L	
8	26353	12 23 86		L	I	Carcinogenic, solution of sodium thiosulfate, potassium chloride, hydrochloric acid, beryllium sulfate, thorium nitrate from laboratory	WC02		DW	4	L	

17 COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA7890008967

14. RECEIVING FACILITY (ISD) EPA/STATE ID NUMBER: WAD991282767
NAME: Crosby & Overton, Inc.
ADDRESS: 20245 76th Avenue South Kent, Washington ZIP 98032

15. TRANSPORTER EPA/STATE ID NUMBER: WAD991282767
NAME: Crosby & Overton, Inc.
ADDRESS: 20245 76th Avenue South Kent, Washington ZIP 98032

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Section	D. Physical State (S=Solid L=Liquid G=Sludge Gc=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation Dw or EHW	I. Amount of Waste	J. Unit (Lb or Kg)	K. For ISD Facility Use Only
1	16065	03 06 86	L	L	O	Persistent poly (oxyethylene(dimethylimino)ethylene (diethylimino) ethylene dichloride mixture from operations	WP01		NW	5	k	
2	16065	03 06 86	L	L	O	Persistent 1,1,2 trichloro, 1,2,2-trifluoroethane empty drum from operations	WP01		NW	0	k	
3	16065	03 06 86		L	IO	Empty drums were persistent, toxic, flammable solution of methyl-chloroform, organometallic copper, and hydrocarbon solvent from plant operations	WP01 WI02	D001	EHW	0	k	
4	16065	03 06 86		L	O	Empty drum persistent solution of hydrocarbon solvent and trichloro-ethylene from plant operations	WP01		EHW	0	k	
5	16065	03 06 86		G	I	Toxic, EP toxic, ignitable mixture of 98% aqueous cadmium nitrate from plant operations	D001 D006	W101	EHW	42	k	
6	16065	03 06 86	L	G	I	Toxic, EP toxic, ignitable mixture of 98% aqueous cadmium nitrate from plant operations	D001 D006	W101	EHW	18	k	
7	16065	03 06 86		L	I	Empty 34-40% aqueous hydrazine drums from operations	U133 D002		EHW	0	k	
8	16065	03 06 86	L	L	I	Empty 34-40% aqueous hydrazine drums	U133 D002		EHW	2	k	
9	16065	03 06 86		L	I	Toxic inorganic liquid from operations	WT02		DW	4,764	k	
10	16087	03 28 86		L	I	Empty 34-40% aqueous hydrazine drums	U133 D002		EHW	0	k	
11	16136	05 16 86		L	O	Toxic, reactive, carcinogenic polyurethane of diisocyanates from construction	WC01 D003	WT01	EHW	143	k	
12	16136	05 16 86		L	O	Toxic, reactive, carcinogenic polyurethane of diisocyanates from construction - empty drums	WC01 D003	WE01	EHW	0	k	
13	16136	05 16 86		L	O	Spent toxic, persistent polyurethane of mixed chlorinated organics from construction operation	WP01 WT01	F002	EHW	560	k	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA7890008967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD991281767
NAME: Crosby & Overton, Inc.
ADDRESS: 20245 76th Avenue South Kent, Washington ZIP 98032

15. TRANSPORTER EPA/STATE ID NUMBER: WAD991281767
NAME: Crosby & Overton, Inc.
ADDRESS: 20245 76th Avenue South Kent, Washington ZIP 98032

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Quantity	D. Physical State S=Solid L=Liquid S=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Waste Code	K. For TSD Facility Use Only
1	16150	05-16-86		L	O	Spent toxic, persistent polyurethane of mixed chlorinated organics from construction operation - empty drums	WP01 WT01	F002	EHW	0	K	
2	16150	05-20-86		L	O	Toxic, reactive, carcinogenic polyurethane of diisocyanates from construction operation	WC01 D003	WT01	EHW	118	K	
3	16150	05-20-86		L	O	Toxic, reactive, carcinogenic polyurethane of diisocyanates from construction operation - empty drums	WC01 D003	WT01	EHW	0	K	
4	16150	05-20-86		L	O	Spent toxic, persistent polyurethane of mixed chlorinated organics from construction operation	WP01 WT01	F002	EHW	109	K	
5	16150	05-20-86		L	O	Spent toxic, persistent polyurethane of mixed chlorinated organics from construction operation - empty drums	WP01 WT01	F002	EHW	0	K	
6	16150	05-30-86		L	O	Carbon tetrachloride - empty drums	U211 WC01	WP01	EHW	0	K	
7	16150	05-30-86		L	I	34 40% aqueous hydrazine - empty drums	U133 D002		EHW	0	K	
8	16150	05-30-86	L	LS	I	Toxic, EP toxic mercury and copper tubing (2.3% Hg) from operations	D009 WT01		EHW	10	K	
9	16150	05-30-86		LS	I	Toxic, EP toxic mixture of glass, metal, and mercury (376 ppm) from fluorescent bulbs from maintenance operation	U151 D009	WT01	EHW	1,434	K	
10	16150	05-30-86	L	LS	I	Toxic, EP toxic mercury switches with 0.1% mercury from maintenance operation	U151 D009	WT01	EHW	1,621	K	
11	16150	05-30-86	L	L	I	Mercury from laboratory	U151 D009	WT01	EHW	4.1	K	
12	16150	05-30-86	L	S	I	EP toxic, toxic mercury (5%) in solid waste from operations	D009 WT01		EHW	57	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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Form 4 Pg 132

APP E-46

DOE/RL 88-37
Revision 3

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

12. YOUR EPA/STATE ID NUMBER: WA7890008967

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ADDRESS: 20245 76th Avenue South Kent, Washington ZIP 98032

16. TRANSPORTER EPA/STATE ID NUMBER: WAD991281767
NAME: Crosby & Overton, Inc.
ADDRESS: 20245 76th Avenue South Kent, Washington ZIP 98032

18. WASTE IDENTIFICATION LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. State	D. Physical State S=Solid L=Liquid G=Sludge N=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Units KG or LB	K. For ISD Facility Use Only
1	16150	05 30 86	L	S	I	EP toxic, toxic mercury contaminated rags, piping (0.1 wt% mercury) from operations	WT01 D009	U151	EHW	82	K	
2	16150	05 30 86	L	SL	I	Toxic mercury and mercury spill clean-up contaminated waste (0.1 wt% mercury) from operations	U151 D009	WT01	EHW	23	K	
3	16157	06 06 86		L	O	Persistent (halogenated hydrocarbon) organic solution from operations	WP02		DW	227	K	
4	16157	06 06 86		L	O	Flammable organic solution from operations	D001		DW	159	K	
5	16157	06 06 86	L	L	O	Flammable fuel oil from automotive maintenance	D001		DW	159	K	
6	16157	06 06 86		L	I	Toxic inorganic solution from operations	WT02		DW	5,685	K	
7	16157	06 06 86		L	O	Ignitable organic solution from operations	D001		DW	550	K	
8	16157	06 06 86		L	I	Carcinogenic inorganic solution from operations	WC02		DW	341	K	
9	16163	06 12 86		L	I	Empty 34 40% aqueous hydrazine drums	U133 D002		EHW	0	K	
10	26176	06 25 86	L	L	I	Corrosive aqueous ammonium hydroxide from blueprint machine	WT01 D002		EHW	209	K	
11	26176	06 25 86	L	L	I	Corrosive aqueous ammonium hydroxide from blueprint machine	WT01 D002		EHW	55	K	
12	26176	06 25 86	L	L	I	Corrosive aqueous ammonium hydroxide from blueprint machine	WT01 D002		EHW	27	K	
13	26176	06 25 86		L	I	Corrosive aqueous ammonium hydroxide from blueprint machine	WT01 D002		EHW	41	K	
14	26176	06 25 86		L	O	Persistent (halogenated hydrocarbon) organic solution from operations	WP02		DW	1,228	K	
15	26176	06 25 86		L	O	Flammable organic solution from operations	D001		DW	173	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

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15. TRANSPORTER EPA/STATE ID NUMBER: WAD991281767
NAME: Crosby & Overton, Inc.
ADDRESS: 20245 76th Avenue South Kent, Washington ZIP 98032

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Source	D. Physical State S=Solid L=Liquid G=Sludge G=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. Waste Code	K. For TSD Facility Use Only
1	26176	06-25-86		L	I	Toxic inorganic solution from operations	WT02		DW	227	K	
2	26176	06-25-86		L	I	Corrosive inorganic solution from operations	D002		DW	364	K	
3	26176	06-25-86		L	I	Carcinogenic inorganic solution from operations	WC02		DW	819	K	
4	26176	06-25-86		L	O	Ignitable organic solution from operations	D001		DW	955	K	
5	26176	06-25-86		L	I	Toxic, EP toxic inorganic solution with chromium from operations	D007 WT02		DW	91	K	
6	26176	06-25-86		L	O	1,1,1 trichloroethane empty drums	WP01 U226	WT01	ENW	0	K	
7	26176	06-25-86		L	O	Persistent (halogenated hydrocarbon) freon from automotive operations	WP01		ENW	0	K	
8	26176	06-25-86	L	L	O	Persistent trichlorotrifluoroethane empty drums	WP01		ENW	0	K	
9	26176	06-25-86	L	L	I	Corrosive, toxic hydrochloric acid solution from operations	WT01 D002		ENW	637	K	
10	26176	06-25-86	L	L	I	Corrosive aqueous ammonium hydroxide from blueprint machine	WT01 D002		ENW	106	K	
11	26176	06-25-86	L	L	I	Corrosive aqueous ammonium hydroxide from blueprint machine	WT01 D002		ENW	27	K	
12	26181	06-30-86	L	L	O	Spent methyl ethyle ketone, stoddard solvent (1%) and enamel paint (1%) from construction operation	F003 F005	D001 WT01	ENW	336	K	
13	26181	06-30-86	L	L	O	Flammable, toxic, mixture of methyl ethyl ketone and stoddard solvent from construction operation	WT01 F003	F005 D001	ENW	170	K	
14	26181	06-30-86	L	LG	OI	Flammable, EP toxic mixture of methyl ethyl ketone, decane, xylene, toluene, other organics with lead, zinc, and chromium from paint operations	F003 F005 D008 WC01	D001 D007 WT01	ENW	167	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

13. YOUR EPA/STATE ID NUMBER: WA7890008967

14. RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD991281767
NAME: Crosby & Overton, Inc.
ADDRESS: 20245 76th Avenue South Kent, Washington ZIP 98032

15. TRANSPORTER EPA/STATE ID NUMBER: WAD991281767
NAME: Crosby & Overton, Inc.
ADDRESS: 20245 76th Avenue South Kent, Washington ZIP 98032

16. WASTE DESCRIPTION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Origin	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Form Code	K. For TSD Facility Use Only
1	261B1	06 30 86		L	O	Spent, flammable, [illegible] carcinogenic solution of methyl ethyl ketone, solvent, and thinner from paint operation	D001 F005	WT02 WC01	EHW	175	1	
2	261B1	06 30 86		L	O	Spent, flammable, toxic mixed organics from paint operation	WT01 F003	F005 D001	EHW	76	1	
3	261B1	06 30 86	L	L	O	Flammable mixed organic solution from operations	D001		DW	182	1	
4	261B1	06 30 86	L	L	O	Flammable mixed organic solution from operations	D001		DW	1,500	1	
5	261B1	06 30 86	L	L	O	Flammable toxic mixture of oil, trimethylbenzenes and tetramethylbenzenes from operations	D001 WT02		DW	200	1	
6	261B1	06 30 86	L	L	O	Spent, flammable, toxic methyl ethyl ketone solution from paint operation	D001 F005	WT02	DW	650	1	
7	261B1	06 30 86	L	L	O	Persistent dichlorodifluoromethane from operations	U075 WP01		EHW	220	1	
8	261B1	06 30 86		L	OI	Spent flammable, toxic, corrosive, EP toxic, solution of solvents, enamel paint, acids and heavy metals from paint operation	F003 D001 WT01 D008	F005 D002 D007	EHW	113	1	
9	261B1	06 30 86		L	OI	Spent flammable, toxic, EP toxic solution of solvents, enamel paint, and heavy metals from paint operation	F003 D001 D007	F005 WE01	EHW	791	1	
10	261B1	06 30 86	L	L	O	Flammable, carcinogenic isopropanol from construction operations	D001 WC02		DW	918	1	
11	261B1	06 30 86	L	L	O	Ignitable, toxic mixture of nonane, trimethylbenzene and water from construction	WT02 D001		DW	190	1	
12	261B1	06 30 86		L	O	Ignitable, toxic adhesive mixture of toluene, oil, and resins from construction operation	WT02 D001		DW	691	1	

