AR TARGET SHEET

The following document was too large to scan as one unit, therefore, it has been broken down into sections.

EDMC#:	0062811
SECTION:	5 OF 15
DOCUMENT #:	WA7890008967 Rev 8
TITLE:	Hanford Facility RCRA Permit, Dangerous Waste Portion, Rev 008, 9/04

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STRATEGY FOR HANDLING AND DISPOSING OF PURGEWATER AT THE HANFORD SITE, WASHINGTON

JULY 1990

1.0 PURPOSE AND OBJECTIVES

1.1 The purpose of this document is fourfold:

1.1.1 Describe the strategy for managing purgewater at the Hanford Site, Washington.

1.1.2 Describe purgewater collection criteria for groundwater monitoring wells on the Hanford Site, Washington.

1.1.3 Describe an implementation plan for demonstrating facility compliance in collecting, storing, handling and disposing of purgewater on the Hanford Site, Washington.

1.1.4 Set forth by written agreement the requirements for the management of purgewater on the Hanford Site, Washington.

1.2 The objectives of the strategy are to:

1.2.1 Continue with existing groundwater monitoring activities and proceed with new groundwater monitoring well installation pursuant to the requirements of: (1) the State of Washington Hazardous Waste Management Act of 1976 (Revised Code of Washington [RCW] 70.105) and Washington Administrative Code (WAC) 173-303, (2) the Resource Conservation and Recovery Act of 1976 (RCRA), (3) the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and (4) the Atomic Energy Act of 1954 as amended (AEA).

1.2.2 Comply with milestones set forth in the Hanford Federal Facility Agreement and Consent Order (informally referred to as the Tri-Party Agreement) for groundwater monitoring.

1.2.3 Provide an acceptable level of environmental protection.

2.0 BACKGROUND

2.1 STATEMENT OF THE PROBLEM

2.1.1 Monitoring of groundwater for radioactive and chemical constituents at the Hanford Site is required by the U.S. Department of Energy-Richland Operations Office (DOE-RL), the Washington State Department of Ecology (Ecology) and the U.S. Environmental Protection Agency (EPA). Groundwater is withdrawn from wells for: (1) developing newly constructed groundwater monitoring wells, (2) purging of existing wells prior to sample collection, (3) aquifer testing and (4) periodic cleaning and renovating of existing monitoring wells.

2.1.2 For purposes of this strategy, all groundwater extracted from the aquifer pursuant to actions one through four described in paragraph 2.1.1 above shall be defined as purgewater.

2.1.3 Portions of the uppermost unconfined aquifer underlying the Hanford Site are being extensively monitored due to elevated concentrations of various chemical and radionuclide constituents. When contaminated purgewater is generated, it shall be classified as containing newly generated solid waste and shall be subject to hazardous waste designation as described in Sections 2.1.4 and 3.6 of this strategy. However, for purposes of clarification and compliance with RCW 70.105, water contained in the aquifer shall not be considered a solid waste.

2.1.4 To protect public health and safety and protect the environment from the improper disposal or management of purgewater, DOE-RL will manage purgewater on the Hanford Site as agreed to in this document.

2.2 IMPACT ON PROGRAMS

2.2.1 Groundwater well installation projects and monitoring programs at Hanford are impacted by the current Hanford Site capacity to store, treat, and dispose of purgewater in accordance with regulatory requirements of dangerous waste management as promulgated in WAC 173-303. RCRA and operable unit specific projects and programs were instituted for compliance with the Tri-Party Agreement. However, no milestones for defining treatment or disposal criteria for purgewater are set forth in that agreement. Consequently, until approved industrial technologies are available for treatment of contaminated purgewater containing chemical constituents and radionuclides above agreed to collection criteria, purgewater will be stored on the Hanford Site in accordance with this agreement.

2.2.2 The large volume of purgewater generated during aquifer testing presents logistical handling, transportation, and storage problems. However, the generation of aquifer test purgewater is necessary to determine physical characteristics of the Hanford Site hydrology. Therefore, it is herein agreed that aquifer testing will be performed in a manner consistent with the items listed below: (1) In geographical areas on the Hanford Site where constituent concentrations are lower than the health or environmental-based criteria shown in Tables 1 and 3 of this document, as determined by data from adjacent wells and/or initial well development samples, aquifer test purgewater may be discharged to the ground and prior approval by Ecology is not required; (2) Aquifer testing may be performed at the discretion of DOE-RL in any area, without prior Ecology approval, if the resulting purgewater is collected and stored for treatment as required by this strategy; (3) Aquifer testing performed as part of an approved past practice work plan, RCRA assessment or closure plan will be performed in accordance with section 3.2.5 of this strategy; (4) In selected cases it may be determined that the benefits of performing pump tests in contaminated areas, that require too large a quantity of purgewater to reasonably contain (and hence may require alternate purgewater management) may be justified. In this case section 3.7 of this strategy will be invoked.

3.0 PURGEWATER MANAGEMENT CRITERIA

Existing federal and state regulations and policy guidance are indeterminate regarding specific disposal criteria or standards for the handling and management of purgewater. Unmanaged disposal of purgewater containing significant quantities of hazardous and/or radioactive liquids to the soil could potentially allow these substances to accumulate and create additional contaminated sites requiring remediation. Collection, storage, treatment and disposal of purgewater creates additional management and environmental concerns. At present, effective treatment methods have not been developed for all of the hazardous and radioactive substances and combinations of mixed wastes that may occur in Hanford groundwater. Treatment of very low concentration contaminated water is in many instances ineffectual. Therefore, a balanced approach to purgewater management is needed. The objective of this strategy is to provide an acceptable level of health and environmental protection by minimizing the impact of soil discharge of contaminated purgewater. This is accomplished by requiring the collection of purgewater with levels of hazardous and radioactive constituents above an agreed-to health and environmental-based criteria for potential future treatment and disposal. The result is a cost effective, environmentally justifiable program. Effective use of federal funds will result in a greater environmental return per dollar spent as these dollars can be allotted to more serious environmental and health risk problems. Collection of all purgewater is not necessary due to the minimal health and environmental risk incurred in discharging these contaminants to the ground. Purgewater that may be discharged to the ground without treatment under this strategy is of relatively low concentration and volume, and is managed so as to minimize the accumulation of contamination and to reduce the potential of driving any existing contaminants further into the soil. The fact that the Hanford Site is in an arid environment with minimal recharge reinforces this approach.

To clarify these issues, DOE-RL, Ecology and EPA herein agree to the following purgewater management criteria for implementation at the Hanford Site, Washington. The effectiveness of this program will be evaluated by the three parties over the next year, incorporating changes as appropriate.

3.1 COLLECTION CRITERIA

3.1.1 Purgewater from Hanford Site monitoring wells will be managed in accordance with health and environmental-based criteria. Purgewater collection criteria will be based on 10 times Maximum Contaminant Levels (10X MCLs) for drinking water or 10 times EPA's Chronic Freshwater Toxicity Levels (CFWTLs)(10X CFWTLs), or 10 times the Practical Quantitation Limits (PQLs) of SW 846 for Table 1 constituents; with the application of the most restrictive criteria for designation of purgewater requiring collection. Use of EPA's designation of CFWTLs is included in this strategy as environmental-based criteria as a result of the protection afforded to freshwater biota. The radionuclide standards are based on 10X the MCLs referenced in National Interim Primary Drinking Water Regulations (see also 40CFR141.16(b) dated July 1, 1989) except for uranium and plutonium standards which are based on ten times (10X) one twenty-fifth Derived Concentration Guides as defined in DOE Order 5400.5. Tritium is not included in purgewater determinations because effective treatment technology has not been demonstrated. Disposal to the soil is a less hazardous pathway to biota than storing tritium contaminated water above ground which would involve a larger airborne pathway. Table 1 to this agreement is a listing of the most restrictive of the applicable standards which are the collection criteria for radionuclides and chemical constituents.

3.1.2 Chemical analyses used to determine the presence and concentration of constituents for RCRA wells are those analytical techniques and detection limits used for RCRA groundwater monitoring, Test Method for Evaluating Solid Waste--Physical/Chemical Methods, SW-846, Rev. 3. Chemical analyses used to determine the presence and concentration of constituents for Past Practice investigations are defined in the approved Work Plan or approved pre-work plan document. To qualify as a contaminant, the concentration of the constituent must be above naturally occurring levels. DOE-RL shall demonstrate groundwater constituent background levels which shall be subject to approval by Ecology and EPA. No additional analyses, other than those normally used for monitoring purposes, will be conducted in order to determine the collection category of the purgewater.

3.1.3 DOE-RL will collect purgewater that contains radionuclides that exceed ten times (10X) MCLs for specific isotopes listed by the EPA. Tritium is excluded from collection.

3.1.4 Purgewater across the Hanford Site will be collected and stored for future treatment when the concentration of constituents exceed collection criteria listed in Table 1.

3.1.5 Purgewater collection criteria for specific constituents may be modified based on analytical detection levels, background concentrations, treatability, or other factors mutually acceptable to all parties to this agreement.

3.1.6 Purgewater collection criteria for the following chemical constituents will be the analytical detection limits as listed in EPA Method SW-846. Table 1 specifies EPA Method SW-846 collection criteria for these compounds because existing detection limits exceed CFWTL.

(i) DDE
(ii) DDT
(iii) Dieldrin
(iv) Dioxin
(v) Endrin
(vi) Heptachlor
(vii) Hexachlorobenzene
(viii) Isobutyl Alcohol
(ix) Parathion
(x) Silver
(xi) Toxaphene

3.1.7 Non-chemical contaminants and physical characteristics of purgewater (e.g., alkalinity, turbidity, color, total dissolved solids, coliform bacteria) will not be used as collection criteria.

3.1.8 Collection criteria will be based upon filtered metal analyses. Unfiltered metal analyses may misrepresent constituent levels present in purgewater which may be the result of sediment, wearing of drill bits, and oxidation residues on the well casings.

3.1.9 Because of historical DOE-RL requirements, groundwater monitoring sample analyses at Hanford are based on constituent lists that do not conform to chemical constituents listed in the CFWTL. Therefore, chemical compounds with no history of analyses at Hanford will be removed from consideration as collection criteria (see Table 2). No additional analyses, other than those normally used for groundwater monitoring purposes, will be performed in order to determine the collection category of the purgewater.

3.1.10 DOE-RL will submit to Ecology and EPA a list of chemical constituents present in Hanford groundwater in excess of the 10X criteria by October 1, 1990. This list will be used to determine which wells will be excluded from the 10X collection criteria, based on their natural occurrence in the Hanford Site groundwater.

3.1.11 Assignment of wells into collection categories will be performed on the basis of existing groundwater analytical data. Where existing data are insufficient to assign a well to a collection category, the chemical and radiological composition of an adjacent well may be used as indicator wells to establish purgewater disposition. If adjacent wells are also inadequate (or do not exist) to determine disposition, approved indicator parameters will be identified and analyses performed that can be used to establish a collection category. Wherever possible, the analyses performed for determination of purgewater disposition will be limited. Indicator parameters and adjacent indicator wells will be agreed upon by all parties. RCRA or Past Practice Operable Unit Manager Meeting Minutes will be the approval record. Decisions involving the site-wide monitoring program will be made through representation of DOE-RL by the Safety and Environment Division (SED) in these meetings.

3.1.12 Because of the laterally extensive plume of carbon tetrachloride beneath the 200 West Area, all purgewater from 200 West Area, except for the expansion area will be collected and stored.

3.1.13 Table 4 lists wells requiring collection as determined by the data available in June 1990. This list will be subject to change as new data becomes available.

3.2 MANAGEMENT PRACTICES

3.2.1 The collection criteria will be applicable to all wells on the Hanford Site.

3.2.2 Purgewater containing constituents in concentrations lower than the collection criteria can be discharged to the soil at or in the immediate vicinity of the well head when such wells do not monitor the following:

(i) designated RCRA Solid Waste Management Units (SWMUs)
(ii) burial grounds
(iii) active/inactive liquid effluent disposal sites
(iv) known surface or subsurface soil contamination areas.

Purgewater from wells in the areas cited above will be taken to other areas on the site and discharged directly to the soil or to B-Pond.

3.2.3 Purgewater containing constituents in excess of the collection criteria will be collected and stored in ModuTanks located in the 600 area immediately east of the 200 east area.

3.2.4 Based upon the list of major contaminants to be used for the collection and evaluation of purgewater, DOE-RL will identify a range of treatment and disposal options for purgewater collected pursuant to Paragraph 3.2.3 of this strategy. From these options, DOE-RL will propose the preferred method which will consider both the environmental protection offered and the cost effectiveness of the option. Ecology and the EPA will concur in the selection of the final treatment and disposal selection.

3.2.5 DOE-RL agrees to resume aquifer pump testing as required in approved Past Practice Work Plans, RCRA Assessment or Closure Plans. Nomination of wells for aquifer testing for these purposes will be made by DOE-RL and will be initially focused on existing wells having constituent concentrations less than the collection criteria. Final approval of wells to be used in aquifer testing for these purposes and disposition of the purgewater will be approved by Ecology and EPA.

3.3 DISPOSAL CATEGORIES

3.3.1 Sample analyses from previous sampling events (usually quarterly) will be used to determine the disposal category for purgewater from wells in the monitoring mode.

3.3.2 Additional analyses to determine purgewater disposition will only be performed if the disposition of purgewater cannot be established through existing data or indicator wells adjacent to the well in question. If additional analysis is needed to determine disposition, approved indicator parameters, based on substances of concern in adjacent wells or near related or adjacent facilities will be used to determine the need for collection.

3.4 TREATMENT

3.4.1 DOE-RL shall actively pursue treatment technology that will reduce concentrations of contaminants in radioactive liquid effluents rendering them acceptable for discharge to the environment. Liquid effluent treatment systems currently being designed for the Hanford Site will be evaluated for the inclusion of purgewater in the treatment process. If it is determined to be technically feasible, treatment of purgewater collected under Paragraph 3.2.3 of this strategy will be conducted in accordance with terms and conditions specified in an applicable treatment facility liquid effluent disposal permit.

3.4.2 Purgewater requiring collection and storage in the ModuTanks in the 600 area will be treated prior to discharge to soil or surface waters on the Hanford Site.

3.5 PERMITTING STRATEGY

3.5.1 The regulatory implementation mechanism for this purgewater management strategy will be through inclusion as Appendix F to the Action Plan of the Hanford Federal Facility and Consent Order (Tri-Party Agreement). DOE-RL, Ecology and EPA also agree that requirements contained in the strategy will be included in the Hanford Site RCRA Permit issued by Ecology. The strategy will also be included by reference into past practice work plans. The site-wide monitoring network is maintained for compliance with DOE Order 5400.1; however, purgewater associated with this program will be managed under the terms of this strategy.

3.6 REGULATORY PROVISIONS

3.6.1 All purgewater requiring collection and storage will be managed in compliance with the provisions of applicable permits and consistent with RCRA and WAC regulations for the Treatment, Storage and Disposal of hazardous/dangerous waste. However, no designation as to the specific source of the waste (i.e., listed waste) will apply.

3.6.2 In accordance with regulatory definition, purgewater is a dangerous waste when it exhibits the characteristics of dangerous waste (i.e., ignitability, corrosivity, reactivity, and extraction procedure toxicity), or as determined by designation or bioassay pursuant to the Washington State Administrative Code (WAC), Dangerous Waste Regulations, 173-303.

In signing this purgewater management strategy, Ecology agrees that purgewater management at Hanford is not subject to the groundwater listed waste designation procedures as set forth in WAC Chapter 173.303.

3.7 SPECIAL CIRCUMSTANCES

3.7.1 RCRA and CERCLA Unit Managers designated by the respective Tri-Party Agreement participants (DOE-RL, Ecology and EPA) and SED shall have authority to negotiate unique purgewater disposal criteria not specified in this strategy. Any negotiations conducted outside of the scope of this strategy will only be conducted for unusual situations where unique application of the existing strategy is impractical.

3.7.2 Prior to the implementation of any special purgewater management actions negotiated by Unit Managers or SED, they will prepare a jointly signed decision paper specifying the technical and regulatory justifications for their actions for submittal to the Tri-Party Agreement Project Managers for approval.

3.7.3 The provisions of this strategy shall be reviewed annually by the signatory parties or their designees for purposes of amending the document if it is deemed necessary. If there is a significant need by any of the signatory parties for revision at any time, the strategy may be revised and approved by them.

3.8 It is the express intent of all parties that full implementation of this strategy will occur by October 1, 1990. Until such time as this purgewater management agreement is approved and signed by DOE-RL, Ecology, and EPA, DOE-RL will continue to manage purgewater as previously agreed to with Ecology and the EPA.

7/18/90

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Table 1. Collection Criteria

Constituent	Detn. Limit	Collection Criteria	Units	Basis[1]
1,1,1,2-tetrachlorethane	10.0	50.0	PPB	PQL
1,1,1-trichloroethane	5.0	2000.0	PPB	MCL
1,1,2,2-tetrachloroethane	5.0	24000.0	PPB	CFWTL
1,1,2-trichloroethane	5.0	2000.0	PPB	MCL[2]
1,1-dichloroethane	5.0	10.0	PPB	PQL
1,1-dichloroethylene	10.0	70.0	PPB	MCL
1,2,3,4-tetrachlorobenzene	10.0	500.0	PPB	CFWTL
1,2,3,5-tetrachlorobenzene	10.0	500.0	PPB	CFWTL
1,2,3-trichlorobenzene	10.0	500.0	PPB	CFWTL
1,2,3-trichloropropane	10.0	50.0	PPB	PQL
1,2,4,5-tetrachlorobenzene	10.0	100.0	PPB	PQL
1,2,4-trichlorobenzene	10.0	100.0	PPB	PQL
1,2-dibromo-3-chloropropane	10.0	50.0	PPB	PQL
1,2-dibromoethane	10.0	50.0	PPB	PQL
1,2-dichlorobenzene	10.0	500.0	PPB	CFWTL
1,2-dichloroethane	5.0	50.0	PPB	MCL
1,2-dichloropropane	5.0	57000.0	PPB	CFWTL
1,3,5-trichlorobenzene	10.0	500.0	PPB	CFWTL
1,3-dichlorobenzene	10.0	500.0	PPB	CFWTL
1,3-dichloropropene	5.0	2440.0	PPB	CFWTL
1,4-dichloro-2-butene	10.0	50.0	PPB	PQL
1,4-naphthoquinone	10.0	100.0	PPB	PQL
1-naphthylamine	10.0	100.0	PPB	PQL
2,3,4,6-tetrachlorophenol	10.0	100.0	PPB	PQL
2,4,5-T	2.0	20.0	PPB	PQL
2,4,5-TP silvex	2.0	100.0	PPB	MCL
2,4,5-trichlorophenol	10.0	100.0	PPB	PQL
2,4,6-trichlorophenol	10.0	9700.0	PPB	CFWTL
2,4-D	2.0	1000.0	PPB	MCL
2,4-dichlorophenol	10.0	3650.0	PPB	CFWTL
2,4-dimethylphenol	10.0	50.0	PPB	PQL
2,4-dinitrophenol	10.0	500.0	PPB	PQL
2,4-dinitrotoluene	10.0	2300.0	PPB	CFWTL
2,6-dichlorophenol	10.0	100.0	PPB	PQL
2,6-dinitrotoluene	10.0	2300.0	PPB	CFWTL
2-Hexanone	50.0	500.0	PPB	PQL
2-Methylnaphthalene	10.0	100.0	PPB	PQL
2-acetylaminofluorene	10.0	100.0	PPB	PQL
2-chloronaphthalene	10.0	100.0	PPB	PQL

Table 1. Collection Criteria

Constituent	Detn. Limit	Collection Criteria	Units	Basis[1]
2-chlorophenol	10.0	20000.0	PPB	CFWTL
2-naphthylamine	10.0	100.0	PPB	PQL
2-picoline	10.0	50.0	PPB	PQL
3,3'-dichlorobenzidine	10.0	200.0	PPB	PQL
3,3'-dimethylbenzidine	10.0	100.0	PPB	PQL
3-methylcholanthrene	10.0	100.0	PPB	PQL
4,6-dinitro-o-cresol and salts	10.0	500.0	PPB	PQL
4-Nitroquinoline 1-oxide	10.0	100.0	PPB	PQL
4-aminobyphenyl	10.0	100.0	PPB	PQL
4-bromophenyl phenyl ether	10.0	100.0	PPB	PQL
5-nitro-o-toluidine	10.0	100.0	PPB	PQL
7,12-dimethylbenz[a]anthracene	10.0	100.0	PPB	PQL
Acenaphthalene	10.0	100.0	PPB	PQL
Acenapthene	10.0	5200.0	PPB	CFWTL
Acetone	10.0	1000.0	PPB	PQL
Acetonitrile	10.0	1000.0	PPB	PQL
Acetophenone	10.0	100.0	PPB	PQL
Acrolein	10.0	210.0	PPB	CFWTL
Acrylonitrile	10.0	26000.0	PPB	CFWTL
Aldrin	.1	.5	PPB	PQL
Allyl Chloride	100.0	100.0	PPB	PQL[3]
Alpha,alpha-dimethylphenethyla	10.0	100.0	PPB	PQL
Alpha-BHC	.1	.5	PPB	PQL
Aniline	10.0	100.0	PPB	PQL
Anthracene	10.0	100.0	PPB	PQL
Antimony, filtered	100.0	16000.0	PPB	CFWTL
Antimony-125	48.0	3000.0	pCi/L	MCL
Aramite	10.0	100.0	PPB	CFWTL
Arochlor 1016	1.0	1.0	PPB	CFWTL[3]
Arochlor 1221	1.0	1.0	PPB	CFWTL[3]
Arochlor 1232	1.0	1.0	PPB	CFWTL[3]
Arochlor 1242	1.0	1.0	PPB	CFWTL[3]
Arochlor 1248	1.0	1.0	PPB	CFWTL[3]
Arochlor 1254	1.0	1.0	PPB	CFWTL[3]
Arochlor 1260	1.0	1.0	PPB	CFWTL[3]
Arsenic, filtered	5.0	480.0	PPB	CFWTL
Barium, filtered	6.0	10000.0	PPB	MCL
Benz[a]anthracene	10.0	100.0	PPB	PQL
Benzene	5.0	50.0	PPB	MCL
Benzo(ghi)perylene	10.0	100.0	PPB	PQL

Table 1. Collection Criteria

Constituent	Detn. Limit	Collection Criteria	Units	Basis[1]
Benzo(k)fluoranthene	10.0	100.0	PPB	PQL
Benzo[a]pyrene	10.0	190.0	PPB	PQL
Benzo[b]fluoranthene	10.0	100.0	PPB	PQL
Benzyl Alcohol	10.0	200.0	PPB	PQL
Beryllium, filtered	5.0	53.0	PPB	CFWTL
Beta-BHC	.1	.5	PPB	PQL
Bis(1-chloro-1-methylethyl)ether	10.0	100.0	PPB	PQL
Bis(2-chloroethoxy) methane	10.0	100.0	PPB	PQL
Bis(2-chloroethyl) ether	10.0	100.0	PPB	PQL
Bis(chloromethyl)ether	5.0	100.0	PPB	PQL
Bromodichloromethane	5.0	10.0	PPB	PQL
Bromoform	5.0	20.0	PPB	PQL
Cadmium, filtered	2.0	11.0	PPB	CFWTL
Carbon disulfide	10.0	50.0	PPB	PQL
Carbon tetrachloride	5.0	50.0	PPB	MCL
Carbon-14	20.0	20000.0	pCi/L	MCL
Cesium-137	20.0	2000.0	pCi/L	MCL
Chlordane	1.0	1.0	PPB	CFWTL[3]
Chloride	500.0	2500000.0	PPB	MCL
Chlorobenzene	5.0	20.0	PPB	PQL
Chlorobenzene (by ABN)	10.0	20.0	PPB	PQL
Chlorobenzilate	300.0	300.0	PPB	PQL[3]
Chloroethane	10.0	50.0	PPB	PQL
Chloroform	5.0	1000.0	PPB	MCL
Chromium(VI)	50.0	110.0	PPB	CFWTL
Chromium, filtered	10.0	110.0	PPB	CFWTL[4]
Chrysene	10.0	100.0	PPB	PQL
Cobalt-60	22.5	1000.0	pCi/L	MCL
Copper, filtered	10.0	120.0	PPB	CFWTL
Cresols	10.0	100.0	PPB	PQL
Cyanide	10.0	52.0	PPB	CFWTL
DDD	.1	1.0	PPB	PQL
DDE	.1	0.5	PPB	PQL
DDT	.1	.1	PPB	CFWTL[3]
Delta-BHC	.1	1.0	PPB	PQL
Di-n-propylnitrosamine	10.0	100.0	PPB	PQL
Dibenz[a,h]anthracene	10.0	100.0	PPB	PQL
Dibenzofuran	10.0	100.0	PPB	PQL
Dibromochloromethane	5.0	10.0	PPB	PQL
Dichlorodifluoromethane	10.0	50.0	PPB	PQL

Table 1. Collection Criteria

Constituent	Detn. Limit	Collection Criteria	Units	Basis[1]
Dieldrin	.1	.1	PPB	CFWTL[3]
Dillate	10.0	100.0	PPB	PQL
Dimethoate	2.0	100.0	PPB	PQL
Dinitrobenzene	10.0	100.0	PPB	PQL
Dinoseb	10.0	10.0	PPB	PQL
Dioxane	500.0	1500.0	PPB	PQL
Dioxin	.1	.1	PPB	CFWTL[3]
Diphenylamine	10.0	100.0	PPB	PQL
Disulfoton	2.0	20.0	PPB	PQL
Endosulfan I	.1	.6	PPB	CFWTL
Endrin	.1	.1	PPB	CFWTL[3]
Ethyl benzene	5.0	20.0	PPB	PQL
Ethyl methacrylate	10.0	50.0	PPB	PQL
Ethyl methanesulfonate	10.0	100.0	PPB	PQL
Fluoranthene	10.0	100.0	PPB	PQL
Fluorene	10.0	100.0	PPB	PQL
Fluoride	500.0	20000.0	PPB	MCL
Gross alpha	4.0	150.0	pCi/L	MCL
Gross beta	8.0	500.0	pCi/L	MCL
Heptachlor	.1	.1	PPB	CFWTL[3]
Heptchlor epoxide	.1	10.0	PPB	PQL
Hexachlorobenzene	10.0	10.0	PPB	PQL[3]
Hexachlorobutadiene	10.0	93.0	PPB	CFWTL
Hexachlorocyclopentadiene	10.0	52.0	PPB	CFWTL
Hexachloroethane	10.0	5400.0	PPB	CFWTL
Hexachlorophene	10.0	100.0	PPB	PQL
Hexachloropropene	10.0	100.0	PPB	PQL
Hydrogen sulfide	10.0	20.0	PPB	CFWTL
Indeno(1,2,3-cd)pyrene	10.0	100.0	PPB	PQL
Iodine-129	1.0	10.0	pCi/L	MCL
Iodine-131	20.0	30.0	pCi/L	MCL
Iodomethane	10.0	50.0	PPB	PQL
Iron, filtered	30.0	3000.0	PPB	MCL
Isobutyl Alcohol	10000.0	10000.0	PPB	PQL[3]
Isodrin	10.0	100.0	PPB	PQL
Isophorone	10.0	100.0	PPB	PQL
Isosafrole	10.0	100.0	PPB	PQL
Kepone	1.0	100.0	PPB	PQL
Lead, filtered	5.0	32.0	PPB	CFWTL
Lindane, gamma-BHC	.1	.8	PPB	CFWTL

Table 1. Collection Criteria

Constituent	Detn. Limit	Collection Criteria	Units	Basis[1]
Manganese, filtered	5.0	500.0	PPB	MCL
Mercury, filtered	.1	.1	PPB	CFWTL
Methacrylonitrile	10.0	50.0	PPB	PQL
Methapyrilene	10.0	100.0	PPB	PQL
Methoxychlor	3.0	3.0	PPB	CFWTL[3]
Methyl bromide	10.0	100.0	PPB	PQL
Methyl chloride	10.0	10.0	PPB	PQL
Methyl ethyl ketone	10.0	100.0	PPB	PQL
Methyl isobutyl ketone	10.0	50.0	PPB	PQL
Methyl methacrylate	10.0	20.0	PPB	PQL
Methyl methanesulfonate	10.0	100.0	PPB	PQL
Methyl parathion	2.0	5.0	PPB	PQL
N-Nitrosodiphenylamine	10.0	100.0	PPB	PQL
N-nitrosodi-n-butylamine	10.0	100.0	PPB	PQL
N-nitrosodiethylamine	10.0	100.0	PPB	PQL
N-nitrosodimethylamine	10.0	100.0	PPB	PQL
N-nitrosomethylethylamine	10.0	100.0	PPB	PQL
N-nitrosomorpholine	10.0	100.0	PPB	PQL
N-nitrosopiperidine	10.0	100.0	PPB	PQL
Naphthalene	10.0	6200.0	PPB	CFWTL
Nickel, filtered	10.0	1600.0	PPB	CFWTL
Nickel-63	10.0	500.0	pCi/L	MCL
Nitrate	500.0	450000.0	PPB	MCL
Nitrobenzine	10.0	100.0	PPB	PQL
Nitrosopyrrolidine	10.0	100.0	PPB	PQL
O,O,O-triethyl phosphorothioate	10.0	100.0	PPB	PQL
O-toluidine hydrochloride	10.0	100.0	PPB	PQL
P-chloro-m-cresol	10.0	50.0	PPB	PQL
P-chloroaniline	10.0	200.0	PPB	PQL
P-dimethylaminoazobenzene	10.0	100.0	PPB	PQL
P-nitroaniline	10.0	500.0	PPB	PQL
Parathion	2.0	2.0	PPB	CFWTL[3]
Pcdd's	.0	.1	PPB	PQL
Pcdf's	.0	.1	PPB	PQL
Pentachlorobenzene	10.0	100.0	PPB	PQL
Pentachloroethane	10.0	11000.0	PPB	CFWTL
Pentachloronitrobenzene	10.0	100.0	PPB	PQL
Pentachlorophenol	50.0	130.0	PPB	CFWTL
Phenacetin	10.0	100.0	PPB	PQL
Phenanthrene	10.0	100.0	PPB	PQL

Table 1. Collection Criteria

Constituent	Detn. Limit	Collection Criteria	Units	Basis[1]
Phenol	10.0	25600.0	PPB	CFWTL
Phenylenediamine	10.0	100.0	PPB	PQL
Phorate	2.0	20.0	PPB	PQL
Phthalic acid esters	10.0	30.0	PPB	CFWTL
Plutonium-238	.1	16.0	pCi/L	DCG
Plutonium-239,40	.1	12.0	pCi/L	DCG
Pronamide	10.0	100.0	PPB	PQL
Propionitrile	5.0	50.0	PPB	PQL
Pyrene	10.0	100.0	PPB	PQL
Pyridine	500.0	500.0	PPB	PQL
Radium	1.0	50.0	pCi/L	MCL
Ruthenium-103	20.0	2000.0	PPB	MCL
Ruthenium-106	172.5	300.0	pCi/L	MCL
Safrol	10.0	100.0	PPB	PQL
Selenium	5.0	100.0	PPB	MCL
Silver, filtered	10.0	10.0	PPB	CFWTL[3]
Strontium-89	5.0	200.0	pCi/L	MCL
Strontium-90	5.0	80.0	pCi/L	MCL
Styrene	5.0	10.0	PPB	PQL
Sulfate	500.0	2500000.0	PPB	MCL
Sym-trinitrobenzene	10.0	100.0	PPB	PQL
Technetium-99	15.0	9000.0	pCi/L	MCL
Tetrachloroethylene	5.0	8400.0	PPB	CFWTL
Tetraethylpyrophosphate	2.0	100.0	PPB	PQL
Thallium	5.0	400.0	PPB	CFWTL
Tin, filtered	30.0	80000.0	PPB	PQL
Toluene	5.0	20.0	PPB	PQL
Toxaphene	1.0	1.0	PPB	CFWTL[3]
Trans-1,2-dichloroethylene	5.0	10.0	PPB	PQL
Trichloroethylene	5.0	50.0	PPB	MCL
Trichloromonofluoromethane	10.0	50.0	PPB	PQL
Uranium	.5	400.0	pCi/L	DCG
Uranium, chemical	.7	590.0	UG/L	DCG
Vanadium, filtered	5.0	400.0	PPB	PQL
Vinyl Acetate	5.0	50.0	PPB	PQL
Vinyl chloride	10.0	20.0	PPB	MCL
Xylene-m	5.0	50.0	PPB	PQL
Xylene-o,p	5.0	50.0	PPB	PQL
Zinc, filtered	5.0	1100.0	PPB	CFWTL

Table 1. Collection Criteria

Constituent	Detn. Limit	Collection Criteria	Units	Basis[1]
m-Nitroaniline	10.0	500.0	PPB	PQL
o-Nitroaniline	10.0	500.0	PPB	PQL
p-Dichlorobenzene	10.0	500.0	PPB	PQL
p-Nitrophenol	10.0	1500.0	PPB	CFWTL

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1 The basis for collection criteria are as follows:

- MCL - 10X the Maximum Contaminant Level as defined in 40 CFR 141, 40 CFR 143, and EPA 570/9-76-003
- PQL - 10X the Practical Quantitation Limit as listed in Appendix IX of 40 CFR 264
- CFWTL - 10X the Chronic Freshwater Toxicity Level as defined in EPA 440/5-86-001
- DCG - 10X one-twenty-fifth of the Derived Concentration Guide as listed in DOE Order 5400.5

2 Based on 10X MCL for 1,1,1-trichloroethane.

3 Criterion is below current detection limit so detection limit is used as criterion.

4 All chromium is assumed to be hexavalent.

Table 2. Constituents Not Analyzed for at Hanford but Listed in the CFWTL

2-chlorophenyl phenyl
Methylene bromide
Chlorine
Chloroprene
Chlorpyrifos
Chromium (tri)
Demeton
Entrin aldehyde
Gamphur
Guthion
Malathion
Mirex
Thionazin

Table 3. Constituents That Are Found In At Least One Well Above The Collection Criteria Established In This Strategy.

Constituent	Units	Detn. Limit	Collection Criteria
Gross beta	pCi/L	8.00	500.0
Strontium-90	pCi/L	5.00	80.0
Carbon Tetrachloride	PPB	5.00	50.0
Natural uranium	UG/L		590.0
Uranium	pCi/L	.10	400.0
Nitrate	PPB	500.00	450000.0
Gross alpha	pCi/L	4.00	150.0
Iodine-129	pCi/L	1.00	10.0
Chromium	PPB	10.00	110.0
Cyanide	PPB	10.00	52.0
Plutonium-239/40	pCi/L	.10	12.0
Toluene	PPB	5.00	20.0
Trans-1,2-dichloroethene	PPB	5.00	10.0
Manganese	PPB	5.00	500.0
Mercury	PPB	.10	.1
Chloroform	PPB	5.00	1000.0

Table 4. List of Wells Requiring Purge Water Containment Based on the Most Recent Sampling for The Constituent Listed in Table 1 of WHC Purgewater Strategy Document.

Wellname	Constituent-Units Code	Action Level	Collection Date	Analytical Value	Constituent
1-D2-5	H22 FCHROMI ppb	110	01MAR90	120	Chromium, filtered
1-D5-12	H22 FCHROMI ppb	110	06MAR90	464	Chromium, filtered
1-D8-3	H22 FCHROMI ppb	110	01MAR90	146	Chromium, filtered
1-F5-3	111 BETA pCi/L	500	28FEB90	533	Gross beta
	121 SR-90 pCi/L	80	17OCT89	244	Strontium-90
1-F8-1	212 ALPHA pCi/L	150	13OCT87	219	Gross alpha
1-H4-3	H22 FCHROMI ppb	110	23APR90	141	Chromium, filtered
1-H4-7	H22 FCHROMI ppb	110	23APR90	136	Chromium, filtered
1-H4-11	H22 FCHROMI ppb	110	23APR90	142	Chromium, filtered
1-H4-12C	H22 FCHROMI ppb	110	17APR90	283	Chromium, filtered
1-H4-14	H22 FCHROMI ppb	110	25APR90	358	Chromium, filtered
1-H4-15A	H22 FCHROMI ppb	110	18APR90	114	Chromium, filtered
1-H4-18	H22 FCHROMI ppb	110	20APR90	126	Chromium, filtered
1-K-20	H22 FCHROMI ppb	110	01MAR90	156	Chromium, filtered

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Wellname	Constituent-Units Code			Action Level	Collection Date	Analytical Value	Constituent
1-K-22	H22	FCHROMI	ppb	110	02MAR90	157	Chromium, filtered
1-N-2	111	BETA	pCi/L	500	02FEB90	3320	Gross beta
	121	SR-90	pCi/L	80	02FEB90	1960	Strontium-90
1-N-3	111	BETA	pCi/L	500	14FEB90	680	Gross beta
	121	SR-90	pCi/L	80	14FEB90	607	Strontium-90
1-N-5	111	BETA	pCi/L	500	15JUN89	665	Gross beta
	121	SR-90	pCi/L	80	15JUN89	492	Strontium-90
1-N-7	038	I-131	pCi/L	30	16JAN87	309	Iodine-131
1-N-14	111	BETA	pCi/L	500	01FEB90	2100	Gross beta
	121	SR-90	pCi/L	80	01FEB90	987	Strontium-90
1-N-16	H31	FIRON	ppb	3000	01FEB90	3590	Iron, filtered
	H29	FMANGAN	ppb	500	01FEB90	2050	Manganese, filtered
1-N-17	H29	FMANGAN	ppb	500	01FEB90	610	Manganese, filtered
	121	SR-90	pCi/L	80	10NOV89	111	Strontium-90
1-N-18	111	BETA	pCi/L	500	20JUN89	1200	Gross beta
	121	SR-90	pCi/L	80	20JUN89	415	Strontium-90

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Wellname	Constituent-Units Code		Action Level	Collection Date	Analytical Value	Constituent
1-N-27	111 BETA	pCi/L	500	08FEB90	574	Gross beta
	121 SR-90	pCi/L	80	08FEB90	283	Strontium-90
1-N-28	038 I-131	pCi/L	30	14JAN87	28600	Iodine-131
1-N-29	111 BETA	pCi/L	500	07FEB90	2020	Gross beta
	038 I-131	pCi/L	30	16JAN87	14100	Iodine-131
	121 SR-90	pCi/L	80	07FEB90	1280	Strontium-90
1-N-30	038 I-131	pCi/L	30	14JAN87	687	Iodine-131
1-N-32	038 I-131	pCi/L	30	16JAN87	4830	Iodine-131
1-N-33	038 I-131	pCi/L	30	16JAN87	8500	Iodine-131
	121 SR-90	pCi/L	80	05FEB90	197	Strontium-90
1-N-36	038 I-131	pCi/L	30	16JAN87	11200	Iodine-131
	121 SR-90	pCi/L	80	01DEC89	224	Strontium-90
1-N-37	038 I-131	pCi/L	30	16JAN87	4380	Iodine-131
1-N-39	111 BETA	pCi/L	500	15MAY90	851	Gross beta
	038 I-131	pCi/L	30	16JAN87	5310	Iodine-131
	121 SR-90	pCi/L	80	21DEC89	454	Strontium-90

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Wellname	Constituent-Units Code		Action Level	Collection Date	Analytical Value	Constituent
1-N-45	111 BETA	pCi/L	500	01DEC88	2480	Gross beta
	038 I-131	pCi/L	30	16JAN87	3760	Iodine-131
	121 SR-90	pCi/L	80	01DEC88	1130	Strontium-90
1-N-54	121 SR-90	pCi/L	80	01NOV89	171	Strontium-90
1-N-56	111 BETA	pCi/L	500	01NOV89	691	Gross beta
	121 SR-90	pCi/L	80	01NOV89	364	Strontium-90
1-N-67	111 BETA	pCi/L	500	05FEB90	16500	Gross beta
	121 SR-90	pCi/L	80	05FEB90	8980	Strontium-90
2-E17-1	081 I-129	pCi/L	10	10AUG87	47.3	Iodine-129
2-E17-5	081 I-129	pCi/L	10	16MAY89	13.2	Iodine-129
2-E17-8	081 I-129	pCi/L	10	02SEP87	29.2	Iodine-129
2-E17-9	081 I-129	pCi/L	10	16MAY89	16	Iodine-129
2-E17-13	081 I-129	pCi/L	10	02DEC87	10.1	Iodine-129
2-E17-14	081 I-129	pCi/L	10	15MAY89	14	Iodine-129
2-E17-15	081 I-129	pCi/L	10	21DEC88	12.7	Iodine-129

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Wellname	Constituent-Units Code	Action Level	Collection Date	Analytical Value	Constituent
2-E23-1	A66 TOLUENE ppb	20	19MAR90	30	Toluene
2-E24-1	081 I-129 pCi/L	10	13JUL87	44.6	Iodine-129
	281 I-129DW pCi/L	10	11MAY88	26.6	Iodine-129 (for drinking water regs)
2-E24-11	C72 NITRATE ppb	450000	12APR87	470000	Nitrate
2-E27-15	H38 FMERCUR ppb	0.12	26FEB90	0.23	Mercury, filtered
2-E28-23	111 BETA pCi/L	500	23MAR90	12900	Gross beta
	100 PU39-40 pCi/L	12	23MAR90	21.7	Plutonium-239,240
	121 SR-90 pCi/L	80	23MAR90	5240	Strontium-90
2-E28-24	112 ALPHAHI pCi/L	150	06APR90	1250	Gross alpha, high DL
	100 PU39-40 pCi/L	12	06APR90	144	Plutonium-239,240
	121 SR-90 pCi/L	80	06APR90	328	Strontium-90
2-E28-25	111 BETA pCi/L	500	23MAR90	12000	Gross beta
	100 PU39-40 pCi/L	12	23MAR90	19.3	Plutonium-239,240
	121 SR-90 pCi/L	80	23MAR90	6200	Strontium-90
2-E33-3	H38 FMERCUR ppb	0.12	23MAR88	0.17	Mercury, filtered
2-W6-1	A61 TETRANE ppb	50	10JUN87	220	Tetrachloromethane [Carbon Tetrachloride]

Table 4. List of Wells Requiring Purge Water Containment Based on the Most Recent Sampling for The Constituent Listed in Table 1 of WHC Purgewater Strategy Document.

Wellname	Constituent-Units Code	Action Level	Collection Date	Analytical Value	Constituent
2-W6-2	A61 TETRANE ppb	50	10MAY90	102	Tetrachloromethane [Carbon Tetrachlorid
2-W7-4	A61 TETRANE ppb	50	08MAY90	158	Tetrachloromethane [Carbon Tetrachlorid
2-W10-1	H65 HNITRAT ppb	450000	28JUL88	456000	Nitrate, high DL
2-W10-3	H65 HNITRAT ppb	450000	28JUL88	661000	Nitrate, high DL
2-W10-4	A61 TETRANE ppb	50	01DEC88	2800	Tetrachloromethane [Carbon Tetrachlorid
2-W10-9	H22 FCHROMI ppb	110	28FEB90	135	Chromium, filtered
	A61 TETRANE ppb	50	23AUG88	2300	Tetrachloromethane [Carbon Tetrachlorid
2-W11-7	A61 TETRANE ppb	50	10NOV88	2500	Tetrachloromethane [Carbon Tetrachlorid
2-W11-14	212 ALPHA pCi/L	150	09MAR89	173	Gross alpha
	112 ALPHAHI pCi/L	150	13APR90	207	Gross alpha, high DL
	A61 TETRANE ppb	50	13APR90	790	Tetrachloromethane [Carbon Tetrachlorid
2-W11-23	H65 HNITRAT ppb	450000	21SEP88	757000	Nitrate, high DL
2-W14-2	C70 CYANIDE ppb	52	10NOV88	69	Cyanide
	A61 TETRANE ppb	50	10NOV88	920	Tetrachloromethane [Carbon Tetrachlorid
2-W14-5	A61 TETRANE ppb	50	10NOV88	860	Tetrachloromethane [Carbon Tetrachlorid

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Wellname	Constituent-Units Code	Action Level	Collection Date	Analytical Value	Constituent
2-W14-6	A61 TETRANE ppb	50	10NOV88	320	Tetrachloromethane [Carbon Tetrachloride]
2-W15-4	H65 HNITRAT ppb	450000	26SEP88	699000	Nitrate, high DL
	C72 NITRATE ppb	450000	29NOV88	662000	Nitrate
	A61 TETRANE ppb	50	29NOV88	1830	Tetrachloromethane [Carbon Tetrachloride]
2-W15-7	A61 TETRANE ppb	50	29NOV88	2390	Tetrachloromethane [Carbon Tetrachloride]
2-W15-8	112 ALPHAHI pCi/L	150	07MAY90	226	Gross alpha, high DL
	A80 CHLFORM ppb	1000	07MAY90	154	Chloroform [Trichloromethane]
	A61 TETRANE ppb	50	07MAY90	1110	Tetrachloromethane [Carbon Tetrachloride]
2-W15-10	A61 TETRANE ppb	50	29NOV88	3750	Tetrachloromethane [Carbon Tetrachloride]
2-W15-11	A61 TETRANE ppb	50	29NOV88	4350	Tetrachloromethane [Carbon Tetrachloride]
2-W15-12	A61 TETRANE ppb	50	05JUN89	1920	Tetrachloromethane [Carbon Tetrachloride]
2-W15-15	A61 TETRANE ppb	50	13MAR90	800	Tetrachloromethane [Carbon Tetrachloride]
2-W15-16	A61 TETRANE ppb	50	03APR90	8400	Tetrachloromethane [Carbon Tetrachloride]
2-W15-18	A61 TETRANE ppb	50	16MAR90	1700	Tetrachloromethane [Carbon Tetrachloride]
2-W15-19	A61 TETRANE ppb	50	04MAY90	710	Tetrachloromethane [Carbon Tetrachloride]

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Wellname	Constituent-Units Code	Action Level	Collection Date	Analytical Value	Constituent
2-W15-20	A61 TETRANE ppb	50	04MAY90	192	Tetrachloromethane [Carbon Tetrachloride]
2-W15-24	A61 TETRANE ppb	50	13MAR90	380	Tetrachloromethane [Carbon Tetrachloride]
2-W18-4	A61 TETRANE ppb	50	06JUN89	194	Tetrachloromethane [Carbon Tetrachloride]
2-W18-5	A61 TETRANE ppb	50	30NOV88	3640	Tetrachloromethane [Carbon Tetrachloride]
2-W18-9	A61 TETRANE ppb	50	03MAY90	121	Tetrachloromethane [Carbon Tetrachloride]
2-W18-15	A61 TETRANE ppb	50	01DEC88	89	Tetrachloromethane [Carbon Tetrachloride]
2-W18-17	A61 TETRANE ppb	50	20APR90	2000	Tetrachloromethane [Carbon Tetrachloride]
2-W18-21	A61 TETRANE ppb	50	13MAR90	180	Tetrachloromethane [Carbon Tetrachloride]
2-W18-23	A61 TETRANE ppb	50	11MAY90	675	Tetrachloromethane [Carbon Tetrachloride]
2-W18-24	A61 TETRANE ppb	50	03APR90	600	Tetrachloromethane [Carbon Tetrachloride]
2-W18-26	A61 TETRANE ppb	50	04MAY90	250	Tetrachloromethane [Carbon Tetrachloride]
2-W19-3	212 ALPHA pCi/L	150	13JAN89	1840	Gross alpha
	112 ALPHAHI pCi/L	150	04APR90	1360	Gross alpha, high DL
	081 I-129 pCi/L	10	20AUG87	32.9	Iodine-129
	A61 TETRANE ppb	50	02DEC88	120	Tetrachloromethane [Carbon Tetrachloride]

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Wellname	Constituent-Units Code		Action Level	Collection Date	Analytical Value	Constituent
2-W19-3	104 U	pCi/L	420	04APR90	737	Uranium
	124 U-CHEM	ug/L	600	10MAR89	2000	Uranium, chemical
2-W19-9	212 ALPHA	pCi/L	150	13FEB89	998	Gross alpha
	081 I-129	pCi/L	10	20AUG87	21.4	Iodine-129
	A61 TETRANE	ppb	50	15DEC88	112	Tetrachloromethane [Carbon Tetrachloride]
	124 U-CHEM	ug/L	600	13FEB89	1400	Uranium, chemical
2-W19-11	212 ALPHA	pCi/L	150	21MAR88	1930	Gross alpha
	112 ALPHAHI	pCi/L	150	02APR90	867	Gross alpha, high DL
	081 I-129	pCi/L	10	20AUG87	31.6	Iodine-129
	A61 TETRANE	ppb	50	18JAN88	115	Tetrachloromethane [Carbon Tetrachloride]
	104 U	pCi/L	420	02APR90	1030	Uranium
	124 U-CHEM	ug/L	600	21MAR88	2610	Uranium, chemical
2-W19-15	A61 TETRANE	ppb	50	04APR90	127	Tetrachloromethane [Carbon Tetrachloride
2-W19-16	212 ALPHA	pCi/L	150	13FEB89	641	Gross alpha
	112 ALPHAHI	pCi/L	150	28MAR90	449	Gross alpha, high DL
	A61 TETRANE	ppb	50	28MAR90	193	Tetrachloromethane [Carbon Tetrachloride]
	104 U	pCi/L	420	28MAR90	478	Uranium
	124 U-CHEM	ug/L	600	13FEB89	641	Uranium, chemical

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Wellname	Constituent-Units Code		Action Level	Collection Date	Analytical Value	Constituent
2-W19-18	212 ALPHA	pCi/L	150	13JAN89	2000	Gross alpha
	112 ALPHAHI	pCi/L	150	28MAR90	1280	Gross alpha, high DL
	A61 TETRANE	ppb	50	28MAR90	89	Tetrachloromethane [Carbon Tetrachloride]
	104 U	pCi/L	420	28MAR90	1130	Uranium
	124 U-CHEM	ug/L	600	06OCT89	1880	Uranium, chemical
2-W19-19	212 ALPHA	pCi/L	150	12JAN89	285	Gross alpha
	112 ALPHAHI	pCi/L	150	04APR90	268	Gross alpha, high DL
	111 BETA	pCi/L	500	04APR90	1090	Gross beta
	H65 HNITRAT	ppb	450000	06OCT89	1340000	Nitrate, high DL
	C72 NITRATE	ppb	450000	04APR90	1250000	Nitrate
	197 TC-99	pCi/L	9000	06OCT89	24600	Technetium-99
	104 U	pCi/L	420	31OCT89	547	Uranium
	124 U-CHEM	ug/L	600	06OCT89	638	Uranium, chemical
2-W19-20	212 ALPHA	pCi/L	150	11JAN89	213	Gross alpha
	112 ALPHAHI	pCi/L	150	20MAR90	214	Gross alpha, high DL
	111 BETA	pCi/L	500	20MAR90	1830	Gross beta
	H65 HNITRAT	ppb	450000	05OCT89	1110000	Nitrate, high DL
	C72 NITRATE	ppb	450000	20MAR90	1050000	Nitrate
	197 TC-99	pCi/L	9000	05OCT89	25400	Technetium-99

Table 4. List of Wells Requiring Purge Water Containment Based on the Most Recent Sampling for The Constituent Listed in Table 1 of WHC Purgewater Strategy Document.

Wellname	Constituent-Units Code	Action Level	Collection Date	Analytical Value	Constituent
2-W19-23	H65 HNITRAT ppb	450000	05OCT89	490000	Nitrate, high DL
	C72 NITRATE ppb	450000	20MAR90	586000	Nitrate
2-W19-24	212 ALPHA pCi/L	150	12JAN89	273	Gross alpha
	112 ALPHAHI pCi/L	150	20MAR90	254	Gross alpha, high
	111 BETA pCi/L	500	20MAR90	2740	Gross beta
	H65 HNITRAT ppb	450000	06OCT89	1040000	Nitrate, high DL
	C72 NITRATE ppb	450000	20MAR90	584000	Nitrate
	197 TC-99 pCi/L	9000	06OCT89	41000	Technetium-99
2-W19-25	212 ALPHA pCi/L	150	12JAN89	183	Gross alpha
	112 ALPHAHI pCi/L	150	20MAR90	197	Gross alpha, high
	111 BETA pCi/L	500	20MAR90	2160	Gross beta
	H65 HNITRAT ppb	450000	05OCT89	960000	Nitrate, high DL
	C72 NITRATE ppb	450000	20MAR90	931000	Nitrate
	197 TC-99 pCi/L	9000	05OCT89	33000	Technetium-99
2-W19-26	212 ALPHA pCi/L	150	01NOV88	300	Gross alpha
	H65 HNITRAT ppb	450000	05OCT89	1360000	Nitrate, high DL
	C72 NITRATE ppb	450000	27OCT89	1300000	Nitrate

Table 4. List of Wells Requiring Purge Water Containment Based on the Most Recent Sampling for The Constituent Listed in Table 1 of WHC Purgewater Strategy Document.

