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Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
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Fluor Hanford

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Key Words: site characterization, preoperational survey, environmental baseline, radiological, Canister Storage Building, Cold Vacuum Drying Facility

Abstract: This document represents the report for environmental sampling of soil, vegetation, litter, cryptogams, and small mammals at the Spent Nuclear Fuel Project facilities located in 100 K and 200 East Areas in support of the preoperational environmental survey.

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PREOPERATIONAL ENVIRONMENTAL SURVEY FOR THE SPENT NUCLEAR FUEL PROJECT FACILITIES

R. M. Mitchell
B. M. Markes
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October 2000

EXECUTIVE SUMMARY

As noted in U.S. Department of Energy (DOE) Order 5400.1,¹ a preoperational environmental survey is required for new facilities with potential for environmental impact to surrounding areas. The survey is to provide a baseline for appropriate environmental parameters and is to be conducted over a period of months to allow for determination of seasonal variation. Such a survey was conducted from September 1999 through August 2000 in support of the Spent Nuclear Fuel Project facilities. This report summarizes the results of the environmental characterization and reviews the potential for environmental impact from this project based on the findings of analytical results reported in this final document.

Environmental components addressed in this report included area history, topography, physiography, ecology, cultural resources, radiological status, external radiation, and potential chemical hazards. Sample site selections were based on a review of available historical documents, and site "walk-downs." The primary emphasis for the new facilities was at locations south and east of the Canister Storage Building (CSB) in 200 East Area and west, south and east of the 100 K Area. The western and southern sample locations were near the cold vacuum drying facility (CVDF) and the eastern locations near the 100 KE basins. Samples from these locations included surface soil and vegetation. Parameters analyzed included radionuclides (e.g., gamma energy analysis, ⁹⁰Sr, isotopic plutonium and uranium), metals and selected chemicals (e.g., cyanide, anions, polychlorinated biphenyls [PCBs] and pesticides).

Radionuclide analyses at all sample points were either below detection limits or, although measurable, within acceptable ranges for all measured constituents. The highest radionuclide values for ¹³⁷Cs, ⁹⁰Sr, and ^{239/240}Pu occurred in surface soil, vegetation and cryptogam samples collected in and around the 100 K Area. Alternatively, the highest values for these same radionuclides in plant litter were collected near the CSB in the 200 East Area. These values were not generally above expectations for these locations. The values reported for hazardous chemicals analyses at the sample points were either below detection limits or, although measurable, within expected ranges for the measured conditions.

¹DOE, 1988, *General Environmental Protection Program*, DOE Order 5400.1, U.S. Department of Energy, Washington, D.C.

LIST OF TERMS

AHA	Activity Hazard Analysis
CERCLA	<i>Comprehensive Environmental Response, Compensation and Liability Act of 1980</i>
CFR	<i>Code of Federal Regulations</i>
cm	centimeter
COC	Chain of Custody
CSB	Canister Storage Building
CVDF	Cold Vacuum Drying Facility
DOE	U.S. Department of Energy
DQOs	Data Quality Objectives
EIS	Environmental Impact Statement
EMP	Environmental Monitoring Program
EPA	U.S. Environmental Protection Agency
ERDF	Environmental Restoration Disposal Facility
FH	Fluor Hanford
ft	foot
GIS	Geographic Information System
GSSI	Geophysical Survey Systems Inc.
HLW	high-level waste
HPT	health physics technician
in.	inch
ISA	200 East Interim Storage Area
KE	K East Area/Basin
km	kilometer
KW	K West Area/Basin
LLW	low-level waste
MCOs	multicanister overpacks
m	meter
mi	mile
min	minute
mm	millimeter
NAD	North American Datum
NEPA	<i>National Environmental Policy Act of 1969</i>
OVM	organic-vapor monitor
PCB	polychlorinated biphenyls
PAM	portable alpha meter
PNNL	Pacific Northwest National Laboratory
ppm	parts per million
PUREX	Plutonium-Uranium Extraction (Plant)
QA	quality assurance
QA/QC	quality assurance/quality control
QC	quality control
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
RHO	Rockwell Hanford Operations

ROD	Record of Decision
SAS	special analytical studies
SCF	Sludge Conditioning Facility
SAP	sampling and analysis plan
SNF	Spent Nuclear Fuel
SP	standard practice
SWOC	Solid Waste Operations Complex
TLD	thermoluminescent dosimeter
TWRS	Tank Waste Remediation System
WDOH	Washington State Department of Health
WHC	Westinghouse Hanford Company
WMTS	Waste Management Technical Services
WSCF	Waste Sampling and Characterization Facility
yd	yard

CONTENTS

1.0 INTRODUCTION	1
1.1 PURPOSE	3
1.2 SCOPE	3
1.3 OBJECTIVES	4
2.0 SITE DESCRIPTIONS	5
3.0 HISTORICAL INFORMATION	9
3.1 ENVIRONMENTAL MONITORING	9
3.1.1 Air monitoring	9
3.1.2 Biotic Monitoring	15
3.1.3 Thermoluminescent Dosimeter Monitoring	22
3.1.4 Cultural/Biological Resources	25
4.0 AIR MONITORING	26
4.1 100 K AREA	26
4.2 200 EAST AREA	30
5.0 THERMOLUMINESCENT DOSIMETER MONITORING	32
5.1 100 K AREA	32
5.2 200 EAST AREA	32
6.0 SAMPLING METHODS	34
6.1 OBJECTIVES	34
6.2 SAMPLE SITE SELECTION	34
6.3 LABORATORY ANALYSIS	38
6.4 FOLLOW-UP SAMPLING	38
7.0 FIELD ACTIVITIES	40
7.1 PRELIMINARY FIELD ACTIVITIES	40
7.2 SAMPLING PREPARATION	40
7.3 SURFACE SAMPLING ACTIVITIES	40
7.3.1 Soils	40
7.3.2 Vegetation	41
7.3.3 Small Mammals	41
7.3.4 Logbooks	41
7.4 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES	41
7.5 POST-SAMPLING ACTIVITIES	42
8.0 SOIL/BIOTA RESULTS AND DISCUSSION	43
8.1 RADIONUCLIDES	43
8.1.1 Surface Soils	43
8.1.2 Vegetation	46
8.1.3 Litter	46
8.1.4 Cryptogams	49
8.1.5 Small Mammals	49
8.1.6 Radionuclide Summary	49
8.2 METALS	54
8.2.1 Surface Soils	55
8.2.2 Vegetation	56

CONTENTS (continued)

8.2.3 Litter	57
8.2.4 Cryptogams	57
8.2.5 Mice.....	58
8.2.6 Metals Summary.....	60
8.3 SOIL CHEMISTRY	61
8.3.1 Surface Soils.....	61
8.3.2 Soil Chemistry Summary	62
8.4 ORGANIC ANALYSES.....	62
8.5 QUALITY ASSURANCE/QUALITY CONTROL DATA SUMMARY.....	63
8.6 WASHINGTON STATE DEPARTMENT OF HEALTH SAMPLING DATA.....	65
9.0 CONCLUSIONS.....	67
10.0 REFERENCES	70

APPENDICES

A BIOLOGICAL/CULTURAL RESOURCES REVIEWS.....	A-i
B FIELD SAMPLING LOGBOOKS	B-i
C LABORATORY ANALYTICAL DATA.....	C-i

TABLES

Table 3-1. 100 K Ambient Air Monitoring Results—Five Year Averages (pCi/m ³).....	12
Table 3-2. 200 East Ambient Air Monitoring Results—Five Year Averages (pCi/m ³).....	14
Table 3-3. Average Radionuclide Concentrations (pCi/g) Detected in 100 K Area Surface Soil Samples from 1981 to 1993.	17
Table 3-4. Average Radionuclide Concentrations (pCi/g) Detected in 100 K Area Vegetation Samples from 1981 to 1993.	18
Table 3-5. Summary of Routine Monitoring Samples Collected in the 200 East Area Near CSB (pCi/g).	20
Table 3-6. Cross-site Transfer Line Study Radionuclides (pCi/g).	21
Table 3-7. Cross-site Transfer Line Study Metals (ppm).	21
Table 3-8. Summary of Selected Constituents (ppm) Analyzed by Wasmler (1993).	21
Table 4-1. Average 100 K Area Radionuclide Concentrations from 1994 through 1999 (pCi/m ³ ± 2SEM).	27
Table 4-2. Average 100 K Area Radionuclide Concentrations from February 1999 through December 1999 (pCi/m ³ ± 2SEM).	27
Table 4-3. Average 200 East Radionuclide Concentrations from 1994 through 1999 (pCi/m ³ ± 2SEM).	31
Table 4-4. Average 200 East Radionuclide Concentrations (pCi/m ³ ± 2SEM).	31
Table 5-1. 100 K Area Quarterly TLD Dose Rates Near the CVDF.	33
Table 5-2. 200 East Area vs. CSB Quarterly TLD Dose Rates.	33
Table 6-1. Sample Site Coordinates for the SNF Project Facilities Sampling Locations.....	35
Table 6-2. Sample Analyses Summary	39
Table 8-1, Part A. Radionuclide Data from 100 K Area Surface Soils (pCi/g).....	44
Table 8-1, Part B. Radionuclide Data from 100 K Area Surface Soils (pCi/g).....	44
Table 8-2, Part A. Radionuclide Data for 200 East Area Surface Soils (pCi/g).....	45
Table 8-2, Part B. Radionuclide Data for 200 East Area Surface Soils (pCi/g).....	45
Table 8-3, Part A. Radionuclide Data for 100 K Area Vegetation (pCi/g).	47
Table 8-3, Part B. Radionuclide Data for 100 K Area Vegetation (pCi/g).....	47
Table 8-4, Part A. Radionuclide Data for 200 East Area Vegetation (pCi/g).	47
Table 8-4, Part B. Radionuclide Data for 200 East Area Vegetation (pCi/g).....	47
Table 8-5, Part A. Radionuclide Data for 100 K Area Litter Samples (pCi/g).....	48
Table 8-5, Part B. Radionuclide Data for 100 K Area Litter Samples (pCi/g).....	48
Table 8-6, Part A. Radionuclide Data for 200 East Area Litter Samples (pCi/g).....	48
Table 8-6, Part B. Radionuclide Data for 200 East Area Litter Samples (pCi/g).....	48
Table 8-7, Part A. Radionuclide Data for Cryptogam Collected at 100 K Area (pCi/g).....	50
Table 8-7, Part B. Radionuclide Data for Cryptogam Collected at 100 K Area (pCi/g).	50
Table 8-8, Part A. Radionuclide Data for Cryptogam Samples Collected at 200 East Area (pCi/g).	50
Table 8-8, Part B. Radionuclide Data for Cryptogam Samples Collected at 200 East Area (pCi/g).	50
Table 8-9, Part A. Radionuclide Summary for Mice Captured at 100 K Area (pCi/g).	51
Table 8-9, Part B. Radionuclide Summary for Mice Captured at 100 K Area (pCi/g).	51
Table 8-10, Part A. Radionuclide Summary for Mice Captured in 200 East Area (pCi/g).	51

Table 8-10, Part B. Radionuclide Summary for Mice Captured in 200 East Area (pCi/g).	51
Table 8-11. Summary of Average and Maximum Values for Selected Constituents in Sample Media (pCi/g).....	52
Table 8-12. Summary of Maximum Radionuclide Values Analyzed in Mice From This and Previous Studies (pCi/g).....	53
Table 8-13. Summary ^(a) of Reported Maximum Metals Concentrations for 100 Area Soils and Vegetation (ppm).....	55
Table 8-14. Summary of Maximum Metals Values Reported for 200 Area Soils and Vegetation (ppm)	55
Table 8-15. Metals Data for 100 K Area Surface Soils (ppm).	56
Table 8-16. Metals Data for 200 East Area Surface Soils (ppm).	56
Table 8-17. Metals Data for 100 K Area Vegetation (ppm).	57
Table 8-18. Metals Data for 200 East Area Vegetation (ppm).	57
Table 8-19. Metals Data for 100 K Area Litter (ppm).....	58
Table 8-20. Metals Data for 200 East Area Litter (ppm).....	58
Table 8-21. Metals Data for 100 K Area Cryptogams (ppm).	58
Table 8-22. Metals Data for 200 East Area Cryptogams (ppm).	58
Table 8-23. Summary of Values for Selected Metals in Mice Collected in 100 K Area (ppm)..	59
Table 8-24. Summary of Metals Data (Maximum Values) for Mice in This and Previous Studies (ppm).	59
Table 8-25. Summary of Values for Selected Metals in Mice Collected at 200 East Area (ppm)	59
Table 8-26. Summary of the Maximum Metals Values Reported for SNF Project Samples Comparisons are Provided to Hanford Site and Washington	60
Table 8-27. Chemical Data for 100 K Area Surface Soils (ppm).....	61
Table 8-28. Chemical Data for 200 East Area Surface Soils (ppm).....	62
Table 8-29. Summary of Reported Soil Chemistry Maximum Soil Values (ppm) for the SNF Study, Other 200 Area Studies and the Hanford Site Soil Background.	62
Table 8-30, Part A. Radionuclide Concentrations in Soil Samples (pCi/g).....	63
Table 8-30, Part B. Radionuclide Concentrations in Soil Samples (pCi/g).....	63
Table 8-31, Part A. Radionuclide Concentrations Reported for Vegetation (pCi/g).....	63
Table 8-31, Part B. Radionuclide Concentrations Reported for Vegetation (pCi/g).....	64
Table 8-32. Metals Concentrations in Soils (ppm).	64
Table 8-33. Metals Concentrations in Vegetation (ppm).....	64
Table 8-34. Chemical Concentrations in Soils (ppm).....	64
Table 8-35, Part A. WDOH Radionuclide Data for Collocated Soil Samples	66
Table 8-35, Part B. WDOH Radionuclide Data for Collocated Soil Samples.....	66
Table 8-36. WDOH Radionuclide Data for Collocated Vegetation Samples.....	66

FIGURES

Figure 1-1. Map of the Hanford Site and the 100 K Area and 200 East Area.....	2
Figure 2-1. Location of the cold vacuum drying facility in the 100 K Area of the Hanford Site.	6
Figure 2-2. Location of the Canister Storage Building Site in 200 East Area.....	7
Figure 3-1. 100 K Area Showing the Location of Existing and New Air Monitoring Stations.....	11
Figure 3-2. 200 Air Sampling Locations for Near-Facility Monitoring. New locations in gray.	13
Figure 3-3. Historical (1981-1993) Soil and Vegetation Sampling Locations at 100 K Area.....	16
Figure 3-4. 200 East Soil Sampling Locations for Near-Facility Monitoring.....	19
Figure 3-5. Map of 100 K Area Showing TLD Monitoring Locations.	23
Figure 3-6 TLD Monitoring Locations in 200 East Area. The two new sites are in gray.	24
Figure 4-1. Strontium-90 Concentrations for the 100 K Area.....	28
Figure 4-2. Cesium-137 Concentrations for the 100 K Area.....	28
Figure 4-3. Plutonium-239/240 Concentrations for the 100 K Area.	29
Figure 4-4. Americium-241 Concentrations for the 100 K Area.....	29
Figure 6-1. 100 K Sample Locations.	36
Figure 6-2. Canister Storage Building (CSB) Sample Locations.	37

PREOPERATIONAL ENVIRONMENTAL SURVEY FOR THE SPENT NUCLEAR FUEL PROJECT FACILITIES

1.0 INTRODUCTION

This survey report supports the preoperational environmental monitoring for construction, development, and operation of the Spent Nuclear Fuel (SNF) Project facilities, which have been designed for the conditioning and storage of spent nuclear fuels; particularly the fuel elements associated with the operation of N-Reactor. The SNF consists principally of irradiated metallic uranium, and therefore includes plutonium and mixed fission products. The primary effort will consist of removing the SNF from the storage basins in K East and K West Areas (Figure 1-1), placing it in multicask overpacks, vacuum drying, conditioning, and subsequent dry vault storage in the 200 East Area.

The primary purpose and need for this action is to reduce the risks to public health and safety and to the environment. Specifically, these efforts include prevention of the release of radioactive materials into the air or to the soil surrounding the K Basins, prevention of the potential migration of radionuclides through the soil column to the nearby Columbia River, reduction of occupational radiation exposure, and elimination of the risks to the public and to workers from the deterioration of SNF in the K Basins (U.S. Department of Energy [DOE] 1995, 1996).

Preoperational monitoring efforts were conducted to determine existing environmental conditions, assess the potential for contaminants, and evaluate potential risks and hazards prior to construction and operation of new facilities in accordance with DOE Order 5484.1, *Environmental Protection, Safety and Health Protection Information Reporting Requirements* (DOE 1981).

DOE Order 5400.1, *General Environmental Protection Program* (DOE 1988a), requires an environmental study before the startup of new facilities and processes. This DOE order is expected to become part of 10 CFR 834, *Radiological Protection of the Public and the Environment*, in the future.

Figure 1-1. Map of the Hanford Site and the 100 K Area and 200 East Area.

1.1 PURPOSE

The sampling and monitoring efforts described herein were conducted in support of an environmental baseline to establish the preoperational conditions at the SNF Project facilities sites in accordance with the requirements set forth in DOE Order 5400.1, Chapter IV (DOE 1988a). The data obtained from the baseline sampling activities is being used to meet the following objectives:

- Identify baseline levels of contaminants in surface soils, vegetation, and the small-mammal community
- Allow for future determination of potential impacts to the environment from SNF Project facilities construction and operation activities
- Provide guidance for development of monitoring and surveillance requirements within, and surrounding, the SNF Project facilities.

1.2 SCOPE

With the selection of the preferred alternative (DOE 1996) to remove the SNF from the storage basins in K East and K West, vacuum dry, condition, and provide dry vault storage, new facilities will be required. This proposed effort will require the construction of a new “cold vacuum” drying facility (CVDF) located in the western portion of the K West Area (Figure 2-1). A second facility, the Canister Storage Building (CSB), along with the establishment of the Interim Storage Area (ISA), which has been constructed in the west-central portion of the 200 East Area (Figure 2-2), will be utilized for dry vault storage. The debris and water which will be removed from the K East/K West storage basins will be disposed of in existing facilities. The sludge, which will be removed from the 100 K East and 100 K West storage basins, will be removed and stored elsewhere at Hanford.

Prior to the startup of new facilities or modification of existing facilities, DOE requires the development of environmental baseline surveys for the protection of workers, the public, and the surrounding environment. This regulatory guidance is provided as part of DOE Order 5400.1 (DOE 1988a); DOE Order 5484.1 (DOE 1981); and *Radiation Protection of the Public and the Environment*, DOE 5400.5 (DOE 1990a). Additionally, since the product will be accepted by DOE and disposed of on the Hanford Site, it will be subject to DOE Order 435.1, *Radioactive Waste Management* (DOE 1999).

The technical guidance for implementation of baseline environmental surveys is provided in DOE/EH-0173T, *Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance* (DOE 1991) and in the handbook entitled, *Environmental Monitoring for Low Level Waste Disposal Sites* (DOE 1990b).

The focus of this survey was to determine the environmental conditions in and around the proposed CVDF in K West and the CSB in 200 East. To direct this effort, a Sampling and

Analysis Plan (SAP) was prepared that delineated the type and number of samples to be collected, their locations, analyses required etc. (Mitchell et al. 1999).

1.3 OBJECTIVES

The primary objective of this preoperational survey was to establish an environmental baseline for the SNF Project facilities as prescribed and defined by the regulatory requirements. This was done to determine the environmental conditions and establish background levels for contamination that may exist proximate to the proposed facility location. This effort provided documentation of the current levels of radioactive and selected chemical contaminants in the air, soils, vegetation, and small-mammal community at the two locations. External radiation levels were also measured utilizing TLDs.

Specific considerations were given to the proximity of cribs, transfer lines, trenches, and other waste sites located near the proposed facilities. Other potential concerns included prevailing winds which could transport contaminated dust particles from waste sites located upwind, as well as contaminated vegetation which could blow onto the site and scatter contaminated particles.

Therefore, elevated levels of radionuclides or chemical constituents found during this preoperational survey could be attributable to past practices and/or ongoing operations in the vicinity proximal to the location of the SNF Project facilities. This information will provide guidance for the determination of potential contaminant transport pathways. The data obtained will also assist in the development of the operational monitoring and surveillance system for early detection of potential impacts from other facility operations, or from SNF Project facilities operations to the surrounding environment.

2.0 SITE DESCRIPTIONS

The 100 K Area is located along the Columbia River approximately 3 km (1.9 mi) upstream of the 100 N Area (Figure 2-1). It consisted of two reactors, K East and K West whose cooling basins currently contain the Spent Nuclear Fuel (Figure 2-1).

The 200 East Area lies on a plateau in the central portion of the Hanford Site (Figure 2-2) approximately 11 km (6.8 mi) south of the Columbia River. These two sites are the location of various radionuclide and hazardous waste process facilities and waste disposal facilities (e.g., liquid waste cribs and solid waste burial grounds).

The ecology of the 100 and 200 Areas was originally mature shrub-steppe desert characterized by such vegetation as big sagebrush (*Artemisia tridentata*) and Sandberg's bluegrass (*Poa sandbergii*). Large tracts of these habitat types exist outside these areas. However, the sagebrush habitat within the areas has generally been disturbed. These disturbed areas support a variety of plants such as introduced bunchgrasses (*Agropyron spp.*), and invaders such as Russian thistle (*Salsola kali*), cheatgrass (*Bromus tectorum*), and rabbitbrush (*Chrysothamnus spp.*).

Animal species of the Hanford Site, while still similar to those found before human use of the area (except certain invaders which have taken advantage of the changed habitats), are generally at reduced numbers where there is a reduction in vegetative cover and species. Native species include the long-billed curlew (*Numenius americanus*), the horned lark (*Eremophila alpestris*), the burrowing owl (*Athene cunicularia*), the great horned owl (*Bubo virginianus*), the sage sparrow (*Amphispiza belli*), the loggerhead shrike (*Lanius ludovicianus*), the Great Basin pocket mouse (*Perognathus parvus*), the deer mouse (*Peromyscus maniculatus*), the Western harvest mouse (*Reithrodontomys megalotis*), the pocket gopher (*Thomomys talpoides*), the black-tailed jackrabbit (*Lepus californicus*), the badger (*Taxidea taxus*), the coyote (*Canis latrans*), and the mule deer (*Odocoileus hemionus*).

Non-native species taking advantage of the altered habitats include the domestic pigeon (*Columba livia*) and the house mouse (*Mus musculus*). Additional information on existing habitat and associated species can be found in Neitzel (1999).

Twelve plant species considered to be endangered, threatened, or sensitive by the Washington Natural Heritage Program (1994) are known to survive on or near the Hanford Site, seven of which are upland species (Sackschewsky et al. 1992). The upland species are northern wormwood (*Artemisia campestris spp. Borealis var. wormskiodii*), Hoover's desert parsley (*Lomatium tuberosum*), Piper's daisy (*Erigeron piperianus*), gray cryptantha (*Cryptantha leucophea*), Palouse milkvetch (*Astragalus arrectus*), and coyote tobacco (*Nicotiana attenuata*). Currently, none of the plant species are listed as federal threatened or endangered species. However, three local upland species are candidates for federal protection: (1) northern wormwood, (2) Hoover's desert parsley, and (3) Columbia milkvetch.

Figure 2-1. Location of the Cold Vacuum Drying Facility in the 100 K Area of the Hanford Site.

Figure 2-2. Location of the Canister Storage Building Site in 200 East Area.

The bald eagle and peregrine falcon are the only federally listed threatened or endangered wildlife species occurring near the 200 Areas. Federal candidate species occurring near the 200 Areas include the ferruginous hawk and loggerhead shrike. The pygmy rabbit, a shrub-steppe species listed as a federal candidate species and state threatened species, has not been observed on the Hanford Site since 1984 (Fitzner et al. 1992). The sage grouse, another federal candidate shrub-steppe species, has not been observed at the Hanford Site since the mid-1980's and probably no longer resides at the Site (Landeem et al. 1992). State listed threatened or endangered wildlife includes the peregrine falcon and ferruginous hawk. State candidate species observed near the 200 Areas include the golden eagle, burrowing owl, sage thrasher, Swainson's hawk, striped whipsnake, Merriam's shrew, and sage sparrow (Stegen 1992).

The specific areas comprising the proposed facilities are generally devoid of native vegetation, which over the years has been disturbed by various waste management activities, as well as construction of roads, buildings, storage basins, and other facilities. Therefore, the human activities and ongoing construction efforts have greatly reduced the likelihood that any protected species occur in the near vicinity. During the sampling activities, biologists did not observe any protected species.

3.0 HISTORICAL INFORMATION

Environmental monitoring efforts to determine radionuclide levels in the 100 K and 200 East Areas have been conducted by Rockwell Hanford Operations and Westinghouse Hanford Company in association with the burial grounds, liquid waste disposal facilities, and waste management activities conducted within and around these sites (Panesko et al. 1977; Panesko et al. 1978; Houston and Blumer 1978, 1979a, 1979b; Schmidt et al. 1990, 1991, 1992a, 1992b, 1993, 1994, 1995, 1996; Perkins 1988, 1990, 1991, 1992). Since October 1997 this monitoring has been conducted by Waste Management Technical Services (WMTS) for Fluor Hanford (FH) (Perkins et al. 1997, 1998).

Since the 100 K and 200 East proposed facility sites comprise largely disturbed areas located proximal to a number of waste sites and active facilities, the utilization of the previously developed historical data allowed for collection of a minimal number of additional samples in the appropriately selected media. This determination was in concert with the recommendations in DOE Order 5400.1 (DOE 1988a) to utilize existing data. A summary of the historical information that was researched and used for this study follows.

3.1 ENVIRONMENTAL MONITORING

3.1.1 Air monitoring

Ambient air monitoring is conducted to determine baseline concentrations of radionuclides in the operations areas, to assess the impact of operations on the local environment, and to monitor diffuse emissions from sources located within the operations area. These measurements also provide an indication of facility and/or project performance and are used to demonstrate compliance with environmental protection criteria.