17. COMMENTS (Enter information by section and/or line number—see instructions)

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1986 Form 4 **GENERATOR ANNUAL DANGEROUS WASTE REPORT** Form 4 1986

12 YOUR EPA/STATE ID NUMBER: WA7890000967

14 RECEIVING FACILITY (TSD) EPA/STATE ID NUMBER: WAD991281767
NAME: Crosby & Overton, Inc.
ADDRESS: 20245 76th Avenue South Kent, Washington ZIP 98032

15 TRANSPORTER EPA/STATE ID NUMBER: WAD991281767
NAME: Crosby & Overton, Inc.
ADDRESS: 20245 76th Avenue South Kent, Washington ZIP 98032

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Quantity	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Type Code	K. For TSD Facility Use Only
1	26181	06-30-86		L	O	Spent, toxic solution of non-PCB oil and mixed organics from automotive operation	F003 WT02		DW	209	K	
2	26181	06-30-86		L	O	Toxic, persistent methylenechloride from automotive operation	U080 WT01	WP01	EHW	0	K	
3	26181	06-30-86	L	L	O	Flammable organic solution from operations	D001		DW	254	K	
4	26181	06-30-86	L	L	O	Flammable organic solution from operations	D001		DW	227	K	
5	26181	06-30-86	L	LG	IO	Spent flammable, toxic mixed organics with thinners and zinc from paint operations	D001 WT01	F005	EHW	479	K	
6	26181	06-30-86	L	LG	OII	Spent toxic, persistent, flammable solution of methyl ethyl ketone, thinners, and epoxy resins from paint operation	F003 F005 WT01	WP01 D001	EHW	478	K	
7	26181	06-30-86	L	L	O	Spent flammable, toxic solution of methyl ethyl ketone and paint thinner from paint operation	F003 F005	WT01 D001	EHW	205	K	
8	26181	06-30-86		LG	OI	Spent flammable, toxic, persistent, carcinogenic, EP toxic solution of organic solvents, paint resins, and chromium from paint operation	F003 F005 D001 WP02	WT01 WC02 D007	EHW	99	K	
9	26181	06-30-86		LG	OI	Spent flammable, toxic, carcinogenic, EP toxic solution of organic solvents, paint resins, and chromium from paint operation	F003 WT02 D001	F005 WC01 D007	EHW	178	K	
10	26181	06-30-86		LG	OI	Spent flammable, toxic, carcinogenic, persistent, EP toxic solution of organic solvents, paint resins, and chromium from paint operation	F003 WT01 WP01 D007	F005 WC01 D001	EHW	128	K	
11	26181	06-30-86		L	O	Spent flammable, toxic, carcinogenic solution of mixed organics from paint operation	WT02 WC01	D001 F005	EHW	209	K	

17. COMMENTS (Enter information by section and/or line number—see instructions)

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DOE/RL 88-37
Revision 3

1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

13 YOUR EPA/STATE ID NUMBER: WA7890009964

14 RECEIVING FACILITY (ISD) EPA/STATE ID NUMBER: WAD991281767
NAME Crosby & Overton, Inc.
ADDRESS 20245 76th Avenue
South Kent, Washington ZIP 98032

15 TRANSPORTER EPA/STATE ID NUMBER: WAD991281767
NAME Crosby & Overton, Inc.
ADDRESS 20245 76th Avenue
South Kent, Washington ZIP 98032

16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk	D. Physical State S=Solid L=Liquid G=Sludge M=Compressed Gas	E. Chemical Nature O=Organic I=Inorganic	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173 303)		H. Waste Designation DW or ENW	I. Amount of Waste	J. W.T.D. Code	K. For ISD Facility Use Only
1	26181	06 30 86	L	L	O	Flammable toxic mixture of oil, trimethylbenzenes and tetramethylbenzenes from operations	D001 WT02		DW	200	K	
2	26181	06 30 86		L	O	Spent flammable, toxic solution of methyl ethyl ketone and paint thinners from paint operations	WT02 D001	F005	DW	220	K	
3	26181	06 30 86		L	O	Flammable, persistent solution of oil and mixed organics from automotive operation	D001 WP01		ENW	337	K	
4	26181	06 30 86		L	O	Flammable polycyclic aromatic hydrocarbon solution of kerosene, distillates, and fluoranthene from operations	D001 WP03		ENW	380	K	
5	26181	06 30 86		L	OI	Spent persistent flammable, corrosive, toxic, EP toxic solution of methylene chloride hydroxide, and chromate from paint operations	F001 F002 WP01	D001 D007	ENW	0	K	
6	26181	06 30 86		L	O	Flammable paint thinner from paint operation	D001		DW	325	K	
7	26181	06 30 86	L	L	O	Flammable organic mixture from operations	D001		DW	223	K	
8	16184	07 03 86		S	O	Toxic, carcinogenic, persistent mixture of brominated polyester resin and styrene from construction operation	WC01 WT01	WP01	ENW	1,459	K	
9	16184	07 03 86		L	O	Toxic ethylene glycol (aqueous) solution from automotive operation	WT02		DW	625	K	
10	16184	07 03 86		L	O	Toxic, persistent ethylene glycol solution from automotive operation	WT02 WP01		ENW	208	K	
11	16184	07 03 86		L	O	Spent ignitable, toxic, persistent, carcinogenic oil solution with mixed organics from automotive operation	D001 WT01 WP01	WC01 F003	ENW	689	K	
12	16184	07 03 86		L	O	Combustible, toxic stoddard solvent solution from paint operation	WT02 D001		DW	474	K	
13	16184	07 03 86	L	L	O	Combustible aqueous fuel oil from maintenance operation	D001		DW	456	K	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 **Form 4** **GENERATOR ANNUAL DANGEROUS WASTE REPORT** **Form 4** 1986

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16. WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Bulk	D. Physical State (S=Solid L=Liquid G=Sludge C=Compressed Gas)	E. Chemical Nature (O=Organic I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Y ECOLOGY UNIT	K. For TSD Facility Use Only
1	16184	07-03-86		L	O	Spent ignitable solution of mixed organics from paint operation	D001 F003		DW	325	X	
2	16184	07-03-86		L	O	Toxic, ignitable solution of nonane and trimethylbenzene from paint operation	WT02 D001		DW	331	X	
3	16184	07-03-86	L	L	O	Toxic, ignitable solution of nonane and trimethylbenzene from paint operation	WT02 D001		DW	155	X	
4	16184	07-03-86	L	L	O	Toxic, persistent, carcinogenic mixture of polycyclic aromatic hydro carbons, naphthenes, phenols from laboratory	WC01 WP03	WT02	EHW	3,060	X	
5	16184	07-03-86		L	O	Ignitable solution of aliphatic hydrocarbons from plant operations	D001		DW	50	X	
6	16184	07-03-86		L	O	Spent ignitable, toxic solution of mixed organic solvents from paint operation	F003 F005	WT01 D001	EHW	113	X	
7	16262	09-30-86		G	I	Toxic, carcinogenic, EP toxic metal oxides slurry with chromium from tank clean-up operation	WT02 D007	WC01	EHW	1,330	X	
8	16262	09-30-86		S	I	Toxic, carcinogenic, corrosive, EP toxic cadmium and nitric acid absorbed on spill pillows from operations	WT01 D002	WC01 D006	EHW	10	X	
9	16262	09-30-86		S	I	Corrosive, toxic sodium hydroxide solution absorbed in soil and spill pillows from operations	WT02 D002		DW	1,900	X	
10	16262	09-30-86		S	I	Corrosive, toxic absorbed sulfuric acid solution from operations	WT02 D002		DW	909	X	
11	16262	09-30-86		L	I	Toxic, corrosive solution of sodium hydroxide solution and other sodium compounds from tank clean-up operation	D002 WT01		EHW	7,723	X	
12	16262	09-30-86		L	I	Toxic, carcinogenic, corrosive, EP toxic solution of sodium hydroxide and other sodium compounds with chromium from tank clean-up operation	D002 WC01	D007 WT01	EHW	1,743	X	
13	16262	09-30-86		L	I	Toxic, corrosive, carcinogenic solution of sodium hydroxide solution and other sodium compound from tank clean up operation	D002 WC01	WT01	EHW	996	X	

17. COMMENTS (Enter information by section and/or line number—see instructions).

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1986 Form 4 GENERATOR ANNUAL DANGEROUS WASTE REPORT Form 4 1986

12 YOUR EPA/STATE ID NUMBER: WA 7890008967

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15 TRANSPORTER EPA/STATE ID NUMBER: WAD991281767
NAME Crosby & Overton, Inc.
ADDRESS 20245 76th Avenue South Kent, Washington ZIP 98032

16 WASTE IDENTIFICATION

LINE	A. Manifest Document Number	B. Manifest Shipment Date (MM DD YY)	C. Source	D. Physical State (S=Solid, L=Liquid, G=Sludge, M=Compressed Gas)	E. Chemical Nature (O=Organic, I=Inorganic)	F. Waste Description (see instructions)	G. Dangerous Waste Number (see instructions and WAC 173-303)		H. Waste Designation DW or EHW	I. Amount of Waste	J. Waste Reduction	K. For ISD Facility Use Only
1	16262	09 30 86		L	I	Toxic, corrosive, the aqueous sodium hydroxide solution from operations	U101 D002		EHW	291		
2	16222	09 30 86		L	I	Corrosive, EP toxic solution with 0.4% barium chloride and 0.2% sodium hydroxide from laboratory	D002 D005		DW	352		

17. COMMENTS (Enter information by section and/or line number—see instructions).

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CONTAINER QTY	CONTAINER TYPE	HM	DOT PROPER SHIPPING NAME	HAZARD CLASS	HAZ. MAT ID. NO.	WASTE DESCRIPTION	PHYSICAL STATE	EPA HAZ. WASTE NO.	GAL./LB.	FT^3
13	55 GAL DRUM	X	WASTE AMMONIUM HYDROXIDE	CORROSIVE MATERIAL	NA2672	CORROSIVE LIQUID	LIQUID	D-022	495 GAL	68
7	55 GAL DRUM	X	WASTE SODIUM HYDROXIDE DRY SOLID	CORROSIVE MATERIAL	UN1823	CORROSIVE SOLID	SOLID	D-002	385	52.5
9	FIBER-BOARD DRUM	X	WASTE MAGNESIUM NITRATE	OXIDIZER	UN1474	OXIDIZER	SOLID	D-001	2700 LB	22.5
1	FIBER-BOARD DRUM	X	WASTE NICKEL NITRATE	OXIDIZER	UN2725	OXIDIZER	SOLID	D-001	300 LB	2.5
26	55 GAL DRUM		WASTE INHIBITED ETHYLENE GLYCOL	ORM-E	NA9189	ORM-E	LIQUID	WT02	11,480 LB	200
26	55 GAL DRUM	X	WASTE SODIUM ALUMINATE SOLUTION	CORROSIVE MATERIAL	UN1819	CORROSIVE LIQUID	LIQUID	D-002	1430 GAL	195
1	55 GAL DRUM	X	WASTE FLAMMABLE LIQUID N.O.S.	FLAMMABLE LIQUID	UN1993	LABPACK FLAMMABLE LIQUID DRUM 84-3	LIQUID	D-005	55 GAL	7.5
1	55 GAL DRUM	X	HAZARDOUS WASTE LIQUID N.O.S.	ORM-E	NA9189	LABPACK DRUM 85-4	LIQUID	D-005	55 GAL	7.5
1	55 GAL DRUM	X	WASTE FLAMMABLE LIQUID, POISONOUS N.O.S.	FLAMMABLE LIQUID	UN1992	LABPACK #86-5 FLAMMABLE LIQUID AND POISON	LIQUID	D-005	55 GAL	7.5
1	55 GAL DRUM	X	WASTE FLAMMABLE LIQUID N.O.S.	FLAMMABLE LIQUID	UN1993	LABPACK DRUM #87 1 FLAMMABLE LIQUID	LIQUID	D-005	55 GAL	7.5
1	55 GAL DRUM	X	WASTE FLAMMABLE LIQUID N.O.S.	FLAMMABLE LIQUID	UN1993	LABPACK #88-2 FLAMMABLE	LIQUID	D-005	55 GAL	7.5
1	55 GAL DRUM	X	WASTE POISON B. LIQUID N.O.S.	POISON B	UN2810	POISON LIQUID	LIQUID	D-001	55 GAL	7.5
1	55 GAL DRUM	X	WASTE TETRAHYDROFURAN	FLAMMABLE LIQUID	UN2056	FLAMMABLE LIQUID	LIQUID	D-005	55 GAL	7.5
1	55 GAL DRUM	X	WASTE FLAMMABLE LIQUID N.O.S.	FLAMMABLE LIQUID	UN1993	FLAMMABLE LIQUID LABPACK 7	LIQUID	D-005	55 GAL	7.5