Wellname	Constituent-Units Code	Action Level	Collection Date	Analytical Value	Constituent
2-W22-9	281 I-129DW pCi/L	10	27SEP88	23.9	Iodine-129 (for drinking water regs)
2-W22-20	H22 FCHROMI ppb	110	21FEB90	301	Chromium, filtered
2-W23-7	H38 FMERCUR ppb	0.12	09JUN87	0.16	Mercury, filtered
3-1-16B	A91 TRANDCE ppb	10	18DEC89	135	trans-1,2-Dichloroethene
3-1-17A	112 ALPHAHI pCi/L	150	22MAY90	159	Gross alpha, high DL
6-35-70	081 I-129 pCi/L	10	09JUL87	47.2	Iodine-129
	281 I-129DW pCi/L	10	15FEB90	10.7	Iodine-129 (for drinking water regs)
6-37-43	081 I-129 pCi/L	10	10SEP87	10.712	Iodine-129
6-38-70	A61 TETRANE ppb	50	06APR90	58	Tetrachloromethane [Carbon Tetrachloride]
6-39-79	A61 TETRANE ppb	50	23FEB89	820	Tetrachloromethane [Carbon Tetrachloride]
6-49-55A	C70 CYANIDE ppb	52	27APR90	84.9	Cyanide
6-50-53	111 BETA pCi/L	500	28APR89	1440	Gross beta
	C70 CYANIDE ppb	52	17JAN89	641	Cyanide
	H65 HNITRAT ppb	450000	28APR89	596000	Nitrate, high DL
	C72 NITRATE ppb	450000	17JAN89	625000	Nitrate

Table 4. List of Wells Requiring Purge Water Containment Based on the Most Recent Sampling for The Constituent Listed in Table 1 of WHC Purgewater Strategy Document.

Wellname	Constituent-Units Code	Action Level	Collection Date	Analytical Value	Constituent
6-53-47B	121 SR-90 pCi/L	80	26MAR90	113	Strontium-90
6-53-48A	121 SR-90 pCi/L	80	19APR89	124	Strontium-90
6-53-48B	121 SR-90 pCi/L	80	19APR89	240	Strontium-90
6-54-48	121 SR-90 pCi/L	80	26MAR90	126	Strontium-90
6-97-43	H22 FCHROMI ppb	110	16JAN89	192	Chromium, filtered
6-97-51A	H22 FCHROMI ppb	110	31AUG88	112	Chromium, filtered

113 Total Wells Require Purgewater Containment

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BHI-01265
Rev. 0

Hanford Well Maintenance and Inspection Plan

Prepared for the U.S. Department of Energy, Richland Operations Office
Office of Environmental Restoration

Submitted by: Bechtel Hanford, Inc.

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Printed in the United States of America

DISCLM-5.CHP (8-91)

BHI-01265
Rev. 0

Hanford Well Maintenance and Inspection Plan

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Date Published

May 1999

CONTENTS

1.0 INTRODUCTION

This document presents the well maintenance and inspection plan for use in supporting groundwater activities at the Hanford Site. Wells located across the Hanford Site are used by Site contractors for a variety of groundwater programs. As such, these wells require various types of maintenance during their lifecycles. The wells that must be maintained are defined in Section 2.0, "Requirements." The Well Maintenance Program is the responsibility of Bechtel Hanford, Inc. (BHI). The maintenance/inspection program is designated as routine maintenance.

2.0 REQUIREMENTS

The *Revised Code of Washington* ([RCW] 18.104), as amended, states that the property owner is required to maintain wells to guard against waste and contamination of the groundwater resources. Also, RCW 18.104 empowers the Washington State Department of Ecology (Ecology) to adopt rules for the maintenance of wells and their casings. These rules and regulations are contained in *Washington Administrative Code* (WAC) 173-160, "Minimum Standards for Construction and Maintenance of Wells," issued by Ecology.

The provisions of the dangerous waste section of the *Resource Conservation and Recovery Act of 1976 Permit for the Treatment, Storage, and Disposal of Dangerous Waste at the Hanford Site* Permit are controlled by the "State of Washington Hazardous Waste Management Act of 1976" (RCW 70.105). Part II.F.2.a of Ecology 1994 states that "...the Permittees shall inspect the integrity of active resource protection wells as defined by WAC 173-160-030 subject to this Permit at least once every five (5) years." Wells subject to the RCRA Permit requirements are defined as wells actively monitoring treatment, storage, and disposal (TSD) unit closures (in Part V of the Permit); TSD operating units (in Part III of the Permit); and TSD units undergoing post-closure/modified closure (Part VI of the Permit).

Additionally, the "Second Responsiveness Summary" section (Ecology 1994), which discusses interpretation of the RCRA Permit (found in Part II.F.2.a, page 99), states that Ecology requires maintenance inspections because of the likelihood that monitoring wells can act as preferential pathways for the migration of contaminants. Although the inspections are only required for the wells subject to the Permit, Ecology further states that "...the Department will pursue enforcement action outside of this Permit to assess and remediate and/or abandon, where applicable, those wells not being addressed by this Permit."

Groundwater monitoring wells included in the maintenance/inspection plan are determined by the RCRA permit and various programs such as the Hanford Site Groundwater/Vadose Zone Integration Project. Maintenance of wells supporting other programs or projects across the Hanford Site may be included in the maintenance schedule at the request of the program manager.

3.0 SCHEDULE

The list of wells to be considered for routine maintenance is developed based on a review of the past 4 years sampling history, the fiscal year sampling schedule, and the proposed 3-year sampling schedule. Routine maintenance priority is established by reviewing the following:

- whether the well is subject to RCRA permit requirements, or
- elapsed time since the last routine maintenance action or construction date (priority on longer duration).

The schedule (see Appendix A) is sufficiently flexible to accommodate changes that will occur with the addition of new wells, adjustments in the TSD unit closures, and wells that are no longer needed for monitoring. The schedule will also accommodate wells used by other programs.

4.0 WELL INSPECTIONS

Well inspections are conducted as an integral part of field maintenance activities. Inspections include visual examination of the well site, surface components of the well structure (e.g., barrier posts, concrete surface pad, protective well casing, well cap), identification of equipment installed in the well, and where possible measurements of the depths to water and/or bottom of the well. Inspections are documented on field reports.

5.0 WELL MAINTENANCE

Well maintenance for groundwater monitoring wells, at a minimum, will include the following tasks:

1. Removing groundwater sampling pump system and/or aquifer testing instrumentation/equipment
2. Inspecting and repairing (or replacing, as necessary) the sampling pump system and/or aquifer testing instrumentation/equipment
3. Brushing/cleaning the well casing perforations/well screen
4. Removing debris and fill material
5. Developing the well
6. Performing borehole video camera surveillance

7. Re-installing sampling and/or aquifer testing instrumentation/equipment

8. Documenting well conditions and maintenance activities

9. Performing well inspections, as defined in Section 3.0 of this well maintenance and inspection plan.

6.0 MANAGEMENT AND CONTROL

Well maintenance activities will be performed by subcontract using approved subcontractor procedures, quality assurance and quality control plans, health and safety plan, and other appropriate and/or required documentation. The following will control environmental compliance, quality assurance, and reporting:

- BHI-EE-02, *Environmental Requirements*, establishes the overall environmental compliance requirements for BHI.

- Program implementation and procedural compliance will be monitored periodically through surveillance and self-assessments.

- Well maintenance activities will be documented and transmitted for entry into the Hanford Well Information System Database. Inspections are to be recorded in the RCRA operating records, where necessary. All documentation shall be submitted to Document and Information Services.

7.0 REFERENCES

BHI-EE-02, *Environmental Requirements*, Bechtel Hanford, Inc., Richland, Washington.

DOE-RL, Hanford Facility Wide RCRA Permit, as revised, Permit No. WA7890008967, expiration date September 27, 2004.

Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901, et seq.

RCW 18.104, "Well Construction," *Revised Code of Washington,* as amended.

RCW 70.105, "State of Washington Hazardous Waste Management Act of 1976," *Revised Code of Washington,* as amended.

WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," *Washington Administrative Code,* as amended.

8.0 BIBLIOGRAPHY

DOE-RL, 1994, *Hanford Site Groundwater Management Program,* DOE/RL-89-12, Rev. 2, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

APPENDIX A

ROUTINE WELL MAINTENANCE SCHEDULE

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 1999

Quarter: 2

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM T	O P	BOT.	MTRL	S L O T SIZE	Int.	T O P	BOT.
199-H4-7	A4636		9/22/86	4/3/97		9/1/95	43.47 ft	Pos. Disp.	Contain	No	6 in	6 in	43 ft	53 ft	SS	0.02 in			
199-H4-12A	A4616		11/30/86	4/3/97	9/7/95	8/24/95	27.8 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	33 ft	48 ft	SS	0.02 in			
299-E26-9	A4806		8/10/90	7/25/94		1/25/93	202.38 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	90.32 ft	200.92 ft	SS	0.01 in			
299-E26-10	A4799		8/28/90			8/27/93	200.98 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	90.46 ft	206.1 ft	SS	0.01 in			
299-E26-11	A4800		8/20/90			8/27/93	193 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	00.16 ft	205.77 ft	SS	0.01 in			
299-E35-2	A4886		8/1/90	11/5/96		8/27/93	201.58 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	90.89 ft	201.49 ft	SS	0.01 in			
399-1-10A	A5411		11/22/86	3/31/97	3/31/97	10/31/89	31.23 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	24.5 ft	39.5 ft	SS	0.04 in			
399-1-10B	A8064		10/8/91	4/3/97	4/3/97	8/7/92	31.29 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	104.5 ft	114.5 ft	SS	0.01 in			
399-1-16A	A5025		12/31/86	4/3/97	4/3/97	11/1/89	39.58 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	32.5 ft	47.5 ft	SS	0.04 in			
399-1-16B	A5026		2/28/87	8/25/97	3/31/97	10/19/90	39.07 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	105 ft	115 ft	SS	0.02 in			
399-1-17A	A5028		11/30/86	4/3/97	4/3/97	10/19/90	35.35 ft	Pos. Disp.	Contain	No	6 in	6	n 25 ft	40 ft	SS	0.04 in			
399-1-17B	A5029		12/19/86	3/31/97	3/31/97	10/19/90	33.48 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	99.5 ft	110 ft	SS	0.04 in			
399-1-18A	A5031		11/30/88	8/29/97	3/31/97	10/19/90	45.56 ft	Pos. Disp.	Purge to Ground	No	6 in	6	n 39 ft	45 ft	SS	0.04 in			
399-1-18B	A5032		1/20/87	8/25/97	3/31/97	8/7/92	44.42 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	108.5 ft	118.5 ft	SS	0.04 in			
[illegible]	A5049		8/1/43	10/7/97		10/15/92	48.78 ft	Subm.	Purge to Ground	No	6 in						1	42 ft.	55 ft.
699-48-7A	A5213		8/31/43	2/27/94		10/25/95	25.14 ft	Subm.	Purge to Ground	No	12 in						1	12 ft.	32 ft.
699-49-1 3E	A5215		3/1 5/44	10/22/96		11/1/95	45.23 ft		Purge to Ground	No	6 in						1	55 ft.	75 ft.
699-55-72	A5302			9/16/91		2/25/91	138.71 ft	Subm.	Purge to Ground	No	12 in						1	137 ft.	157 ft.
3099-42-16	A9385		10/31/44				53.39 ft	Subm.	Purge to Ground	No	12 in						1	55 ft.	125 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 1999

Quarter: 3

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
299-E23-1	A4747		4/15/48	2/25/94		3/6/92	312.35 ft	Subm.	Contain	No	8 in						1	310 ft.	340 ft.
299-E28-2	A6765		1/31/48	7/14/94		3/12/92	280.19 ft	Subm.	Contain	No	8 in						1	288 ft.	318 ft.
299-W10-1	A7136		8/11/47	10/22/96		12/12/96	223.84 ft	Subm.		No	8 in						1	109 ft.	270 ft.
699-19-43	A5075		9/30/50			7/13/93	149.97 ft	Subm.	Purge to Ground	No	8 in	6 in	127 ft	185 ft	SS		1	130 ft.	184 ft.
699-20-20	A5080		7/29/48			9/16/93	106.92 ft	Subm.	Purge to Ground	No	8 in						1	105 ft.	155 ft.
699-25-70	A5099		8/31/48	12/5/97		12/23/96	187.6 ft	Subm.	Purge to Ground	No	8 in						1	175 ft.	440 ft.
699-34-66	A5138		12/20/48	4/1/97		6/4/93	168.37 ft	Subm.	Purge to Ground	No	3 in						1	156 ft.	170 ft.
699-35-70	A5140		9/3/48	10/22/96		3/26/93	250.01 ft	Subm.	Contain	No	2 in	6 in	233 ft	253 A	SS	0.02 in	1	235 ft.	320 ft.
699-36-61A	A5144		8/12/48	4/29/94		2/12/93	341.83 ft	Subm.	Purge to Ground	No	8 in						1	330 ft.	369 ft.
699-40-62	A5158		1/17/49	10/22/96		2/12/93	244.63 ft	Subm.	Purge to Ground	No	8 in						1	335 ft.	348 ft.
																	2	359 ft.	374 ft.
699-41-23	A5159		7/15/48	11/11/96		10/18/93	70.68 ft	Subm.	Purge to Ground	No	7 in	7 in	64 ft	79 ft	SS		1	65 ft.	115 ft.
699-45-42	A5195		6/23/48			1/28/97	164.31 ft	Subm.	Purge to Ground	No	8 in						1	158 ft.	180 ft.
699-45-69A	A5196		6/22/48	2/27/94		7/12/93	286.19 ft	Subm.	Purge to Ground	No	8 in						1	274 ft.	366 ft.
699-49-79	A5221		7/3/48			2/21/91	238.83 ft	Subm.	Purge to Ground	No	8 in						1	225 ft.	265 ft.
699-55-89	A5262		11/24/48	4/10/95		1/6/97	164.72 ft	Subm.	Purge to Ground	No	8 in						1	160 ft.	222 ft.
699-56-E4A	A9152		4/15/48	7/7/97		9/27/93	72.74 ft	Subm.	Purge to Ground	No	8 in	4 in	71 ft	91 ft	SS	0.02 in			
699-S24-19P	B2781	Yes	9/7/49			9/13/96	23.29 ft	No Pump	Purge to Ground	No	2 in	2 in	62.5 ft	67.5 ft	SS	0.01 in			
699-S24-19Q	B2782	Yes	9/7/49			9/13/96	23.35 ft	No Pump	Purge to Ground	No	2 in	2 in	24 ft	44 ft	SS	0.01 in			
3099-47-18B	A5062	- -	12/31/48	1/16/97		1/13/97	33.86 ft	Subm.	Purge to Ground	No	17 in						1	24 ft.	72 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 1999

Quarter: 4

WELL NAME	WELL ID	PIEZO	DRILL DATE	LAST MAINT.	LAST ROUTINE MAINT.	LAST INSPEC	DTW	PUMP TYPE	WATER CONT. REQ.	RPT.	CASING SIZE	SCREEN DIAM	SCREEN TOP	SCREEN BOT.	SCREEN MTRL	SCREEN SLOT SIZE	PERFORATION Int.	PERFORATION TOP	PERFORATION BOT.
199-H4-2	A5686		4/30/52	6/3/98		11/14/91	-38.48 ft		Purge to Ground	No	1 in	2 in	367 ft	382 A	SS	0.01 in			
299-E13-5	A5853		8/31/55	7/30/96		1/3/92	342.2 ft	Subm.	Purge to Ground	No	6 in						1	330 ft.	365 ft.
299-E25-3	A6024		10/14/54	7/11/96		7/8/96	291.34 ft	Subm.	Purge to Ground	No	6 in						1	270 ft.	312 ft.
299-W10-2	A4896		12/5/51	5/1/90		12/17/96	214.18 ft	Pos. Disp.		No	4 in						1	201 ft.	229 ft.
299-W10-4	A7137		11/30/52	7/25/94		12/17/96	219.51 ft	Subm.		No	6 in						1	190 ft.	245 ft.
299-W11-6	A4909		7/5/51	10/14/94		12/18/96	267.26 ft	Subm.		No	6 in						1	260 ft.	310 ft.
299-W11-7	A4910		8/30/51	1/2/96		12/18/96	257.75 ft	Subm.		No	6 in						1	245 ft.	260 ft.
299-W11-12	A4902		12/31/53	8/23/94		12/18/96	228.75 ft	Pos. Disp.		No	8 in						1	200 ft.	250 ft.
299-W14-2	A7328		5/11/55	8/11/97		12/16/96	214.95 ft	Pos. Disp.		No	6 in						1	181 ft.	222 ft.
299-W23-1	A4979		6/5/52	11/29/93		12/1/94	214.67 ft	Subm.		No	4 in	6 in	176 ft	234.5 ft	SS	0.02 in	1	180 ft.	190 ft.
																	2	195 ft.	260 ft.
299-W23-2	A4985		9/9/54	10/5/95		9/27/95	211.48 ft	Pos. Disp.		No	4 in						1	184 ft.	235 ft.
699-17-5	A5073		12/5/50	6/10/97		3/21/96	45.21 ft	Subm.	Purge to Ground	No	7 in	7 in	42 ft	52.6 ft	SS	0.01 in	1	45 ft.	72 ft.
699-31-31	A5123		2/23/56	8/7/91		1/27/97	129.31 ft	Subm.	Purge to Ground	No	8 in						1	135 ft.	280 ft.
																	2	350 ft.	378 ft.
																	3	395 ft.	405 ft.
																	4	440 ft.	450 ft.
																	5	530 ft.	540 ft.
699-37-43	A5146		11/3/55	12/5/97		1/27/97	288.55 ft	Subm.	Purge to Ground	No							1	275 ft.	334 ft.
																	2	365 ft.	385 ft.
																	3	415 ft.	435 ft.
699-43-39	A5181		1/16/51	12/5/96		12/2/96	183.94 ft	Subm.	Purge to Ground	No	8 in						4	475 ft.	495 ft.
																	1	175 ft.	247 ft.
699-46-21B	A5197		9/20/55	11/11/96		3/23/95	132.47 ft	Subm.	Purge to Ground	No	6 in						1	128 ft.	220 ft.
																	1	139.5 ft.	151 ft.
699-S6-E4CS	B2831	Yes	5/31/53	6/6/97			0 ft	Pos. Disp.	Purge to Ground	No	2 in	2 in	227 ft	232 ft	SS	0.01 in			
699-S8-E4CT	B2832	Yes	5/31/53	6/6/97			0 ft	Pos. Disp.	Purge to Ground	No	2 in	2 in	145 ft	150 ft	SS	0.01 in			
699-S8-E4D	A5406		11/11/53			9/27/93	58.19 ft	Subm.	Purge to Ground	No	8 in	8 in	22 ft	72 ft	SS	0.015 in	1	60 ft.	140 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2000

Quarter: *1*

			LAST									SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT. R	OUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
299-E13-14	A4726		12/31/56	11/29/93		1/2/92	344.13 ft	Subm.	Purge to Ground	No	6 in						1	320 ft.	353 ft.
299-E24-8	A4758		5/23/57	7/7/97		12/5/96	288.06 ft	Subm.	Purge to Ground	No	6 in						1	280 ft.	372 ft.
299-E26-4	A4804		8/27/58	5/23/97		5/9/91	217.19 ft	Subm.	Purge to Ground	No	6 in						1	225 ft.	281 ft.
299-E28-8	A8788		9/30/57	5/28/96		3/14/90	262.99 ft		Purge to Ground	No	6 in						1	250 ft.	294 ft.
299-W12-1	A4912		5/31/56	10/8/93		12/19/96	283.42 ft	Subm.		No	8 in						1	260 ft.	309 ft.
299-W19-4	A4958		2/15/60	11/10/95		12/10/96	276.43 ft	Subm.		No	8 in						1	235 ft.	295 ft.
																	2	300 ft.	443 ft.
																	3	465 ft.	485 ft.
																	4	520 ft.	535 ft.
299-W22-9	A7634		5/4/56	12/5/97		1/19/95	230.65 ft	Pos. Disp.		No	8 in						1	220 ft.	245 ft.
																	2	255 ft.	299 ft.
299-W22-20	A7643	--	6/19/57	7/31/96	--	7/25/96	227.69 ft	Subm.		No	6 in						1	205 ft.	299 ft.
699-1-18	A8120		1/31/58	8/15/95			44.75 ft	Subm.	Purge to Ground	No	6 in						1	109 ft.	265 ft.
699-9-E2	A5349		1/31/58			5/23/95	ft	Subm.	Purge to Ground	No	8 in						1	15 ft.	255 ft.
699-17-70	A5074		10/30/58			7/29/83	88.53 ft	No Pump	Purge to Ground	No	8 in						1	75 ft.	125 ft.
699-28-40	A5110		5/16/56	11/27/96		9/20/93	159.13 ft	Subm.	Purge to Ground	No	8 in						1	150 ft.	270 ft.
																	2	275 ft.	295 ft.
																	3	320 ft.	330 ft.
																	4	335 ft.	355 ft.
																	5	385 ft.	405 ft.
																	6	455 ft.	462 ft.
699-31-31P	A9833	Yes	2/23/58	9/9/97			129.24 ft		Purge to Ground	No	1.5 in								
699-32-62	A5128		4/6/60	10/21/96		8/17/95	281.3 ft	Pos. Disp.	Contain	No	8 in						1	275 ft.	500 ft.
																	1	425 ft.	445 ft.
																	1	485 ft.	495 ft.
699-32-70B	A5129		8/9/57	10/21/94		2/16/93	-0.35 ft	Subm.	Purge to Ground	No	8 in						1	207 ft.	330 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2000

Quarter: I

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
699-32-72A	A5130		7/31/57	4/1/97		12/23/96	225.84 ft	Subm.	Purge to Ground	N	o	8 in					1	210 ft.	240 ft.
																	1	240 ft.	275 ft.
																	1	275 ft.	280 ft.
																	1	280 ft.	370 ft.
																	1	370 ft.	380 ft.
																	1	380 ft.	410 ft.
																	2	415 ft.	420 ft.
																	3	465 ft.	485 ft.
699-33-56	A5133		7/31/58	8/11/93		3/23/93	315.16 ft	Subm. --	Purge to Ground	No	10 in	10 in	315.2 ft	409 ft	SS	0.02 in			
699-35-66A	A5139		6/12/57	5/13/94		2/12/93	291.31 ft	Subm.	Contain	No	8 in						1	260 ft.	350 ft.
699-38-65	A5148		12/31/59	6/23/94		2/12/93	328.65 ft	Subm.	Purge to Ground	No	8 in						1	220 ft.	520 ft.
699-38-70	A5149		6/30/57	3/16/94		3/26/93	267.27 ft	Subm.	Purge to Ground	No	8 in						1	255 ft.	320 ft.
699-42-12A	A5163		12/12/57			9/23/93	136.39 ft	Subm.	Purge to Ground	No	6 in						1	101 ft.	183 ft.
																	1	120 ft.	320 ft.
699-44-64	A5168		1/31/60	5/18/95		12/23/96	320.82 ft	Subm.	Purge to Ground	No	8 in						1	316 ft.	442 ft.
699-62-43F	A8944		8/31/59			6/13/95	31.2 ft	Subm.	Purge to Ground	No	8 in						1	25 ft.	73 ft.
699-S3-E12	A5374		9/30/60	11/11/91		10/18/93	42.21 ft	Subm.	Purge to Ground	No	8 in						1	35 ft.	200 ft.
699-S11-E12	A9778	Yes	9/14/60	5/16/97			-16.32 ft	No Pump	Purge to Ground	No	2 in								

ROUTINE WELL MAINTENANCE SCHEDULE

Program: *RCRA*

Fiscal Year: *2000*

Quarter: *2*

WELL NAME	WELL ID	PIEZO	DRILL DATE	LAST MAINT.	ROUTINE MAINT.	INSPEC	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	SCREEN DIAM	SCREEN TOP	SCREEN BOT.	SCREEN MTRL	SCREEN SLOT SIZE	PERFORATION Int.	PERFORATION TOP	PERFORATION BOT.
199-N-5	A5814		5/7/64	9/17/96		5/16/91	67.02 ft	Pos. Disp.	Contain	No	8 in						1	34 ft.	120 ft.
299-E15-1	A5727		1/12/61	7/1/97		2/5/92	291.07 ft	Subm.	Purge to Ground	No	6 in	6 in	468 ft	510 ft	SS	0.01 in			
299-E17-9	A4742		5/31/88	10/23/96		8/10/93	317.49 ft	Subm.	Contain/Reg Truck	No	6 in						1	310 ft.	320 ft.
299-E25-15	4763		7/31/69	11/29/93		2/2/90	287.7 ft			No	4 in						1	270 ft.	338 ft.
299-E29-13	A6701		12/31/68	4/25/97		4/25/96	306.37 ft	Subm.	Purge to Ground	No	6 in						1	287 ft.	359 ft.
299-E33-25	A6858		2/28/69	11/29/93		2/6/90	226.77 ft				6 in						1	199 ft.	233 ft.
299-W11-14	A4903		12/21/62	7/30/96		5/10/91	265.3 ft	Subm.		No	6 in						1	250 ft.	313 ft.
299-W11-18	A7284		3/1/67	10/22/96		12/16/96	255.37 ft	Subm.		No							1	227 ft.	295 ft.
99-8-25	A5334		1/25/71	11/18/91		10/13/93	111.6 ft	Subm.	Purge to Ground	No	6 in	6 in	103 ft	160 ft	SS		1	110 ft.	168 ft.
699-10-E12	A5065		8/12/62	11/11/91		1/30/97	72.21 ft	Subm.	Purge to Ground	No	8 in						1	60 ft.	355 ft.
699-20-E12S	A9617	Yes	11/7/61	10/7/97		10/16/93	78 ft	No Pump	Contain	No	2 in								
699-26-89	A5108		12/11/62	10/24/96		6/3/93	184.75 ft	Subm.	Purge to Ground	No	8 in						1	165 ft.	488 ft.
699-27-8	A5109		1/4/60	11/20/89		10/18/93	72.91 ft	Subm.	Purge to Ground	No	6 in	6 in	67 ft	77 ft	GALV	0.015 in	1	67 ft.	145 ft.
699-32-43	A5127		8/31/68	2/15/95		9/20/93	116.17 ft	Subm.	Purge to Ground	No	6 in						1	110 ft.	120 ft.
699-33-42	A5132		7/18/68	5/6/97		9/20/93	115.2 ft	Subm.	Purge to Ground	No	5 in	5 in	109 ft	119 ft	SS	0.02 in	1	111 ft.	121 ft.
699-34-41B	A5135		2/18/71	11/28/95		9/20/93	170.2 ft	No Pump	Purge to Ground	No	6 in						1	150 ft.	175 ft.
699-36-93	A5146		1/31/62	12/11/97			177.01 ft	Subm.	Purge to Ground	No	a in						1	175 ft.	625 ft.
699-40-1	A5152		10/31/61	9/18/95		10/16/93	74.73 ft	Subm.	Purge to Ground	No	6 in						1	65 ft.	220 ft.
699-53-47A	A5239		2/21/66	8/8/97		2/26/93	32.56 ft	Subm.	Contain	No	6 in						1	22 ft.	33 ft.
																	1	23 ft.	34 ft.
699-66-23	A5306		10/5/61			1/8/97	22.99 ft	Subm.	Purge to Ground	No	8 in						1	20 ft.	96 ft.
699-72-73	A5323	9/20/61		8/13/92		2/26/91	63.83 ft	Subm.	Purge to Ground	No	8 in						1	60 ft.	176 ft.
699-84-35A	A5342		10/5/62	7/1 2/96		6/12/95	22.43 ft	No Pump	Purge to Ground	No	8 in						1	10 ft.	355 ft.
699-S3-25	A5373		2/28/71			7/8/93	125.93 ft	Subm.	Purge to Ground	No	6 in						1	114 ft.	172 ft.
699-S6-E14A	A5405	8/9/62	1	1/19/91		12/11/96	24.52 ft	Subm.	Purge to Ground	No	6 in						1	20 ft.	190 ft.
699-S12-29	A5365	10/25/62		10/21/96		6/4/93	83.78 ft	Subm.	Purge to Ground	No	1.5 in						1	83 ft.	115 ft.
																	2	125 ft.	175 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: *RCRA*

Fiscal Year: *2000*

Quarter: *3*

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
299-E25-17	A6031		7/20/76	7/15/96		3/23/92	275.1 ft	Subm.	Purge to Ground	N o	6 in						1	273 ft.	295 ft.
299-E25-19	A4765		9/30/76	10/21/94		10/24/94	174.6 ft	Subm.	Purge to Ground	No	6 in	6 in	320 ft	340 ft	SS	0.01 in	1	270 ft.	295 ft.
299-E28-23	A6799		8/6/79	12/31/96		10/24/89	286.77 ft	Subm.	Contain	Yes	4 in	4 in	276 ft	326 ft	SS	0.01 in			
299-W10-8	A4899		6/27/73	11/26/97		12/17/96	229.54 ft	Subm.		No	6 in	6 in	211 ft	251 A	SS	0.01 in			
299-W10-12	A4889		6/30/74	8/21/91		12/17/96	223.63 A			No	6 in						1	196 ft.	248 ft.
299-W11-24	A4906		8/31/73	4/30/97		12/18/96	236.63 ft	Pos. Disp.		N o	5 in	6 in	210 ft	250 ft	SS	0.02 in			
299-W14-5	A5475		10/31/74	9/12/94		9/12/94	209.52 ft	Subm.		NO	6 in						1	190 ft.	225 ft.
299-W14-6	A7331		12/31/74	9/8/95		1/21/92	206.93 ft	Subm.		No	6 in						1	195 ft.	225 ft.
299-W23-9	A7883		8/11/72	8/1/96		5/16/95	212.57 ft	Subm.		No	5 in						1	164 ft.	230 ft.
																	2	190 ft.	200 ft.
299-W23-10	A7884		10/3/72	11/5/96		7/18/96	211.8 ft	Subm.		No	5 in						1	186 ft.	230 ft.
499-S0-7	A8098		3/31/72	10/27/94		3/1/94	0 ft	Subm.	Purge to Ground	No	8 in						1	221 ft.	398 ft.
499-S0-8	A8099		3/31/72	3/3/95		3/1/94	0 ft	Subm.	Purge to Ground	No	8 in						1	188 ft.	281 ft.
699-20-E5A	A8428		10/27/76	11/26/96		11/9/95	97.92 ft	Subm.	Purge to Ground	No	6 in	7 in	95 ft	100 ft	SS	0.015 in			
699-29-4	A8490		9/12/79			11/9/95	104.83 ft	Subm.	Purge to Ground	No	6 in						1	96 ft.	112 ft.
699-32-22A	A5126		2/28/71	2/27/94		10/18/93	119.06 ft	Subm.	Purge to Ground	No	6 in						1	111 ft.	155 ft.
																	1	156 ft.	169 ft.
699-43-3	A8677		7/10/79	7/9/92		10/25/95	60.08 ft	Subm.	Purge to Ground	No	6 in						1	65 ft.	87.5 ft.
699-46-4	A8726		7/11/79	10/30/91			21.85 ft	Subm.	Purge to Ground	No	6 in						1	23 ft.	46 ft.
699-47-5	A8744		7/16/79	11/1/91		10/25/95	24.82 ft	Subm.	Purge to Ground	No	6 in						1	21 ft.	44 ft.
699-49-100C	A8804		8/31/76	4/30/96		4/29/96	0 ft	Subm.	Purge to Ground	No	10 in						1	326 ft.	401 ft.
699-63-58	A5292		6/30/72	11/19/91		1/27/92	91.66 ft	Subm.	Purge to Ground	No	6 in	6 in	81 ft	121 ft	SS	0.015 in			
699-64-27	A5295		8/15/74	10/18/96		6/3/93	49.09 ft	Subm.	Purge to Ground	No	6 in						1	50 ft.	74 ft.
699-66-64	A5310		6/1/72	8/10/93		2/25/91	105.36 ft	Subm.	Purge to Ground	No	5 in	5 in	86.25 ft	116.25 ft	SS	0.05 in			
699-S32-E13	A5385		9/25/79	4/19/96		12/11/96	44.28 ft	Subm.	Purge to Ground	No	8 in						1	50 ft.	70 ft.
699-S32-E13	A5386		10/4/79	5/7/90		12/11/96	47.6 ft	Subm.	Purge to Ground	No	8 in						1	50 ft.	70 ft.
699-S36-E13	A5392		9/30/79	2/3/97		9/20/93	46.39 ft	Subm.	Purge to Ground	No	8 in	8 in	52 ft	72 ft	SS	0.02 in			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2000

Quarter: 4

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-H4-15CP	A9496	Yes	12/16/86	9/24/96			-39.69 ft		Purge to Ground	No	2 in	2 in	325 ft	327 ft	SS	0.02 in			
199-H4-15CQ	4823	es	12/16/86	11/25/96		1115/97	-27.58 ft		Purge to Ground	No	2 in	2 in	295 ft	297 ft	SS	0.02 in			
199-H4-15CR	A4624	Yes	12/16/86	9/24/96		1/15/97	31.54 ft		Purge to Ground	No	2 in	2 in	194 ft	196 ft	SS	0.02 in			
199-N-47	A5834		11/30/84	4/3/97		3/23/95	55.69 ft	Subm.	Purge to Ground	No	6 in	6 in	53 ft	73 ft	SS	0.02 in			
299-E25-26	A4771		4/4/85	10/21/96		4/9/93	268.4 ft	Subm.	Purge to Ground	No	4 in	4 in	270 ft	290 ft	SS	0.01 in			
299-E26-8	A4805		5/6/82	5/12/97		8/12/92	219.01 ft	Subm.	Purge to Ground	No	8 in	8 in	326 ft	396 ft	SS	0.02 in			
299-E28-24	A6800		2/26/80	4/25/97		4/11/94	285.54 ft	Pos. Disp.	Contain	No	4 in	4 in	227 ft	327 ft	SS	0.01 in			
299-E28-25	A6801		2/28/80	4/16/97		10/24/89	285.42 ft	Subm.	Contain	No	4 in	4 in	279 ft	329 ft	SS	0.01 in			
299-W19-14	A4946		6/14/84	4/19/96		4/26/95	242.22 ft	Pos. Disp.		No	6 in	5 in	207 ft	250 ft	SS	0.02 in			
299-W19-15	A4947		6/7/85	10/21/94		10/24/84	242.95 ft	Subm.		No	5 in	5 in	225 ft	275 ft	SS	0.02 in			
499-S1-8J	A8114		3/27/85	3/8/94		3/1/94	0 R	Subm.	Purge to Ground	No	10 in	10 in	360 ft	390 ft	SS	0.04 in			
699-24-34B	A5091		3/11/87	1/20/98		8/24/93	133.41 ft	Pos. Disp.	Purge to Ground	No	4 in	6 in	122 ft	137 ft	SS	0.03 in			
699-24-35			3/2/87	1/22/98		9/14/93	138.77 ft	Pos. Disp.	Purge to Ground	No	4 in	6 in	[illegible]	143 ft	SS	0.03 in			
699-26-34A	A5102		7/3/86	3/1/94		6/28/91	121Subm.		Purged	No	4 in	5 in	117.2 ft	137 ft	SS	0.02 in			
699-26-35C	A5104		12/23/86	1/26/98		12/17/93	132.49 ft	Subm.	Purge to Ground	No	4	in 4 in	193 ft	203 ft	SS	0.01 in			
699-31-11	A8503		5/31/80	7/17/95		5/9/94	93.62 ft	Subm.	Purge to Ground	No	4 in	6 in	205 ft	255 ft	SS	0.01 in			
699-37-E4	A8588		7/29/82	9/18/92		4/24/92	27.39 ft	Subm.	Purge to Ground	No	6 in	6 in	83 ft	98 ft	SS	0.01 in			
699-38-15	A8594		12/4/79	11/5/91			0 R	Subm.	Purge to Ground	No	6 in						1	60 ft.	80 ft.
699-42-40C	A5169		4/30/82	6/5/97		1/28/97	136.26 ft	Subm.	Purge to Ground	No	8 in	6 in	306 ft	390 ft	SS				
699-52-46A	A5234		5/31/80	5/16/95		8/24/95	47.51 ft	Subm.	Purge to Ground	No	5	in 5 in	175 ft	225 ft	SS	0.01 in			
699-53-47B	A5240		2/3/84	4/25/96		4/5/90	32.48 ft	Subm.	Contain	No	8 in	8 in	26 ft	46 ft	SS	0.05 in			
699-53-48A	A5241	3/23/84		8/26/96		1/21/92	38.78 ft	Pos. Disp.	Contain	No	8 in								
699-53-48B	A5242		3/30/84	5/16/95		3/11/93	37.97 ft	Subm.	Contain	No	6 in	6 in	17.5 ft	37 ft	SS	0.05 in			
699-56-53	A5265		3/30/82	8/1/97		1/29/97	33.35 ft	Subm.	Purge to Ground	No	6 in	6 in	190 ft	270 ft	SS				
699-S28-E0	A9206		5/20/81	8/5/96			0 ft	Subm.	Purge to Ground	No	12 in						1	90 ft.	180 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2001

Quarter: I

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-N-57	A4700		6/30/87	6/30/95		2/7/95	68.74	ft Pos. Disp.	Purge to Ground	No	6 in	6 in	58 ft	73 ft	SS	0.02 in			
199-N-59	A4702		11/30/87	2/13/98		2/7/95	70.54 A	Pos. Disp.	Purge to Ground	No	6 in	6 in	65.5 ft	71.5 ft	SS	0.02 in			
199-N-69	A4712		6/7/88	7/27/94		4/26/91	71.69	ft Pos. Disp.	Purge to Ground	No	6 in	6 in	90 A	100 ft	0.01 in				
299-E18-1	A4743		7/27/88	8/9/94		1/11/93	319.76 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	308.5 ft	329 ft	SS	0.02 in			
299-E24-19	A4754		9/27/89 1	1/29/93		2/6/90	239.35	ft Pos. Disp.	Contain No	4 in	4 in	79.65	A 300.68	ft	SS	0.01 in			
299-E25-29P	A4774	Yes	10/7/87	12/1 1/97		8/27/93	0 ft	Pos. Disp.	Purge to Ground	No	2 in	2 in	325 ft	330 ft	SS				
299-E25-29Q	A4775	Yes	10/7/87	8/29/97		8/27/93	272.02 ft	Pos. Disp.	Purge to Ground	No	2 in	2	I n	256.6 ft	276.5 ft	SS			
299-E25-32Q	A4780	Y e	s 5/25/88	5/6/97		10/16/93	0	ft Pos.	Disp. Purge to Ground	2	in	4 in	260 ft	280	A	SS	0.02 in		
299-E27-12	A4810		10/9/89	10/22/96		2/2/90	260.7 A	Pos. Disp.	Purge to Ground	No	4 in	4 in	46.52 ft	267.55 ft	SS	0.01 in			
299-E27-13	A4811		10/12/89	12/1/93		9/15/93	268.51	R Pos. Disp.	Purge to Ground	No	4 in	4 in	53.68 R	274.68 ft	SS	0.01 in			
299-E27-15	A4813		10/3/89	11/10/95		9/25/95	252.74	ft Pos. Disp.	Purge to Ground	No	4 in	4 in	38.03 A	259.03 ft	SS	0.01 in			
299-E28-26	A4822		11/6/87	3/1/94		8/10/93	286.53	ft Pos. Disp.	Purge to Ground	No	4 in	4 in	278.8 ft	298.8 A	SS	0.02 in			
299-E32-2	A4830		8/29/87	2/5/98		10/4/89	269.66	ft Pos. Disp.	Purge to Ground	No	4 in	4 in	57.75 ft	277.75 ft	SS	0.03 in			
299-E32-4	A4832		9/30/87	2/27/98		11/6/91	285.9	ft Pos. Disp.	Purge to Ground	No	3 in	4 in	78.08 ft	298.08 ft	SS	0.03 in			
299-E33-31	A4856		9/11/89	9/23/97		5/19/93	247.08 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	234.9 ft	255.9 ft	SS	0.01 in			
299-E34-2	A4877		9/30/87	3/1/94		2/7/90	230.4 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	19.95 ft	240.25 ft	SS	0.03 in			
299-W9-1	A5017		10/22/87 1	0/23/96		8/24/93	283.35	ft Pos.	Disp. No 4	in	4 in	266 ft	286 ft	SS	0.03 in				
299-W10-13	A4890		9/25/87	10/22/96		8/24/93	244.66 ft	Pos. Disp.		No	4 in	4 in	227 ft	247 ft	SS	0.04 in			
299-W10-14	A4891		11/18/87	11/29/93		6/25/93	245.55	ft Pos.	Disp. No 4	in	4 in	427 ft	447	n	SS	0.03 in			
299-W18-22	A4934		9/25/87	3/25/94		3/11/92	213.21 ft	Pos. Disp.	No 4	in	4 in	416.5 ft	447.5	ft	SS	0.03 in			
699-24-34C	A5092		4/6/87	1/21/98		8/24/93	132.53	ft Pos. Disp.	Purge to Ground	No	4 in	6 in	121 A	136 ft	SS	0.03 in			
699-40-39	A5155		8/7/89	10/24/96		4/8/93	159.58	ft Pos. Disp.	Purge to Ground	No	4 in	4 in	00.98 ft	211.54 ft	SS	0.01 in			
699-42-42B	A5171		10/15/88	1/8/90		4/8/93	177.44	A Pos. Disp.	Purge to Ground	No	4 in	4 in	192.4 ft	202.7 ft	SS	0.02 in			
699-43-41E	A5174		8/4/89	8/16/95		4/9/93	136.9	ft Pos. Disp.	Purge to Ground	No	4 in	4 in	35.19 ft	145.84 ft	SS	0.01 in			
699-S37-E14	A5394		11/3/88	11/9/90		10/2/89	56.13 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	47.25 ft	63 ft	SS	0.02 in			
699-S40-E14	A5398		11/3/88	9/8/95		8/17/95	48.95	ft Pos. Disp.	Purge to Ground	No	4 in	4 in	33.55 n	59.5 ft	SS	0.01 in			
699-S43-E12	A5404			1/49/9/99		10/2/89	51.88ft	Pos.Disp.	Purge to Ground	No	4 in	4 in	42ft	58nSS	0.02in				

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2001

Quarter: 2

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-B4-5	A5540		2/20/90	6/2/93		6/26/92	83.11 A	Pos. Disp.	Purge to Ground	No	4 in	4 in	76.45 ft	97.1 ft	SS	0.02 in			
299-E27-11	A4809		10/16/89	11/29/93		2/7/90	243.05 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	30.38 ft	251.38 ft	SS	0.01 in			
299-E27-14	A4812		10/17/89	3/14/94		2/2/90	258.11 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	45.83 ft	266.83 ft	SS	0.01 in			
299-E27-16	A4814		4/17/90	5/25/92		8/27/93	251.93 R	Pos. Disp.	Purge to Ground	No	4 in	4 in	236.7 ft	259.7 R	SS	0.01 in			
299-E28-28	A4824		4/17/90	3/1/94		11/6/91	268.17 ft	Pos. Disp.	Purge to Ground	No	4		in	1		275 ft.		295	ft.
299-E33-8	A4872		10/31/53	3/25/96	5/16/90	2/1/90	250.24 ft	Subm.	Purge to Ground	No	8		in		ll		230 ft.		257 ft.
299-E33-20	A4847		7/31/56	11/21/97	11/7/89	10/22/93	249.45 R	Subm.	Purge to Ground	No	6		in	1		225 ft.		251	ft.
299-E33-34	A4859		4/23/90	9/19/95		1/25/93	232.84 ft	Pos. Disp.	Contain	No	4		in	1		219 ft.		239	ft.
299-E33-35	A4860		4/17/90	9/19/95		8/27/93	242.94 ft	Pos. Disp.	Purge to Ground	No	4		in	1		228 ft.		249	ft.
299-E33-36	A4861		4/17/90	4/29/94		8/10/93	247.44 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	234.5 R	255.4 ft	SS	0.01 in			
299-E34-8	A4883		4/20/90	11/5/96		8/27/93	240.54 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	227.9 ft	247.9 ft	SS	0.01 in			
299-W11-23	A4905	--	7/1%%	10/7/97	3/17/90	12	18/96	237.66	R Subm.	No	6		In	1	200		ft.	240	ft.
299-W22-40	A4971		5/15/90	9/23/96		D/I	9/96	245.26 ft	Pos. Disp.	No	4 in	4 in	24.14 ft	244.49	A SS	0.01 in			
299-W22-41	A4972		5/15/90	4/1/97		5/13/91	244.73 ft	Pos.	Disp.	No	4 in	4 in	24.09 ft	245.33	A SS	0.005 In			
299-W22-42	A4973		5/15/90	9/15/93		5/13/91	244.17 ft	Pos.	Disp.	No	4 in	4 in	23.08 ft	243.39	ft SS	0.01 in			
299-W22-43	A4974		5/15/90	1/23/96		5/13/91	242.72 ft	Pos.	Disp.	No	4 in	4 in	23.67 ft	244.01	ft SS	0.01 in			
299-W23-14	A4983		4/20/90	11/5/96		8/26/93	212.4 ft	Pos.	Disp.	No	4 in	4 in	93.98 ft	215.28	ft SS	0.01 in			
299-W26-9	A4995		5/4/90	8/8/95		1/18/95	203.76 ft	Pos.	Disp.	No	4 in	4 in	184.6 ft	204.9	ftS	0.01 In			
699-49-57A	A5219		7/30/56	11/11/94	11/27/89	10/16/92	152.72	R Subm.	Contain	No	8		In	1	144		ft.	161	ft.
699-52-54	A5236		5/22/90	9/24/95		10/14/92	167.93 ft	Pos. Disp.		Contain	No	4 in	4 in	56.45 ft	166.85	ft SS	0.02 In			
699-S30-E10	A5375		11/14/89	8/21/91		9/27/93	41.24 ft	Pos. Disp.		Purge to Ground	No	4 in	4	n 34.7 ft	55.02	R SS	0.01 in			
699-S30-E10	A5376		1/19/90	11/6/91		9/27/93	32.4	Pos. Disp.		Purge to Ground	No	4 in	4 in	34.35 ft	54.7 ft	SS	0.01 in			
699-S31-E10	A5379		1/16/90	9/8/95		9/21/93	32.8 ft	Pos. Disp.		Purge to Ground	No	4 in	4 in	26.52 ft	46.8 ft	SS	0.01 in			
699-S31-E10	A5380		1/9/90	11/6/91		9/21/93	32.13 ft	Pos. Disp.		Purge to Ground	No	4 in	4 in	26.18 ft	41.18 ft	SS	0.01 in			
699-S31-E8A	A5384		10/31/89	11/11/94		2/23/93	18.6 ft	Pos. Disp.		Purge to Ground	No	4 in	4 in	13.6 ft	33.6 ft	SS	0.02 in			
699-S34-E10	A5388		2/2/90	1/16/96		9/20/93	28.23 ft	Pos. Disp.		Purge to Ground	No	4 in	4 in	21.3 ft	41.6 ft	SS	0.01 in			
699-S36-E12	A5396		12/11/89			2/23/93	51.32 ft	Pos. Disp.		Purge to Ground	No	4 in	4 in	43.81 ft	63.85 ft	SS	0.01 in			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2001

Quarter: 3

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
299-E33-5	A4870		6/30/55	10/7/97	9/28/90	5/10/95	234.29 ft	Subm.	Contain	No	4 in						1	218 ft.	235 ft.
299-E33-7	A4871		4/30/55	6/25/92	9/27/90	6/17/92	227.03 ft	Pos. Disp.	Contain	No	4 in						1	215 ft.	230 ft.
299-E33-12	A4839		9/22/53	2/24/93	8/31/90	10/19/92	221.96 ft	Subm.	Purge to Ground	N o	4 in	4 in	305 ft	385 ft	SS	0.01 in			
299-E33-13	A4840		10/31/53	10/7/97	9/25/90	10/18/92	227.82 ft	Subm.	Contain	No	a in						1	210 ft.	235 ft.
299-E33-15	A4842		2/28/53	10/29/97	9/25/90	10/20/92	226.66 ft	Subm.	Purge to Ground	N o	a in						1	222 ft.	237 ft.
299-E33-18	A4844		2/28/50	10/7/97	8/31/90	10/20/92	251.49 ft	Subm.	Contain	No	8 in						1	240 ft.	260 ft.
299-E33-28	A4850		3/31/69	12/2/96	8/28/90	10/15/92	233.29 ft	Pos. Disp.	Contain	No	6 in						1	199 ft.	220 ft.
299-W10-18	A4895		12/12/90	2/12/98		1/20/92	219.86 ft	Pos. Disp.		No	4 in	4 in	99.75 ft	221.05 ft	SS	0.01 in			
299-W15-22	A4925		1/16/91	2/17/98		1/20/92	220.29 ft	Pos. Disp.		No	4 in	4 in	198.5 ft	219.8 ft	SS	0.01 in			
299-W18-25	A4937		12/11/90	6/3/96		8/24/93	213.5 ft	Pos. Disp.		No	4 in	4 in	193.5 ft	214.8 ft	SS	0.01 in			
299-W23-13	A4982		12/4/90	2/5/97		9/8/93	214.65 ft	Pos. Disp.		No	4 in	4 in	195.9 ft	217.17 ft	SS	0.01 in			
399-2-1	A5043		11/30/48	6/28/96	11/26/90	8/7/92	31.13 ft	Subm.	Purge to Ground	N o	8 in						1	18 ft.	75 ft.
399-3-1	A5046		10/31/48	4/25/96	11/26/90	10/19/90	40.43 ft	Subm.	Purge to Ground	No	8 in						1	20 ft.	65 ft.
399-4-1	A5052		2/28/51	8/26/96	1/15/91	8/6/92	62.06 ft	Subm.	Purge to Ground	No	8 in						1	25 ft.	80 ft.
399-4-9	A5056		9/30/76	11/12/96	1/16/91	8/6/92	38.19 ft	Subm.	Purge to Ground	N o	8 in	8 in	38 ft	58 ft	SS	0.02 in			
399-6-1	A5058		5/31/50	2/11/92	1/15/91	8/7/92	44.73 ft	Subm.	Purge to Ground	N o	a in						1	25 ft.	75 ft.
699-49-55A	A5217		7/31/61	9/28/94	8/13/90	10/16/92	130.17 ft	Pos. Disp.	Purge to Ground	No	5 in	6 in	124 ft	139 ft	SS	0.03 in	1	125 ft.	135 ft.
699-49-57B	A5220		11/9/90			3/7/91	155.09 ft	Pos. Disp.	Purge to Ground	No	4 in	5.5 in	19.29 ft	229.6 ft	SS	0.01 in			
699-50-53A	A5227		2/2/55	4/29/96	8/13/90	10/6/92	156.65 ft	Subm.	Purge to Ground	N o	a in						1	142 ft.	156 ft.
699-50-53B	A5228		10/29/90	11/11/96		3/7/91	156.67 ft	Pos. Disp.	Purge to Ground	N o	4 in	5.5 in	14.66 ft	224.68 ft	SS	0.01 in			
699-53-55A	A5244		8/24/61	12/12/91	8/23/90	10/15/92	182.83 ft	Pos. Disp.	Purge to Ground	N o	5 in						1	165 ft.	280 ft.
699-53-55B	A5245		5/30/75	10/11/93	8/23/90	1/7/97	176.12 ft	Subm.	Contain	No	8 in						1	232 ft.	252 ft.
699-53-55C	A5246		5/31/75	8/8/97	6/18/90	10/15/92	175.45 ft	Subm.	Contain	No	12 in	10 in	187.3 ft	220.5 ft	SS				
699-55-57	A5259		5/16/75	10/18/96	8/22/90	10/15/92	167.64 ft	Pos. Disp.	Contain	No	6 in						1	161 ft.	170 ft.
699-S19-E13	A5370		11/9/71	11/23/92	11/13/90	10/19/90	48.67 ft	Subm.	Purge to Ground	No	6 in						1	50 ft.	80 ft.
699-S27-E14	A5371		4/30/48	2/3/97	1/15/91	1/25/95	61.64 ft	Subm.	Purge to Ground	No	8 in						1	82 ft.	116 ft.
																	2	122 ft.	140 ft.
																	3	150 ft.	158 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2001