The placement of air monitoring stations takes into consideration potential source terms, prevailing wind direction, as well as proximity to obstructions and activities that could result in unusual, localized effects on the air samplers. Meteorological conditions are monitored continuously by Pacific Northwest National Laboratory (PNNL) meteorology stations, which are strategically positioned in and around the Hanford Site. Field evaluations are conducted in concert with Washington State Department of Health (WDOH) personnel to determine optimum air sampler locations.

Hanford Site air samplers operate at a flow rate of $0.056 \text{ m}^3/\text{min}$ ($2 \text{ ft}^3/\text{min}$), drawing a sample through a 47 mm (2-in.), open-faced filter about 2 m (6 ft) aboveground. Typically, sample filters are exchanged biweekly, held one week (to allow for decay of the short-lived natural radioactivity), and then sent to the analytical laboratory for initial analysis of total alpha and total beta activity. These initial analyses serve as an indicator of potential environmental problems.

The filters are stored until the end of the 6-month sampling period, then segregated and composited by sample location (or as deemed appropriate) for specific radionuclide analysis. Segregating and compositing air filters by site provides a larger sample size and, thus, a more sensitive and accurate measurement of the concentration of airborne radionuclides.

3.1.1.1 100 K Area. Figure 3-1 shows the locations of the existing ambient air samplers in the 100 K Area. Stations N-401, N-402, N-403 and N-404 in the 100 K East Area have been in operation since March 1993. These samplers provide environmental monitoring data required by the Washington Department of Health for operation of the 105 K East Fuel Storage Basin. Stations N-476, N-477, N-478 and N-479 located in the 100 K West Area were established as part of this study and became operational in February 1999.

Table 3-1 provides five-year summaries (1993 through 1997) of the radioanalytical data collected from the four (4) existing samplers at 100 K East and from the distant communities' sampling stations (1993 through 1996), as well as the corresponding derived concentration guides for each radionuclide. The analytical results for ^{60}Co , ^{235}U and ^{238}Pu for all locations frequently exhibit statistical uncertainties above 100% and/or average concentrations approaching zero, indicating that these radionuclides are below analytical detection levels. Only ^{241}Am was consistently detected at each sampling location. All other radionuclides shown in Table 3-1 are infrequently detected. Sampler N-401 often exhibits the highest concentrations for the radionuclides ^{137}Cs , ^{234}U , $^{239/240}\text{Pu}$, ^{241}Pu and ^{241}Am .

3.1.1.2 200 East Area. Figure 3-2 shows the locations of the four, preexisting sampling stations, situated in the general vicinity of the CSB (N-967, N-973, N-019 and N-968). Two new ambient air samplers (N-480 and N-481) were established for this study near the CSB.

Table 3-2 provides five-year summaries (1993 through 1997) of radioanalytical data collected from these four (4) existing samplers and from the distant communities' sampling stations (1993 through 1996), as well as the corresponding derived concentration guides for each radionuclide. The average analytical results for ^{90}Sr , ^{235}U , ^{238}Pu and $^{239/240}\text{Pu}$ for all locations frequently exhibited statistical uncertainties above 100% and/or average concentrations approaching zero during the time period, indicating that these radionuclides are below analytical detection levels. Uranium-234 and ^{238}U are frequently detected at most locations. Cobalt-60 and ^{137}Cs are not consistently detected at any of the locations.

Figure 3-1. 100 K Area Showing the Location of Existing and New Air Monitoring Stations

WMW/BM/7-98/FIG-2

Table 3-1. 100 K Ambient Air Monitoring Results—Five Year Averages (pCi/m³).

Radionuclide	N-401	N-402	N-403	N-404	Distant Community*	DCG
⁶⁰ Co	-5.2E-05 ± 328%	-2.2E-04 ± 237%	-5.6E-05 ± 224%	-1.7E-04 ± 264%	1.0E-04 ± 75%	8.0E+01
⁹⁰ Sr	3.7E-04 ± 43%	2.5E-04 ± 103%	2.2E-04 ± 64%	5.1E-04 ± 169%	3.0E-06 ± 500%	9.0E-00
¹³⁷ Cs	2.6E-03 ± 25%	1.6E-04 ± 109%	3.0E-04 ± 94%	2.1E-04 ± 218%	4.7E-05 ± 113%	4.0E+02
²³⁴ U	2.3E-05 ± 137%	1.9E-05 ± 119%	1.7E-05 ± 122%	1.8E-05 ± 83%	2.0E-05 ± 25%	9.0E-02
²³⁵ U	9.2E-06 ± 191%	9.7E-06 ± 184%	8.0E-06 ± 103%	6.3E-06 ± 128%	8.5E-07 ± 82%	1.0E-01
²³⁸ U	1.2E-05 ± 231%	1.5E-05 ± 48%	1.1E-05 ± 89%	9.4E-06 ± 111%	1.7E-05 ± 26%	1.0E-01
²³⁸ Pu	-1.3E-06 ± 229%	-1.3E-06 ± 241%	6.1E-07 ± 230%	-1.7E-06 ± 206%	1.0E-07 ± 240%	3.0E-02
^{239/240} Pu	1.5E-05 ± 105%	8.3E-06 ± 95%	1.2E-05 ± 83%	6.4E-06 ± 106%	6.5E-07 ± 110%	2.0E-02
²⁴¹ Pu	9.5E-04 ± 95%	2.2E-04 ± 189%	4.6E-04 ± 171%	7.0E-04 ± 285%	Not Reported	1.E-00
²⁴¹ Am	3.0E-05 ± 91%	1.8E-05 ± 55%	2.0E-05 ± 47%	1.5E-05 ± 63%	Not Reported	2.0E-02

*1993-1996 Annual Averages from PNNL-11795

DCG = Derived Concentration Guide

Figure 3-2. 200 Air Sampling Locations for Near-Facility Monitoring. New locations in gray.

Table 3-2. 200 East Ambient Air Monitoring Results—Five Year Averages (pCi/m³).

Radionuclide	N-967	N-973	N-019	N-968	Distant Community*	DCG
⁶⁰ Co	-5.8E-05 ± 238%	1.9E-05 ± 221%	-3.7E-05 ± 209%	1.6E-04 ± 43%	1.0E-04 ± 75%	8.0E+01
⁹⁰ Sr	3.0E-04 ± 215%	1.6E-04 ± 102%	1.4E-03 ± 118%	2.3E-04 ± 167%	3.0E-06 ± 500%	9.0E-00
¹³⁷ Cs	2.2E-04 ± 123%	3.4E-04 ± 99%	4.2E-03 ± 122%	7.9E-05 ± 228%	4.7E-05 ± 113%	4.0E+02
²³⁴ U	1.3E-05 ± 104%	1.3E-05 ± 86%	1.6E-05 ± 99%	1.9E-05 ± 64%	2.0E-05 ± 25%	9.0E-02
²³⁵ U	4.0E-06 ± 221%	4.8E-06 ± 286%	1.1E-05 ± 146%	8.3E-06 ± 121%	8.5E-07 ± 82%	1.0E-01
²³⁸ U	1.0E-05 ± 179%	9.6E-06 ± 90%	9.9E-06 ± 69%	1.4E-05 ± 68%	1.7E-05 ± 26%	1.0E-01
²³⁸ Pu	-9.2E-07 ± 409%	1.8E-06 ± 263%	4.3E-06 ± 297%	-1.2E-06 ± 261%	1.0E-07 ± 240%	3.0E-02
^{239/240} Pu	1.3E-06 ± 124%	3.3E-06 ± 167%	7.9E-06 ± 108%	2.3E-06 ± 116%	6.5E-07 ± 110%	2.0E-02

* 1993-1996 Annual Averages from PNNL-11795.

DCG = Derived Concentration Guide.

3.1.2 Biotic Monitoring

3.1.2.1 100 K Area. Soil and vegetation sampling was conducted on a routine basis beginning in 1981 at five locations near burial grounds and liquid effluent disposal facilities associated with past reactor operations located in the northeast perimeter of the 100 K Area (Figure 3-3). Routine sampling at these sites was discontinued in 1993. Trend analysis of the data collected since 1980 indicated that migration of the contaminants was not occurring and therefore routine annual sample collection and analysis was no longer cost-effective (Schmidt et al. 1995). Table 3-3 provides a summary of the average radionuclide values detected in 100 K surface soil samples near the burial grounds from 1981 through 1993 (Schmidt et al. 1994). It should be noted that levels of radioactive isotopes present in environmental samples are often so low that the error bar may appear exaggerated, however, it is a common and accepted occurrence.

Table 3-4 is a summary of the average radionuclide values found in vegetation samples collected from the 100 K Area from 1981 to 1993 (Schmidt et al. 1994). With the exception of ⁹⁰Sr in soils and plants, there has been a trend toward decreasing values for the other radionuclide values listed. Although these samples are from a location somewhat distant from the proposed CVDF location (Figure 3-3), they provide a useful baseline for comparative purposes with the data developed during this study.

3.1.2.2 200 East Area. Soil and vegetation sampling has been conducted on a routine basis in the 200 Areas and surrounding environs for a number of years. A sample site (D080) located southeast of the CSB near the Cross-Site Transfer Line (Figure 3-4) has been sampled biannually for the last six years. Sample values collected during the preoperational survey for the Cross-Site Transfer Line was utilized for providing a comparative baseline (Johnson and Mitchell 1996). Information from another sample site (D062), which is sampled less frequently and located near the B-55 and B-12 Cribs, was also utilized (Figure 3-4). These sites are located east and southeast, respectively, of the CSB in association with waste facilities. Although the prevailing winds are out of the west, easterly winds blowing off these sites toward the CSB do occur annually between 18 to 22 percent of the time. Table 3-5 includes a summary of the most recent samples of soil and vegetation collected at these two sites.

During a preoperational environmental survey conducted along the proposed replacement route for the Area Site Transfer line, soil and vegetation samples were collected near the now southern boundary of the CSB (Johnson & Mitchell 1996). Figure 2-2 provides an approximate location for the line. Table 3-6 provides a summary of the radionuclide values for soil and vegetation samples collected at this site, while Table 3-7 provides a survey of metals values. Values were also reported for chloride (0.4 ppm), flouride (<0.1 ppm), nitrate (8.1 ppm), nitrite (0.1 ppm), phosphate (6.2 ppm) and sulfate (1.6 ppm) (Johnson and Mitchell 1996).

Additionally, information available in the "Hanford Waste Vittrification Project (HWVP) Baseline Summary Report" (Wasmiller 1993) was utilized, where possible, to aid in the development of the environmental baseline for the CSB.

Site survey work was conducted in 1991 and 1992 in support of the HWVP. The southern portion of that proposed site included the current location for the CSB (Wasmiller 1993). Based on a radiological survey using the Ultra-Sonic Ranging and Data System (USRADS), a

Figure 3-3. Historical (1981–1993) Soil and Vegetation Sampling Locations at 100 K Area.

Table 3-3. Average Radionuclide Concentrations (pCi/g) Detected in 100 K Area
Surface Soil Samples from 1981 to 1993.

Year	^{60}Co	^{90}Sr	^{137}Cs	^{238}Pu	$^{239,240}\text{Pu}$
1981	8.3 E-01	NR ^(a)	4.4 E+00	NR	NR
1982	2.6 E+01	NR	8.8 E-01	NR	NR
1983	5.5 E+01	NR	5.3 E+01	NR	NR
1984	3.3 E+00	8.4 E-01	1.2 E+01	9.6 E-04	2.9 E-02
1985	7.4 E-01	2.9 E-01	1.1 E+00	1.4 E-03	3.2 E-02
1986	1.0 E+00	1.8 E-01	1.1 E+00	9.1 E-04	2.3 E-02
1987	1.2 E+00	4.3 E-01	1.3 E+00	2.7 E-03	5.5 E-02
1988	3.9 E-01	2.3 E-01	7.3 E-01	7.1 E-04	2.0 E-02
1989	7.7 E-01	6.3 E-01	7.5 E+00	2.8 E-03	7.8 E-02
1990	2.3 E-01	2.3 E-01	9.7 E-01	6.8 E-04	1.4 E-02
1991	2.7 E-01	1.7 E-01	1.2 E+00	8.6 E-04	2.0 E-02
1992	1.3 E-01	2.5 E-01	5.3 E-01	5.7 E-04	1.3 E-02
1993	7.5 E-02	2.0 E-01	5.0 E-01	2.4 E-04	7.0 E-03

^(a)NR = not reported.

Table 3-4. Average Radionuclide Concentrations (pCi/g) Detected in 100 K Area Vegetation Samples from 1981 to 1993.

Year	^{60}Co	^{90}Sr	^{137}Cs	^{238}Pu	$^{239,240}\text{Pu}$
1981	1.2 E+00	NR ^(a)	1.0 E-01	NR	NR
1982	2.4 E-01	NR	9.7 E-01	NR	NR
1983	1.5 E-01	NR	2.5 E-01	NR	NR
1984	1.8 E-01	1.3 E+00	1.3 E-01	2.9 E-04	6.9 E-04
1985	4.6 E-01	3.9 E-01	1.3 E-01	1.9 E-04	7.1 E-04
1986	2.8 E-01	4.0 E-01	1.5 E+00	2.5 E-04	7.9 E-04
1987	2.3 E-01	1.3 E+00	1.1 E-01	1.9 E-04	2.2 E-04
1988	4.9 E-01	1.2 E+00	1.8 E-01	5.2 E-05	3.8 E-04
1989	3.1 E-01	1.3 E+00	1.6 E-01	1.1 E-04	1.5 E-04
1990	4.5 E-02	8.0 E+00	4.1 E-02	-1.7 E-04 ^(b)	2.5 E-04
1991	6.3 E-02	4.1 E-01	7.6 E-02	5.2 E-05	5.9 E-04
1992	-4.2 E-02	5.3 E-01	3.8 E-02	-6.5 E-05	9.8 E-05
1993	-1.3 E-02	4.5 E-01	-3.0 E-02	-9.1 E-05	-1.4 E-04

^(a) NR = not reported.^(b) Negative value indicates results at or below background levels of radioactivity.

Figure 3-4. 200 East Soil Sampling Locations for Near-Facility Monitoring

WMW/EM/6-98/FIG. 2

Table 3-5. Summary of Routine Monitoring Samples Collected in the 200 East Area Near CSB (pCi/g).

Sample Site	Date	Cobalt-60		Strontium-90		Cesium-137		Plutonium-239/240	
		Result	Error	Result	Error	Result	Error	Result	Error
Soils									
D062	1994	-0.003	343%	0.2	19%	4.5	10%	0.006	19%
D062	1996	-0.02	91%	0.3	19%	0.7	11%	0.01	18%
D062	1998	0.005	150%	0.1	80%	1.0	16%	0.007	86%
Vegetation									
D062	1994	—	—	0.2	23%	0.7	11%	0.03	13%
D062	1996	-0.05	300%	0.2	20%	1.0	11%	0.03	14%
D062	1998	0.01	330%	0.006	>999%	0.02	35%	0.007	100%
Soils									
D080	1994	-0.007	145%	0.2	23%	0.7	11%	0.03	13%
D080	1996	-0.007	167%	0.2	20%	1.0	11%	0.03	14%
D080	1998	0.004	120%	0.006	>999%	0.02	35%	0.007	100%
Vegetation									
D080	1994	-0.02	488%	0.3	20%	0.002	110%	0.002	54%
D080	1996	-0.02	310%	1-3	23%	-0.01	575%	0.0009	92%
D080	1998	NC*	NC	NC	NC	NC	NC	NC	NC

*NC = not collected.

Table 3-6. Cross-site Transfer Line Study Radionuclides (pCi/g).

Sample Number	Date #	Sample Medium	⁶⁰ Co		⁹⁰ Sr		¹³⁷ Cs		^{239/240} Pu	
			Result	Error	Result	Error	Result	Error	Result	Error
BODMP2	1995	Veg	-0.014	±0.021	0.39	±0.20	0.021	±0.048	0.046	±0.052
BODMQ4	1995	Soil	-0.004	±0.011	0.26	±0.16	1.30	±0.15	0.39	±0.019

Table 3-7. Cross-site Transfer Line Study Metals (ppm).

Sample Number	Date	Sample Medium	Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
BODMQ4	1995	Soil	2.6	87.3	0.69	6.3	0.12	8.5	12.8	0.92	40.4
BODMP2	1995	Veg	0.55	17.2	0.82	1.1	0.14	1.8	10.3	1.1	16.5

Table 3-8. Summary of Selected Constituents (ppm) Analyzed by Wasmiller (1993).

Constituent	Average	Minimum	Maximum
Arsenic	2.5	1.6	3.2
Barium	84.5	75	95.5
Cadmium	0.31	0.2	0.46
Chromium	7.8	6.1	9
Copper	11.2	8.8	14.2
Lead	6.7	4.6	9
Mercury	0.21	0.09	0.48
Silver	0.90	0.4	1.1
Zinc	41.5	32.4	51.9
Fluoride	2.0	<1.0	6.9
Chloride	12.8	8.3	17.6
Sulfate	30.8	<1.0	59
Ammonia	13.6	0.8	66

determination was made not to collect surface soil samples for radiological analyses. Of the 6 soil survey locations located in the general area of the CSB, none exhibited the ≥ 100 ppm level requiring lab analyses for volatile organic compounds. Values that were obtained for selected metals and chemical constituents of surface soils are summarized in Table 3-8.

3.1.3 Thermoluminescent Dosimeter Monitoring

A network of TLDs is positioned in and around the 100 and 200 Areas to monitor dose rates from external radiation sources (primarily gamma rays). The environmental TLDs measure dose rates from all types of external radiation sources. These include cosmic radiation, naturally occurring radiation in air and soil, and fallout from nuclear weapons testing, as well as any contribution from the Hanford Site activities. These outside radiation sources cause an estimated $\pm 20\%$ deviation in TLD analyses. The results are reported in units of millirems per year (mrem/yr).

The TLD measurements are taken to determine dose rates in the operations area environment. From these data, the contribution of the Hanford Site activities to the dose rates in these areas can be discerned.

The Hanford Site uses the Harshaw TLD system, which includes the Harshaw 8807 dosimeter and the Harshaw 8800 TLD reader. The TLD packaging, which uses an "O ring" seal, protects the TLDs from light, heat, moisture, and dirt. The TLDs are placed 1 m (approximately 3 ft) aboveground at each location. The TLDs are placed near active and inactive surface-water disposal sites and near facilities (e.g., tank farms, cribs, and the facility fence line). Changing conditions in the vicinity of the TLD sample locations, such as remediation activities, removal or storage of radioactive material, tank farm and other operations may also cause fluctuations in TLD analyses over time. The TLDs are exchanged each calendar quarter (January, April, July, October).

3.1.3.1 100 K Area. Figure 3-5 indicates the locations of the existing TLD monitoring stations in the 100 K Area. Four new TLD stations were established around the CVDF site in the spring of 1999. In 1997, the maximum reported TLD value reported for 100 K Area was 2250 mrem/yr, with an average of 1300 mrem/yr. By 1998, with the removal of radioactive waste stored in the proximity of three of the TLD locations, the levels had dropped to 720 mrem/yr and 180 mrem/yr, respectively (Perkins et al. 1999).

3.1.3.2 200 East Area. The current locations of the 200 East Area TLD monitoring stations are shown in Figure 3-6. Two additional TLD monitoring stations were established in the spring of 1999 proximal to the CSB site and are also indicated. For the TLD stations monitoring the 200 Areas in 1997, the maximum reported dose was 350 mrem/yr and average was 100 mrem/yr. For 1998, that decreased about 10% to an average of 90 mrem/yr (Perkins et al. 1999).

Figure 3-5. Map of 100 K Area Showing TLD Monitoring Locations.

Figure 3-6 TLD Monitoring Locations in 200 East Area. The two new sites are in gray.

3.1.4 Cultural/Biological Resources

The potential impacts of removing SNF from the K Basins, processing it, and storing it on a long-term basis have previously been reviewed (DOE 1995, 1996). The 100 K facility and 200 East facility are both located inside the fenced portions of the site, which have received extensive review (Chatters and Cadoret 1990). Previously, cultural resource reviews and biological assessments have been conducted for the SNF Project facilities and these documents are included in Appendix A.

No known archaeological or historical sites are located within the proposed project sites. However, sampling personnel were informed to be on the lookout for any cultural resources and to notify the responsible personnel. However, none were observed.

4.0 AIR MONITORING

Ambient air monitoring is conducted for a number of reasons: to determine baseline concentrations of radionuclides in the operations areas; to assess the impact of operations on the local environment; and to monitor diffuse emissions from sources located within the operations area. These measurements also provide an indication of facility and/or project performance and are used to demonstrate compliance with environmental protection criteria.

The placement of air monitoring stations takes into consideration potential source terms as well as prevailing wind direction and proximity to obstructions and activities that might bias the air samplers.

To help assess the impact of Site operations, monitoring results are compared to DOE derived concentration guides, to the results obtained from the distant communities of Yakima and Sunnyside (reported by the PNNL Environmental Surveillance Program) and to data acquired from distant station N-981 located at the Wye Barricade.

4.1 100 K AREA

Figure 3-1 shows the locations of the ambient air samplers in the 100 K Area. Stations N-401, N-402, N-403 and N-404 in the 100 K East Area have been in operation since March 1993.

Stations N-476, N-477, N-478 and N-479, located in the 100 K West Area, were established as part of this study and became operational in February 1999. For somewhat more than a year, these samplers have been collecting preoperational monitoring data as required by WDOH.

Table 4-1 provides an updated summary of the reported values for the four existing air monitoring stations in the 100 K Area through December 1999. The analytical results for ^{60}Co , ^{235}U and ^{238}Pu for all locations frequently exhibit statistical uncertainties above 100% and/or average concentrations less than zero, indicating that these radionuclides are below analytical detection levels. Only ^{241}Am was consistently detected at each sampling location. All other radionuclides shown in Table 4-1 are infrequently detected. Sampler N-401 often exhibits the highest concentrations for the radionuclides ^{137}Cs , ^{234}U , $^{239/240}\text{Pu}$, ^{241}Pu and ^{241}Am .

Table 4-2 represents a summary of the 1999 radionuclide concentrations for the four new air samplers established for this study (Figure 3-1). Figures 4-1 through 4-4 provide graphic representations of the 100 K Area, annual average radionuclide concentrations for ^{90}Sr , ^{137}Cs , $^{239/240}\text{Pu}$ and ^{241}Am . The information provided for 1999 includes the data obtained by the four new samplers established for this preoperational survey.

Table 4-1. Average 100 K Area Radionuclide Concentrations from 1994 through 1999 ($\text{pCi/m}^3 \pm 2\text{SEM}$).

Radionuclide	N-401	N-402	N-403	N-404	Distant Community ^(a)	DCG ^(b)
⁶⁰ Co	1.2E-06 $\pm$ 330%	-8.6E-05 $\pm$ 116%	9.5E-06 $\pm$ 496%	-3.4E-05 $\pm$ 175%	7.0E-04 $\pm$ 44%	8.0E+01
⁹⁰ Sr	3.0E-04 $\pm$ 60%	1.5E-04 $\pm$ 66%	1.8E-04 $\pm$ 52%	2.5E-04 $\pm$ 104%	1.5E-06 $\pm$ 126%	9.0E+00
¹³⁷ Cs	2.0E-03 $\pm$ 74%	1.3E-04 $\pm$ 41%	2.0E-04 $\pm$ 80%	1.5E-04 $\pm$ 96%	3.0E-05 $\pm$ 220%	4.0E+02
²³⁴ U	2.2E-05 $\pm$ 55%	1.6E-05 $\pm$ 49%	1.6E-05 $\pm$ 55%	1.4E-05 $\pm$ 35%	1.7E-05 $\pm$ 17%	9.0E-02
²³⁵ U	7.2E-06 $\pm$ 99%	8.4E-06 $\pm$ 62%	7.1E-06 $\pm$ 85%	5.7E-06 $\pm$ 52%	7.3E-07 $\pm$ 93%	1.0E-01
²³⁸ U	1.1E-05 $\pm$ 37%	1.1E-05 $\pm$ 44%	1.1E-05 $\pm$ 55%	1.0E-05 $\pm$ 46%	1.6E-05 $\pm$ 19%	1.0E-01
²³⁹ Pu	5.2E-06 $\pm$ 140%	3.9E-07 $\pm$ 356%	-2.3E-07 $\pm$ 1430%	3.8E-07 $\pm$ 785%	1.2E-07 $\pm$ 205%	3.0E-02
^{239/240} Pu	1.4E-05 $\pm$ 55%	7.9E-06 $\pm$ 30%	2.0E-05 $\pm$ 80%	8.3E-06 $\pm$ 64%	1.8E-07 $\pm$ 144%	2.0E-02
²⁴¹ Pu	1.9E-04 $\pm$ 195%	-5.3E-05 $\pm$ 810%	2.0E-04 $\pm$ 231%	4.3E-05 $\pm$ 1414%	Not Reported	1.E+00
²⁴¹ Am	2.8E-05 $\pm$ 46%	2.0E-05 $\pm$ 38%	2.4E-05 $\pm$ 29%	1.8E-05 $\pm$ 41%	Not Reported	2.0E-02

^(a)1994-1998 Annual Averages from PNNL-13230^(b)DCG = Derived Concentration GuideTable 4-2. Average 100 K Area Radionuclide Concentrations from February 1999 through December 1999 ($\text{pCi/m}^3 \pm 2\text{SEM}$).