CONTAINER QTY	CONTAINER TYPE	HM	DOT PROPER SHIPPING NAME	HAZARD CLASS	HAZ. MAT ID. NO.	WASTE DESCRIPTION	PHYSICAL STATE	EPA HAZ. WASTE NO.	GAL./LB.	FT^3
1	55 GAL DRUM	X	WASTE FLAMMABLE LIQUID N.O.S.	FLAMMABLE LIQUID	UN1993	LABPACK 92-8 FLAMMABLE	LIQUID	D-005	55 GAL	7.5
1	55 GAL DRUM	X	WASTE FLAMMABLE LIQUID N.O.S.	FLAMMABLE LIQUID	UN1993	LABPACK 93-9 FLAMMABLE	LIQUID	D-005	55 GAL	7.5
1	55 GAL DRUM	X	WASTE FLAMMABLE LIQUID N.O.S.	FLAMMABLE LIQUID	UN1993	LABPACK 94-10 FLAMMABLE	LIQUID	D-005	55 GAL	7.5
1	30 GAL DRUM	X	WASTE FLAMMABLE LIQUID N.O.S.	FLAMMABLE LIQUID	UN1993	LABPACK 95-11 FLAMMABLE	LIQUID	D-005	30 GAL	4.0

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APPENDIX F

SAMPLING AND HANDLING PROCEDURES

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APPENDIX F

SAMPLING AND HANDLING PROCEDURES

1.0 INTRODUCTION

This appendix outlines (or describes where necessary) the procedures that will be followed in the collection and handling of samples at the 2727-S Nonradioactive Dangerous Waste Site (NRDWS) Facility. For the most part, these procedures are contained in *WHC-CM-7-7, Environmental Investigations and Site Characterization Manual* (WHC 1989) and referenced where applicable in the sampling plan (Chapter 4.0). Table F-1 identifies those procedures that will be followed for sample collection and handling during the 2727-S NRDWS Facility field activities. The two following techniques are addressed because a written procedure does not yet exist in WHC-CM-7-7.

Concrete Coring--Section 2.0 outlines the basic procedures for extracting concrete cores for the purpose of obtaining soil samples for *Resource Conservation and Recovery Act of 1976* (RCRA) investigations.

X-Ray Fluorescence (XRF)--The procedure for field screening techniques, to be used at hazardous waste sites on the Hanford Site, is currently in development. Section 3.0 outlines the analysis plan for 2727-S NRDWS soil sampling that has been prepared using the draft form of Hanford Site XRF procedures. When a final version of a procedure documenting the usage of the X-MET* is completed it will be incorporated into the 2727-S NRDWS Facility closure plan at the appropriate interval.

2.0 CORE DRILL SAMPLING

2.1 PURPOSE

This procedure describes the methods and equipment required to core drill through concrete floor structures for the purpose of obtaining RCRA samples for site characterization at the 2727-S NRDWS Facility. These samples will consist of concrete and/or soils.

Access to the underlying soils will be obtained by coring through the concrete floors. The cores will be drilled using concrete coring equipment. From each concrete core hole access, samples of the underlying soils will be

*X-Met is a trademark of Outokumpu.

Table F-1. Investigative Procedures for 2727-S Nonradioactive Dangerous Waste Site Facility Sampling.

Procedure	Title[a]
EII 1.1	Hazardous Waste Site Entry Requirements
EII 1.2	Preparation and Revision of Environmental Investigation Instructions
EII 1.4	Deviation from Environmental Investigation Instructions
EII 1.5	Field Logbook
EII 1.6	Records Management
EII 1.7	Indoctrination, Training and Qualification
EII 2.1	Preparation of Hazardous Waste Operations Permits
EII 2.2	Occupational Health Monitoring
EII 3.2	Health and Safety Monitoring Instruments
EII 4.2	Interim Control of Unknown, Suspected Hazardous and Mixed Waste
EII 5.1	Chain of Custody
EII 5.2	Soil and Sediment Sampling
EII 5.4	Field Decontamination of Drilling, Well Development and Sampling Equipment
EII 5.5	1706-KE Laboratory Decontamination of RCRA/CERCLA Sampling Equipment
EII 5.11	Sample Packaging and Shipping

[a]Procedures are EIIs selected from the latest approved version of WHC-CM-7-7 (WHC 1989).

RCRA = Resource Conservation and Recovery Act of 1976
CERCLA = Comprehensive Environmental Response, Compensation and Liability Act of 1980.

collected with clean, stainless-steel sampling tools, and transferred to a clean, stainless-steel mixing bowl. When a sufficient amount of sample has been obtained for all of the required analyses, enough sample to be used for volatile organic analysis (VOA) will be collected and placed in the appropriate container. The sample will be thoroughly mixed, placed in appropriate sample containers along with any required sample preservatives, and stored appropriately until sent to the analyzing laboratory under chain-of-custody procedures. Sampling equipment will be decontaminated between samples and after sample collection. All sampling activities will be performed in accordance with Westinghouse Hanford Company (Westinghouse Hanford) environmental procedures.

2.2 SPECIAL EQUIPMENT

The following list is not meant to be all inclusive, but to indicate some of the special equipment not normally associated with soil sampling activities that may be necessary to perform the work.

- Electric generator set
- Core drill equipment
- Drill mounting bracket
- HILTI concrete bolting equipment (or equivalent)
- Compressed breathing air
- Coarse sand, silicon carbide, or garnet
- Hoses
- ASTM TYPE IV reagent grade water
- Approved grout material; Master Flow 928 Grout
- Steam cleaning equipment.

2.3 PREPARATORY WORK

Before core drilling, preparatory tasks will be performed. This includes equipment assembly, functional check out, and wrapping of the drill rig to facilitate decontaminating to provide access to area to be sampled.

2.4 CORE SAMPLING (Pre-Drilling)

(1) The use of water will be minimized in all cutting operations. Any liquid (water and concrete cuttings) slurry will be allowed to accumulate on the floor low points. The slurry will then be absorbed and packaged in appropriate containers. Due to the presence of this liquid slurry, the containers shall not be included in the facility shipment to the offsite RCRA permitted landfill, but instead be handled as a suspected hazardous waste separate from the 2727-S removal activity. This liquid slurry will be absorbed, packaged, and managed in accordance with EII 4.2 (WHC 1991).

(2) Predrilling holes should proceed until the boring is to a depth assessed at no more than 80 percent of estimated depth as provided by Decommissioning Engineering. The core boring should not penetrate through the concrete slab unless the sampling team is immediately available to collect samples, in keeping with Section 2.5. Otherwise, the location should be temporarily abandoned by removing the drill rig, blowing out the annulus space with air, and covering the bore hole with plastic sheeting or a wooden covering.

2.5 CORE SAMPLING (Breakthrough and Sample Collection)

Use a decontaminated core drill bit for each location.

(1) Reinstall drill rig and restart drilling EXCEPT THAT THE ONLY COOLING WATER TO BE USED SHALL CONSIST OF FILLING THE ANNULAR SPACE WITH ASTM TYPE IV REAGENT GRADE WATER.

(2) Remove the concrete core and drill rig from sample location to provide access to the soil immediately below the basin floor.

(3) Following the sample collection (refer to Chapter 4.0), the core hole will be plugged with concrete, bentonite/soil slurry, or other approved substances, as necessary.

2.6 SHARPENING CORE DRILL BITS

Bits can be sharpened by drilling into concrete block using water (water will be ASTM Type IV reagent grade water). The bit shall be decontaminated before use for breakthrough.

3.0 X-RAY FLUORESCENCE SAMPLING

3.1 INTRODUCTION

Field screening for heavy metals using a portable XRF analyzer provides a means to determine levels of contamination by heavy metals in the field. This document reports in draft form the technical basis and site-specific procedures to be used in field screening of soil samples from the 2727-S NRDWS Facility for detection of elemental contaminants, which may be present. This plan will discuss generalized site- and task-specific requirements and procedures for sample collection, data handling, and data evaluation. When a final version of specific procedures is completed, it will be incorporated into the 2727-S NRDWS Facility closure plan at the appropriate interval.

3.2 BACKGROUND INFORMATION

Although process knowledge indicates a limited potential for chemical contamination in the 2727-S Facility, soils beneath the concrete pad are to be sampled before demolition to verify that no contamination exists below the planned depth of disposal. After demolition, if further remediation is necessary due to the presence of metals, XRF will be used as a field screening technique. This will assist in determining the extent of contamination.

3.3 ANALYTICAL REQUIREMENTS

The X-Met-880 is to be used to detect the presence of inorganic contaminants in soil and concrete. Qualitative or semiquantitative data is to be provided on a quick turnaround basis, subject to confirmation by validated laboratory tests. The basic goal of field screening is to quickly identify elevated levels of elemental contaminants in soils.

Most elements are present in soils at some concentration. Table F-2 indicates typical ranges of concentration for various elements amenable to analysis by XRF. Because most elements of interest are likely to be present as part of the natural background, the basic function of XRF analysis is to identify situations when a particular element is present in concentrations significantly above typical background levels. However, this must be based on background levels specific to the soil under analysis.

Factors that affect the ability of a field-portable XRF unit to detect and quantify a specific element include matrix scattering and absorption, secondary excitation, and peak overlaps. Also, because the X-Met uses isotopic sources with fixed energy levels to irradiate the sample, the relative efficiency by which a given element can be excited will depend on the relationship between the absorption edge and the source energy lines.

The X-Met determines elemental concentrations by means of "models" in which measurements of total count rates are made in a maximum of ten "windows" associated with specific elements. Peak overlap effects are accounted for by

Table F-2. Typical Concentration of Various Elements in Soils.

Element	Common range for soils (ppm)[1]
Arsenic	1 - 50
Barium	100 - 3,000
Bromine	1 - 10
Cadmium	0.01 - 0.70
Cesium	0.3 - 25
Chromium	1 - 1,000
Cobalt	1 - 40
Copper	2 - 100
Gallium	5 - 70
Germanium	1 - 50
Iodine	0.1 - 40
Iron	7,000 - 550,000
Lanthanum	1 - 5,000
Lead	2 - 200
Mercury	0.01 - 0.3
Manganese	20 - 3,000
Molybdenum	0.2 - 5
Nickel	5 - 500
Rubidium	50 - 500
Selenium	0.1 - 2
Silver	0.01 - 5
Strontium	50 - 1,000
Tin	2 - 200
Titanium	1,000 - 10,000
Vanadium	20 - 500
Yttrium	25 - 250
Zinc	10 - 300
Zirconium	60 - 2,000

[1]Source: Lindsay, W. (1979) Chemical Equilibrim in Soils; John Wiley & Sons, New York, 1979.

means of mathematical deconvolution based on comparison of pure element spectra for the elements of interest.. Least-squares regression techniques are used to account for interelement effects by determining the best fit between measured values and known assay values for a suite of calibration standards. A maximum of six assay values may be computed and displayed in a model. The X-Met can maintain up to 32 models in memory, and recalculations can be made with different models, provided each model is based on the same source.

If a model is to provide accurate quantitative analysis, it should be based on material that is representative of material likely to be encountered in the samples to be analyzed. Development of a calibrated assay model requires 20 to 30 samples of similar matrix material containing known levels of the contaminants of interest. Presently, no such suite of samples is available for Hanford soils, and calibration of the models to be used in field screening is based on a hazardous waste calibration suite of twenty soil samples provided by Outokumpu. These samples have been oven dried and sieved to minus 200 mesh; hence, they are considerably finer and drier than typical Hanford Site soils. Assay values are provided for chromium, copper, zinc, arsenic, cadmium, and lead. Concentration values for the calibration samples are shown in Table F-3.

When calibration samples are not available, it is still possible to develop a semiquantitative estimate, based on the corrected X-ray intensity in the window of interest. An index model does not attempt to correct for interelement effects other than peak overlap. The number reported is an index value: it does not indicate the absolute amount of the element present, but rather the relative amount. Therefore, index values significantly above background levels would be an indication that the element may be present in concentrations greater than those observed in the background, but it does not necessarily mean that allowable contaminant levels have been exceeded.