Quarter: 3

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	T O P	BOT.	MTRL	S L O T SIZE	Int.	T O P	BOT.
699-S29-E12	5372		11/5/71	10/21/96	1/15/91	10/19/90	41.25 ft	Subm.	Purge to Ground	N	5 In	5 In	59 ft	79 ft	SS		1	37 ft.	59 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2001

Quarter: 4

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
299-E24-20	A4756		3/14/91	10/22/96		5/19/93	288.71 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	79.23 ft	299.65 ft	SS	0.01 in			
299-E32-6	A4834		7/17/91			8/27/93	266.79 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	254.5 ft	275.5 ft	SS	0.02 in			
299-E32-7	A4835		8/13/91			8/27/93	257.77 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	245.8 A	266.6 A	SS	0.02 in			
299-E32-8	A4836		8/10/91			8/27/93	244.91 ft	Pos. Disp.	Purge to Ground	No	4	In 4	in	255.3	ft	SS	0.02 in	- -		
299-E32-9	A4837		7/12/91			8/27/93	242.74 ft	Pos. Disp.	Contain	No	4 in	4 in	230.7 ft	251.3	ft SS	0.02 in			
299-E33-37	A4862		4/1/91	3/25/94		8/10/93	252.69	ft PDisp.	Purge Ground	No	4	In	240.3 A	261.1 ft	SS	0.01 i n			
299-E33-38	A4863		2/1/91	10/7/97		3/29/91	231.76 ft	Pos. Disp.	Contain	No	4 in	4.5 I	n	18.55 ft	239.6 ft	SS 0.02 in			
299-E33-39	A4864		2/8/91	11/12/96		5/13/91	223.29 ft	Pos. Disp.	Purge to Ground	No	4	in 4.5In	08.16 ft	229.2 ft	SS	0.02 in			
299-E33-40	A4866		4/1/91	12/1/93		5/13/91	222.85 ft	Subm.		No	4 in	4.5 in	93.92 ft	304.9	R SS	0.01 in			
299-E33-41	A4867		3/28/91	10/7/97		8/10/93	254.65 ft	Pos. Disp.	Contain	No	4 in	4 In	244.9	R 261	n SS	0.01 in			
299-W6-7	A5002		7/17/91	2/18/94		8/24/93	261.94 ft	Pos. Disp.		No	4	In 4 in	248.5 ft	26?.? A	SS	0.01 in			
299-W7-11	A5006		5/24/91			8/20/93	229.52 A	Pos. Disp.		No	4	In	4 in	221.5 ft	232 ft SS	0.01 in			
299-W7-12	A5007		5/28/91			8/20/93	235.51 ft	Pos. Disp.		No	4	In 4 In	219.3	ft 240	ft SS	0.02 in			
299-W10-17 A	4894		1/17/91	8/23/94		1/20/92	219.35 ft	Pos. Disp.		No	4	In 4 in	201.4	A 222.7	ft SS	0.01 in			
299-W19-31 A	4956		1/18/91	12/18/97		3/7/94	222.61 ft	Pos. Disp.		No	4	in 4 in	201.3	ft 222.6	A SS	0.01In			
299-W22-39	A4970		2/28/91	10/2/96		8/27/93	217.96 ft	Pos. Disp.		No	4 in	4 In	199.8 ft	221.3 ft	SS	0.01 In			
299-W26-7 A	5446		4/15/91			1/18/95	199.76 ft	Pos. Disp.		No	4	In 4 in	84.18 ft	205.19	R SS	0.005 in			
399-3-12 A	5048		9/30/80	7/11/96	2/1/91	8/6/92	44.19 ft	Subm.	Purge to Ground	No	6 in						1	35 ft.	49 ft.
399-4-7	A5055		11/30/61	4/29/94	1/31/91	4/27/94	34.65 ft	Subm.	Purge to Ground	No	6		In	1		21		ft.	150 ft.
399-4-11 A	5054		11/30/86	10/31/91	1/16/91	10/19/90	60.53 R	Pos. Disp.	Purge to Ground	No	6	In 6 in	55	n 70	ft SS	in			
699-42-E9B	A5674		4/2/91			12/20/96	25.31 ft	Subm.	Purge to Ground	No	6 in	6 in	354 ft	384 ft	SS	0.01 in			
699-43-40	A5173		6/24/91	5/12/92		4/9/93	128.87 ft	Pos. Disp.	Purge to Ground	No	4	in 4 in	114.3	n 135.3	iSS	1.01 in			
699-57-59	A5269		4/19/91	1/24/96		6/26/93	175.61 n	Pos. Disp.	Purge to Ground	No	4	in 4 in	65.96 ft	186.26	A SS	0.02 in			
699-S27-E9A	A5425		6/26/91	1/16/96		9/27/93	39.76 ft	Pos. Disp.	Purge to Ground	No	4 in	4 In	34.8 ft	55.8 ft	-SS	0.01 in			
699-S28-E12	A5426		5/17/91			8/6/92	38.18 A	Pos. Disp.	Purge to Ground	No	4	in 4	38.1 ft	58.4 A	SS	0.01 in			
699-S29-E11	A9207		6/25/91	10/27/94			36.21ft		Purge to Ground	No		4 in	24.1 ft	45.1 R	SS	0.01 I n			
699-S31-E10	A9216		7/9/91	10/12/94			9.746 m	Pos. Disp.	Purge to Ground	No		4	In 88.5	98.5	SS	0.01 in			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2002

Quarter: I

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-K-28	A4654		9/1/79	3/31/98	10/8/91	1/21/97	71.17 ft	Subm.	Purge to Ground	No	6 in						1	63 ft.	88 ft.
199-K-29	A5480		9/30/79	2/23/95	10/8/91	1/21/97	72.35 ft	Subm.	Purge to Ground	No	6 in						1	65 ft.	85 ft.
299-E25-43	A4792		8/8/91	11/5/96		9/8/95	249.19 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	238.4 ft	259.4 ft	SS	0.02 in			
299-E26-13	A4602		8/16/91	11/29/93		4/8/93	204.75 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	191.7 ft	212.3 ft	SS	0.02 in			
299-E27-17	A4815		11/11/91			8/23/93	234.14 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	23.15 ft	244.15 ft	SS	0.02 in			
299-E33-42	A4868		11/6/91	9/23/97		5/19/93	253.94 ft	Pos. Disp.	Contain	No	4 in	4 in	238.5 ft	259.5 ft	SS	0.02 in			
299-E33-43	A4869		11/5/91	9/23/97		5/19/93	262.47 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	50.22 ft	271.34 ft	SS	0.02 in			
299-W6-6	A5001		10/24/91			8/24/93	261.76 ft	Pos. Disp.		No	4 in	4 in	16.59 ft	429.3 ft	SS	0.02 in			
299-W22-46	A4977		11/12/91	5/12/97		8/27/93	220.98 ft	Pos. Disp.		No	4 in	4 in	192.9 ft	228.9 ft	SS	0.01 in			
399-1-21A	A5414		9/25/91			10/20/93	39.24 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	31.43 ft	52.17 ft	SS	0.01 in			
399-8-5A	A5416		10/9/91			8/7/92	55.92 ft	Pos. Disp.	Purge to Ground	No	6 in	3 in	50 ft	70 ft	SS	0.01 in			
699-32-22B	A8512		8/6/91	8/8/97		1/27/97	116.03 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	774 ft	836 ft	SS	0.02 in			
699-40-40A	A5156		10/7/91	10/12/94		4/8/93	134.71 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	215.1 ft	225.87 ft	SS	0.01 in			
699-42-39A	A5165		9/26/91	10/21/96		4/8/93	141.93 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	169.4 ft	180.1 ft	SS	0.01 in			
699-42-39B	A5166		10/9/91	10/21/96		4/8/93	146.26 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	203 ft	213.8 ft	SS	0.01 in			
699-42-41	A5170		7/30/91			4/8/93	153.5 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	134.2 ft	155.2 ft	SS	0.01 in			
699-52-57	A5237		11/22/91	1/29/98		10/14/92	261.8 ft	Pos. Disp.	Contain	No	4 in	4 in	49.05 ft	159.47 ft	SS	0.02 in			
699-63-90	A5293		12/14/48	2/14/94	8/21/91	2/28/91	101.98 ft	Subm.	Purge to Ground	No	8 in						1	95 ft.	147 ft.
699-65-63	A5303		4/30/67	4/23/93	8/21/91	2/25/91	65.38 ft	Subm.	Purge to Ground	No	6 in						1	60 ft.	120 ft.
699-67-86	A5313		10/9/62	8/2/91	8/2/91	1/6/97	72.53 ft	Subm.	Purge to Ground	No	8 in						1	60 ft.	460 ft.
699-S19-E14	A5421		9/17/91			9/28/93	26.17 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	19.13 ft	39.9 ft	SS	0.01 in			
699-S22-E9A	A5422		9/23/91			9/24/93	26.06 ft	Pos. Disp.	Purge to Ground	No	6 in	3 in	22.6 ft	37.6 ft	SS	0.01 in			
699-S27-E9B	A5426		9/19/91			9/27/93	39.1 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	64.95 ft	175.62 ft	SS	0.01 in			
699-S29-E16	A5429		9/6/91			9/27/93	37.71 ft	Pos. Disp.	Purge to Ground	No	6 in	3 in	28 ft	48 ft	SS	0.01 in			
699-S29-E16	A5430		9/21/91			9/27/93	37 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	94 ft	104 ft	SS	0.01 in			
699-S29-E16	A5431		9/27/91			9/27/93	4.4 ft	Pos. Disp.	Purge to Ground	No	6 in	4 in	65.63 ft	176 ft	SS	0.01 in			
699-S32-E11	A9223		7/26/91	3/25/94		3/15/94	35.58 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	29.9 ft	50.9 ft	SS	0.01 in			
699-S34-E15	A5389		11/18/91	1/16/97		10/16/92	57.09 ft	Subm.	Purge to Ground	No	4 in	4 in	53.1 ft	63.8 ft	SS	0.02 in			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2002

Quarter: 2

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-B2-13	A4551		3/24/92			8/23/93	22.65 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	14.4 ft	35.2 ft	SS	0.01 in			
199-B3-46	A4553		2/28/92			2/1/93	47.98 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	44.4 ft	65.5 ft	SS	0.01 in			
199-B4-9	A4560		5/28/92	2/21/96		8/13/93	72.5 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	60 ft	80 ft	SS	0.01 in			
199-B5-2	A4562		6/23/92	9/17/97		8/13/93	83.1 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	54 ft	74 ft	SS	0.01 in			
199-B8-6	A4563		7/8/92			2/1/93	76.33 ft	Pos. Disp.	Purge to Ground	No	6 in	4 in	68.7 ft	88.7 ft	SS	0.01 in			
199-B9-2	A4565		6/15/92			8/13/93	89.37 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	90.4 ft	110.4 ft	SS	0.01 in			
199-F5-45	A4595		9/9/92			11/5/92	43.02 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	36.5 ft	51.8 ft	SS	0.01 in			
199-F5-47	A4597		9/15/92			11/5/92	44.37 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	39.6 ft	59.6 ft	SS	0.01 in			
199-F5-48	A4598		9/11/92	2/24/93		11/5/92	42 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	38 ft	53.3 ft	SS	0.01 in			
199-N-19	A4668		1/31/81	4/16/95	8/13/92	4/13/95	66.55 ft	Subm.	Purge to Ground	No	8 in						1	3 ft.	78 ft.
299-E25-46	A4793		8/26/92			5/19/93	294.26 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	86.05 ft	306.26 ft	SS	0.01 in			
299-E32-10	A5432		4/15/92	4/29/96		4/29/96	237.34 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	25.03 ft	245.34 ft	SS	0.02 in			
299-W6-9	A5434		4/10/92	4/28/96		4/26/96	246.93 ft	Pos. Disp.		No	4 in	4 in	230.8 ft	250.8 ft	SS	0.01 in			
299-W10-19	A5438		7/24/92	7/23/97		2/15/95	230.27 ft	Pos. Disp.		No	4 in	4 in	217 ft	237 ft	SS	0.01 in			
299-W11-28	A4908		12/1/91	3/31/97		8/24/93	243.57 ft	Pos. Disp.		No	4 in	4 in	224.9 ft	245.65 ft	SS	0.01 in			
299-W22-44	A4975		11/26/91	11/5/96		10/18/93	227.59 ft	Pos. Disp.		No	4 in	4 in	205.1 ft	242.2 ft	SS	0.02 in			
299-W22-45	A4976		9/4/92	4/8/94		10/18/93	215.62 ft	Pos. Disp.		No	4 in	4 in	98.11 ft	233.9 ft	SS	0.02 in			
299-W23-15	A4984		12/3/91	8/8/96		8/26/93	204.55 ft	Pos. Disp.		No	4 in	4 in	85.73 ft	222.44 ft	SS	0.02 in			
399-1-2	A5035		4/30/50	4/17/92	12/19/91	8/7/92	42.48 ft	Pos. Disp.	Purge to Ground	No	8 in						1	25 ft.	75 ft.
399-1-12	A5021		11/30/86	6/8/92	6/8/92	10/31/89	40.14 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	45 ft	60 ft	SS	0.04 in			
399-1-14A	A5413		10/30/86	2/24/93	2/7/92	10/31/89	38.56 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	32 ft	47 ft	SS	0.04 in			
399-3-10	A5047		9/30/76	12/22/92	5/7/92	11/3/89	41.4 ft	Pos. Disp.	Purge to Ground	No	6 in	8 in	34 ft	49 ft	SS	0.02 in			
399-3-11	A8077		9/17/76	9/17/97	8/6/92	12/20/95	29.34 ft	Subm.	Purge to Ground	No	8 in	8 in	45 ft	65 ft	SS	0.02 in			
399-5-1	A5057		2/28/51	8/6/92	7/30/92	8/6/92	51.59 ft	Subm.	Purge to Ground	No	8 in						1	23 ft.	100 ft.
399-8-1	A5059		4/30/50	8/28/92	12/16/91	8/3/93	51.96 ft	Pos. Disp.	Purge to Ground	No	8 in						1	35 ft.	83 ft.
699-60-60	A5282		6/30/48	6/24/92	6/24/92	1/7/97	111.88 ft	Subm.	Purge to Ground	No	8 in						1	100 ft.	127 ft.
699-97-43	A5360		10/12/62	4/29/96	4/13/92	1/29/97	40.15 ft	Subm.	Purge to Ground	No	8 in						1	25 ft.	97 ft.
699-S30-E15	A5377		10/27/71	6/2/93	5/12/92	8/6/92	58.54 ft	Pos. Disp.	Purge to Ground	No	5 in	5 in	58 ft	78 ft	SS	0.02 in			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2002

Quarter: 3

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-F5-1	A4587		9/10/48	1/14/94	6/22/93	1/22/97	35.72 ft	Subm.	Contain	NO	6 in						1	35 ft.	63 ft.
199-F5-3	A4589		12/16/52	10/24/94	6/22/93	1/22/97	38.07 ft		Contain	No	8 in						1	22 ft.	45 ft.
																	2	65 ft.	90 ft.
199-F5-6	A4600		8/10/56	9/9/99	6/17/93	1/22/97	42.83 ft	Subm.	Purge to Ground	No	6 in						1	36 ft.	74 ft.
																	2	149 ft.	192 ft.
199-F5-42	A4591		10/1/92			11/5/92	20.54 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	15.2 ft	35.2 ft	SS	0.01 in			
199-F5-46	A4595		10/15/92			11/5/92	46.26 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	40.8 ft	55.8 ft	SS	0.01 in			
199-F7-1	A4603		8/14/56	7/21/94	6/21/93	1/22/97	13.24 ft	Subm.	Purge to Ground	No	6 in						1	10 ft.	25 ft.
																	2	76 ft.	85 ft.
																	3	90 ft.	100 ft.
																	4	130 ft.	140 ft.
199-F7-2	A4604		3/21/88	10/21/96	6/21/93	8/23/93	19.17 ft	No Pump	Purge to Ground	No	4 in	6 in	16 ft	30.5 ft	SS	0.02 in			
199-F7-3	A4605		10/7/92	11/29/93		11/5/92	18.46 ft	Pos. Disp.	Purge to Ground	No	6 in	4 in	17.1 ft	32.1 ft	SS	0.01 in			
199-F8-2	A4607		7/26/60	7/21/94	6/17/93	1/22/97	35.74 ft	Pos. Disp.	Purge to Ground	No	6 in						1	10 ft.	25 ft.
																	1	25 ft.	53 ft.
199-F8-3	A4608		9/16/92	11/29/93		11/5/92	24.59 ft	Pos. Disp.	Purge to Ground	No	6 in	4 in				50.01			
199-F8-4	A4609		9/29/92	11/29/93		11/5/92	39.67 ft	Pos. Disp.	Purge to Ground	No	6 in	4 in	36.2 ft	46.2 ft	SS	0.01 in			
199-N-26	A4675		1/2/81	11/29/93	10/29/92	1/9/92	68.76 ft	Pos. Disp.	Purge to Ground	No	5 in	6 in	59 ft	79 ft	SS		1	12 ft.	77 ft.
199-N-52	A4695		6/24/85	3/31/97	3/28/93	8/15/89	73.8 ft	Pos. Disp.	Purge to Ground	No	8 in	7 in	56 ft	76 ft	SS	0.02 in			
199-N-77	A5442	1	1/18/92				69.74 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	84.36 ft	94.6 ft	SS	0.01 in			
299-W18-15	A4932		4/28/60	10/24/94	7/27/93	3/1 1/92	204.48 ft	Subm.		No	8 in						1	170 ft.	243 ft.
299-W27-2	A5410		12/18/92	3/1/94		8/27/93	227.26 ft	Pos. Disp.		No	6 in	4 in	06.14 ft	416.56 ft	SS	0.02 in			
399-5-4B	A8094		4/23/93				50.42 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	42 ft	57.3 ft	SS	0.01 in			
399-6-2	A8095		5/4/93	3/5/96		2/27/96	51.39 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	42.9 ft	58.2 ft	SS	0.01 in			
699-25-34D	A5419		10/22/92	1/16/96		12/18/92	137.8 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	126.8 ft	162.8 ft	SS	0.01 in			
699-28-34B	A5420		10/22/92	4/17/95		12/18/92	130.26 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	188.4 ft	153.4 ft	SS	0.01 in			
699-40-36	A51 54		10/26/92	10/21/96		12/18/92	119.44 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	09.24 ft	219.51 ft	SS	0.01 in			
699-41-42	A5162		10/9/92	10/10/96		1/7/93	239.72 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	70.39 ft	280.59 ft	SS	0.01 in			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2002

Quarter: 3

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
699-42-37	A5164		10/14/92	1/27/94		12/18/92	107.07 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	44.23 ft	154.5 ft	SS	0.01 in			
699-44-39B	A5185		11/3/92	1/8/93		1/7/93	99.79 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	98.94 ft	119.16 ft	SS	0.01 in			
699-77-36	A5330		4/12/57	8/4/93	8/4/93	1/24/92	33.46 ft	Subm.	Purge to Ground	No	8 in						1	32 ft.	82 ft.
699-81-58	A5338		9/24/62	1/22/94	8/4/93	11/8/97	45.9 ft	Subm.	Purge to Ground	No	8 in						1	35 ft.	148 ft.
699-83-47	A5341		4/23/57	8/1/96	8/16/93	1/24/92	46.69 ft	Subm.	Purge to Ground	No	8 in						1	35 ft.	150 ft.
699-87-55	A5346		6/27/69	8/12/93	8/12/93	1/20/92	71.84 ft	Subm.	Purge to Ground	No	6 in						1	59 ft.	92 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2002

Quarter: 4

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-N-33	A4682		8/31/83	3/3/98	2/10/94	4/25/91	70.8 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	36 ft	75 ft	SS	0.01 in			
199-N-41	A4689		4/30/84	12/13/94	2/11/94	4/25/91	70.74 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	53 ft	73 ft	SST	in			
299-E25-1000	A8536		11/15/93				83.034 m	Pos. Disp.	Purge to Ground	No	8 in	4 in	283.3 ft	293.3 ft	SS	0.01 in			
299-W10-21	A5440		8/27/93	6/3/94		9/22/93	222.81 ft	No Pump		No	4 in	4 in	09.25 ft	229.58 ft	SS	0.01 in			
399-3-2	A8071		10/31/47	10/21/96	2/20/94	10/18/91	0 ft	Subm.	Purge to Ground	No	10 in						1	40 ft.	75 ft.
399-3-3	A8072		1/31/48	10/21/96	2/20/94	11/13/91	0 ft	Subm.	Purge to Ground	No	10 in						1	52 ft.	160 ft.
399-4-12	A8089		12/1/80	2/20/94	2/20/94	7/10/96	0 ft	Subm.	Purge to Ground	No	12 in						1	49 ft.	69 ft.
699-14-38	A5066		11/21/58	8/25/93	8/25/93	1/28/97	110.68 ft	Subm.	Purge to Ground	No	8 in						1	110 ft.	115 ft.
																	1	116 ft.	409 ft.
99-19-58		A5076	1/24/59	2/14/94	2/14/94	7/29/93	154.97 ft	Subm.	Purge to Ground	No	6 in						1	149 ft.	194 ft.
699-19-68	A5077		11/4/57	11/12/96	2/14/94	7/29/93	130.66 ft	Subm.	Purge to Ground	No	6 in						1	70 ft.	170 ft.
99-22-35 6[illegible]	A8443		1/11/94	11/11/96			134.05 ft	Pos. Disp.	Purge to Ground	No		4 in	122.4 ft	157.4 ft	SS	0.01 in			
699-23-34B	A8450		1/7/94	11/10/95		10/28/94	137.81 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	122.6 ft	152.6 ft	SS	0.01 in			
699-24-46	A8457		10/31/58	2/14/94	2/14/94	7/13/93	169.16 ft	Subm.	Purge to Ground	No	10 in						1	180 ft.	670 ft.
699-34-6[illegible]	A5463		12/28/93	11/11/96		8/24/94	308.33 ft	Pos. Disp.	[illegible] Ground	No	4 in	4 in	303 ft	323 ft	SS				
699-35-78A	A5141		8/17/50	3/31/97	12/14/93	8/27/93	205.5 ft	Subm.	Contain	No	6 in						1	160 ft.	279 ft.
699-37-62A	A5147		10/10/60	7/12/96	2/14/94	12/23/96	177.91 ft	Pos. Disp.	Purge to Ground	No	6 in						1	155 ft.	185 ft.
699-48-71	A5214		9/28/56	2/20/94	2/20/94	7/12/93	247.89 ft	Subm.	Purge to Ground	No	6 in						1	239 ft.	302 ft.
699-50-85	11/21/57	11/11/94		2/14/94		1/6/97	267.27		Purge to Ground	No	8 in						1	405 ft.	425 ft.
																	2	465 ft.	485 ft.
699-51-75	A5232		10/31/57	8/25/95	2/20/94	12/23/96	197.28 ft	Subm.	Purge to Ground	No	8 in						1	190 ft.	370 ft.
699-55-76	A5261		1/18/59	2/20/94	2/20/94	7/13/93	142.26 ft	Subm.	Purge to Ground	No	8 in						1	141 ft.	221 ft.
699-61-66	A5286		6/14/55	1/26/94	1/26/94	12/9/93	122.3 ft	Subm.	Purge to Ground	No	8 in						1	105 ft.	160 ft.
699-64-62	A5296		5/10/72	2/20/94	2/20/94	1/27/92	99.72 ft	Subm.	Purge to Ground	No	5 in	5 in	90.5 ft	110.5 ft	SS	0.01 in			
699-65-50	A5300		8/31/55	2/20/94	2/20/94	10/16/93	67.83 ft	Subm.	Purge to Ground	No	8 in						1	55 ft.	125 ft.
699-66-58	A5309		6/16/72	10/21/94	1/26/94	6/3/93	103.26 ft	Subm.	Purge to Ground	No	5 in	5 in	92.5 ft	112.5 ft	SS	0.02 in	1	93 ft.	112 ft.
699-69-35	A5348		9/26/61	2/20/94	2/20/94	9/13/93	24.59 ft	Subm.	Purge to Ground	No	8 in						1	20 ft.	73 ft.
699-S8-19	A5408		8/31/50	12/11/97	2/14/94	1/31/90	108.18 ft	Subm.	Purge to Ground	No	8 in						1	104 ft.	132 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: *2002*

Quarter: 4

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
699-S12-3	A5386		12/31/50	12/10/96	8/18/93	12/2/96	71.71 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	70 ft	110 ft	SS		1	55 ft.	84 ft.
699-S31-1	A5378		1/31/51	2/15/95	2/14/94	12/11/96	80.1 ft	Subm.	Purge to Ground	No	4 in						1	93 ft.	103 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: *RCRA*

Fiscal Year: *2003*

Quarter: *1*

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-N-105A	B2406		4/26/95				0 ft	Subm.	Contain	No	8 in	8 in	69 ft	96 ft	SS	0.01 in			
299-E17-19	A4737		9/19/88	10/3/96	5/17/95	5/6/94	319.34 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	304 ft	324 ft	SS	0.01 in			
299-E25-28	A4773		4/17/88	10/30/97	10/18/96	12/9/96	262.35 ft	Subm.	Purge to Ground	No	5 in	5 in	320 ft	340 ft	SS	0.01 in			
299-E25-31	A4778		8/26/87	10/14/96	10/14/96	8/27/93	273.8 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	259 ft	279 ft	SS	0.02 in			
299-E25-42	A4791		8/26/91	10/14/96	10/14/96	4/8/93	282.73 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	267.6 ft	288.9 ft	SS	0.02 in			
299-E25-47	A4794		8/6/92	10/14/96	10/14/96	11/3/92	272.62 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	62.98 ft	283.21 ft	SS	0.01 in			
299-E26-12	A4801		8/13/91	10/18/96	10/18/96	4/8/93	230.4 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	217.6 ft	238.6 ft	SS	0.02 in			
299-E34-7	A4882		10/17/89	9/30/96	8/9/94	6/27/94	203.97 R	Pos. Disp.	Purge to Ground	No	4 in	4 in	193.9 R	204.55 R	SS	0.01 in			
299-W7-6 A501 2			1 1/2/67	3/20/96	3/20/96	8/20/93	228.56 R	Pos. Disp.		NO	4 in	4 in	209 ft	229 R	SS	0.03 in			
299-W10-20	A5439		4/1 1/94	4/26/96		4/25/96	234.16 R	Pos. Disp.		No	4 in	4 in	221.7 R	241.7 ft	SS	0.02 in			
299-W10-22	A9890		10/2/94				231.5 R	Pos. Disp.		No		4 in	15.55 R	245.5 R	SS	0.01 in			
299-W1 1-3	A5473		1/31/51	2/20/96	2/20/96	12/17/96	269 R	Subm.		No	8 in						1	254 ft.	267 ft.
																	2	277 ft.	320 ft.
299-W1 1-10	A4901		4/30/56	6/1 7/97	2/20/96	12/19/96	282.65 R	Subm.		No	8 in						1	256 ft.	304 ft.
299-W14-12	A4914		1 1/4/91	8/22/97	1/2/96	8/24/93	219.56 R	Pos. Disp.		No	4 in	4 in	198.4 R	218.7 R	SS	0.01 in			
299-W15-12	A4917		10/4/73	-- 8/2/96	3/19/96	1/5/96	218.52 ft	Pos. Disp.		No	6 in						1	195 ft.	215 ft.
299-W15-32	B2423		6/15/95	11/18/97			206.36 R			No	6 in	6 in	94.02 ft	234.5 R	SS	0.02 in			
299-W19-12	A4945		1/25/83	8/25/97	9/1 1/95	2/15/95	221.62 R	Subm.		No	6 in	6 in	210 ft	250 ft	SS	0.02 in			
299-W22-2	A7828		5/23/56	8/1/96	7/20/95	12/12/96	214.65 R	Subm.		No	6 in						1	195 ft.	285 ft.
299-W22-10	A7835		6/11/56	8/1/96	7/17/95	6/21/95	220.48 ft	Subm.		No	6 in						1	203 ft.	310 ft.
299-W23-3	A4986		2/28/56	10/5/95	8/30/96	9/24/95	212.45 R	Subm.		No	4 in						1	176 ft.	226 ft.
299-W23-7	A4990		11/11/69	7/22/96	8/30/96	9/27/95	211.5 ft	Pos. Disp.		No	4 in						1	170 ft.	246 ft.
299-W26-10	A4992		4/4/91	12/18/96	8/26/96	8/27/93	220.91 ft	Pos. Disp.		No	4 in	4 in	01.19 ft	221.59 ft	SS	0.01 in			
299-W26-12	A5409		3/29/91	11/5/96	8/26/96	8/27/93	225.92 ft	Pos. Disp.		No	4 in	4 in	207.2 ft	227.2 ft	SS	0.01 in			
699-26-33	A5101		9/4/86	11/12/96	12/5/94	6/25/91	135.4 ft	Subm.	Purge to Ground	No	4 in	5 in	123.5 R	143.5 R	SS	0.025 in			
699-26-35A	A5103		7/14/86	11/12/96	12/5/94	12/17/93	132.7 R	Subm.	Purge to Ground	No	5 in	5 in	120.4 ft	140.4 R	SS	0.025 in			
699-36-70A	A9901		12/10/94	11/11/96		1/9/95	261.83 R	Pos. Disp.	Contain	No	4 in	4 in	257.4 ft	267.4 R	SS	0.01 in			
699-37-47A	B2822		9/30/96	11/18/96			316.06 R	Subm.	Purge to Ground	No	6 in	4 in			SS				

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2003

Quarter: 1

WELL NAME	WELL ID	PIEZO	DRILL DATE	LAST MAINT.	LAST ROUTINE MAINT.	LAST INSPEC.	LAST DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	SCREEN DIAM	SCREEN TOP	SCREEN BOT.	SCREEN MTRL	SCREEN SLOT SIZE	PERFORATION Int.	PERFORATION TOP	PERFORATION BOT.
699-43-43	A5179		9/30/86	11/21/97	8/15/95	4/8/93	176.82 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	156.8 ft	177.45 ft	SS	0.02 in			
699-61-62	A5285		6/10/72	10/18/96	10/18/96	1/27/92	97.3 ft	Subm.	Purge to Ground	No	8 in						1	86 ft.	100 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2003

Quarter: 2

WELL NAME	WELL ID	PIEZO	LAST DRILL DATE	LAST MAINT.	LAST ROUTINE MAINT.	LAST INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	SCREEN DIAM	SCREEN TOP	SCREEN BOT.	SCREEN MTRL.	SCREEN SLOT SIZE	PERFORATION Int.	PERFORATION TOP	PERFORATION BOT.
199-D8-6	A4585		12/19/91	4/1/97	12/12/96	12/16/96	92.09 ft	Pos. Disp.	Contain	No	4 in	4 in	67.5 ft	107.8 ft	SS	0.01 in			
299-E17-1	A4728		12/31/55	1/17/97	1/17/97	12/17/96	318.96 ft	Subm.	Contain	No	6 in						1	303 ft.	333 ft
299-E17-14	A4732		5/11/88	1/20/97	1/20/97	12/18/96	321.69 ft	Pos. Disp.	Contain	No	4 in	4 in	309.5 ft	330 ft	SS	0.02 in			
299-E25-32P	A4779	Yes	5/25/88	9/9/99	11/4/96	4/9/93	270.4 ft	Pos. Disp.	Purge to Ground	No	2 in	2 in	320 ft	330 ft	SS	0.02 in			
299-E25-35	A4783		7/27/88	11/4/96	11/4/96	4/9/93	274.29 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	260.5 ft	281 ft	SS	0.02 in			
299-E27-8	A4817		9/30/87	12/21/94	1/22/97	2/7/90	237.48 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	225.5 ft	245.5 ft	SS	0.03 in			
299-E27-19	A5675		7/8/92	7/14/97	7/14/97		250.54 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	245 ft	265 ft	SS	0.02 in			
299-E28-17	A4820		4/24/69	8/25/97	3/12/97	5/8/91	306.91 ft	Subm.	Purge to Ground	No	5 in						1	289 ft.	335 ft
299-E28-27	A4823		9/30/87	3/31/97	3/31/97	2/6/89	279.93 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	269.9 ft	289.9 ft	SS	0.03 in			
299-E33-21	A4848		4/30/57	3/2/88	4/25/97	10/23/89	266.01 ft	Subm.	Purge to Ground	No	8 in	8 in	0 ft	0 ft			1	235 ft.	270 ft.
																	1	270 ft.	275 ft.
299-E34-10	A4875		10/10/91	5/30/97	5/30/97	8/27/93	239.21 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	25.29 ft	246.35 ft	SS	0.02 in			
299-E34-11	A4876		12/20/91	5/27/97	5/27/97	8/27/93	217.14 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	207.5 ft	217.88 ft	SS	0.01 in			
299-E34-12	A5433		4/15/92	5/30/97	5/30/97		238.29 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	223.9 ft	244.9 ft	SS	0.02 in			
299-W6-2	A4997		11/13/87	5/6/97	5/6/97	8/20/93	243.17 ft	Pos. Disp.		No	4 in	4 in	224 ft	245 ft	SS	0.03 in			
299-W6-4	A4999		11/26/91	2/3/97	2/3/97	1/30/97	252.4 ft	Pos. Disp.		No	4 in	4 in	34.93 ft	255.97 ft	SS	0.01 in			
299-W6-10	A5435		2/20/92	2/6/97	2/6/97	5/9/95	265.55 ft	Pos. Disp.		No	4 in	4 in	251.2 ft	271.2 ft	SS	0.01 in			
299-W7-1	A5004		7/30/87	5/8/97	5/8/97	8/20/93	237.99 ft	Pos. Disp.		No	4 in	4 in	225 ft	245 ft	SS	0.03 in			
299-W7-3	A5009		11/23/87	6/6/97	6/6/97	8/20/93	225.81 ft	Pos. Disp.		No	4 in	4 in	449 ft	470 ft	SS	0.03 in			
299-W7-4	A5010		11/19/87	6/6/97	6/6/97	1/20/92	221.96 ft	Pos. Disp.		No	4 in	4 in	203 ft	233 ft	SS	0.03 in			
299-W7-5	A5011		11/19/87	5/8/97	5/8/97	1/20/92	222.53 ft	Pos. Disp.		No	4 in	4 in	207.7 ft	227.7 ft	SS	0.02 in			
299-W7-7	A5013		11/27/89	6/19/97	6/19/97	8/20/93	224.46 ft	Pos. Disp.		No	4 in	4 in	07.06 ft	227.8 ft	SS	0.01 in			
299-W7-8	A5014		12/13/89	6/27/97	6/27/97	8/20/93	237.8 ft	Pos. Disp.		No	4 in						1	220 ft.	241 ft.
299-W7-9	A5015		4/11/90	7/7/97	7/7/97	8/20/93	238.98 ft	Pos. Disp.		No	4 in	4 in	20.34 ft	241.14 ft	SS	0.01 in			
299-W7-10	A5005		4/17/90	6/27/97	6/27/97	8/20/93	240.44 ft	Pos. Disp.		No	4 in	4 in	20.51 ft	240.86 ft	SS	0.01 in			
299-W8-1	A5016		7/23/87	5/8/97	5/8/97	8/20/93	246.49 ft	Pos. Disp.		No	4 in	4 in	236.2 ft	256.5 ft	SS	0.03 in			
299-W11-27	A4907		11/21/91	2/10/98	6/6/97	8/24/93	234.61 ft	Pos. Disp.		No	4 in	4 in	13.25 ft	233.58 ft	SS	0.01 in			
299-W19-3	A7733		9/20/57	2/3/97	2/3/97	12/12/96	247.09 ft	Pos. Disp.		No	5 in						1	230 ft.	280 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2003

Quarter: 2

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SUE	Int.	TOP	BOT.
299-W19-16	A7743		12/12/85	3/31/97	3/31/97	3/26/93	248.37 ft	Subm.		No	5 in	5 in	130 ft	240 ft	SS	0.01 in			
699-2-7	A8122		2/20/78	3/31/97	3/31/97	9/20/95	120.65 ft 2139 ft	Subm.	Purge b Gwnd	No				6/6 l/145 ft	165 ft			145 ft.	145ft. 165 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2003

Quarter: 3

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-N-28	A4677		9/17/83	11/29/93	4/28/98	8/15/89	73.91 ft	Subm.	Contain	No	3 in	7 in	47 ft	83 ft	SS	0.02 in			
199-N-34	A4683		9/30/83	5/12/94	4/28/98	3/12/93	69.58 ft	Subm.	Purge to Ground	No	8 in	8 in	34 ft	78 ft	SST	in			
199-N-71	A4714		10/26/91	3/1/94	4/27/98	8/23/93	71.76 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	63.6 ft	84.5 ft	SS	0.02 in			
199-N-72	A4715		10/30/91		4/23/98	8/12/93	69.42 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	62.2 ft	82.2 ft	SS	0.02 in			
299-E17-17	A4735		5/16/88	8/5/97	8/5/97	2/6/90	319.52 ft	Pos. Disp.	Purge to Ground	No	4 in	8 in	313 ft	333 ft	SS	0.02 in			
299-E17-18	A4736		4/26/88	8/29/97	8/29/97	2/6/90	320.36 ft	Pos. Disp.	Purge to Ground	No	4 in	8 in	311.7 ft	332.7 ft	SS	0.02 in			
299-E24-16	A4751		9/19/88	8/11/97	8/11/97	2/6/90	317.96 ft	Pos. Disp.	Contain	No	4 in	4 in	307 ft	327 ft	SS	0.02 in			
299-E24-18	A4753		9/19/88	8/25/97	8/25/97	2/6/90	318.83 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	311.5 ft	332.5 ft	SS	0.01 in			
299-E25-48	A4795		8/25/92	11/5/96	1/22/98	8/16/95	281.94 A	Pos. Disp.	Purge to Ground	No	4 in	4 in	74.33 ft	294.55 ft	SS	0.01 In			
299-E27-7	A4616		10/4/82	8/30/96	4/9/98	8/9/95	234.42 ft	Subm.	Purge to Ground	No	6 in	6 in	241 ft	261 ft	SS	0.02 in			
299-E27-9	A4618		8/21/87	7/24/95	12/8/97	2/7/90	228.83 ft	Pos. Disp.	Purge to Ground	No	4 in	4 In	19.85 ft	239.08 ft	SS	0.03 in			
299-E27-10	A4608 -	-	8/19/87	6/23/94	3/5/98	2/7/90	224.01 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	212.1 ft	232.4 ft	SS	0.03 in			
299-E27-18	A6674		7/14/92		8/4/97		249.72 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	245 ft	265 ft	SS	0.02 in			
299-E32-5	A4833		11/9/89	12/16/96	3/5/98	8/27/93	261.67 ft	Pos. Disp.	Purge to Ground	No	4 In	4 In	70.83 A	291.84 ft	SS	0.01 In			
299-E33-16	A6855		1/31/53	10/29/97	10/29/97	4/3/92	230.83 ft	Subm.	Purge to Ground	No	6 in						1	231 ft.	246 ft.
299-E33-17	A4843		10/31/53	11/21/97	11/21/97	8/10/93	231.03 ft	Subm.	Purge to Ground	No	6 in						1	220 ft.	242 ft.
299-E34-3	A4878		8/19/87	11/21/97	11/21/97	2/7/90	211.06 ft	Pos. Disp.	Purge to Ground	No	4 in	4 In	93.19 ft	213.5 ft	SS	0.03 In			
299-E34-5 --	A4880		8/15/87	9/17/97	9/10/97	2/7/90	188.85 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	170.5 ft	190.5 ft	SS	0.02 in			
299-E34-9	A4884		11/5/91	6/24/94	1/20/97	8/27/93	226.08 ft	Pos. Disp.	Purge to Ground	No	4 In	4 In	12.63 ft	233.7 ft	SS	0.02 in			
299-W15-17	A4921		10/26/87	8/21/97	8/21/97	8/26/93	230.44 ft	Pos. Disp.		No	4 in	4 in	422.6 A	432.5 ft	SS	0.03 In			
299-W16-23	A4935		7/1/87	12/1/93	4/9/98	8/24/93	241.17 ft	Pos. Disp.		No	4 In	4 in	20.33 ft	251 ft	SS	0.03 In			
299-W27-1	A8062		6/28/84	8/21/97	8/21/97	/10/96	228.09 ft	Subm.		No	6 In	6 in	216 ft	236 ft	SS	0.01 In			
699-8-17	A5333		5/31/50	10/7/97	10/7/97	9/24/93	126.04 ft	Subm.	Purge to Ground	No	6 in	8 in	103 ft	159.75 ft	SS		1	109 ft.	132 ft.
																	1	135 ft.	146 ft.
																	1	145 ft.	150 ft.
																	1	151 ft.	166 ft.
699-24-33	A5089		8/31/48	8/27/97	8/27/97	8/24/93	123.94 ft	Subm.	Purge to Ground	No	8 in						1	116 ft.	164 ft.
699-24-34A	A5090		2/9/87	10/15/97	10/7/97	8/24/93	133.82 ft	Pos. Disp.	Purge to Ground	No	4 in	6 in	122.5 ft	137.5 ft	SS	0.03 In			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2003

Quarter: 3

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
699-25-33A	A5094		1/3/87		12/8/97	8/27/93	128.9 ft	Subm.	Purge to Ground	No	4 in	4 in	191 ft	201 n	SS	0.01 in	-	-	
699-25-34A	A5095		7/14/86	11/12/96	12/8/97	6/25/91	130.53 ft	Subm.	Purge to Ground	No	4 in	6 in	117.9 ft	137.9 ft	SS	0.02 i	n		
699-25-34B	A5096		9/5/86	11/12/96	12/8/97	6/25/91	130.26 ft	Subm.	Purge to Ground	No	4 in	6 in	116.2 ft	136.2 ft	SS	0.02 in			
699-25-34C	A5097		4/16/87	6/29/90	12/8/97	8/27/93	135.48 ft	Pos. Disp.	Purge to Ground	No	4 in	6 in	124.2 ft	139.5 ft	SS	0.03 in			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: RCRA

Fiscal Year: 2003

Quarter: 4

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-N-73	A4716		10/31/91	3/1/94	5/21/98	10/18/93	73.56 ft	Pos. Disp.	Purge to Ground	No	6 in	4 in	65.4 ft	86.1 ft	SS	0.02 in			
299-E25-34	A4782		9/19/88	10/24/98	6/22/98	8/23/89	262.82 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	51.59 ft	271.59 ft	SS	0.02 in			
299-E25-36	A4784		9/19/88	11/0/95	7/31/98	2/6/90	307.05 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	96.74 ft	317.22 ft	SS	0.02 in			
299-E25-40	A4789		9/18/89	3/29/96	6/25/98	2/2/90	265.43 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	252 ft	273 ft	SS	0.01 in			
299-E25-41	A4790		9/22/89	12/1/93	7/7/98	9/15/93	270.78 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	55.33 ft	276.34 ft	SS	0.01 in			
299-E32-3	A4831		9/30/87	1/22/94	6/6/98	2/7/90	276.12 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	266.2 ft	286.2 ft	SS	0.02 in			
299-E33-28	A4852		11/6/87	3/1/94	6/10/98	2/6/90	263.68 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	55.67 ft	275.67 ft	SS	0.03 in			
299-E33-29	A4853		9/30/87	1/21/94	6/10/98	6/2/90	272.88 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	62.75 ft	282.75 ft	SS	0.03 in			
299-E33-30	A4855		9/30/87	11/15/95	6/16/98	2/6/90	263.1 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	255 ft	275 ft	SS	0.03 in			
299-E33-32	A4857		9/5/89	9/23/97	6/19/98	2/5/90	259.82 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	246.4 ft	267.4 ft	SS	0.01 in			
299-E33-33	A4858		8/29/89	10/7/97	6/17/98	2/6/90	240.07 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	227.3 ft	246.3 ft	SS	0.01 in			
299-E33-44	B8554		9/26/98			10/13/98	239.36	Pos. Disp.		No	4 in	4 in	238 ft	253 ft	SS	0.01 in			
299-W10-23	B8545		8/19/98				272	Pos. Disp.		No	4 in	4 in	25.78 ft	26.88 ft	SS	0.01 in			
299-W10-24	B8546		10/21/98				231.41	Pos. Disp.		No	4 in	4 in	32.94 ft	288.03 ft	SS	0.01 in			
299-W10-26	B8548		8/25/98				216.80	Pos. Disp.		Yes	4 in	4 in	17.04 ft	252.13 ft	SS	.010 in			
299-W11-31	A5472		3/4/92	4/22/96	7/31/98	1266.29	n	Pos. Disp.		No	4	i n	4 in	241.2 ft	261.2 ft	SS	0.02 in		
299-W14-13	B8549		8/31/98		215.8		Pos.	Disp.		No	4 in	4 in	16.62 ft	251.73 ft	SS	.010 in			
299-W14-14	B8547		11/12/98		217.4		Pos.	Disp.		No	4 in	4 in	16.98 ft	252 ft	SS	.010 in			
299-W15-40	B8550		9/10/98		218.08		Pos.	Disp.		No	4 in	4 in	17.95 n	253.08 n	SS	.010 in			
299-W18-31	A4943		12/11/91	8/10/98	8/24/93	211.77	ft	Pos. Disp.		No	4 in	4 in	187.3 ft	222.3 ft	SS	0.01 in			
299-W19-41	B8551		9/23/98		220.35		Pos.	Disp.		No	4 in	4 in	20.05 ft	255.14 ft	SS	.010 in			
299-W19-42	B8553		9/16/98		219.58		Pos.	Disp.		No	4 in	4 in	20.28 ft	255.37 ft	SS	0.01 in			
299-W22-79	B8552		9/30/98	10/	9/98	241.91	Pos.	Disp.		No	4 in	4 in	242.7 ft	277.5 ft	SS	0.01 in			
699-23-34A	A5087		1/31/87	3/1/94	6/23/98	10/28/94	132.88 ft	Pos. Disp.	Purge to Ground	No	8 in	8 in	120.8 ft	136.1 ft	SS	0.03 in			
699-41-40	A5161		8/4/89	4/30/96	7/31/98	4/8/93	136.77 ft	Pos. Disp.	Purgeto Ground	No	4 in	4 in	63.94 ft	174.3 A	SS	0.01 in			
699-43-45	A5160		6/2/89	3/9/90	7/7/98	4/8/93	197.07 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	82.95 ft	203.35 ft	SS	0.01 in			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: CERCLA

Fiscal Year: 1999

Quarter: 2

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-H3-2A	A4611		11/30/86	4/3/97		8/15/95	35.83 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	36 ft	51 ft	SS	0.02 in	1	36 ft.	51 ft.
199-H3-2C	A4613		10/15/86	6/30/95		6/15/95	40 ft	Pos. Disp.	Contain	No	6 in	6 in	100 ft	110 ft	SS	0.01 in			
199-H4-3	A4629		5/31/74	4/23/96	5/8/92	1/15/97	45.12 ft	Pos. Disp.	Contain	No	6 in						1	34 ft.	55 ft.
199-H4-8	A4639		5/31/86	7/12/96		6/12/90	44.16 ft	Pos. Disp.	Contain	No	6 in		40 ft	50 ft					
199-H4-10	A4614		9/30/86	9/7/95		9/1/95	28.93 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	23 ft	38 ft	SS	0.02 in			
199-H4-12C	A4618		10/3/86	9/8/95		9/6/95	39.18 ft	Pos. Disp.	Contain	No	6 in	6 in	72 ft	82 ft	SS	0.01 in			
199-H4-13	A4619		11/30/86	9/8/95		9/6/95	42.58 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	37 ft	52 ft	SS	0.02 in			
199-H4-15B	A4622		11/30/86	10/11/95		10/6/95	31.7 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	37 ft	42 ft	SS	0.02 in			
199-N-18	A4667	2/4/81	1	1/30/93	--	8/15/89	72.23 ft	Subm.	Contain	No	8 in	6 in	58.5 ft	79 ft	SS	0.01 in	1	12 ft.	78 ft.
299-W14-9	A4915		6/30/81	4/25/97		8/29/94	234.85 ft	Subm.		No	6 in						1	416 ft.	440 ft.
																	1	440 ft.	450 ft.
																	2	464 ft.	470 ft.
																	3	482 ft.	486 ft.
299-W15-1	A7346		5/13/47	2/3/97		12/12/96	225.46 ft	Subm.		No	6 in						1	190 ft.	270 ft.
299-W15-4	A4929		1/30/56	5/21/96		11/9/95	212.61 ft	Pos. Disp.		No	6 in						1	170 ft.	217 ft.
299-W15-7	A5476			1/28/98		12/12/96	216.79 ft	Subm.			8 in						1	182 ft.	350 ft.
299-W15-11	A5474		3/13/89 5/8/88	8/15/94		1/20/94	228.05 ft	Subm.		No	8 in						1	183 ft.	297 ft.
299-W16-1	A5481		1/12/59	3/4/97		12/1/93	228.13 ft	Subm.		No	6 in						1	195 ft.	425 ft.
299-W18-4	A7522		2/9/59	11/26/97			230.93 ft	Subm.		No	8 in	6 in	197 ft	254 ft	SS		1	200 ft.	278 ft.
299-W19-20	A4949		6/11/86	10/12/94		4/30/91	244.72 ft	Subm.		No	6 in	6 in	231 ft	251 ft	SS	0.01 in			
699-39-79	A5151		9/7/46	4/25/96		2/21/91	214.91 ft	Subm.	Contain	No	8 in						1	195 ft.	210 ft.
699-51-63	A5231	--	11/6/56	4/25/96		7/13/93	168.71 ft	Subm.	Purge to Ground	No	8 in						1	157 ft.	183 ft.
699-70-68	A5319		7/31/54	9/16/91		2/26/91	128.2 ft	Subm.	Purge to Ground	No	8 in						1	128 ft.	147 ft.
699-73-61	A5327		9/17/62	9/5/91		2/26/91	132.42 ft	Subm.	Purge to Ground	No	8 in	6 in	108.5 ft	148.5 ft	GALV	0.015 in	1	107 ft.	146 ft.
699-76-62	A5332		5/16/57	11/4/92		2/26/91	73.88 ft	Subm.	Purge to Ground	No	8 in	6 in	67 ft	107 ft	GALV		1	70 ft.	120 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: CERCLA