Radionuclide	N-476	N-477	N-478	N-479	Distant Community ^(a)	DCG ^(b)
⁶⁰ Co	-1.4E-05 $\pm$ 357%	7.3E-06 $\pm$ 462%	2.9E-05 $\pm$ 11%	2.8E-05 $\pm$ 43%	7.0E-04 $\pm$ 44%	8.0E+01
⁹⁰ Sr	2.0E-04 $\pm$ 112%	9.0E-05 $\pm$ 12%	5.3E-05 $\pm$ 214%	-7.5E-06 $\pm$ 600%	1.5E-06 $\pm$ 126%	9.0E+00
¹³⁷ Cs	9.6E-05 $\pm$ 156%	3.7E-05 $\pm$ 107%	-4.5E-05 $\pm$ 29%	4.0E-05 $\pm$ 300%	3.0E-05 $\pm$ 220%	4.0E+02
²³⁴ U	1.9E-05 $\pm$ 70%	1.6E-05 $\pm$ 58%	3.2E-06 $\pm$ 435%	-1.0E-05 $\pm$ 118%	1.7E-05 $\pm$ 17%	9.0E-02
²³⁵ U	4.7E-06 $\pm$ 89%	7.6E-06 $\pm$ 144%	4.0E-06 $\pm$ 73%	4.0E-06 $\pm$ 134%	7.3E-07 $\pm$ 93%	1.0E-01
²³⁸ U	1.2E-05 $\pm$ 9%	7.8E-06 $\pm$ 44%	-3.1E-04 $\pm$ 410%	-2.3E-04 $\pm$ 689%	1.6E-05 $\pm$ 19%	1.0E-01
²³⁹ Pu	3.8E-06 $\pm$ 186%	2.7E-06 $\pm$ 104%	1.8E-04 $\pm$ 108%	2.2E-04 $\pm$ 175%	1.2E-07 $\pm$ 205%	3.0E-02
^{239/240} Pu	3.0E-06 $\pm$ 60%	4.7E-06 $\pm$ 34%	1.7E-05 $\pm$ 71%	1.4E-05 $\pm$ 80%	1.8E-07 $\pm$ 144%	2.0E-02
²⁴¹ Pu	-5.0E-06 $\pm$ 12200%	-2.8E-04 $\pm$ 418%	6.3E-06 $\pm$ 117%	6.3E-06 $\pm$ 63%	Not Reported	1.E+00
²⁴¹ Am	3.1E-05 $\pm$ 6%	1.4E-05 $\pm$ 141%	1.0E-05 $\pm$ 31%	1.0E-05 $\pm$ 16%	Not Reported	2.0E-02

^(a)1994-1998 Annual Averages from PNNL-13230^(b)DCG = Derived Concentration Guide

Figure 4-1. Strontium-90 Concentrations for the 100 K Area.

Figure 4-2. Cesium-137 Concentrations for the 100 K Area.

Figure 4-3. Plutonium-239/240 Concentrations for the 100 K Area.

Figure 4-4. Americium-241 Concentrations for the 100 K Area.

4.2 200 EAST AREA

Figure 3-2 shows the locations of the two new ambient air samplers (N-480 and N-481) established in November 1998 for this study near the CSB, as well as the existing stations in the 200 East Area. Four, pre-existing sampling stations, situated in the general vicinity of the CSB, are used to provide comparative data (N-967, N-973, N-019 and N-968).

Table 4-3 provides an updated summary of radionuclide concentrations for the four existing air samplers located near the CSB. The average analytical results for ^{90}Sr , ^{235}U , ^{238}Pu and $^{239/240}\text{Pu}$ for all locations frequently exhibited statistical uncertainties above 100% and/or average concentrations less than zero during the time period, indicating that these radionuclides are usually below analytical detection levels. Uranium-234 and ^{238}U are frequently detected at most locations. Cobalt-60 and ^{137}Cs are not consistently detected at any of the locations.

Table 4-4 provides summaries of the radiological data collected from the two (2) new samplers at the CSB and from the distant communities' sampling stations, as well as the corresponding derived concentration guides for each radionuclide. The analytical results for ^{60}Co , ^{137}Cs , ^{238}Pu and ^{241}Pu at both locations consistently exhibit statistical uncertainties above 100% and/or concentrations less than zero, indicating that these radionuclides are below analytical detection limits. Americium-241 and $^{234,235,238}\text{U}$ were detected in approximately 70% of the samples at both locations. Strontium-90 and $^{239/240}\text{Pu}$ were detected in approximately half of the samples.

Table 4-3. Average 200 East Radionuclide Concentrations from 1994 through 1999 ($\text{pCi}/\text{m}^3 \pm 2\text{SEM}$).

Radionuclide	N-019	N-967	N-968	N-973	Distant Community ^(a)	DCG ^(b)
⁶⁰ Co	3.1E-05 $\pm$ 146%	1.4E-05 $\pm$ 276%	6.2E-05 $\pm$ 111%	5.0E-05 $\pm$ 100%	7.0E-04 $\pm$ 44%	8.0E+01
⁹⁰ Sr	9.2E-04 $\pm$ 176%	1.9E-04 $\pm$ 68%	1.4E-04 $\pm$ 95%	1.4E-04 $\pm$ 53%	1.5E-06 $\pm$ 126%	9.0E+00
¹³⁷ Cs	1.8E-03 $\pm$ 172%	1.6E-04 $\pm$ 42%	5.9E-05 $\pm$ 89%	2.3E-04 $\pm$ 48%	3.0E-05 $\pm$ 220%	4.0E+02
²³⁴ U	1.6E-05 $\pm$ 46%	1.2E-05 $\pm$ 26%	1.8E-05 $\pm$ 28%	1.1E-05 $\pm$ 34%	1.7E-05 $\pm$ 17%	9.0E-02
²³⁵ U	8.6E-06 $\pm$ 51%	4.9E-06 $\pm$ 67%	7.2E-06 $\pm$ 64%	3.3E-06 $\pm$ 66%	7.3E-07 $\pm$ 93%	1.0E-01
²³⁸ U	1.0E-05 $\pm$ 35%	8.7E-06 $\pm$ 33%	1.3E-05 $\pm$ 35%	1.0E-05 $\pm$ 34%	1.6E-05 $\pm$ 19%	1.0E-01
²³⁸ Pu	2.3E-06 $\pm$ 214%	-9.4E-07 $\pm$ 163%	1.5E-06 $\pm$ 189%	1.7E-06 $\pm$ 216%	1.2E-07 $\pm$ 205%	3.0E-02
^{238/240} Pu	5.9E-06 $\pm$ 53%	2.5E-06 $\pm$ 106%	2.4E-06 $\pm$ 57%	3.9E-06 $\pm$ 83%	1.8E-07 $\pm$ 144%	2.0E-02

^(a)1994-1998 Annual Averages from PNNL-13230^(b)DCG = Derived Concentration GuideTable 4-4. Average 200 East Radionuclide Concentrations ($\text{pCi}/\text{m}^3 \pm 2\text{SEM}$).

Radionuclide	N-480 ^(a)	N-481 ^(b)	Distant Community ^(c)	DCG ^(d)
⁶⁰ Co	4.3E-05 $\pm$ 100%	-1.3E-05 $\pm$ 637%	7.0E-04 $\pm$ 44%	8.0E+01
⁹⁰ Sr	1.3E-04 $\pm$ 91%	2.1E-04 $\pm$ 103%	1.5E-06 $\pm$ 126%	9.0E+00
¹³⁷ Cs	1.2E-04 $\pm$ 90%	5.3E-05 $\pm$ 84%	3.0E-05 $\pm$ 220%	4.0E+02
²³⁴ U	2.7E-05 $\pm$ 83%	1.8E-05 $\pm$ 101%	1.7E-05 $\pm$ 17%	9.0E-02
²³⁵ U	2.4E-05 $\pm$ 128%	1.1E-05 $\pm$ 107%	7.3E-07 $\pm$ 93%	1.0E-01
²³⁸ U	2.3E-05 $\pm$ 54%	1.4E-05 $\pm$ 75%	1.6E-05 $\pm$ 19%	1.0E-01
²³⁸ Pu	-6.7E-08 $\pm$ 209%	-4.6E-06 $\pm$ 230%	1.2E-07 $\pm$ 205%	3.0E-02
^{238/240} Pu	1.4E-05 $\pm$ 141%	9.0E-06 $\pm$ 45%	1.8E-07 $\pm$ 144%	2.0E-02
²⁴¹ Pu	-1.2E-03 $\pm$ 214%	-7.6E-04 $\pm$ 231%	Not Reported	1.0E+00
²⁴¹ Am	3.7E-05 $\pm$ 99%	5.2E-05 $\pm$ 133%	Not Reported	2.0E-02

^(a)Sampling initiated in June, 1998^(b)Sampling initiated in November, 1998^(c)1994-1998 Annual Averages from PNNL-13230^(d)DCG = Derived Concentration Guide

5.0 THERMOLUMINESCENT DOSIMETER MONITORING

A network of TLDs is positioned in and around the 100 and 200 Areas to monitor dose rates from external radiation sources (primarily gamma rays). The environmental TLDs measure dose rates from all types of external radiation sources. These include the following: cosmic radiation; naturally occurring radiation in air and soil; and fallout from nuclear weapons testing, as well as any contribution from Hanford Site activities. These outside radiation sources can cause an estimated $\pm 20\%$ deviation in TLD analyses.

The TLD measurements are taken to determine dose rates in the operations area environment. The results are reported in units of millirems per year (mrem/yr). From these data, the contribution of the Hanford Site activities to the dose rates in these areas can be discerned.

5.1 100 K AREA

Figure 3-5 indicates the locations of the existing TLD monitoring stations in the 100 K Area. Four new TLD stations (CVS North, CVS East, CVS South and CVS West) were established around the CVDF site in June 1999. Table 5-1 provides a summary of the available quarterly results for the TLD stations near the CVDF established for this preoperational survey. These data are complete as of August 3, 2000.

5.2 200 EAST AREA

The current locations of the 200 East Area TLD monitoring stations are shown in Figure 3-6. Two additional TLD monitoring stations (310 and 311) were established in June 1999 proximal to the CSB site and are also indicated in gray tones. Table 5-2 provides a summary of the three quarters of data that were collected for the two CSB locations. These data are complete as of August 3, 2000.

Table 5-1. 100 K Area Quarterly TLD Dose Rates Near the CVDF.

TLD No.	4 th Quarter (1999)	1 st Quarter (2000)	2 nd Quarter (2000)	mrem/yr (extrapolated)
CSV North (12)	17	19	16	69
CSV East (13)	27	24	19	93
CSV South (14)	16	18	17	68
CSV West (15)	16	19	17	69

Table 5-2. CSB Quarterly TLD Dose Rates.

TLD No.	4 th Quarter (1999)	1 st Quarter (2000)	2 nd Quarter (2000)	mrem/yr (extrapolated)
310 (CSB)	25	25	16	88
311 (CSB)	37	39	20	128

6.0 SAMPLING METHODS

Sampling efforts for the SNF Project facilities focused on the collection of environmental data and media, which include soil, vegetation, discussed herein, as well as small mammals. Historical information was reviewed and evaluated to determine the types of samples needed, the analyses required for potential contaminants of concern, and prospective sample site selection.

6.1 OBJECTIVES

The primary objectives of the preoperational survey included the following: (1) determining current levels of radionuclides in environmental media attributable to previous and on-going operations of other waste management facilities in the area; (2) providing data that will demonstrate the level of potential environmental impacts during SNF Project facilities construction and operations and, possibly, when corrective actions may be necessary; (3) characterizing existing levels of radionuclides in the selected media and other environmental pollutants for comparison of past and future trends for the enhancement of routine operational monitoring; and (4) identifying potential pathways for human exposure and environmental impacts.

Environmental sampling consisting of soil and vegetation had not been conducted as part of the routine monitoring program in the 100 K Area since 1993. However, the 200 East Area and the environs around the CSB were part of the Near-Field Monitoring program which collects soil and vegetation samples on an annual basis. Therefore, for this study, greater emphasis was placed on collecting a greater number of samples in the 100 K Area to compensate for this difference.

6.2 SAMPLE SITE SELECTION

Before the initiation of sampling activities, detailed maps of the SNF Project facilities were obtained that showed the location of existing and proposed buildings, facilities, and other structures. The location of nearby waste sites, such as burial grounds, cribs, ditches, and ponds, were also noted. Using the map, 100 K and 200 East Areas were reconnoitered to determine the prime areas for the location of sampling points. Each potential sample site was marked with a surveyor's stake and noted on a map.

A Global Positioning System (GPS) operator then collected geographic data pertaining to these sites using a survey quality GPS capable of 2 cm (0.8 in.) accuracy in real time. These data were transferred to a personal computer with software designed to process and assess the quality of the GPS data. This software was also used to convert the raw GPS data into the Washington State Plane, North American Datum 83-91 coordinate system. This is the system recognized by state and federal authorities. Once the data had been processed and approved, they were exported

to an ASCII comma delimited file for use in conventional software programs (i.e., Microsoft² Excel and Word) for reporting and to use in Geographic Information System software to prepare maps of the sample locations. Table 6-1 provides a summary for each of the sample sites. Maps showing locations for each sample site are included in Figures 6-1 and 6-2.

Table 6-1. Sample Site Coordinates for the SNF Project Facilities Sampling Locations.

Sample Point	Easting	Northing
1	573002.5457	136467.6962
2	573014.5974	136078.4049
3	572933.3377	136041.0546
4	572695.5347	136146.4576
5	568397.467	146278.384
6	568248.166	146197.437
7	569469.9969	147055.8244
8	569352.8416	146203.4707
9	568806.6031	145916.4584
10	568640.1985	145849.5992
11	569650.901	146748.229

²Microsoft is a trademark of Microsoft Corporation, Redmond, Washington.

Figure 6-1. 100 K Sample Locations.

Figure 6-2. Canister Storage Building (CSB) Sample Locations.

6.3 LABORATORY ANALYSIS

Data Quality Objectives (DQOs) for determining the analytes of concern for the SNF Project were agreed upon in concert with concerned parties. A series of meetings were held during the summer of 1997 with personnel representing SNF, DOE, WDOH and WMTS. Utilizing lists (DOE 1995, WHC 1995) developed for radionuclide inventories, exposure scenarios, emission potentials and relative hazard indices from the K Basins, a consensus was reached to analyze for those detected contaminants summarized in Table 6-2. Analytes determined to be of particular interest were Americium-241, Plutonium-241, pesticides and PCBs.

ES-SSPM-001, *Sampling Services Procedures Manual*, SP 2-1, "Bottle Preservation," provided general guidance for containers and preservation requirements. Sample containers were purchased precleaned from a supplier providing certification of internal laboratory procedures, or from the contract laboratory.

Samples collected for radionuclide analyses were transported to the contract laboratory for processing. These samples were analyzed by gamma spectroscopy. Additional analyses included ^{90}Sr and ^{241}Am , as well as isotopic plutonium and metals, anions, and other analytes as requested (see Table 6-3).

6.4 FOLLOW-UP SAMPLING

Follow-up sampling was conducted on two occasions, November 4, 1999, and February 24, 2000. This was done to meet the requirement to conduct subsequent sampling to account for "seasonal changes" (DOE 1988a), or fluctuations in the ecological community and changes in environmental conditions, as well as for QA/QC purposes. These efforts consisted of the collection of soil, vegetation, litter and cryptogams at selected sample locations. Not all media were collected at each sample point; in order to achieve cost savings.

Table 6-2. Sample Analyses Summary.

Parameter/Analysis
<i>ICP metals</i>
Arsenic
Lead
Isotopic uranium
Mercury
Cyanide
<i>Anions—</i>
SO ₄ , F, Cl
NO ₂ , NO ₃ , PO ₄
<i>Gamma scan</i>
⁹⁰ Sr
²⁴¹ Am
²³⁸ , ^{239/240/241} Pu
PCBs/Pesticides

7.0 FIELD ACTIVITIES

7.1 PRELIMINARY FIELD ACTIVITIES

Field inspections were completed prior to onsite sampling activities. Prior to initiating fieldwork, entry approvals, cultural and biological resource reviews (Appendix A), etc. were obtained. These field inspections provided information supporting preliminary documentation and planning. An Activity Hazard Analysis (AHA) was developed for the FY 1999 and FY 2000 sampling sessions and is included in Appendix B.

7.2 SAMPLING PREPARATION

In support of the SNF Project facilities, sampling containers meeting U.S. Environmental Protection Agency Level 1 cleanliness guidelines were selected. Each container had been bar coded with a lot and serial number (provided by the manufacturer). Certificates of analysis verifying the cleanliness of the containers by lot are maintained by sampling services of Waste Management Technical Services (WMTS) in accordance with ES-SSPM-001, *Sampling Services Procedures Manual*, SP 1-3, "Control of Certificates of Analysis." Types of containers and lot numbers are listed in the field logbook and are contained in this document (Appendix B).

The Sampling and Analysis Plan (Mitchell et al. 1999) for the SNF preoperational survey specified that stainless steel sampling equipment be cleaned in accordance with ES-SSPM-001, SP 2-5, "Laboratory Cleaning of Sampling Equipment." All stainless steel bowls and spoons were cleaned to this procedure prior to deployment to the field.

7.3 SURFACE SAMPLING ACTIVITIES

Surface sampling activities were conducted at the sites indicated in Figures 6-1 and 6-2 on May 18, 19 and November 4, 1999, and February 24, 2000. The environmental samples collected included surface soils and sagebrush leaves, sagebrush, litter and cryptogams (mosses and lichens).

7.3.1 Soils

The surface samples were obtained by marking off a 0.3 m (1 ft) square area of the least disturbed soil. The top 5 cm (2 in.) of soil were removed with a cleaned stainless steel spade into a cleaned stainless steel bowl. The soil was mixed and placed into venter certified clean bottles with a cleaned stainless steel spoon.

7.3.2 Vegetation

At the sites selected, vegetation consisting of sagebrush leaves, sagebrush litter, and/or cryptogams was collected and placed into one-gallon sealable plastic bags. All of the samples were collected within approximately a 50 m (54.7 yd) radius of the sample stake.

7.3.3 Small Mammals

Sampling for small mammals was initiated on May 19, 1999. Samples were collected with "Sherman" live-traps set out and baited with rolled oats. The traps were then checked in the morning. Only one species of mouse, the deer mouse (*Peromyscus maniculatus*) was collected. Each animal was given a unique sample number, and submitted to the 222-S Lab for analyses. Due to constraints on the laboratory capabilities, the mice were only analyzed for gamma-emitting radionuclides, ^{241}Am , isotopic uranium and plutonium (222-S labs cannot analyze for ^{241}Pu) and heavy metals. The mice were frozen until being shipped to the laboratory. A total of five mice were submitted for analyses. Other animals captured, but not required for sampling, were released unharmed. Sampling for small mammals was completed on May 20, 1999.

7.3.4 Logbooks

Photographs of sample locations were collected for the field logbook and are included in Appendix B or stored on computer disk. Samples were then shipped to the Waste Sampling and Characterization Facility (WSCF) by government vehicle in a sealed ice chest, packed on wet ice and accompanied by a Chain of Custody form.

7.4 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

A duplicate soil and vegetation sample was collected from sample locations No. 7 and No. 5, respectively. Both sample sets were delivered to the WSCF laboratory. This was conducted as a check on the replicability of the analysis performed by the laboratory, as well as the representativeness of the samples collected in the field.

An equipment blank was collected to ensure the effectiveness of the equipment cleaning process. Clean, certified silica sand was poured into a clean bowl and thoroughly mixed with a clean spoon. The sand was then spooned into sample containers and labeled. An equipment blank was collected at sample site No. 11.

Split samples of soil and vegetation were collected at sample locations No. 2, No. 4 and No. 5 on May 18, 1999. A split soil sample was collected at site No. 1 and a vegetation split at site 11 on November 4, 1999. A volume of material was collected at the sample location that would fill two sample sets. Once the material was collected in the bowl, it was homogenized and run through a sample splitter provided by WDOH Radiation Protection personnel. The two sets were assigned separate sample identification numbers.

The primary sample was sent to the WSCF and special analytical studies laboratories. The split sample was sent to the WDOH Public Health Laboratory in Seattle, Washington. Split samples were collected to aid in the verification of the results produced by the WSCF laboratory.

7.5 POST-SAMPLING ACTIVITIES

Chain of custody was used to maintain custody of all samples and conducted in accordance with ES-SSPM-001, SP 1-1, "Chain of Custody/Sample Analysis Request." The chain of custody was maintained from the sample collection site through delivery of the samples to the laboratory. Samples were delivered to the laboratory on the final day of collection. Samples from the previous day were stored overnight in a refrigerated custody-locked storage area (6269 Building) maintained by WMTS.

The field logbook were used in accordance with ES-SSPM-001, SP 1-5, "Field Logbooks" to document all sampling activities and are included in Appendix B.

8.0 SOIL/BIOTA RESULTS AND DISCUSSION

This section provides a summary of the laboratory analytical data reported for the contaminants of concern, which included radionuclides (^{137}Cs , ^{90}Sr , ^{60}Co , isotopic uranium, $^{239/240/241}\text{Pu}$, and ^{241}Am), metals (arsenic, barium, cadmium, lead, mercury, chromium, copper, silver, and zinc), soil chemistry data for constituents such as chloride, fluoride, nitrate, nitrite, phosphate, sulfate, and cyanide, pesticides and PCBs. The complete laboratory data packages for all analyses and all constituents are contained in Appendix C.

The methods and protocols for obtaining preoperational environmental monitoring data were described in the Sampling and Analysis Plan (Mitchell et al. 1999) developed for sampling the proposed SNF Project facilities. This plan provided detailed information for the collection of media (surface soils, vegetation, litter and cryptogams) and inclusion of analyses for radionuclides, metals, anions, etc. The designated samples were collected from 11 locations located in and around the 100 K Area and 200 East Area. Some of the sites sampled had been previously disturbed by waste management activities of one kind or another (e.g., fences, roads, excavations, etc.). The results will be summarized based on area collected, chemical constituents and media type (see Figures 6-1 and 6-2).

8.1 RADIONUCLIDES

8.1.1 Surface Soils

As part of the sampling for radionuclides, each of the soil samples were analyzed for gamma-emitting radionuclides such as ^{137}Cs , ^{60}Co , and ^{241}Am , as well as ^{90}Sr , isotopic uranium, and isotopic plutonium. These were the constituents considered to be of primary concern with regard to the basin cleanup and which could result in potential site contamination (see Section 5.3, Laboratory Analysis).

8.1.1.1 100 K Area. The average values reported for this study (Table 8-1) for ^{90}Sr and $^{239/240}\text{Pu}$ were generally higher than those reported for the routine data collected previously (Table 3-3). Cesium-137 values were about the same. Cobalt-60 values, although low, were higher at 100 K than 200 East as expected.

8.1.1.2 200 East Area. The average values reported for this study (Table 8-2) for ^{137}Cs (0.2 pCi/g) and ^{90}Sr (1.0 pCi/g) were somewhat different than the average values reported in the 200 Areas for the 1998 routine monitoring program by Perkins et al. (1999) of 1.5 pCi/g and 0.5 pCi/g, respectively. Sample locations 1, 2 and 3 near the CSB (Figure 6-2) had somewhat elevated strontium levels compared with surrounding routine collection sites at 1.4, 1.0 and 1.2 pCi/g, respectively. All other values were at, or below, detection limits. However, ^{241}Pu averages in soil were an order of magnitude higher in 200 East than at 100 K (1.4 vs 0.4 pCi/g, respectively).