A third approach to detection of elemental contaminants is the "scan" model concept. In this approach, the usable energy range is divided into six contiguous windows. For each window, the gross count rate is reported as an assay value. Comparison of assay values with background levels is used to identify samples that may contain anomalous concentrations of heavy metals. The contaminants are identified by spectral evaluation. As with the index model, it is impossible to determine concentration levels, and anomalous concentrations do not necessarily mean that allowable contaminant levels have been exceeded.

Table F-4 provides a summary of available models for evaluation of samples from the 2727-S NRDWSF. Additional models may be developed as appropriate.

For each model, the X-Met reports assay (or index) values for each of the six dependents. The instrument also reports the standard deviation for each assay value, as well as net (deconvoluted) and gross count rates for each channel.

Table F-3. Hazardous Waste Calibration Samples.

Sample number	Amount of element added (mg/Kg)					
	Cr	Cu	Zn	As	Cd	Pb
201	0	0	0	0	0	4,960
202	0	0	0	0	3,235	0
203	0	0	0	4,957	0	0
204	0	0	4,611	0	0	0
205	0	4,907	0	0	0	0
206	3,304	0	0	0	0	0
207	6,251	6,091	3,517	2,811	1,221	937
208	322	241	998	9,656	4,402	3,862
209	1,965	1,964	922	491	160	122
210	81	488	458	977	6,360	2,929
211	2,423	9,080	8,520	6,356	2,366	1,816
212	1,265	949	6,230	3,794	1,853	6,640
213	4,530	3,881	228	243	316	485
214	161	2,898	1,813	120	78	9,660
215	656	122	2,767	1,966	320	246
216	0	0	0	0	0	0
217	0	2,916	4,560	0	0	0
218	0	4,857	2,734	0	0	0
219	0	0	0	4,934	0	2,960
220	0	0	0	2,961	0	4,935

Table F-4. X-Met Models for Analysis of 2727-S NRDWS Facility Samples.

Model No.	1	2	3	5	9	10	
Source	^{241}Am	^{244}Cm	^{244}Cm	^{244}Cm	^{241}Am	^{244}Cm	
Type	Index	Index	Assay	Assay	"Scan"	"Scan"	
Elements	Rb	Cr[1,2]	Ti	Cr[1]	Fe[1,3]	Ti[1,2]	
	Sr[1,2]	Fe[1,2]	Cr[1]	Fe[1,2]	Cu[1,2]	Fe[1,2]	
	Zr[1,2]	Ni[1,2]	Fe[1,2]	Cu[1]	Rb[1,2]	Cu[1,2]	
	Mo[1,2]	Cu[1,2]	Ni	Zn[1]	Mo[1,2]	As[1,2]	
	Ag[1,2]	Zn[1,2]	Cu[1]	As[1]	Ag[1,2]	Pb[1,2]	
	Cd[1,2]	As[1,2]	Zn[1]	Pb[1]	Sn[1,2]	Pu[1,2,4]	
	Sn[1,2]	Hg	As[1]	Si[4]	BS	BS	
	Sb	Pb	Pb[1]	BS			
	BS	BS	Si[4]				
			BS				
Calibrated to:	N/A	N/A	HW samples	HW samples	HW samples	Local back-ground	Local back-ground
Standard MST/STA	None	None	S#216	S#216	S#216	None	None

[1]Indicates assay (dependent) output.
[2]Indicates assay output is an index value
[3]Secondary peak from ^{239}Pu daughters in ^{244}Cm source.
[4]Compton scattering of source radiation in a silica matrix.

BS = backscatter
HW = hazardous waste
MST = initial measurement of standard sample
N/A = not applicable
STA = standard corection measurement

In addition to model output, the X-Met also records the X-ray spectra as a function of pulse count versus energy level (channel number) in a 256-channel analyzer. This spectra can be downloaded to a computer or data logger for later analysis. Presently, experience with the X-Met suggests that visual examination of the spectra is a useful means to identify elements present in the sample. Therefore, spectra will be collected from both sources for each sample.

3.4 ANALYTICAL PROCEDURES

Analytical procedures for the X-Met are currently being developed and are not available at this time. When a final version of analytical procedures is completed, it will be incorporated into the 2727-S NRDWS Facility closure plan at the appropriate interval. These procedures may be modified as appropriate to improve the quality or reliability of the field screening data. Any modifications will be documented in the field logbook.

3.5 CONTACT MEASUREMENTS

Contact measurements will be made on soil as required. To make a contact measurement, the operator will hold the X-Met probe against the surface to be measured and pull the trigger for the specified measurement time. Results may be recorded in a portable data logger. The X-Met electronics package will be mounted on a pack frame to facilitate operator mobility.

3.6 SAMPLE MEASUREMENTS

Sample measurements will be made on aliquots of soil samples obtained for laboratory analysis and as directed by the field team leader.

Each sample will be identified by it's six-character Hanford Environmental Information System (HEIS) code. The samples will be measured with a least one model on each source, and spectra will be collected for each source. Each spectrum will be stored in an individual disc operating system (DOS) text file.

3.7 DATA EVALUATION

Because no site-specific or matrix-specific calibration samples are available for all elements of interest, evaluation of XRF data from the soil samples and contact measurements will be done in a qualitative or semiquantitative sense. Detection of contaminants will be based on both model output and examination of spectra. In general, elements will be reported as "possibly present in concentrations exceeding background levels."

3.8 MODEL DEVELOPMENT AND INTERPRETATION OF NUMERICAL OUTPUT

Models will be used to provide numeric output for each element of interest. Examination of spectra for various sands from Hanford and elsewhere suggests that iron content may be variable. Hence, iron (Fe) will generally be reported as an index value in each model. To facilitate comparison, the net count rate will be reported: no attempt will be made to "zero" the Fe output in background soils.

In addition to the elements of interest, other elements may be included in models as necessary to account for possible interelement effects and/or variations in natural element content. For example, titanium (Ti), zinc (Zn) and rubidium (Rb) may be present in measurable amounts as naturally occurring in the soil. Hence, they may be included as independents in a model. Also, additional windows may be included as necessary to measure specific energy lines or to improve deconvolution.

For each measurement, the assay values, standard deviations ("STD" command), net count rate ("INT" command) and gross count rate ("PUL" command) will be recorded. These commands have been assigned to function keys on the instrument panel. As a general rule, an element will be reported to be present if the difference between index value and background is greater than 3 times the standard deviation. This may be subject to modification, based on the results of other models and examination of the raw spectra.

3.9 SPECTRAL COMPARISON

Direct comparison of spectra can provide some indication of the elements present in a sample. Because each element fluoresces at a characteristic energy level, the presence of a peak at the corresponding channel is an indication that the element of interest may be present. However, overlapping peaks or small peaks in the vicinity of larger ones may not be immediately noticeable. Spectra are output from the X-Met in a line printer histogram format. This can be loaded into a spreadsheet such as Lotus* 1-2-3 for plotting and analysis. One analytical approach, which appears to show some promise, is to multiply the background spectra by a factor based on the ratio of the Fe or back-scatter peaks and subtracting it from the unknown spectra. If no other heavy elements other than iron are present, the resulting residual should be close to zero over all channels. Any additional counts may be an indication of the presence of an element associated with that energy level.

Spectral evaluation will be accomplished using Lotus 1-2-3. Spectra are downloaded from the X-Met and imported into Lotus, where total counts can be plotted as a function of channel number (energy level). The worksheet also can be used to manipulate spectra as necessary. For example, a representative background can be subtracted from a sample spectra to look for channels in which significant residual energy is present. The effects of iron content can be compensated for by scaling the pure element spectra for iron to obtain zero

*Lotus is a trademark of Lotus Development Corporation.

counts in the peak channel for iron and subtracting the scaled spectra from the sample spectra. A similar approach can be used to compensate for other elements which may be present in significant concentrations.

Spectra can also be viewed using the "SPECVIEW" enhancement to PROCOMM communications software provided by OutoKumpu. In SPECVIEW, a cursor can be calibrated to provide an indication of energy level at each channel. From this, elements can be identified by their characteristic energy levels.

4.0 REFERENCES

Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, Public Law 96-510, 42 USC 9601 et seq.

Lindsay, W., (1979), *Chemical Equilibrium in Soils*; John Wiley & Sons, New York, 1979.

Resource Conservation and Recovery Act of 1976, as amended, Public Law 94-580, 42 USC 6901 et seq.

WHC, 1988, *Radiation Protection Manual*, WHC-CM-4-10, Westinghouse Hanford Company, Richland, Washington.

WHC, 1989, *Environmental Investigations and Site Characterizations Manual*, WHC-CM-7-7, Westinghouse Hanford Company, Richland, Washington.

APPENDIX G

QUALITY ASSURANCE PROJECT PLAN

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GLOSSARY

DEFINITIONS OF TERMS

Accuracy. For the purposes of sampling activities, accuracy may be interpreted as the measure of the bias in a system. Sampling accuracy normally is assessed through the evaluation of trip and equipment blanks while analytical method accuracy and specific sample matrix effects are assessed through the analysis of control standards and spiked samples.

Audit. For the purposes of sampling activities, audits are considered to be systematic checks to verify the quality of operation of one or more elements of the total measurement system. In this sense, audits may be of two types: (1) performance audits, in which quantitative data are independently obtained for comparison with data routinely obtained in a measurement system or (2) system audits, involving a qualitative onsite evaluation of laboratories or other organizational elements of the measurement system for compliance with established quality assurance program and procedure requirements. For environmental investigations at the Hanford Site, performance audit requirements are fulfilled by periodic submittal of blind samples to the primary laboratory or the analysis of split samples by an independent laboratory. System audit requirements are implemented through the use of standard surveillance procedures.

Comparability. For the purposes of sampling activities, comparability is an expression of the relative confidence with which one data set may be compared with another.

Completeness. For the purposes of sampling activities, completeness may be interpreted as a qualitative parameter expressing the percentage of measurements judged to be valid.

Deviation. For the purpose of sampling activities, deviation refers to a planned departure from established criteria that may be required as a result of unforeseen field situations or that may be required to correct ambiguities in procedures that may arise in practical applications.

Field/Equipment Blanks. A blank that consists of pure deionized, distilled water or pure, clean silica sand, drawn through decontaminated sampling equipment and taken as a sample. Blanks are used to verify the adequacy of sampling equipment decontamination procedures and are used to check for possible contamination originating with the sampling environment.

Trip Blanks. A blank of purified water (prepared as for field blanks) that is placed in the sample bottle in an uncontaminated area before going in the field. Trip blanks are subjected to the same handling as other samples and serve to identify contamination from sample containers or transportation and storage procedures. One trip blank each day will be collected for methods that analyze for the presence of volatile organic compounds.

Duplicate Sample. Field duplicate samples are samples retrieved from the same sampling location using the same equipment and sampling technique and analyzed independently. Laboratory duplicate samples are samples taken successively from the same sample bulb. Duplicate samples generally are used to verify the repeatability or reproduceability of analytical data and normally are analyzed with each analytical batch or every 20 samples, whichever is greater.

Matrix Spiked Samples. Matrix spiked samples are a type of laboratory quality control sample; the samples are prepared by splitting a sample received from the field into two homogeneous aliquots (i.e., replicate samples), and adding a known quantity of a representative analyte of interest to one aliquot in order to calculate percentage of recovery.

Nonconformance. A nonconformance is a deficiency in characteristic, documentation, or procedure that renders the quality of material, equipment, services, or activities unacceptable or indeterminate. When the deficiency is of a minor nature; does not effect a permanent or significant change in quality if it is not corrected; can be brought into conformance with immediate corrective action; it shall not be categorized as a nonconformance. However, if the nature of the condition is such that it cannot be immediately and satisfactorily corrected, it shall be documented in compliance with approved procedures and brought to the attention of management for disposition and appropriate corrective action.

Precision. Precision is a measure of the repeatability or reproduceability of specific measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared to their average value. Precision normally is expressed in terms of standard deviation, but also may be expressed as the coefficient of variation (i.e., relative standard deviation) and range (i.e., maximum value minus minimum value). Precision is assessed by means of duplicate/replicate sample analysis.

Quality Assurance (QA). For the purposes of sampling activities, QA refers to the total integrated quality planning, quality control, quality assessment, and corrective action activities that collectively ensure that the data from monitoring and analysis meets all end user requirements and/or the intended end use of the data.

Quality Assurance Project Plan (QAPP). The QAPP is an orderly assembly of management policies, project objectives, methods, and procedures that defines how data of known quality will be produced for a particular project or investigation.

Quality Control (QC). For the purposes of sampling activities, QC refers to the routine application of procedures and defined methods to the performance of sampling, measurement, and analytical processes.