Fiscal Year: 1999

Quarter: 3

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-H4-12B	A4617		11/30/86	9/7/95		8/24/95	39.83 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	45 ft	50 ft	SS	0.02 in			
199-H4-14	A4620		12/31/86	10/11/95		10/6/95	42.81 ft	Pos. Disp.	Contain	No	6 in	6 in	38 ft	53 ft	SS	0.02 in			
199-H4-15CS	A4625	Yes	12/16/86	9/24/96		1/15/97	31.69 ft	No Pump	Purge to Ground	No	2 in	2 in	78 ft	80 ft	SS	0.02 in			
199-H4-16	A4626		4/30/87	7/12/96		6/12/90	47.52 ft	Pos. Disp.	Purge to Ground	No	6 in		44.7 ft	59.7 ft					
199-H4-17	A4627		5/6/87	10/12/93		6/12/90	43.69 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	35 ft	45 ft	SS	0.02 in			
199-K-11	A4643		8/31/52	7/25/94	8/1/91	1/21/97	71.83 ft	Subm.	Purge to Ground	No	6 in						1	69 ft.	160 ft.
199-K-19	A4648		4/30/55	5/6/96	10/8/91	1/20/97	32.5 ft	Subm.	Purge to Ground	No	8 in						1	10 ft.	50 ft.
199-K-20	A4649		5/31/55	3/26/96	8/1/91	2/26/91	34.18 ft	Subm.	Contain	No	8 in						1	10 ft.	50 ft.
199-K-22	A4651		5/31/55	7/25/94	7/29/91	1/22/97	37.56 ft	Pos. Disp.	Contain	No	8 in						1	10 ft.	50 ft.
199-N-54	A4697		6/30/87	4/4/91		4/25/91	69.5 ft	Pos. Disp.	Contain	No	6 in	6 in	58 ft	73 ft					
199-N-64	A4708		11/19/87	10/21/96		3/28/90	64.2 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	54 ft	69 ft	SS	0.02 in			
199-N-67	A471	1	3/31/88	4/19/96		7/12/95	71.8 ft	Bladder	Contain	Yes	6 in	6 in	80.5	ft 76 ft	SS	0.02 in			
199-N-70	A471	3	6/1/88	7/21/94		4/25/91	64.52 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	89 ft	99 ft		0.01 in			
299-W15-18	A4922		8/4/87	8/30/94		8/26/93	231.12 ft	Pos. Disp.		No	4 in	4 in	208 ft	238 ft	SS	0.03 in			
299-W18-26	A4936		12/3/89	11/5/96		8/24/93	242.64 ft	Pos. Disp.		No	4 in	4 in	222.2	ft 243.3	ft SS	0.01 in			
299-W18-27	A4939		5/7/91	- -		8/24/93	234.08 ft	Pos. Disp.		No	4 in	4 in	16.61	ft 237.7	ft SS	0.01 in			
299-W19-24	A4952		4/10/87	3/13/95		4/30/91	249.3 ft	Subm.		No	5 in	5 in	231 ft	251	ft SS	0.01 in			
299-W19-26	A7747		4/1/87	2/3/97		1/24/97	246.2 ft	Subm.		No	5 in	5 in	228 ft	248 ft	SS				
299-W19-28	A4954		8/25/89	11/5/96		10/17/94	255.15 ft	Pos. Disp.		No	4 in						1	236 ft.	256 ft.
299-W19-29	A4955		8/25/89	9/29/94		4/19/91	254.02 ft	Pos. Disp.		No	4 in						1	235 ft.	255 ft.
299-W19-30	A7748		5/30/90	2/16/94		4/19/91	251.65 ft	Subm.		Yes	4 in	4 in	233.3	ft 253.3	ft SS	0.01 in			
699-47-60	A5202		7/20/48	3/29/96	11/22/89	10/15/92	250.63 ft	Subm.	Purge to Ground	No	a in						1	250 ft.	277 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: CERCLA

Fiscal Year: 1999

Quarter: 4

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-D2-6	A4568		2/14/92			5/12/93	83.12 ft	Pos. Disp.	Contain	No	6 in	4 in	77.2 ft	98.3 ft	SS	0.01 in			
199-D5-13	A4570		11/26/91	4/1/97		12/16/96	86.34 ft	Pos. Disp.	Contain	No	4 in	4 in	76.3 ft	97 ft	SS	0.01 in			
199-D5-14	A4571		3/27/92	6/18/97		5/12/93	85.86 ft	Pos. Disp.	Contain	No	4 in	4 in	77.1 ft	98.2 ft	SS	0.01 in			
199-D5-15	A4572		3/18/92	6/18/97		8/23/93	85.36 ft	Pos. Disp.	Contain	No	4 in	4 in	77.1 ft	98.2 ft	SS	0.01 in			
199-D5-16	A4573		3/20/92	6/18/97		5/12/93	86.39 ft	Pos. Disp.	Contain	No	4 in	4 in	77.1 ft	98.2 ft	SS	0.01 in			
199-D5-17	A4574		3/18/92	6/20/94		10/16/93	82.23 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	78.99 ft	99.8 ft	SS	0.01 in			
199-D5-18	A4575		2/24/92	8/17/94		5/12/93	80.4 ft	Pos. Disp.		No	4 in	4 in	68.1 ft	93.5 ft	SS	0.01 in			
199-D5-19	A4576		2/18/92	8/17/94		5/12/93	77.73 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	74.8 ft	94.6 ft	SS	0.01 in			
199-D5-20	A4577		2/24/92			5/12/93	82.87 ft	Pos. Disp.	Purge to Ground	No	8 in	4 in	76.2 ft	97 ft	SS	0.01 in			
199-D8-54B	A4583		2/10/92			5/12/93	59.72 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	129.9 ft	140.5 ft	SS	0.01 in			
199-D8-55	A4584		2/11/92			5/12/93	56.73 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	46.6 ft	69.4 ft	SS	0.01 in			
199-H4-45	A4631		3/11/92			8/10/93	40.2 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	32.2 ft	52.8 ft	SS	0.01 in			
199-H4-47	A4633		2/26/92			8/10/93	46.87 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	36.8 ft	59.6 ft	SS	0.01 in			
199-H4-48	A4634		3/30/92	12/7/92		8/10/93	47.63 ft	Pos. Disp.	Contain	No	4 in	4 in	39 ft	59.8 ft	SS	0.01 in			
199-H4-49	A4635		3/31/92			9/13/93	45.2 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	38 ft	53.7 ft	SS	0.01 in			
199-H6-1	A4642		3/13/92			8/10/93	41.28 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	33.9 ft	54.7 ft	SS	0.01 in			
199-K-18	A4647		10/31/54	7/25/94	10/8/91	1/20/97	21.24 ft	Pos. Disp.	Purge to Ground	No	8 in						1	18 ft.	60 ft.
199-K-31	A4656		5/13/86	7/25/94	4/13/92	1/8/92	24.54 ft	Subm.	Purge to Ground	No	6 in	6 in	28 ft	49.5 ft	SS	0.02 in			
299-W18-30	A4942		11/14/91			8/24/93	221.45 ft	Pos. Disp.		No	4 in	4 in	197.5 ft	234.3 ft	SS	0.02 in			
699-91-46A	A5354		3/19/92	7/12/96		3/30/93	31.62 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	23 ft	43.8 ft	SS	0.01 in			
699-93-48A	A5356		2/21/92	7/12/96		3/30/93	53.01 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	41.2 ft	62 ft	SS	0.01 in			
699-96-43	A5357		3/17/92	7/12/96		3/29/93	41 ft	Pos. Disp.	Contain	No	4 in	4 in	32.4 ft	48.5 ft	SS	0.01 in			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: CERCLA

Fiscal Year: 2000

Quarter: I

WELL NAME	WELL ID	PIEZO	DRILL DATE	LAST MAINT.	LAST ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RFT	CASING SIZE	SCREEN DIAM	SCREEN TOP	SCREEN BOT.	SCREEN MTRL	SCREEN SLOT SIZE	PERFORATION Int.	PERFORATION TOP	PERFORATION BOT.
199-D5-12	A4589		8/19/80	7/21/94	5/6/92	1/22/87	83.43	ft Subm.	Contain	NO	8 in						1	35 ft.	90 ft.
199-H4-5	A4636		5/11/83	11/29/93	5/8/92	1/15/97	40.63	ft Pos. Disp.	Contain	NO	5 in	5 in	32.2 ft	44 ft	SS	0.02 in			
199-H4-46		A4632		4/24/92		8/10/93	46.07	ft Pos. Disp.	Purge to Ground	No	4 in	4 in	36.7 ft	56.5 ft	SS	0.01 in			
199-H5-1A	A4641		4/17/92	3/1/94		8/10/93	40.16	ft Pos. Disp.	Purge to Ground	No	4 in	4 In	34.8 ft	50.9 ft	SS	0.01 in			
199-K-21	A4650		5/31/55	3/19/96	6/24/92	1/20/97	34.31	ft Subm.	Purge to Ground	No	8 in						1	10 ft.	50 ft.
199-K-27	A4653		9/1/79	3/12/96	7/10/92	1/21/97	71.92	ft Subm.	Purge to Ground	No	8 in						1	65 ft.	85 ft.
199-K-32A	A4657		7/21/92	3/1	2/93	2/2/93	53.72	A Pos. Disp.	Purge to Ground	No	4 in	4 in	44.7 ft	64.7 ft	SS	0.01 in			
199-K-32B	A4658		8/25/92	10/28/93		8/12/93	48.28 R	Pos. Disp.	Purge to Ground	No	4 in	4 in	157 ft	167 ft	SS	0.01 In			
199-K-33		A4659		8/10/92		8/11/93	55.13	A Pos. Disp.	Purge to Ground	No	4 In	4 In	45.8 ft	65.6 ft	SS	0.01 in			
199-K-35	A4661		8/21/92	3/19/93		2/4/93	97.9	ft Pos.	Disp. No	4	In	4 in	88.6 ft	108.6 ft	SS	0.01 I n			
199-K-36	A4662		8/24/92	3/1 2/93		2/4/93	96.22 ft	Pos. Disp.	Contain	No	4 In	4 in	89 ft	109 ft	SS	0.01 In			
199-K-37		A4663		8/4/92		8/23/93	53.08	It Pos. Disp.	Purge to Ground	No	4 in	4 in	43.3 ft	63.3 ft	SS	0.01 in			
199-N-14	A4664		4/30/69	10/23/96	8/12/92	8/7/95	67.08	ft Pos. Disp.	Contain	No	8 in						1	60 ft.	78 ft.
199-N-16	A4665		2/28/81	1/30/93	8/13/92	8/15/89	68.1	ft Pos. Disp.	Contain	No	8 in						1	12 ft.	78 ft.
199-N-17	A4666		1/31/81	3/24/94	8/12/92	8/15/89	74.64	ft Subm.	Contain	No	8 in						1	12 ft.	83 ft.
199-N-21	A4 67		1/31/81	11/30/93	8/13/92	4/25/91	70.66	ft Subm.	Purge to Ground	No	8 in						1	12 ft.	78 ft.
199-N-27	A4676		8/31/83	11/29/93	8/12/92	4/25/91	59.33	ft Subm.	Contain	No	8 in						1	32 ft.	69 ft.
199-N-75	A4718		7/1 3/92	7/1	4/94	8/23/93	-0.02	ft Pos. Disp.	Contain	No	4 In	4 in	64.4 ft	84.8 ft	SS	0.01 in			
199-N-76	A4719		5/5/92	7/21/94		8/23/93	75.79	ft Pos. Disp.	Contain	No	4 In	4 In	61 ft	81.4 ft	SS	0.01 in			
199-N-80	A	4720		10/1/92		8/23/93	73.84	ft Pos. Disp.	Contain	No	4 in	4 In	110.6 ft	120.6 ft	SS	0.005 i n			
299-W1	1-30	A7289	4/15/92		7/23/97	2/5/93	258.81	ft	Subm. No	4	In	4 in	242 ft	279 ft	SS	0.01 in			
699-97-51A	A5382		10/4/93	4/13/92		1/20/92	19.56	ft Subm.	Contain	NO	8 In	8 in	.16 ft	39 ft	SS		1	12 ft.	39 ft.

ROUTINE WELL MAINTENANCE SCHEDULE

Program: CERCLA

Fiscal Year: 2000

Quarter: 2

WELL NAME	WELL ID	PIEZO	LAST DRILL DATE	LAST MAINT.	LAST ROUTINE MAINT.	LAST INSPEC.	LAST DTW	LAST PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	SCREEN DIAM	SCREEN TOP	SCREEN BOT.	SCREEN MTRL	SCREEN SLOT SIZE	PERFORATION In.	PERFORATION TOP	PERFORATION BOT.
199-K-23	A4652		2/28/56	11/4/96	7/21/93	6/18/93	69.77 ft	Pos. Disp.	Purge to Ground	No	8 in						1	65 ft.	80 ft.
199-K-106A	A9842		2/18/94			2/17/95	74.37 ft	Pos. Disp.	Contain	Yes	4 in	4 in	70.06 ft	91.1 ft	SS	0.02 in			
199-K-107A	A9843		4/15/94			2/17/95	75.12 ft	Pos. Disp.	Contain	No	4 in	4 in	71.63 ft	92.34 ft	SS	0.01 in			
199-K-108A	A9844		4/6/94			2/17/95	74.55 ft	Pos. Disp.	Contain	No	4 in	4 in	69.35 ft	89.7 ft	SS	0.01 in			
199-K-109A	A9826		7/14/94	11/11/96		2/17/95	73.83 ft	Pos. Disp.	Contain	Yes	4 in	4 in	69.6 ft	89.8 ft	SS	0.02 in			
199-K-110A	A9829		6/5/94	7/21/95		2/17/95	71.99 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	68.65 ft	89.7 ft	SS	0.04 in			
199-K-111A	A9830		6/29/94	7/21/95		2/17/95	68.45 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	64.66 ft	84.7 ft	SS	0.04 in			
199-N-2	A4669		6/30/64	10/21/96	4/19/93	4/26/91	72.73 ft	Subm.	Contain	No							1	35 ft.	120 ft.
199-N-3	A4679		6/30/64	1/4/96	4/19/93	4/26/91	72 ft	Subm.	Contain	No	8 in						1	34 ft.	95 ft.
199-N-32	A4681		9/30/83	11/29/93	4/5/93	4/25/91	72.45 ft	Subm.	Contain	No	6 in	6 in	44 ft	80 ft	S S T	in			
199-N-50	A4693		7/24/85	11/29/93	12/28/92	1/9/92	77.73 ft	Subm.	Purge to Ground	N o	8 in	7 in	66 ft	86 ft	SS	0.02 in			
199-N-51	A4694		7/9/85	11/29/93	12/28/92	1/9/92	77.25 ft	Subm.	Purge to Ground	No	8 in	7 in	66 ft	86 ft	SS	0.02 in			
199-N-81	A5443		4/20/93	9/8/95	9/8/95	4/18/95	73.98 ft	Pos. Disp.	Contain	No	4 in	4 in	69.7 ft	89.8 ft	SS	0.02 in			
199-N-92A	A9878		10/31/94	4/10/95		4/4/95	10.46 ft	No Pump	Contain	No	4 in	4 in	10.23 A	30.28A	SS	0.01 in			
199-N-96A	A9882		10/24/94	4/10/95		4/4/95	50.83 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	14.5 ft	34.5 ft	SS	0.01 in			
199-N-99A	A9910		9/28/94	4/10/95		4/4/95	12 ft	Pos. Disp.	Contain	Yes	4 in	4 in	8.5 ft	28.5 ft	SS	0.01 in			
299-W15-31A	B2471		9/26/95	11/5/96			228.92 ft			Yes		8 in	206.9 ft	252.9 ft	SS	0.02 in			
299-W19-34A	A9517		5/16/94			9/16/94	254.85 ft	Pos. Disp.		No	4 in	6 in	324.2 ft	339.6 ft	SS	0.01 in			
299-W19-35	A9515		4/20/94			9/16/94	249.96 ft	Pos. Disp.		No	4 in	6 in	70.01 ft	239.94 ft	SS	0.02 in			
299-W19-36	B2461		9/1/95	7/23/97			248.29 ft	Subm.		No	8 in	8 in	244.8 ft	298.8 ft	SS	0.045 in			
299-W19-37	B2465		8/28/95	5/6/97			253.18 ft			No	4 in	4 in	243 ft	283 ft	SS	0.04 in			
299-W19-38	B2463		8/15/95	9/30/96			235.17 ft	Subm.		No	4 in	4 in	38.71 ft	258.73 ft	SS	0.02 in			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: CERCLA

Fiscal Year: 2000

Quarter: 3

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-D4-1	B2885		10/31/96			4/4/97	83.69 ft	Pos. Disp.	Contain	No	10 in	6 in	75 ft	95 ft	SS	0.06 in			
199-D8-4	A4579		11/13/91	12/12/96	12/12/96	12/16/96	84.21 ft	Pos. Disp.	Purge to Ground	No	3 in	3 in	74 ft	94 ft	SS	0.01 in			
199-D8-5	A4580		10/29/91	12/12/96	12/12/96	12/16/96	69.12 ft	Pos. Disp.	Contain	No	3 in	3 in	63 ft	83 ft	SS	0.01 in			
199-D8-68	B2772		8/5/96	4/3/97			60.52 ft		Contain	No	6 in	6 in	48 ft	73 ft	SS	0.06 in			
199-D8-69	B2773		8/20/96	4/3/97			43.3 ft	Subm.	Contain	No	6 in	6 in	37 ft	57 ft	SS	0.06 in			
199-D8-70	B2774		8/22/96	9/12/97			50.88 ft	No Pump	Contain	No	6 in	6 in	41 ft	71 ft	SS	0.04 in			
199-D8-71	B2775		8/9/96				56.13 ft		Contain	No		6 in	46 ft	76 ft	SS	0.06 in			
199-H4-4	A4630		6/30/83	4/11/97	4/11/97	1/15/97	40.06 ft	Pos. Disp.	Contain	No	6 in	6 in	33 ft	43 ft			7	33 ft.	43 ft.
199-H4-6	A4637		5/31/83	4/11/97	4/11/97	1/15/97	41.97 ft	Pos. Disp.	Purge to Ground	No	6 in	6 in	39 ft	49 ft	SS	0.02 in			
199-H4-9	A4640		9/30/86	4/1/97	3/4/96	3/13/96	43 ft	Pos. Disp.	Contain	No	4 in	6 in	38 ft	48 ft	SS	0.02 in			
199-H4-18	A4628		5/31/87	4/11/97	4/11/97	6/12/90	46.39 ft	Pos. Disp.	Contain	No	6 in	6 in	40 ft	50 ft	SS	0.02 in			
199-H4-63	B2776		7/26/96	4/3/97			43.96 ft	Subm.	Purge to Ground	No	6 in	6 in	36.3 ft	56.3 ft	SS	0.06 in			
199-H4-64	B2777		7/31/96	4/3/97			35.67 ft	Subm.	Purge to Ground	No	6 in	6 in	21.8 ft	41.8 ft	SS	0.04 in			
199-K-112A	B2799	--	9/18/96	4/10/97			27.5 ft	Subm.	Purge to Ground	No	6 in	6 in	20.7 ft	45.7 ft	SS	0.04 in			
199-K-114A	B2801		9/30/96	4/10/97			26.13 ft	Subm.	Contain	No	6 in	6 in	21.03 ft	36.03 ft	SS	0.06 in			
199-K-117A	B2804		10/17/96				30.6 ft	Subm.	Contain	No	10 in	6 in	28 ft	68 ft	SS	0.04 in			
299-W15-16	A4920		9/10/87	8/21/97	8/21/97	10/27/95	230.69 ft	Pos. Disp.		No	4 in	4 in	2208 ft	238 ft	SS	0.03 in			
299-W15-38	B2754		5/17/96				214.18 ft	Subm.		Yes		4 in	205.1 ft	225.12 ft	SS	0.04 in			
299-W15-39	B2755		5/23/96	8/4/97			208.54 ft	Subm.		Yes		4 in	199.6 ft	219.6 ft	SS	0.02 in			
299-W18-32	A5441		7/29/92		8/4/97		221.92 ft	Pos. Disp.		No	4 in	4 in	204.6 ft	224.6 ft	SS	0.01 in			
299-W19-23	A7745		3/24/87	7/23/97	7/23/97	4/19/91	251.55 ft	Subm.		No	5 in	5 in	233 ft	255 ft	SS	0.01 in			
299-W19-40	B2464		8/21/95	2/3/97			242.68 ft	Subm.		No	4 in	4 in	230.77 ft	250.77 ft	SS	0.04 in			

ROUTINE WELL MAINTENANCE SCHEDULE

Program: CERCLA

Fiscal Year: 2000

Quarter: 4

				LAST								SCREEN					PERFORATION		
WELL NAME	WELL ID	PIEZO	DRILL DATE	MAINT.	ROUTINE MAINT.	INSPEC.	DTW	PUMP TYPE	WATER CONT. REQ.	RPT	CASING SIZE	DIAM	TOP	BOT.	MTRL	SLOT SIZE	Int.	TOP	BOT.
199-D3-2	B8074		9/2/97				77.4	Subm.	Purge to Ground	No		8 in	82.1 ft	102.1 ft	SS	0.02 in			
199-D4-13	B8071		9/2/97	12/5/97			76.78	Subm.	Contain	NO		6 in	71.8 ft	91.8 ft	SS	0.04 in			
199-D4-14	B8072		9/2/97	12/5/97			78.03	Subm.	Contain	NO		8 in	76.08 ft	96.12 ft	SS	0.02 in			
199-D4-15	B8073		9/2/97				78.08	Subm.	Contain	No		6 in	77.64 ft	97.64 ft	SS	0.04 in			
199-K-30	A4655		10/30/79	11/4/96	4/3/98	1/21/97	70.62 ft	Subm.	Purge to Ground	No	6 in	5 in	67 ft	87 ft	SS	0.01 in			
199-K-34	A4660		8/20/92	3/12/93	4/15/98	2/4/93	75.96 A	Pos. Disp.	Purge to Ground	No	4 in	4 in	66.9 ft	86.9 ft	SS	0.01 in			
199-K-125A	B8559		8/10/98					Subm.			6 in	6 in	32 ft	72 ft	SS	.020 in			
199-N-74	A4717		8/22/91	2/18/94	5/21/98	8/23/93	66.44 ft	Pos. Disp.	Purge to Ground	No	4 in	4 in	59 ft	79.3 ft	SS	0.01 in			
299-W15-15	A4919		8/2/87	8/25/97	8/25/97	8/24/93	241.79 ft	Pos. Disp.		No	4 in	4 in	223 ft	253 A	SS	0.03 in			
299-W18-21	A4933		7/29/87	1/19/96	3/20/98	8/24/93	212.37 ft	Pos. Disp.		No	4 in	4 in	195.5 ft	225.5 ft	SS	0.03 in			
299-W18-24	A4936		8/10/87	12/19/94	5/21/98	8/10/94	229.9 ft	Pos. Disp.		No	4 in	4 in	205.5 ft	235.5 ft	SS	0.03 in			

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att #7

009973

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 10

9002931

Hanford Project Office
712 Swift Blvd., Suite 5
Richland, Washington 99352

REPLY TO ATTN OF: B5-01

July 16, 1990

Steven H. Wisness
Hanford Project Manager
U.S. Department of Energy
P.O. Box 550, A6-95
Richland, Washington 99352

Re: Policy on Remediation of Existing Wells and Acceptance Criteria for RCRA and CERCLA

Dear Mr. Wisness:

The Washington State Department of Ecology and the Environmental Protection Agency have developed a policy in response to the issue of using existing wells for RCRA and CERCLA work. This policy should be considered to be effective immediately upon receipt of this letter and the attached description.

Sincerely,

Timothy L. Nord
Hanford Project Manager
Washington State Department of Ecology

Paul T. Day
Hanford Project Manager
Environmental Protection Agency

Enclosure

cc: R. Brown, Ecology
C. Cline, Ecology
K. Fecht, WHC
L. Goldstein, Ecology
T. Michelena, Ecology
L. Powers, WHC
D. Sherwood/D. Einan, EPA
R. Stanley, Ecology
W. Staubitz, USGS
K. Thompson, DOE

DATA QUALITY OBJECTIVES AND REMEDIATION CRITERIA
FOR RCRA AND CERCLA WELLS AT THE HANFORD SITE
JUNE 1990

Introduction

Numerous groundwater monitoring wells exist at the Hanford Site. Some of these wells were recently constructed for use in the Resource Conservation and Recovery Act (RCRA) (42 USC 6901 et seq) [authorized state program is the Washington State Hazardous Waste Management Act RCW 70.105] and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Such wells have been installed in accordance with the design specifications of the Environmental Protection Agency's (EPA) RCRA Technical Enforcement Guidance Document (OSWER 9950.1). These wells are referred to as "RCRA standard" wells.

Other monitoring wells have been developed for different purposes over the years of Hanford operations and clearly do not meet the current design standards for monitoring wells. For example, some of these wells were designed to monitor the radionuclide levels in groundwater, long before the lists of RCRA and CERCLA parameters were established.

The Washington State Department of Ecology (Ecology), the Department of Energy (DOE), and EPA recognize that each monitoring well used to support the RCRA or CERCLA programs at Hanford must meet the specified data quality objectives (DQO). The most stringent DQOs for a proposed RCRA or CERCLA monitoring well will provide for full chemical analyses of RCRA hazardous constituents (40 CFR Part 264 Appendix IX) and CERCLA hazardous substances, including radioactive constituents. These data would be used to support a risk assessment or final decision by the lead regulatory agency. At the other end of the spectrum, DQOs may limit the data collected to groundwater level measurements for the purpose of aquifer characterization. The DQO established for each well will be dependent on the level of confidence in the quality of data generated. In some cases, an existing monitoring well may be remediated to achieve a higher level of confidence in the quality of data. In other cases, an existing well may present a cross contamination hazard, requiring abandonment in accordance with state regulations (WAC 173-160-560).

Situations Requiring Well Abandonment

The Washington State Attorney General's office has advised Ecology that construction standards for wells (WAC 173-160 et seq.) can only be relaxed if such action does not result in a threat to human health and/or the environment. This criteria must be met for each well at the Hanford Site, regardless of the DQO for the well, irrespective of whether it is being used to directly support the RCRA or CERCLA programs. Any well causing such a threat will have to be abandoned or remediated to the extent necessary to alleviate the threat.

Requirement to Include RCRA Standard Wells

RCRA standard wells are clearly recognized as the highest quality wells by Ecology and EPA. Therefore, some number of RCRA standard wells will be required

in each area of investigation (past-practice operable unit or RCRA disposal unit) (WAC 173-303-645(8)(a)). The number of RCRA standard wells required will be dependent upon the site specific conditions. The locations of proposed new RCRA standard wells will be proposed by DOE and will be subject to approval by the lead regulatory agency.

Criteria for Existing Well as "Equivalent" to RCRA Standard Well

DOE may propose to use an existing monitoring well (non-RCRA standard) as an "equivalent" to a RCRA standard well, thereby justifying the same level of DQOs as established for RCRA standard wells. The proposal must be made in a RCRA Part B permit application, RCRA closure plan, RCRA interim status groundwater monitoring plan, or past-practice operable unit work plan. Ecology or EPA, whichever is the lead regulatory agency, will then determine whether an adequate demonstration of equivalency has been made. This determination will be made in consideration of the following:

1. Construction standards of the existing well must be generally consistent with EPA's RCRA Technical Enforcement Guidance Document. The materials of construction, construction methods, and sampling equipment must be similar to the extent that Ecology or EPA can agree that the most stringent DQOs can be met with the use of that well. Information on the screened interval and the annular seal will be required.

2. If DOE is unable to provide documentation that the construction standards are generally consistent with those required for a RCRA standard well, as stated above, it may provide other documentation attesting to the suitability of that well as an equivalent well. This may include an appropriate statistical demonstration of the analytical data, showing that there is no statistically significant difference between the existing well and an adjacent RCRA standard well. The statistical approach will be subject to approval by the lead regulatory agency. Any statistical demonstration must also be accompanied by all known construction characteristics of the existing well and the RCRA standard well for which the comparison is being made.

Setting Data Quality Objectives

DQOs for each monitoring well used to support the RCRA and CERCLA programs will be proposed by DOE. DQOs for any well are subject to change over time, based on additional information collected. Each monitoring well will fit into one of the following DQO categories, subject to approval by the lead regulatory agency:

1. RCRA standard well or equivalent well. The most stringent DQOs can be met consistently with these wells. Physical and analytical data will be used to support RCRA permit and closure plan decisions, RCRA interim status groundwater monitoring requirements, risk assessments, CERCLA records of decision, effectiveness of remedial or corrective actions, and monitoring during the operation and maintenance phase.

2. Screening well. DQOs for these wells will be limited to screening activities. Wells may be used as indicators to assist in defining the extent of contamination, but may not be used in lieu of RCRA standard

wells or equivalent wells. Such wells may be suitable for certain types of chemical analyses, but not suitable for others. Design, construction, and equipment standards for these wells are substantively inconsistent with EPA's Technical Enforcement Guidance Document, but are not in such condition that remediation or abandonment is required.

3. Radiation Monitoring Well. These wells do not meet design standards for RCRA standard wells or equivalent wells, but documentation is available to show that the screened interval is properly located to monitor the zone in question and that the annular space is properly sealed. The wells are not suitable for monitoring of RCRA constituents, but the design is acceptable for monitoring various radiological parameters. Therefore, such wells can be used for decision making purposes pertaining only to radioactive constituents in the same manner as a RCRA standard well can be used for all constituents.

4. Water Level Measurement Well or Piezometer. The DQO for these wells is restricted to obtaining water level measurements or piezometric heads for the purpose of aquifer characterization and monitoring the flow direction. Such wells must be screened or perforated at the appropriate intervals to meet the DQO and the screens or perforations must be of an acceptable length. Documentation must also be provided that the well design and condition is such that the well does not have to be remediated or abandoned.

Minimum Acceptable Standards for Monitoring Well Construction

All monitoring wells, are subject to the following criteria in order to be used to support the RCRA or CERCLA programs at the Hanford Site:

1. Screened or perforated intervals must monitor the appropriate zone of the aquifer, based on the DQO for each well. For a water table well, this means that the screened or perforated interval shall generally not exceed twenty feet in length and shall extend approximately five feet above the seasonal high water table. For piezometers, the screened or perforated intervals shall generally not exceed twenty feet. Exceptions to these distances may be necessary in cases where water table variations or the thickness of the contaminated aquifer are significant. Such exceptions shall be explained in the DQOs for each well and shall be subject to approval by the lead regulatory agency.

2. All wells must be plugged at the bottom and surface pad and eighteen feet of surface annular seal, in accordance with Design and construction -- Well seals (WAC 173-160-550). Depending on location, some wells may require a full annular seal. This will be determined by the lead regulatory agency on a case-by-case basis depending on: (1) the hydraulic characteristics of the soil and aquifer matrix, (2) the known extent of contamination in the vicinity of the well, (3) the proximity of the well to an actual liquid disposal site or a perched saturated zone, and (4) whether the well penetrates a confining layer.

ATTACHMENT 18

305-B Storage Facility

Contents

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Contents

1.0 PART A DANGEROUS WASTE PERMIT

The following is a chronology of the regulatory history of the 305-B Storage Facility.

- In December 1990, the Part A, Form 3, Revision 1 was submitted to the Washington State Department of Ecology (Ecology). The revision fulfilled requirements of 40 CFR 270.72 for new TCLP waste numbers D018 through D043 and WAC 173-303-805 for newly added waste numbers D012 through D017.
- On June 30, 1998, the Part A, Form 3, Revision 1A deleted dangerous waste numbers WC01 and WC02 and added dangerous waste number WSC2.
- On December 31, 2001, the Part A, Form 3, Revision 1B was revised for the following dangerous waste numbers that have been eliminated in accordance with Federal Register's (FR) 50 FR 51125, 62 FR 32977, and Washington Administrative Code 173-303: P019, P025, P032, P035, P052, P053, P055, P061, P079, P080, P083, P086, P090, P091, P100, P107, P117, U013, U040, U054, U065, U100, U104, U139, U175, U195, U198, U199, U212, U224, U229, U230, U231, U232, U233, U241, U242, U245. The following dangerous waste numbers have been added in accordance with Federal Register's (FR) 50 FR 51125, 62 FR 32977, and Washington Administrative Code 173-303: P127, P128, P185, P188, P189, P190, P191, P192, P194, P196, P197, P198, P199, P201, P202, P203, P204, P205, U271, U278, U279, U280, U364, 367, U372, U373, U387, U389, U394, U395, U404, U409, U410, U411, K013, K044.
- On September 30, 2002, the Part A, Form 3, Revision 1C was submitted as Chapter 1.0 of Attachment 18 to the Hanford Facility RCRA Permit. No changes were made to the Part A, Form 3.

FORM 3

DANGEROUS WASTE PERMIT APPLICATION

I. EPA/State I.D.. No.

W	A	7	8	9	0	0	0	8	9	6	7

FOR OFFICIAL USE ONLY

Application Approved	Date Received (month/ day / year)	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 date)

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

MO	DAY	YEAR
03	22	1943

*For existing facilities, provide the date (mo/day/yr) operation began or the date construction commenced. (use the boxes to the left)

*The date construction of the Hanford Facility commenced

☐ **2. New Facility** (Complete item below.)

MO	DAY	YEAR

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. Ten lines are provided for entering codes. If more lines are needed, enter the codes(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
	S06	Cubic yards or cubic meters*
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
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

Unit of Measure	Unit of Measure Code
Liters Per Day	V
Tons Per Hour	D
Metric Tons Per Hour	W
Gallons Per Hour	E
Liters Per Hour	H

Unit of Measure	Unit of Measure Code
Acre-Feet	A
Hectare-Meter	F
Acres	B
Hectares	Q

III. PROCESS – CODES AND DESIGN CAPACITIES (continued)

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 No.	A. Process Code *(from list above)*			B. process Design Capacity				For Official Use Only			
				1. Amount *(Specify)*	2. Unit of Measure *(enter code)*						
X-1	*S*	*0*	*2*	*600*		*G*					
X-2	*T*	*0*	*3*	*20*		*E*					
1	S	0	1	30,000		G					
2											
3											
4											
5											
6											
7											
8											
9											
10											

C. Space for additional process codes or for describing other process (code "T04"). For each process entered here include design capacity.

S01

The 305-B Storage Facility is a waste assembly area that services Research and Development operations as a 300 Area satellite storage area. Wastes are brought in the facility for storage, repackaging, and/or waste consolidation in mostly 55-gallon drums. The storage design capacity is 30,000 gallons.

RMW is stored as received in storage cells in the basement of the facility. Other waste is stored in segregated cells in the high bay area..

IV. DESCRIPTION OF DANGEROUS WASTES

Dangerous Waste Number – Enter the 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 odes 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.

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)*				2. Process Description *(if a code is not entered in D(1))*
X-1	*K*	*0*	*5*	*4*	*900*		*P*		*T03*	*D80*			
X-2	*D*	*0*	*0*	*2*	*400*		*P*		*T03*	*D80*			
X-3	*D*	*0*	*0*	*1*	*100*		*P*		*T03*	*D80*			
X-4	*D*	*0*	*0*	*2*					*T03*	*D80*			*Included with above*

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I.D. Number *(enter from page 1)*
W A 7 8 9 0 0 0 8 9 6 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)*	2. Process Description *(if a code is not entered in D(1))*
1	D001	20,000	K	S01	
2	D002	5,000	K	S01	
3	D003	1000	K	S01	
4	D004	1000	K	S01	
5	D005	1000	K	S01	
6	D006	1000	K	S01	
7	D007	10,000	K	S01	
8	D008	50,000	K	S01	
9	D009	1000	K	S01	
10	D010	1000	K	S01	
11	D011	1000	K	S01	
12	D012	220	K	S01	
13	D013	220	K	S01	
14	D014	220	K	S01	
15	D015	220	K	S01	
16	D016	220	K	S01	
17	D017	220	K	S01	
18	D018	2,000	K	S01	
19	D019	2,000	K	S01	
20	D020	220	K	S01	
21	D021	220	K	S01	
22	D022	2,000	K	S01	
23	D023	2,000	K	S01	
24	D024	2,000	K	S01	
25	D025	2,000	K	S01	
26	D026	2,000	K	S01	
27	D027	220	K	S01	
28	D028	220	K	S01	
29	D029	220	K	S01	
30	D030	220	K	S01	
31	D031	220	K	S01	
32	D032	220	K	S01	
33	D033	220	K	S01	
34	D034	220	K	S01	
35	D035	5,000	K	S01	
36	D036	220	K	S01	
37	D037	2,000	K	S01	
38	D038	2,000	K	S01	
39	D039	2,000	K	S01	
40	D040	2,000	K	S01	
41	D041	220	K	S01	
42	D042	220	K	S01	
43	D043	2,000	K	S01	
44	F001	2,000	K	S01	
45	F002	2,000	K	S01	
46	F003	5,000	K	S01	

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I.D. Number *(enter from page 1)*: A 7 8 9 0 0 0 8 9 6 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)*	2. Process Description *(if a code is not entered in D(1))*
47	F 0 0 4	1,000	K	S01	
48	F 0 0 5	5,000	K	S01	
49	F 0 2 7	200	K	S01	
50	P 0 0 1	200	K	S01	
51	P 0 0 2	200	K	S01	
52	P 0 0 3	200	K	S01	
53	P 0 0 4	200	K	S01	
54	P 0 0 5	200	K	S01	
55	P 0 0 6	200	K	S01	
56	P 0 0 7	200	K	S01	
57	P 0 0 8	200	K	S01	
58	P 0 0 9	200	K	S01	
59	P 0 1 0	200	K	S01	
60	P 0 1 1	200	K	S01	
61	P 0 1 2	200	K	S01	
62	P 0 1 3	200	K	S01	
63	P 0 1 4	200	K	S01	
64	P 0 1 5	200	K	S01	
65	P 0 1 6	200	K	S01	
66	P 0 1 7	200	K	S01	
67	P 0 1 8	200	K	S01	
68	P 0 2 0	200	K	S01	
69	P 0 2 1	200	K	S01	
70	P 0 2 2	200	K	S01	
71	P 0 2 3	200	K	S01	
72	P 0 2 4	200	K	S01	
73	P 0 2 6	200	K	S01	
74	P 0 2 7	200	K	S01	
75	P 0 2 8	200	K	S01	
76	P 0 2 9	200	K	S01	
77	P 0 3 0	200	K	S01	
78	P 0 3 1	200	K	S01	
79	P 0 3 3	200	K	S01	
80	P 0 3 4	200	K	S01	
81	P 0 3 6	200	K	S01	
82	P 0 3 7	200	K	S01	
83	P 0 3 8	200	K	S01	
84	P 0 3 9	200	K	S01	
85	P 0 4 0	200	K	S01	
86	P 0 4 1	200	K	S01	
87	P 0 4 2	200	K	S01	
88	P 0 4 3	200	K	S01	
89	P 0 4 4	200	K	S01	
90	P 0 4 5	200	K	S01	
91	P 0 4 6	200	K	S01	
92	P 0 4 7	200	K	S01	

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I.D. Number *(enter from page 1)*										
W	A	7	8	9	0	0	0	8	9	6	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)*	2. Process Description *(if a code is not entered in D(1))*
93	P 0 4 8	200	K	S01	
94	P 0 4 9	200	K	S01	
95	P 0 5 0	200	K	S01	
96	P 0 5 1	200	K	S01	
97	P 0 5 4	200	K	S01	
98	P 0 5 6	200	K	S01	
99	P 0 5 7	200	K	S01	
100	P 0 5 8	200	K	S01	
101	P 0 5 9	200	K	S01	
102	P 0 6 0	200	K	S01	
103	P 0 6 2	200	K	S01	
104	P 0 6 3	200	K	S01	
105	P 0 6 4	200	K	S01	
106	P 0 6 5	200	K	S01	
107	P 0 6 6	200	K	S01	
108	P 0 6 7	200	K	S01	
109	P 0 6 8	200	K	S01	
110	P 0 6 9	200	K	S01	
111	P 0 7 0	200	K	S01	
112	P 0 7 1	200	K	S01	
113	P 0 7 2	200	K	S01	
114	P 0 7 3	200	K	S01	
115	P 0 7 4	200	K	S01	
116	P 0 7 5	200	K	S01	
117	P 0 7 6	200	K	S01	
118	P 0 7 7	200	K	S01	
119	P 0 7 8	200	K	S01	
120	P 0 8 1	200	K	S01	
121	P 0 8 2	200	K	S01	
122	P 0 8 4	200	K	S01	
123	P 0 8 5	200	K	S01	
124	P 0 8 7	200	K	S01	
125	P 0 8 8	200	K	S01	
126	P 0 8 9	200	K	S01	
127	P 0 9 2	200	K	S01	
128	P 0 9 3	200	K	S01	
129	P 0 9 4	200	K	S01	
130	P 0 9 5	200	K	S01	
131	P 0 9 6	200	K	S01	
132	P 0 9 7	200	K	S01	
133	P 0 9 8	200	K	S01	
134	P 0 9 9	200	K	S01	
135	P 1 0 1	200	K	S01	
136	P 1 0 2	200	K	S01	
137	P 1 0 3	200	K	S01	
138	P 1 0 4	200	K	S01	

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I.D. Number *(enter from page 1)*

A	7	8	9	0	0	0	8	9	6	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)*				2. Process Description *(if a code is not entered in D(1))*
139	P	1	0	5	200	K		S01				
140	P	1	0	6	200	K		S01				
141	P	1	0	8	200	K		S01				
142	P	1	0	9	200	K		S01				
143	P	1	1	0	200	K		S01				
144	P	1	1	1	200	K		S01				
145	P	1	1	2	200	K		S01				
146	P	1	1	3	200	K		S01				
147	P	1	1	4	200	K		S01				
148	P	1	1	5	200	K		S01				
149	P	1	1	6	200	K		S01				
150	P	1	1	8	200	K		S01				
151	P	1	1	9	200	K		S01				
152	P	1	2	0	200	K		S01				
153	P	1	2	1	200	K		S01				
154	P	1	2	2	200	K		S01				
155	P	1	2	3	200	K		S01				
156	P	1	2	7	200	K		S01				
157	P	1	2	8	200	K		S01				
158	P	1	8	5	200	K		S01				
159	P	1	8	8	200	K		S01				
160	P	1	8	9	200	K		S01				
161	P	1	9	0	200	K		S01				
162	P	1	9	1	200	K		S01				
163	P	1	9	2	200	K		S01				
164	P	1	9	4	200	K		S01				
165	P	1	9	6	200	K		S01				
166	P	1	9	7	200	K		S01				
167	P	1	9	8	200	K		S01				
168	P	1	9	9	200	K		S01				
169	P	2	0	1	200	K		S01				
170	P	2	0	2	200	K		S01				
171	P	2	0	3	200	K		S01				
172	P	2	0	4	200	K		S01				
173	P	2	0	5	200	K		S01				
174	U	0	0	1	200	K		S01				
175	U	0	0	2	200	K		S01				
176	U	0	0	3	200	K		S01				
177	U	0	0	4	200	K		S01				
178	U	0	0	5	200	K		S01				
179	U	0	0	6	200	K		S01				
180	U	0	0	7	200	K		S01				
181	U	0	0	8	200	K		S01				
182	U	0	0	9	200	K		S01				
183	U	0	1	0	200	K		S01				
184	U	0	1	1	200	K		S01				

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I.D. Number *(enter from page 1)*										
W	A	7	8	9	0	0	0	8	9	6	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)*	2. Process Description *(if a code is not entered in D(1))*
185	U 0 1 2	200	K	S01	
186	U 0 1 4	200	K	S01	
187	U 0 1 5	200	K	S01	
188	U 0 1 6	200	K	S01	
189	U 0 1 7	200	K	S01	
190	U 0 1 8	200	K	S01	
191	U 0 1 9	200	K	S01	
192	U 0 2 0	200	K	S01	
193	U 0 2 1	200	K	S01	
194	U 0 2 2	200	K	S01	
195	U 0 2 3	200	K	S01	
196	U 0 2 4	200	K	S01	
197	U 0 2 5	200	K	S01	
198	U 0 2 6	200	K	S01	
199	U 0 2 7	200	K	S01	
200	U 0 2 8	200	K	S01	
201	U 0 2 9	200	K	S01	
202	U 0 3 0	200	K	S01	
203	U 0 3 1	200	K	S01	
204	U 0 3 2	200	K	S01	
205	U 0 3 3	200	K	S01	
206	U 0 3 4	200	K	S01	
207	U 0 3 5	200	K	S01	
208	U 0 3 6	200	K	S01	
209	U 0 3 7	200	K	S01	
210	U 0 3 8	200	K	S01	
211	U 0 3 9	200	K	S01	
212	U 0 4 1	200	K	S01	
213	U 0 4 2	200	K	S01	
214	U 0 4 3	200	K	S01	
215	U 0 4 4	200	K	S01	
216	U 0 4 5	200	K	S01	
217	U 0 4 6	200	K	S01	
218	U 0 4 7	200	K	S01	
219	U 0 4 8	200	K	S01	
220	U 0 4 9	200	K	S01	
221	U 0 5 0	200	K	S01	
222	U 0 5 1	200	K	S01	
223	U 0 5 2	200	K	S01	
224	U 0 5 3	200	K	S01	
225	U 0 5 5	200	K	S01	
226	U 0 5 6	200	K	S01	
227	U 0 5 7	200	K	S01	
228	U 0 5 8	200	K	S01	
229	U 0 5 9	200	K	S01	
230	U 0 6 0	200	K	S01	

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I.D. Number *(enter from page 1)*

A	7	8	9	0	0	0	8	9	6	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)*				2. Process Description *(if a code is not entered in D(1))*
231	U	0	6	1	200		K		S01			
232	U	0	6	2	200		K		S01			
233	U	0	6	3	200		K		S01			
234	U	0	6	4	200		K		S01			
235	U	0	6	6	200		K		S01			
236	U	0	6	7	200		K		S01			
237	U	0	6	8	200		K		S01			
238	U	0	6	9	200		K		S01			
239	U	0	7	0	200		K		S01			
240	U	0	7	1	200		K		S01			
241	U	0	7	2	200		K		S01			
242	U	0	7	3	200		K		S01			
243	U	0	7	4	200		K		S01			
244	U	0	7	6	200		K		S01			
245	U	0	7	7	200		K		S01			
246	U	0	7	8	200		K		S01			
247	U	0	7	9	200		K		S01			
248	U	0	8	0	200		K		S01			
249	U	0	8	1	200		K		S01			
250	U	0	8	2	200		K		S01			
251	U	0	8	3	200		K		S01			
252	U	0	8	4	200		K		S01			
253	U	0	8	5	200		K		S01			
254	U	0	8	6	200		K		S01			
255	U	0	8	7	200		K		S01			
256	U	0	8	8	200		K		S01			
257	U	0	8	9	200		K		S01			
258	U	0	9	0	200		K		S01			
259	U	0	9	1	200		K		S01			
260	U	0	9	2	200		K		S01			
261	U	0	9	3	200		K		S01			
262	U	0	9	4	200		K		S01			
263	U	0	9	5	200		K		S01			
264	U	0	9	6	200		K		S01			
265	U	0	9	7	200		K		S01			
266	U	0	9	8	200		K		S01			
267	U	0	9	9	200		K		S01			
268	U	1	0	1	200		K		S01			
269	U	1	0	2	200		K		S01			
270	U	1	0	3	200		K		S01			
271	U	1	0	5	200		K		S01			
272	U	1	0	6	200		K		S01			
273	U	1	0	7	200		K		S01			
274	U	1	0	8	200		K		S01			
275	U	1	0	9	200		K		S01			
276	U	1	1	0	200		K		S01			

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I.D. Number *(enter from page 1)*										
W	A	7	8	9	0	0	0	8	9	6	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)*	2. Process Description *(if a code is not entered in D(1))*
277	U111	200	K	S01	
278	U112	200	K	S01	
279	U113	200	K	S01	
280	U114	200	K	S01	
281	U115	200	K	S01	
282	U116	200	K	S01	
283	U117	200	K	S01	
284	U118	200	K	S01	
285	U119	200	K	S01	
286	U120	200	K	S01	
287	U121	200	K	S01	
288	U122	200	K	S01	
289	U123	200	K	S01	
290	U124	200	K	S01	
291	U125	200	K	S01	
292	U126	200	K	S01	
293	U127	200	K	S01	
294	U128	200	K	S01	
295	U129	200	K	S01	
296	U130	200	K	S01	
297	U131	200	K	S01	
298	U132	200	K	S01	
299	U133	200	K	S01	
300	U134	200	K	S01	
301	U135	200	K	S01	
302	U136	200	K	S01	
303	U137	200	K	S01	
304	U138	200	K	S01	
305	U140	200	K	S01	
306	U141	200	K	S01	
307	U142	200	K	S01	
308	U143	200	K	S01	
309	U144	200	K	S01	
310	U145	200	K	S01	
311	U146	200	K	S01	
312	U147	200	K	S01	
313	U148	200	K	S01	
314	U149	200	K	S01	
315	U150	200	K	S01	
316	U151	200	K	S01	
317	U152	200	K	S01	
318	U153	200	K	S01	
319	U154	200	K	S01	
320	U155	200	K	S01	
321	U156	200	K	S01	
322	U157	200	K	S01	

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

I.D. Number *(enter from page 1)*

A	7	8	9	0	0	0	8	9	6	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)*	2. Process Description *(if a code is not entered in D(1))*
323	U158	200	K	S01	
324	U159	200	K	S01	
325	U160	200	K	S01	
326	U161	200	K	S01	
327	U162	200	K	S01	
328	U163	200	K	S01	
329	U164	200	K	S01	
330	U165	200	K	S01	
331	U166	200	K	S01	
332	U167	200	K	S01	
333	U168	200	K	S01	
334	U169	200	K	S01	
335	U170	200	K	S01	
336	U171	200	K	S01	
337	U172	200	K	S01	
338	U173	200	K	S01	
339	U174	200	K	S01	
340	U176	200	K	S01	
341	U177	200	K	S01	
342	U178	200	K	S01	
343	U179	200	K	S01	
344	U180	200	K	S01	
345	U181	200	K	S01	
346	U182	200	K	S01	
347	U183	200	K	S01	
348	U184	200	K	S01	
349	U185	200	K	S01	
350	U186	200	K	S01	
351	U187	200	K	S01	
352	U188	200	K	S01	
353	U189	200	K	S01	
354	U190	200	K	S01	
355	U191	200	K	S01	
356	U192	200	K	S01	
357	U193	200	K	S01	
358	U194	200	K	S01	
359	U196	200	K	S01	
360	U197	200	K	S01	
361	U200	200	K	S01	
362	U201	200	K	S01	
363	U202	200	K	S01	
364	U203	200	K	S01	
365	U204	200	K	S01	
366	U205	200	K	S01	
367	U206	200	K	S01	
368	U207	200	K	S01	

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

I.D. Number *(enter from page 1)*										
W	A	7	8	9	0	0	0	8	9	6	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)*	2. Process Description *(if a code is not entered in D(1))*
369	U 2 0 8	200	K	S01	
370	U 2 0 9	200	K	S01	
371	U 2 1 0	200	K	S01	
372	U 2 1 1	200	K	S01	
373	U 2 1 3	200	K	S01	
374	U 2 1 4	200	K	S01	
375	U 2 1 5	200	K	S01	
376	U 2 1 6	200	K	S01	
377	U 2 1 7	200	K	S01	
378	U 2 1 8	200	K	S01	
379	U 2 1 9	200	K	S01	
380	U 2 2 0	200	K	S01	
381	U 2 2 1	200	K	S01	
382	U 2 2 2	200	K	S01	
383	U 2 2 3	200	K	S01	
384	U 2 2 5	200	K	S01	
385	U 2 2 6	200	K	S01	
386	U 2 2 7	200	K	S01	
387	U 2 2 8	200	K	S01	
388	U 2 3 4	200	K	S01	
389	U 2 3 5	200	K	S01	
390	U 2 3 6	200	K	S01	
391	U 2 3 7	200	K	S01	
392	U 2 3 8	200	K	S01	
393	U 2 3 9	200	K	S01	
394	U 2 4 0	200	K	S01	
395	U 2 4 3	200	K	S01	
396	U 2 4 4	200	K	S01	
397	U 2 4 6	200	K	S01	
398	U 2 4 7	200	K	S01	
399	U 2 4 8	200	K	S01	
400	U 2 4 9	200	K	S01	
401	U 2 7 1	200	K	S01	
402	U 2 7 8	200	K	S01	
403	U 2 7 9	200	K	S01	
404	U 2 8 0	200	K	S01	
405	U 3 2 8	200	K	S01	
406	U 3 5 3	200	K	S01	
407	U 3 5 9	200	K	S01	
408	U 3 6 4	200	K	S01	
409	U 3 6 7	200	K	S01	
410	U 3 7 2	200	K	S01	
411	U 3 7 3	200	K	S01	
412	U 3 8 7	200	K	S01	
413	U 3 8 9	200	K	S01	
414	U 3 9 4	200	K	S01	

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

I.D. Number *(enter from page 1)*										
	A	7	8	9	0	0	0	8	9	6	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)*				2. Process Description *(if a code is not entered in D(1))*
415	U	3	9	5	200	K		S01				
416	U	4	0	4	200	K		S01				
417	U	4	0	9	200	K		S01				
418	U	4	1	0	200	K		S01				
419	U	4	1	1	200	K		S01				
420	W	0	0	1	5,000	K		S01				
421	W	P	0	1	5,000	K		S01				
422	W	P	0	2	1,000	K		S01				
423	W	P	0	3	500	K		S01				
424	W	T	0	1	30,000	K		S01				
425	W	T	0	2	20,000	K		S01				
426	W	S	C	2	5,000	K		S01				
427	K	0	1	3	200	K		S01				
428	K	0	4	4	200	K		S01				
429												
430												
431												
432												
433												
434												
435												
436												
437												
438												
439												
440												
441												
442												
443												
444												
445												
446												

IV. DESCRIPTION OF DANGEROUS WASTE (continued)

E. Use this space to list additional process codes from Section D(1) on page 3.

The waste stored at the 305-B Storage Facility consists of listed waste, waste from nonspecific sources, characteristic waste, and state-only waste.