Table 8-1, Part A. Radionuclide Data from 100 K Area Surface Soils (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-239/240		Pu-241	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
5	05/18/1999	59015-11	Soil	5.2E-04	± 1000%	6.8E-01	± 45%	1.6E-01	± 22%	3.9E-03	± 500%	2.0E-01	± 45%
6	05/18/1999	59015-15	Soil	-1.4E-03	± 447%	7.3E-01	± 41%	1.7E-01	± 16%	-3.9E-03	± 200%	7.0E-01	± 40%
7	05/19/1999	59015-19	Soil	8.2E-03	± 52%	1.5E+00	± 26%	1.4E-01	± 18%	1.1E-02	± 120%	4.0E-01	± 40%
8	05/19/1999	59015-23	Soil	9.0E-04	± 539%	1.1E+00	± 32%	9.1E-02	± 18%	1.2E-02	± 180%	1.0E+00	± 40%
9	05/19/1999	59015-24	Soil	1.5E-03	± 292%	1.1E+00	± 30%	1.1E+00	± 13%	6.2E-02	± 59%	6.0E-01	± 41%
10	05/19/1999	59015-25	Soil	1.7E-03	± 300%	8.2E-01	± 40%	7.9E-02	± 20%	3.1E-02	± 99%	4.0E-01	± 55%
9	11/04/1999	S0007-04	Soil	3.0E-03	± 192%	9.4E-01	± 30%	1.3E+00	± 13%	5.9E-02	± 57%	-8.0E-01	± 100%
11	11/04/1999	S0007-03	Soil	9.2E-03	± 71%	7.2E-01	± 32%	2.6E-01	± 17%	1.4E-02	± 180%	3.0E-01	± 30%
Average ± 2 SEM				3.0E-03	± 2.7E-03	9.5E-01	± 2.0E-01	4.1E-01	± 3.5E-01	2.4E-02	± 1.8E-02	3.5E-01	± 3.7E-01

Table 8-1, Part B. Radionuclide Data from 100 K Area Surface Soils (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
5	05/18/1999	59015-11	Soil	1.7E-01	± 38%	1.5E-02	± 87%	1.7E-01	± 38%	8.3E-02	± 57%
6	05/18/1999	59015-15	Soil	1.5E-01	± 38%	1.6E-02	± 77%	1.6E-01	± 38%	7.1E-02	± 88%
7	05/19/1999	59015-19	Soil	1.4E-01	± 38%	2.5E-02	± 63%	1.3E-01	± 38%	4.5E-02	± 120%
8	05/19/1999	59015-23	Soil	1.5E-01	± 38%	1.7E-02	± 73%	1.7E-01	± 37%	1.4E-01	± 55%
9	05/19/1999	59015-24	Soil	1.3E-01	± 40%	2.8E-02	± 70%	1.3E-01	± 40%	8.0E-02	± 69%
10	05/19/1999	59015-25	Soil	1.4E-01	± 39%	9.9E-02	± 95%	1.5E-01	± 38%	4.3E-02	± 94%
9	11/04/1999	S0007-04	Soil	1.1E-01	± 41%	5.2E-03	± 220%	1.2E-01	± 38%	8.6E-02	± 54%
11	11/04/1999	S0007-03	Soil	1.6E-01	± 36%	2.3E-02	± 65%	1.5E-01	± 37%	8.9E-02	± 52%
Average ± 2 SEM				1.4E-01	± 1.3E-02	2.9E-02	± 2.1E-02	1.5E-01	± 1.3E-02	8.0E-02	± 2.1E-02

Table 8-2, Part A. Radionuclide Data for 200 East Area Surface Soils (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-239/240		Pu-241	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
1	05/18/1999	59015-01	Soil	2.1E-03	± 455%	1.4E+00	± 25%	1.3E-01	± 21%	1.8E-02	± 95%	-8.0E-01	± 1000%
2	05/18/1999	59015-04	Soil	-2.5E-03	± 405%	8.4E-01	± 40%	2.5E-01	± 19%	1.7E-02	± 150%	3.0E-01	± 45%
3	05/18/1999	59015-07	Soil	1.9E-03	± 460%	1.2E+00	± 31%	1.5E-01	± 21%	4.9E-02	± 95%	6.1E+00	± 40%
4	05/18/1999	59015-08	Soil	3.0E-03	± 154%	7.6E-01	± 40%	2.4E-01	± 14%	-3.7E-03	± 350%	5.0E-01	± 40%
1	11/04/1999	S0007-01	Soil	-2.4E-03	± 185%	9.6E-01	± 30%	3.1E-01	± 14%	6.0E-02	± 60%	1.2E+00	± 30%
2	11/04/1999	S0007-02	Soil	-6.7E-03	± 100%	1.0E+00	± 30%	1.8E-01	± 16%	2.8E-02	± 87%	8.0E-01	± 30%
Average ± 2 SEM				-7.7E-04	± 3.1E-03	1.0E+00	± 1.9E-01	2.1E-01	± 5.6E-02	2.8E-02	± 1.9E-02	1.4E+00	± 2.0E+00

Table 8-2, Part B. Radionuclide Data for 200 East Area Surface Soils (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
1	05/18/1999	59015-01	Soil	1.7E-01	± 37%	2.1E-02	± 68%	2.3E-01	± 35%	3.7E-02	± 63%
2	05/18/1999	59015-04	Soil	2.1E-01	± 36%	3.3E-02	± 57%	2.3E-01	± 35%	6.4E-02	± 76%
3	05/18/1999	59015-07	Soil	1.5E-01	± 37%	1.5E-02	± 73%	1.6E-01	± 36%	5.9E-02	± 73%
4	05/18/1999	59015-08	Soil	1.5E-01	± 39%	2.1E-02	± 76%	1.4E-01	± 39%	7.9E-02	± 57%
1	11/04/1999	S0007-01	Soil	1.6E-01	± 37%	1.2E-02	± 82%	1.5E-01	± 37%	5.5E-02	± 56%
2	11/04/1999	S0007-02	Soil	1.5E-01	± 37%	2.0E-02	± 68%	1.9E-01	± 36%	5.0E-02	± 67%
Average ± 2 SEM				1.7E-01	± 1.9E-02	2.0E-02	± 5.9E-03	1.8E-01	± 3.3E-02	5.7E-02	± 1.1E-02

8.1.2 Vegetation

The vegetation samples collected for this study consisted of the tips and shoots of sagebrush. These actively-growing, meristematic tissues of the sagebrush have been shown (Whicker and Schultz 1982) to concentrate radionuclides at higher levels than the woody tissues of the plants. The vegetation was analyzed for the same radionuclides as in the soil. All of the analytical data are provided for review in the data packages in Appendix C.

8.1.2.1 100 K Area. The range of values and reported averages for radionuclides in vegetation at 100 K Area (Table 8-3) were within expected norms.

8.1.2.2 200 East Area. The averages reported (Table 8-4) were comparable for all radionuclides except ^{90}Sr , ^{137}Cs and $^{239/240}\text{Pu}$. The values reported for this study were an order of magnitude higher for ^{90}Sr and ^{137}Cs and 2 orders of magnitude higher for $^{239/240}\text{Pu}$ than those averages reported for the 1998 routine monitoring program by Perkins et al. (1999).

8.1.3 Litter

In addition to the sagebrush samples, litter samples were collected from the dead plant material that accumulates underneath the sagebrush canopy and serves as an indicator of uptake trends for plant transfer pathways (Whicker and Schultz 1982). Litter samples were analyzed for the same radiological constituents as the surface soil and vegetation samples. A complete set of the analytical data packages is contained in Appendix C.

8.1.3.1 100 K Area. The range of values and reported averages (Table 8-5) for 100 K Area litter sampling were generally within expected levels. However, sample location 7 (Figure 6-1) exhibited a somewhat elevated ^{90}Sr value of 1.0 pCi/g compared to past results.

8.1.3.2 200 East Area. Sample values for litter collected at 200 East Area were somewhat anomalous. Elevated sample values (Table 8-6) for ^{90}Sr and ^{137}Cs were recorded at locations 1, 2 and 4 (Figure 6-2). And like the data reported for the soils, the ^{241}Pu values in litter at 200 East Area were an order of magnitude higher than those analyzed from 100 K Area (Table 8-5).

Table 8-3, Part A. Radionuclide Data for 100 K Area Vegetation (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-239/240		Pu-241	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
5	05/18/1999	59015-13	Vegetation	-2.1E-03	± 1000%	4.9E-01	± 35%	-9.6E-03	± 221%	6.6E-03	± 200%	5.0E-01	± 51%
6	05/18/1999	59015-17	Vegetation	-3.2E-02	± 100%	6.9E-01	± 45%	-1.6E-02	± 165%	3.8E-03	± 100%	-1.8E-02	± 1000%
7	05/19/1999	59015-21	Vegetation	1.7E-02	± 133%	8.8E-01	± 40%	3.0E-03	± 665%	4.7E-03	± 450%	2.4E-02	± 50%
9	11/04/1999	S0007-10	Vegetation	3.3E-02	± 120%	4.9E-01	± 30%	2.3E-02	± 177%	1.9E-02	± 81%	-1.6E+00	± 100%
11	11/04/1999	S0007-09	Vegetation	-6.0E-03	± 368%	3.6E-01	± 40%	-9.9E-03	± 234%	7.3E-03	± 130%	-9.0E-01	± 100%
Average ± 2 SEM				2.0E-03	± 2.2E-02	5.8E-01	± 1.8E-01	-1.9E-03	± 1.4E-02	8.3E-03	± 5.5E-03	-4.0E-01	± 7.5E-01

Table 8-3, Part B. Radionuclide Data for 100 K Area Vegetation (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
5	05/18/1999	59015-13	Vegetation	1.4E-01	± 36%	1.0E-01	± 38%	5.7E-02	± 42%	3.7E-02	± 62%
6	05/18/1999	59015-17	Vegetation	2.2E-02	± 70%	1.4E-02	± 99%	1.3E-02	± 99%	5.0E-02	± 96%
7	05/19/1999	59015-21	Vegetation	4.2E-02	± 51%	5.3E-03	± 150%	2.6E-02	± 59%	8.6E-02	± 51%
9	11/04/1999	S0007-10	Vegetation	1.6E-01	± 34%	8.9E-03	± 81%	1.6E-01	± 34%	1.6E-02	± 780%
11	11/04/1999	S0007-09	Vegetation	1.2E-02	± 67%	2.0E-03	± 150%	1.8E-03	± 250%	4.1E-02	± 49%
Average ± 2 SEM				7.5E-02	± 6.2E-02	2.6E-02	± 3.7E-02	5.2E-02	± 5.7E-02	4.6E-02	± 2.3E-02

Table 8-4, Part A. Radionuclide Data for 200 East Area Vegetation (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-239/240		Pu-241	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
1	05/18/1999	59015-03	Vegetation	-3.1E-02	± 100%	6.7E-01	± 40%	2.0E-02	± 96%	2.7E-03	± 1000%	1.4E+00	± 35%
2	05/18/1999	59015-06	Vegetation	2.9E-04	± 1000%	4.0E-01	± 55%	4.4E-03	± 500%	3.7E-02	± 77%	1.5E+00	± 40%
4	05/18/1999	59015-10	Vegetation	-2.3E-03	± 722%	3.3E-01	± 50%	7.7E-03	± 254%	-3.2E-03	± 200%	-1.5E-02	± 1000%
Average ± 2 SEM				-1.1E-02	± 2.0E-02	4.7E-01	± 2.1E-01	1.1E-02	± 9.5E-03	1.2E-02	± 2.5E-02	9.6E-01	± 9.8E-01

Table 8-4, Part B. Radionuclide Data for 200 East Area Vegetation (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
1	05/18/1999	59015-03	Vegetation	1.6E-01	± 35%	8.2E-02	± 40%	6.9E-02	± 41%	3.3E-02	± 80%
2	05/18/1999	59015-06	Vegetation	9.0E-02	± 38%	4.4E-02	± 46%	4.5E-02	± 44%	4.2E-02	± 66%
4	05/18/1999	59015-10	Vegetation	2.0E-01	± 35%	9.9E-02	± 39%	6.8E-02	± 41%	4.7E-02	± 56%
Average ± 2 SEM				1.5E-01	± 6.4E-02	7.5E-02	± 3.3E-02	6.1E-02	± 1.6E-02	4.1E-02	± 8.2E-03

Table 8-5, Part A. Radionuclide Data for 100 K Area Litter Samples (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-239/240		Pu-241	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
5	05/18/1999	59015-12	Litter	-2.6E-03	± 1000%	5.9E-01	± 30%	2.7E-01	± 26%	-7.1E-03	± 280%	-6.0E-02	± 1000%
6	05/18/1999	59015-16	Litter	-3.0E-03	± 763%	5.3E-01	± 30%	2.1E-01	± 25%	1.3E-02	± 130%	-5.4E-02	± 1000%
7	05/19/1999	59015-20	Litter	1.1E-02	± 290%	1.0E+00	± 30%	2.5E-01	± 26%	-1.7E-02	± 150%	3.0E-01	± 45%
Average ± 2 SEM				1.8E-03	± 9.2E-03	7.1E-01	± 3.0E-01	2.4E-01	± 3.5E-02	-3.7E-03	± 1.8E-02	6.2E-02	± 2.4E-01

Table 8-5, Part B. Radionuclide Data for 100 K Area Litter Samples (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
5	05/18/1999	59015-12	Litter	2.1E-01	± 35%	1.2E-01	± 38%	1.4E-01	± 36%	4.1E-02	± 57%
6	05/18/1999	59015-16	Litter	1.2E-01	± 37%	5.5E-02	± 43%	1.4E-01	± 36%	3.8E-02	± 57%
7	05/19/1999	59015-20	Litter	8.3E-02	± 45%	1.7E-02	± 82%	8.5E-02	± 45%	7.1E-02	± 69%
Average ± 2 SEM				1.4E-01	± 7.5E-01	6.4E-02	± 6.0E-02	1.2E-01	± 3.7E-02	5.0E-02	± 2.1E-02

Table 8-6, Part A. Radionuclide Data for 200 East Area Litter Samples (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-239/240		Pu-241	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
1	05/18/1999	59015-02	Litter	1.7E-03	± 894%	1.1E+00	± 30%	7.5E-01	± 15%	4.1E-02	± 60%	4.0E-01	± 50%
2	05/18/1999	59015-05	Litter	-1.3E-02	± 104%	6.2E-01	± 40%	1.8E+00	± 15%	3.5E-02	± 65%	8.0E-01	± 40%
4	05/18/1999	59015-09	Litter	1.2E-02	± 162%	1.0E+00	± 40%	2.0E+00	± 13%	4.0E-02	± 68%	-1.3E-02	± 1000%
Average ± 2 SEM				2.3E-04	± 1.5E-02	9.1E-01	± 2.9E-01	1.5E+00	± 7.8E-01	3.9E-02	± 3.7E-03	4.0E-01	± 4.7E-01

Table 8-6, Part B. Radionuclide Data for 200 East Area Litter Samples (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
1	05/18/1999	59015-02	Litter	2.1E-01	± 34%	9.8E-02	± 38%	1.7E-01	± 34%	3.8E-02	± 54%
2	05/18/1999	59015-05	Litter	3.7E-01	± 33%	1.7E-01	± 36%	2.2E-01	± 34%	6.9E-02	± 45%
4	05/18/1999	59015-09	Litter	3.5E-01	± 33%	1.4E-01	± 37%	2.5E-01	± 34%	4.2E-02	± 62%
Average ± 2 SEM				3.1E-01	± 1.0E-01	1.4E-01	± 4.2E-02	2.1E-01	± 4.7E-02	5.0E-02	± 1.9E-02

8.1.4 Cryptogams

Cryptogam (mosses/lichens) samples were collected from the area near the associated soil and plant samples. Cryptogam samples are often more sensitive indicators of environmental quality in areas affected by airborne pollutants (Landeem et al. 1994, Richardson 1992).

The cryptogams were analyzed for the same potential radionuclides as in the soil, vegetation and litter. All of the analytical data packages are provided in Appendix C.

8.1.4.1 100 K Area. Cryptogam samples collected in the 100 K Area (Table 8-7) exhibited somewhat elevated levels of ^{60}Co , ^{90}Sr , ^{137}Cs , $^{239/241}\text{Pu}$, especially at sample location 7 (Figure 6-1) which had the maximum values reported for all these radionuclides. Sites 9 and 11 also had slightly elevated levels of ^{137}Cs and ^{241}Pu .

8.1.4.2 200 East Area. The 200 East Area cryptogam samples all demonstrated lower averages (Table 8-8) than those reported for the 100 K Area. Cesium-137 and ^{241}Pu average values were an order of magnitude lower.

8.1.5 Small Mammals

Mice were collected as part of the preoperational survey to represent a higher organism within the food chain and to evaluate the potential transfer pathways from soil to vegetation to herbivore (vegetation consumer). In this case, the ubiquitous deer mouse was the most common small mammal found in the environs sampled and has been implicated in the biotic transfer of radionuclides on the Hanford Site on numerous occasions (Johnson et al. 1994). Mice could only be analyzed for selected radionuclides, based on laboratory capabilities.

8.1.5.1 100 K Area. Three deer mice were captured in the vicinity of the CVDF and the results are summarized in Table 8-9.

8.1.5.2 200 East Area. Two deer mice were captured in the vicinity of the CSB and the results summarized in Table 8-10. The values reported here are very comparable to those from the 100 K Area. However, average ^{90}Sr values were an order of magnitude higher in mice from the 100 K Area than from the 200 Areas (6.4 vs. 0.62 pCi/g, respectively).

8.1.6 Radionuclide Summary

Table 8-11 provides a summary of the radionuclide values reported for soil and vegetation media sampled with reported averages for each area. The maximum values reported for each radionuclide in each media and the sample location where collected is also included. It can be observed that ^{90}Sr and $^{239/240}\text{Pu}$ values for both areas are essentially the same. However, ^{137}Cs values are generally higher in the 200 East Area samples, with the exception of 100 K cryptogams. Interestingly, ^{241}Pu , which is not a normal constituent in routine monitoring, was an order of magnitude higher in 200 East soils, vegetation and litter, but not in cryptogams.

Table 8-7, Part A. Radionuclide Data for Cryptogam Collected at 100 K Area (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-239/240		Pu-241	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
5	05/18/1999	59015-14	Cryptogams	1.5E-03	± 978%	5.5E-01	± 30%	7.0E-01	± 14%	6.8E-03	± 150%	-1.0E-01	± 1000%
6	05/18/1999	59015-18	Cryptogams	-6.4E-03	± 226%	1.2E+00	± 30%	2.2E-01	± 21%	2.3E-02	± 95%	2.0E-01	± 41%
7	05/19/1999	59015-22	Cryptogams	1.8E+00	± 8%	1.2E+00	± 30%	2.6E+01	± 13%	1.1E+00	± 33%	6.4E+00	± 30%
9	11/04/1999	S0007-08	Cryptogams	5.6E-03	± 238%	5.8E-01	± 40%	1.5E+00	± 15%	7.8E-02	± 56%	1.3E+00	± 25%
11	11/04/1999	S0007-07	Cryptogams	3.2E-02	± 46%	9.6E-01	± 30%	2.6E+00	± 15%	1.0E-01	± 49%	1.2E+00	± 30%
Average ± 2 SEM				3.7E-01	± 7.2E-01	9.0E-01	± 2.9E-01	6.2E+00	± 9.9E+00	2.6E-01	± 4.2E-01	1.8E+00	± 2.4E+00

Table 8-7, Part B. Radionuclide Data for Cryptogam Collected at 100 K Area (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
5	05/18/1999	59015-14	Cryptogams	1.3E-01	± 36%	2.8E-02	± 50%	1.0E-01	± 37%	3.3E-02	± 70%
6	05/18/1999	59015-18	Cryptogams	1.3E-01	± 40%	2.5E-02	± 68%	1.2E-01	± 41%	1.0E-01	± 55%
7	05/19/1999	59015-22	Cryptogams	1.4E-01	± 38%	1.3E-02	± 82%	1.3E-01	± 38%	9.4E-01	± 32%
9	11/04/1999	S0007-08	Cryptogams	1.3E-01	± 36%	1.2E-02	± 73%	1.1E-01	± 37%	8.1E-02	± 52%
11	11/04/1999	S0007-07	Cryptogams	1.5E-01	± 37%	3.3E-02	± 57%	1.2E-01	± 38%	9.7E-02	± 44%
Average ± 2 SEM				1.4E-01	± 8.0E-03	2.2E-02	± 8.3E-03	1.2E-01	± 1.0E-02	2.5E-01	± 3.5E-01

Table 8-8, Part A. Radionuclide Data for Cryptogam Samples Collected at 200 East Area (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-239/240		Pu-241	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
1	11/04/1999	S0007-05	Cryptogams	-3.8E-03	± 304%	4.6E-01	± 32%	1.2E+00	± 13%	2.4E-02	± 68%	-1.4E+00	± 100%
2	11/04/1999	S0007-06	Cryptogams	2.5E-03	± 689%	4.8E-01	± 31%	7.8E-01	± 16%	1.1E-02	± 99%	-1.8E+00	± 100%
Average ± 2 SEM				-6.5E-04	± 6.3E-03	4.7E-01	± 2.0E-02	9.9E-01	± 4.2E-01	1.8E-02	± 1.3E-02	-1.6E+00	± 4.0E-01

Table 8-8, Part B. Radionuclide Data for Cryptogam Samples Collected at 200 East Area (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
1	11/04/1999	S0007-05	Cryptogams	1.5E-01	± 34%	1.9E-02	± 57%	1.4E-01	± 35%	4.7E-02	± 46%
2	11/04/1999	S0007-06	Cryptogams	1.5E-02	± 64%	5.0E-03	± 95%	1.1E-02	± 70%	4.5E-02	± 48%
Average ± 2 SEM				8.3E-02	± 1.4E-01	1.2E-02	± 1.4E-02	7.6E-02	± 1.3E-01	4.6E-02	± 2.0E-03

Table 8-9, Part A. Radionuclide Summary for Mice Captured at 100 K Area (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-238		Pu-239/240	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
CVDF/100K	05/19/1999	6865	mice	<6.4E-01	± NA	7.7E+00	± 7.5E+00	<9.5E-01	± NA	<1.9E-01	± 1.0E+02	<1.9E-01	± 1.0E+02
CVDF/100K	05/20/1999	6866	mice	<6.2E-01	± NA	5.4E+00	± 9.6E+00	<1.0E+00	± NA	<2.1E-01	± 1.0E+02	<2.1E-01	± 1.0E+02
NE/100K	05/20/1999	6867	mice	<5.5E-01	± NA	6.0E+00	± 8.2E+00	<9.4E-01	± NA	<2.0E-01	± 1.0E+02	<2.0E-01	± 1.0E+02
Average ± 2 SEM				6.0E-01	± 5.5E-02	6.4E+00	± 1.4E+00	9.6E-01	± 3.7E-01	2.0E-01	± 1.2E-02	2.0E-01	± 1.2E-02

Table 8-9, Part B. Radionuclide Summary for Mice Captured at 100 K Area (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
CVDF/100K	05/19/1999	6865	mice	<2.0E-02	± NA	<2.0E-02	± NA	<2.0E-02	± NA	<4.9E+00	± NA
CVDF/100K	05/20/1999	6866	mice	<2.1E-02	± NA	<2.1E-02	± NA	<2.1E-02	± NA	<5.5E+00	± NA
NE/100K	05/20/1999	6867	mice	1.9E-02	± NA	1.9E-02	± NA	1.9E-02	± NA	<5.1E+00	± NA
Average ± 2 SEM				2.0E-02	± 1.2E-03	2.0E-02	± 1.2E-03	2.0E-02	± 1.2E-03	5.2E+00	± 3.5E-01

Table 8-10, Part A. Radionuclide Summary for Mice Captured in 200 East Area (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-238		Pu-239/240	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
CSB/200E	05/19/1999	6863	mice	<6.2E-01	± NA	<6.4E-01	± 1.2E+02	<9.4E-01	± NA	<2.0E-01	± 1.0E+02	<2.0E-01	± 1.0E+00
CSB/200E	05/19/1999	6864	mice	<6.8E-01	± NA	<5.9E-01	± 2.8E+02	<1.0E+00	± NA	<2.1E-01	± 1.0E+02	<2.1E-01	± 1.0E+02
Average ± 2 SEM				6.5E-01	± 6.0E-02	6.2E-01	± 5.0E-02	9.7E-01	± 6.0E-02	2.1E-01	± 1.0E-02	2.1E-01	± 1.0E-02

Table 8-10, Part B. Radionuclide Summary for Mice Captured in 200 East Area (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
CSB/200E	05/19/1999	6863	mice	<1.9E-02	± NA	<1.9E-02	± NA	<1.9E-02	± NA	<4.7E+00	± NA
CSB/200E	05/19/1999	6864	mice	<2.3E-02	± NA	<2.3E-02	± NA	<2.3E-02	± NA	<5.7E+00	± NA
Average ± 2 SEM				2.1E-02	± 4.0E-03	2.1E-02	± 4.0E-03	2.1E-02	± 4.0E-03	5.2E+00	± 1.0E+00

Table 8-11. Summary of Average and Maximum Values for Selected Constituents in Sample Media (pCi/g).

Analyte	100 K Area Average	200 East Area Average	Maximum Reported Value	Sample Location
Soils				
¹³⁷ Cs	0.4	0.2	1.3	100 K—#9
⁹⁰ Sr	1.0	1.0	1.5	100 K—#7
^{239/240} Pu	0.02	0.03	0.06	100 K—#9
²⁴¹ Pu	0.4	1.4	6.1	200 E—#3
Vegetation				
¹³⁷ Cs	-0.002	0.01	0.02	100 K—#9
⁹⁰ Sr	0.6	0.5	0.9	100 K—#7
^{239/240} Pu	0.008	0.01	0.04	200 E—#2
²⁴¹ Pu	-0.4	1.0	1.5	200 E—#2
Litter				
¹³⁷ Cs	0.2	1.5	2.0	200 E—#4
⁹⁰ Sr	0.7	0.9	1.1	200 E—#1
^{239/240} Pu	-0.004	0.04	0.04	200 E—#1
²⁴¹ Pu	0.06	0.4	0.8	200 E—#2
Cryptogams				
¹³⁷ CS	6.2	1.0	26.0	100 K—#7
⁹⁰ Sr	0.9	0.5	1.2	100 K—#6/7
^{239/240} Pu	0.3	0.02	1.1	100 K—#7
²⁴¹ Pu	1.8	-1.6	6.4	100 K—#7

In a comparison of the locations where maximum values occurred, Site 7 (100 K) had 6 of the 12 highest values, Site 9 (100 K) had 3 and Site 2 (200 East) had 3. No other sampling location had more than 1 maximum value.

With regard to the values collected for small mammals (mice), Table 8-12 provides a comparison of this study with similar studies in the general locations around the 200 Area. The variability in the values reported probably reflects to some degree the variability between laboratories and the difficulties in analyzing whole organisms. However, ¹³⁷Cs and ⁹⁰Sr are consistently identified and the values for mice reported from 100 K Area are among the highest for all the studies conducted (see Table 8-12).

Table 8-12. Summary of Maximum Radionuclide Values Analyzed in Mice
From This and Previous Studies (pCi/g).

Analytes	This Study	Waste Site Ecology ^(a)	PUREX Study ^(b)	ERDF Study ^(c)	SWOC Study ^(d)
Cesium-137	<1.0 (both areas)	10.0	0.7	NR ^(e)	0.004
Strontium-90	7.7 (100 K)	1.6	0.1	0.5	0.003
Cobalt-60	<0.7 (both areas)	0.09	NR	NR	NR
Total Uranium	NR	0.3	NR	NR	NR
Plutonium-239/240	<0.2 (both areas)	NR	NR	NR	0.007

^(a) Mitchell and Weiss 1994.

^(b) Landeen et al. 1994.

^(c) Mitchell 1995.

^(d) Mitchell and Johnson 1996.

^(e) not reported.

8.2 METALS

There is a general paucity of information relative to the environmental concentrations of metals in Hanford Site soils, plants, and mammals. Some data collected in the 300 Area (Brandt and Rickard 1992) for plants and animals indicated the occurrence of metals at very low levels. The most extensive information for the Hanford Site is the study (Landeem et al. 1993) conducted in the 100 Areas along the Columbia River. Data are summarized for metals in soils, various types of plants, as well as raptor pellets (hawks), owls, and coyote scat. However, the values obtained must be viewed with some caution since mining and refining activities in upper Columbia River drainages (Johnson 1991, Maxfield 1974, Silker 1964), no doubt, contribute to elevated background levels for metals in soils and sediments and for uptake by plants and animals (Adriano 1986).