Reference Samples. Reference samples are a type of laboratory quality control sample prepared from an independent, traceable standard at a concentration other than that used for analytical equipment calibration, but within the calibration range. Such reference samples are required for every analytical batch or every 20 samples, whichever is greater.

Replicate Sample. Replicate samples are two aliquots removed from the same sample container in the laboratory and analyzed independently.

Representativeness. For the purposes of sampling activities, representativeness may be interpreted as the degree to which data accurately and precisely represent a characteristic of a population parameter, variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter which is most concerned with the proper design of a sampling program.

Split Sample. A split sample is produced through homogenizing a field sample and separating the sample material into two equal aliquots. Field split samples usually are routed to separate laboratories for independent analysis, generally for the purposes of auditing the performance of the primary laboratory relative to a particular sample matrix and analytical method (see the glossary entry for audit). In the laboratory, samples generally are split to create matrix spiked samples (see the glossary entry matrix spiked samples).

Validation. For the purposes of sampling activities, validation refers to a systematic process of reviewing a body of data against a set of criteria to provide assurance that the data are acceptable for their intended use.

Verification. For the purposes of sampling activities, verification refers to the process of determining whether procedures, processes, data, or documentation conform to specified requirements. Verification activities may include inspections, audits, surveillances, or technical review.

1.0 PROJECT DESCRIPTION

1.1 PROJECT OBJECTIVE

The objective of the 2727-S Nonradioactive Dangerous Waste Storage (NRDWS) facility sampling and analysis activities are to determine those portions of the facility that will require removal and disposal at a permitted, or interim status, treatment, storage, and disposal (TSD) facility. Those portions that do not require disposal will be left in place for remaining closure activities.

1.2 BACKGROUND INFORMATION

The background information for the 2727-S NRDWS Facility is contained in Chapter 1.0 of this closure plan.

1.3 QUALITY ASSURANCE PROJECT PLAN APPLICABILITY AND RELATIONSHIP TO THE WESTINGHOUSE HANFORD COMPANY QUALITY ASSURANCE PROGRAM

This quality assurance project plan (QAPP) applies specifically to the field activities and laboratory analyses performed as part of sampling and testing investigations supporting the sampling at the 2727-S NRDWS Facility. The QAPP is prepared in compliance with the *Environmental Engineering, Technology and Permitting Function Quality Assurance Program Plan* (WHC 1990). This plan describes the means selected to implement the overall QA program requirements defined by the *Quality Assurance Manual* (WHC 1989b), as applicable to environmental investigations, while accommodating the specific requirements for project plan format and content agreed upon in the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1989). The program plan contains a matrix of procedural resources [from WHC-CM-4-2 and from the *Westinghouse Hanford Environmental Investigations and Site Characterization Manual* (WHC 1989a)] that have been drawn upon to support this QAPP. This QAPP is subject to mandatory review and revision before use on subsequent phases of the investigation. Distribution and revision control of this plan will be in compliance with procedures QR 6.0, "Document Control," and QI 6.1, "Quality Assurance Document Control," all from WHC-CM-4-2 (WHC 1989b). All plans and procedures referenced in the QAPP are available for regulatory review.

1.4 SAMPLING AND TESTING ACTIVITIES

Sampling activities will include concrete sampling and sampling of soils. A complete description of all activities is provided in the sampling and analysis plan for the facility.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The following sections describe the organizations and their responsibilities in conducting investigations at the 2727-S NRDWS Facility.

2.1 PROJECT MANAGEMENT RESPONSIBILITIES

The Environmental Engineering, Geotechnology, and Permitting Function of the Westinghouse Hanford Company (Westinghouse Hanford) has primary responsibilities for conducting the sampling and analysis for the 2727-S NRDWS Facility closure activities. An organizational chart is included as Figure G-1. The following describe responsibilities of key test personnel and organizations:

- **Closure Plan Lead and Lead Regulatory/Technical Liaison (Regulatory Permitting Group)**--The Closure Plan Lead is responsible for overall project organization and interface with the regulatory agencies and the U.S. Department of Energy (DOE).

- **Technical Lead**--The Technical Lead will be responsible for overall direction of sampling and testing activities; responsibilities include the planning and authorization of all work and management of any subcontracted activities, as well as overall technical schedule and budgetary performance.

- **Quality Assurance Officer**--The Environmental Quality Assurance Officer is responsible for coordination and/or oversight of performance to the QAPP requirements by means of internal auditing and surveillance techniques. The Environmental Quality Assurance Officer retains the necessary organizational independence and authority to identify conditions adverse to quality and to inform the Closure Plan Lead and Technical Lead of needed corrective action.

- **Health and Safety Officer (Environmental Division/Environmental Field Services)**--The Health and Safety Officer is responsible for determining potential health and safety hazards from volatile, and/or toxic compounds during sample handling and sampling decontamination activities and has the responsibility and authority to halt field activities due to unacceptable health and safety concerns.

- **Field Team Leader**--The field team leader is responsible for onsite direction of sampling technicians in compliance with the requirements of the sampling plan, this QAPP, and implementing all environmental investigations instructions (EIIs).

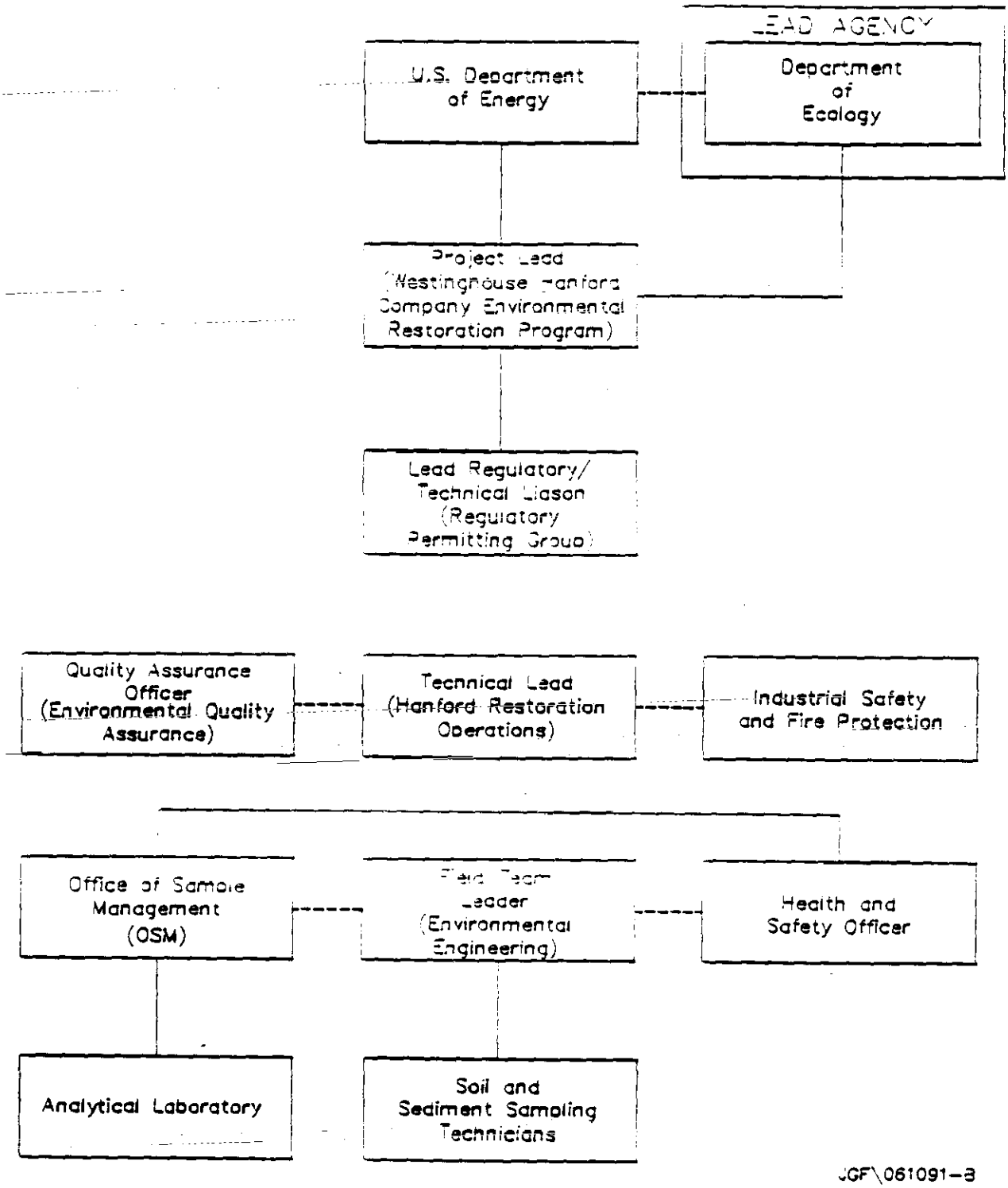

Figure G-1. Project Organization, Sampling at the 2727-S Nonradioactive Dangerous Waste Storage Facility.

- **Office of Sample Management (OSM)**--The Office of Sample Management is responsible for the procurement and coordination of analytical support services, sample tracking through the laboratories, and receipt and validation of analytical data as discussed in Section 8.0.

2.2 ANALYTICAL LABORATORIES

Samples shall be routed to an approved Westinghouse Hanford, participant contractor, or subcontractor laboratory, who shall be responsible for performing the analyses identified in this plan in compliance with work orders or contractual requirements and Westinghouse Hanford-approved procedures (Section 4.1.2). At the direction of the Technical Lead, services of alternate qualified laboratories may be procured through the OSM for the performance of split sample analyses for performance audit purposes. If such an option is selected, the QA plan and applicable analytical procedures from the alternate laboratory also shall be approved by Westinghouse Hanford before their use in compliance with Section 4.1.2 requirements. All analytical laboratory work shall be subject to the surveillance controls invoked by QI 7.3, "Source Surveillance and Inspection" (WHC 1989b).

2.3 OTHER SUPPORT CONTRACTORS

Procurement of other support contractors may be assigned project responsibilities at the direction of the Technical Lead. Such services shall be in compliance with standard Westinghouse Hanford procurement procedure requirements as discussed in Section 4.1.2. All work shall be performed in compliance with Westinghouse Hanford approved QA plans and/or procedures, subject to controls of QI 7.3, "Source Surveillance and Inspection" (WHC 1989b).

3.0 OBJECTIVES FOR MEASUREMENTS

The purpose of this investigation is to determine which portions of the 2727-S NRDWS Facility will require dismantling, transportation to, and disposal in a permitted TSD Facility for final disposition. As noted in Section 4.6 of *Data Quality Objectives for Remedial Response Activities: Volume I, Development Process* (EPA 1987), universal goals for precision, accuracy, representativeness, completeness, and comparability cannot be practically established at the outset of an investigation. However, data are available from previously negotiated analytical contracts for Hanford Site investigations, the data quality objectives guidance document cited previously (EPA 1987), and from typical capabilities currently expected for laboratories involved in environmental analyses that may be used as minimum guidelines for the selection of analytical methods appropriate for this investigation. Table G-1 provides preliminary target values for detection limits, precision, and accuracy that are intended for use in initial procurement negotiations

with the analytical laboratory. After individual laboratory statements of work are negotiated, and procedures are developed and approved as noted in Section 4.1 and Table G-1, this section will be revised to reference approved detection limit, precision, and accuracy criteria as project requirements.

Goals for data representativeness are addressed qualitatively by the specification of sampling locations and intervals within the sampling and analysis plan. Objectives for completeness for this investigation shall require that contractually or procedurally established requirements for precision and accuracy be met for at least 90 percent of the total number of requested determinations. Failure to meet this criterion shall be documented in data summary reports, as described in Section 8.1, and shall be considered in the validation process discussed in Section 8.2. As appropriate, corrective action measures shall be initiated by the Technical Lead, as noted in Section 13.0. Approved analytical procedures shall require the use of the reporting techniques and units consistent with the Environmental Protection Agency (EPA) reference methods listed in Table G-1 to facilitate the comparability of data sets in terms of precision and accuracy.

4.0 SAMPLING PROCEDURES

The following sections provide information on procedure approvals and controls, investigative procedures, and additions and changes to procedures.

4.1 PROCEDURE APPROVALS AND CONTROL

Procedure approvals and controls are discussed in the following sections.