V. FACILITY DRAWING Refer to attached drawing(s).

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 Refer to attached photograph(s).

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

VII. FACILITY GEOGRAPHIC LOCATION This information is provided on the attached drawings and photos.

LATITUDE *(degrees, minutes, & seconds)*			LONGITUDE *(degrees, minutes, & seconds)*		
46	22	18	119	16	42

VIII. FACILITY OWNER

☒ 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 XI 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 Number *(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
John D. Wagoner, Manager U.S. Department of Energy Richland Operations	Edward S. Goldberg for John D. Wagoner	Revision 1 signed 12/20/90

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.

Edward S. Goldberg for John D. Wagoner
Owner/Operator
John D. Wagoner, Manager
U.S. Department of Energy
Richland Operations Office

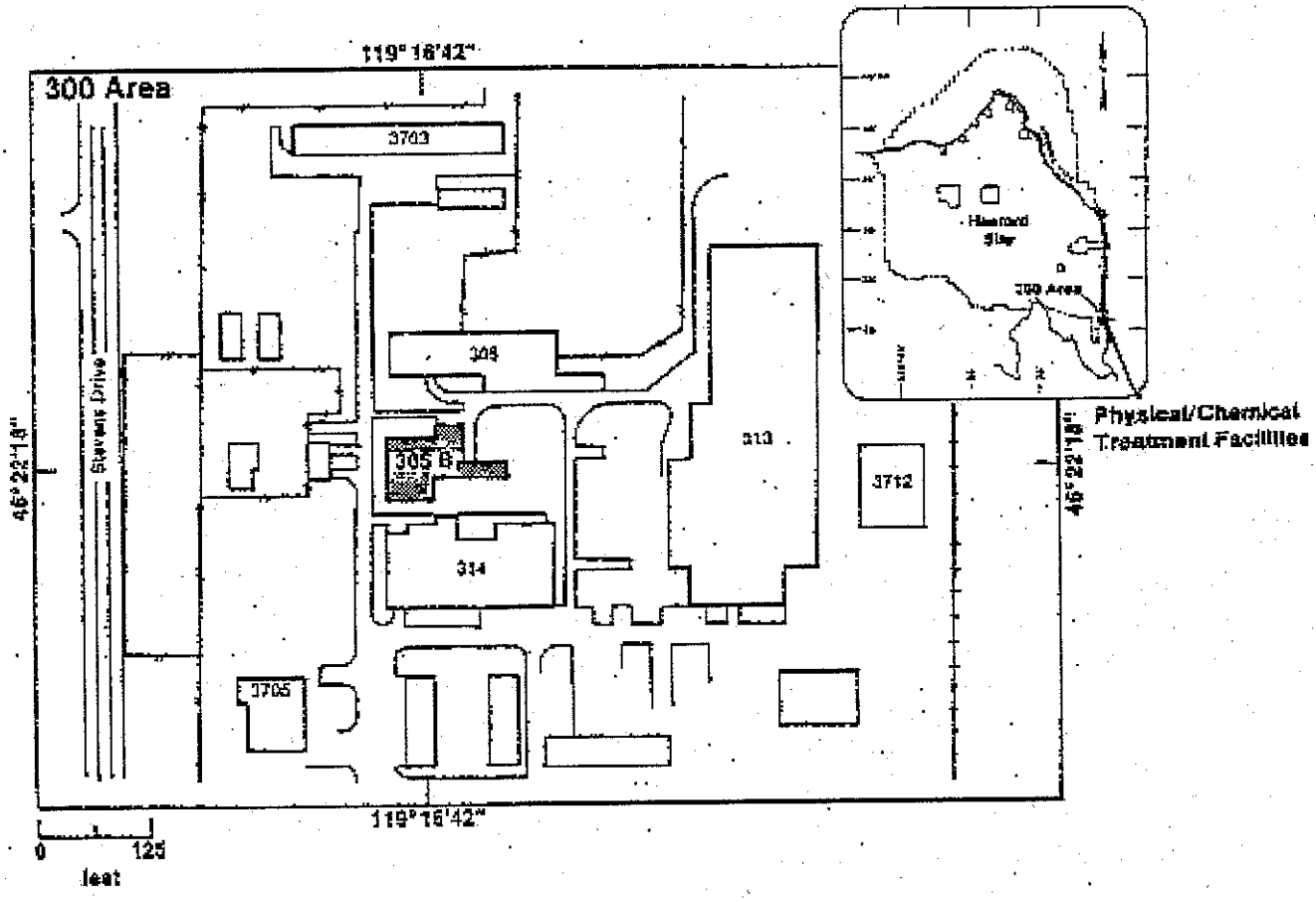
2/25/97
Date Revision 1 Signed

W. R. Wiley
Co-Operator
William R. Wiley, Director
Pacific Northwest Laboratory

2/7/97
Date Revision 1 Signed

OFFICIAL USE ONLY

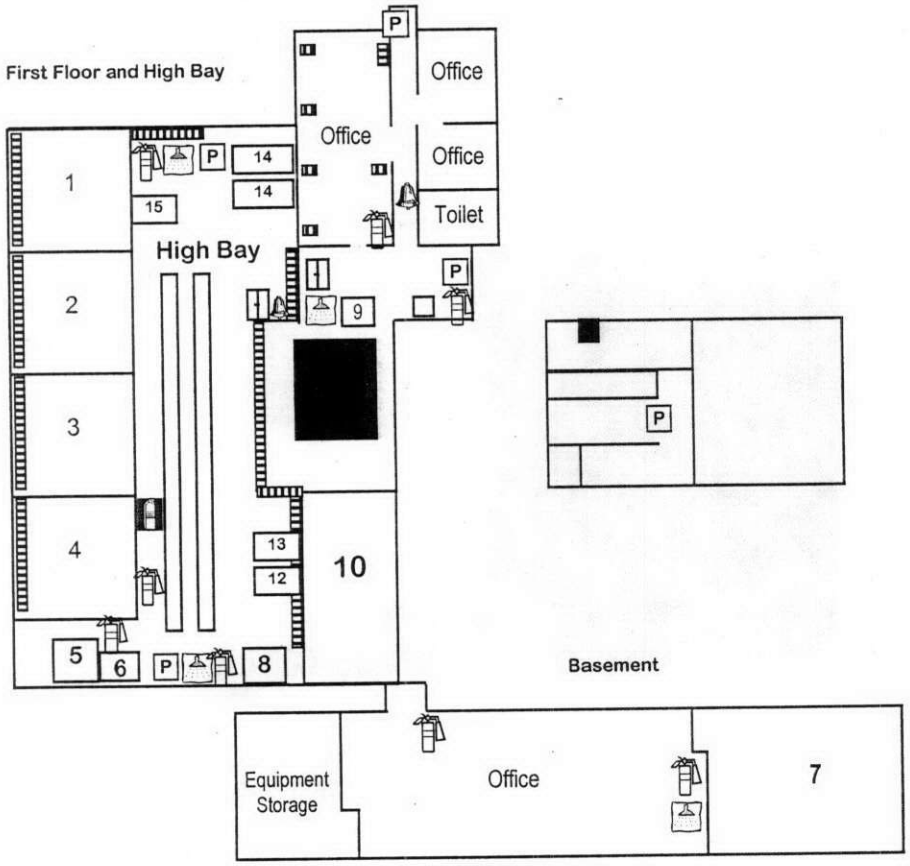
305-B Storage Facility Site Plan



OFFICIAL USE ONLY

OFFICIAL USE ONLY

305-B Storage Facility Floor Plan



Legend

1. Acids, Oxidizers
2. Poisons, Class 9
3. Alkaline, WSDW, Organic Peroxides
4. Organics and Compressed Aerosols
5. Flammable Liquid Bulking and compressed gases
6. Asbestos Cabinet
7. RMW Storage Cell
8. Flammable Storage
9. Small Quantity Flammable RMW
10. Outdoor Non-regulated Drum Storage
11. WSDW Non-flammable Drums
12. Universal and Recycling Storage
13. Acid Drums
14. Alkaline Drums
15. Explosive Magazine

- Safety Shower/Eyewash
- Phone
- Fire Alarm Bell
- P Fire Alarm Pull Box
- 10-Lb. ABC Fire Extinguisher
- 15 Lb. Or larger Class D Fire Extinguisher
- Removable Access to Basement
- Emergency Equipment Cabinet
- Collection Sump

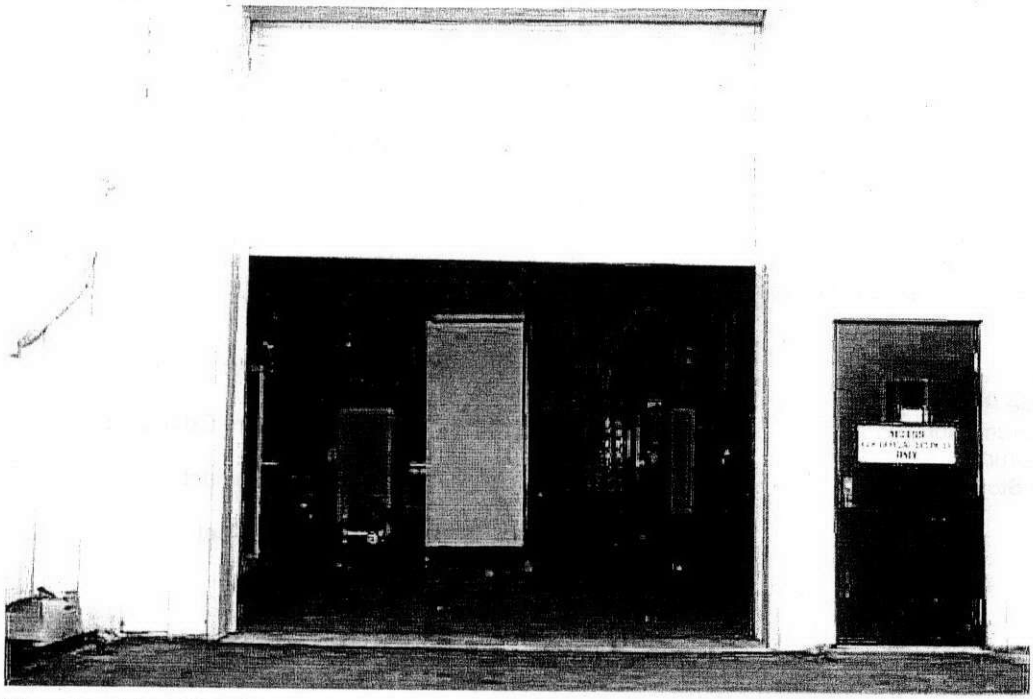
OFFICIAL USE ONLY

OFFICIAL USE ONLY

305-B Storage Facility

View Looking West
46°22'18"
119°16'42"

88A907-8CN
(PHOTO TAKEN 1988)



View Looking South
46°22'18"
119°16'42"

88A907-1CN
(PHOTO TAKEN 1988)

OFFICIAL USE ONLY

Contents

Figures

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2.0 FACILITY DESCRIPTION AND GENERAL PROVISIONS

This chapter briefly describes the Hanford Site and provides a general overview of the 305-B Storage Facility, including:

- Topography
- Location information
- Traffic information
- Performance standards
- Buffer monitoring zones
- Spills and discharges
- Manifest system.

2.1 The 305-B Storage Facility

The 305-B Storage Facility is a dangerous waste and mixed waste storage unit owned and operated by DOE and co-operated by PNNL. The unit is used for the collection, consolidation, packaging, storage, and preparation for transport and disposal of both dangerous waste and mixed waste. It is an integral part of the Hanford Site's waste management system.

The 305-B Storage Facility is a one-story frame and masonry building with basement constructed in the early 1950s, with an attached two-story-high metal and concrete building constructed in January 1978, referred to in this document as the "high bay." The unit is located within the 300 Area, as shown in Figure 2.1, and was formerly used for engineering research and development. Unit upgrades were completed in 1988 to meet requirements for storage of dangerous waste and mixed waste. Waste storage under interim status began in March 1989.

A variety of small volume chemical wastes are generated by PNNL's research laboratory activities under contract to DOE. These wastes are brought to the 305-B Storage Facility and segregated by compatibility for storage in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30- to 55-gallon drum. When a sufficient number of shipping containers of waste have accumulated, they are manifested for shipment, generally to permitted off-site recycling, treatment or disposal facilities.

Dangerous wastes are stored in the high bay. The high bay has been equipped with a secondary containment system to facilitate storage of containerized wastes. In addition, four storage "cells" have been constructed within the high bay area for segregated storage of incompatible waste streams. Each of the cells is approximately 14' x 14', enclosed by 4' high concrete block walls; each cell has its own separate secondary containment system. Drum-quantity storage for incompatible wastes has also been provided in separate areas of the high bay.

Mixed waste is stored in the basement of the original wing of the building in an area approximately 18' x 32'. The mixed waste area is also equipped with a secondary containment berm to prevent migration of spilled wastes. Flammable mixed waste cannot be stored below grade (per Uniform Fire Code) and is stored in an independent area on the first floor of the original wing in individual secondary containment structures.

The 305-B Storage Facility is equipped with a heating, ventilation and air conditioning (HVAC) system to provide relatively constant temperatures during storage of dangerous wastes. The first floor of the older building and the high bay are served by a dual-compressor heat pump system for both heating and air conditioning. The basement area is served by a separate electric heating and evaporative cooling

combined system. These systems are adequate to maintain interior temperatures in the range of 50-85°F during normal ambient temperatures of 10-110°F.

In addition, the unit utilizes a local exhaust system for "bulking" as described in Attachment 18, Chapter 4.0, Section 4.1.1.2. This system is located in the flammable liquid bulking module. Local exhaust of 3300 CFM is provided during bulking operations. Another, smaller ventilation system, referred to as the "elephant trunk ventilation system," is located in the high bay storage cell areas for occasional bulking of solids or nonflammable liquids not requiring use of the flammable liquid bulking module. This system has a ventilation capacity of 1550 CFM. A smaller, laboratory-style fume hood has also been installed on the south wall of the high bay for compatibility testing and small-volume waste work.

A simplified building layout is shown in Figure 2.2. Individual storage cells are described in Attachment 18, Chapter 4.0, Section 4.1.

2.2 TOPOGRAPHIC MAP [B-2]

Topographic maps of the Hanford Site and 300 Area are listed below.

Drawing No.	Sheet	Title
H-13-958	1 of 1	General Overview of Hanford Site
H-13-000300	1 of 1	300 Area Topographic Map
H-13-000301	1 of 1	300 Area Topographic Map
H-13-000302	1 of 1	300 Area Topographic Map
H-13-000303	1 of 1	300 Area Topographic Map
H-13-000304	1 of 1	300 Area Topographic Map
H-13-000305	1 of 1	300 Area Topographic Map
H-13-000306	1 of 1	300 Area Topographic Map
H-13-000307	1 of 1	300 Area Topographic Map
H-13-000308	1 of 1	300 Area Topographic Map

2.2.1 General Requirements [B-2a]

Attachment 33, Appendix 2A provides location maps of the Hanford Site property and the surrounding countryside. This figure is intended as a location map and illustrates the following:

- The facility boundary of the Hanford Site
- Surrounding land use including the Saddle Mountain National Wildlife Refuge and the State Game Reserve to the north, the City of Richland to the south, Rattlesnake Mountain Arid Lands Ecology (ALE) Reserve located to the west, and farmlands or Game Reserves to the east
- Contours sufficient to show surface water flow
- Fire control facilities located on the Hanford Site
- Locations of access roads, internal roads, railroads, and perimeter gates and barricades

Detailed representation of the Hanford 300 Area where the 305-B Storage Facility is located. These maps provide a detailed profile of the unit and a distance of 1,000 ft around it at a scale noted on the drawings. Contour intervals are shown at every foot, and provide sufficient detail of surface waters and flow, access control, buildings, structures, fire control facilities, etc., to meet the requirements of WAC 173-303-806(4)(a)(xviii) (Ecology 1989).

Attachment 33, Chapter 2.0, Figure 2.6, Prevailing Wind Direction for the Hanford Site (DOE/RL-91-28). Winds are predominately from the west.

2.3 PERFORMANCE STANDARD [B-5]

The 305-B Storage Facility was designed to minimize the exposure of personnel to dangerous wastes and hazardous substances and to prevent dangerous wastes and hazardous substances from reaching the environment.

In addition, measures are taken to ensure that 305-B Storage Facility is maintained and operated, to the maximum extent practicable given the limits of technology, in a manner that prevents:

- Degradation of groundwater quality
- Degradation of air quality by open burning or other activities
- Degradation of surface water quality
- Destruction or impairment of flora or fauna outside of the facility
- Excessive noise
- Negative aesthetic impacts
- Unstable hillsides or soils
- Use of processes that do not treat, detoxify, recycle, reclaim, and recover waste material to the extent economically feasible
- Endangerment to the health of employees or the public near the facility.

The measures taken to prevent each of the above negative effects from occurring are described in the following sections.

2.3.1 Measures to Prevent Degradation of Groundwater Quality

Degradation of groundwater quality is prevented by storing waste containers within an enclosed building with a sealed concrete floor. All drains and sumps in areas where wastes are stored are blocked to prevent release of spilled material to the environment. The 305-B Storage Facility accepts only those packages meeting applicable DOT requirements. Opening of containers is done only in areas with spill containment. Design and administrative controls significantly reduce the possibility of release of dangerous waste to the environment through soil or groundwater contamination.

2.3.2 Measures to Prevent Degradation of Air Quality by Open Burning or Other Activities

No open burning occurs at 305-B Storage Facility. There is no vegetation around 305-B Storage Facility and the area around the facility is paved or graveled, thereby reducing the risk of fire or wind erosion. Combustible and flammable waste is packaged in a manner that reduces the potential for fire.

2.3.3 Measures to Prevent Degradation of Surface Water Quality

The potential for degradation of surface water quality is extremely low, due to the manner in which the facility is designed and operated. All waste handling activities (i.e., loading/unloading, container opening, waste transfer) presenting the opportunity for spills are conducted inside the unit. All exits from storage areas of 305-B Storage Facility are equipped with spill collection sumps to prevent spilled material from escaping.

2.3.4 Measures to Prevent Destruction of Impairment of Flora or Fauna Outside of the Facility

305-B Storage Facility is located within the 300 Area. The 300 Area is highly developed and areas not occupied by buildings are generally paved or graveled. As a result, flora or fauna are generally absent within the 300 Area except for several grassed areas. Measures to prevent destruction or impairment of flora or fauna outside the 300 Area are the same as those to prevent releases from the unit (i.e., all waste handling is performed within an enclosed area having spill collection sumps).

2.3.5 Measures to Prevent Excessive Noise

During normal operations at 305-B Storage Facility excessive noise is not generated. The major sources of noise are waste transport and handling equipment (i.e., forklifts, light vehicles). The noise generated at 305-B Storage Facility is compatible with the types of activities generated at neighboring facilities in the 300 Area.

2.3.6 Measures to Prevent Negative Aesthetic Impacts

305-B Storage Facility does not injure or destroy the surrounding flora and fauna. The facility stores waste in approved DOT containers within the confines of the structure. The building's appearance is similar to neighboring facilities. For these reasons, the facility presents no negative aesthetic impacts.

2.3.7 Measures to Prevent Unstable Hillsides or Soils

There are no naturally unstable hillsides near 305-B Storage Facility. The soil beneath and around the facility was compacted prior to construction.

2.3.8 Measures to Prevent the Use of Processes That Do Not Treat, Detoxify, Recycle, Reclaim, and Recover Waste Material to the Extent Economically Feasible

The 305-B Storage Facility was established, in part, to enhance DOE's and PNNL's efforts to eliminate or minimize dangerous waste generation, and to treat, detoxify, recycle, reclaim and recover waste materials.

Offsite waste management options for dangerous wastes being shipped from the 305-B Storage Facility are evaluated according to the following order of preference:

1. Recycling, including solvent reprocessing, oil recycling, metals recovery, burning for energy recovery, etc.
2. Treatment, including incineration, volume and/or toxicity reduction, chemical destruction, etc.
3. Land disposal is viewed as least favored option and is generally only used for treatment residues, spill cleanup residues, or when treatment is not feasible.

When permitted by law and/or contractual obligations, 305-B Storage Facility staff tries to use this hierarchy without regard to minor variations in cost, e.g., if recycling is available but slightly more expensive than land disposal, recycling is utilized.

2.3.9 Measures to Prevent Endangerment to the Health of Employees or the Public Near the Facility

305-B Storage Facility is within the 300 Area, which is located approximately 1 mile north of the corporate limits of the City of Richland. Public entry to the 300 Area is not allowed; members of the public, therefore, cannot enter 305-B Storage Facility. Exposure of members of the public or employees to dangerous and mixed waste constituents is prevented through administrative controls over the

designation, packaging, loading, transporting, and storing of the wastes received at 305-B Storage Facility. In addition, physical controls exist (i.e., spill collection sumps) to prevent release of wastes or waste constituents in the event of a spill.

Employees are trained to handle and store waste packages (Attachment 18, Chapter 8.0). The training includes dangerous waste awareness, emergency response, and workplace safety. Protective equipment, safety data, and hazardous materials information are supplied by operations management and are readily available for employee use.

A contingency plan, including emergency response procedures, is in place and is implemented for spill prevention, containment, and countermeasures to reduce safety and health hazards to employees, the environment, and the public. The contingency plan is described in Attachment 18, Chapter 7.0.

2.4 BUFFER MONITORING ZONES [B-6]

Buffer and monitoring zones around 305-B Storage Facility are described in the following sections.

2.4.1 Ignitable or Reactive Waste Buffer Zone [B-6a]\

Ignitable and reactive wastes are stored in 305-B Storage Facility in compliance with the requirements of the 1988 Uniform Fire Code, Article 79, Division II (International Conference of Building Officials 1991). Quantity limits for storage are established to comply with requirements for Class B occupancy. Structures surrounding 305-B Storage Facility are laboratory and office buildings, which are occupied during normal working hours. The nearest adjacent facility is the 314 Building, which is approximately 30 ft south of 305-B Storage Facility. The closest 300 Area boundary is the western boundary, which is approximately 250 ft west of 305-B Storage Facility.

2.4.2 Reactive Waste Buffer Zone [B-6b]

Storage of certain reactive wastes listed in WAC 173-303-630(8)(a) is done at 305-B Storage Facility. These wastes have special storage requirements more stringent than those shown in Section 2.4.1. They are stored in accordance with this section and with the Uniform Building Code's Table 77.201, latest edition. The 1988 edition requires buffer zones in Class B occupancies of 44 inches for storage of such wastes, and the storage locations in 305-B Storage Facility reflecting appropriate buffer zones are noted in Attachment 18, Chapter 4.0, Figure 4.1. These wastes are only occasionally stored at the unit depending on generation by individual research projects.

The occupancy storage limitations imposed by UBC for class B occupancy are as follows:

- Explosives: 1 lb
- Organic Peroxide, unclassified, detonatable: 1 lb
- Pyrophoric: 4 lbs
- Unstable (reactive), Class 4: 1 lb

These limits are allowed to be doubled when stored in flammable storage cabinets, as is done at 305-B Storage Facility; hence, the practical storage limits at 305-B Storage Facility are double those shown here.

2.4.3 Travel Time [B-6c]

Operation of 305-B Storage Facility does not involve the placement of waste in dangerous waste surface impoundments, piles, landfarms, or landfills. Therefore, the requirement that the travel time from the

active portion of the unit to the nearest downstream well or surface water used for drinking purposes be at least three years for dangerous waste and 10 years for extremely hazardous waste does not apply.

2.4.4 Dangerous Waste Monitoring Zone [B-6d]

Operation of 305-B Storage Facility does not involve the placement of waste in dangerous waste surface impoundments, waste piles, land treatment, or landfill areas. Therefore, a dangerous waste monitoring zone is not required.

2.4.5 Extremely Hazardous Waste Monitoring Zone [B-6e]

Operation of the 305-B Storage Facility does not involve the placement of waste in dangerous waste surface impoundments, waste piles, land treatment, or landfill areas. Therefore, an extremely hazardous waste monitoring zone is not required.

2.5 MANIFEST SYSTEM [B-8]

The Hanford Site has one EPA/state identification number, as required by WAC 173-303-060, and all TSD units on the Hanford Site (such as 305-B Storage Facility) are considered to be part of one dangerous waste facility. Therefore, onsite shipments of dangerous or mixed waste are not subject to the manifesting requirements specified in WAC 173-303-370 and -180. 305-B Storage Facility has an onsite waste tracking system akin to a manifest system, which is voluntarily used for transporting waste on the Hanford Facility.

An example of a Uniform Hazardous Waste Manifest (Figure 2.3) is used for all off-site shipments of dangerous waste and mixed waste received at 305-B Storage Facility, as well as for all off-site shipments of dangerous waste and mixed waste from 305-B Storage Facility. In addition to the Uniform Hazardous Waste Manifest, wastes subject to land disposal restrictions which are shipped from 305-B Storage Facility to off-site treatment, storage, or disposal facilities are accompanied by the applicable notifications and certifications required under 40 CFR 268.

The following sections provide information on receiving shipments, response to manifest discrepancies, and provisions for nonacceptance of shipments.

2.5.1 Procedures for Receiving Shipments [B-8a]

The following are procedures used prior to transport of wastes to the 305-B Storage Facility. First, the generator must submit a chemical disposal/recycle request form to the Waste Management Section. This request form is then reviewed and either approved or rejected. Typical causes of rejection include missing or insufficient information in any of the data fields, or lack of specific information on waste composition. Upon approval, the Waste Management Section reviews the form to determine the dangerous waste designation, waste compatibility class for storage, and containerization and labeling requirements.

The waste is then inspected at the generating unit by the Waste Management Section to verify the information contained on the request form, such as number, sizes, and types of containers, location of waste, etc., and to check for proper containerization of waste. If discrepancies are noted during the inspection, the waste will not be picked up by the Waste Management Section. Typical discrepancies include waste not as described on request form or lack of supporting data to verify waste characteristics. In such cases, deficiencies will be explained to the generating unit responsible person, who will then be responsible for correcting them.

If the waste is found to be acceptable for transport, Waste Management staff will check to ensure required labels are in place, and transport (or arrange for transport of) the waste to 305-B Storage Facility. If transport will be over public roadways or highways, a Uniform Hazardous Waste Manifest will be prepared identifying PNNL as the transporter and 305-B Storage Facility as the receiving TSD unit. A copy of all such manifests is returned to the generating unit within 30 days of receipt at 305-B Storage Facility. A copy of the manifest is also retained at 305-B Storage Facility.

2.5.2 Response to Significant Discrepancies [B-8b]

Waste shipments received at the 305-B Storage Facility containing manifest discrepancies are not accepted unless the discrepancy or discrepancies can be resolved with the generating unit at the time the shipment is received. Manifest discrepancies requiring such resolution include:

- Variations exceeding 10% in weight for bulk shipments such as tank trucks or tank cars (generally not applicable to 305-B Storage Facility since most shipments are in drums or other containers);
- Any inaccuracy in piece counts in containerized shipments (underages or overages);
- Type mismatches (i.e., the waste is not as described on the request form; obvious inaccuracies such as waste acid substituted for waste solvent).

Manifest information will also be considered incorrect if the written description of wastes does not agree with visual observations, or if observed weights or volumes differ by more than 10 % from those described on the manifest.

If a discrepancy is noted, the generating unit will be contacted immediately. The waste will not be accepted for storage until the discrepancy is resolved. The generating unit will be asked to identify the source of the discrepancy (e.g., error in estimating volume or weight, incorrect identification of waste, etc.) Once the cause of the discrepancy is identified, and the generating unit and the waste management organization have concurred as to resolution of the discrepancy, the manifest will be corrected. Corrections will be made by drawing a single line through the incorrect entry and entering the correct information. Corrected entries will be initialed and dated by the individual making the correction. Once the manifest has been corrected, the discrepancy will be considered resolved.

Certain manifest discrepancies may be discovered after receipt, such as analytical data indicating incorrect designation, which may result in incorrect naming of the shipment on the manifest. Such discrepancies will be managed as noted above; if, however, the discrepancy cannot be resolved within 15 days of receipt of the shipment, the 305-B Storage Facility will file the report required by WAC 173-303-370(4)(b) as described in Attachment 18, Chapter 12.0, Section 12.4.1.1.1.

2.5.3 Provisions for Nonacceptance of Shipment [B-8c]

Provisions for nonacceptance of shipments are discussed in the following sections.

2.5.3.1 Nonacceptance of Undamaged Shipment [B-8c(1)]

As described in Section 2.8.1, all wastes are inspected by staff from the waste management organization prior to shipment and are also transported to 305-B Storage Facility by waste management organization staff. This procedure is designed to prevent receipt of nonacceptable wastes. Waste management organization staff will refuse to accept or transport wastes, which are nonacceptable at 305-B Storage Facility.

2.5.3.2 Activation of BEP/Contingency Plan for Damaged Shipment [B-8c(2)]

As described in Section 2.5.1, all wastes are inspected by staff from the waste management organization prior to shipment and are also primarily transported to 305-B Storage Facility by waste management organization staff. Damaged containers will not be accepted from the generator and will not be transported. The only opportunity for receipt of damaged containers, therefore, would be if containers were damaged during transportation. If a shipment of waste is damaged during transportation and arrives in a condition as to present a hazard to public health or to the environment, the facility BEP/contingency plan will be implemented as described in Attachment 18, Chapter 7.0.

2.5.4 Unmanifested Waste

Waste generated within the Hanford Site is not transported over public highways and is not subject to manifest requirements under WAC 173-303. Such waste may be received at the 305-B Storage Facility without a manifest. However, all wastes (including unmanifested waste) must be accompanied by a completed and approved disposal request form.

If transport is by public roadways or highways, a manifest must be used as noted in Section 2.5. Shipments requiring a manifest and not having one will either be rejected or, at the sole discretion of the unit operator, the unit will accept the waste and file an unmanifested waste report as described in WAC 173-303-390(1) and detailed in Attachment 18, Chapter 12.0.

1

Figure 2.3. Sample Uniform Hazardous Waste Manifest Form

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) *Form Approved. OMB No. 2050-0039.*

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of | Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name | 6. US EPA ID Number | C. State Transporter's ID | D. Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number | E. State Transporter's ID | F. Transporter's Phone

9. Designated Facility Name and Site Address | 10. US EPA ID Number | G. State Facility's ID | H. Facility's Phone

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.						
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name | Signature | Month Day Year

Style F15 Labelmaster, An American Labelmark Co., Chicago, IL 60646 (800) 621-5808

EPA Form 8700-22 (Rev 9-88) Previous editions are obsolete.

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ORIGINAL-RETURN TO GENERATOR

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3.0 WASTE ANALYSIS [C]

The purpose of this Waste Analysis Plan (WAP) is to document the waste acceptance process, sampling methodologies, analytical techniques, and processes that are undertaken for sampling and analysis of dangerous and or mixed waste managed in the 305-B Storage Facility.

This chapter also provides information on the chemical, biological, and physical characteristics of the waste stored at the 305-B Storage Facility.

3.1 CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS

The dangerous waste and mixed waste stored at 305-B Storage Facility can be categorized as originating from five basic sources:

- Listed Waste from specific and nonspecific sources
- Discarded commercial chemical products
- Mixed Waste from Research Activities
- Waste from chemicals synthesized or created in research laboratories
- Discarded commercial products exhibiting dangerous waste characteristics and/or criteria.

Each of these waste categories is discussed below, including waste descriptions, hazard characteristics, and bases for hazard designations. This information includes that which must be known to treat, store, or dispose of the waste, as required under WAC 173-303-806(4)(a)(ii).

Listed Waste from Specific and Nonspecific Sources. Wastes from specific and nonspecific sources consist of those listed wastes identified in WAC 173-303-9904. Attachment 18, Chapter 1.0, Part A, Form 3, identifies the waste from this category with their estimated annual management quantities.

Halogenated and nonhalogenated solvents are in the form of spent solvents. Degreasing solvents (F001), as well as spent halogenated solvents (F002), are used primarily in research although some commercial applications do exist (e.g., printing, duplicating). Spent non-halogenated solvents (F003, F004, and F005) also come primarily from research laboratories, although some is generated through maintenance applications. Manufacturing activities are not performed at Hanford; therefore, dangerous waste from specific sources (WAC 173-303-9904 "K" Waste) typically is not generated at PNNL. However, small quantities of K-listed waste have been generated from treatability studies and sample characterization activities at PNNL from time to time and could be stored at 305-B Storage Facility. W001 state source waste (PCB electrical equipment waste) has been generated in limited amounts in the past and could be stored at 305-B Storage Facility if other generation activities occur.

F-listed waste is designated on the basis of process knowledge (i.e., information from container labels or material safety data sheets), or by sampling. Sampling is performed if the generating unit does not have sufficient information to document the composition and characteristics of the waste. The waste generator is responsible for specifying the characteristics of the waste on the basis of knowledge of the chemical products used (i.e., information supplied by the manufacturer) and the process generating the waste. These listed wastes are all designated as dangerous waste (DW) or extremely hazardous waste (EHW) based on the criteria given in WAC 173-303-100.

Discarded Chemical Products. Discarded chemical products consist of those products described in WAC 173-303-081. The Part A, Form 3, for 305-B Storage Facility identifies all of the discarded chemical products listed in WAC 173-303-9903 and specifies an estimated maximum annual management quantity, based on prior experience. Attachment 18, Chapter 1.0, Part A, Form 3, lists all of these waste

codes, however, because the wide variety of research activities conducted at Hanford presents the potential to generate any of these wastes.

These wastes (P waste and U waste) are typically received at 305-B Storage Facility in the manufacturer's original container. These containers typically consist of glass and polyethylene jars or bottles and metal cans that have a volume equal to or less than 4 liters.

Wastes in this category are designated on the basis of the generator's knowledge. As these waste are usually in original containers, information on the container label is verified by generator knowledge (i.e., knowledge that material is in its original container) and is used to identify contents. Waste in 'as procured' containers (i.e., original container with intact label) are not sampled. These listed wastes contain those designated as DW as well as those designated as EHW. These wastes are also subject to LDR regulations under 40 CFR 268, including disposal prohibitions and treatment standards.

Mixed Waste from Research Activities. Dangerous or mixed wastes can be generated by research and analytical activities. These wastes are generated in laboratories performing chemical and physical research. These wastes are designated on the basis of the generator's knowledge or on the basis of sampling and analysis. The generator's knowledge is used if the generator has kept accurate records of the identities and concentrations of constituents present in the waste. For example, many generating units keep log sheets for accumulation containers in satellite areas to keep a record of waste constituents. If information available from the generator is inadequate for waste designation, the wastes are sampled and the results of the analysis are used for designation. These wastes include those designated as state only dangerous waste under WAC 173-303-100 and also those designated as characteristic dangerous waste under WAC 173-303-090. Attachment 18, Chapter 1.0, Part A, Form 3, includes all categories of toxic, and persistent, waste (i.e., both DW and EHW). The wide variety of research activities conducted at Hanford presents the potential that these wastes could be generated and requires subsequent management at 305-B Storage Facility. Similarly, Attachment 18, Chapter 1.0, Part A, Form 3, includes the characteristic dangerous waste categories D001 through D043 (i.e., ignitable, corrosive, reactive, and TCLP toxic due to metals or organics content).

Flammables (i.e., flash point less than 140° Fahrenheit) will not be stored in the below-grade mixed waste cell; however, ignitables (D001 due to oxidizer content) will be stored in this cell. Flammable mixed waste is not stored below grade due to Fire Code restrictions. These wastes are stored above the mixed waste cell in a flammable storage module. The flammable mixed waste module is equipped with secondary containment to provide greater than 100% secondary containment volume.

The waste in this category includes those designated as either DW or EHW. The waste could also be federal LDR waste regulated under 40 CFR 268 as well as state LDR waste regulated under WAC 173-303-140 (e.g., organic/carbonaceous waste).

Waste from Chemicals Synthesized or Created in Research Laboratories. Waste from chemicals synthesized or created in research laboratories typically consist of organics in quantities of 100 g or less, received in small containers.

These wastes are designated on the basis of the generator's knowledge or on the basis of sampling and analysis. The generator's knowledge is used if the generating unit has kept accurate records of the identities and concentrations of constituents present in the waste (e.g., log sheets for accumulation containers). If information available from the generating unit is inadequate for waste designation, the waste is sampled and the results of the analysis are used for designation. These wastes include those designated as state only dangerous waste under WAC 173-303-100 and also those designated as characteristic dangerous waste under WAC 173-303-090. The Part A, Form 3, for 305-B Storage Facility includes all categories of toxic, and persistent waste (i.e., both DW and EHW). The wide variety of

research activities conducted at Hanford presents the potential that these wastes could be generated and requires subsequent management at 305-B Storage Facility.

The waste in this category includes those designated as either DW or EHW. These wastes could also be federal LDR wastes regulated under 40 CFR 268 as well as state LDR wastes regulated under WAC 173-303-140 (e.g., organic/carbonaceous wastes).

Discarded Chemical Products Exhibiting Dangerous Waste Characteristics and/or Criteria. Many discarded chemical products handled in 305-B Storage Facility are not listed in WAC 173-303-9903 and are still considered dangerous waste since they exhibit at least one dangerous waste characteristic and/or criterion (WAC 173-303-090 and WAC 173-303-100). These wastes are included with those listed in the Attachment 18, Chapter 1.0, Part A, Form 3, under waste codes D001 through D043, WT01, WT02, WP01, WP02, and WP03.

Waste in this category is designated based on the generator's knowledge. As these wastes are usually in their original containers, information on the container label is verified by the generator's knowledge and is used to identify the contents. These wastes contain those designated as DW as well as those designated as EHW. These wastes could also be federal LDR waste regulated under 40 CFR 268 as well as state LDR waste regulated under WAC 173-303-140 (e.g., organic/carbonaceous waste).

3.1.1 Containerized Waste

The container storage areas at 305-B Storage Facility meet the containment system requirements of WAC 173-303-630(7)(c). Testing or documentation that the dangerous waste stored at 305-B Storage Facility does not contain free liquids is not required.

3.1.2 Waste in Tank Systems

This section does not apply to the 305-B Storage Facility because wastes are not stored in tanks.

3.1.3 Waste in Piles

This section does not apply to the 305-B Storage Facility because wastes are not stored in piles.

3.1.4 Landfill Waste

This section does not apply to the 305-B Storage Facility because wastes are not placed in landfills.

3.1.5 Waste Incinerated and Waste Used in Performance Tests

This section does not apply to the 305-B Storage Unit because wastes are not incinerated.

3.1.6 Waste to be Land Treated

This section does not apply to the 305-B Storage Facility because waste does not undergo land treatment.

3.2 WASTE ANALYSIS PLAN

This section describes the processes used to obtain the information necessary to manage waste in accordance with the requirements of WAC 173-303.

3.2.1 Facility Description

The 305-B Storage Facility is a dangerous waste and mixed waste storage unit owned and operated by the Department of Energy and co-operated by Pacific Northwest National Laboratory. The unit is used for the collection, consolidation, packaging, storage, and preparation for transport and disposal of both dangerous waste and mixed waste. It is an integral part of the Hanford Site's waste management system.

The 305-B Storage Facility is a one-story frame and masonry building with basement constructed in the early 1950s, with an attached two-story-high metal and concrete building constructed in January 1978, referred to in this document as the "high bay". The unit is located within the 300 Area, and was formerly used for engineering research and development. Unit upgrades were completed in 1988 to meet requirements for storage of dangerous waste and mixed waste. Waste storage under interim status began in March 1989.

3.2.2 Description of Facility Processes and Activities

A variety of small volume chemical wastes are generated by PNNL's research laboratory activities. These wastes are brought to the 305-B Storage Facility and segregated by compatibility for storage in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30 - 55-gallon drum. When a sufficient number of shipping containers of waste have accumulated, they are manifested for shipment, generally to permitted off-site recycling, treatment or disposal facilities.

Dangerous wastes are stored in the high bay. The high bay has been equipped with a secondary containment system to facilitate storage of containerized waste. In addition, four storage "cells" have been constructed within the high bay area for segregated storage of incompatible waste streams. Each of the cells is approximately 14' x 14', enclosed by 4' high concrete block walls; each cell has its own separate secondary containment system. Drum-quantity storage for incompatible waste is allowed in these cells and in separated areas of the high bay.

Mixed waste is stored in the basement of the original wing of the building in an area approximately 18' x 32'. Flammable mixed waste cannot be stored below grade (per Uniform Fire Code) and is stored in an independent area on the first floor of the original wing in the mixed waste flammable storage module.

Most of the information necessary to manage waste at 305-B Storage Facility is obtained from generating units without the need to perform detailed chemical, physical, and biological analysis. This approach is used for the following reasons:

- Wastes stored at 305-B Storage Facility are generated on the Hanford Site and/or by PNNL research programs; effective administrative control can be maintained over individual waste generating units (i.e., the same organization generates the waste and operates the storage unit)
- Wastes stored at 305-B Storage Facility may be discarded chemical products for which knowledge of waste characteristics is available without further analysis
- Most of the waste stored at 305-B Storage Facility is a result from research activities that are carefully controlled and documented; this documentation includes information on chemical constituents.

Information provided by waste generating units is verified before wastes are accepted for transport to 305-B Storage Facility (e.g., wastes are inspected to verify that they are as described in the disposal request). Generating units are not required to sample wastes unless they have inadequate process knowledge to designate waste, additional LDR information is needed, or visual verification failure occurs. Verification sampling of waste to be shipped offsite from 305-B Storage Facility is required by the disposal contractor as needed and the contractor performs these analyses.

Because of the importance of administrative controls for the purposes of waste analysis, processes for management of wastes from the time of generation through storage at 305-B Storage Facility are described below. These processes demonstrate how sufficient knowledge is obtained from generating units to properly manage dangerous and mixed waste at 305-B Storage Facility. In the event that such knowledge is not available, sampling and analysis is required by 305-B Storage Facility prior to shipment to the storage unit.

The 305-B Storage Facility personnel shall collect from the generating unit(s) the information pursuant to 40 CFR 268.7(a) regarding LDR wastes, the appropriate treatment standards, whether the waste meets the treatment standards, and the certification that the waste meets the treatment standards, if necessary, as well as any waste analysis data that supports the generator's determinations. If this information is not supplied by the generating unit, then the 305-B Storage Facility personnel shall be responsible for completion and transmittal of all subsequent information regarding LDR wastes, pursuant to 40 CFR 268.7(b). All waste streams must be re-characterized at least annually, or when generating unit and/or 305-B Storage Facility personnel have reason to believe the waste stream has changed, to determine compliance with LDR requirements in 40 CFR 268.

Volumetric Description of Waste. A wide range of waste volumes is collected from research and support activities. The largest unit container collected is a DOT container <0.46 m^3, while the smallest is a trace amount in a small vial.

Large volume containers (greater than 4 L) (commonly contain chemicals such as those listed in WAC 173-303-9903 and -9904 and in 40 CFR 261.33), or commercial products which exhibit one or more of the dangerous waste characteristics or criteria. Greater than 99 percent of the containers generally contain chemicals for which information is easily accessible to determine dangerous designation. This information is generally obtained from the container label, for those waste in original containers, or from the material safety data sheet (MSDS) for the product.

Notification for Storing of Waste: The waste analysis process begins when the waste management organization is notified of the presence of a chemical or mixed waste. This notification is accomplished by the generating unit completing and transmitting an electronic Disposal Request. The form describes the volume and chemical composition of waste in each waste container for disposal. Hazard and compatibility information are obtained for each item on the disposal request form to ensure the safety of the waste management organization staff that collect and transport the waste and to ensure safe and appropriate storage in 305-B Storage Facility.

The compatibility and hazard class are determined using reference material that may include, Condensed Chemical Dictionary, Merck Index, 49 CFR, NIOSH, Sigma-Aldrich or any other reference material that is applicable. The priority of hazard designation for those substances with multiple hazards or for mixtures is the same used by the DOT in 49 CFR 173.2.a.

Disposal Requests and other information used for determining waste designations and compatibility must meet four distinct needs of the dangerous waste manager and sample collector. They must enable each to:

- Identify those wastes which are designated dangerous in accordance with WAC 173-303 and whether those wastes are DW or EHW
- Determine whether the waste is restricted from land disposal under 40 CFR 268 or WAC 173-303-140 and, as whether it, complies with applicable treatment standards under 40 CFR 268 or WAC 173-303-140
- Identify and verify specific morphological characteristics of waste in solid or solution form
- Outline how to safely handle, transport, analyze, store, and dispose of the waste product or sample.

Physical Analysis. Visual validation as a physical analysis activity strongly relied upon to confirm the nature of a waste collected or sampled, and to determine the accuracy of the disposal request information received from the generating unit. It is impractical for the waste management organization to chemically analyze each container or vial of waste accepted for storage in 305-B Storage Facility since the amount can exceed 10,000 per year. A more realistic approach to reducing risks to safety and the environment, and one implemented at 305-B Storage Facility, includes trained and experienced personnel performing a visual inspection of the waste and direct inquiry of the generating unit's personnel. The waste is inspected to verify that it matches the description on the disposal request. If the waste is a discarded product, the contents of the container are inspected to verify that they match the description of the product. For other waste, e.g., spent solvents, waste descriptions are compared with the products in use at the generating unit. Generating unit personnel are queried concerning the source of the waste and the materials used in the process generating the waste. This information is compared to the description of the waste on the disposal request. If, after visual inspection of the waste and interrogation of the generating unit personnel, any doubt remains as to the true identity of the waste, the waste is sampled and analyzed by the generating unit as described in Section 3.5.

Waste Collection at the Generating Unit. When satisfactory information has been obtained from the Disposal Request Form, waste management organization staff visits the generating unit site and make a final inspection of the waste containers to determine whether the disposal request form and contents label information match completely. If the information on the disposal request matches with the container labeling and visual inspection, the waste is approved for storage. If discrepancies are found, the generating unit is required to resubmit the disposal request with accurate information. Unknown or unidentified materials are sampled by generating unit staff for identification of constituents and remain at the generating unit until the composition has been determined.

Labeling and Marking. After inspection of the waste at the generating unit, the approved waste is assigned a unique computer identification number, cell location and hazard classification. Waste meeting Washington dangerous waste criteria under WAC 173-303-090 or 173-303-100 are marked "Toxic" (for waste designated WT01 or WT02), and/or "Persistent" (for waste designated WP01, WP02, or WP03), in accordance with WAC 173-303-630(3). In addition, each waste container is labeled with a list of constituents and major risk(s). This computerized information helps the waste handlers ensure safe handling, storage, retrieval and transportation of dangerous waste.

Transportation. The labeled containers are transported to 305-B Storage Facility by PNNL staff trained in applicable DOT requirements and emergency response. Waste is transported using a truck or light utility vehicle. For transport on roads accessible to the public, the vehicles are placarded in compliance with DOT regulations and documented in compliance with WAC 173-303-180, Hanford Facility Permit Conditions II.P. and/or II.Q as applicable.

Waste Handling, Storage, and Tracking at 305-B Storage Facility. Waste received at 305-B Storage Facility is put into 14 separate hazard classifications based on building and fire code restrictions for that type of facility:

1. Non-flammable mixed waste
2. Oxidizers
3. Acids, (organic and inorganic)
4. Poison
5. Caustics
6. Flammable Solids
7. Non-Regulated
8. Miscellaneous
9. Washington State only waste (e.g., sodium chloride, sodium bicarbonate)
10. Flammable and combustible liquids

11. Flammable and combustible mixed waste
12. Compressed gases and aerosols
13. Special Case waste (organic peroxides, explosives, etc.)
14. Recycle

Each hazard class has designated and clearly identified locations within 305-B Storage Facility. Containers of dangerous wastes (10 gal or less) are stored in a specific storage cabinet or shelf designed for that hazard class. The cabinets are located inside the appropriate storage cell (i.e., acid storage cabinet in acid cell). DOT-approved containers (typically 10 gal and larger but less than 0.46m3) are segregated by hazard class and can be stored in an appropriate storage cell or on the main high bay floor in 305-B Storage Facility.

Only sealed containers of nonflammable mixed waste are received in the below-grade mixed waste storage area located in the basement of 305-B Storage Facility. Containers of flammable mixed waste are stored above grade in a flammable storage module adjacent to the high bay area. All chemical storage is in accordance with fire protection requirements of the 1988 Uniform Fire Code (International Conference of Building Officials 1988).

Storage limits for all chemicals are listed in Table 4-1, (Uniform Building Code Table numbers 9-A and 9-B). This table is incorporated into this section by reference.

Recordkeeping and Inventory Control. A computer tracking system has been developed to ensure that complete records of current inventory, packaging, and shipping data are maintained. Records of the initial waste disposal request, waste analysis results if required, waste designation, and shipping manifests are maintained. As wastes are received for disposal, the containers are labeled with the information described in the Labeling and Marking section above, including a unique computer identification number.

The endpoint of the process for most waste is proper packaging and transport of the waste to an approved recycler or treatment/disposal facility. Some commercial chemical products, however, are redistributed to other Hanford Site contractors. Final computer verification of the history and ultimate disposal of each waste container is entered when the material is shipped from the 305-B Storage Facility.

Current waste quantities in inventory are periodically verified and reported to the Unit Operations Supervisor. The inventory is checked by hazard class and provides a measure of current inventory versus established limits.

If it is determined that 305-B Storage Facility inventory is within 5 percent of the limit for a given hazard classification, additional waste of that hazard class is not accepted into 305-B Storage Facility until the inventory has been reduced. Exceptions must be approved by the unit operating supervisor.

Unknown Waste and Waste Constituent Verification. Containers with unknown waste compositions are not accepted at 305-B Storage Facility. In the event that 305-B Storage Facility staff is required to respond to a critical need of a generating unit in the future and pick up an unknown waste, it will be sampled and analyzed as described in Sections 3.4.

If, for any reason, 305-B Storage Facility personnel believe that more stringent analysis of non-reagent grade chemical waste is needed (i.e., flash cans and mixtures), they will request that the generating unit have the waste analyzed by an approved analytical laboratory. Reasons for this request may be questionable appearance of the waste, periodic confirmation of waste composition, or historically unreliable information from a particular generating unit. There is no established frequency for this sampling and analysis; it is conducted on an as-needed basis. This analysis must be performed in

accordance with EPA SW-846 procedures (EPA 1986). Analytical laboratories in the area with these capabilities include commercial, Hanford Site and Battelle operated laboratories. The generating unit must also provide the laboratory analysis confirming the waste composition when the waste management organization picks up the waste. This analysis will become part of the 305-B Storage Facility Operating Record.

3.2.3 Identification/EPA Classification and Quantities of Hazardous Wastes Managed Within the 305-B Storage Facility

Refer to Section 3.1 for a description of the types and quantities of wastes managed at 305-B Storage Facility.

3.2.4 Description of Hazardous Waste Management Units

The 305-B Storage Facility Waste Management Units are described in Attachment 18, Chapter 4.0.