More recent studies have been conducted in the 200 Areas (Mitchell and Johnson 1996, Mitchell 1999) on metals in soil and vegetation, and in the 100 Areas on metals in fruit trees, reed canary grass and the aquatic plant, milfoil (Poston 1998). For comparative purposes, a summary of the maximum concentration for metals in soils and various types of vegetation from the 100 Areas (Landeem et al. 1993) is included in Table 8-13. Table 8-14 provides a summary of the maximum values observed in soils, vegetation and borehole soils from the 200 Areas (Mitchell and Johnson 1996) compared to the Hanford Site soil background values (DOE 1995).

The State of Washington conducted an extensive study of natural background concentration of metals in soils. A total of 490 soil samples from 166 locations throughout Washington were collected and reported on. Values for the general Hanford Site regions were reported for the area designated as the Yakima Basin (San Juan 1994).

Table 8-13. Summary^(a) of Reported Maximum Metals Concentrations for
100 Area Soils and Vegetation (ppm).

Analytes	Soils	Asparagus	Reed canary grass	Milfoil	Tree leaves
Chromium	13.2	6.0	8.7	16.2	6.0
Copper	39.2	14.2	25.0	61.1	92.5
Zinc	496.0	97.4	305.0	319.0	468.0
Arsenic	4.8	7.5	4.2	6.3	393
Lead	24.3	1.9	11.1	28.3	7.1
Mercury	0.09	1.5	0.4	0.5	2.7
Silver	1.3	3.6	1.2	2.9	4.0

^(a)Landeem et al. 1993.

Table 8-14. Summary of Maximum Metals Values Reported for
200 Area Soils and Vegetation (ppm).

Analytes	Maximum surface soils ^(a)	Maximum plants ^(a)	Maximum surface soils ^(b)	Maximum plants ^(b)	Background ^(c) value (soil)
Chromium	11.1	10.4	8.9	1.7	23.0
Copper	12.5	20.1	13.0	4.9	25.2
Zinc	45.8	47.1	157.0	26.2	71.6
Arsenic	2.6	2.4	12.6	6.4	7.7
Lead	4.7	5.2	5.5	1.8	12.3
Mercury	0.02	0.07	<0.2	<0.2	0.7
Silver	0.53	0.5	<1.4	<0.7	1.5

^(a)Mitchell and Johnson 1996 (values reported for 200 West Area).

^(b)Mitchell 1999 (values reported for 200 East Area).

^(c)DOE 1995.

8.2.1 Surface Soils

8.2.1.1 100 K Area. Surface soils sampled in the 100 K Area had moderately elevated levels of lead and chromium. Site 9 was sampled on two occasions (Table 8-15) and showed levels of 28.9 ppm and 20.0 ppm, respectively, for lead. Chromium samples from sites 5 and 9 exhibited levels of 39.0 ppm and 40.0 ppm, respectively. The lead and chromium values are higher than values previously reported for soils sampled in the 100 Areas (Table 8-13).

There was a somewhat high value reported for zinc at site 9 (73.0 ppm) during the second sampling episode. However, the value is between the Hanford Site and Washington State soil background values, and below that previously reported in the 100 Areas (Table 8-14). The initial sample showed a value of 50 ppm (Table 8-15).

Table 8-15. Metals Data for 100 K Area Surface Soils (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte (ppm)								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
5	05/18/1999	59015-11	Soil	1.4	71.0	0.3	5.7	<0.2	39.0	12.0	<0.2	33.0
6	05/18/1999	59015-15	Soil	3.1	68.0	0.4	7.8	<0.3	11.0	15.0	<0.3	38.0
7	05/19/1999	59015-19	Soil	2.2	33.0	<0.3	4.5	<0.3	5.9	14.0	0.4	25.0
8	05/19/1999	59015-23	Soil	1.8	52.0	0.3	5.9	<0.2	7.3	10.0	<0.2	31.0
9	05/19/1999	59015-24	Soil	1.6	56.0	0.5	28.9	<0.2	40.0	17.0	<0.2	50.0
10	05/19/1999	59015-25	Soil	1.6	47.0	0.3	5.6	<0.2	6.0	15.0	<0.2	31.0
9	11/04/1999	S0007-04	Soil	1.8	63.0	0.3	20.0	0.1	8.5	17.0	<0.1	73.0
11	11/04/1999	S0007-03	Soil	1.8	67.0	0.2	7.6	<0.1	9.8	11.0	<0.1	37.0

8.2.1.2 200 East Area. The metals concentrations in soil samples from the 200 East Area (Table 8-16) are all below values for Hanford Site and Washington State soil background values. The values are also below those of soils previously sampled in the 200 East Area shown in Table 8-14. An interesting comparison here is that while lead, chromium and zinc values were all relatively constant in the 100 East Area samples (Table 8-16), these same constituents were highly variable in the 100 K soils (Table 8-15).

8.2.2 Vegetation

8.2.2.1 100 K Area. The vegetation samples (Table 8-17) taken from growing sagebrush stems in the 100 K Area demonstrate metals values below those previously reported in other types of plants in Table 8-13.

8.2.2.2 200 East Area. The metals values for vegetation samples in the 200 East Area (Table 8-18) show most values below those reported for other 200 Area projects (Table 8-14). A copper value from Site 1 was a little higher at 6.2 ppm than the previously reported maximum of 4.9 ppm (Table 8-14).

Table 8-16. Metals Data for 200 East Area Surface Soils (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte (ppm)								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
1	05/18/1999	59015-01	Soil	2.1	78.1	0.3	5.9	<0.2	5.5	9.3	<0.2	31.1
2	05/18/1999	59015-04	Soil	2	75.0	0.3	5.9	<0.2	5.7	8.5	<0.2	28.0
3	05/18/1999	59015-07	Soil	1.8	79.0	0.3	5.7	<0.2	6.3	8.8	<0.2	30.0
4	05/18/1999	59015-08	Soil	1.7	68.0	0.3	5.6	<0.2	5.8	8.2	<0.2	30.0
1	11/04/1999	S0007-01	Soil	2.2	73.0	0.2	5.3	<0.1	7.1	8.5	<0.1	37.0
2	11/04/1999	S0007-02	Soil	2.0	78.0	0.2	5.0	<0.0	6.5	8.7	<0.1	36.0

Table 8-17. Metals Data for 100 K Area Vegetation (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte (ppm)								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
5	05/18/1999	59015-13	Vegetation	<0.4	1.4	<0.2	0.6	<0.1	1.4	2.4	<0.2	5.7
6	05/18/1999	59015-17	Vegetation	<0.4	1.9	<0.2	0.9	<0.1	<0.6	4.0	<0.2	11.4
7	05/19/1999	59015-21	Vegetation	<0.4	0.9	<0.2	0.8	<0.1	<0.5	2.0	<0.2	4.3
9	11/04/1999	S0007-10	Vegetation	<0.1	2.4	<0.1	<0.6	<0.0	1.5	3.2	<0.1	24.0
11	11/04/1999	S0007-09	Vegetation	<0.1	3.3	<0.1	<0.6	<0.0	1.5	4.7	<0.1	8.2

Table 8-18. Metals Data for 200 East Area Vegetation (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte (ppm)								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
1	05/18/1999	59015-03	Vegetation	1.1	5	<0.2	1.3	0.1	1.8	6.2	0.3	8
2	05/18/1999	59015-06	Vegetation	<0.4	2.5	<0.2	0.5	0.1	1.6	4.7	<0.2	8.5
4	05/18/1999	59015-10	Vegetation	0.4	2.2	<0.2	0.3	<0.1	1.6	3.5	<0.2	7.8

8.2.3 Litter

8.2.3.1 100 K Area. Litter samples from the 100 K Area (Table 8-19) show values that are generally low compared with those previously reported for vegetation in Table 8-13.

8.2.3.2 200 East Area. Values for metals in litter in the 200 East Area (Table 8-20) are generally higher than those reported for the 100 K Area. However, the values are low as compared to those previously reported for the 200 Areas.

8.2.4 Cryptogams

8.2.4.1 100 K Area. The values for cryptogam samples collected at site 7 (Table 8-21) showed elevated concentrations of lead (1030 ppm) and chromium (180 ppm). The cryptogams collected at Site 9 exhibited elevated concentrations of zinc (1800 ppm). These values are higher than those previously reported for any type of vegetation in Table 8-13.

8.2.4.2 200 East Area. The concentration for metals in cryptogams from the 200 East Area (Table 8-22) are lower than those reported for the 100 K Area (Table 8-21) and in comparison to those previously reported for other 200 Areas Sites (Table 8-14).

Table 8-19. Metals Data for 100 K Area Litter (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte (ppm)								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
5	05/18/1999	59015-12	Litter	0.8	33.0	0.3	2.3	0.1	3.5	8.1	<0.2	26.0
6	05/18/1999	59015-16	Litter	1.2	38.0	0.3	3.7	0.1	4.6	12.0	<0.2	33.0
7	05/19/1999	59015-20	Litter	0.8	28.0	0.3	3.7	0.1	1.2	10.0	<0.2	28.0

Table 8-20. Metals Data for 200 East Area Litter (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte (ppm)								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
1	05/18/1999	59015-02	Litter	2.2	67.0	0.4	6.5	0.1	5.4	15.0	<0.2	33.0
2	05/18/1999	59015-05	Litter	2.6	79.0	0.5	8.8	0.4	6.5	18.0	<0.2	33.0
4	05/18/1999	59015-09	Litter	2.2	71.0	0.4	7.4	0.2	6.1	19.0	<0.2	38.0

Table 8-21. Metals Data for 100 K Area Cryptogams (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte (ppm)								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
5	05/18/1999	59015-14	Cryptogams	1	45.0	0.3	14.8	<0.1	6.2	10.0	<0.2	30.0
6	05/18/1999	59015-18	Cryptogams	1.4	44.0	0.3	5.2	<0.1	5.4	9.9	<0.2	26.0
7	05/19/1999	59015-22	Cryptogams	1.3	33.0	0.2	1030	<0.1	180.0	16.0	<0.2	28.0
9	11/04/1999	S0007-08	Cryptogams	1.4	33.0	0.7	13.0	<0.0	5.4	19.0	<0.1	1800.0
11	11/04/1999	S0007-07	Cryptogams	3.1	64.0	0.2	18.0	0.2	11.0	15.0	<0.1	44.0

Table 8-22. Metals Data for 200 East Area Cryptogams (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte (ppm)								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
1	11/04/1999	S0007-05	Cryptogams	1.6	49.0	0.1	3.2	<0.0	5.4	8.4	<0.1	30.0
2	11/04/1999	S0007-06	Cryptogams	1.6	55.0	0.1	3.8	<0.0	5.7	7.8	<0.1	26.0

8.2.5 Mice

8.2.5.1 100 K Area. The values reported by the 222 S laboratory for the 100 K Area (Table 8-23) mouse samples are generally consistent with values reported from other studies (Table 8-24). However, the “less than” values reported for arsenic (<13 ppm) and lead (<13 ppm) are lab artifacts for detection levels and are, in reality, probably much lower than the values reported.

8.2.5.2 200 East Area. The metals concentrations in mice reported for the 200 East Area (Table 8-25) are generally comparable to those of the 100 K Area and the previous comments relative to arsenic and lead also apply here.

Table 8-23. Summary of Values for Selected Metals in Mice Collected in 100 K Area (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
CVDF/100K	05/19/1999	6865	mice	<11.0	7.5	<0.6	<1.0	<0.53	<1.1	3.8	<1.1	36.0
CVDF/100K	05/20/1999	6866	mice	<12.0	7.0	<0.6	<12.0	<0.57	<1.2	2.9	<1.2	37.0
NE/100K	05/20/1999	6867	mice	<11.0	8.4	<0.6	<11.0	<0.51	<1.1	2.8	<1.1	32.0

Table 8-24. Summary of Metals Data (Maximum Values) for Mice in This and Previous Studies (ppm).

Analyte	This Study	Waste Site Ecology ^(a)	ERDF Study ^(b)	SWOC Study ^(c)
Arsenic	<13.0	0.2	1.5	0.1
Barium	9.6	NR ^(d)	NR	0.5
Cadmium	<0.7	1.0	0.9	0.3
Lead	<13.0	1.3	10.1	0.09
Mercury	<0.6	0.6	0.2	0.06
Chromium	<1.3	1.8	5.8	0.3
Copper	3.8	43.0	10.2	2.2
Silver	<1.3	0.6	2.5	0.2
Zinc	78	33.7	69.1	2.3

^(a)Mitchell and Weiss 1994.^(b)Mitchell 1995.^(c)Mitchell and Johnson 1996.^(d)not reported.

Table 8-25. Summary of Values for Selected Metals in Mice Collected at 200 East Area (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
CSB/200E	05/19/1999	6863	mice	<11.0	8.7	<0.6	<11.0	<0.51	<1.1	2.9	<1.1	78.0
CSB/200E	05/19/1999	6864	mice	<13.0	9.6	<0.7	<13.0	<0.59	<1.3	3.3	<1.3	43.0

8.2.6 Metals Summary

Table 8-26 provides a summary of the maximum concentrations reported in the soil and vegetation-type samples collected at 100 K Area and 200 East Area for this study. Soil values for the Hanford Site background (DOE 1995) and Washington State (San Juan 1994) are also provided for comparison.

An interesting aspect that developed from the data analyses indicated that all of the maximum vegetation-type concentrations in 100 K Area were in cryptogams. However, for 200 East Area vegetation-types, the maximum values all occurred in litter. Silver concentrations were the lone exception for each location. As indicated previously, the lead (1030 ppm), chromium (180 ppm) and zinc (1800 ppm) values are some of the highest reported for Hanford vegetation. As is indicated in the radionuclide summary (Section 8.1.6), the sites that were implicated were again No. 7 and No. 9.

Clean-up standards are based on soil concentrations in the State of Washington (Table 8-26) and most of the soil values reported were well below the Hanford and State background standards. However, lead (28.9 ppm) and chromium (40 ppm) concentrations collected in soils from site No. 9 again were somewhat elevated with regard to the background standards (Table 8-26) and may warrant further attention. Values for lead, chromium and zinc were highly variable depending on location in the 100 K Area. In contrast, these same constituents were very stable between 200 East Area locations.

Table 8-26. Summary of the Maximum Metals Values Reported for SNF Project Samples
Comparisons are Provided to Hanford Site and Washington

State Background Values (ppm).

Analytes	Maximum 100 K Cryptogams	Maximum 200 East Litter	Maximum 100 K Soils ^(a)	Maximum 200 East Soils	Hanford Site Soil Background ^(b)	Washington State Soil Background ^(c)
Arsenic	3.1	2.6	3.1	2.2	7.7	9.3
Barium	64.0	79.0	71.0	79.0	149.3	---
Cadmium	0.7	0.5	0.5	0.3	23.0	0.7
Lead	1030	8.8	28.9	5.9	12.3	11.0
Mercury	0.2	0.4	<0.3	<0.2	0.7	0.05
Chromium	180.0	6.5	40.0	7.1	23.0	17.8
Copper	19.0	19.0	17.0	9.3	25.2	21.6
Silver	<0.2	0.3	0.4	<0.2	1.5	---
Zinc	1800.0	38.0	73.0	37.0	71.6	78.7

^(a)With the exception of barium, metal values in soil for 100 K were all higher than those in 200 East.

^(b)DOE 1995.

^(c)San Juan 1994.

8.3 SOIL CHEMISTRY

In preoperational environmental surveys, soil chemistry data are useful for comparative purposes to note contrasts between disturbed and undisturbed sites, and as a screening method to note elevated values or other possible anomalies which could provide for the identification of loss of contaminant control.

It is generally recognized that among the factors affecting the mobility of the chemical constituents in soil that ion exchange and sorption/desorption are of prime importance (Bohn et al. 1979). Numerous authors (Rhoades and Bernstein 1971, Black 1965, Bower and Wilcox 1995) have demonstrated that the tremendous sorptive area of soils, coupled with high ion exchange capacities influence the fate of radionuclides, metals, pesticides, nutrient elements, and other inorganic solutes. Anion and cyanide analyses were requested for this study.

8.3.1 Surface Soils

8.3.1.1 100 K Area. Essentially no information is available for chemical constituents associated with anions in 100 K surface soils. The report developed by Landeen et al. (1993) concentrated on metals and did not include anion analyses. Table 8-27 provides a summary of the soil chemical data collected at 100 K Area. Site No. 9 had 5 of the 7 highest values reported.

Table 8-27. Chemical Data for 100 K Area Surface Soils (ppm).

Sample Site	Date	Sample No.	Medium	Analyte (ppm)						
				Chloride	Fluoride	Nitrate	Nitrite	Phosphate	Sulfate	Cyanide
5	05/18/1999	59015-11	Soil	0.9	0.7	4.6	<0.4	3.6	<1.0	0.0
6	05/18/1999	59015-15	Soil	0.8	0.9	3.0	0.7	4.3	4.0	0.0
7	05/19/1999	59015-19	Soil	0.9	1.0	1.7	0.6	4.1	<1.0	0.0
8	05/19/1999	59015-23	Soil	0.9	0.8	1.3	<0.4	3.1	<1.0	0.0
9	05/19/1999	59015-24	Soil	0.9	0.8	1.8	0.7	3.7	<1.0	0.0
10	05/19/1999	59015-25	Soil	0.9	0.9	0.9	0.6	2.9	<1.0	0.0
9	11/04/1999	S0007-04	Soil	1.0	1.0	1.9	0.5	4.7	6.0	<0.3
11	11/04/1999	S0007-03	Soil	0.8	0.9	0.9	0.3	3.5	3.0	<0.3

8.3.1.2 200 East Area. Table 8-28 contains the summary of chemical data for the samples collected near the CSB. Site 1 again had a rather high number (4) of the maximum values reported for the four sampling locations.

Table 8-28. Chemical Data for 200 East Area Surface Soils (ppm).

Sample Site	Date	Sample No.	Medium	Analyte (ppm)						
				Chloride	Fluoride	Nitrate	Nitrite	Phosphate	Sulfate	Cyanide
1	05/18/1999	59015-01	Soil	0.8	0.8	3.1	<0.4	<0.6	4.0	0.0
2	05/18/1999	59015-04	Soil	0.7	0.7	3.4	<0.4	<0.6	<1.0	0.0
3	05/18/1999	59015-07	Soil	0.7	<0.1	3.4	<0.4	<0.5	<1.0	0.0
4	05/18/1999	59015-08	Soil	1	0.7	2.6	<0.4	3.0	<1.0	0.0
1	11/04/1999	S0007-01	Soil	0.8	1.0	2.4	0.4	3.0	4.0	0.3
2	11/04/1999	S0007-02	Soil	0.5	0.1	2.0	0.4	2.9	3.0	<0.3

8.3.2 Soil Chemistry Summary

A comparison of the results of this study with those reported in previous studies conducted in the 200 Areas and the Hanford Site Soil Background (DOE 1995) levels is provided in Table 8-29. Cyanide values are not included, since they are generally zero and are not included in the Hanford Site soil background database.

It can be seen that, with the exception of nitrite, the results reported for this study are equal to or well below the values reported in other Hanford Site studies and the Hanford Site soil background.

Table 8-29. Summary of Reported Soil Chemistry Maximum Soil Values (ppm) for the SNF Study, Other 200 Area Studies and the Hanford Site Soil Background.

Analytes	SNF 100 K	SNF 200 East	200 Area SWOC ^{(a) (b)}	200 Area W-314 ^(c)	Hanford Site Soil Background ^(d)
Chloride	1.0	1.0	9.5	20.0	259.0
Flouride	1.0	1.0	1.8	1.0	4.0
Nitrate	4.6	3.4	7.7	31.5	115.9
Nitrite	0.7	0.4	0.2	0.1	--- ^(e)
Phosphate	4.7	3.0	12.0	10.5	4.3
Sulfate	6.0	4.0	13.4	28.6	585.0

^(a) Mitchell and Johnson 1996.

^(b) SWOC = Solid Waste Operations Complex.

^(c) Mitchell 1999.

^(d) DOE 1995.

^(e) Not reported.

8.4 ORGANIC ANALYSES

It was determined during the DQO process that the surface soil samples would be analyzed for pesticides and PCBs. This was due to reports that PCBs could potentially be a small

component of some of the waste materials within the K basins (WHC 1995). None of the surface soil samples collected contained any detectable levels of pesticides, or PCBs. The complete analytical data packages for organic pesticides and PCBs are contained in Appendix C.

8.5 QUALITY ASSURANCE/QUALITY CONTROL DATA SUMMARY

As mentioned in Sections 5.4 and 6.4, follow-up sampling was conducted to provide for QA/QC comparisons, as well as to determine seasonal environmental variability in analytical results. Tables 8-30 through 8-34 provide a summary of the duplicate samples collected of soil and vegetation, as well as the sample blank, in the 100 K Area. Radionuclide, metal and chemical analyses were run on each sample collected. There were no anomalies reported in these data compared with the initial sample results. Site 7 continued to demonstrate elevated radionuclide values for ^{90}Sr and ^{241}Pu .

Laboratory QA/QC records are maintained by the analytical laboratory conducting the analyses. The WSCF laboratory has the records for all samples, with the exception of the mice, which were analyzed by the 222-S laboratory.

Table 8-30, Part A. Radionuclide Concentrations in Soil Samples (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-239/240		Pu-241	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
7	02/24/2000	K0N4V7	Soil	6.5E-03	± 100%	1.1E+00	± 30%	4.4E-02	± 32%	7.1E-03	± 250%	1.5E+00	± 30%
7(dup)	02/24/2000	K0N4V8	Soil	-2.8E-03	± 206%	6.9E-01	± 40%	5.9E-02	± 25%	7.3E-03	± 280%	5.0E-01	± 30%
11(blank)	02/24/2000	K0N4V9	Soil	-5.2E-04	± 519%	7.5E-01	± 45%	4.0E-03	± 95%	1.9E-02	± 110%	6.0E-01	± 30%

Table 8-30, Part B. Radionuclide Concentrations in Soil Samples (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
7	02/24/2000	K0N4V7	Soil	2.1E-01	± 36%	2.7E-02	± 63%	2.2E-01	± 36%	7.6E-02	± 52%
7(dup)	02/24/2000	K0N4V8	Soil	2.1E-01	± 36%	8.4E-03	± 130%	2.2E-01	± 36%	7.1E-02	± 59%
11(blank)	02/24/2000	K0N4V9	Soil	3.8E-02	± 56%	6.8E-03	± 150%	1.5E-02	± 110%	6.5E-02	± 56%

Table 8-31, Part A. Radionuclide Concentrations Reported for Vegetation (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	Co-60		Sr-90		Cs-137		Pu-239/240		Pu-241	
				Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
5	02/24/2000	K0N4V5	vegetation	-1.9E-03	± 818%	4.1E-01	± 35%	1.3E-02	± 145%	1.8E-03	± 100%	3.0E-01	± 30%
5(dup)	02/24/2000	K0N4V6	vegetation	1.3E-02	± 215%	2.0E-01	± 65%	6.3E-03	± 417%	1.9E-03	± 350%	8.5E-02	± 30%

Table 8-31, Part B. Radionuclide Concentrations Reported for Vegetation (pCi/g).

Sample Site	Date	Sample No.	Sample Medium	U-234		U-235		U-238		Am-241	
				Result	Error	Result	Error	Result	Error	Result	Error
5	02/24/2000	K0N4V5	vegetation	1.9E-02	± 55%	5.9E-03	± 87%	1.2E-02	± 63%	4.4E-02	± 52%
5(dup)	02/24/2000	K0N4V6	vegetation	1.4E-02	± 60%	3.0E-03	± 120%	1.4E-02	± 60%	1.5E-02	± 120%

Table 8-32. Metals Concentrations in Soils (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte (ppm)								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
7	02/24/2000	K0N4V7	Soil	1.5	57.0	0.1	4.0	<0.0	10.0	9.8	<0.1	30.0
7(dup)	02/24/2000	K0N4V8	Soil	1.6	61.0	0.1	3.7	<0.0	7.7	9.3	<0.1	29.0
11(blank)	02/24/2000	K0N4V9	Soil	<0.1	0.1	<0.1	<0.6	<0.1	<0.6	<0.4	<0.1	<0.7

Table 8-33. Metals Concentrations in Vegetation (ppm).

Sample Site	Date	Sample No.	Sample Medium	Analyte (ppm)								
				Arsenic	Barium	Cadmium	Lead	Mercury	Chromium	Copper	Silver	Zinc
5	02/24/2000	K0N4V5	vegetation	0.1	3.6	<0.1	<0.6	<0.0	1.5	4.1	<0.1	18.0
5(dup)	02/24/2000	K0N4V6	vegetation	<0.1	3.0	<0.1	<0.6	<0.1	1.5	5.1	<0.1	23.0

Table 8-34. Chemical Concentrations in Soils (ppm).

Sample Site	Date	Sample No.	Medium	Analyte						
				Chloride	Fluoride	Nitrate	Nitrite	Phosphate	Sulfate	Cyanide
7	02/24/2000	K0N4V7	Soil	0.3	0.1	1.0	0.2	1.0	3.0	<0.3
7(dup)	02/24/2000	K0N4V8	Soil	0.3	0.1	0.9	0.2	1.0	3.0	<0.3
11(blank)	02/24/2000	K0N4V9	Soil	2.3	0.1	0.4	0.2	0.6	4.0	<0.3

8.6 WASHINGTON STATE DEPARTMENT OF HEALTH SAMPLING DATA

During the sampling episodes, personnel from the WDOH collected split soil and vegetation (sagebrush) samples from Sites 2, 4, 5 and 6 on May 18, 1999. During the follow-up sampling conducted on November 4, 1999, they collected a soil sample from Site 1 and a vegetation sample from Site 9. These samples satisfied the WDOH requirement for collecting independent samples for verification of the preoperational study results. The results were also utilized in this study as the "split" samples for inter-laboratory comparisons. The WDOH samples were analyzed for radionuclides and the results for the soils are summarized in Table 8-35 and the vegetation results in Table 8-36.