4.1.1 Westinghouse Hanford Procedures

The Westinghouse Hanford procedures that will be used to support the sampling plan have been selected from the quality assurance program index (QAPI) included in the *Westinghouse Hanford, Environmental Engineering, Technology and Permitting Function Quality Assurance Program Plan* (WHC 1990). Selected procedures include EIIs from the *Environmental Investigations and Site Characterization Manual* (WHC 1989a), and quality requirements (QRs) and quality instructions (QIs) from the y*Westinghouse Hanford Quality Assurance Manual* (WHC 1989b). Procedure approval, revision, and distribution control requirements applicable to EIIs are addressed in EII 1.2, "Preparation and Revision of Environmental Investigation Instructions" (WHC 1989a); requirements applicable to QIs and QRs are addressed in QR 5.0, "Instructions, Procedures, and Drawings"; QI 5.1, "Preparation of Quality Assurance Documents"; QR 6.0, "Document Control"; and QI 6.1, "Quality Assurance Document Control" (WHC 1989b). Other procedures applicable to the preparation, review, and revision of OSM and other Hanford Site analytical laboratory procedures shall be defined in the various procedures and manuals

identified in the *Environmental Engineering, Technology and Permitting Function Quality Assurance Program Plan* under criteria 5.00 and 6.00. All procedures are available for regulatory review on request at the direction of the Technical Lead.

4.1.2 Participant Contractor/Subcontractor Procedures

As noted in Section 2.1, participant contractor and/or subcontractor services may be procured at the direction of the Technical Lead. All such procurements shall be subject to the applicable requirements of QR 4.0, "Procurement Document Control"; QI 4.1, "Procurement Document Control"; QI 4.2, "External Services Control"; QR 7.0, "Control of Purchased Items and Services"; QI 7.1, "Procurement Planning and Control"; and/or QI 7.2, "Supplier Evaluation" (WHC 1989b). Whenever such services require procedural controls, requirements for use of Westinghouse Hanford procedures or for submittal of contractor procedures for Westinghouse Hanford review and approval before use, shall be included in the procurement document or work order, as applicable. In addition to the submittal of analytical procedures, analytical laboratories shall be required to submit the current version of their internal QA program plans. Before use, all analytical laboratory plans and procedures shall be reviewed and approved by qualified personnel from Westinghouse Hanford QA, OSM, Westinghouse Hanford analytical laboratories organizations, or other qualified personnel, as directed by the Technical Lead. All participant contractor or subcontractor procedures, plans, and/or manuals shall be retained as project quality records in compliance with EII 1.6, "Records Management" (WHC 1989a); QR 17.0, "Quality Assurance Records"; and QI 17.1, "Quality Assurance Records Control" (WHC 1989b). All such documents shall be available for regulatory review on request, at the direction of the Technical Lead.

4.2 SAMPLING AND INVESTIGATIVE PROCEDURES

All soil sampling activities shall be performed in compliance with EII 5.2, "Soil and Sediment Sampling" (WHC 1989a). Additional EIIs that are required to support this activity are identified in Table 2 of Chapter 4.0. Sample identification requirements and container type, preparation, and preservation requirements shall be as specified in EII 5.11. Procedures to support data interpretation shall be developed as modifications to EII 1.2, as contractor procedures, or may be incorporated as addenda to this QAPP as necessary to support the detailed requirements of the 2727-S NRDWS Facility sampling plan.

4.3 PROCEDURE ADDITIONS AND CHANGES

Additional EIIs or EII updates that may be required as a consequence of sampling plan requirements shall be developed in compliance with EII 1.2, "Preparation and Revision of Environmental Investigations Instructions" (WHC 1989a). Should deviations from established EIIs be required to accommodate unforseen field situations, the field team leader can authorize

any such deviation in accordance with the requirements of EII 1.4, "Deviation from Environmental Investigations Instructions" (WHC 1989a). Documentation, review, and disposition of instruction change authorization forms are defined within EII 1.4. Other types of document change requests shall be completed as required by the Westinghouse Hanford procedures governing their preparation and revision.

5.0 SAMPLE CUSTODY

All samples obtained during the course of this investigation shall be controlled as required by EII 5.1, "Chain of Custody" (WHC 1989) from the point of origin to the analytical laboratory. Laboratory chain-of-custody procedures shall be reviewed and approved as required by Westinghouse Hanford procurement control procedures as noted in Section 4.1, and shall ensure the maintenance of sample integrity and identification throughout the analytical process. At the direction of the Technical Lead, requirements for return of residual sample materials after completion of analysis shall be defined in accordance with those procedures defined in the procurement documentation to subcontractor or participant contractor laboratories. Chain-of-custody forms shall be initiated for returned residual samples as required by the approved procedures applicable within the participating laboratory. Results of analyses shall be traceable to original samples through the unique code or identifier specified in Section 4.0. All results of analyses shall be controlled as permanent project quality records as required by QR 17.0, "Quality Assurance Records" (WHC 1989b) and EII 1.6, "Records Management" (WHC 1989a).

6.0 CALIBRATION PROCEDURES

Calibration of all Westinghouse Hanford measuring and test equipment, whether in existing inventory or purchased for this investigation, shall be controlled as required by QR 12.0, "Control of Measuring and Test Equipment"; QI 12.1, "Acquisition and Calibration of Portable Measuring and Test Equipment"; QI 12.2, "Measuring and Test Equipment Calibration by User" (WHC 1989b); and/or EII 3.1, "User Calibration of Health and Safety Measuring and Test Equipment" (WHC 1989a). Routine operational checks for Westinghouse Hanford field equipment shall be as defined within applicable EIIs or procedures; similar information shall be provided in Westinghouse Hanford-approved participant contractor or subcontractor procedures.

Calibration of Westinghouse Hanford, participant contractor, or subcontractor laboratory analytical equipment shall be as defined by applicable standard analytical methods, subject to Westinghouse Hanford review and approval.

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7.0 ANALYTICAL PROCEDURES

Analytical methods or procedures based on the reference methods identified in Table 1 and Section 3.0 shall be selected or developed and approved before use in compliance with appropriate Westinghouse Hanford procedure and/or procurement control requirements as noted in Section 4.1.

8.0 DATA REDUCTION, VALIDATION, AND REPORTING

The following sections contain information concerning data reporting, data validation, and data review and management.

8.1 DATA REDUCTION AND DATA PACKAGE PREPARATION

All analytical laboratories shall be responsible for preparing a report summarizing the results of analysis and for preparing a detailed data package that includes all information necessary to perform data validation to the extent indicated by the minimum requirements of Section 8.2. Data summary report format and data package content shall be defined in procurement documentation subject to Westinghouse Hanford review and approval as noted in Section 4.1. At a minimum, laboratory data packages shall include the following:

- Sample receipt and tracking documentation (including identification of the organization and individuals performing the analysis, the names and signatures of the responsible analysts, sample holding time requirements, references to applicable chain-of-custody procedures, and the dates of sample receipt, extraction, and analysis)

- Instrument calibration documentation, including equipment type and model, with continuing calibration data for the time period in which the analysis was performed

- Quality control data, as appropriate for the methods used, including matrix spike/matrix spike duplicate data, recovery percentages, precision data, laboratory blank data, and identification of any nonconformances that may have affected the laboratory's measurement system during the time period in which the analysis was performed

- The analytical results or data deliverables, including reduced data, reduction formulas or algorithms, and identification of data outliers or deficiencies.

Other supporting information, such as initial calibration data, reconstructed ion chromatographs, spectrograms, traffic reports, and raw data, need not be included in the submittal of individual data packages unless specifically requested by the Technical Lead or the OSM. However, all sample data shall be retained by the analytical laboratory and made available for systems or program audit purposes upon request by Westinghouse Hanford, U.S. Department of Energy-Richland Operations Office (DOE-RL), or regulatory agency representatives (Section 10.0). Such data shall be retained by the analytical laboratory through the duration of contractual statement of work, at which point the data shall be turned over to Westinghouse Hanford for archiving.

The completed data package shall be reviewed and approved by the analytical laboratory's QA Manager before submittal to the OSM for validation as discussed in Section 8.2. The requirements of this section shall be included in procurement documentation or work orders, as appropriate, in compliance with the standard Westinghouse Hanford procurement control procedures referenced in Section 4.1.

8.2 VALIDATION

Validation of the completed data package shall be performed by Westinghouse Hanford OSM personnel. The following validation requirements shall be defined within approved OSM data validation procedures at a minimum of Level C as outlined in Westinghouse Hanford's *Sample Management and Administration WHC-CM-5-3*, (WHC 1990b).

- Sample holding times
- Initial and continuing calibration requirements
- Accuracy (i.e., spikes, control standards, etc.)
- Precision (i.e, duplicates, splits, etc.)
- Blanks.

8.3 FINAL REVIEW AND RECORDS MANAGEMENT CONSIDERATIONS

All validation reports and supporting analytical data packages shall be subjected to a final technical review by a qualified reviewer at the direction of the Technical Lead before submittal to regulatory agencies or inclusion in reports or technical memoranda. All validation reports, data packages, and review comments shall be retained as permanent project quality records in compliance with EII 1.6, "Records Management" (WHC 1989a) and QA 17.0, "Quality Assurance Records" (WHC 1989b).

9.0 INTERNAL QUALITY CONTROL

All analytical samples shall be subject to in-process quality control measures in both the field and laboratory. Unless superseded by specific directions provided in the sampling plan, the following minimum field quality control requirements apply. The following requirements are adapted from *Test Methods for Evaluating Solid Waste* (SW-846) (EPA 1986), as modified by the proposed rule changes included in the *Federal Register*, Volume 54, No. 13 (EPA 1989).

- Duplicate samples--For each shift of sampling activity under an individual sampling subtask, a minimum of 5 percent of the total collected samples shall be duplicated. Field duplicate samples are samples retrieved from the same sampling location using the same equipment and sampling technique, but analyzed independently. Laboratory duplicate samples are samples taken successively from the same bulb. Duplicate samples are generally used to verify the repeatability or reproduceability of the analytical data.

- Split samples--At the Technical Lead's direction, field or field duplicate samples may be split in the field and sent to an alternative laboratory as a performance audit of the primary laboratory. Frequency shall meet the minimum requirements identified in the bullets below.

- Field/Equipment Blanks--A water blank consists of pure deionized, distilled water whose chemical composition is known, drawn through decontaminated sampling equipment and taken as a sample. Blanks are used to verify the adequacy of sampling equipment decontamination procedures and are used to check for possible contamination originating with the sampling environment. Blanks will be run before the initiation of sampling each day or if blank contamination is suspected or detected.

The internal quality control checks performed by analytical laboratories' laboratory analyses shall meet the following minimum requirements:

- Matrix spiked (MS) and matrix spiked duplicate (MSD) samples--Matrix spiked and matrix spiked duplicate samples require the addition of a known quantity of a representative analyte of interest to the sample as a measure of recovery percentage. The spike shall be made in a replicate of a field sample. Spike compound selection, quantities, and concentrations shall be described in the laboratories analytical procedures. Minimum QC requirements should be an analysis of either a (1) MS/MSD analysis, of (2) matrix spike and duplicate sample analysis at a frequency of once/batch or once every 20 samples, whichever is greater, and at least once for each sample matrix analyzed.

- Quality control reference samples--A quality control reference sample shall be prepared from an independent standard at a concentration other than that used for calibration, but within the calibration range, as required by method specific QC. Reference samples are required as an independent check on analytical technique and methodology, and shall be run with every analytical batch, or every 20 samples, whichever is greater.

- Method blank--A method blank shall be run at a frequency of once/batch or once/20 samples and once for each sample matrix as a measure of any laboratory contamination.

Other instrument or method specific quality control and calibration requirements shall be as defined by the applicable standard analytical methods. The minimum requirements of this section shall be invoked in procurement documents or work orders in compliance with standard Westinghouse Hanford procedures as noted in Section 4.1.

10.0 PERFORMANCE AND SYSTEM AUDITS

Performance, system, and program audits are scheduled to begin early in the execution of this sampling plan and to continue through to completion. Collectively, the audits address quality affecting activities that include, but are not limited to measurement accuracy, intramural and extramural analytical laboratory services, field activities, and data collection, processing, validation, and management.

Performance audits of the accuracy of laboratory analyses are implemented in accordance with Standard Operating Procedure EII 1.12 "Laboratory Analysis Performance Audits." System audit requirements are implemented in accordance with Standard Operating Procedure QI 10.4, "Surveillance" (WHC 1989b). Surveillances will be performed regularly throughout the course of the sampling plan activities. Additional performance and system surveillances may be scheduled as a result of corrective action requirements, or may be performed upon request. All quality affecting activities are subject to surveillance.