3.3 SELECTING WASTE ANALYSIS PARAMETERS

State and federal regulations [WAC 173-303-300(2) and (5)(a); WAC 173-303-140; 40 CFR 268.7(a)] require that information be obtained, documented, and/or reported on wastes received by a TSD unit. These requirements include ensuring that only waste which meets 305-B Storage Facility unit-specific permit requirements are accepted, and reporting the information required by WAC 173-303-380. In addition to providing a general description of the waste, the focus of the information collected for regulatory purposes is to ensure that the 305-B Storage Facility is permitted to accept and store the waste.

The 305-B Storage Facility only accepts wastes that have been characterized properly. Before receipt or acceptance of waste at the 305-B Storage Facility, generators must supply adequate information to characterize and manage wastes properly.

One of the most important aspects of operating the 305-B Storage Facility in a safe manner is to ensure that incompatible wastes are not mixed together. For the purposes of this document, waste is considered compatible if, when mixed, waste does not: (1) generate extreme heat or pressure, fire, or explosion, or violent reaction; (2) produce uncontrolled toxic mists, dusts, or gases in sufficient quantities to threaten human health; (3) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) damage the structural integrity of the device or facility containing the waste; or (5) through other like means threaten human health or the environment.

Sampling and laboratory analysis could be required to verify or establish waste characteristics for waste that is stored at the 305-B Storage Facility. The following are instances where sampling and laboratory analysis is required:

- inadequate information on PNNL-generated waste
- 5 percent waste verification for PNNL-generated waste
- 10 percent waste verification for non-PNNL-generated waste
- identification and characterization for unknown waste and spills within the unit.

3.3.1 Parameter Selection Process

The selection of analytical parameters is based on the State of Washington's "Dangerous Waste Regulations," WAC 173-303-300 and *EPA Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Wastes, A Guidance Manual* (EPA 1994).

At least five percent of the waste containers received at 305-B during a federal fiscal year (October 1 through September 30) will undergo confirmation of designation pursuant to Sections 3.2.2 and 3.2.3. The number of containers needed to meet the five percent requirement is five percent of the average of containers for the previous three months. For example if 200 containers are received in January, 180 in February, and 220 in March, then 10 containers of received waste must undergo confirmation of designation in April. All non-PNNL generating units which ship more than 20 containers through 305-B Storage Facility in a fiscal year will have at least one 1 container sampled and analyzed. Containers, for which there is insufficient process knowledge, or analytical information to designate without sampling and analysis, may not be counted as part of the five percent requirement unless there is additional confirmation of designation independent of the generator designation. The generating unit's staff shall not select the waste containers to be sampled and analyzed other than identifying containers for which insufficient information is available to designate.

Containers of the following are exempt from the confirmation calculation above: Laboratory reagents or other unused products such as paint, lubricants, solvent, or cleaning products, whether received for redistribution, recycling, or as waste. To qualify for this exemption, such materials must be received at 305-B Storage Facility in their original containers.

Prior to acceptance of wastes at 305-B Storage Facility, confirmation of designation may be required (Section 3.7.3). Wastes that shall undergo confirmation of designation are identified in Condition III.2.B.f. of this Permit and may be divided into two groups; those that easily yield a representative sample (Category I), and those that do not (Category II). The steps for each type are outlined below along with a description of which wastes fall into each category:

Category I. If a waste which easily yields a representative sample is received, a representative sample will be taken from the waste containers selected. If more than one phase is present, each phase must be tested individually. The following field tests will be performed as appropriate for the waste stream:

- Reactivity - oxidizer, cyanide, and sulfide tests. These tests will not be performed on materials known to be organic peroxides, ethers, and/or water reactive compounds.
- Flashpoint/explosivity - explosive atmosphere meter[1], or a closed cup flashpoint measurement instrument[1].
- pH - by pH meter[1] or pH paper (SW-846-9041)[2]. This test will not be performed on non- aqueous materials.
- Halogenated organic compounds.
- Volatile organic compounds - by photo or flame ionization tester[1], by gas chromatography with or without mass spectrometry, or by melting point and/or boiling point determination.

If the sample data observed meets the parameters specified in its documentation, confirmation of designation is complete and the waste may be accepted. If not, the waste is rejected and returned to the generating unit for additional characterization. The waste will be required to be resubmitted with a revised Disposal Request following the additional characterization activity.

[1] These instruments are field calibrated or checked for accuracy daily when in use.

[2] The pH paper must have a distinct color change every 0.5 pH units and each batch of paper must be calibrated against certified pH buffers, or by comparison with a pH meter calibrated with certified pH buffers.

When mathematically possible, the Permittees shall perform confirmation on an equal number of Category I and Category II containers.

Category II. If a representative sample is not easily obtained (for example, discarded machinery or shop rags), or if the waste is a labpack or discarded laboratory reagent container, the following steps will be performed:

a. Visually verify the waste. Examine each selected container to ensure that it matches the data provided on the Disposal Request form(s) provided to document the waste. Labpacks and combination packages that are accepted from non-PNNL generators must be removed from the outer container. If the waste matches the description specified in its documentation, confirmation of designation is complete and the waste may be accepted. If not, the waste is rejected and returned to the generating unit, and the generating unit revises and resubmits the documentation to reflect the actual contents. If necessary, the waste shall be re-designated utilizing the designation methods identified in WAC 173-303-070 through 173-303-100."

3.3.2 Criteria and Rational for Parameter Selection

Waste-testing methods, parameters and the rationale for these parameters are summarized in Table 3-1. Waste testing methods and references to these methods are as specified in WAC 173-303-110(3) or approved by Ecology in accordance with WAC 173-303-110(5). These methods are summarized in Table 3-1. All methods are specified in *Chemical Testing Methods*, WDOE 83-13 (Ecology 1983) and/or *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA SW-846 (EPA 1986).

Testing parameters for each type of waste were selected to obtain data sufficient to designate the waste properly under WAC 173-303-070, meet requirements for Land Disposal Restrictions, and to manage the waste properly. If information on the source of the waste is available, then all parameters might not be required, e.g., exclusion of testing for pesticides from a metal-machining operation.

Some of the parameters that are considered for waste received at the 305-B Storage Facility are as follows.

- Physical description – used to determine the general characteristics of the waste. This facilitates subjective comparison of the sampled waste with previous waste descriptions or samples. Also, a physical description is used to verify the observational presence or absence of free liquids.
- pH – used to identify the pH and corrosive nature of an aqueous or solid waste, to aid in establishing compatibility strategies, and to indicate if the waste is acceptable for treatment and/or storage in the 325 HWTUs.
- Cyanide – used to indicate whether the waste produces hydrogen cyanide upon acidification below pH 2.
- Sulfide screen – used to indicate if the waste produces hydrogen sulfide upon acidification below pH 2.
- Halogenated hydrocarbon content screen – used to indicate whether chlorinated hydrocarbons or polychlorinated biphenyls (PCBs) are present in waste and to determine if the waste needs to be managed in accordance with the regulations prescribed in the *Toxic Substance Control Act of 1976.*
- Ignitability – used to identify waste that must be managed and protected from sources of ignition or open flame.
- Testing kits – used to determine waste characteristics and verify generator knowledge. The testing procedures for each test are included in the appropriate test kit.

3.3.3 Special Parameter Selection Requirements

The 305-B Storage Facility does not have any process vents that manage hazardous waste with organic concentrations of at least 10 part per million by weight percent, or pumps, or compressors used more than 300 hours per year that come into contact with hazardous waste with an organic concentration of at least 10 percent by weight.

A variety of small volume chemical wastes are generated by PNNL's research laboratory activities. These containers typically range in sizes from 10 ml to 20 gallon. These wastes are brought to the 305-B Storage Facility and segregated by compatibility for storage in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30- to 55-gallon drum. All containers having a design capacity greater than 0.1 m3 to less than or equal to 0.46 m3 are equipped with a cover and complies with all applicable Department of Transportation regulations on packaging hazardous waste for transport under 49 CFR part 178.

DOT approved intermediate bulk packaging may be utilized for some solid wastes. These containers range in size from 0.1 cu yard (27 cu ft) to 1.6 cu yard (43 cu ft) and are approved for solid waste only.

3.4 SELECTING SAMPLING PROCEDURES

3.4.1 Sampling Strategies and Equipment

Sample collection methods conform to the representative sample methods referenced in WAC 173-303-110(2). The summary of test parameters, rationales and sampling methods are identified in Table 3-1.

Representative samples of liquid waste from containers (vertical 'core sections') are typically obtained using a composite liquid waste sampler (COLIWASA) or tubing, as appropriate. The sampler is long enough to reach the bottom of the container in order to provide a representative sample of all phases of the containerized liquid waste. If a liquid waste has more than one phase, each phase is separated for individual testing depending on the waste management pathways of the phases.

Other waste types that might require sampling are sludge's, powders, and granules. In general, non-viscous sludge's are sampled using a COLIWASA. Highly viscous sludge's and cohesive solids are sampled using a trier, as specified in SW-846. Dry powders and granules are sampled using a thief, also as specified in SW-846.

Samplers are constructed of material compatible with the waste. In general, aqueous liquids are sampled using polyethylene samplers, organic liquids using glass samplers, and solids using polyethylene samplers. Disposable samplers are used whenever possible to eliminate the potential for cross-contamination. If non-disposable sampling equipment is used, it is decontaminated between samples.

Representative sampling may be requested by unit staff to ensure proper waste identification. Sampling may be performed by unit personnel or the generating unit producing the waste. The number of grab samples collected from a container depends on the amount of waste present and on the homogeneity of the waste as determined by observation. In some cases, there will be only one container of waste present. In such cases, only one vertical composite sample will be collected (e.g., COLIWASA). If more than one container is present, a random number of samples will be collected and analyzed statistically using the procedures specified in Section 9.2 of SW-846 (EPA 1986).

In all instances, sampling methods will conform to the representative sample method referenced in WAC 173-303-110(2), i.e., ASTM standards for solids and SW-846 for liquids. The specific sampling methods and equipment used varies with the chemical and physical nature of the waste material and the sampling circumstances.

3.4.2 Sampling Preservation and Storage

All sample containers, preservation techniques, and hold times follow SW-846 protocol. Many samples are analyzed at the 305-B Storage Facility utilizing prepackaged test kits and are not preserved.

3.4.3 Sampling QA/QC Procedures

Pacific Northwest National Laboratory is committed to maintaining a high standard of quality for all of its activities. A crucial element in maintaining that standard is a quality-assurance program that provides management controls for conducting activities in a planned and controlled manner and enabling the verification of those activities.

The QA/QC objective of the 305-B Storage Facility is to control and characterize errors associated with collected data, and to illustrate that waste testing has been performed according to specification in this waste analysis plan.

The 305-B Storage Facility will ensure that precision and accuracy are maintained throughout the waste analysis process. For analysis using SW-846 methods, the program will follow the QA/QC guidance set forth in SW-846 at a minimum. Good laboratory practices which encompasses sampling, sampling handling, housekeeping, and safety are followed throughout the process. There are many elements of QA/QC associated with the sampling processes at the 305-B Storage Facility. These practices ensure that all data and the decisions based on that data are technically sound, statistically valid, and properly documented.

Activities pertaining to waste analysis include, but are not limited to, the preparation, review, and control of procedures and the selection of analytical laboratories. The Laboratory's QA SBMS subject area has administrative procedures that establish requirements and provide guidance for the preparation of analytical and technical (i.e., sampling, chain-of-custody, work processes) procedures, as well as other administrative procedures. Procedures undergo a review cycle and, once issued, are controlled to ensure that only current copies are used.

The primary purpose of waste testing is to ensure that the waste is properly characterized in lieu of process-knowledge data, in compliance with RCRA requirements for general waste analysis [WAC 173-303-300(2); 40 CFR 264.13]. Waste testing also is performed to ensure the safe management of waste being stored, proper disposition of residuals from incidents that might occur, and control of the acceptance of waste for storage. The specific objectives of the waste-sampling and analysis program at the 305-B Storage Facility are as follows:

- Identify the presence of waste that is substantially different from waste currently stored.
- Provide a detailed chemical and physical analysis of a representative sample of the waste, before the waste is accepted at or transferred from the 305-B Storage Facility to an offsite TSD facility, to ensure proper management and disposal.
- Provide an analysis that is accurate and up-to-date to ensure that waste is properly treated and disposed of.
- Ensure safe management of waste undergoing storage at the 305-B Storage Facility.

- Ensure proper disposal of residuals.
- Ensure compliance with LDR's.
- Identify and reject waste that does not meet the 305-B Storage Facility's acceptance requirements (e.g., incomplete information).
- Identify and reject waste that does not meet specifications for the 305-B Storage Facility (i.e., Part A, Form 3, listing, restricted from storage at the 305-B Storage Facility).

QA/QC Objectives

The objectives of the QA/QC program are two-fold. The first objective is to control and characterize any errors associated with the collected data. Quality-assurance activities, such as the use of standard methods for locating and collecting samples, are intended to limit the introduction of error. Quality-control activities, such as the collection of duplicate samples and the inclusion of blanks in sample sets, are intended to provide the information required to characterize any errors in the data. Other QC activities, such as planning the QC program and auditing ongoing and completed activities, ensure that the specified methods are followed and that the QA information needed for characterizing error is obtained.

The second QA/QC objective is to illustrate that waste testing has been performed according to specification in this waste-analysis plan. The QA/QC activities will include the following:

- Field inspections – performed and documented by 305-B Storage Facility staff or designee, depending on the activity. The inspections primarily are visual examinations but might include measurements of materials and equipment used, techniques employed, and the final products. The purpose of these inspections is to verify that a specific guideline, specification, or procedure for the activity is completed successfully.
- Field testing – performed onsite by 305-B Storage Facility staff (or designee) according to specified procedures.
- Laboratory analyses – performed by onsite or offsite laboratories on samples of waste. The purpose of the laboratory analyses is to determine constituents or characteristics present and the concentration or level.

Sampling Objectives

The data-quality objectives (DQO) for the waste sampling and data analyses are as follows:

- Determine if waste samples are representative of the contents of the containers at the time the samples were taken.
- Determine if waste samples are representative of long-term operations affecting the 305-B Storage Facility.
- Determine if waste accepted for storage is within the RCRA permit documentation limitations.
- Determine if waste accepted for storage meets the requirements of the 305-B Storage Facility waste-acceptance criteria.
- Determine if waste accepted for storage meets the information provided by the generator.

Data Collection/Sampling Objectives

The acquired data need to be scientifically sound, of known quality, and thoroughly documented. The DQOs for the data assessment will be used to determine compliance with national quality standards, which are as follows:

- Precision – The precision will be the agreement between the collected samples (duplicates) for the same parameters, at the same location, and from the same collection vessel.
- Representativeness – The representativeness will address the degree to which the data accurately and precisely represent a real characterization of the population, parameter variation at a sampling point, sampling conditions, and the environmental condition at the time of sampling. The issue of representativeness will be addressed for the following points:
- Based on the generating process, the waste stream, and its volume, an adequate number of sampling locations are selected

The representativeness of selected media has been defined accurately

- The sampling and analytical methodologies are appropriate.
- The environmental conditions at the time of sampling are documented.
- Completeness – The completeness will be defined as the capability of the sampling and analytical methodologies to measure the contaminants present in the waste accurately.
- Comparability – The comparability of the data generated will be defined as the data that are gathered using standardized sampling methods, standardized analyses methods, and quality-controlled data-reduction and validation methods.

Analytical Objectives

Analytical data will be communicated clearly and documented to verify that laboratory data-quality objects are achieved.

Field Quality Assurance and Quality Control

Internal QA/QC checks will be established by submitting QA and QC samples to the analytical laboratory. The number of field QA samples will be approximately 5 percent of the total number of field samples taken. The 5 percent criterion commonly is accepted for a minimum number of QA/QC samples. The types and frequency of collection for field QA samples are as follows:

- Field Blanks – A sample of analyte-free media taken from the laboratory to the sampling site and returned to the laboratory unopened. Field blanks are prepared and preserved using sample containers from the same lot as the other samples collected that day. A sample blank is used to document contamination attributable to shipping and field-handling procedures. This type of blank is useful in documenting contamination of volatile organics samples.
- Field Duplicates – defined as independent samples collected in such a manner that the samples are equally representative of the variables of interest at a given point in space and time. The laboratory will use the field duplicate as laboratory duplicate and/or matrix spikes. Thus, for the duplicate sample, there will be the normal sample analysis, the field duplicate, and the laboratory duplicates (inorganic analysis). Duplicate samples will provide an estimate of sampling precision.

Laboratory Quality Assurance and Quality Control

All analytical work, whether performed by independent laboratories, is defined and controlled by a Statement of Work, prepared in accordance with administrative procedures. The daily quality of analytical data generated in the analytical laboratories will be controlled by the implementation of an analytical laboratory QA plan. At a minimum, the plan will document the following:

- sample custody and management practices
- requirements for sample preparation and analytical procedures
- instrument maintenance and calibration requirements

- internal QA/QC measures, including the use of method blanks
- required sample preservation protocols
- analysis capabilities.

The types of internal quality-control checks are as follows:

- Method Blanks – Method blanks usually consist of laboratory reagent-grade water treated in the same manner as the sample (i.e., digested, extracted, distilled) that is analyzed and reported as a standard sample would be reported.
- Method Blank Spike – A method blank spike is a sample of laboratory reagent-grade water fortified (spiked) with the analytes of interest, which is prepared and analyzed with the associated sample batch.
- Laboratory Control Sample – A QC sample introduced into a process to monitor the performance of the system.
- Matrix Spikes – An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. Matrix spikes will be performed on 5 percent of the samples (1 in 20) or one per batch of samples.
- Laboratory Duplicate Samples – Duplicate samples are obtained by splitting a field sample into two separate aliquots and performing two separate analyses on the aliquots. The analyses of laboratory duplicates monitor the precision of the analytical method for the sample matrix; however, the analyses might be affected by nonhomogeneity of the sample, in particular, by nonaqueous samples. Duplicates are performed only in association with selected protocols. Duplicates are performed only in association with selected protocols. Laboratory duplicates are performed on 5 percent of the samples (1 in 20) or one per batch of samples. If the precision value exceeds the control limit, then the sample set must be reanalyzed for the parameter in question.
- Known QC Check Sample – This is a reference QC sample as denoted by SW-846 of known concentration, obtained from the EPA, the National Institute of Standards and Technology, or an EPA-approved commercial source. This QC sample is taken to check the accuracy of an analytical procedure. The QC sample is particularly applicable when a minor revision or adjustment has been made to an analytical procedure or instrument. The results of a QC-check- standard analysis are compared with the true values, and the percent recovery of the check standard is calculated.

PNNL Analytical Chemistry Laboratory QA/QC

PNNL's analytical chemistry laboratory may need to be used to analyze samples of high-activity dangerous waste. It has a rigorous QA plan that ensures that data produced are defensible, scientifically valid, and of known precision and accuracy, and meets the requirements of its clients.

Offsite Laboratory QA/QC

When it is necessary to send samples to an independent laboratory, contracts are not awarded until a pre-award evaluation of the prospective laboratory has been performed. The pre-award evaluation process involves the submittal of its QA plan to PNNL QA staff and the unit-operating supervisor. It also may involve a site visit by QA personnel and a technical expert, or may consist of a review of the prospective laboratories' QA/QC documents and records of surveillances/inspections, audits, non-conformances, and corrective actions maintained by PNNL or other Hanford Facility contractors.

Recordkeeping

Records associated with the waste-analysis plan and waste-verification program are maintained by the waste-management organization. A copy of the Disposal Request for each waste stream accepted at the 305-B Storage Facility is maintained as part of the operating record. Generators maintain their sampling and analysis records. The waste-analysis plan will be revised whenever regulation changes affect the waste-analysis plan.

Staff of the 305-B Storage Facility has a goal of continuous improvement by ensuring that all analytical data produced is of known accuracy and precision, exceeds all industry standards and is scientifically valid. Using the above practices and following the appropriate 305-B Storage Facility operating procedures staff can monitor and ensure that progress is being made in the quality of the data produced.

3.4.4 Health and Safety Protocols

During all sampling activities, precautions will be taken to ensure that waste containers do not expel gases and/or pressurized liquids. All personnel will be properly trained in safety and handling techniques.

3.5 SELECTING A LABORATORY, AND LABORATORY TESTING AND ANALYTICAL METHODS

3.5.1 Selecting a Laboratory

Laboratory selection is limited; only a few laboratories are equipped to handle mixed waste because of special equipment and procedures that must be used to minimize personnel exposure. Preference will be given to any PNNL facility or other laboratories on the Hanford Facility that exhibit demonstrated experience and capabilities in three major areas:

- comprehensive written QA/QC program based on DOE-RL requirements specifically for that laboratory
- audited for effective implementation of QA/QC program
- participate in performance-evaluation samples to demonstrate analytical proficiency.

All laboratories (onsite or offsite) are required to have the following QA/QC documentation:

- Daily analytical data generated in the contracted analytical laboratories is controlled by the implementation of an analytical laboratory QA plan.
- Before commencement of the contract for analytical work, the laboratory will, have their QA plan available for review. At a minimum, the QA plan will document the following:
- sample custody and management practices
- requirements for sample preparation and analytical procedures
- instrument maintenance and calibration requirements
- internal QA/QC measures, including the use of method blanks
- required sample preservation protocols
- analysis capabilities.

3.5.2 Selecting Testing and Analytical Methods

PNNL waste generators may need to conduct analyses to provide information to fill out a Disposal Request form, and to determine compatibility, safety, and operating information. As needed, 305-B Storage Facility staff also will conduct analyses to determine completeness of information and if the waste meets the acceptance criteria for disposal, treatment or storage at one of the Hanford Facility-permitted treatment/storage/disposal areas or that of one of the offsite TSD facilities. Testing and analytical methods will depend on the type of analysis sought and the reason for needing the information.

Chemists and/or appropriate personnel working under approved QA guidelines perform all testing. Analytical methods will be selected from those that are described in Section 3.3.1.

3.6 SELECTING WASTE RE-EVALUATION FREQUENCIES

Some analysis will be needed to verify that waste streams received by the 305-B Storage Facility conform to the information on the Disposal Request and or the waste analysis sheet supplied by the generator. If discrepancies are found between information on the Disposal Request, hazardous-waste manifest, shipping papers, waste- analysis documentation and verification analysis, then the discrepancy will be resolved by:

- returning waste to the generator, or sample and analyze the materials in accordance with WAC 173-303-110; and/or
- reassessing and re-designating the waste; repackaging and labeling as necessary or return to the generator.

Periodic re-evaluation provides verification that the results from the initial verification are still valid. Periodic re-evaluation also checks for changes in the waste stream.

Exceptions to physical screening for verification are:

Analysis and characterization, as required by WAC 173-303-300(2), are performed on each waste before acceptance at the 305-B Storage Facility to determine waste designation and characteristics. The characterization of the waste, based on this information, is reviewed each time a waste is accepted. The information must be updated by the generator when the waste stream changes or if the following occurs.

- The 305-B Storage Facility personnel have reason to suspect a change in the waste, based on inconsistencies in packaging, labeling or visual inspection of the waste.
- The information submitted previously does not match the characteristics of the waste submitted.

Sampling and laboratory analysis could be required to verify or establish waste characteristics for waste that is stored at the 305-B Storage Facility. The following are instances where sampling and laboratory analysis are required:

- inadequate information on PNNL-generated waste
- waste streams generated onsite will be verified at 5 percent of each waste stream
- inadequate information before waste was shipped or discrepancy discovered
- waste streams received from offsite generators will be verified at 10 percent of each waste stream applied per generator, per shipment
- identification and characterization for unknown waste and spills.

3.7 SPECIAL PROCEDURAL REQUIREMENTS

3.7.1 Procedures for Receiving Waste From off-site Generators

Most of the waste stored at 305-B Storage Facility is generated on the Hanford Site and/or by PNNL research programs within the 300 Area. Additional requirements for waste generated outside the 300 Area include proper manifesting (if appropriate) to 305-B Storage Facility and proper packaging for transport over public roadways. Although PNNL waste generated outside of the 300 Area is considered to be generated offsite since it may be transported to 305-B Storage Facility on roads accessible to the public, it is under the same administrative controls as wastes that are generated onsite (i.e., in the 300 Area).

The generator is responsible for identifying waste composition accurately and PNNL waste operations will arrange for the transport of the waste. The 305-B Storage Facility maintains a copy of any pertinent operating record in accordance with WAC 173-303 and the time frames described in Attachment 33, General Information Portion, Chapter 12, Table 12.1 (DOE/RL-91-28). The waste-tracking methods are as follows.

- **Inspection of Shipping Papers/Documentation** – The necessary shipment papers for the entire shipment are verified (i.e., signatures are dated, all waste containers included in the shipment are accounted for and correctly indicated on the shipment documentation, there is consistency throughout the different shipment documentation, and the documentation matches the labels on the containers).
- **Inspection of Waste Containers** – The condition of waste containers is checked to verify that the containers are in good condition (i.e., free of holes and punctures).
- **Inspection of Container Labeling** – Shipment documentation is used to verify that the containers are labeled with the appropriate "Hazardous/Dangerous Waste" labeling and associated markings according to the contents of the waste container.
- **Acceptance of Waste Containers** – The 305-B Storage Facility personnel sign the Shipment documents and retain a copy.

If Shipment will be received from or destined offsite, then a Uniform Hazardous Waste Manifest will be prepared identifying the 305-B Storage Facility as the receiving unit (Hanford Facility Permit, Condition II.P. The 305-B Storage Facility operations staff will sign and date the manifest to certify that the dangerous waste covered by the manifest was received. The transporter will be given at least one copy of the signed manifest. A copy of the manifest will be returned to the generator within 30 days of receipt at the 305-B Storage Facility. A copy of the manifest also will be retained in the 305-B Storage Facility operating record.

For onsite waste transfers subject to Hanford RCRA Permit, Dangerous Waste Portion, Condition II.Q.1, documentation meeting that requirement will be prepared and accompany the shipment. The documentation will be maintained in the Operating Record.

Response to Significant Discrepancies

The primary concern during acceptance of containers for storage is improper packaging or manifest discrepancies. Containers with such discrepancies are not accepted at the 305-B Storage Facility until the discrepancy has been resolved. Depending on the nature of the condition, such discrepancies can be resolved through the use of one or more of the following alternatives.

- Incorrect or incomplete entries on the Uniform Hazardous Waste Manifest can be corrected or completed with concurrence of the onsite generator or offsite generator. Corrections are made by drawing a single line through the incorrect entry. Corrected entries are initialed and dated by the individual making the correction.
- The waste packages can be held and the onsite generator or offsite waste generator requested to provide written instructions for use in correcting the condition before the waste is accepted.
- Waste packages can be returned as unacceptable.
- If a noncompliant dangerous waste package is received from an offsite waste generator, and the waste package is non-returnable because of condition, packaging, etc., and if an agreement cannot be reached among the involved parties to resolve the noncompliant condition, then the issue will be referred to DOE-RL and Ecology for resolution. Ecology will be notified in writing if a discrepancy is not resolved within 15 days after receiving a noncompliant shipment. Pending resolution, such waste packages, although not accepted, might be placed in the 305-B Storage Facility. The package(s) will be segregated from other waste and an entry will be made into the 305-B Storage Facility logbook describing the actions that were taken to store the packages in a safe manor until a resolution has been reached.

Activation of Contingency Plan for Damaged Shipment

If waste shipments arrive at the 305-B Storage Facility in a condition that presents a hazard to public health or the environment, the Building Emergency Procedure is implemented as described in the Hanford Facility RCRA Permit, Attachment 18, Chapter 7.0 for the 305-B Storage Facility.

3.7.2 Procedures for Ignitable, Reactive, and Incompatible Wastes

Ignitable, reactive and incompatible wastes are stored in compliance with Uniform Fire Code Division II regulations for Container and Portable Tank Storage Inside Buildings (International Conference of Building Officials 1988). Containers of ignitable, reactive and incompatible wastes are stored in individual flammable material storage cabinets within the storage cells.

Section 6.5.2 describes procedures used at 305-B Storage Facility to determine the compatibility of dangerous wastes so that incompatible wastes are not stored together. Chemical wastes stored in 305-B Storage Facility are separated by chemical makeup and hazard class and stored in areas having appropriate secondary containment, as described in Section 4.1.1.6.

As shown in Figures 4-1 through 4-10, each storage area has individual storage configurations; secondary containment structures are provided to assure that incompatible materials will not commingle if spilled. Further segregation is provided by chemical storage cabinets located throughout the facility in various areas as shown in Figures 4-1 through 4-10. Cabinet types are noted in those figures and capacities described in Table 4-2. Incompatible wastes are never placed in the same container, or in unwashed containers that previously held incompatible waste.

Compliance with WAC 173-303-395(1)(b) is assured by utilizing this system, and the procedure for handling ignitable or reactive waste and mixing of incompatible waste, as described in Section 6.5.2.

3.7.3 Procedures To Ensure Compliance With LDR Requirements

LDR Waste-Analysis Requirements

The *Hazardous and Solid Waste Amendments of 1984* prohibit the land disposal of certain types of wastes that are subject to RCRA. Most of the waste types stored at the 305-B Storage Facility falls within the

purview of these land-disposal restrictions (LDRs). Information presented below describes how generators and 305-B Storage Facility personnel characterize, document, and certify waste subject to LDR requirements.

Waste must be analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) in accordance with Appendix II of 40 CFR 261, as amended, in order to provide sufficient information for proper management and for decisions regarding LDR pursuant to 40 CFR 268.

Waste Characterization

Before being received at the 305-B Storage Facility, the RCRA waste characteristics, the level of toxicity characteristics, and the presence of listed wastes are determined during the physical and chemical analyses process. This information allows waste-management personnel to make all LDR determinations accurately and complete appropriate notifications and certifications.

Sampling and Analytical Procedures

The LDR characterization and analysis is generally performed as part of the waste-characterization and analysis process. If waste is sampled and analyzed for LDR characterization, then only EPA or equivalent methods are used to provide sufficient information for proper management and for decisions regarding LDRs pursuant to 40 CFR 268.

Frequency of Analysis

Before acceptance and during the waste-characterization and analysis process, all LDR characterizations and designations are made. The characterization and analysis process is performed when a Disposal Request is submitted for waste pick-up, unless there is insufficient data or if the waste stream has changed. Instances where sampling and laboratory analysis may be required to determine accurate LDR determinations include the following:

- when waste-management personnel have reason to suspect a change in the waste based on inconsistencies on the Disposal Request, packaging, or labeling of the waste
- when the information submitted previously by a generator does not match the characteristics of the waste that was submitted
- when the offsite TSD facility rejects the waste because the fingerprint samples are inconsistent with the waste profile provided by the 305-B Storage Facility that was established using generator information.

Dangerous waste types listed in Table 3-1 are sampled as needed on an individual container or batch basis before they are collected from the point of generation or prior to shipment offsite. After the dangerous constituents have been characterized, these waste streams will not be analyzed again until process or raw material changes occur.

Documentation and Certification

The 305-B Storage Facility has and will continue to receive and store LDR waste. Because 305-B Storage Facility personnel determine designations and characterization, including LDR determinations, all notifications and certifications, as required by 40 CFR 268, are prepared by qualified staff for PNNL-generated waste. The 305-B Storage Facility staff collects from the generator(s) the information pursuant to 40 CFR 268 regarding LDR waste. The notifications and certifications are submitted to onsite

and offsite TSD units during the waste-shipment process. Additionally, any necessary LDR variances are prepared and submitted by PNNL qualified staff.

The 305-B Storage Facility staff requires applicable LDR information/notifications from non-PNNL generators.

Where an LDR waste does not meet the applicable treatment standards set forth in 40 CFR 268, Subpart D, or exceeds the prohibition levels set forth in 40 CFR 268.32 or Section 3004(d) of RCRA, the 305-B Storage Facility provides to the onsite and offsite TSD a written notice that includes the following information:

- EPA hazardous-waste number
- the corresponding treatment standards and all applicable prohibitions set forth in WAC 173-303, 40 CFR 268.32, or RCRA Section 3004(d)
- the manifest number associated with the waste
- all available waste-characterization data.
- identification of underlying hazardous constituents.

In instances where 305-B Storage Facility staff determines that a restricted waste is being managed that can be land-disposed without further treatment, 305-B Storage Facility staff submits a written notice and certification to the onsite or offsite TSD where the waste is being shipped, stating that the waste meets applicable treatment standards set forth in WAC 173-303-140 (40 CFR 268, Subpart D), and the applicable prohibition levels set forth in 40 CFR 268.32 or RCRA Section 3004(d). The notice includes the following information:

- EPA hazardous-waste number
- corresponding treatment standards and applicable prohibitions
- waste-tracking number associated with the waste
- all available waste-characterization data
- identification of underlying hazardous constituents.

The certification accompanying any of the previously described notices is signed by an authorized representative of the generator and states the following:

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d). I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

Copies of all notices and certifications described are retained at the TSD unit for at least five years from the date that the waste was last sent to an onsite or offsite TSD unit. After that time, the notices and certifications are sent to Records Storage.

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Table 3-1. Summary of Test Parameters, Rationales, and Methods

Parameter[a]	Method[b]	Rationale for Selection
Physical Screening		
Visual inspection	Field method - observe phases, presence of solids in waste	Confirm that waste matches that described on waste acceptance documentation; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Chemical Screening		
Water miscibility/separable organics [c]	Water mix screen ASTM Method D5232-92	Confirm that waste matches that described on waste acceptance documentation; identify separable organics; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Oxidizer	Oxidizer Screen	Confirm that waste matches that described on waste acceptance documentation; ensure compliance with WAC 173-303-395(1)(b)
pH	pH screen SW-846 Method 9041	Confirm that waste matches that described on waste acceptance documentation; ensure compliance with WAC 173-303-395(1)(b)
Cyanides	Cyanide screen	Confirm that waste matches that described on waste acceptance documentation; ensure compliance with WAC 173-303-395(1)(b)
Sulfides	Sulfide screen	Confirm that waste matches that described on waste acceptance documentation; ensure compliance with WAC 173-303-395(1)(b)
Flashpoint	Flashpoint measurement instrument	Confirm that waste matches that described on waste acceptance documentation
Halogenated/Volatile Organic Compounds	Photoionizer or Flame Ionizer, or Clor-D-Tect © Kits	Confirm that waste matches that described on waste acceptance documentation
Pre-Shipment Review		
Mercury (total)	Generator knowledge or SW-846 Method 7470/7471	Identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria.
Toxicity characteristic organic compounds	Generator knowledge or SW-846 Methods 1311 and 8260 (volatile organic compounds) and 8270 (semivolatile organic compounds)	Identify waste not identified on the Part A, Form 3
Polycyclic aromatic hydrocarbons	Generator knowledge or SW-846 Method 8270 or 8100	Identify waste not identified on the Part A, Form 3 (for waste with >1% solids and for which WP03 could apply)

[a] Addition parameters can be used on current waste acceptance criteria of the downstream TSD unit. Operation limits transfer/shipments are based on current waste acceptance criteria.

[b] Procedures based on EPA SW-846, unless otherwise noted. When regulations require a specific method, the method shall be followed.

[c] These test will not be performed on materials known to be organic peroxides, ether, and/or water reactive compounds.

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4.0 PROCESS INFORMATION

4.1 CONTAINERS

The following sections describe the types of containers stored at the 305-B Storage Facility.

4.1.1 Containers with Free Liquids

Containers with free liquids are discussed below.

4.1.1.1 Description of Containers

Most waste stored at the 305-B Storage Facility is received in their original, as-procured containers. Containers of hazardous materials entering 305-B Storage Facility are inspected before being accepted for storage. Generating units are responsible for placing the materials in adequate containers. Repackaged materials must be placed in containers that are new and compatible with the materials to be stored.

Containers in poor condition or inadequate for storage are not accepted at the unit. If transport is by unit personnel, such containers are not accepted for transport. Refer to Section 6.4.1 for inspection before transport performed by unit personnel. "Container in poor condition or inadequate for storage" means a container which is not intact or undamaged and which is not securely sealed to prevent leakage during storage, transport and ultimate offsite disposal. Examples of acceptable packaging include laboratory reagent bottles, DOT containers, spray cans, sealed ampules with spetums, paint cans, leaking containers which have been overpacked, etc. Unit operations personnel have the authority to determine whether a container is in poor condition or inadequate for storage, using the criteria of WAC 173-303-190 and professional judgment whether the packaging may leak during handling, storage and/or disposal.

As with all waste, repackaged containers of dangerous waste are marked and/or labeled to describe the contents of the container and the major hazards of the waste, as required under WAC 173-303. Containers are also marked with a unique identifying number assigned by the unit's computerized waste tracking system.

All flammable liquid waste is stored in compatible DOT-specified shipping containers and/or in Underwriter's Laboratory (UL)-listed and Factory Mutual (FM)-approved flammable storage cabinets. Solid chemicals are stored on shelving in specifically designated areas based on the DOT hazard classification.

All containers utilized for offsite transport of dangerous waste at the unit are selected and shall comply with all applicable criteria found in WAC 173-303-190.

4.1.1.2 Container Management Practices

Management practices for containers of dangerous waste are in place at the 305-B Storage Facility to assure the safe receipt, handling, preparation for transport, and transportation of waste. These practices and procedures are summarized below.

Inspection of Containers. A system of daily, weekly, monthly, and yearly inspections is in place to ensure container integrity, check for proper storage location, prevent capacity overrun, etc. These inspection activities are detailed in Section 6.2.

Container Handling. All unit staff is instructed in proper container handling safeguards as part of their training (refer to Section 8.1.2 for further details). For example, employees are instructed to open all high-vapor-pressure liquids in the flammable liquid bulking module to avoid buildup of vapors in the

unit. Containers are always kept closed except when adding or removing waste, in accordance with WAC 173-303-630(5)(a).

Containers are not opened, handled or stored in a manner that would cause the container to leak or rupture. Small containers (five gallons or less capacity) are stored on shelving or in approved flammable liquid storage lockers (if appropriate). Containers over five gallons capacity are stored on the floor of the appropriate storage cell, in cabinets, or stored in the appropriate containment area on the high bay floor under Section 4.3.2. Unnecessary handling not required for redistribution or preparation for transport and disposal by either lab packing or bulking is minimized. Crane or chain hoist, or forklift moves drums manually. For manual movement, hand trucks specifically designed for drum handling are used. Crane and chain hoist operations are performed following the appropriate Hoisting and Rigging manuals. When using the forklift, a drum hoist is used or the drums are carried on pallets. Drums are never carried on the forks or "speared" by slipping the forks under the chime. When waste handling operations are conducted, a minimum of two persons is present in the unit.

Lab Packing. One of the major functions of the 305-B Storage Facility is the preparation of lab packs for offsite recycling, treatment and/or disposal of small quantity lab waste generated by DOE-RL/PNNL activities.

Lab packs are prepared in compliance with WAC 173-303-161, 49 CFR 173.12, other applicable regulations, and permit conditions of the planned receiving facility (recycler, treatment facility, or disposal facility). Permit conditions affecting preparation of lab packs might include types of absorbent materials to be used (e.g., no vermiculite).

Lab packs are prepared in the storage cell containing the hazard class(es) to be placed in the lab pack. The elephant trunk ventilator system may be used to minimize respirable dusts from the absorbent material being used (usually vermiculite. Lab packs may also be prepared in the flammable liquid bulking module if appropriate; for instance, if compatible materials from more than one storage cell are being combined in a single lab pack drum. Lab packs may be prepared in the high bay storage area if storage of the completed lab pack is permitted there per Section 4.3.2.

Partial and completed lab packs are closed, labeled, and the contents list documented. Lab packs are stored in the cell from which the containers inside were drawn, or in the high bay if appropriate.

Unit personnel wear appropriate protective clothing while handling containers being placed in lab packs. At a minimum this includes lab coats, safety glasses or other protective eyewear, and chemical resistant gloves. More stringent requirements, including use of respiratory protection, may be imposed if appropriate.

Bulking. In order to promote greater recycling or treatment of waste and reduce land disposal, some liquid waste are "bulked" into larger containers, typically 30- or 55-gallon closed head drums. Bulking operations for chemicals that are respiratory or flammability hazards are performed in the "flammable liquid bulking module" (Also referred to as cell 5.) located in the southwest corner of the unit. Bulking of nonvolatile, low hazard waste such as saline solutions or ethylene glycol may be done within the containment areas of the appropriate storage cell or high bay.

Compatibility of waste to be bulked is determined using the information from generating unit designation information, process knowledge, laboratory analyses, and/or the compatibility determinations described in Section 6.5.

Containers are transported by hand or forklift to the flammable liquid bulking module area. The receiving drum (typically 30- or 55-gallon capacity) is placed in the module and the ventilation system is activated. A large chemically-resistant funnel (either metal or plastic, depending on material to be introduced) is used to pour the material into the drum. The contents of the smaller containers are then poured, one at a

time, into the larger drum. The receiving drum is monitored by unit personnel to make sure no incompatibility is observed (e.g., fuming, bubbling, or heat generation). If such incompatibility is observed, no further material is added and the worker leaves the area, closing the module and leaving the ventilation on. The unit supervisor is notified to evaluate implementation of the contingency plan.

Glass containers, which have been emptied (as defined by WAC 173-303-160(2)), as a result of bulking activities are crushed onsite by an electric glass crusher, which mounts on a 55-gallon drum. If an emptied glass container held acutely hazardous waste, as defined by WAC 173-303-040(2), the container is rinsed at least three times with an appropriate cleaner or solvent before being destroyed. The rinsates are managed as dangerous waste. Crushed glass is managed as solid waste in accordance with WAC 173-303-160(3).

Once bulking is complete, the bulk container is closed, labeled, and the contents list documented. Containers of bulked waste are stored in the cell from which the containers inside were drawn, or in the high bay if appropriate.

Unit personnel wear appropriate protective clothing while bulking containerized liquid waste. At a minimum this includes coveralls, disposable splash-resistant apron, eye protection, and chemical resistant gloves. More stringent requirements, including use of respiratory protection, may be imposed if appropriate.

4.1.1.3 Secondary Containment System Design and Operation

Several design features have been engineered into the construction of the 305-B Storage Facility as added safeguards for containment of dangerous waste spills or leaks. The following subsections comment briefly on each of the design features.

4.1.1.4 Requirement for Base or Liner to Contain Liquids

The base of the facility consists of a 6-inch reinforced, poured concrete slab with no cracks or gaps. The concrete was mixed in accordance with ASTM 094, Section 5.3, Alternate 2, and all exposed surfaces were finished with a smooth troweled surface. Expansion joint material is Sonneborn "Sonoflex F™" polyethylene filler. The bonding compound used at the expansion joints was Sonneborn "Sonobond™" two-part epoxy. All edges and corners were sealed with a continuous bead of polysulfide sealant.

Chemically resistant sealant paint was applied in February 1989 to the storage cells and high bay floor, and in October 1990 to drum storage areas noted in Sections 4.1.1.6.6, 4.1.1.6.7, and 4.1.1.6.8. The surface coating is Coronado #101-1 (101 Series) Polyamide Epoxy Coating. Estimated service life of the coating material is 14 years per manufacturer's literature.

The condition of the floor coating is inspected weekly per Attachment 18, Chapter 6.0, and repairs are made as needed. Immediate repairs are indicated whenever the coating is observed to have been chipped, bubbled up, scraped, or otherwise damaged in a manner that would significantly impact the ability of the coating to contain spilled materials. Minor nicks and small chips resulting from normal operations will be repaired on a periodic basis.

4.1.1.5 Containment System Drainage

The concrete floors in each high bay storage cell are canted toward individual secondary containment trenches within those cells. These trenches are isolated from each other in order to prevent interaction, reactions, or offsite migration of spilled materials. This provides protection even during simultaneous spills.

The floors in the high bay area are also canted toward a separate sump system, which is sealed with epoxy and blocked to prevent drainage. Drums stored in this area are also stored on pallets to prevent contact

with spilled material in the event of a release. Segregated storage areas for incompatible materials have been set up in the high bay storage area to prevent commingling of spilled waste during a catastrophic (multi-drum) spill incident. Each area has its own containment trench separated from other trenches with concrete and epoxy.

The flammable liquids bulking module, along with its purpose of providing a ventilated area for bulking of compatible hydrocarbon waste, is used as an independent storage cell. The walls of the module provide secondary containment, which have been sealed at the floor joint by use of grout coated with epoxy paint.

For protection of the basement mixed waste storage area, curbing/diking is provided to prevent migration. Drums are stored on pallets to prevent container contact with spilled materials and drip pans are provided to segregate mixed waste by dangerous waste characteristic as described in Section 4.1.1.6.11. This area has no drainage.

Flammable mixed waste is stored within its own secondary containment devices. The description and capacity of the flammable mixed waste storage area is provided in Section 4.1.1.6.11.

4.1.1.6 Containment System Capacity

Secondary containment is provided for all dangerous waste stored at the 305-B Storage Facility. Storage limits for all chemicals are listed in Table 4.1 (1988 Uniform Building Code). All floors in the high bay area are sloped toward sumps which have no drains and are covered with grating to prevent safety hazards. In addition, all floors in the high bay area are coated with an epoxy based coating as described in Section 4.1.1.4. Inspection of the containment system to maintain integrity is described in Section 6.2. Individual secondary containment systems are configured as follows:

4.1.1.6.1 Acids and Oxidizers Cell. The acids and oxidizers cell (cell 1) is located at the northwest corner of the 305-B Storage Facility high bay floor. The cell is constructed of epoxy-painted concrete block walls 4 foot high and incorporates a 1 foot deep sump at the west end of the cell. Six cabinets, open shelving, and a large-container storage area are provided within the cell to allow storage of various sizes of containers. The secondary containment volume of the individual sump for this cell is 67 gallons, and the total containment volume of the cell is 774 gallons. A diagram of the cell is provided in Figures 4.1.

4.1.1.6.2 Poisons and Class 9 Cell. The poisons and Class 9 cell (cell 2) is located just south of the acids and oxidizers cell along the west wall of the high bay. This cell is also constructed of epoxy-painted concrete block walls 4 foot high and incorporates a 1 foot deep sump along its west end. Six storage cabinets and several sets of open shelving are positioned in the cell to allow storage of various sizes of containers. The northeast corner of the cell is sectioned off with a 6 inch spill retention berm to allow PCB storage for disposal complying with 40 CFR 761.65(b). The secondary containment volume of the individual sump for this cell is 117 gallons, and the total containment volume of the cell is 782 gallons. A diagram of this cell is provided in Figure 4.2.

4.1.1.6.3 Alkaline, Washington State Criteria Waste, Organic Peroxides, and Non-Regulated Waste Cell. The alkaline, Washington State Criteria waste, and non-regulated waste cell (cell 3) is located south of the poisons and Class 9 cell on the west wall of the high bay area. This cell is also constructed of epoxy-painted concrete block walls 4 ft. high and incorporates a 1 foot deep sump along its west end. Four storage cabinets, 3 sets of open shelving, and 1 explosion proof refrigerator, are positioned in the cell to allow storage of various sizes of containers. The secondary containment volume of the individual sump for this cell is 137 gallons, and total containment volume of the cell is 764 gallons. A diagram of this cell is provided in Figure 4.3.

4.1.1.6.4 Flammable Cell. The flammable cell (cell 4) is located south of the alkaline, Washington State Criteria waste, and non-regulated waste cell. As with the other three cells described above, this cell is

constructed of epoxy-painted concrete block walls 4 feet high and incorporates a 1 foot deep sump along its west end. The secondary containment volume of the individual sump for this cell is 119 gallons, and total containment volume of the cell is 687 gallons. A diagram of this cell is provided in Figure 4.4.

Ignitable organic waste materials are stored in this cell that also exhibits the characteristics of corrosivity, toxicity as well as reactivity. Eight Factory Mutual-approved flammable liquid storage cabinets are utilized for storage of various classes of flammable liquids as defined by the UFC. The capacities of the various cabinets are shown in Table 4.2. The following cabinets also are used for storage in this cell: one for combustibles, one for aerosols, two for flammable solids, and one for overflow from one of the other cabinets.

Total ignitable Waste Storage capacity of the 305-B Storage Facility highbay, including the organics cell, Cell 5, Ignitable drum storage area, and highbay storage area is limited by the following UBC restrictions for Class B occupancy:

- Class 1A flammable liquids: 120 gallons
- Class 1B flammable liquids: 240 gallons
- Class 1C flammable liquids: 360 gallons
- Maximum Class 1A, 1B, and 1C at any one time: 480 gallons
- Maximum Class 1A, 1B and 1C stored in Cell 8 self contained storage module for flammable liquids is 240 gallons
- Class 2 combustible liquids: 480 gallons
- Class 3A combustible liquids: 1320 gallons
- Combustible fibers, loose: 100 cubic feet
- Combustible fibers, baled: 1000 cubic feet
- Flammable gases in any one cylinder: 3000 cubic feet
- Liquefied flammable gases: 60 gallons

4.1.1.6.5. Flammable Liquids Bulking Module. The flammable liquids bulking module (cell 5), along with its purpose of providing a ventilated area for bulking of compatible ignitable waste, is used as an independent storage cell. The walls of the module provide secondary containment, which have been sealed at the floor joint by use of grout coated with epoxy paint. Flammable gases in cylinders, liquefied flammable gases, and oxidizing gases will be stored in the bulking module.

Nontransient storage of flammable liquids in the module is 55 gallons. A diagram of the module is provided in Figure 4.5.

4.1.1.6.5.a Flammable Liquids Storage Module. The flammable liquid storage module is a self-contained storage module (cell 8) that allows additional storage space for flammable waste. The flammable liquid storage module is located along the south wall, and is connected to the buildings fire suppression system. The flammable liquid storage module has a 2-hour fire rated containment system so that according to the UFC, an unlimited capacity is allowed. However, the flammable waste storage capacity of the flammable liquid storage module is limited by the 240-gallon capacity of the module's secondary containment system. No more than 240 gallons of any combination of flammable liquid classes will be stored in the module. This flammable waste storage capacity is in addition to the flammable storage limits for the highbay. A diagram showing the module location in the highbay is provided in Figure 4.7.

4.1.1.6.6 Ignitable Waste Drum Storage Area. An additional section of the high bay (cell 8) has been dedicated to storage of drum quantities of ignitable waste before offsite shipment. The area is bordered on the north and south sides by angle iron (3½ in. x 6 in.) bolted to the floor and sealed to provide

secondary containment. The area is approximately 15 ft. x 7 ft. To further enhance containment and to allow greater storage capacity, the drums stored in this area are stored in flammable liquid drum storage cabinets.

Sump containment capacity of this area is approximately 224 gallons and total containment capacity is approximately 431 gallons. Maximum storage in this area is approximately six 55-gallon drums and 12 five-gallon drums. A diagram of this area is included in Figure 4.6. Additional ignitable waste storage is provided for in cell 4, organics cell, and the in the Highbay storage area. The high bay storage area has five additional flammable liquid drum storage cabinets located along the west side of the high bay (refer to Figure 4.7). All of this ignitable waste storage is provided for utilizing flammable liquid storage cabinets for added safety.

4.1.1.6.7 Universal and Recycling Waste Storage Area. A second section of the high bay (cell 12) has been dedicated to storage of drum quantities of universal and recycling waste before shipment. The area is 10 ft. x 7 ft. in size. All material in this area is stored in DOT approved containers and is stored on pallets to prevent contact with spilled waste in the event of an incident.

Sump containment capacity in this area is approximately 55 gallons and total containment capacity is approximately 255 gallons. Maximum storage in this area will be eight 55-gallon drums. A diagram of this area is included in Figure 4.6.

4.1.1.6.8 Acid Waste Drum Storage Area. A third section of the high bay (cell 13) has been designated for storage of drum quantities of acid waste before offsite shipment. The area is approximately 10 ft. x 10 ft. Waste drums stored in this area are stored on pallets to prevent contact with spilled waste in the event of an incident. Bulked drums containing acids, with oxidizers as a secondary hazard, will be placed in the cell 1 drum area, to prevent any possibility of a reaction with surrounding hazards in the high bay drum storage area. A diagram of this area is included in Figure 4.6.

4.1.1.6.9. Alkaline Waste Drum Storage Area. A fourth section of the high bay (cell 14) has been designated for storage of drum quantities of alkaline waste before offsite shipment. The area is approximately 22 ft. x 15 ft. Waste drums stored in this area are stored on pallets to prevent contact with spilled waste in the event of an incident. Sump containment capacity in this area is approximately 110 gallons and total containment capacity is approximately 380 gallons. Maximum storage in this area is thirty-two 55-gallon drums. The location of the area is shown on the High Bay Storage Area diagram Figure 4.7.