For a comparison of the WDOH soil data with the soil data provided by this study see Tables 8-1 and 8-2. The results provided by both laboratories are comparable for ^{60}Co , ^{137}Cs , $^{239/240}\text{Pu}$ and the uranium isotopes (^{234}U , ^{238}U). The WSCF laboratories reported consistently higher results for ^{90}Sr and ^{241}Am ; approximately an order of magnitude. This is a favorable finding, since this study has consistently reported the maximum concentrations observed.

With regard to the vegetation samples (See Tables 8-3 and 8-4) the results are again comparable for ^{60}Co and the uranium isotopes reported. The WDOH laboratory did report two slightly higher values for ^{137}Cs for samples collected at Sites 4 and 5. However, since both results were reported at concentrations of 0.02 pCi/g, the slight differences probably represent expected laboratory variation. The overall set of results represents acceptable levels of correlation between the radionuclide results provided by the separate laboratories.

Table 8-35, Part A. WDOH Radionuclide Data for Collocated Soil Samples.

Sample Site	Date	Sample Medium	Co-60		Sr-90		Cs-137		Pu-239/240	
			Result	Error	Result	Error	Result	Error	Result	Error
2	05/18/1999	Soil	5.0 E-03	± 6.0 E-03	7.3 E-02	± 8.0 E-03	3.3 E-01	± 3.0 E-02	0	± 4.0 E-03
4	05/18/1999	Soil	6.0 E-03	± 6.0 E-03	4.0 E-02	± 6.0 E-03	3.5 E-01	± 3.0 E-02	6.2 E-03	± 3.5 E-03
5	05/18/1999	Soil	-5.0 E-03	± 8.0 E-03	3.4 E-02	± 6.0 E-03	1.9 E-01	± 2.0 E-02	2.0 E-03	± 3.0 E-03
6	05/18/1999	Soil	0	± 5.0 E-03	1.9 E-02	± 5.0 E-03	2.0 E-01	± 1.0 E-02	3.0 E-03	± 3.0 E-03
1	11/04/1999	Soil	3.3 E-03	± 7.6 E-03	NA*	--	4.4 E-01	± 3.0 E-02	1.5 E-02	± 4.0 E-03

*NA = not analyzed.

Table 8-35, Part B. WDOH Radionuclide Data for Collocated Soil Samples.

Sample Site	Date	Sample Medium	U-234		U-238		Am-241	
			Result	Error	Result	Error	Result	Error
2	05/18/1999	Soil	6.5 E-01	± 1.2 E-01	6.0 E-01	± 1.0 E-01	1.0 E-03	± 2.0 E-03
4	05/18/1999	Soil	7.2 E-01	± 9.0 E-02	5.0 E-01	± 8.0 E-02	1.0 E-03	± 2.0 E-03
5	05/18/1999	Soil	5.6 E-01	± 1.2 E-01	5.7 E-01	± 1.1 E-01	2.0 E-03	± 3.0 E-03
6	05/18/1999	Soil	6.4 E-01	± 8.0 E-02	4.7 E-01	± 7.0 E-02	1.0 E-03	± 2.0 E-03
1	11/04/1999	Soil	6.3 E-01	± 1.3 E-01	8.0 E-01	± 1.3 E-01	3.5 E-03	± 4.8 E-03

Table 8-36. WDOH Radionuclide Data for Collocated Vegetation Samples.

Sample Site	Date	Sample Medium	Co-60		Cs-137		Pu-239/240		U-234		U-238	
			Result	Error	Result	Error	Result	Error	Result	Error	Result	Error
2	05/18/1999	Vegetation	2.0 E-03	± 1.3 E-02	3.0 E-04	± 1.4 E-02	NA*	--	5.0 E-03	± 5.0 E-03	7.0 E-03	± 5.0 E-03
4	05/18/1999	Vegetation	-1.2 E-02	± 9.0 E-03	2.0 E-02	± 1.0 E-02	NA	--	-6.0 E-03	± 4.0 E-03	7.0 E-03	± 4.0 E-03
5	05/18/1999	Vegetation	-8.0 E-03	± 1.3 E-02	1.9 E-02	± 1.4 E-02	NA	--	-9.0 E-04	± 3.3 E-04	1.0 E-03	± 4.3 E-03
6	05/18/1999	Vegetation	7.0 E-03	± 1.3 E-02	9.0 E-04	± 1.3 E-02	NA	--	-0.7 E-04	± 4.2 E-03	1.5 E-03	± 2.4 E-03
9	11/04/1999	Vegetation	-1.1 E-02	± 1.8 E-02	1.5 E-02	± 1.6 E-02	9.0 E-04	± 1.9 E-03	NA	--	NA	--

*NA = not analyzed.

9.0 CONCLUSIONS

The sampling data and corresponding information that have been developed from this preoperational environmental survey have been evaluated. The values reported for radionuclides in 100 K and 200 East Areas have been below the accessible soil concentration limits developed for use at the Hanford Site (Perkins et al. 1998). Radionuclide soil concentration limits were established to ensure that effective dose equivalent to the public does not exceed the established limits for any reasonable scenario (such as direct exposure, inadvertent ingestion, inhalation, and ingestion of food crops, including animal products). The concentration limits apply to the Hanford Site with respect to onsite disposal operations, stabilization and cleanup, decontamination and decommissioning operations (Perkins et al. 1998). Therefore, although the samples collected were not exhaustive, they do provide a reasonable representation of the general environmental quality in, and around, the CVDF at 100 K Area and the CSB in 200 East Area.

All of the air sampling data reported to date indicates that all radionuclides are consistently below the DCGs. In 100 K Area, with the exception of ^{241}Am , all of the radionuclides analyzed are below analytical detection levels or only infrequently detected. While in the 200 East Area, only ^{241}Am and the Uranium isotopes are consistently detected with ^{90}Sr and $^{239/240}\text{Pu}$ detected about 70% of the time. Again, all values reported were well below the DCGs.

The TLDs located at both the CVDF in 100 K Area and CSB in the 200 East Area indicate levels of external radiation concomitant with surrounding dosimeter locations.

In addition to radionuclide concentrations, the values reported for chemical constituents such as organics (PCBs and pesticides), anions and metals in soils have been generally at, or below, laboratory detection limits (PCBs and pesticides). When these levels have been detectable in metals and ions in soils, they have been within Hanford Site (DOE1995) or Washington State (San Juan 1994) soil background threshold values.

Based on the data analyses, some trends became apparent. With the exception of cryptogams, average values reported for ^{241}Pu were an order of magnitude higher in soils, vegetation and litter sampled from 200 East. The vegetation samples exhibited higher average values for ^{90}Sr (order of magnitude) and $^{239/240}\text{Pu}$ (two orders of magnitude) in 200 East Area. Sample Sites 7 and 9 located in the 100 K Area had 9 of the 12 highest radionuclide values reported for all media (Table 8-11). Six of the high values occurred at Site 7 and three at Site 9.

The trends seen in the metals data were less distinctive. The metals concentrations reported for all media from the 200 East Area were all below the background thresholds and very similar within each medium. However, while metals values reported for 100 K Area vegetation, litter and mice were all below threshold values, the concentrations of lead, chromium and zinc observed in 100 K Area soils and cryptogams were extremely variable. Lead and chromium concentrations in soils at Site 9 and chromium at Site 5 were above the Hanford Site and Washington State threshold levels. Cryptogam samples collected at Site 7 exhibited elevated lead and chromium concentrations and Site 9 had elevated zinc levels. These are some of the highest levels reported for vegetation at the Hanford Site. While these locations may warrant further

attention in the future, none of the concentrations reported exceeded any of the state clean-up standards.

Based on the results of the field characterization efforts and analytical data, some general conclusions can be made regarding the SNF Project facilities. The data collected represent a good “snapshot” of conditions where the probability of contamination might be expected. However, sampling methods by their very design do not provide detailed information on every aspect of the proposed projects. Unanticipated field conditions during operations can occur and should probably be expected within the 100 and 200 Areas, where 50 years of waste operations activities, changing environmental conditions, and current cleanup operations affect these sites on a regular basis. The conclusions which can be made from this preoperational survey include the following:

- While there were no definitive trends from the radionuclide concentrations in the various media and between the areas, there were two 100 K sample locations (7 and 9) that demonstrated a high number at the maximum values reported.
- Metals concentrations were generally higher and more variable in the 100 K Area than the 200 East Area. Sites 7 and 9 again demonstrated a number of the highest levels reported.
- The above observations can possibly be explained by past and on-going cleanup activities that are impacting the site and a “laminated impact” effect which could result in long-term buildup of contaminants in environmental “sinks,” e.g., soils and cryptogams.
- Data from a single sample, which indicates a lack of contamination at, or near, a facility, should not be construed to mean that the site is entirely free of contamination.
- The sample location represents only a single reference point around/near any particular facility and may not represent all the environmental conditions which are extant. This should be kept in mind during operations and eventual cleanup.
- Comprehensive health and safety guidelines should be delineated for workers involved in operational activities.
- Any of the above conclusions can be obviated by anomalous conditions not encountered during the characterization study, by ongoing or new construction or operational activities which may impact the proposed locations, and by constantly changing environmental conditions which could affect the movement of contaminants away from the waste sites during the period from finalization of this characterization effort to project completion.

Based on the findings of this preoperational environmental survey, and in conjunction with the existing Near-Facility Monitoring network, sufficient data have been obtained to establish an adequate environmental baseline, to determine the extent of potential impacts from

this facility and neighboring facilities and operations, and for making decisions pertaining to future cleanup of these facilities.

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APPENDIX A
BIOLOGICAL/CULTURAL RESOURCES REVIEWS

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I-0379-0064

Battelle

Pacific Northwest Laboratories
Battelle Boulevard
P.O. Box 999
Richland, Washington 99352
Telephone (509) 376-5345

January 12, 1996

Mr. Vernon J. Chamberlain
ICF Kaiser Hanford Company
P. O. Box 888, MSIN S8-07
Richland, WA 99352

Dear Mr. Chamberlain:

BIOLOGICAL REVIEW OF THE EXCAVATE FOR CSB CONSTRUCTION SITE PROJECT,
200 East Area, #96-200-018

Project Description:

- Excavation of approximately 300 feet by 4 feet by 4 feet deep (92 m by 1.2 m by 1.2 m) for temporary construction power and lighting, contractor trailer anchors, all trailer utilities, water, sewer, electrical, and telecommunications.

Survey Objectives:

- To determine the occurrence in the project area of plant and animal species protected under the Endangered Species Act (ESA), candidates for such protection, and species listed as threatened, endangered, candidate, sensitive, or monitor by the state of Washington, and species protected under the Migratory Bird Treaty Act.
- To evaluate the potential impacts of disturbance on priority habitats and protected plant and animal species identified in the survey.

Survey Methods:

- Pedestrian and ocular reconnaissance of the proposed site was conducted by G. Fortner, J. A. Stegen, and R. Zufelt on June 1, 1995. The Braun-Blanquet cover-abundance scale (Bonham 1989) was used to determine percent cover of dominant vegetation.
- Priority habitats and species of concern are documented as such in the following: Washington Department of Fish and Wildlife (1993, 1994), U. S. Fish and Wildlife Service (1985, 1994a & b) and Washington State Department of Natural Resources (1994).

Survey Results:

- No native flora were observed in the vicinity.
- No migratory bird species were observed nesting in the vicinity of the proposed site.

Considerations and Recommendations:

- No plant and animal species protected under the ESA, candidates for such protection, or species listed by the Washington state government were observed in the vicinity of the proposed site.

JAN 18 1996

Mr. V. J. Chamberlain
96-200-018
Page 2 of 3

- No adverse impacts to species or habitats of concern are expected to occur from the proposed action.

Sincerely,

A handwritten signature in black ink, appearing to read "CA Brandt".

CA Brandt, Ph.D.
Project Manager
Ecological Compliance Assessment

CAB:glf

Mr. V. J. Chamberlain
96-200-018
Page 3 of 3

REFERENCES

Bonham, Charles D. 1989. Measurements for Terrestrial Vegetation. published by John Wiley & Sons, Inc. pp. 127-128.

U. S. Fish and Wildlife Service. 1985. Revised List of Migratory Birds; Final Rule. 50 FR 13708 (April 5, 1985).

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U. S. Fish and Wildlife Service. 1994b. Endangered and Threatened Wildlife and Plants, Animal Candidate Review for Listing as Endangered or Threatened Species, Proposed Rule, 50 CFR 17. (November 15, 1994).

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Washington Department of Fish and Wildlife. 1994. Species of Special Concern in Washington. (April 1994).

Washington Department of Natural Resources. 1994. Endangered, Threatened & Sensitive Vascular Plants of Washington. (January 1994).

ORIGINAL

HANFORD SITE EXCAVATION PERMIT			EXCAVATION PERMIT NO. DAN1338	
1. Work Package No.	2. W.O./Project No. W-518	3. Location of Excavation 200E/600 AREA NORTH AND WEST OF THE CANISTER STORAGE BUILDING 12N 26E SEC 3		
4. Originated By AL GAUTHIER 373-3487		Date 05/20/99	5. Engineering Change Notice (ECN) N/A	
6. Drawings Required (Identification Numbers)				
7. Description of Work (Attach composite drawing of excavation location and all known interferences) EXCAVATION FOR SITE GRADING. DRAWINGS ARE ATTACHED, A CIVIL SITE PLAN AND ELECTRICAL PLAN SHOW LOCATION FOR GRADING, FENCE POSTS, LIGHT POSTS, WAREHOUSE, WATER LINES, ROADS, AND ELECTRICAL/TELEPHONE SERVICE. KNOWN INTERERENCES INCLUDE EXISTING SITE LIGHTING POWER CABLES, EXISTING WATER LINE TO CANISTER STORAGE BUILDING (CSB) (2 LINES), EXISTING TEMPORARY CSB CONSTRUCTION POWER, AND EXISTING CSB TELEPHONE SERVICE.				
8. Special Instructions or Comments (including safety requirements found in HNF-PRO-80 (or B-H-SI-01 10.3.3, as applicable) and applicable company-specific procedure) AREA TO BE EXCAVATED SHALL BE SCANNED, BY FLUOR DANIEL NORTHWEST'S SURVEYOR, FOR BELOW GRADE UTILITIES PRIOR TO EXCAVATING. CHECK CSB UTILITY PLANS PRIOR TO EXCAVATING. SEE ATTACHED PNNL BIOLOGICAL REVIEW DATED 4/16/99.				
9. List Facilities, Services, and Utilities Affected by Excavation CANISTER STORAGE BUILDING SERVICES				
APPROVALS				
10. Project Engineer <i>Al Gauthier</i>	Date 5/24/99	18. Traffic Engineer N/A	Date	
11. Environmental <i>[Signature]</i>	Date 5-25-99	19. Track Maintenance N/A	Date	
12. Radiological Control	Date	20. 600 Area Landlord N/A	Date	
13. Steam-ESPC N/A	Date	21. Safeguards and Security N/A	Date	
14. Electrical Utilities	Date	22. Land Use Planning N/A	Date	
15. Water Utilities N/A	Date	23. Other N/A	Date	
16. Telecommunications	Date	24. Facility/System Owner/Cognizant Engineer (Last Signature) Date		
17. Process Sewer - 300 Area N/A	Date			

Locate Request No. _____

CALL 1-800-424-5555, 2 TO 10 WORKING DAYS PRIOR TO DIGGING

A-7400-373 (03/98)

Pacific Northwest National Laboratory

Operated by Battelle for the U.S. Department of Energy

May 31, 1996

No Known Historic Properties

Mr. G. S. Hunacek
Westinghouse Hanford Company
P. O. Box 1970/X3-79
Richland, WA 99352

Dear Mr. Hunacek:
CULTURAL RESOURCES REVIEW OF THE COLD VACUUM DRYING FACILITY,
MODIFICATIONS TO ORIGINAL REVIEWS. HCRC #96-100-016 AND HCRC #96-100-031.

In response to your request received May 27, 1996, staff of the Hanford Cultural Resources Laboratory (HCRL) conducted a cultural resources review of the modifications of the subject project, located in the 100 K Area of the Hanford Site. According to the information that you supplied, excavations for the Cold Vacuum Drying Facility will be up to 25 feet, deeper than the 3 feet stated in the original review (96-100-016). Test bore holes for the foundations will be up to 100 feet deep as opposed to the 6 feet as stated in the original review (96-100-031). Additionally, a fence will be constructed around the construction site which will necessitate the excavation of holes to 4 feet deep for the fence posts. The fence will be constructed within the area originally reviewed for the project (Area F).

Our literature and records review shows that the project area is located within the industrial part of the 100 K Area over 400 m from the Columbia. Examination of historic aerial photographs and maps shows that the project area has been disturbed by previous construction activities. Surface sediments in the project area are sandy gravel and are devoid of vegetation. Sediments exposed in the banks along the sides of the roads are also sandy gravel and much of the area appears to have been filled and leveled. Examination of well logs from the 100 K area shows that the sandy gravels of the Hanford Formation continue to depth. It is, therefore, highly unlikely that any intact archaeological materials will be affected by the proposed project. Survey and monitoring of the project by an archaeologist are not necessary.

It is the finding of the HCRL staff that there are no known cultural resources or historic properties within the proposed project area. The workers, however, must be directed to watch for cultural materials (e.g., bones, shells, artifacts) during all work activities. If any are encountered, work in the vicinity of the discovery must stop until an HCRL archaeologist has been notified, assessed the significance of the find, and, if necessary, arranged for mitigation of the impacts to the find. The HCRL must be notified if any changes to project location or scope are anticipated. This is a Class III case, defined as a project which involves new construction in a disturbed, low-sensitivity area.

Copies of this letter have been sent to Dee Lloyd, DOE, Richland Operations Office, as official documentation. If you have any questions, please call me at 376-8107. Please use the HCRC# above for any future correspondence concerning this project.

Very truly yours,

N. A. Cadoret
Technical Specialist
Cultural Resources Project

Concurrence:

P. R. Nickens, Project Manager
Cultural Resources Project

cc: D. Lloyd, RL (2)
D. A. Kane
File/LB

Battelle Boulevard ■ P.O. Box

Post-It™ brand fax transmittal memo 7671		# of pages > 7
To: <u>John Hunacek</u>	From: <u>N. A. Cadoret</u>	
Co:	Co:	
Dept:	Phone #	376-8107
Fax #	Fax #	376-3324

Pacific Northwest National Laboratory

Operated by Battelle for the U.S. Department of Energy

June 3, 1996

C.A. Brandt
K6-84
376-5345

Mr. G.S. Hunacek
Westinghouse Hanford Company
P. O. Box 1970, MSIN X3-79
Richland, WA 99352

Dear Mr. Hunacek:

BIOLOGICAL REVIEW OF THE COLD VACUUM DRYING PROJECT, 100 K Area, #96-100-016
amendment *b*

Project Description:

- Construction of a temporary Cold Vacuum Drying facility south west of 105 KW. The excavation will be approximately 141 feet long by 48 feet wide by 3 feet deep (43 m long by 14.6 m wide by 0.9 m deep). Excavation depth will be to 25 feet and will include fencing at the perimeter and 5 exploratory boreholes to support design of the foundation.

Survey Objectives:

- To determine the occurrence in the project area of plant and animal species protected under the Endangered Species Act (ESA), candidates for such protection, and species listed as threatened, endangered, candidate, sensitive, or monitor by the state of Washington, and species protected under the Migratory Bird Treaty Act.
- To evaluate the potential impacts of disturbance on priority habitats and protected plant and animal species identified in the survey.

Survey Methods:

- Pedestrian and ocular reconnaissance of the 100 K Area was conducted by M. Sackschewsky, T. Hanrahan, and J. Becker on April 25, 1996, and by C. Brandt, J. Becker, and T. Hanrahan on May, 2, 1996.
- Priority habitats and species of concern are documented as such in the following: Washington Department of Fish and Wildlife (1993, 1994), U. S. Fish and Wildlife Service (1985, 1994a & b) and Washington State Department of Natural Resources (1994).

Survey Results:

- The area for the proposed work consists largely of pavement and packed gravel with no significant flora of any kind.
- An active starling nest was observed on the south side of the 105 KW building, and numerous pigeons utilize the area. Neither of these species is protected under either federal or state laws and regulations.

Battelle Boulevard ■ P.O. Box 999 ■ Richland, WA 99352

Mr. G.S. Hunacek
96-100-016 amendment b
Page 2 of 3

Considerations and Recommendations:

- This biological survey is effective until the issuance of a new blanket letter for the 100 K area in May of 1997. At that time, a new ecological baseline survey will be done and this letter will be updated as necessary.
- No protected species were observed within the proposed site. Bald eagles roost in trees at the northwest corner of the 100K area. This species is listed under the Endangered Species Act as Threatened with extinction.
- The proposed CVD project is the subject of ongoing informal consultation with the US Fish and Wildlife Service. Pending the outcome of that consultation, construction work on the CVD should be restricted to those periods of the year when bald eagles are not present, i.e. November 1 to May 1. Consultation is expected to provide modifications to these work restrictions during the period of eagle residence. The restrictions/guidance provided by the US Fish and Wildlife Service should be included with this review letter as defining the ecological compliance review information and guidance for the CVD project at 100K.
- Provided the restrictions presented in this letter, as superseded by consultation with US Fish and Wildlife Service, are complied with, no adverse impacts to species or habitats of concern are expected to occur from the proposed action.

Sincerely,

CA Brandt, Ph.D.
Manager
Ecological Compliance Assessment Project

Mr. G.S. Hunacek
96-100-016 amendment b
Page 3 of 3

REFERENCES

Bonham, Charles D. 1989. Measurements for Terrestrial Vegetation. published by John Wiley & Sons, Inc. pp. 127-128.

U. S. Fish and Wildlife Service. 1985. Revised List of Migratory Birds; Final Rule. 50 FR 13708 (April 5, 1985).

U. S. Department of Interior, U. S. Fish and Wildlife Service. 1992a. Endangered and Threatened Wildlife and Plants. 50 CFR 17.11 and 17.12. (August 29, 1992).

U. S. Fish and Wildlife Service. 1994b. Endangered and Threatened Wildlife and Plants, Animal Candidate Review for Listing as Endangered or Threatened Species, Proposed Rule, 50 CFR 17. (November 15, 1994).

Washington Department of Fish and Wildlife. 1993. Priority Habitats and Species. pp. 22.

Washington Department of Fish and Wildlife. 1994. Species of Special Concern in Washington. (April 1994).

Washington Department of Natural Resources. 1994. Endangered, Threatened & Sensitive Vascular Plants of Washington. (January 1994).

New me

Pacific Northwest National Laboratory

Operated by Battelle for the
U.S. Department of Energy

April 16, 1999

Mr. Chip Consulman
ARES
C/O Flour Daniel Hanford Co.
P. O. Box 1000, MSIN R3-11
Richland, WA 99352

Dear Mr. Consulman:

BIOLOGICAL REVIEW OF THE INTERIM STORAGE AREA PROJECT, 200E Area, ECR
#99-200-045.

Project Description:

- Create assorted small excavations for footings and utilities at and near the location of the 200 E Interim Storage Area, just northwest of the Canister Storage Building.

Survey Objectives:

- To determine the occurrence in the project area of plant and animal species protected under the Endangered Species Act (ESA), candidates for such protection, and species listed as threatened, endangered, candidate, sensitive, or monitor by the state of Washington, and species protected under the Migratory Bird Treaty Act,
- To evaluate and quantify the potential impacts of disturbance on priority habitats and protected plant and animal species identified in the survey.

Survey Methods:

- Pedestrian and ocular reconnaissance of the proposed project site were performed by M. R. Sackschewsky on 16 April 1999. The Braun-Blanquet cover-abundance scale (Bonham 1989) was used to determine percent cover of dominant vegetation,
- Priority habitats and species of concern are documented as such in the following: Washington Department of Fish and Wildlife (1994, 1996), Washington State Department of Natural Resources (1997), and for migratory birds, U.S. Fish and Wildlife Service (1985). Lists of animal and plant species considered Endangered, Threatened, Proposed, or Candidate by the USFWS are maintained at 50 CFR 17.11 and 50 CFR 17.12.

Survey Results:

- The project site has been previously denuded. No living vegetation was observed.
- No migratory bird species were observed nesting in the vicinity of the proposed site.

902 Battelle Boulevard • P.O. Box 999 • Richland, WA 99352

Mr. C. Consulman
99-200-045
Page 2 of 2

Considerations and Recommendations:

- No plant or animal species protected under the ESA, candidates for such protection, or species listed by the Washington state government as threatened or endangered were observed in the vicinity of the proposed site.
- No adverse impacts to species, habitats, or other biological resources are expected to result from the proposed actions.
- This Ecological Compliance Review is valid until 15 April 2000.

Sincerely,

CA Brandt, Ph.D.
Project Manager
Ecological Compliance Assessment

CAB:mrs

REFERENCES

- Bonham, Charles D. 1989. Measurements for Terrestrial Vegetation, John Wiley & Sons, Inc. pp. 127-128.
- U. S. Fish and Wildlife Service. 1985. Revised List of Migratory Birds; Final Rule. 50 FR 13708 (April 5, 1985).
- Washington Department of Fish and Wildlife. 1994. Species of Special Concern in Washington. (April 1994).
- Washington Department of Fish and Wildlife. 1996. Priority Habitats and Species List. (January 1996).
- Washington Department of Natural Resources. 1997. Endangered, Threatened & Sensitive Vascular Plants of Washington (August 1997).