All aspects of sampling plan activities will also be evaluated as part of environmental restoration program wide QA audits under the procedural requirements of WHC-CM-4-2 (WHC 1989b). Program audits shall be conducted in accordance with QR 18.0, "Audits"; QI 18.1, "Audit Programming and Scheduling"; and QI 18.2, "Planning, Performing, Reporting, and Follow-up of Quality Audits" by auditors qualified in compliance with QI 2.5, "Qualification of Quality Assurance Program Audit Personnel" (WHC 1989b).

11.0 PREVENTIVE MAINTENANCE

All measurement and testing equipment used in the field and laboratory that directly affects the quality of the analytical data shall be subject to preventive maintenance measures that ensure minimization of measurement system downtime. Field equipment maintenance instructions shall be as defined by the approved procedures governing their use. Laboratories shall be responsible for performing or managing the maintenance of their analytical equipment; maintenance requirements, spare parts lists, and instructions shall be included in individual methods or in laboratory QA plans, subject to Westinghouse Hanford review and approval. When samples are analyzed using EPA reference methods, the requirements for preventive maintenance of laboratory analytical equipment as defined by the reference method shall apply.

12.0 DATA ASSESSMENT PROCEDURES

Analytical data shall first be compiled and summarized by the laboratory and validated in compliance with approved OSM procedures meeting all minimum requirements of Section 8.0.

13.0 CORRECTIVE ACTION

Corrective action requests required as a result of surveillance reports, nonconformance reports, or audit activity shall be documented and dispositioned as required by QR 16.0, "Corrective Action"; QI 16.1, "Trending/Trend Analysis"; and QI 16.2, Corrective Action Reporting," (WHC 1989b). Primary responsibilities for corrective action resolution are assigned to the Technical Lead and the QA Coordinator. Other measurement systems, procedures, or plan corrections that may be required as a result of routine review processes shall be resolved as required by governing procedures or shall be referred to the Technical Lead for resolution. Copies of all surveillance, nonconformance, audit, and corrective action documentation shall be routed to the project QA records upon completion.

14.0 QUALITY ASSURANCE REPORTS

As previously stated in Sections 10.0 and 13.0, project activities shall be assessed regularly by auditing and surveillance processes. At the conclusion of the sampling program all field and laboratory data, raw data,

reports, surveillance reports, non-conformance reports, audit reports and corrective action documentation will be transferred to Westinghouse Hanford for archival, if not already transmitted.

15.0 REFERENCES

Ecology, et al., 1989, *Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Richland, Washington.

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WHC, 1990b, *Sample Management and Administration*, WHC-CM-5-3, Westinghouse Hanford Company, Richland, Washington.

EPA, 1983, *Methods for Chemical Analysis of Waste and Water*, EPA-600/4-79-020, U.S. Environmental Protection Agency/Office of Research and Development, Cincinnati, Ohio.

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Table G-1. Analytical Levels, Methods and Detection Limits for Sample Analysis. (sheet 1 of 7)

Category of Analysis	Analyte of Interest	Analytical Level[1]	EPA Standard Method[2]	MDC[3]
Organic vapor screening	Volatile/semivolatile organics	I	N/A	N/A
X-ray fluorescence	Metals (Al-U)	I	N/A	N/A
Ion analysis	Bromide	III	300.0[5]	1 µg/g
	Chloride	III	300.0[5]	1 µg/g
	Fluoride	III	300.0[5]	1 µg/g
	Nitrate	III	300.0[5]	1 µg/g
	Nitrite	III	300.0[5]	1 µg/g
	Phosphate	III	300.0[5]	2 µg/g
	Sulfate	III	300.0[5]	1 µg/g
	Sulfide	III	9031	10 µg/g
	Cyanide	III	9010	0.5 µg/g
	Ammonium	III	ASTM-D-1426 C/D[4]	0.5 µg/g
Metals analysis	Aluminum	III	6010	15 µg/g
	Antimony	III	6010	10 µg/g
	Barium	III	6010	0.6 µg/g
	Beryllium	III	6010	0.3 µg/g
	Boron	III	6010	1 µg/g
	Cadmium	III	6010	0.2 µg/g
	Calcium	III	6010	5 µg/g
	Chromium	III	6010	1 µg/g
	Cobalt	III	6010	2 µg/g
	Copper	III	6010	1 µg/g
	Iron	III	6010	5 µg/g
	Lithium	III	6010	10 µg/g
	Magnesium	III	6010	5 µg/g
	Manganese	III	6010	0.5 µg/g
	Molybdenum	III	6010	4 µg/g
	Nickel	III	6010	1 µg/g
	Potassium	III	6010	10 µg/g
	Silicon	III	6010	5 µg/g
	Silver	III	6010	1 µg/g
	Titanium	III	6010	6 µg/g
	Sodium	III	6010	10 µg/g
	Strontium	III	6010	1 µg/g

Table G-1. Analytical Levels, Methods and Detection Limits for Sample Analysis. (sheet 2 of 7)

Category of Analysis	Analyte of Interest	Analytical Level[1]	EPA Standard Method[2]	MDC[3]
Metals analysis (cont.)	Tin	III	6010	3 µg/g
	Vanadium	III	6010	0.5 µg/g
	Zinc	III	6010	0.5 µg/g
	Zirconium	III	6010	5 µg/g
	Arsenic	III	7060	0.5 µg/g
	Lead	III	7421	0.5 µg/g
	Mercury	III	7471	0.2 µg/g
	Selenium	III	7740	0.5 µg/g
	Thallium	III	7841	1.0 µg/g
Volatile organics analysis	Acetone	III	8240	TBD
	Acetonitrile	III	8240	0.01 µg/g
	Acrolein	III	8240	0.01 µg/g
	Acrylonitrile	III	8240	0.01 µg/g
	Allyl chloride	III	8240	0.1 µg/g
	Benzene	III	8240	0.005 µg/g
	Bromodichloromethane	III	8240	0.005 µg/g
	Bromoform	III	8240	0.005 µg/g
	Carbon disulfide	III	8240	0.01 µg/g
	Carbon tetrachloride	III	8240	0.01 µg/g
	Chlorobenzene	III	8240	0.005 µg/g
	Chloroethane	III	8240	0.005 µg/g
	Chloroform	III	8240	0.01 µg/g
	Dibromochloromethane	III	8240	0.005 µg/g
	1,2-Dibromo-3-chloropropane	III	8240	0.005 µg/g
	1,2-Dibromoethane	III	8240	0.01 µg/g
	p-Dichlorobenzene	III	8240	0.01 µg/g
	trans-1,4-Dichloro-2-butene	III	8240	0.005 µg/g
	Dichlorodiflouromethane	III	8240	TBD
	1,1-Dichloroethane	III	8240	0.01 µg/g
	1,2-Dichloroethane	III	8240	0.005 µg/g
	1,1-Dichloroethylene	III	8240	0.5 µg/g
	trans-1,2-Dichloroethylene	III	8240	0.01 µg/g
	1,2-Dichloropropane	III	8240	0.005 µg/g
	1,3-Dichloropropene	III	8240	0.005 µg/g
	1,4-Dioxane	III	8240	0.005 µg/g
	Ethyl benzene	III	8240	0.5 µg/g
	Ethyl methacrylate	III	8240	0.005 µg/g
	2-hexanone	III	8240	0.05 µg/g

Table G-1. Analytical Levels, Methods and Detection Limits for Sample Analysis. (sheet 3 of 7)

Category of Analysis	Analyte of Interest	Analytical Level[1]	EPA Standard Method[2]	MDC[3]
Volatile organics analysis (cont.)	Methacrylonitrile	III	8240	0.01 µg/g
	Methyl bromide	III	8240	0.01 µg/g
	Methyl chloride	III	8240	0.01 µg/g
	Methyl ethyl ketone	III	8240	0.01 µg/g
	Methyl iodide	III	8240	TBD
	Methyl isobutyl ketone	III	8240	0.01 µg/g
	Methyl bromide	III	8240	0.01 µg/g
	Methylene chloride	III	8240	0.01 µg/g
	Pentachloroethane	III	8240	0.01 µg/g
	Propionitrile	III	8240	0.005 µg/g
	Pyridine	III	8240	0.5 µg/g
	Styrene	III	8240	0.005 µg/g
	1,1,1,2-Tetrachloroethane	III	8240	0.01 µg/g
	1,1,2,2-Tetrachloroethane	III	8240	0.005 µg/g
	Tetrachloroethylene	III	8240	0.005 µg/g
	Toluene	III	8240	0.005 µg/g
	1,1,1-Trichloroethane	III	8240	0.005 µg/g
	1,1,2-Trichloroethane	III	8240	0.005 µg/g
	Trichloroethylene	III	8240	0.005 µg/g
	Trichlorofluoromethane	III	8240	TBD
	1,2,3-Trichloropropane	III	8240	0.01 µg/g
	Vinyl acetate	III	8240	0.005 µg/g
	Vinyl chloride	III	8240	0.01 µg/g
	Xylene (total)	III	8240	0.005 µg/g
Semi-volatile organics analysis	Acenapthene	III	8270	1 µg/g
	Acenapthylene	III	8270	1 µg/g
	Acetone	III	8270	1 µg/g
	Acetophenone	III	8270	1 µg/g
	2-Acetylaminofluorene	III	8270	1 µg/g
	4-Aminobiphenyl	III	8270	1 µg/g
	Aniline	III	8270	1 µg/g
	Anthracene	III	8270	1 µg/g
	Aramite	III	8270	1 µg/g
	Benzo[a]anthracene	III	8270	1 µg/g
	Benzo[b]fluoranthene	III	8270	1 µg/g
	Benzo[k]fluoranthene	III	8270	1 µg/g
	Benzo[ghi]perylene	III	8270	1 µg/g
	Benzo[a]pyrene	III	8270	1 µg/g

Table G-1. Analytical Levels, Methods and Detection Limits for Sample Analysis. (sheet 4 of 7)

Category of Analysis	Analyte of Interest	Analytical Level[1]	EPA Standard Method[2]	MDC[3]
Semi-volatile organics analysis (cont.)	Benzyl alcohol	III	8270	1 µg/g
	Bis(2-chloroethoxy)methane	III	8270	1 µg/g
	Bis(2-chloroethyl)ether	III	8270	1 µg/g
	Bis(2-chloro-1-methylethyl) ether	III	8270	1 µg/g
	Bis(2-ethylhexyl)phthalate	III	8270	1 µg/g
	4-Bromophenyl phenyl ether	III	8270	1 µg/g
	Butyl benzyl phthalate	III	8270	1 µg/g
	p-Chloro-m-cresol	III	8270	1 µg/g
	2-Chloronapthalene	III	8270	1 µg/g
	2-Chlorophenol	III	8270	1 µg/g
	Chrysene	III	8270	1 µg/g
	Cresol	III	8270	1 µg/g
	Diallate	III	8270	1 µg/g
	Dibenz[ah]anthracene	III	8270	1 µg/g
	Dibenzofuran	III	8270	1 µg/g
	Di-n-butyl phthalate	III	8270	1 µg/g
	1,2-Dichlorobenzene	III	8270	1 µg/g
	1,3-Dichlorobenzene	III	8270	1 µg/g
	1,4-Dichlorobenzene	III	8270	1 µg/g
	3,3-Dichlorobenzidine	III	8270	1 µg/g
	2,4-Dichlorophenol	III	8270	1 µg/g
	2,6-Dichlorophenol	III	8270	1 µg/g
	Diethyl phthalate	III	8270	1 µg/g
	0,0-diethyl 0-2-pyrazinyl phosphorothionate	III	8270	1 µg/g
	dihydrosafrole	III	8270	1 µg/g
	p-(Dimethylamino) azobenzene	III	8270	1 µg/g
	7,12-Dimethylbenz[a]-anthracene	III	8270	1 µg/g
	3,3'-Dimethylbenzidine	III	8270	1 µg/g
	alpha, alpha-Dimethyl-phenethylamine	III	8270	1 µg/g
	Dimethyl phthalate	III	8270	1 µg/g
	m-Dinitrobenzene	III	8270	1 µg/g
	4,6-Dinitro-o-cresol	III	8270	1 µg/g
	2,4-Dinitrophenol	III	8270	1 µg/g
	2,4-Dinitrotoluene	III	8270	1 µg/g
	2,6-Dinitrotoluene	III	8270	1 µg/g
	Dinoseb	III	8270	1 µg/g

Table G-1. Analytical Levels, Methods and Detection Limits for Sample Analysis. (sheet 5 of 7)