4.1.1.6.10 High Bay Storage Area. The high bay storage area, along with its partitioned areas mentioned above, is itself a secondary containment area for loading, unloading, and storage of dangerous waste. The high bay floor is 'crowned' in the center and sloped at ¼ inch per foot, with drainage to sumps on the east and west sides of the unit. Sump locations are indicated in Figure 4.7.

Due to space limitations in the individual cells, and for ease of mechanical handling, the high bay floor is typically used for storage of nonradioactive chemicals in drums (refer to Figure 4.7).

The high bay floor is also used to store lab packs and bulked waste containers before offsite shipment to licensed treatment, disposal, or recycling facilities. Generally, only corrosives, oxidizers, toxic organic solvent mixtures (typically halogenated solvents), antifreeze mixtures, contaminated water which is toxic dangerous waste, nonliquid waste, ORMs, or state-only dangerous waste materials are stored in the high bay storage area.

If waste is incompatible with the foregoing are stored in the high bay storage area, they are kept separated by at least ten feet of distance and stored in individual drip pans for segregation in case of simultaneous accidental spillage. Compatibility of the materials is determined before acceptance in accordance with Section 3.2.

The secondary containment volume of the sumps in the high bay storage area, exclusive of the sumps within individual areas described above, is 565 gallons. Maximum storage in the high bay storage area is thus approximately 5650 gallons (102 drums). The high bay storage is also governed by the building occupancy maximums of Table 4.1, which includes the inventory of the individual storage cells described above. In order to provide additional separation from spilled liquids and for ease of handling, all drums stored on the high bay floor are stored on pallets. A diagram of this cell is provided in Figure 4.7.

4.1.1.6.11 Flammable mixed waste Storage Area. Due to UBC restrictions, flammable mixed waste cannot be stored in the basement of 305-B Storage Facility with the other mixed waste. The flammable mixed waste received by 305-B Storage Facility for storage before disposal is stored in a separate area above grade in the east portion of the building in a 7 ft. x 7 ft. x 7 ft. flammable liquid storage module (cell 7). The module is Factory Mutual approved and has four-hour fire rated walls and doors. The module has a self-contained internal dry chemical fire suppressant system. The module has a 90-gallon polyethylene coated sump. The module is lag bolted to the concrete floor in the flammable mixed waste storage area indicated in Figure 4.8. The module has a storage capacity of four 55-gallon drums, or up to 250 gallons of total capacity of all containers stored, whichever is greater. This storage area meets the requirements of a one year PCB storage area as defined in 40 CFR 761.65, so flammable mixed waste, also regulated as PCB waste, may be stored in this location. A diagram of this cell is provided in Figure 4.8.

4.1.1.6.12 Mixed Waste Storage Area. Mixed waste that is not flammable per UFC (i.e., flash point above 100 F) is stored in a special area in the basement of 305-B Storage Facility. For additional segregation capability, there are eight small chemical storage cabinets. Drums stored in this area are stored on pallets to prevent potential contact with spilled waste in containment during an emergency. A diagram of this area is provided in Figure 4.9.

In normal use, the storage capacity of this area is limited by limits imposed by the DOE for "low inventory facilities." These limitations are defined in DOE-STD-1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports, and are included in the work permit for the mixed waste storage area.

4.1.1.6.13 Explosives Storage Area. Due to UBC restrictions, waste classified as explosive by DOT regulations are stored in a 3 ft. x 3 ft. x 3 ft. explosives magazine, with an 8 cubic foot interior, outside cell 1. The magazine is constructed of steel and certified to have been fabricated per Institute of Makers of Explosives (IME) SLP22, type 2-day box requirements. No more than 1 pound of explosives is stored in the magazine at one time. The location of the magazine is indicated in Figure 4.7.

4.1.1.7 Control of Run-On

The 305-B Storage Facility was designed to eliminate the likelihood of on-site, or for that matter, off-site migration via run-on and run-off. The facility is completely enclosed (i.e., complete roof and no open walls) and has been constructed upon a foundation so that precipitation cannot cause either run-on or run-off problems.

4.1.1.8 Removal of Liquids from Containment System

Upon discovery of liquid accumulation in the containment resulting from a spill or other release, the BED must be contacted in accordance with the 305-B Storage Facility contingency plan (Attachment 18, Chapter 7.0). The BED may determine that the contingency plan should be implemented. If the incident is minor, and the BED approves, removal of the liquids will commence immediately following a safety evaluation. Appropriate protective clothing and respiratory protection will be worn during removal activities; a PNNL industrial hygienist may be contacted to determine appropriate personnel protection requirements and any other safety requirements that may be required, such as chemical testing or air

monitoring. In addition, ventilation of the spill-impacted area may be performed if determined to be safe and if appropriate monitoring of the air discharge(s) is performed.

Spills are normally contained either within the storage cabinet, within the cell, or within a secondary containment trench or berm as described in Section 4.1.1.5. In any case, spilled material will be recovered to the extent possible by pumping recovered liquids with a pump made of nonreactive materials (either steel or PVC) to intact containers selected in accordance with the container criteria in WAC 173-303-190. Nonrecoverable liquids will be absorbed with an appropriate absorbent (after appropriate chemical reaction to neutralize reactivity in the case of reactive waste, or neutralization in the case of corrosive materials); refer to Table 6.2 for list of available materials for this purpose. The absorbent material will then be recovered and placed in a container selected in accordance with Section 4.1.1.1, using nonsparking shovels in the case of ignitable waste. The floor, cabinets and any other impacted containers may be cleaned with dry rags, soap and water, or a compatible solvent if necessary to remove external contamination. Contaminated rags and other cleanup material will be disposed of in an appropriate manner. Verification sampling shall be carried out in accordance with Section 11.1.4.4. (Methods for sampling and testing to demonstrate success of decontamination).

4.1.2 Containers without Free Liquid That Do Not Exhibit Ignitability or Reactivity

This section is not applicable to 305-B Storage Facility because the storage area is used to store containers both with and without free liquids. 305-B Storage Facility does not meet the conditions for reduced requirements for storing only containers without free liquid; therefore, the facility is subject to the full requirements for containment.

4.2 PROTECTION OF EXTREMELY HAZARDOUS WASTE IN CONTAINERS

All wastes are stored inside of 305-B Storage Facility, within the storage areas described in Section 4.1.1.6. These locations are completely enclosed from the weather, as described in Section 4.1.1.7, meeting the requirements of WAC 173-303-630(7)(d).

4.3 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTE IN CONTAINERS

The following sections provide information on the management of ignitable, reactive, and incompatible waste in containers. Additional information on this subject can be found in Section 6.5.

4.3.1 Management of Ignitable or Reactive Waste in Containers

Ignitable and reactive wastes are stored in compliance with Uniform Fire Code Division II regulations for Container and Portable Tank Storage Inside Buildings (International Conference of Building Officials 1988). Containers of ignitable and reactive waste are stored in individual flammable material storage cabinets within the storage cells.

4.3.2 Management of Incompatible Waste in Containers

Section 6.5.2 describes guidelines used at 305-B Storage Facility to determine the compatibility of dangerous waste so that incompatible wastes are not stored together. Chemical waste stored in 305-B Storage Facility are separated by compatibility, chemical makeup and hazard class and stored in areas having appropriate secondary containment, as described in Section 4.1.1.6.

As shown in Figures 4.2 through 4.10, each storage area has individual storage configurations; secondary containment structures are provided to assure that incompatible materials will not commingle if spilled. Further segregation is provided by chemical storage cabinets located throughout the facility in various areas as shown in Figures 4.1 through 4.10. Cabinet types are noted in those figures and capacities

described in Table 4.2. Incompatible wastes are never placed in the same container, or in unwashed containers that previously held incompatible waste.

Compliance with WAC 173-303-395(1)(b) is assured utilizing the reactivity groupings given in A Method for Determining the Compatibility of Hazardous Waste (EPA 1980). Use of this system, and the guidelines for handling ignitable or reactive waste and mixing of incompatible waste, as described in Section 6.5.2, fulfills the requirements of WAC 173-303-395(1)(c)Tank System.

This section is not applicable to the 305-B Storage Facility because waste is not managed in tanks.

4.3.3 Waste Piles

This section is not applicable to the 305-B Storage Facility because waste is not managed in waste piles.

4.3.4 Surface Impoundments

This section is not applicable to the 305-B Storage Facility because waste is not placed in surface impoundments.

4.3.5 Incinerators

This section is not applicable to the 305-B Storage Facility because waste is not incinerated.

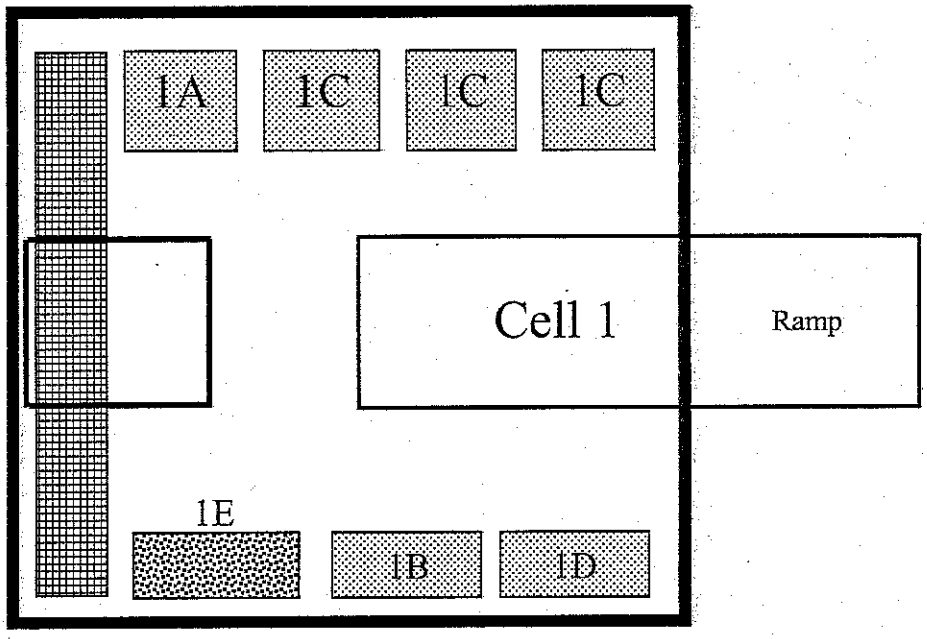
4.3.6 Landfills

This section is not applicable to the 305-B Storage Facility because waste is not placed in landfills.

4.3.7 Land Treatment

This section is not applicable to the 305-B Storage Facility because waste is not treated in land treatment units.

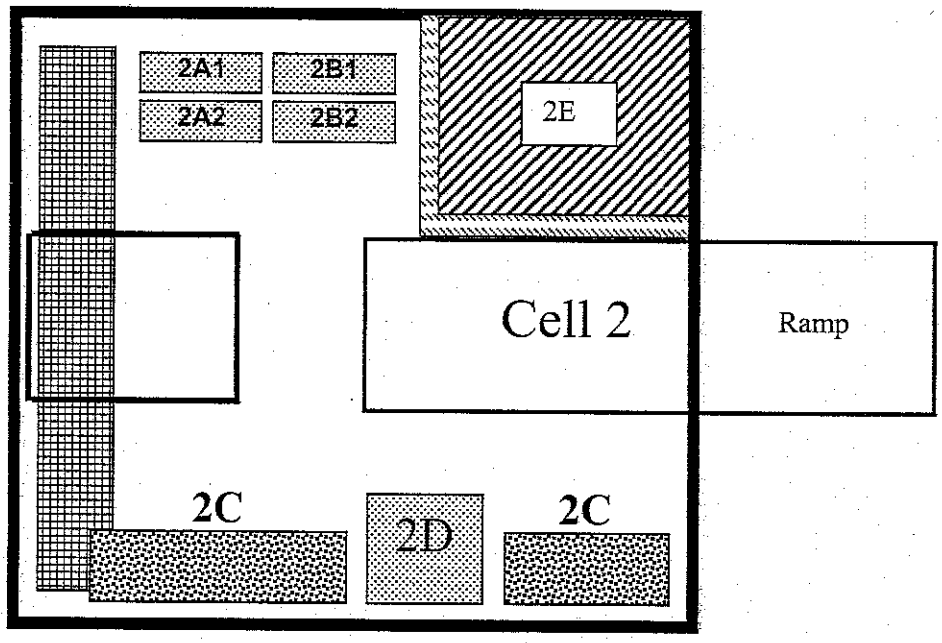
Figure 4.1. Acids and Oxidizers Cell



Legend

1A	Liquid Oxidizers (Medium Cabinet)
1B	Solid Oxidizers (Small Cabinet
1C	Inorganic Acids (Medium Cabinet)
1D	Organic Acids (corrosive) (Small Cabinet)
1E	Mercury/Corrosive Solids (Small Shelf)
▮	15.24 cm W x 127 cm H epoxy coated concrete block wall
▦	Secondary Containment Trench
▯	Drum and Carboy Storage Area

Figure 4.2. Poisons and Class 9 Cell

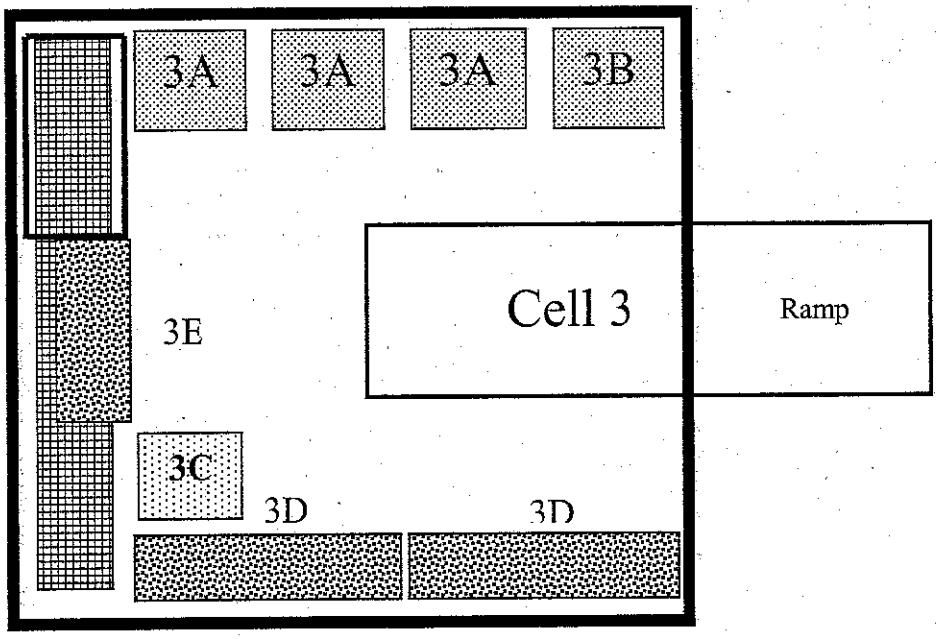


1 cm = 60 cm

Legend

2A1	Poisons, Acidic (P.G.II and P.G.III) (Small Cabinet)
2A2	Poisons, Neutral/Basic (P.G.II and P.G.III) (Small Cabinet)
2B1	Poisons, Neutral/Basic (P.G.I) (Small Cabinet)
2B2	Poisons, Acidic (P.G.I) (Small Cabinet)
2C	Class 9 (nonreactive) (Large and Small Shelf)
2D	Class 9 (reactives) (Large Cabinet)
2E	PCB's
▮	15.2 cm W x 127 cm H epoxy coated concrete block wall
▦	Secondary Containment Trench
▨	313.69 cm L x 8.89 cm W x 15.24 cm H epoxy coated angle iron, sealed to the floor
▯	Drum and Carboy Storage Area

Figure 4.3. Alkaline, Washington State Criteria Waste, Organic Peroxides, and Non-Regulated Waste Cell

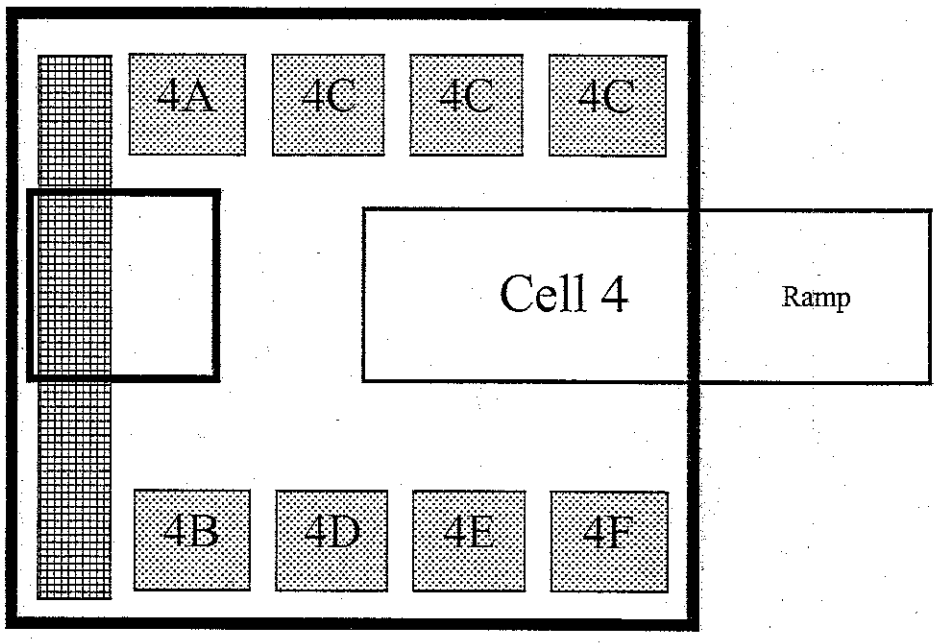


1 cm = 60 cm

Legend

3A	Alkaline (liquids and solids) (Medium Cabinet)
3B	Alkaline/Oxidizers (Medium Cabinet)
3C	Organic Peroxides and temperature sensitive (refrigerator)
3D	Washington State Criteria Waste (2 Large Shelves)
3E	Non-Regulated Liquids/Solids (Small Shelf)
	15.24 cm W x 127 cm H epoxy coated concrete block wall
	Secondary Containment Trench
	Drum and Carboy Storage Area

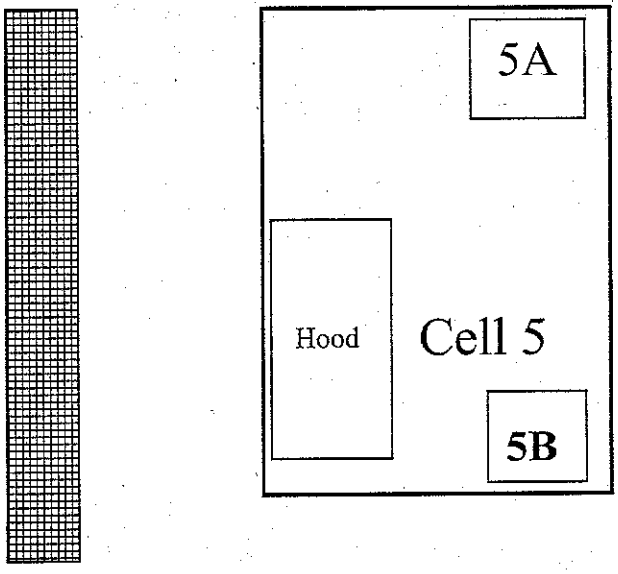
Figure 4.4. Organics Cell



Legend

4A		Combustible Liquids (Large Cabinet)
4B		Aerosols (Large Cabinet)
4C		Flammable Liquids (Large Cabinet)
4D		Flammable Solids (Dangerous When Wet) (Large Cabinet)
4E		Flammable Solids (with water Spontaneously Combustible) (Large Cabinet)
4F		Floating Cabinet (Large Cabinet)
	▌	15.24 cm W x 127 H epoxy coated concrete block wall
	▦	Secondary Containment Trench
	□	Drum and Carboy Storage Area

Figure 4.5. Flammable Liquid Bulking Module and Compressed Gases (Cell 5)



Legend

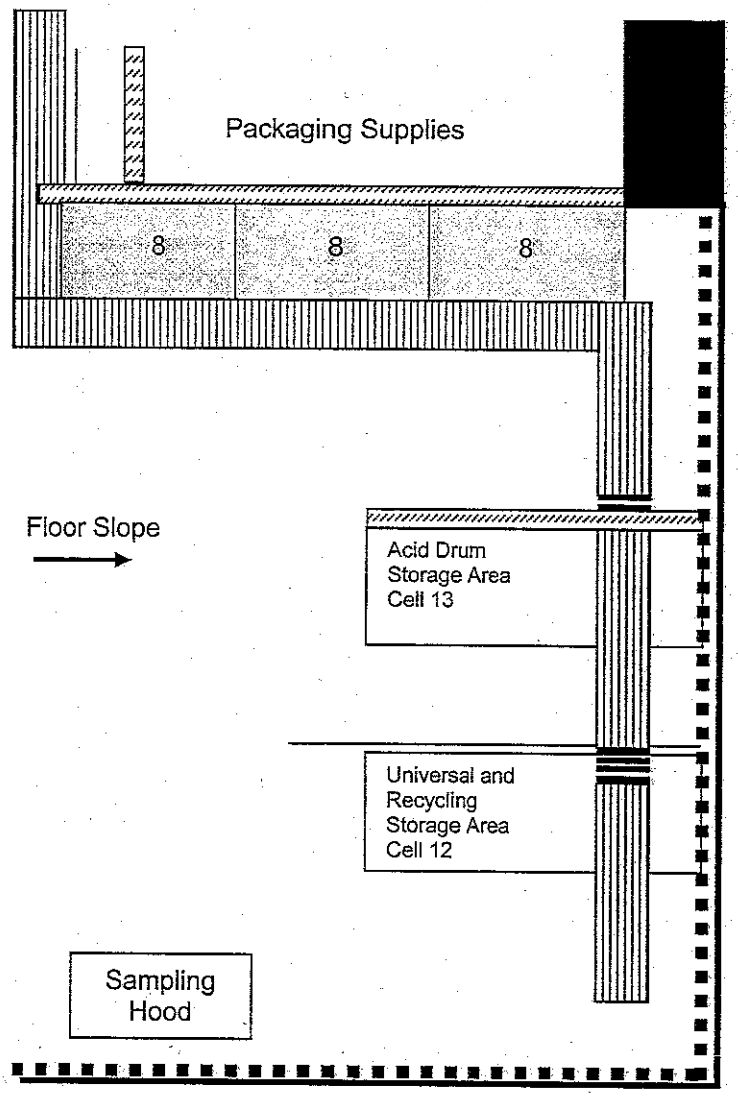
5A Compressed Gases

5B Oxidizing Gases

Hood – Walk-in flammable liquid bulking, 1 drum maximum.

Secondary Containment Trench

Figure 4.6. Segregated High Bay Drum Storage Areas



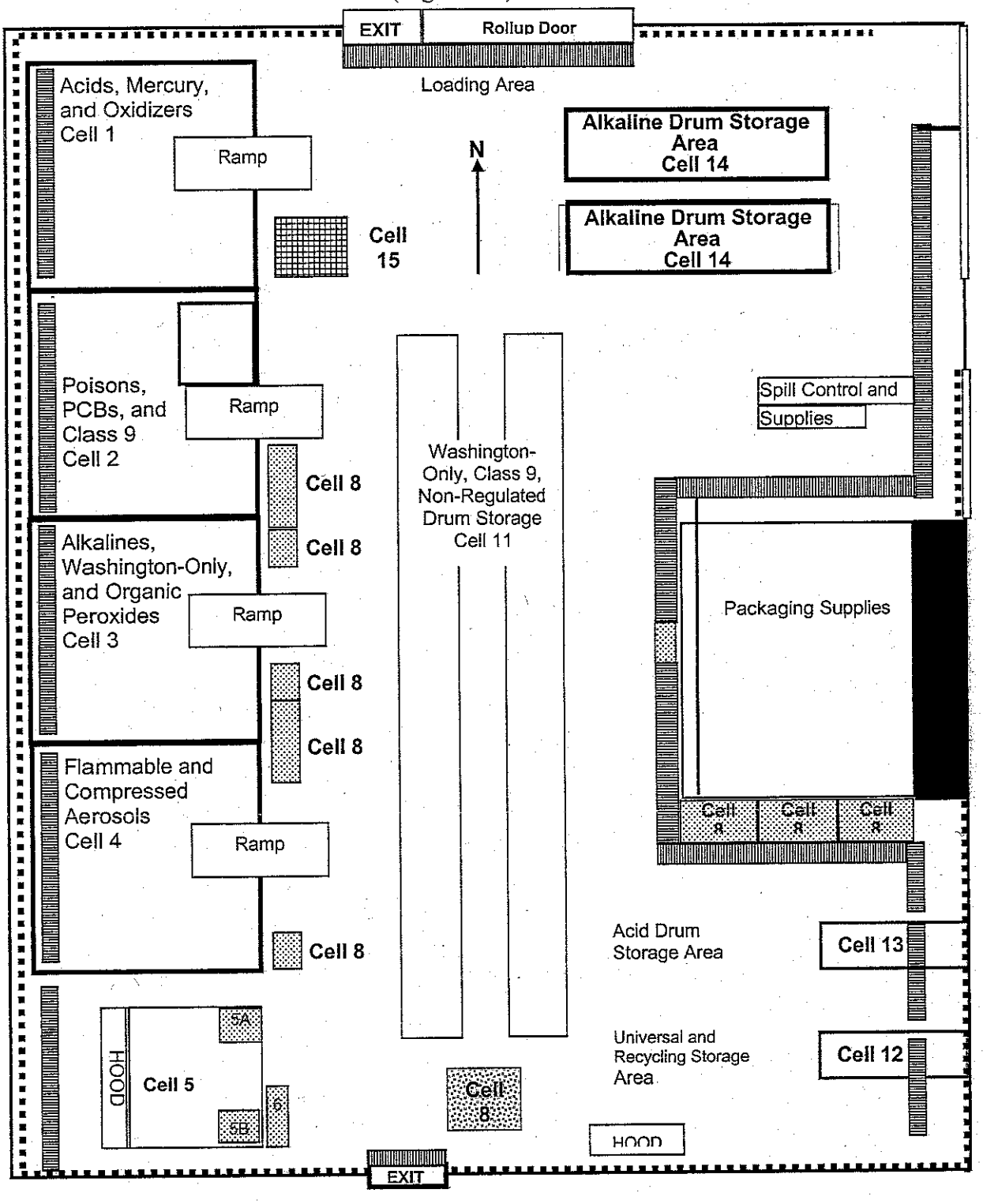
1 cm = 60 cm

Legend

- Secondary Containment Trench
- Palletized Drum Storage
- Sump Blockages (epoxy coated concrete) 360.68 cm l x 317.5 cm W x 121.92 cm H stainless steel splash wall
- Concrete Ledge
- Concrete Curb
- 8 — Large Drum Cabinet
- 313.69 cm l x 8.89 cm W x 15.24 cm H epoxy coated angle iron sealed to the floor

Figure 4.7. High Bay Storage Area

(Page 1 of 2)



Legend: On next page

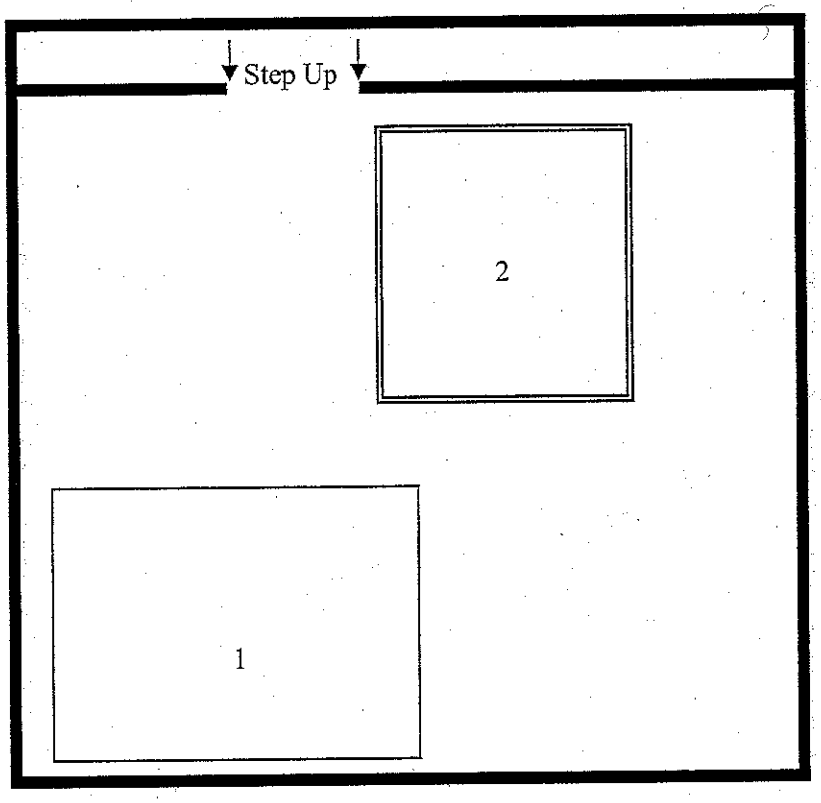
Scale: 1 cm = 120 cm

Figure 4-7. High Bay Storage Area
(Page 2 of 2)

Legend

- Secondary Containment Trench
- Palletized Drum Storage
- 360.68 cm L x 3.175 W x 10.16 cm Stainless Steel Splash wall
- 313.69cm L x 8.89cm W x 15.24cm H epoxy coated angle iron sealed to the follr
- Concrete Ledge
- 22.86cm overhang from concrete wall
- 6 Asbestos Storage (Small Cabinet)
- Small Drum Cabinet (flammable waste storage)
- Large Drum Cabinet (flammable waste storage)
- Flammable Storage Module
- Cell 5 Flammable Liquid Building Module and Compressed Gases
- 5A Compressed Gases (Large Cabinet)
- 5B Oxidizing Gases (6.985 cm w X 45.72 cm D x 88 cm H)
- Explosives Magazine

Figure 4.8. Flammable Mixed Waste Storage Area



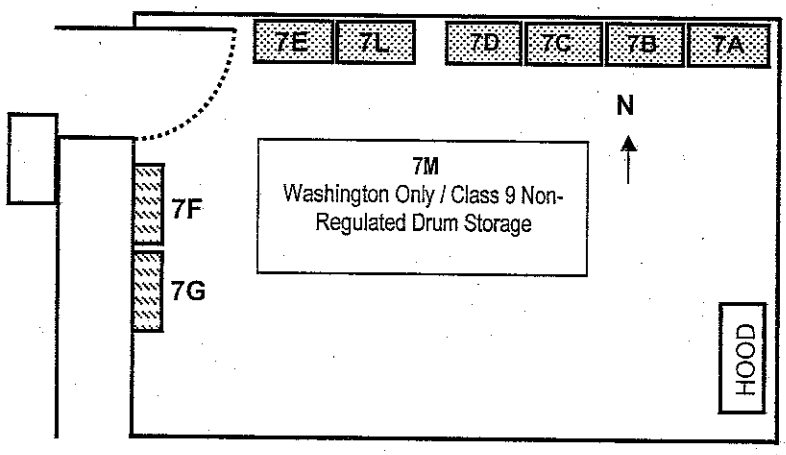
Legend

1 Flammable Mixed Waste Storage Module

2 Removable hatch cover for basement access (surrounded by railing)

All PCB waste stored in Cell 9 shall be stored in trays, or drum overpacks that meet all the requirements of 40 CFR 761.65(b).

Figure 4.9. Mixed Waste Storage

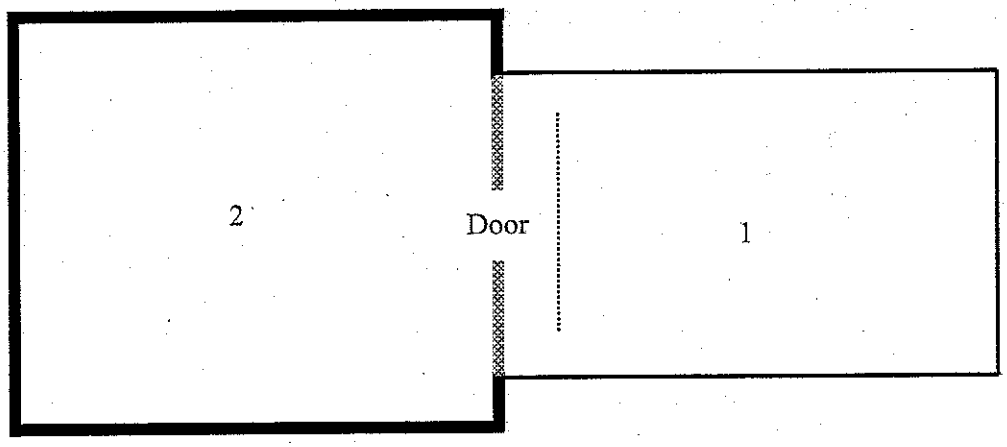


Cell 7 Legend

7A	Poisons
7B	Oxidizers
7C	Class 9/Combustible
7D	Washington Only/Combustible
7E	Flammable Solids
7F	Corrosive Base/Combustible
7G	Corrosive Acid/Combustible
7L	Non-Regulated/Combustible
7M	Washington State Waste/ Class 9/ Non-Regulated/Combustible/Compatibles
	HOOD 121.9 cm L x 54.2 cm D x 228.6 cm H

All PCB waste stored in Cell 7 will be segregated according to chemical compatibility, and stored in any of the four stainless steel container pans complying with 40 CFR 761.65(b)

Figure 4.10. Flammable Liquids Storage Module



Legend

1 Loading Ramp

2 Drum/Container Storage Area (Flammable liquid storage, 240 gallon max,)

1

Table 4.1. Storage Devices Used at the 305-B Storage Facility

Storage Device	Typical Use	Approximate External Dimensions (in.)	Approximate Capacity (gal/ft3.)
Small Cabinet	Storage of containers (5 gallons or less capacity)	43w x 18d x 65h	50 max
Medium Cabinet	Storage of containers (18.93 liter [5 gallons] or less capacity	31w x 31d x 65h	60 max
Large Cabinet	Storage of containers (5 gallons or less capacity)	34w x 34d x 65h	80 max
Small Drum Cabinet	Storage of drums (5 to 55 gallons capacity)	34w x 34d x 65h	65 max
Large Drum Cabinet	Storage of drums (5 to 55 gallons capacity)	59w x 34d x 65h	130 max
Small Shelving	Storage of containers (5 gallons or less capacity)	47w x 18d x 62h	65 max
Large Shelving	Storage of containers (5 gallons or less capacity)	72w x 18d x 62h	100 max
Flammable Storage Module	18.93 liter [5 gallons] to 208.18 liter [55 gallons] capacity	78w x 73d x 100h	240 max
Refrigerator/ Freezer	Storage of containers of organic peroxides and other temperature sensitive waste	34w x 29d x 67h	25 Cu.Ft.
Explosives Magazine	Storage of containers containing DOT classified explosives	36w x 36d x 36h	8 Cu.Ft.

2

Table 4.2. Exempt Amounts of Hazardous Materials, Liquids & Chemicals Presenting a Physical Hazard

BASIC QUANTITIES PER CONTROL AREA1

When two units are given values within parentheses are in cubic feet (Cu.Ft.) or pounds (Lbs.)

CONDITION		STORAGE2			USE2–CLOSED SYSTEMS			USE2–OPEN SYSTEMS		
MATERIAL	CLASS	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)
1.1 Combustible liquid3	II	–	1204 5	–	–	1204	–	–	304	–
	III-A	–	3304 5	–	–	3304	–	–	804	–
	III-B	–	13,2005 6	–	–	13,2006	–	–	3,3006	–
1.2 Combustible dust lbs./1000 Cu.Ft.		17	–	–	17	–	–	17	–	–
1.3 Combustible fiber			–	–		–	–		–	–
(loose)		(100)			(100)			(20)		
(baled)		(1,000)			(1,000)			(200)		
1.4 Cryogenic, flammable or oxidizing			45	–	–	45	–	–	10	–
2.1 Explosives		15 8 9	(1)5 8 9	–	¼ 8	(¼)8	–	¼ 8	(¼)8	–
3.1 Flammable solid		1254 5	–	–	254	–	–	254	–	–
3.2 Flammable gas										–
(gaseous)		–	–	7504 5	–	–	7504 5	–	–	–
(liquefied)		–	154 5	–	–		–	–	–	
3.1 Flammable liquid3		–	304 5	–	–	304	–	–	104	–
		–	604 5	–	–	604	–	–	154	–
		–	904 5	–	–	904	–	–	204	–
Combination I-A, I-B, I-C		–	1204 5 10	–	–	1204 10	–	–	304 10	–
4.1 Organic peroxide, unclassified detonable		15 8	(1)5 8	–	¼ 8	(¼)8		¼8	(¼)8	–
4.2 Organic peroxide	I	54 5	(5)4 5	–	(1)4	(1)4	–	14	14	–
	II	504 5	(50)4 5	–	504	(50)4 5	–	104	(10)4	–
	III	1254 5	(125)4 5	–	1254	(125)4 5	–	254	(25)4	–
	IV	500	(500)	–	5004	(500)	–	100	(100)	–
	V	N.L.	N.L.	–	N.L.	N.L.	–	N.L.	N.L.	–
4.3 Oxidizer	4	15 8	(1)5 8	–	¼ 8	(¼) 8	–	¼8	(¼)8	–
	3	104 5	(10)4 5	–	24	(2)4	–	24	(2)4	–
	2	2504 5	(250)4 5	–	2504	(250)4	–	504	(50)4	–
	1	1,0004 5	(1,00)4 5	–	1,0004	(1,000)4	–	2004	(200)4	–

[1] Control area is a space bounded by not less than a one-hour fire-resistive occupancy separation within which the exempted amounts of hazardous materials may be stored dispensed, handled or used. The number of control areas within a building used for retail and wholesale stores shall not exceed two. The number of control areas in buildings with other uses shall not exceed four.
[2] The aggregate quantity in use and storage shall not exceed the quantity listed for storage.
[3] The quantities of alcoholic beverages in retail sales uses are unlimited provided the liquids are packaged in individual containers not exceeding four liters. The quantities of medicines, foodstuffs and cosmetics containing not more than 50 percent of volume of water-miscible liquids and with the remainder of the solutions not being flammable in retail sales or storage occupancies are unlimited when packaged in individual containers not exceeding four litters.
[4] Quantities may be increased 100 percent in sprinklered buildings. When Footnote 5 also applies, the increase for both footnotes may be applied.
[5] Quantities may be increased 100 percent when stored in approved storage cabinets or safety cans as specified in the fire code. When Footnote 4 also applies, the increase for both may be applied.
[6] The quantities permitted in a sprinklered building are not limited.
[7] A dust explosion potential is considered to exist if 1 pound or more of combustible dust per 1,000 cubic feet of volume is normally in suspension or on horizontal surfaces inside buildings or equipment and which could be put into suspension by an accident, sudden force or small explosion.
[8] Permitted in sprinklered buildings only. None is allowed in unsprinklered buildings.
[9] One pound of black sporting powder and 20 pounds of smokeless powder are permitted in sprinklered or unsprinklered buildings.
[10] Containing not more than the exempt amounts of Class I-A, Class I-B, and Class I-C flammable liquids.

BASIC QUANTITIES PER CONTROL AREA1

When two units are given values within parentheses are in cubic feet (Cu.Ft.) or pounds (Lbs.)

CONDITION		STORAGE2			USE2–CLOSED SYSTEMS			USE2–OPEN SYSTEMS		
MATERIAL	CLASS	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)
4.1 Oxidizer—Gas (gaseous)		–	–	1,5004 5	–	–	1,5004 5	–	–	–
(liquefied)		–	154 5	–	–	154 5	–	–	–	–
5.1 Pyrophoric		45 8	(4)5 8	505 8	18	(1)8	105 8	0	0	0
6.1 Unstable (reactive)	4	15 8	(1)5 8	105 8	¼ 8	(¼)8	24 5	⅛8	(¼)8	0
	3	54 5	(5)4 5	504 5	14	(1)4	104 5	14	14	0
	2	504 5	(50)4 5	2504 5	504	(50)4	2504 5	104	(10)4	0
	1	1254 5	(125)4 5	7504 5	1254	(125)4	7504 5	254	(25)4	0
7.1 Water (reactive)	3	54 5	(5)4 5	–	54	(5)4	–	14	(1)4	–
	2	504 5	(50)4 5	–	504	(50)4	–	104	(10)4	–
	1	1255 6	(125)5 6	–	1256	(125)5 6	–	25 6	(25) 6	–
1. Corrosives	5,000	500	6506	5,000	500	6505	1,000	100	100	–
2. Highly Toxics1	1	(1)	202	1	(1)	207	¼	(¼)	(¼)	–
3. Irritants	5,000	500	6506	5,000	500	6505	1,000	100	–	
4. Sensitizers	5,000	500	6506	5,000	500	6505	1,000	100	–	
5. Other Health Hazards	5,000	500	6506	5,000	500	6505	1,000	100	–	

1

[1] For special provisions, see the Fire Code.

[2] Permitted only when stored in approved exhausted gas cabinets, exhausted enclosures or fume hoods.

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8.0 PERSONNEL TRAINING [H]

This chapter discusses personnel training requirements based on WAC 173-303 and the HF RCRA Permit (DW Portion). In accordance with WAC 173-303-806(4)(a)(xii), the *Hanford Facility Dangerous Waste Part B Permit Application* must contain two items: (1) "an outline of both the introductory and continuing training programs by owners or operators to prepare persons to operate or maintain the TSD facility in a safe manner as required to demonstrate compliance with WAC 173-303-330" and (2) "a brief description of how training will be designed to meet actual job tasks in accordance with the requirements in WAC 173-303-330(1)(d)." The HF RCRA Permit, (DW portion) Condition II.C (Personnel Training) contains training requirements applicable to Hanford Facility personnel and non-Facility personnel.

Compliance with these requirements at the 305-B Storage Facility is demonstrated by information contained both in Attachment 33, General Information Portion, Chapter 8.0 (DOE/RL-91-28) of the HF RCRA Permit, and this chapter. This chapter supplements Attachment 33, General Information Portion, Chapter 8.0 (DOE/RL-91-28).

8.1 OUTLINE OF INTRODUCTORY AND CONTINUING TRAINING PROGRAMS

The introductory and continuing training programs are designed to prepare personnel to manage and maintain the TSD unit in a safe, effective, and environmentally sound manner. In addition to preparing personnel to manage and maintain TSD units under normal conditions, the training programs ensure that personnel are prepared to respond in a prompt and effective manner should abnormal or emergency conditions occur. Emergency response training is consistent with the description of actions contained in Attachment 18, Chapter 7.0, Building Emergency Procedure. The introductory and continuing training programs contain the following objectives:

- Teach Hanford Facility personnel to perform their duties in a way that ensures the Hanford Facility's compliance with WAC 173-303
- Teach Hanford Facility personnel dangerous waste management procedures (including implementation of the contingency plan) relevant to the job titles/positions in which they are employed, and
- Ensure Hanford Facility personnel can respond effectively to emergencies.

8.1.1 Introductory Training

Introductory training includes general Hanford Facility training and TSD unit-specific training. General Hanford Facility training is described in Attachment 33, General Information Portion, Section 8.1 (DOE/RL-91-28) and is provided in accordance with the HF RCRA Permit (DW Portion), Condition II.C.2. TSD unit-specific training is provided to Hanford Facility personnel allowing those personnel to work unescorted, and in some cases is required for escorted access. Hanford Facility personnel cannot perform a task for which they are not properly trained, except to gain required experience while under the direct supervision of a supervisor or coworker who is properly trained. Hanford Facility personnel must be trained within 6 months after their employment at or assignment to the Hanford Facility, or to a new job title/position at the Hanford Facility, whichever is later.

General Hanford Facility training: Refer to description in Attachment 33, General Information Portion, Section 8.1 (DOE/RL-91-28).

Contingency Plan training: Hanford Facility personnel receive training on applicable portions of Attachment 4, *Hanford Emergency Management Plan* (DOE/RL-94-02) in general Hanford Facility training. In addition, Hanford Facility personnel receive training on content of the description of actions

contained in contingency plan documentation in Attachment 18, Chapter 7.0 to be able to effectively respond to emergencies.

Emergency Coordinator training: Hanford Facility personnel who perform emergency coordinator duties in WAC 173-303-360 (e.g., Building Emergency Director) in the Hanford Incident Command System receive training on implementation of the contingency plan and fulfilling the position within the Hanford Incident Command System. These Hanford Facility personnel must also become thoroughly familiar with applicable contingency plan documentation, operations, activities, location, and properties of all waste handled, location of all records, and the unit/building layout.

Operations training: Dangerous waste management operations training (e.g., waste designation training, shippers training) will be determined on a unit-by-unit basis and shall consider the type of waste management unit (e.g., container management unit) and the type of activities performed at the waste management unit (e.g., sampling). For example, training provided for management of dangerous waste in containers will be different than the training provided for management of dangerous waste in a tank system. Common training required for compliance within similar waste management units can be provided in general training and supplemented at the TSD unit. Training provided for TSD unit-specific operations will be identified in the training plan documentation based on: (1) whether a general training course exists, (2) the training needs to ensure waste management unit compliance with WAC 173-303, and (3) training commitments agreed to with Ecology.

8.1.2 Continuing Training

Continuing training meets the requirements for WAC 173-303-330(1)(b) and includes general Hanford Facility training and TSD unit-specific training.

General Hanford Facility training: Annual refresher training is provided for general Hanford Facility training. Refer to description in Attachment 33, General Information Portion, Section 8.1 (DOE/RL-91-28).

Contingency plan training: Annual refresher training is provided for contingency plan training. Refer to description above in Section 8.1.1.

Emergency coordinator training: Annual refresher training is provided for emergency coordinator training. Refer to description above in Section 8.1.1.

Operations training: Refresher training occurs on many frequencies (i.e., annual, every other year, every 3 years) for operations training. When justified, some training will not contain a refresher course and will be identified as a one-time only training course. The TSD unit-specific training plan documentation will specify the frequency for each training course. Refer to description above in Section 8.1.1.

8.2 DESCRIPTION OF TRAINING DESIGN

Proper design of a training program ensures personnel who perform duties on the Hanford Facility related to WAC 173-303-330(1)(d) are trained to perform their duties in compliance with WAC 173-303. Actual job tasks, referred to as duties, are used to determine training requirements. The first step taken to ensure Hanford Facility personnel have received the proper training is to determine and document the waste management duties by job title/position. The second step compares waste management duties to general waste management unit training curriculum. If general waste management unit training curriculum does not address the waste management duties, the training curriculum is supplemented and/or on-the-job training is provided. The third step summarizes the content of a training course necessary to ensure that the training provided to each job title/position addresses associated waste management duties. The last step is to assign training curriculum to Hanford Facility personnel based on the previous evaluation. The training plan documentation contains this process.

Waste management duties include those specified in Section 8.1 as well as those contained in WAC 173-303-330(1)(d). Training elements of WAC 173-303-330(1)(d) applicable to the 305-B Storage Facility operations include the following:

- Procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment
- Communications or alarm systems
- Response to fires or explosions
- Shutdown of operations.

Hanford Facility personnel who perform these duties receive training pertaining to their duties. The training plan documentation described in Section 8.3 contains specific information regarding the types of training Hanford Facility personnel receive based on the outline in Section 8.1.

8.3 DESCRIPTION OF TRAINING PLAN

In accordance with HF RCRA Permit (DW Portion), Condition II.C.3, the unit-specific portion of the *Hanford Facility Dangerous Waste Permit Application* must contain a description of the training plan. Training plan documentation is maintained outside of the *Hanford Facility Dangerous Waste Part B Permit Application* and the HF RCRA Permit. Therefore, changes made to the training plan documentation are not subject to the HF RCRA Permit modification process. However, the training plan documentation is prepared to comply with WAC 173-303-330(2).

Documentation prepared to meet the training plan consists of hard copy and/or electronic media as provided by HF RCRA Permit (DW Portion), Condition II.C.1. The training plan documentation consists of one or more documents and/or a training database with all the components identified in the core document.

A description of how training plan documentation meets the three items in WAC 173-303-330(2) is as follows:

1. -330(2)(a): "The job title, job description, and name of the employee filling each job. The job description must include requisite skills, education, other qualifications, and duties for each position."

   Description: The specific Hanford Facility personnel job title/position is correlated to the waste management duties. Waste management duties relating to WAC 173-303 are correlated to training courses to ensure training is properly assigned.

   Only names of Hanford Facility personnel who carry out job duties relating to TSD unit waste management operations at the 305-B Storage Facility are maintained. Names are maintained within the training plan documentation. A list of Hanford Facility personnel assigned to the 305-B Storage Facility is available upon request.

   Information on requisite skills, education, and other qualifications for job title/positions are addressed by providing a reference where this information is maintained (e.g., human resources). Specific information concerning job title, requisite skills, education, and other qualifications for personnel can be provided upon request.

2. -330(2)(b): "A written description of the type and amount of both introductory and continuing training required for each position."

   Description: In addition to the outline provided in Section 8.1, training courses developed to comply with the introductory and continuing training programs are identified and described in the training plan documentation. The type and amount of training is specified in the training plan documentation as shown in Table 8-1.

3. -330(2)(c): "Records documenting that personnel have received and completed the training required by this section. The Department may require, on a case-by-case basis, that training records include employee initials or signature to verify that training was received."

Description: Training records are maintained consistent with Attachment 33, General Information Portion, Section 8.4 (DOE/RL-91-28).

Table 8.1. 305-B Storage Facility Training Matrix

	Training Category*				
Attachment 33, General Information Portion, Chapter 8.0 Training (DOE/RL-91-28) Category	General Hanford Facility Training	Contingency Plan Training	Emergency Coordinator Training	Operations Training	
305-B Storage Facility	Orientation Program	Building Emergency Plan	Building Emergency Director Training	Advanced Waste Management Training	Container Management
Staff Position					
Technical Group Lead	X	X	X	X	X
Hazardous Waste Operations Staff	X	X	X[1]	X	X

[1] Required for any staff that has been assigned the duties of Building Emergency Director or alternate.

* Refer to the 305-B Storage Facility Training Plan for a complete description of coursework in each training category.

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11.0 CLOSURE AND POSTCLOSURE REQUIREMENTS

This chapter is submitted in accordance with the requirements of WAC 173-303-806(4)(a)(xiii) to demonstrate that DOE-RL has developed a plan to ensure safe closure of the 305-B Storage Facility. In accordance with WAC 173-303-610, copies of the closure plan and all revisions will be maintained at 305-B Storage Facility until certification of closure completeness has been submitted and accepted by Ecology. A post-closure plan is not required because 305-B Storage Facility is not a disposal unit and all dangerous waste and dangerous waste residues will be removed at the time of closure.

11.1 CLOSURE PLANS

This plan presents the activities required for final closure of the 305-B Storage Facility at its maximum extent of operation. The wastes included are those regulated as dangerous waste and mixed waste. Partial closure will not be conducted. Closure activities are presented in sufficient detail such that the closure process is understandable and a closure schedule can be developed.

11.1.1 Closure Performance Standard

The 305-B Storage Facility will be closed in a manner that will minimize the need for further maintenance and eliminate post-closure release of dangerous/mixed waste or dangerous/mixed waste constituents that could pose a risk to human health or the environment. This standard will be met by removal of all dangerous/mixed waste and dangerous/mixed residues from the unit. Closure activities will return the 305-B Storage Facility site to the appearance and use of surrounding land areas. After closure, the 305-B Storage Facility will be in a condition suitable for use to support research and development activities. This use is consistent with the surrounding land use.