APPENDIX B
FIELD SAMPLING LOGBOOKS

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WASTE MANAGEMENT FEDERAL SERVICES, INC.		ACTIVITY HAZARD ANALYSIS		Page 1 of 2	
Prepared by: <u>Mark Hartney</u>		Date: <u>May 5, 1999</u>		Supervisor: <u>Ron Mitchell</u>	
Scope/Description: AHA-99-007-EMI - ACTIVITIES ASSOCIATED WITH ENVIRONMENTAL MONITORING IN SUPPORT OF SPENT NUCLEAR FUEL CONSTRUCTION PROJECTS. THIS AHA COVERS THE HAZARDS ASSOCIATED WITH THE GATHERING OF AIR, SOIL, VEGETATION AND RESIDNET ANIMALS SAMPLES AROUND THE CONSTRUCTION SITE.					
Specific Work Location(s): THERE ARE TWO SAMPLE LOCATIONS: 100K AREA AND CANISTER STORAGE BUILDING SITE IN 200E					
Emergency Contact Ron Mitchell		Phone 376-5122		Secondary: John Dorian Phone: 372-2604	
Emergency 911		Contact: WMNW Office		376-7055	
	Yes	No		Yes	No
1. Radiological Hazards		X	9. Confined Spaces		X
2. Biological Hazards	X		10. Hot Work		X
3. Chemical Hazards		X	11. Electrical Hazards		X
4. Physical Stressors	X		12. Fall Hazards /Scaffolds		X
5. Non-ionizing Radiation		X	13. Cranes / Rigging		X
6. Hand Tools	X		14. Drilling / Excavation		X
7. Manual Lifting / Ergonomic Hazards		X	15. Heavy Equipment		X
8. Respiratory Protection		X	16. Explosives / Cryogenics		X
1. Radiological Hazards		X	N/A		
2. Biological Hazards	X		Be watchful for poisonous reptiles, rodents and insects particularly beneath equipment that has rested on the ground over night and in shaded areas beneath shrubs. Minimum PPE requirements are required during sample collection, see Safety Analysis Section for requirements.		
3. Chemical Hazards		X			
4. Physical Stressors	X		Heat & Cold Stress Wear clothing appropriate for prevailing weather conditions. Observe fellow workers for symptoms of heat/cold stress. Consume sufficient drinking water, self monitor and take water breaks as needed.		
5. Non-ionizing Radiation		X	N/A		
6. Hand Tools	X		Use correct tool for the task. Inspect before use and replace defective/worn tools. Do not attempt to modify tools.		
7. Manual Lifting / Ergonomic Hazards	X		Use proper lifting techniques (bend knees, straight back, and firm grip on load). Use buddy system for heavy/bulk/awkward loads. If excessive shoveling is necessary, take breaks as needed.		
8. Respiratory Protection		X	N/A		
9. Confined Spaces		X	N/A		
10. Hot Work / Fire Hazards		X	N/A		

11. Electrical Hazards		X	N/A
12. Fall Hazards /Scaffolds		X	N/A
13. Cranes / Rigging		X	N/A
14. Drilling / Excavation		X	N/A
15. Heavy Equipment		X	N/A
16. Explosives / Cryogenics		X	N/A
Notes and special instructions:			
EVERY WORKER MUST UNDERSTAND THE HAZARDS ASSOCIATED WITH THIS WORK AND THE CORRECTIVE MEASURES. IF YOU DO NOT UNDERSTAND ANY PORTION OF THIS AHA OR HAVE ENCOUNTERED CONDITIONS THAT HAVE NOT BEEN ADEQUATELY IDENTIFIED STOP AND DO NOT PROCEED UNTIL YOU HAVE CONTACTED YOUR SUPERVISION!			

EXPOSURE ASSESSMENTDescription of Work Conditions

- This task is being performed in an area that has no process knowledge of chemical or radiological hazards. The scope of this AHA **does not** include these types of hazards. Should they be encountered, additional assessment will be necessary. All of the samples will be gathered outdoors around the perimeters of the 100K Area and the Canister Storage Building Site in 200E. As such all types of environmental conditions will be encountered.

Jobs and Tasks

- Air, soil, vegetation, and resident animals will be collected for subsequent analysis. These samples will be taken by hand with common hand tools.

Hazard Characterization

- The work conducted under this scope is relatively hazard free. As such it presents a low hazard potential. Of primary concern are the hazards from over exertion in inclement weather, animal/insect bite/sting and encountering areas that have not been previously identified.
- Other identified hazards include a potential for fire should vehicles be taken off road.

Monitoring/Medical Surveillance (none identified for this scope)**SAFETY ANALYSIS SECTION**Minimum Personal Protective Equipment (PPE)

- Sleeved shirt at least 4 inches below the shoulder.
- Long pants.
- Substantial footwear – footwear that is constructed to provide adequate protection for the work environment. Shoes generally should be closed toe, firm material with a rigid sole.
- Leather gloves or equivalent while sampling.

Off road vehicle use

- Should vehicles need to be taken off road, they shall be equipped with a fire extinguisher and a shovel. Park them in areas where vegetation will not come in contact with the underside. Always notify 911 if there is any indication of a fire and do not attempt to fight the fire unless you can do so without endangering yourself or others.

Emergency Preparedness

- The sample crew shall have at least one member certified first aid/CPR. A first aid kit will be available at the job location. Communications will be by cellular phone, radio or other equivalent methods. Each member of the team will know how to activate the 911 system.

WMNW ACTIVITY HAZARD ANALYSIS ACKNOWLEDGMENT

AHA-99-007-EMI

I have read, understand, and agree to abide by the provisions detailed in this Activity Hazard Analysis. I understand that failure to comply with these provisions may lead to disciplinary action and my removal from this job activity.

[illegible]

PROJECT SPENT NUCLEAR FUELS PRE-OP SAMPLINGNotebook No. WM-SML-H23
Continued From Page N/A

73

Prejob/Tailgate meeting Covered AHA

NAME	Company	Title	Phone #
Karl Hulse	WMNW	SAMPLING Tech.	373-7440
JB HOGAN	"	"	"
CRAIG L. CHILDERS	"	ACO PEST CONTROL	376-7378
Ronald M. Mitchell	WMNW	Env. Science	376-5122
Allan Danielson	WDOH	HEALTH Physicist	377-3870
A-99 Prejob/Tailgate meeting Covered AHA			
Laurie Hay	WMNW	Eng. Tech.	376-9441

S.A.F.# S9-015

Sample Date: 02-18 & 19-99

PROJECT TITLE: Spent Nuclear Fuels Preoperational Sampling

Shipment Date: 02-20-99

CHARGE CODE: 772032 / 107

TYPE OF PROTOCOL: Sampling done to RCRA Protocol

CUSTOMER: Ronald Mitchell 376-5122

FIELD CONTACTS: Ronald Mitchell Customer

PERSONAL: Karl B. Hulse SML Sampling Tech.

James G. Hogan SML Sampling Tech.

Craig L. Childers WMNW Pest Control

Allan Danielson WDOH Health Physicist (5-18-99)

Laurie Hay Eng. Tech. WMNW (5-19-99)

PURPOSE: The Sampling was conducted in support of an environmental baseline to establish the pre-operational conditions at the Spent Nuclear Fuels Project facilities sites in accordance with the requirements set forth in DOE Order 5400.1, Chapter IV (DOE 1990). The data will be used to verify baseline levels of contaminants in surface soils, vegetation, and the small-mammal community.

LOCATION: Samples were taken around the Canister Storage Building (CSB) Site, which is in 200 East Area. And samples were taken around 100-K Area which is where the Cold Vacuum Drying Facility is located. See attached maps for sample site locations.

REFERENCE DOCUMENTS: Sampling and Analysis Plan HNF-SD-SNF-AP-003, Rev. 0; Activity Hazard Analysis AHA-99-007-EMI; Statement of Work HNF-EP-0835, Rev.5.

SAMPLE POINT:

Sample #	Site	Matrix	Sample #	Site	Matrix	Sample #	Site	Matrix
S9015-01	1	Soil	S9015-09	4	Litter	S9015-17	6	Vegetation
S9015-02	1	Litter	S9015-10	4	Vegetation	S9015-18	6	Cryptogams
S9015-03	1	Vegetation	S9015-11	5	Soil	S9015-19	7	Soil
S9015-04	2	Soil	S9015-12	5	Litter	S9015-20	7	Litter
S9015-05	2	Litter	S9015-13	5	Vegetation	S9015-21	7	Vegetation
S9015-06	2	Vegetation	S9015-14	5	Cryptogams	S9015-22	7	Cryptogams
S9015-07	3	Soil	S9015-15	6	Soil	S9015-23	8	Soil
S9015-08	4	Soil	S9015-16	6	Litter	S9015-24	9	Soil
						S9015-25	10	Soil

Continued Page 74

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74

PROJECT Spent Nuclear Fuels Pre-Op SamplingNotebook No. WML-SML-H23Continued From Page 73

SAMPLING METHOD: The surface samples were obtained by marking off a one-foot square area of the least disturbed soil. The top one-inch of soil was removed with a cleaned stainless steel spade into a cleaned stainless steel bowl. The soil was mixed and placed into vender certified clean bottles with a cleaned stainless steel spoon.

The vegetation samples were obtained by clipping about six inches off the ends of sagebrush plants in the area. The sagebrush was placed in to two one-gallon plastic bags. Surgeon gloves and cleaned scissors were used to collect the sample.

The Litter samples were obtained picking up the dead vegetation under sagebrush plants that had not been blown away. The litter was placed in plastic bags. New surgeon gloves were used to gather the sample.

The Cryptogam samples were collected by finding shaded protected areas where the Cryptogams were growing and lifting out the plant, taking minimal amount of soil. The taller Cryptogam was preferred. New surgeon gloves was used to gather the sample. The sample was placed into plastic bags.

PPE: All sampling was conducted under the AHA. Blue coveralls, safety shoes, gloves, and safety glasses were worn at all sample points.

WEATHER CONDITIONS: On both 5-18-99 and 5-19-99 it was sunny with light breezes and temperature around 70°F.

COMMENTS: Al Danielson of WDOH took a split sample of S9015-04 (soil), S9015-06 (vegetation), S9015-08 (soil), S9015-10 (vegetation), S9015-11 (soil), and W9015-13 (vegetation).

Small-mammal samples were taken by ACO Pest Control personnel and documented in their logbook.

SHIPPING INFORMATION:

DESTINATION: WSCF
C.O.C. # 101607 thru 101614
SAMPLE # S9015-01 thru S9015-25

TRANSPORTATION: Gov. Vehicle
COOLER # SML-468, SML-430, & INORG
Date Shipped: 05-20-99

MAPS ATTACHED ON PAGES 75 + 76
 11 PHOTOS ATTACHED ON PAGES 77, 78, 79, 80, 81 + 82
 TABLES FOR EACH SAMPLE POINT ARE ATTACHED ON
 PAGES 82, 83, 84, 85, 86, 87 + 88.

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Notebook No. WM-SMPL-1423
Continued From Page 74

75

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76

PROJECT Spent Nuclear Fuels Pre-Op Sampling

Notebook No. WHI-SML-1123

Continued From Page 75

Continued on Page 77

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PROJECT *Spent Nuclear Fuels Pre-Op Sampling*

Notebook No. *WM-SRIL-H23*
Continued From Page *76*

77

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78

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Notebook No. WML-SML-142

Continued From Page 77

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Notebook No. *WOL-SAIL-H23*
Continued From Page *78*

79

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SAMPLE SITE #4
WEST SIDE OF CSB

SAMPLE SITE #5 WEST OF 100K

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80

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Notebook No. WM-SNL-H23
Continued From Page 79

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SAMPLE SITE # 6 North West of 100K

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SAMPLE SITE # 7 NORTH EAST CORNER OF 100K

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8

Page 80

27-99

SAMPLE SITES # 9 + # 10
South and South West of 100K

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82

PROJECT Spent Nuclear Fuels Pre-Op SamplingNotebook No. WM-SML-H23
Continued From Page 81 SAF #: S9-015Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Site #10 SoilSample Matrix: SOILDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory
S9015-25 5/19/99 1000	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C 500 mL P	101614 Lab provided	WSCF
S9015-25 5/19/99 1000	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions EPA 300.0 SO ₄ , F, Cl, NO ₂ , PO ₄	Cool to 4°C 250 mL aG	101614 8088010	WSCF
S9015-25 5/19/99 1000	PCBs/Pesticides (8082/8081A)	Cool to 4°C 120 mL G	101614 4256020	WSCF

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Notebook No. WAL-SML-1123
Continued From Page 82

83

PROJECT Spent Nuclear Fuels Pre-Op SamplingSAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Site #1 SoilSample Matrix: SOILDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-01 5/18/99 0825	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C 500 mL P	101607 Lab provided	WSCF
S9015-01 5/18/99 0825	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions EPA 300.0 SO ₄ , F, Cl, NO ₂ , PO ₄	Cool to 4°C 250 mL aG	101607 6086010	WSCF
S9015-01 5/18/99 0825	PCBs/Pesticides (8082/8081A)	Cool to 4°C 120 mL G	101607 4256020	WSCF

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Litter Site #1Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-02 5/18/99 0827	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101607 N/A	WSCF <u>512 grams</u>
S9015-02 5/18/99 0827	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3)	Cool to 4°C Bag mL P	101607 N/A	WSCF <u>290 grams</u>
S9015-02 5/18/99 0827	PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101607 N/A	WSCF <u>133 grams</u>

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Vegetation Site #1Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-03 5/18/99 0830	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101607 N/A	WSCF <u>554 grams</u>
S9015-03 5/18/99 0830	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101607 N/A	WSCF <u>304 grams</u>

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Soil Site #2Sample Matrix: SOILDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-04 5/18/99 0900	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C 500 mL P	101608 Lab provided	WSCF
S9015-04 5/18/99 0900	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions EPA 300.0 SO ₄ , F, Cl, NO ₂ , PO ₄	Cool to 4°C 250 mL aG	101608 6086010	WSCF
S9015-04 5/18/99 0900	PCBs/Pesticides (8082/8081A)	Cool to 4°C 120 mL G	101608 4256020	WSCF

Continued on Page 84

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PROJECT Spent Nuclear Fuels Pre-Op SamplingNotebook No. WML-SML-H23Continued From Page 83SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Litter Site #2Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-05 5/18/99 0907	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101608 N/A	WSCF <u>619 grams</u>
S9015-05 5/18/99 0907	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3)	Cool to 4°C Bag mL P	101608 N/A	WSCF <u>320 grams</u>
S9015-05 5/18/99 0907	PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101608 N/A	WSCF <u>177 grams</u>

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Vegetation Site #2Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-06 5/18/99 0910	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101608 N/A	WSCF <u>588 grams</u>
S9015-06 5/18/99 0910	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101608 N/A	WSCF <u>332 grams</u>

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Site #3 SoilSample Matrix: SOILDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-07 5/18/99 0945	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C 500 mL P	101608 Lab provided	WSCF
S9015-07 5/18/99 0945	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions EPA 300.0 SO ₄ , F, Cl, NO ₂ , PO ₄	Cool to 4°C 250 mL aG	101608 6086010	WSCF
S9015-07 5/18/99 0945	PCBs/Pesticides (8082/8081A)	Cool to 4°C 120 mL G	101608 4256020	WSCF

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Site #4 SoilSample Matrix: SOILDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-08 5/18/99 1000	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C 500 mL P	101610 Lab provided	WSCF
S9015-08 5/18/99 1000	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions EPA 300.0 SO ₄ , F, Cl, NO ₂ , PO ₄	Cool to 4°C 250 mL aG	101610 6086010	WSCF
S9015-08 5/18/99 1000	PCBs/Pesticides (8082/8081A)	Cool to 4°C 120 mL G	101610 3310020	WSCF

Continued on Page 85

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PROJECT Spent Nuclear Fuels Pre-Op SamplingNotebook No. VVM-SAIL-H23Continued From Page 84SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Litter Site #4Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory
S9015-09 5/18/99 1005	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101810 N/A	WSCF 569 grams
S9015-09 5/18/99 1005	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3)	Cool to 4°C Bag mL P	101810 N/A	WSCF 262 grams
S9015-09 5/18/99 1005	PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101810 N/A	WSCF 121 grams

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Vegetation Site #4Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory
S9015-10 5/18/99 1010	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101810 N/A	WSCF 516 grams
S9015-10 5/18/99 1010	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101810 N/A	WSCF 362 grams

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Site #5 SoilSample Matrix: SOILDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory
S9015-11 5/18/99 1135	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C 500 mL P	101811 Lab provided	WSCF
S9015-11 5/18/99 1135	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions EPA 300.0 SO ₄ , F, Cl, NO ₂ , PO ₄	Cool to 4°C 250 mL sG	101811 8086010	WSCF
S9015-11 5/18/99 1135	PCBs/Pesticides (8082/8081A)	Cool to 4°C 120 mL G	101811 4256020	WSCF

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Litter Site #5Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory
S9015-12 5/18/99 1155	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101811 N/A	WSCF 383 grams
S9015-12 5/18/99 1155	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101811 N/A	WSCF 278 grams

Continued on Page 86

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86

PROJECT Spent Nuclear Fuels Pre-Op SamplingNotebook No. WNL-SAL-H23Continued From Page 85

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SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Vegetation Site #5Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory Weight
S9015-13 5/18/99 1140	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101811 N/A	WSCF 474 grams
S9015-13 5/18/99 1140	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101811 N/A	WSCF 485 grams

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Cryptogams Site #5Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory Weight
S9015-14 5/18/99 1140	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101811 N/A	WSCF 507 grams
S9015-14 5/18/99 1140	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101811 N/A	WSCF 415 grams

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Site #6 SoilSample Matrix: SOILDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory
S9015-15 5/18/99 1235	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C 500 mL P	101812 Lab provided	WSCF
S9015-15 5/18/99 1235	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Arsenic EPA 300.0 SO4, F, Cl, NO2, PO4	Cool to 4°C 250 mL aG	101812 8086010	WSCF
S9015-15 5/18/99 1235	PCBs/Pesticides (8082/8081A)	Cool to 4°C 120 mL G	101812 4258020	WSCF

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Litter Site #6Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory
S9015-16 5/18/99 1250	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101812 N/A	WSCF 415 grams
S9015-16 5/18/99 1250	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101812 N/A	WSCF 324 grams

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PROJECT Spent Nuclear Fuels Pre-Op SamplingNotebook No. VIM-SML-H25Continued From Page 86SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Vegetation Site #6Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-17 5/18/99 1240	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101612 N/A	WSCF 544 grams
S9015-17 5/18/99 1240	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101612 N/A	WSCF 538 grams

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Cryptogams Site #6Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-18 5/18/99 1232	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101612 N/A	WSCF 802 grams
S9015-18 5/18/99 1232	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101612 N/A	WSCF 628 grams

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Site #7 SoilSample Matrix: SOILDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-19 5/19/99 0835	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C 500 mL P	101613 Lab provided	WSCF
S9015-19 5/19/99 0835	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions EPA 300.0 SO ₄ , F, Cl, NO ₂ , PO ₄	Cool to 4°C 250 mL aG	101613 8088010	WSCF
S9015-19 5/19/99 0835	PCBs/Pesticides (8082/8081A)	Cool to 4°C 120 mL G	101613 4256020	WSCF

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Litter Site #7Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) / Container	COC# / Lot #	Laboratory
S9015-20 5/19/99 0832	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101613 N/A	WSCF 440 grams
S9015-20 5/19/99 0832	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101613 N/A	WSCF 330 grams

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88

PROJECT SPENT NUCLEAR FUELS PRE-OP SAMPLINGNotebook No. WM-SML-1123Continued From Page 87SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Vegetation Site #7Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory
S9015-21 5/19/99 0845	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101613 N/A	WSCF 763 grams
S9015-21 5/19/99 0845	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101613 N/A	WSCF 622 grams

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Cryptogams Site #7Sample Matrix: VEGETATIONDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory
S9015-22 5/19/99 0900	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C Bag mL P	101613 N/A	WSCF 667 grams
S9015-22 5/19/99 0900	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C Bag mL P	101613 N/A	WSCF 737 grams

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Site #8 SoilSample Matrix: SOILDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory
S9015-23 5/19/99 0940	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C 500 mL P	101614 Lab provided	WSCF
S9015-23 5/19/99 0940	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions EPA 300.0 SO4, F, Cl, NO2, PO4	Cool to 4°C 250 mL sG	101614 8086010	WSCF
S9015-23 5/19/99 0940	PCBs/Pesticides (8082/8081A)	Cool to 4°C 120 mL G	101614 4256020	WSCF

SAF #: S9-015 Project Name: Spent Nuclear Fuels Preop. SamplingSample Point: Site #9 SoilSample Matrix: SOILDate: 5/18/99 Lead Sampler: HULSE, K. B.

Sample ID / Date / Time	Analysis	Preservative(s) Container	COC# Lot #	Laboratory
S9015-24 5/19/99 1020	Gamma Energy Analysis (Lab Specific) Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C 500 mL P	101614 Lab provided	WSCF
S9015-24 5/19/99 1020	ICP Metals (200.8) Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions EPA 300.0 SO4, F, Cl, NO2, PO4	Cool to 4°C 250 mL sG	101614 8086010	WSCF
S9015-24 5/19/99 1020	PCBs/Pesticides (8082/8081A)	Cool to 4°C 120 mL G	101614 4256020	WSCF

ONE ATTACHMENT ON THIS PAGE

Continued on Page NONE

Read and Understood By

KB Hulse *[Signature]*

Signed

5-27-99

Date

Signed

Date

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# 101607
Collector	HULSE, K. B.	Contact/Requestor	MITCHELL, RONALD		Tel. No.	376-5122 MSIN H1-11 FAX
SAF Number	S9-015	Sample Origin	C5B		Purchase Order/Charge Code	50% 106789/CA40. 50% 105630/CA40
Project Title	Spent Nuclear Fuels Prep. Sampling	Logbook #	WM-SML-H23		Ice Chest #	SML-468
Shipped To (Lab)	WSCF	Method of Shipment	Hand Carried		Bill of Lading/Air Bill No.	N/A
Protocol	RCRA	Date Turnaround	45 DAYS		Offsite Property No.	N/A
Sample No.	Lab. ID	* Date	Time	No/Type Container	Sample Analysis	Preservative
S9015-01		S 5/18/99	0825	(1) 500 P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	
S9015-01		S 5/18/99	0825	(1) 250 aG	ICP Metals (200.3), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (333.3), Arsenic EPA 308.0 S04, F, Cl, NO2, PO4	Cool to 4°C
S9015-01		S 5/18/99	0825	(1) 120 G	PCBs/Pesticides (6082/6081A)	Cool to 4°C
S9015-02		V 5/18/99	0827	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C
S9015-02		V 5/18/99	0827	(1) Bag P	ICP Metals (200.3), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (333.3)	Cool to 4°C
S9015-02		V 5/18/99	0827	(1) Bag P	PCBs/Pesticides (6082/6081A) 133 g	Cool to 4°C
S9015-03		V 5/18/99	0830	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C
S9015-03		V 5/18/99	0830	(1) Bag P	ICP Metals (200.3), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (333.3), PCBs/Pesticides (6082/6081A) 304 g	Cool to 4°C

POSSIBLE SAMPLE HAZARDS/REMARKS		MSDS		Yes ☐ No ☐		SPECIAL INSTRUCTIONS		Hold Time	
List all known wastes.						Samples need to be analyzed in accordance with Statement of Work in HNF-EP-0835, Rev.5.			
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *	
Relinquished By	KB Hulse	5-20-99	1305	Received By	J. G. HOGAN	5/20/99	1250	Matrix *	
Relinquished By	J. G. HOGAN	5-20-99	1305	Received By	K. J. HOGAN	5/20/99	1305	Matrix *	
Relinquished By				Received By				Matrix *	
Relinquished By				Received By				Matrix *	
FINAL SAMPLE DISPOSITION		Disposal Method e.g. Return to customer, per lab procedure, used in process.		Disposed By		Date/Time		Date/Time	

A-6001-500 (07/95)

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # 101608	
Collector	HULSE, K. B.	Contact/Requestor	MITCHELL, RONALD		Tel. No.	376-5122	MSIN H1-11 FAX
SAF Number	S9-015	Sample Origin	C-5B		Purchase Order/Charge Code	50% 106789/CA40-50% 103650/CA40	
Project Title	Spent Nuclear Fuels Prep. Sampling	Logbook #	W19-SML-H23		Ice Chest #	SML-468	
Shipped To (Lab)	WSCF	Method of Shipment	Hand Carried		Bill of Lading/Air Bill No.	N/A	
Protocol	RCRA	Data Turnaround	45 DAYS		Offsite Property No.	N/A	
Sample No.	Lab. ID	Date	Time	No./Type Container	Sample Analysis	Perservative	
S9015-04	S	5/18/99	0900	(1) 500 P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C	
S9015-04	S	5/18/99	0900	(1) 250 aG	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions EPA 300.0 SO4, F, Cl, NO2, PO4	Cool to 4°C	
S9015-04	S	5/18/99	0900	(1) 120 G	PCBs/Pesticides (8082/8081A)	Cool to 4°C	
S9015-05	V	5/18/99	0907	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C	619g
S9015-05	V	5/18/99	0907	(1) Bag P	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3)	Cool to 4°C	320g
S9015-05	V	5/18/99	0907	(1) Bag P	PCBs/Pesticides (8082/8081A)	Cool to 4°C	177g
S9015-06	V	5/18/99	0910	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C	538g
S9015-06	V	5/18/99	0910	(1) Bag P	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C	352g

POSSIBLE SAMPLE HAZARDS/REMARKS		MSDS		Yes		No		SPECIAL INSTRUCTIONS		Hold Time	
List all known wastes.								Samples need to be analyzed in accordance with Statement of Work in HNF-EP-0835, Rev. 5.			
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *			
KB Hulse			5-20-99	J. G. HOGAN			MAY 20 1999	S	Drum Solids		
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	SE	Drum Liquids		
J. G. HOGAN			MAY 20 1999	J. G. HOGAN			5/20/99	SO	Tissue		
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	SL	Wipe		
								W	Liquid		
								O	Vegetation		
								A	Other		
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time				
FINAL SAMPLE DISPOSITION	Disposal Method e.g. Return to customer, per lab procedure, used in process.							Disposed By		Date/Time	
All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.											