Category of Analysis	Analyte of Interest	Analytical Level[1]	EPA Standard Method[2]	MDC[3]
Semi-volatile organics analysis (cont.)	Di-n-octyl phthalate	III	8270	1 µg/g
	Diphenylamine	III	8270	1 µg/g
	Ethyl methanesulfonate	III	8270	1 µg/g
	Fluoranthene	III	8270	1 µg/g
	Fluorene	III	8270	1 µg/g
	Hexachlorobenzene	III	8270	1 µg/g
	Hexachlorobutadiene	III	8270	1 µg/g
	Hexachlorocyclopentadiene	III	8270	1 µg/g
	Hexachloroethane	III	8270	1 µg/g
	Hexachlorophene	III	8270	1 µg/g
	Hexachloropropene	III	8270	1 µg/g
	Indeno(1,2,3-cd)pyrene	III	8270	1 µg/g
	Isodrin	III	8270	1 µg/g
	Isophorone	III	8270	1 µg/g
	Isosafrole	III	8270	1 µg/g
	Methapyrilene	III	8270	1 µg/g
	3-Methylcholanthrene	III	8270	1 µg/g
	Methyl methacrylate	III	8270	1 µg/g
	Methyl methanesulfonate	III	8270	1 µg/g
	2-methylnaphthalene	III	8270	1 µg/g
	Napthalene	III	8270	1 µg/g
	1,4-Naphthoquinone	III	8270	1 µg/g
	1-Napnthylamine	III	8270	1 µg/g
	2-Naphthylamine	III	8270	1 µg/g
	m-nitroaniline	III	8270	1 µg/g
	o-nitroaniline	III	8270	1 µg/g
	p-nitroaniline	III	8270	1 µg/g
	4-nitroquinoline 1-oxide	III	8270	1 µg/g
	N-nitrosodi-n-butylamine	III	8270	1 µg/g
	N-nitrosodiethylamine	III	8270	1 µg/g
	N-nitrosodiphenylamine	III	8270	1 µg/g
	N-nitrosomethylethylamine	III	8270	1 µg/g
	N-nitrosomorpholine	III	8270	1 µg/g
	N-nitrosopiperidine	III	8270	1 µg/g
	N-nitrosopyrrolidine	III	8270	1 µg/g
	5-Nitro-o-toluidine	III	8270	1 µg/g
	Pentachlorobenzene	III	8270	1 µg/g
	Pentachloronitrobenzene	III	8270	1 µg/g
	Pentachlorophenol	III	8270	1 µg/g

Table G-1. Analytical Levels, Methods and Detection Limits for Sample Analysis. (sheet 6 of 7)

Category of Analysis	Analyte of Interest	Analytical Level[1]	EPA Standard Method[2]	MDC[3]
Semi-volatile organics analysis (cont.)	Phenacetin	III	8270	1 µg/g
	Phenanthrene	III	8270	1 µg/g
	Phenol	III	8270	1 µg/g
	p-Phenylenediamine	III	8270	1 µg/g
	2-Picoline	III	8270	1 µg/g
	Pronamide	III	8270	1 µg/g
	Pyrene	III	8270	1 µg/g
	Safrole	III	8270	1 µg/g
	1,2,4,5-Tetrachlorobenzene	III	8270	1 µg/g
	2,3,4,6-Tetrachlorophenol	III	8270	1 µg/g
	o-toluidine	III	8270	1 µg/g
	1,2,4-Trichlorobenzene	III	8270	1 µg/g
	2,4,6-Trichlorophenol	III	8270	1 µg/g
	2,4,5-Trichlorophenol	III	8270	1 µg/g
	0,0,0-Triethyl phosphorothioate	III	8270	1 µg/g
	sym-Trinitrobenzene	III	8270	1 µg/g
Pesticide and PCB analysis	Endrin	III	8080	0.01 µg/g
	Lindane (and isomers)	III	8080	0.01 µg/g
	Methoxychlor	III	8080	1 µg/g
	Toxaphene	III	8080	1 µg/g
	Aldrin	III	8080	0.01 µg/g
	Chlordane	III	8080	1 µg/g
	4,4'-DDD	III	8080	0.01 µg/g
	4,4'-DDE	III	8080	0.01 µg/g
	4,4'-DDT	III	8080	0.01 µg/g
	Endosulfan I	III	8080	0.01 µg/g
	Endosulfan II	III	8080	0.01 µg/g
	Endosulfan sulfate	III	8080	0.05 µg/g
	Heptachlor	III	8080	0.01 µg/g
	Heptachlor epoxide	III	8080	0.01 µg/g
	Kepone	III	8080	1 µg/g
	Dieldrin	III	8080	0.01 µg/g
	Chlorobenzilate	III	8080	0.3 µg/g
	Polychlorinated biphenyls	III	8080	1 µg/g
Chlorinated herbicide analysis	2,4-D	III	8150	1 µg/g
	2,4,5-TP silvex	III	8150	1 µg/g
	2,4,5-T	III	8150	1 µg/g

Table G-1. Analytical Levels, Methods and Detection Limits for Sample Analysis. (sheet 7 of 7)

Category of Analysis	Analyte of Interest	Analytical Level[1]	EPA Standard Method[2]	MDC[3]
Phosphorous pesticide analysis	Dimethoate	III	8140	0.2 µg/g
	Disulfoton	III	8140	1 µg/g
	Methyl parathion	III	8140	1 µg/g
	Phorate	III	8140	1 µg/g
	Tetraethylpyrophosphate	III	8140	1 µg/g

Notes:

(1) Analytical levels are as defined in Section 4.3.1 of *Data Quality Objectives for Remedial Response Activities: Volume 1, Development Process* (EPA, 1987a).

(2) EPA standard methods are from *Test Methods for Evaluating Solid Wastes (SW-846)*, Third Edition (EPA, 1986).

(3) MDC refers to contractually defined minimum detectable concentration in soil. Certain MDC values are labeled TBD (to be determined) and will be provided in a revision to this table after Westinghouse Hanford review and approval of revisions to the statement of work.

(4) Standard ASTM methods are from *1990 Annual Book of ASTM Standards, Volume 4.08: Soil and Rock; Building Stones; Geotextiles* (ASTM, 1987).

(5) From *Methods for Chemical Analysis of Water and Wastes* (EPA 1983).

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APPENDIX H

PERSONNEL TRAINING

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Title:	Generator Hazards Safety Training
Description:	Provides the dangerous material/waste worker with the fundamentals for safe use and disposal of dangerous materials.
Target Audience:	Dangerous material and waste workers
Technique:	Classroom
Evaluation:	Written test
Length:	4 hours
Frequency:	24 months.

Title:	Hazardous Waste Worker Safety Training
Description:	Provides the dangerous waste worker with the fundamentals of safety when working with dangerous waste.
	Note: This course fulfills training requirements of 29 CFR 1910.120 requiring dangerous waste training of workers at all treatment, storage, and/or disposal facilities regulated under RCRA.
Target Audience:	Dangerous material and waste workers
Technique:	Classroom and on-the-job training
Evaluation:	Written test
Length:	24 hours
Frequency:	Not applicable.

1	Title:	Hazardous Waste Worker Safety Training Refresher
2	Description:	Provides the dangerous waste worker with a refresher in the fundamentals of safety when working with dangerous waste.
3		Note: This course fulfills training requirements of 29 CFR 1910.120 requiring dangerous waste training of workers at all treatment, storage, and/or disposal facilities regulated under RCRA.
4	Target Audience:	Dangerous material and waste workers
5	Technique:	Classroom
6	Evaluation:	Written test
7	Length:	8 hours
8	Frequency:	12 months.
9		
10		
11	Title:	Hazardous Material/Waste job-Specific Training
12	Description:	Provides job-specific dangerous material/waste information. Two checklists may be obtained from safety training to help the supervisor/manager through this session with each employee.
13		Note: Not a classroom presentation--supervisor conducts this exercise with each employee using the checklists.
14	Target Audience:	Employees who complete generator hazards safety training
15	Technique:	On-the-job training
16	Evaluation:	On-the-job training checklist
17	Length:	Average - 2 hours
18	Frequency:	12 months.

1	Title:	Scott SKA-PAK MSA PAPR
2	Description:	This class is designed to instruct employees in the proper use of the Scott "SKAPAK" for entry, exit, or work in conditions immediately dangerous to life and health, and to instruct employees to recognize and handle emergencies. This class also includes instructions in the use of MSA PAPR.
3	Target Audience:	General, Safety, QA, OPS/OPRS, Management, Maintenance Engineering
4	Technique:	Classroom
5	Evaluation:	Practical exam
6	Length:	Approximately 2 hours
7	Frequency:	12 months.
8		
9		
10	Title:	Self-Contained Breathing Apparatus (SCBA) Annual Qualification
11	Description:	Provides instructions in the proper use of a pressure-demand respirator in which breathing air is supplied from a cylinder carried on the user's back. The SCBA are typically used for emergency response situations in an atmosphere that is immediately dangerous to life or health.
12	Target Audience:	General, Safety, OPS/OPRS, Maintenance
13	Technique:	Taught in a classroom using a slide projector and overhead projector
14	Evaluation:	Written and practical test
15	Length:	Approximately 4 hours
16	Frequency:	12 months.
17		

Title:	Radiation Safety Training
Description:	A practical dress/undress demonstration is also required. Instructs radiation workers in the fundamentals of radiation protection and the proper procedures for monitoring exposures (ALARA). Training includes knowledge of the acute and chronic effects of exposure to radiation risks associated with occupational radiation exposure, mode of exposure, protective measures, instrumentation, monitoring programs, contamination control, personnel decontamination, warning signs and alarms, and responsibilities of employees and managers.
Target Audience:	Radiation workers as defined in WHC-CM-4-10
Technique:	Taught in a classroom using a white board, and appropriate audio/visual equipment
Evaluation:	Written exam and practical dress/undress
Length:	Approximately 7 hours
Frequency:	24 months (retraining under Course Number 020003).

Title:	On-The-Job Training
Description:	On-the-job training under the supervision of an experienced person before full responsibilities may be assumed. In addition, all personnel on the hazardous waste site are required to have reviewed this Waste Sampling and Analysis Plan.
Target Audience:	Nuclear Operators and Operations Management
Technique:	Classroom and on-the-job training
Evaluation:	Practical exercise and on-the-job training checklist
Length:	40 hours
Frequency:	12 months.

Title:	Cardiopulmonary Resuscitation (CPR)
Description:	Provide cardiopulmonary Resuscitation training to American Heart Association standards.
Target Audience:	Hazardous Waste Worker
Technique:	Classroom and active participation
Length:	4 hours
Frequency:	24 months (recertification)

Title:	Noise Control (Noise-Hearing Conservation)
Description:	Provide employees with information conducive to hearing conservation. Supervisors and employees responsibility, exposure limits, hearing conservation requirements, protection devices, diagnosis of noise, induced hearing loss
Target audience:	All employees exposed to an 8 hour time weighted average sound level of 85 dBA or greater
Technique:	Classroom
Evaluation:	None
Length:	Approximately 1 hour
Frequency:	12 months.

1	Title:	Hazardous Waste Site Supervisor/Manager Safety Management Training
2	Description:	This program provides an additional eight hours of training for supervisors and managers covering hazardous waste programs.
3	Target Audience:	Personnel who manage or have safety overview responsibilities of dangerous material and waste operations.
4	Technique:	Classroom
5	Evaluation:	None
6	Length:	8 hours
7	Frequency:	Not applicable
8		

APPENDIX I

CERTIFICATION STATEMENTS

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APPENDIX I

CERTIFICATION STATEMENTS

CERTIFICATION OF CLOSURE FOR THE 2727-S NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY

Within 60 days of final closure, the DOE-RL will submit to Ecology a certification of closure. This certification will be signed by both the DOE-RL and an independent professional engineer registered in the State of Washington, stating that the 2727-S Facility has been closed in accordance with the approved closure plan. The certification will be submitted by registered mail. Documentation supporting the independent professional engineer's certification will be retained and furnished to Ecology upon request.

The DOE-RL and the independent professional engineer registered in the State of Washington will certify with the document similar to Figure I-1. Figure I-1 is attached for your consideration.

CLOSURE CERTIFICATION
FOR

_____

Hanford Site Facility
Department of Energy-Richland Operations

We, the undersigned, hereby certify that all _____ closure activities were performed in accordance with the specifications in the approved closure plan.

_____
Owner/Operator Signature DOE-RL Representative Date
(Typed Name)

_____ P.E.# _____
Signature Independent Registered Professional Engineer Date
(Typed Name and Washington State Professional Engineer license number)

Figure I-1 Closure Certification Form.