If there is any evidence of spills or leaks from the unit into the environment, samples will be taken and analyzed to determine the extent of contamination in the soil, and if necessary, in groundwater. Evidence of spills or leaks will be obtained through sampling of unit structures accessible to the environment (e.g., floors) and through inspection of all barriers designed to prevent migration to the environment (e.g., sumps). If this sampling program indicates that contamination is present, the potential for migration of contamination to the environment will be evaluated. If potential migration appears likely, additional samples will be taken. In addition, if the inspections identify any potential contaminant migration routes (e.g., cracks in sumps), additional samples will be collected to determine whether migration has occurred. Spill reports and logs shall be consulted to determine potential areas of contamination.

Any contaminated soil will be excavated, removed, and disposed as dangerous or mixed waste. Soil will be decontaminated to the following levels, as required under WAC 173-303-610(2)(b):

- Background environmental levels for waste which are listed under WAC 173-303-081 or WAC 173-303-082
- Background environmental levels for waste which are characteristic dangerous waste under WAC 173-303-090
- Designation limits for waste that are designated under WAC 173-303-084, or WAC 173-303-101 through WAC 173-303-103.

Equipment and structural components will be decontaminated using the procedures described in Section 11.1.4. All residues resulting from decontamination will be sampled and analyzed, as described in Section 11.1.4.3, to determine whether they are dangerous waste. All residues will be removed from the unit and transferred to a facility having the necessary permits. Residues containing listed waste, having dangerous waste characteristics, or exceeding dangerous waste designation limits will be disposed as dangerous waste.

11.1.2 Partial and Final Closure Activities

This plan identifies the steps necessary to perform final closure of the unit in order to meet the aforementioned closure performance standard (Section 11.1). Closure activities involve removal of dangerous and mixed waste from the unit and decontamination of the unit. These activities can be implemented at any point during the active life of the unit. Partial closure of the unit will not be conducted. The entire 305-B Storage Facility will be in use at all times prior to closure. The entire unit, therefore, represents the maximum extent of the operation that will be unclosed during the unit's active life.

11.1.3 Maximum Waste Inventory

The 305-B Storage Facility is used to store a variety of different research-related waste. The maximum inventory of waste in storage at any time will be constrained by three factors:

- The total amount of dangerous/mixed waste in storage at 305-B Storage Facility at any time will not exceed the design capacity of 30,000 gallons (it is typically 2,000 to 5,000 gallons)
- The total amount of any particular dangerous/mixed waste in storage during any given year will not exceed the amounts given in the Part A permit application for 305-B Storage Facility (Attachment 18, Chapter 1.0, Part A)
- The total amount of dangerous/mixed waste by hazard class in storage at any one time will not exceed Uniform Building Code Class B Hazardous Material Quantity Restrictions (Attachment 18, Chapter 4.0, Table 4.1).

Except on the relatively rare occasion when 85-gallon overpacks are used, approximately 90 percent of all dangerous wastes shipped from the unit are contained in 55-gallon drums, with the remaining 10 percent consisting of 30-gallon and smaller containers.

11.1.4 Inventory Removal, Disposal or Decontamination of Equipment, Structures, and Soils

Steps for removing or decontaminating all dangerous/mixed waste containers, residues, and contaminated equipment are described below.

11.1.4.1 Inventory Removal

Closure activities will be initiated by removal of the dangerous/mixed waste inventory present at 305-B Storage Facility at the time of closure. Inventory removal procedures will be identical to the waste handling, packaging, and manifesting activities associated with normal operation of the unit. All dangerous waste present will be placed into proper containers according to currently accepted waste handling procedures; mixed waste will be placed into containers and meet Hanford specifications outlined in WHC-EP-0063, Hanford Radioactive Solid Waste Packaging, Storage, and Disposal Requirements. To the extent possible, chemicals will be bulked into larger containers. If wastes are bulked, containers will be emptied in compliance with WAC 173-303-160 so that they are not dangerous waste. Small quantity laboratory chemicals that cannot be bulked will be packaged into labpack containers in compliance with the requirements of WAC 173-303-161. All containers of dangerous/mixed waste will be manifested, and custody transferred to a dangerous waste transporter having a proper dangerous waste identification number. Waste will be transported to a permitted dangerous waste facility for treatment or disposal.

11.1.4.2 Decontamination of Building Equipment and Structures

All equipment and structures in dangerous/mixed waste handling and storage areas will be decontaminated at the time of closure. Equipment and structures to be decontaminated include:

- Floors and walls of the four dangerous waste storage cells
- Floors, walls, and ceiling of high bay and flammable liquid bulking module areas
- Floors and walls of remainder of first floor except for offices, work area, and lavatories/change rooms
- Floors, walls, and ceiling of basement except equipment storage room
- Interior surfaces of all secondary containment trenches
- Fork lift and loading hoist
- Asphalt ramp outside north high bay door.

Before decontamination, sampling and analysis will be performed to determine decontamination requirements. In most cases, minimal decontamination consisting of washing or wiping will be performed unless the sampling and analysis indicates the presence of significant contamination. In order to determine whether such contamination exists, a systematic sampling approach designed to identify the presence of contaminated areas will be employed. Structures (i.e., floors, walls, ceilings) to be sampled before decontamination will be sampled on a regular grid with a spacing of 5 feet. This spacing provides an 80 percent probability of detecting a circular area of contamination having a radius of 2.5 feet or larger. Biased sampling of areas more likely to have been contaminated by unit operations, such as cracks or seams in the concrete floor or any visible stains, or areas of documented spills or releases, will also be performed. If any areas of contamination are detected, more thorough decontamination procedures will be used in those areas.

Structural surfaces will be sampled by collecting wipe samples at each grid point. At each sample location, two samples will be collected within adjacent 1 foot square templates. One sample will be collected using a gauze pad wetted with dilute nitric acid for extraction of inorganic contaminants. The other sample will be collected with a gauze pad wetted with hexane for extraction of organic contaminants.

Decontamination of equipment and structures will take place as described below. The magnitude of each phase of the operation and estimated time for completion is included.

11.1.4.2.1 Decontamination of Basement

Once Cell 7 has been completely emptied of stored waste, any visible residues present will be scraped, vacuumed and/or swept up until visibly clean. All residues thus obtained will be placed in open top drums and disposed of as appropriate. All waste materials generated during the decontamination process of the Cell 7 will be designated to determine whether the waste generated from decontamination is mixed waste. After the above process is completed, wipe samples will be collected at various points along the floors, walls, and ceiling of the basement.

Swab samples will be collected from the Cell 7 to test for dangerous waste contamination resulting from storage activities. Any dangerous waste contamination found during this testing will be presumed to have come from storage activities unless otherwise documented. Random and biased sampling locations will be selected using the procedures noted in Section 11.4.4.

The swab samples will be analyzed for mixed waste constituents. Baseline smears will have been documented prior to introduction of mixed waste. Once the results from the testing are known, a decision can be made as to the appropriate decontamination procedures. If no contamination is found on the swab samples, decontamination procedures will consist of dusting, vacuuming, and wiping with soap and water. Vacuuming is performed using a commercial or industrial vacuum equipped with a high-efficiency particulate air (HEPA) filter. The vacuum cleaner bag containing captured particulates is disposed of as appropriate.

Dusting/wiping is done with a damp cloth or wipe (soaked with water or solvent) to remove dust from surfaces not practically treatable with a vacuum. The cloth or wipe is also disposed of as appropriate. Brushing or sweeping is used to clean up coarse debris.

Minimal time will be required for setup of the equipment. Labor requirements for the process should be moderate. Minimal time will also be required for packaging debris and dismantling and removing cleaning equipment. Little wastewater (only the contents of the buckets) will be generated by this procedure. However, if contamination is found on the swab samples, more sophisticated decontamination procedures must be implemented. The entire Cell 7 storage room will be extensively treated via steam cleaning. Applying steam from a hand-held wand to remove all residues from the surfaces will treat the ceiling, all four walls, and the floor. The contaminated wastewater generated by this activity will be contained by the designed spill controls already in place for waste storage areas. Pumps or vacuums will be used to empty the wastewater from the containment area into polyethylene-lined, closed top drums. These containers will be transported for proper management at an approved dangerous waste or mixed waste TSD facility.

Although this procedure will require more time than the dusting, vacuuming, and wiping procedures outlined above, time requirements are still considered to be minimal for the steam cleaning approach. Wastewaters generated by this procedure are not anticipated to exceed 100 gallons.

Following completion of decontamination, sampling will be performed, as described in Section 11.1.4.4, to verify that decontamination is complete.

11.1.4.2.2 Decontamination of Waste Handling Equipment

All equipment will be decontaminated first by solvent washing followed by steam cleaning, or disposed of as dangerous waste at an approved disposal facility. The decision to dispose or decontaminate equipment will be made at the time of closure. Whichever option, in the opinion of the Building Supervisor, is most environmentally and economically feasible will be chosen. If the equipment is not considered to be substantially contaminated, the solvent washing may not be performed. In this case, the steam cleaning technique only will clean the equipment.

All equipment to be decontaminated will be placed in one of the fully contained storage cells and subjected to the solvent wash deemed most effective for the removal of the suspected contamination. The equipment is then subjected to a final washing and rinsing by a steam-cleaning unit. All wastewaters will be collected in the storage cell sumps, pumped to polyethylene-lined closed top drums, and transported and disposed of as dangerous waste.

The time required for completion and wastewaters generated by these processes are largely dependent upon the amount of equipment that needs to be treated. However, at this time, minimal time and effort are anticipated. In addition, wastes to be generated are not anticipated to exceed 50 gallons.

Following completion of decontamination, sampling will be performed, as described in Section 11.1.4.4, to verify that decontamination is complete.

11.1.4.2.3 Decontamination of Dangerous Waste Storage Cells

Any visible contamination present in the storage cells will be scraped and/or swept until visibly clean. All residues obtained from the scraping/sweeping exercise will be placed in open top drums and disposed of as dangerous waste. Each of the four storage cells will be steam cleaned and the generated wastewaters collected in each of the storage cell's individual sumps. The wastewaters will be pumped from the sumps to polyethylene-lined, closed top drums in preparation for disposal. No wastewaters will be mixed with scrapings, sweepings, or wastewaters from other storage cells. Each sump area will be re-rinsed with water. This water will similarly be pumped to containers for disposal.

The containerized wastewaters will be analyzed to determine if they are designated as dangerous waste under WAC 173-303-070. If designated as dangerous, the wastewaters will be handled, transported, and disposed of as dangerous waste. If not dangerous waste, the wastewater will be managed appropriately. Total decontamination of the storage cells should be completed in no more than 2 weeks. Each of the storage cells should have approximately 30 gallons of wastewater generated during the cleaning and rinsing process; therefore, a total of 120 gallons of wastewater will need to be analyzed and disposed.

Following completion of decontamination, sampling will be performed, as described in Section 11.1.4.4, to verify that decontamination is complete.

11.1.4.2.4 Decontamination of High Bay, Flammable Liquid Bulking Module and Other First Floor Areas

Wipe samples will be collected at various points along the floors, walls, and ceiling of the entire first floor, except for the office, supply/office area, lunch room, and rest room. The wipe samples will be analyzed to determine if these areas have been contaminated with dangerous waste constituents. Once the results from the testing are known, a decision can be made as to the appropriate decontamination procedures.

If no contamination is found on the wipe samples, decontamination procedures will consist of dusting, vacuuming, and wiping. Vacuuming is performed using a commercial or industrial vacuum equipped with a HEPA filter. The vacuum cleaner bag containing captured particulates is disposed of as appropriate.

Dusting/wiping is done with a damp cloth or wipe (soaked with water or solvent) to remove dust from surfaces not practically treatable with a vacuum. The cloth or wipe is also disposed of as appropriate. Brushing or sweeping is used to clean up coarse debris.

Minimal time will be required for setup of the equipment. Labor requirements for the process should be moderate. Minimal time will also be required for packaging debris and dismantling and removing cleaning equipment. Little wastewater (only the contents of the buckets) will be generated by this procedure.

On the other hand, if contamination is found on the wipe samples, more sophisticated decontamination procedures must be implemented. The affected areas will be extensively treated via steam cleaning. Applying steam with a hand-held wand to remove all residues from the surfaces will treat such areas. The contaminated wastewater generated by this activity will be contained by the designed spill controls already in place for the waste storage areas. Pumps will be used to empty the wastewater from the containment area into polyethylene-lined closed top drums. These containers will be transferred for proper treatment or disposal at an approved dangerous waste facility. Although this procedure will require more time than the dusting, vacuuming, and wiping procedures outlined above, time requirements are still considered to be minimal for the steam cleaning approach. Wastewaters generated by this procedure are not anticipated to exceed 200 gallons.

Following completion of decontamination, sampling will be performed, as described in Section 11.1.4.4, to verify that decontamination is complete.

11.1.4.2.5 Decontamination of Sumps

All collection sumps located at the 305-B Storage Facility, including those lining the storage cells on the west side of the unit, the sump along the east side inside wall, and those protecting the exits on the north and south ends, will be decontaminated by steam cleaning. Wastewaters collected in each sump from the implementation of the cleaning process will be pumped into polyethylene-lined, closed top drums and analyzed as to whether or not the wastewater is designated as dangerous waste under WAC 173-303-070. If designated, the wastewater will be disposed of as dangerous waste. If the wastewater is not dangerous waste, the wastewaters will be discharged to the 300 Area process sewer system. The steam cleaning of all the sumps should take minimal time and generate approximately 100 gallons of wastewater.

Following completion of decontamination, sampling will be performed, as described in Section 11.1.4.4, to verify that decontamination is complete.

11.1.4.3 Management of Decontamination Waste

Liquid decontamination waste will be placed in drums and sampled to determine disposal requirements. Grab samples will be collected from drums using COLIWASA samplers. In order to properly designate

the decontamination waste under WAC 173-303-070, grab samples from each drum will be analyzed for the following:

- Corrosivity using the methods described in SW-846
- Flash point using methods described in SW-846
- Toxicity characteristic using the toxicity characteristic leaching procedure described in SW-846 (includes analysis for metals, volatile organics, and semi-volatile organics including chlorinated pesticides)

The results of sample analysis will be used to determine how to dispose of liquid decontamination waste. The results of volatile and semi-volatile organic analysis of the liquid performed as part of the TCLP will be used to determine the presence of potential listed [WAC 173-303-081(1) and WAC 173-303-082(1)] dangerous waste constituents above background. (Background levels will be determined by analysis of the tap water used for makeup of the decontamination solutions.) Those liquid wastes with listed waste constituents above background will be designated as dangerous waste. The results of the ignitability, corrosivity, and TCLP analyses will be used to determine if liquid wastes are characteristic dangerous waste [WAC 173-303-090]. Organic and inorganic analytical results will also be used to determine if liquid wastes are dangerous waste mixtures [WAC 173-303-084]. These results will also be used to determine whether the wastes are LDR [WAC 173-303-140(4) and 40 CFR 268]. The results of the analyses will be used to determine whether any of the liquid wastes are mixed waste. Depending on designation, liquid decontamination waste will be disposed of as follows:

- Dangerous Manifested and shipped to a permitted dangerous waste TSD facility
- Mixed Waste Manifested and shipped to a permitted mixed waste TSD facility
- Nonregulated Shall be handled in accordance with the Liquid Effluent Consent Order (No. DE91NM-177) and Milestone M-17 of the Hanford Federal Facility Agreement and Consent Order.

All non-liquid waste generated during decontamination of dangerous waste storage areas and equipment (e.g., personnel protective clothing) will be collected in 55-gallon open-head drums and managed as dangerous waste. All non-liquid waste generated during decontamination of mixed waste storage areas and equipment will be similarly collected and managed as mixed waste.

11.1.4.4 Methods for Sampling and Testing to Demonstrate Success of Decontamination.

A series of wipe samples will be collected at various points along floors, walls, ceilings, and equipment of areas at which decontamination activities were conducted. These samples will be analyzed and used to verify whether decontamination procedures were effective. To verify decontamination, a systematic sampling approach designed to identify the presence of "hot spots" will be employed. Samples will be collected on a regular grid with a spacing of 5 feet. This spacing provides an 80 percent probability of detecting a circular "hot spot" having a radius of 2.5 feet or larger (Gilbert 1987, pp. 119-125). Biased sampling of areas more likely to have been contaminated by unit operations, such as cracks or seams in the concrete floor or any visible stains, or areas of documented spills or releases, will also be performed. If any "hot spots" are detected, additional decontamination will be performed. Decontaminated surfaces will be sampled by collecting wipe samples at each grid point. At each sample location, two samples will be collected within adjacent 1 foot square templates. One sample will be collected using a gauze pad wetted with dilute nitric acid for extraction of inorganic contaminants. The other sample will be collected with a gauze pad wetted with hexane for extraction of organic contaminants.

11.1.4.5 Closure of Containers

At closure, all containers will be removed from the 305-B Storage Facility. All dangerous waste residues will be removed from the containment system components. Contaminated equipment, floors, walls, and

loading areas will be decontaminated or removed. All decontamination equipment and rinsate will be containerized, tested, and properly disposed. Sampling and analysis will be conducted to ensure that no contamination remains around the storage area and containment system. Additional details for closure and decontamination are provided in Sections 11.1.4.1 through 11.1.4.3.

11.1.4.6 Closure of Tanks

This section is not applicable to the 305-B Storage Facility because waste are not stored or treated in tanks.

11.1.4.7 Closure of Waste Piles

This section is not applicable to the 305-B Storage Facility because wastes are not stored in waste piles.

11.1.4.8 Closure of Surface Impoundments

This section is not applicable to the 305-B Storage Facility because wastes are not placed in surface impoundments.

11.1.4.9 Closure of Incinerators

This section is not applicable to the 305-B Storage Facility because wastes are not incinerated.

11.1.4.10 Closure of Land Treatment Facilities

This section is not applicable to the 305-B Storage Facility because wastes are not treated in land treatment units.

11.1.5 Closure of Disposal Facilities

This section is not applicable to the 305-B Storage Facility because it will not be closed as a dangerous waste disposal unit.

11.1.6 Closure Schedule

When closure begins, the inventory of dangerous and mixed waste will be removed within 90 days from receipt of the final volume of waste. All closure activities will be completed within 180 days of receipt of the final volume of waste. The Director of the Washington State Department of Ecology will be notified by DOE-RL at least 45 days before the final closure activities are begun. Closure activities are summarized in Table 11.1. A detailed schedule of closure activities is provided in Figure 11.1.

11.1.7 Extension of Closure Time Frame

The inventory of dangerous and mixed waste will be removed from the 305-B Storage Facility within 90 days of receipt of the last volume of waste. The closure activities described in this plan will be completed within 180 days of receipt of the final volume of waste. No extension to the time frame for initiation and completion of closure is currently expected to be necessary. Extensions to the time frames for closure would only be necessary if unexpected conditions were encountered during closure of the unit. If it becomes apparent that all waste cannot be removed within 90 days, Ecology will be so notified at least 30 days prior to expiration of the 90-day period. This notification will demonstrate why more than 90 days is required for removal of the waste and will demonstrate that steps have been taken to prevent threats to human health and the environment and that the unit is in compliance with applicable permit standards. If it becomes apparent that closure cannot be completed within 180 days after approval of this plan, Ecology will be so notified at least 30 days prior to expiration of the 180-day period. This notification will demonstrate why more than 180 days is required for closure and will demonstrate that

steps have been taken to prevent threats to human health and the environment and that the unit is in compliance with applicable permit standards.

11.1.8 Amendments to Closure Plan

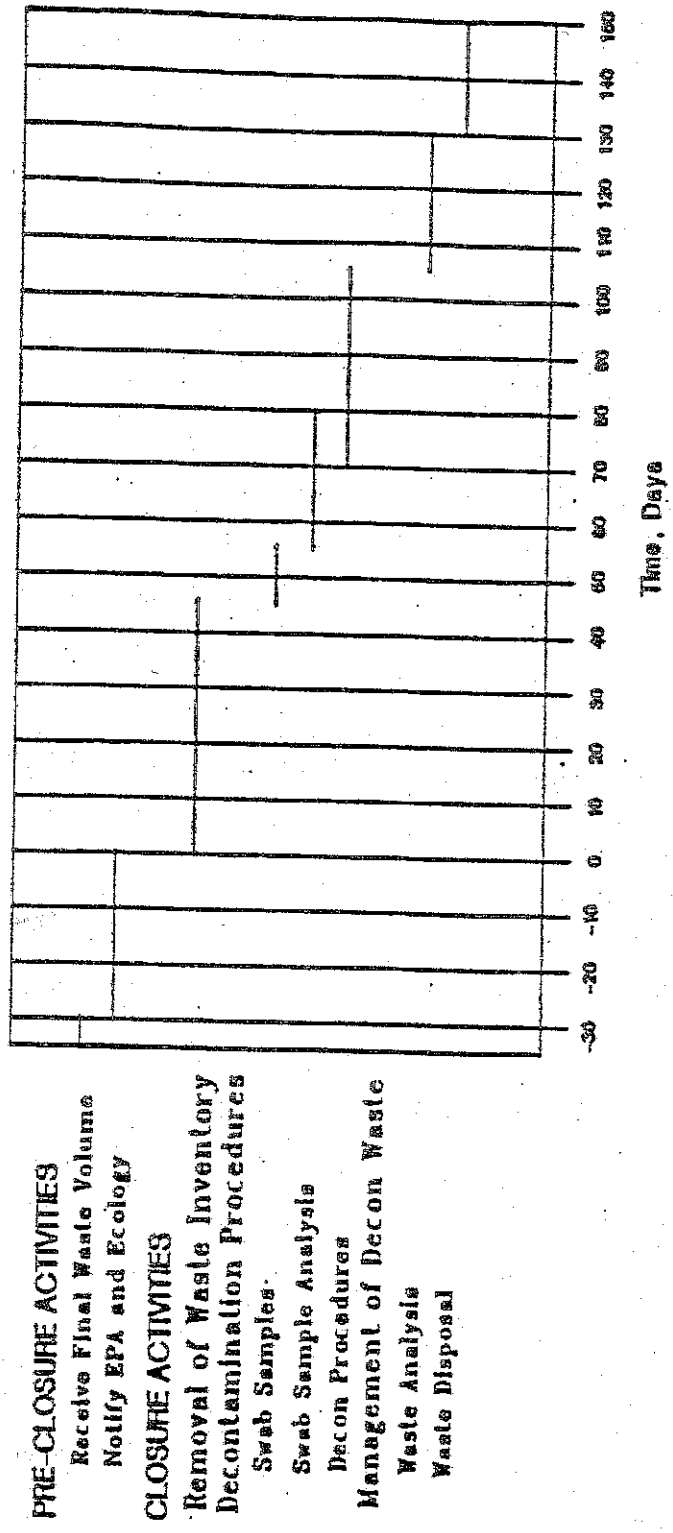
If changes are deemed necessary to the approved closure plan, DOE-RL will submit a written request to Ecology for authorizing a change to the approved plan. The written request will include a copy of the amended plan, in accordance with WAC 173-303-610(3)(b).

Table 11.1. Summary of Closure Activities.

Closure Activity Description	Expected Duration
Receipt of final volume of dangerous and/or mixed waste	N/A
Notify EPA and Ecology that closure will begin	N/A
Remove waste inventory – package all dangerous and mixed waste, manifest, and transfer to permitted facility for treatment and/or disposal	45 days
Obtain wipe samples from structural surfaces and equipment to identify areas of contamination and determine level of decontamination needed	10 days
Analyze wipe samples	25 days
Decontaminate structural surfaces and equipment using procedures based on results of wipe sampling	35 days
Obtain wipe samples to verify decontamination	25 days
Analyze verification samples	35 days
Analyze decontamination waste to determine proper methods of treatment/disposal	25 days
Dispose of decontamination waste based on results of waste analysis	20 days

1
2

Figure 11.1. Detailed Schedule of Closure



11.2 CERTIFICATION OF CLOSURE

Within 60 days of completion of the final closure activities described in this plan, a certification of closure will be submitted to Ecology. This certification will indicate that the 305-B Storage Facility has been closed as described in this plan and that the closure performance standards given in Section 11.1 has been met. The certification will be submitted by registered mail and will be signed by DOE-RL and an independent Professional Engineer registered in the State of Washington as described below.

The DOE-RL will self-certify with the following document or a document similar to it:

> *I, (name), an authorized representative of the U.S. Department of Energy-Richland Operations Office located at the Federal Building, 825 Jadwin Avenue, Richland, Washington, hereby state and certify that the 305-B Storage Facility at the 300 Area, to the best of my knowledge and belief, has been closed in accordance with the attached approved closure plan, and that the closure was completed on (date).*
>
> (Signature and date)

The DOE-RL will engage an independent Professional Engineer registered in the State of Washington to inspect closure activities, to verify that closure activities are being conducted according to this plan, and to certify that closure has been performed in accordance with this plan.

The engineer will inspect the 305-B Storage Facility at least weekly while closure activities are being performed. During these inspections the engineer will observe closure activities to determine whether they are being performed according to this plan. Inspections will include, but not be limited to:

- Inspection of dangerous and mixed waste containment structures and systems to determine whether releases of waste to the environment have occurred
- Verification that the dangerous and mixed waste inventory has been removed within 90 days of receipt of the last waste shipment
- Inspection of manifests and Operating Record to verify that these waste were disposed of in compliance with WAC 173-303
- Inspection of decontamination operations to verify that they are being performed using the procedures described in this plan
- Inspections of the Operating Record to verify that samples of liquid decontamination waste were collected and analyzed using the procedures described in this plan
- Inspection of the Operating Record to verify that decontamination waste were properly designated in compliance with WAC 173-303-070 and properly disposed.

Inspections by the engineer will be documented in a bound notebook. Notations will include the date and time of the inspection, the areas inspected, the activities inspected, applicable closure plan requirements inspected, status of observed activities with respect to plan requirements, corrective actions required status of past corrective actions, and name and signature of inspector. This inspection notebook will be made available to Ecology upon request.

Upon completion of closure according to the plan, the DOE-RL will require the engineer to sign the following document or a document similar to it:

> *I, (name), a certified Professional Engineer, hereby certify, to the best of my knowledge and belief, that I have made visual inspection(s) of the 305-B Storage Facility at the 300 Area and that closure of the aforementioned unit has been performed in accordance with the attached approved closure plan.*
>
> (Signature, date, state Professional Engineer license number, business address, and phone number.)

11.3 POSTCLOSURE PLAN

This section and subsequent subsections are not applicable because the 305-B Storage Facility is not to be closed as a dangerous waste disposal unit.

11.4 NOTICE IN DEED

This section is not applicable because the 305-B Storage Facility is not to be closed as a dangerous waste disposal unit.

11.5 CLOSURE COST ESTIMATE

It is DOE-RL's understanding that federal facilities are not required to comply with WAC 173-303-620. However, projections of anticipated costs for closure will be provided in accordance with Permit Condition II.H.1.

11.6 FINANCIAL ASSURANCE MECHANISM FOR CLOSURE

In accordance with 40 CFR 264.140(c) and WAC 173-303, this section is not required for federal facilities. The Hanford Site is a federally owned facility for which the federal government is an operator and this section is therefore not applicable to the 305-B Storage Facility.

11.7 POSTCLOSURE COST ESTIMATE

A postclosure cost estimate is not required for the 305-B Storage Facility because it will not be closed as a dangerous waste disposal facility.

11.8 FINANCIAL ASSURANCE MECHANISM FOR POSTCLOSURE CARE

Post-closure financial assurance is not required for the 305-B Storage Facility because it will not be closed as a dangerous waste disposal facility.

11.9 LIABILITY REQUIREMENTS

In accordance with 40 CFR 264.140(c) and WAC 173-303, this section is not required for federal facilities. The Hanford Site is a federally owned facility for which the federal government is an operator and this section is therefore not applicable to the 305-B Storage Facility.

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12.0 REPORTING AND RECORDKEEPING

This chapter summarizes the reporting and recordkeeping requirements. The reports are submitted to Ecology and/or the EPA as required by applicable regulations, and required records are maintained at the305-B Storage Facility. A general reporting requirement applicable to all dangerous waste management facilities (e.g., notification) is described, as well as reporting and recordkeeping requirements for generators, transporters, and treatment, storage, and/or disposal facilities. Reports and records applicable to the 305-B Storage Facility are summarized in Table 12.1.

12.1 NOTIFICATION OF HAZARDOUS WASTE ACTIVITIES

Facilities generating or transporting dangerous waste and the owner and operators of treatment, storage, and/or disposal facilities must have current EPA/State Identification Numbers. The 305-B Storage Facility operates under EPA/State Identification Number WA7890008967, issued to the Hanford Facility.

12.2 GENERATOR REQUIREMENTS

The 305-B Storage Facility generates only minor amounts of waste during the cleanup of container spills or leaks and this waste is handled together with other waste generated on the Hanford Site. Hanford Site waste generation records and required reports (e.g., annual reports) are compiled and issued as single records or reports for the entire Hanford Site; information on waste generated by the 305-B Storage Facility is compiled and provided together with other Hanford Site generator records and reports.

12.2.1 Recordkeeping

Generator records maintained by the Hanford Site include the following:

- Records of waste generated onsite
- Records of waste packaged to be shipped offsite
- A copy of each annual report
- Land disposal restriction records.

Waste generation records are retained as required by WAC 173-303-210 and 40 CFR 268.7.

12.2.2 Reporting

Generator reports required by WAC 173-303-220 submitted by the Hanford Site include the annual report, exception reports, and any required additional reports.

The Hanford Site submits an annual report of waste generation activities to Ecology. The annual report is submitted on the *Generator Annual Dangerous Waste Report–Form 4*. All dangerous waste generated at the 305–B Storage Facility is included in the annual report.

Table 12.1. Reports and Records.

Item	STORAGE	
	Retention Time	Location
Notification of dangerous waste activities	Life of facility	Facility File
GENERATOR REPORTS AND RECORDS:		
Annual report	5 years after last waste shipment	Hanford Site[1]
Exception report	5 years after last waste shipment	Hanford Site
Additional reports and records as required (i.e., inspection logs)	5 years after closure	Hanford Site
Test and Waste Analysis Results:		
Waste generated onsite	5 years after last waste shipment	Hanford Site
Waste packaged for offsite shipment	5 years after last waste shipment	Hanford Site
Waste Manifest Reports and Records:		
Manifests	5 years after last waste shipment	Hanford Site
Manifest discrepancy	5 years after last waste shipment	Hanford Site
Unmanifested waste	Not required	N/A
Land Disposal Restriction Records:		
Extension to an effective date	At least 5 years from the date of shipment	Hanford Site
Petition for a variance	At least 5 years from the date of shipment	Hanford Site
Notice and certification of treatment standards	At least 5 years from the date of shipment	Hanford Site
Demonstration and certification for a temporary extension to the effective date	At least 5 years from the date of shipment	Hanford Site
TRANSPORTER REPORTS AND RECORDS:		
None required	N/A	N/A
TREATMENT, STORAGE, AND/OR DISPOSAL REPORTS AND RECORDS:		
Permit Application Plans:		
Waste analysis plan	Life of facility	Hanford Site
Contingency plan and amendments	Life of facility	Hanford Site
Training plan	Life of facility	Hanford Site
Closure plan	Life of facility	Hanford Site
Post–closure plan	Not Required	N/A
Inspection plans	Life of facility	Hanford Site

[1] Hanford Site: Records pertaining to the 305-B Storage Unit will be retained at the unit until completion of closure. Documents requiring longer retention, as specified, will be retained in the Hanford Facility File.

Item	STORAGE	
	Retention Time	Location
Operating Reports and Records		
Waste description and quantity	Life of facility	Hanford Site
Waste location	Until closure	Hanford Site
Waste analysis data	Life of facility	Hanford Site
Inspection records	5 years after inspection	Hanford Site
Certification of waste minimization efforts	Life of facility	Hanford Site
Land Disposal Restriction Records:		
Extension to an effective date	At least 5 years from the date of shipment	Hanford Site
Petition for a variance	At least 5 years from the date of shipment	Hanford Site
Notice and certification of treatment standards	At least 5 years from the date of shipment	Hanford Site
Demonstration and certification for a temporary extension to the effective date	At least 5 years from the date of shipment	Hanford Site
Waste Manifest Reports and Records:		
Manifests	5 years after receipt of waste	Hanford Site
Manifest discrepancy	5 years after receipt of waste	Hanford Site
Unmanifested waste	Not required	N/A
Groundwater Monitoring Reports and Records:		
None required	N/A	N/A
Contingency Plan Incident Reports and Records:		
Immediate notification—Event Fact Sheet	Life of facility	Hanford Site
Assessment report	Life of facility	Hanford Site
Facility restart notification	Life of facility	Hanford Site
Spills, Discharges, and Leaks Reports and Records:		
Immediate notification	Life of facility	Hanford Site
Closure Reports and Records:		
Certification of closure	Life of facility	Hanford Site
Survey plat	Not required	N/A
Closure cost estimates	Not required	N/A
Post-Closure Reports and Records:		
None required	N/A	N/A
Miscellaneous Support Reports and Records:		
Annual report	5 years from due date	Hanford Site
Biennial report	Life of facility	Hanford Site
Training documentation	Life of facility	Hanford Site
Liability coverage documentation	Not required	N/A

If a copy of the manifest is not returned with the signature of the owner/operator of a permitted unit designated to receive nonradioactive dangerous waste offsite within 35 days, the 305–B Storage Facility staff will contact the initial transporter or facility to determine the status of the waste shipment. If a copy of the manifest with the handwritten signature of the designated facility's owner/operator is not received by 305–B Storage Facility staff within 45 days of the date the waste was offered to the initial transporter, an exception report will be submitted to Ecology. The report will include the following:

- A legible copy of the manifest for which delivery was not confirmed
- A cover letter explaining the efforts to locate the waste and the results of those efforts.

Copies of waste analysis reports or other documentation relating to the composition of dangerous waste shipped from the 305-B Storage Facility will be retained at the unit. Documents relating to land disposal restrictions are discussed in Section 12.4.2.1.7.

Any additional reports deemed necessary by Ecology or EPA are furnished by the Hanford Site upon request.

12.3 TRANSPORTER REQUIREMENTS

Transporter recordkeeping and reporting requirements are not strictly applicable to the 305-B Storage Facility since 305-BStorage Facility does not transport dangerous wastes offsite. Transporters having their own EPA/State Identification Numbers are used to transport dangerous wastes from 305-B Storage Facility to a permitted off–site treatment, storage, and/or disposal facility. Wastes are transported to 305-B Storage Facility by PNNL waste management organization staff. Wastes transported to 305-B Storage Facility on public roadways or highways are considered to be off–site shipments and the PNNL waste management organization complies with transporter recordkeeping and reporting requirements under WAC 173-303-260 and WAC 173-303-270 for these shipments.

12.4 TREATMENT, STORAGE, AND/OR DISPOSAL REQUIREMENTS

Storage facility reporting and recordkeeping requirements are discussed below.

12.4.1 Reports

This section discusses the reporting requirements of WAC 173-303 relating to aspects of dangerous waste. The reporting requirements include the following:

- Waste manifest reports
- Annual reports
- Groundwater monitoring reports
- Contingency plan incident reports
- Spills, discharges, and leaks reports
- Closure reports
- Post-closure reports.

Additional details of these reports are provided below. Copies of these reports are maintained by the 305-B Storage Facility or other Hanford Site organizations as appropriate.

12.4.1.1 Waste Manifest Reports

The waste manifest or lack thereof, is the source of two possible reports, the manifest discrepancy report and the unmanifested waste report.

12.4.1.1.1 Manifest Discrepancy

Each dangerous or mixed waste transfer to the 305-B Storage Facility transported on roads accessible to the general public must have a Uniform Hazardous Waste Manifest for the transfer to be approved (refer to Section 2.8). The waste manifests received are checked to verify that they are properly filled out and the waste received is identical to the material described on the manifest. Every effort is made to resolve manifest discrepancies with the generator. If discrepancies are not resolved in 15 days, a report will be submitted to Ecology in accordance with WAC 173-303-370. This report describes the discrepancy and attempts to reconcile it. A copy of the manifest or shipping paper at issue is attached to the report.

12.4.1.1.2 Unmanifested Waste

The 305-B Storage Facility receives wastes generated by DOE-RL and/or PNNL sponsored programs. As noted in Section 2.8.4, unmanifested waste which requires a manifest may either be rejected, or an unmanifested waste report will be filed with Ecology within 15 days of receipt of shipment using Ecology Form 6, *Unmanifested Dangerous Waste Report*.

The report shall include at least the following information:

1. The EPA/State identification number, name, and address of the facility;
2. The date the unit received the waste;
3. The EPA/State identification number, name, and address of the generator and transporter, if available;
4. A description and the quantity of each unmanifested dangerous waste the unit received;
5. The method of management for each dangerous waste;
6. The certification signed by the owner or operator of the unit or the authorized representative; and
7. A brief explanation of why the waste was unmanifested, if known.

12.4.1.2 Annual Report

The state of Washington, pursuant to WAC 173-303-390, requires an annual report for each facility which holds an active EPA/State Identification Number. The report is due to Ecology on March 1 of each year. A single report is prepared for the entire Hanford Site and covers each dangerous waste treatment, storage, and disposal unit at Hanford, including 305-B Storage Facility. The report contents for each unit include the following:

- EPA/State Identification Number
- Name and address of the unit
- Calendar year covered by the report
- Sources of the waste received by the unit
- Description and quantity of the waste received by the unit
- Treatment, storage, and/or disposal methods
- Certification statement signed by an authorized representative.

The report form and instructions in the *Treatment, Storage, or Disposal Unit Annual Dangerous Waste Report*—Form 5 are used for this report. The above information applicable to the 305-B Storage Facility is compiled by the PNNL waste management organization and submitted to PHMC. PHMC is the organization responsible for preparing the Hanford Site annual report.

12.4.1.3 Biennial Report

The EPA requires, pursuant to 40 CFR 264.75, that an overall report describing each dangerous waste facility activity be submitted on March 1 of each even-numbered year. The biennial report is not required by Ecology. As with the annual report described in Section 12.4.1.2, a single report is prepared for the entire Hanford Site covering all dangerous waste treatment, storage, and disposal facilities at Hanford. The report contents for each unit include the following:

- EPA/State Identification Number
- Name and address of the unit
- Calendar year covered by the report
- Sources of the waste stored at 305-B Storage Facility
- Description and quantity of the waste received at 305-B Storage Facility
- Treatment, storage, and/or disposal methods
- Waste minimization efforts
- Certification statement signed by an authorized representative.

This information covers activities for the previous calendar year. The above information applicable to the 305-B Storage Facility is compiled by the PNNL waste management organization and is included in the Hanford Site annual report.

12.4.1.4 Groundwater Monitoring Reports

The 305-B Storage Facility is not operated as a dangerous waste surface impoundment, waste pile, land treatment unit, or landfill as defined in WAC 173-303-645(1)(a). Therefore, no groundwater monitoring or reporting is required for this unit.

12.4.1.5 Contingency Plan Incident Reports

The BED and 305-B Storage Facility line management are responsible for making notifications (as detailed in Attachment 18, Chapter 7.0, Sections 7.4.1.3 and 7.8) of all emergency situations requiring contingency plan implementation as required by WAC 173-303-360.

All situations requiring contingency plan implementation are documented in accordance with Attachment 18, Chapter 7.0, Section 7.8.2, DOE Event Reporting. A copy of all such documentation for incidents at305-B Storage Facility will be retained at the unit as part of the Operating Record.

If the unit stops operations in response to a fire, explosion, or release that may present a hazard to human health or the environment, the BED notifies DOE-RL, via line management, when the unit and emergency equipment cleanup is complete.

The DOE-RL is responsible for three types of notifications: an immediate notification; the incident assessment report; and the unit restart notification. Details of these notifications are provided below.

12.4.1.5.1 Immediate Notification

The DOE-RL will immediately notify Ecology and the individual designated as the on-scene coordinator for the southeastern Washington area of the National Response Center, telephone number (800) 424-8802, if the unit has had a fire, explosion, or release which requires reporting under applicable regulations.

- The DOE-RL report will contain the following information:
- Name and telephone number of reporter
- Name and address of the unit
- Time and type of incident
- Name and quantity of material(s) involved to the extent known
- Extent of injuries if any
- Possible hazards to human health or the environment outside the unit.

12.4.1.5.2 Incident Assessment Report

A written report is provided to Ecology within 15 days of any incident that requires implementation of the contingency plan. This report includes the following information:

- Name, address, and telephone number of the owner or operator
- Name, address and telephone number of the unit
- Date, time, and type of incident
- Name and quantity of material(s) involved
- Extent of injuries if any
- Assessment of actual or potential hazards to human health or the environment where this is applicable
- Estimated quantity and disposition of recovered material that resulted from the incident
- Cause of the incident
- Description of corrective action taken to prevent recurrence of the incident.

12.4.1.5.3 Unit Restart Notification

If the 305-B Storage Facility stops operations in response to a fire, an explosion, or release that may present a hazard to human health or the environment, the DOE-RL will notify Ecology and the appropriate local authorities before normal operations are resumed in the affected area(s) of the unit. The notification will indicate that cleanup procedures are completed and that emergency equipment is cleaned and fit for its intended use.

12.4.1.6 Spills, Discharges, and Leak Reports

This section discusses the reports prepared as a result of unpermitted spills and discharges into the environment.

12.4.1.6.1 Spills and Discharges Reports

In the event of any unplanned release of dangerous materials, the building emergency director will document the incident on an Event Fact Sheet. A copy of the Event Fact Sheet will be retained at the unit. PNNL line management will immediately notify the DOE-RL. The following information will be transmitted to the DOE-RL:

- Name and telephone number of reporter
- Name and address of the unit
- Time and type of incident
- Name and quantities of material(s) involved to the extent known
- Extent of injuries if any
- Possible hazards to human health or the environment outside the unit.

The PNNL waste management organization immediately notifies the DOE-RL of all reportable releases to the environment in accordance with DOE Orders.

The DOE-RL will immediately notify Ecology of all spills and discharges of hazardous materials (unless permitted) in accordance with WAC 173-303-145(2) and Condition I.E.15 of the Facility Wide Permit.

12.4.1.7 Closure Reports

Reports regarding the closure of the305-B Storage Facility will be made in accordance with the requirements of WAC 173-303-610(6) and (9).

12.4.1.7.1 Certification of Closure

Within 60 days of completion of closure of the305-B Storage Facility, certification signed by the DOE-RL and an independent registered Professional Engineer will be submitted to Ecology. The certification will be sent by registered mail. The certification will state that the unit was closed in accordance with the approved closure plan. Documentation supporting the independent registered Professional Engineer's certification will be supplied upon request of Ecology.

12.4.1.7.2 Survey Plat

The 305-B Storage Facility is not a disposal facility; therefore, this requirement is not applicable.

12.4.1.8 Post-Closure Reports

Post-closure reports required by WAC 173-303-610(9), (10), and (11) are not required because the 305-B Storage Facility is not a disposal facility.

12.4.2 Recordkeeping Requirements

The records kept by the 305-B Storage Facility include plans described in other portions of this permit application, operating records, miscellaneous support records, and records of reports made to Ecology and EPA. These records are described in the following sections.

12.4.2.1 Operating Record

The Operating Record maintained at the 305-B Storage Facility includes:

- A description and the quantity of each dangerous waste received and the method(s) and date(s) of storage at the 305-B Storage Facility in accordance with WAC 173-303-380
- The location of each dangerous waste stored within the unit and the quantity at each location, including cross-reference to manifest numbers
- Waste analysis results
- Contingency plan implementation reports
- Inspection records
- Copies of notices from off-site facilities informing 305-B Storage Facility that the off-site facilities have all required permits.

12.4.2.1.1 Waste Description and Quantity

Each dangerous waste received at the 305-B Storage Facility is described by its common name and dangerous waste number(s) from WAC 173-303-080 through 173-303-104. When a dangerous waste contains multiple dangerous waste constituents, the waste description includes all applicable dangerous waste numbers. For waste numbers that are not listed in WAC 173-303, the waste description includes the name of the process that generated the waste. The waste description includes the following information:

- physical form (i.e., liquid, solid, sludge, or gas)
- Weight, or volume and density, using one of the units of measure in WAC 173-303-380(2)(c)
- Date and management method for each waste, including handling code specified in WAC 173-303-380(2)(d).

12.4.2.1.2 Waste Location

The location of each dangerous waste container stored within the 305-B Storage Facility is documented and maintained.

12.4.2.1.3 Waste Analysis

As described in Section 3.2, most of the wastes received at 305-B Storage Facility do not require analysis. Only those wastes which are unknown or for which the generator does not have documentation of contents require analysis. Waste sampling and analysis is performed by the generator. Waste analysis results are submitted to the PNNL waste management organization with the disposal request. These results are used by the PNNL waste management organization to designate the waste in accordance with WAC 173-303-070, to determine waste compatibility for proper storage, and to determine waste

packaging and labeling requirements. Results of waste analyses submitted with the disposal request forms are kept at 305-B Storage Facility.

Analysis of wastes generated at 305-B Storage Facility would only be required in the case of spill or leak response when it is necessary to determine whether cleanup residuals are dangerous wastes. 305-B Storage Facility staff is responsible for sampling such wastes and having the required analyses performed by on-site or off-site laboratories. If such wastes are determined to be dangerous wastes, copies of the waste analysis results will be kept at 305-B Storage Facility and cross-referenced to manifest numbers.

12.4.2.1.4 Contingency Plan Implementation Report

Records documenting the details of any incidents requiring the implementation of the contingency plan, as described in Attachment 18, Chapter 7.0 and Section 12.4.1.5, are maintained as part of the 305-B Storage Facility Operating Record as required by WAC 173-303-380.

12.4.2.1.5 Inspection Records

Records of the 305-B Storage Facility general inspections are maintained at the unit for at least five years from the inspection date. The records include the following:

- The date and time of inspection
- The inspector's printed name and handwritten signature
- Notations of observations
- The date and nature of any repairs or other remedial actions.

12.4.2.1.6 Waste Minimization Certification

Annually, a certification by DOE-RL that the 305-B Storage Facility has a program in place to reduce the volume and toxicity of hazardous waste is inserted into the 305-B Storage Facility Operating Record as required by 40 CFR 264.73(b)(9).

12.4.2.1.7 Land Disposal Restrictions Records

Records related to storage of waste subject to land disposal prohibitions are maintained as required by 40 CFR 264.73(b)(10) and (16). Records potentially include:

- Records of waste placed in land disposal units under an extension to the effective date of any land disposal restriction granted pursuant to 40 CFR 268.5
- Records of waste placed in land disposal units under a petition granted pursuant to 40 CFR 268.6
- Records of the applicable notice and certification required by 40 CFR 268.7(a)
- Records of the demonstration and certification required by 40 CFR 268.8, if applicable, for waste subject to land disposal prohibitions or restriction.

Additional discussion of land disposal records is provided in the following sections.

12.4.2.1.7.1 Date Extension

The 305-B Storage Facility will not apply for an extension to the effective date of a land disposal restriction. The Hanford Site generator or the permitted off-site disposal facility may apply for an extension if required. If such an extension is approved by EPA, the generator or permitted off-site disposal facility, as appropriate, will provide a copy of the approval indicating the waste subject to the extension. Copies of these records, as well as the quantities and the date of placement (information the permitted off-site disposal facility is requested to provide to 305-B Storage Facility following disposal)

for each shipment of waste subject to the date of the extension will be maintained in the 305-B Storage Facility files.

12.4.2.1.7.2 Petition

The 305-B Storage Facility will not petition to allow land disposal of a waste subject to a land disposal restriction under 40 CFR 268, Subpart C. The permitted off-site disposal facility may petition to the regulatory authority for a variance to allow disposal of a restricted or prohibited waste if required. If such a petition is approved by EPA for waste shipped by 305-B Storage Facility, the disposal facility will be requested to provide information related to the petition so that 305-B Storage Facility may ensure that the waste shipped complies with the petition. Copies of the records of the petition, as well as the waste quantities and date of placement (information on the permitted off-site disposal facility is requested to provide to 305-B Storage Facility following disposal) for each waste shipment covered by the petition will be maintained in the 305-B Storage Facility files.

12.4.2.1.7.3 Notice and Certification

Each waste generator is required to provide the PNNL waste management organization with adequate waste characterization data for the waste management organization to determine whether the waste is subject to land disposal restrictions. The waste management organization determines whether the waste is subject to land disposal restrictions prior to transporting the waste offsite from 305-B Storage Facility. If wastes are determined to be subject to land disposal restrictions, the required notices and certifications are included with waste shipments from 305-B Storage Facility to off-site treatment, storage, and/or disposal facilities. Such notifications are made as described below. Copies of notifications, certifications, demonstrations, and supporting documentation for each shipment of waste subject to a land disposal restriction or prohibition are maintained at 305-B Storage Facility.

Waste Does Not Meet Applicable Treatment Standards or Exceeds Applicable Prohibition Levels. If the waste does not meet the applicable treatment standards or exceeds an applicable prohibition level set forth in 40 CFR 268.32 or Section 3004(d) of RCRA, a notice is provided with each shipment of waste containing the following information:

- The EPA Hazardous Waste Number
- Corresponding treatment standards and all applicable prohibitions set forth in 40 CFR 268.32 or Section 3004(d) of RCRA
- The waste manifest number associated with the shipment of waste
- Waste analysis data where available or a statement of the basis of the determination with supporting data.

Waste Meets the Applicable Treatment Standards. If the waste meets the applicable treatment standards and can be land-disposed without further treatment, a notice and certification is provided by the 305-B Storage Facility unit with each shipment of waste. The notice contains the following information:

- The EPA Hazardous Waste Number
- Corresponding treatment standards and all applicable prohibitions set forth in 40 CFR 268.32 or Section 3004(d) of RCRA
- The manifest number associated with the waste shipment
- Waste analysis data where available or a statement of the basis of determination with supporting data.

In addition, the shipment will be accompanied by the certification required under 40 CFR 268.7(a)(2)(ii) that the waste complies with treatment standards and prohibitions.

12.4.2.1.7.4 Demonstration and Certification

Certain wastes may be land-disposed without treatment under certain conditions which comply with 40 CFR 268. If such wastes are shipped from 305-B Storage Facility for land disposal, the initial shipment will be accompanied by the demonstration and certification required under 40 CFR 268.8(a). Each additional shipment will be accompanied only by the certification provided that the conditions covered by the original certification have not changed.

12.4.2.2 Miscellaneous Support Records

Miscellaneous support records include the following:

- Training records
- Liability coverage documentation
- Closure and post-closure cost estimates
- Report records.

12.4.2.2.1 Training Documentation

The training plan is maintained at 305-B Storage Facility. The name of each employee and the 305-B Storage Facility waste management position held is maintained by the unit. Training records document that employees have received the training or have work experience required for that position. The records are maintained by the unit. Training records on current employees are kept until closure of the unit. Training records on former employees are kept for three years from the date the employee last worked at the unit. Auditable copies of these records are maintained by the PNNL training organization.

12.4.2.2.2 Liability Coverage Documentation

Financial assurance and liability coverage mechanisms are not required for federal facilities. Therefore, this requirement is not applicable to the 305-B Storage Facility.

12.4.2.2.3 Closure and Post-closure Cost Estimates

Financial assurance mechanisms for closure and post-closure costs are not required for federal facilities. However, projections of anticipated costs for closure will be provided annually in accordance with Attachment 18, Chapter 11.0, §11.5.

12.4.2.3 Report Records

The reports described in Sections 12.1, 12.2.2, and 12.4.1 are contained in records maintained either by the 305-B Storage Facility or by other Hanford Site organizations as noted in Table 12-1. Copies of the reports will be made available upon the request of Ecology or EPA.

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13.0 OTHER RELEVANT LAWS

13.1 Toxic Substances Control Act

Wastes containing polychlorinated biphenyls (PCB), which are subject to regulation under the *Toxic Substances Control Act* (TSCA), are stored in the 305-B Storage Facility. These wastes are stored for periods less than one (1) year before shipment to a disposal facility permitted under TSCA. Storage of PCB wastes in 305-B Storage Facility for periods less than one (1) year will continue to be done in compliance with applicable TSCA regulations in 40 CFR Part 761.

13.2 Other Requirements

The application of insecticides and herbicides on or in the immediate vicinity of the 305 B Storage Facility will be conducted in compliance with the *Federal Insecticide, Fungicide, and Rodenticide Act of 1975*, TSCA, and the applicable provisions of the *Washington State Water Quality Standards*, WAC 173-201.

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