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # 101609	
Collector HULSE, K. B.		Contact/Requestor MITCHELL, RONALD	Tel. No. 376-5122		MSIN HI-11	FAX	
SAF Number S9-015		Sample Origin C5B	Purchase Order/Charge Code		50% 106789/CA40, 50% 105650/CA40		
Project Title Spent Nuclear Fuels Prep. Sampling		Logbook # WMP-SML-H23	Ice Chest # SML-468		Temp.		
Shipped To (Lab) WSCF		Method of Shipment Hand Carried	Bill of Lading/Air Bill No. N/A				
Protocol RCRA		Data Turnaround 45 DAYS	Offsite Property No. N/A				
Sample No.	Lab. ID	* Date	Time	No./Type Container	Sample Analysis	Preservative	
S9015-07		S 5/18/99	0945	(1) 500 P	Gamma Energy Analysis (Lab Specific), Se-90, Am-241, Pu-238, 239/240/241	Cool to 4°C	
S9015-07		S 5/18/99	0945	(1) 250 aG	ICP Metals (200.3), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (313.3), Anions EPA 300.3 SO4, F, Cl, NO2, PO4	Cool to 4°C	
S9015-07		S 5/18/99	0945	(1) 120 G	PCBs/Pesticides (8082/8081 A)	Cool to 4°C	

POSSIBLE SAMPLE HAZARDS/REMARKS List all known wastes.		MSDS Yes ☐ No ☐		SPECIAL INSTRUCTIONS Samples need to be analyzed in accordance with Statement of Work in HNF-EP-0835, Rev 5.		Hold Time	
Relinquished By K. B. Hulse	Print K. B. Hulse	Sign K. B. Hulse	Date/Time 5-20-99	Received By J. G. HOGAN	Print J. G. HOGAN	Sign J. G. HOGAN	Date/Time 5-20-99
Relinquished By J. G. HOGAN	Print J. G. HOGAN	Sign J. G. HOGAN	Date/Time 5-20-99	Received By K. B. Hulse	Print K. B. Hulse	Sign K. B. Hulse	Date/Time 5-20-99
Relinquished By			Date/Time	Received By			Date/Time
Date/Time				Date/Time			
Disposal Method e.g. Return to customer, per lab procedure, used in process.				Disposed By			
Date/Time				Date/Time			

All samples containing hazardous materials shall be picked up by requestor and returned to parent containers as site of origin.

A-6001-500 (07/95)

Waste Management Northwest		C.O.C.# 101610			
Collector HULSE, K. B.		Page / of /			
SAF Number S9-015		Contact/Requestor MITCHELL, RONALD	Tel. No. 376-5122	MSIN H1-11	FAX
Project Title Spent Nuclear Fuels Prep. Sampling		Sample Origin CSB	Purchase Order/Charge Code 50%-106789/CAM0- 50%-105650/CAM0		
Shipped To (Lab) WSCF		Logbook # WML-SML-H23	Ice Chest # SML-468		
Protocol RCRA		Method of Shipment Hand Carried	Bill of Lading/Air Bill No. N/A		
Data Turnaround 45 DAYS		Offsite Property No. N/A	Preservative		
Sample No.	Lab. ID	* Date	Time	No/Type Container	Sample Analysis
S9015-08		5/18/99	1000	(1) 500 P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241
S9015-08		5/18/99	1000	(1) 250 aG	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Antons EPA 300.0 SOM, F, CL, NO2, PO4
S9015-08		5/18/99	1000	(1) 120 G	PCBs/Pesticides (808/2081A)
S9015-09		5/18/99	1005	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241
S9015-09		5/18/99	1005	(1) Bag P	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3)
S9015-09		5/18/99	1005	(1) Bag P	PCBs/Pesticides (808/2081A)
S9015-10		5/18/99	1010	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241
S9015-10		5/18/99	1010	(1) Bag P	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (808/2081A)

POSSIBLE SAMPLE HAZARDS/REMARKS		MSDS		Yes ☐ No ☐		SPECIAL INSTRUCTIONS		Hold Time	
List all known wastes.						Samples need to be analyzed in accordance with Statement of Work in HNF-EP-0835, Rev.5.			
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix*	
Relinquished By	KB Hulse	J. G. HOGAN	5-20-99	J. G. HOGAN	J. G. HOGAN	J. G. HOGAN	MAY 20 1999	S	Drum Solids
Relinquished By	J. G. HOGAN	J. G. HOGAN	MAY 20 1999	J. G. HOGAN	J. G. HOGAN	J. G. HOGAN	MAY 20 1999	SE	Drum Liquids
Relinquished By								SO	Tissue
Relinquished By								SL	Wipe
Relinquished By								W	Liquid
Relinquished By								O	Vegetation
Relinquished By								A	Other
FINAL SAMPLE DISPOSITION		Disposal Method		Disposition		Date/Time			
All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.		e.g. Return to customer, per lab procedure, used in process.							

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # 101611	
Collector	HULSE, K. B.	Contact/Requestor	MITCHELL, RONALD		Tel. No.	376-5122	MSIN HI-11 FAX
SAF Number	S9-015	Sample Origin	100 K		Purchase Order/Charge Code		
Project Title	Spent Nuclear Fuels Preop. Sampling	Logbook #	WMP-SML-1423		Item Check #	599-106789/6140-599-106650/6140	
Shipped To (Lab)	WSCF	Method of Shipment	Hand Carried		Bill of Lading/Air Bill No.	N/A	
Protocol	RCRA	Data Turnaround	45 DAYS		Offsite Property No.	N/A	
Sample No.	Lab. ID	#	Date	Time	No/Type Container	Sample Analysis	Preservative
S9015-11		S	5/18/99	1135	(1) 500 P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C
S9015-11		S	5/18/99	1135	(1) 250 gG	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (315.3), Anions EPA 300.0 SQM, F, Cl, NO2, PO4	Cool to 4°C
S9015-11		S	5/18/99	1135	(1) 120 G	PCBs/Pesticides (8082/8081A)	Cool to 4°C
S9015-12		V	5/18/99	1155	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C
S9015-12		V	5/18/99	1155	(1) Bag P	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (315.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C
S9015-13		V	5/18/99	1140	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C
S9015-13		V	5/18/99	1140	(1) Bag P	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (315.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C
S9015-14		V	5/18/99	1140	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C
S9015-14		V	5/18/99	1140	(1) Bag P	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (315.3), PCBs/Pesticides (8082/8081A)	Cool to 4°C

POSSIBLE SAMPLE HAZARDS/REMARKS		MSDS	Yes	No	SPECIAL INSTRUCTIONS	Hold Time
List all known wastes.					Samples need to be analyzed in accordance with Statement of Work in HNF-EP-0835, Rev.5.	
Relinquished By	Print	Signature	Date/Time	Received By	Print	Signature
Relinquished By	KB Hulse	5/20/99	5:20:05	Received By	KB Mitchell	5/20/99 1325
Relinquished By				Received By		
Relinquished By				Received By		
Relinquished By				Received By		
FINAL SAMPLE DISPOSITION		Disposal Method e.g. Return to customer, per lab procedure, used in process.		Disposed By		Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6001-500 (07/95)

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# 101612	
Collector	HULSE, K. B.	Contact/Requestor	MITCHELL, RONALD		Fed. No.	376-5122	NSIN HI-11 FAX
SAF Number	S9-015	Sample Origin	100 K		Purchase Order/Contract	099870099/CA40; 50% 105650/CA40	
Project Title	Spent Nuclear Fuels Preop. Sampling	Logbook #	WMA-5 ML- H2.3		Ice Chest #	5742-470	
Shipped To (Lab)	WSCF	Method of Shipment	Hand Carried		Bill of Lading/Air Bill No.	N/A	
Protocol	RCRA	Data Turnaround	45 DAYS		Offsite Property No.	N/A	
Sample No.	Lab. ID	* Date	Time	No/Type Container	Sample Analysis	Perservative	
S9015-15		S 5/18/99	1235	(1) 500 P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240241		Cool to 4°C
S9015-15		S 5/18/99	1235	(1) 250 aG	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), Anions EPA 300.0 SO4, F, Cl, NO2, PO4		Cool to 4°C
S9015-15		S 5/18/99	1235	(1) 120 G	PCBs/Pesticides (8082/8081A)		Cool to 4°C
S9015-16		V 5/18/99	1250	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240241	4/15g	Cool to 4°C
S9015-16		V 5/18/99	1250	(1) Bag P	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	3.24g	Cool to 4°C
S9015-17		V 5/18/99	1240	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240241	544g	Cool to 4°C
S9015-17		V 5/18/99	1240	(1) Bag P	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	538g	Cool to 4°C
S9015-18		V 5/18/99	1232	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240241	802g	Cool to 4°C
S9015-18		V 5/18/99	1232	(1) Bag P	ICP Metals (200.8), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (335.3), PCBs/Pesticides (8082/8081A)	628g	Cool to 4°C

POSSIBLE SAMPLE HAZARDS/REMARKS				MSDS				Yes ☐ No ☐				SPECIAL INSTRUCTIONS Samples need to be analyzed in accordance with Statement of Work in HNF-EP-0835, Rev.5.			
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *	DS	DL	T	WI	L	V	X
KB Hulse	5-20-99	5-20-99	1325	KB Mitchell	5-20-99	5-20-99	1325	Soil	Drum Solids	Drum Liquids	Tissue	Wipe	Liquid	Oil	Other
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	SE	SO	SL	W	O	A		
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	SE	SO	SL	W	O	A		
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	SE	SO	SL	W	O	A		
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	SE	SO	SL	W	O	A		
FINAL SAMPLE DISPOSITION				Disposal Method e.g. Return to customer, per lab procedure, used in process.				Disposed By				Date/Time			

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6001-500 (07/95)

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# 101614	
Collector HULSE, K. B.		Contact/Requestor MITCHELL, RONALD	TEL No. 376-5122	MSIN HI-11	Page / of / FAX		
SAF Number S9-015		Sample Origin 100/K	Pkg No. 06889CA40, 90% 105650/CA40				
Project Title Spent Nuclear Fuels Preop. Sampling		Logbook # WIM-SML-1423	Ice Chest # IN026				
Shipped To (Lab) WSCF		Method of Shipment Hand Carried	Bill of Lading/Air Bill No. N/A				
Protocol RCRA		Data Turnaround 45 DAYS	Offsite Property No. N/A				
Sample No.	Lab. ID	* Date	Time	No/Type Container	Sample Analysis	Preservative	
S9015-23		S 5/19/99	0940	(1) 500 P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C	
S9015-23		S 5/19/99	0940	(1) 250 aG	ICP Metals (200.0), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (33.3), Anions EPA 300.0 SO4, F, Cl, NO2, PO4	Cool to 4°C	
S9015-23		S 5/19/99	0940	(1) 120 G	PCBs/Pesticides (8002/8081A)	Cool to 4°C	
S9015-24		S 5/19/99	1020	(1) 500 P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C	
S9015-24		S 5/19/99	1020	(1) 250 aG	ICP Metals (200.0), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (33.3), Anions EPA 300.0 SO4, F, Cl, NO2, PO4	Cool to 4°C	
S9015-24		S 5/19/99	1020	(1) 120 G	PCBs/Pesticides (8002/8081A)	Cool to 4°C	
S9015-25		S 5/19/99	1000	(1) 500 P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 239/240/241	Cool to 4°C	
S9015-25		S 5/19/99	1000	(1) 250 aG	ICP Metals (200.0), Arsenic, Lead, Isotopic Uranium, Mercury, Cyanide (33.3), Anions EPA 300.0 SO4, F, Cl, NO2, PO4	Cool to 4°C	
S9015-25		S 5/19/99	1000	(1) 120 G	PCBs/Pesticides (8002/8081A)	Cool to 4°C	

POSSIBLE SAMPLE HAZARDS/REMARKS		MSDS	Yes	No	SPECIAL INSTRUCTIONS	Hold Time
List all known wastes.					Samples need to be analyzed in accordance with Statement of Work in HNF-EP-0835, Rev.5.	
Relinquished By K.B. Hulse	Print	Date/Time 5-20-99			Received By K. Mitchell	Date/Time 5/20/99
Relinquished By	Sign	Date/Time 5-20-99			Received By	Date/Time
Relinquished By		Date/Time			Received By	Date/Time
Relinquished By		Date/Time			Received By	Date/Time
FINAL SAMPLE DISPOSITION		Disposal Method e.g. Return to customer, per lab procedure, used in process.		Disposed By		Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin

A-8001-500 (07/95)

WASTE MANAGEMENT TECHNICAL SERVICES		ACTIVITY HAZARD ANALYSIS		Page 1 of 3	
Prepared by: Mark Hartney		Date: October 18, 1999		Supervisor: Ron Mitchell	
Scope/Description: AHA-89-016-EMI - ACTIVITIES ASSOCIATED WITH ENVIRONMENTAL MONITORING IN SUPPORT OF SPENT NUCLEAR FUEL CONSTRUCTION PROJECTS. THIS AHA COVERS THE HAZARDS ASSOCIATED WITH THE GATHERING OF AIR, SOIL, VEGETATION AND RESIDENT ANIMAL SAMPLES AROUND THE CONSTRUCTION SITE.					
Specific Work Location(s): THERE ARE TWO SAMPLE LOCATIONS: 100K AREA AND CANISTER STORAGE BUILDING SITE IN 200E					
Emergency Contact Ron Mitchell		Phone 376-3122		Secondary: John Dorian Phone: 372-2604	
Emergency 911		Contact: WMNW Office 376-7055			
GENERAL CLASSIFICATION OF HAZARD					
		Yes	No		
1. Radiological Hazards			X	8. Confined Spaces	X
2. Biological Hazards		X		10. Hot Work	X
3. Chemical Hazards			X	11. Electrical Hazards	X
4. Physical Stressors		X		12. Fall Hazards /Scaffolds	X
5. Non-ionizing Radiation			X	13. Cranes / Rigging	X
6. Hand Tools		X		14. Drilling / Excavation	X
7. Manual Lifting / Ergonomic Hazards		X		15. Heavy Equipment	X
8. Respiratory Protection			X	16. Explosives / Cryogenics	X
Other Hazards		Yes	No	Control Measures	
1. Radiological Hazards			X	N/A	
2. Biological Hazards	X			Be watchful for poisonous reptiles, rodents and insects particularly beneath equipment that has rested on the ground over night and in shaded areas beneath shrubs. Minimum PPE requirements are required during sample collection, see Safety Analysis Section for requirements.	
3. Chemical Hazards			X	N/A	
4. Physical Stressors	X			Heat & Cold Stress Wear clothing appropriate for prevailing weather conditions. Observe fellow workers for symptoms of heat/cold stress. Consume sufficient drinking water, self monitor and take water breaks as needed.	
5. Non-ionizing Radiation			X	N/A	
6. Hand Tools	X			Use correct tool for the task. Inspect before use and replace defective/worn tools. Do not attempt to modify tools.	
7. Manual Lifting / Ergonomic Hazards	X			Use proper lifting techniques (bend knees, straight back, and firm grip on load). Use buddy system for heavy/bulk/awkward loads. If excessive shoveling is necessary, take breaks as needed.	
8. Respiratory Protection			X	N/A	

9. Confined Spaces		X	N/A
10. Hot Work / Fire Hazards		X	N/A
11. Electrical Hazards		X	N/A
12. Fall Hazards / Scaffolds		X	N/A
13. Cranes / Rigging		X	N/A
14. Drilling / Excavation		X	N/A
15. Heavy Equipment		X	N/A
16. Explosives / Cryogenics		X	N/A
Notes and special instructions: EVERY WORKER MUST UNDERSTAND THE HAZARDS ASSOCIATED WITH THIS WORK AND THE CORRECTIVE MEASURES. IF YOU DO NOT UNDERSTAND ANY PORTION OF THIS AHA OR HAVE ENCOUNTERED CONDITIONS THAT HAVE NOT BEEN ADEQUATELY IDENTIFIED STOP AND DO NOT PROCEED UNTIL YOU HAVE CONTACTED YOUR SUPERVISION!			

EXPOSURE ASSESSMENT

Description of Work Conditions

- This task is being performed in an area that has no process knowledge of chemical or radiological hazards. **The scope of this AHA does not include these types of hazards. Should they be encountered, additional assessment will be necessary.** All of the samples will be gathered outdoors around the perimeters of the 100K Area and the Canister Storage Building Site in 200E. As such all types of environmental conditions will be encountered.

Jobs and Tasks

- Air, soil, vegetation, and resident animals will be collected for subsequent analysis. These samples will be taken by hand with common hand tools.

Hazard Characterization

- The work conducted under this scope is relatively hazard free. As such it presents a low hazard potential. Of primary concern are the hazards from over exertion in inclement weather, animal/insect bite/sting and encountering areas that have not been previously identified.
- Other identified hazards include a potential for fire should vehicles be taken off road.

Monitoring/Medical Surveillance

None identified for this scope)

SAFETY ANALYSIS SECTION

Minimum Personal Protective Equipment (PPE)

- Sleeved shirt at least 4 inches below the shoulder.
- Long pants.
- Substantial footwear – footwear that is constructed to provide adequate protection for the work environment. Shoes generally should be closed toe, firm material with a rigid sole.
- Leather gloves or equivalent while sampling.

Off road vehicle use

- Should vehicles need to be taken off road, they shall be equipped with a fire extinguisher and a shovel. Park them in areas where vegetation will not come in contact with the underside. Always notify 911 if there is any indication of a fire and do not attempt to fight the fire unless you can do so without endangering yourself or others.

Emergency Preparedness

- The sample crew shall have at least one member certified first aid/CPR. A first aid kit will be available at the job location. Communications will be by cellular phone, radio or other equivalent methods. Each member of the team will know how to activate the 911 system.

All emergencies such as injury, fire, explosion, spill shall be reported using the listed identified emergency numbers. After emergency services have been contacted and the site is stable, contact WMNW management on the phone matrix below. Continue to call until you reach one of these points of contact.

EMERGENCY NUMBERS

Hanford Site Emergency Services (for all types of phones)	373-3800		
(for Hanford land line only)	911		
	<u>Office</u>	<u>Cellular</u>	<u>Pager</u>
Field Team Leader (Ron Mitchell)	376-5122		
Manager (John Dorian)	372-2604		85-2347
Safety Representative (Mark Hartney)	372-3288		85-3348

EMERGENCY MEDICAL SERVICES

200 East	2719 EA	373-2314
200 West	Closed	
300 Area	3919A	376-3315
HEHF	3080 G. Washington Wy.	376-6981
Kadlec Medical Center	888 Swift Blvd	946-4611

[illegible]

84

PROJECT SPENT NUCLEAR FUEL / RE-SAMPLENotebook No. WM-SML-H27
Continued From Page NONESAF# SD-007 11-4-99 CROSSWALK#
WORK DONE TO RCRA PROTOCOLLOCATION: SITES #1 + #2 NEAR THE CONTAINER STORAGE BUILDING
AND SITES #9 + #11 NEAR 100-K (SEE MAP ON PAGE OF THIS NOTEBOOK)

PERSONNEL:	JG HOGAN	SAMPLER	
	RR FOX	SAMPLER	
	RA DANIELSON	WDOH WDOH	11-9-99
	RM MITCHELL	CUSTOMER	H1-13 376-5122

PURPOSE: BASELINE INVESTIGATION SAP# HNF-SD-SNF-AP-003PPE: BLUES, HARD HAT, SAFETY GLASSES, SURGEONS GLOVES

SAMPLE EVENT: SAMPLES WERE COLLECTED TO SUPPORT THE
PRE-OPERATIONAL SURVEY IN ESTABLISHING AN ENVIRONMENTAL
BASELINE FOR THE SNF PROJECT. SAMPLES WERE COLLECTED PRE-
VIOUSLY ON 2-18-99 IN SUPPORT OF THIS PROJECT (SEE LOGBOOK
WM-SML-H23/PAGE 73). SOIL AND CRYPTOGRAMS WERE COLLECTED
FROM THE TWO SITES BY THE CSB. SOIL, CRYPTOGRAMS, AND VEGE-
TATION WERE COLLECTED FROM THE SITES NEAR THE 100-K AREA.
DUE TO AVAILABILITY OF VEGETATION, SAGEBRUSH WAS COLLECTED
AT SITE 11 AND RABBIT BRUSH WAS COLLECTED FROM SITE 9. AL
DANIELSON OF WDOH TOOK A SPLIT SAMPLE OF THE SOIL FROM
SITE 1 AND A SPLIT SAMPLE OF THE VEGETATION FROM SITE 11.

SAMPLE METHOD: SOIL SAMPLES WERE COLLECTED WITH THE USE
OF A S/S SPOON AND BOWL. THE SOIL WAS PLACED IN THE BOWL,
HOMOGENIZED, AND THEN PLACED IN VENDOR CLEANED SAMPLE
BOTTLES. THE CRYPTOGRAMS WERE COLLECTED WITH SURGEONS GLOVES
AND PLACED IN PLASTIC BAGS. VEGETATION WAS CLIPPED WITH A
PAIR OF S/S SCISSORS AND THEN PLACED IN A PLASTIC BAG. ALL
SAMPLE EQUIPMENT WAS CLEANED PER FS-SSPM-001 SP 2-5.

Continued on Page

JG HOGAN

JG Hogan

Signed

11-9-99

Date

Read and Understood By

Signed

Date

PROJECT SPENT NUCLEAR FUEL / RE-SAMPLE

Notebook No. VM-3M-427
Continued From Page 84

85

TRANSPORTATION: SAMPLES WERE PLACED ON ICE IMMEDIATELY AFTER COLLECTION. SAMPLES WERE SHIPPED DIRECTLY TO THE WSCF LAB IN THE 600 AREA VIA GOUT VEHICLE

TWO MAPS ATTACHED THIS PAGE

Continued on Page 86

JG HOGAN

J. J. Hogan
Signed

11-9-99
Date

Read and Understood By

Signed

Date

PROJECT SPENT NUCLEAR FUEL / RE-SAMPLENotebook No. W111-51116-74-1
Continued From Page 85

JA 11-4-99

Sample Point: **CSB1- Soil**Lead Sampler: **HOGAN, J.G.**Sample Matrix: **SOIL**

Sample ID	Date Collected: Time Collected	Analysis	Preservative(s)	Container	Lot #	Laboratory COC#
S0007-01	11/4/99	Gamma Energy Analysis (Lab Specific)	Cool to 4°C	500 mL P	N/A	WSCF
	0910	Sr-90, Am-241, AEA, Pu-238, -239, -240, Pu-241				101761
S0007-01	11/4/99	ICP-All Possible Metals by 200.8,	Cool to 4°C	250 mL aG	3030040	WSCF
	0910	Uranium iso (AEA), Cn (335.3), Anions (300.0) F, Cl, Br, NO2, NO3, PO4, SO4				101761
S0007-01	11/4/99	PCB's/Pesticides (8082/8081A)	Cool to 4°C	120 mL aG	3310020	WSCF
	0910					101761

JA 11-4-99

Sample Point: **CSB1-Cryptogams**Lead Sampler: **HOGAN, J.G.**Sample Matrix: **VEGETATION**

Sample ID	Date Collected: Time Collected	Analysis	Preservative(s)	Container	Lot #	Laboratory COC#
S0007-05	11/4/99	Gamma Energy Analysis (Lab Specific)	Cool to 4°C	Bag mL P	N/A	WSCF
	0910	Sr-90, Am-241, Pu-238, 239/240, Pu-241				101761
S0007-05	11/4/99	ICP-All Possible metals by 200.8	Cool to 4°C	Bag mL P	N/A	WSCF
	0910	Arsenic, Lead, Isotopic, Uranium, Mercury, PCB's/Pesticides (8082/8081A)				101761

JA 11-4-99

Sample Point: **CSB2-Soil**Lead Sampler: **HOGAN, J.G.**Sample Matrix: **SOIL**

Sample ID	Date Collected: Time Collected	Analysis	Preservative(s)	Container	Lot #	Laboratory COC#
S0007-02	11/4/99	Gamma Energy Analysis (Lab Specific)	Cool to 4°C	500 mL P	N/A	WSCF
	0940	Sr-90, Am-241, AEA, Pu-238, -239, -240, Pu-241				101762
S0007-02	11/4/99	ICP-All Possible Metals by 200.8,	Cool to 4°C	250 mL aG	3030040	WSCF
	0940	Uranium iso (AEA), Cn (335.3), Anions (300.0) F, Cl, Br, NO2, NO3, PO4, SO4				101762
S0007-02	11/4/99	PCB's/Pesticides (8082/8081A)	Cool to 4°C	120 mL aG	3310020	WSCF
	0940					101762

JA 11-4-99

Sample Point: **CSB2-Cryptogams**Lead Sampler: **HOGAN, J.G.**Sample Matrix: **VEGETATION**

Sample ID	Date Collected: Time Collected	Analysis	Preservative(s)	Container	Lot #	Laboratory COC#
S0007-06	11/4/99	Gamma Energy Analysis (Lab Specific)	Cool to 4°C	Bag mL P	N/A	WSCF
	0940	Sr-90, Am-241, Pu-238, 239/240, Pu-241				101762
S0007-06	11/4/99	ICP-All Possible metals by 200.8	Cool to 4°C	Bag mL P	N/A	WSCF
	0940	Arsenic, Lead, Isotopic, Uranium, Mercury, PCB's/Pesticides (8082/8081A)				101762

JA 11-4-99

FOUR FORMS ATTACHED THIS PAGE

Continued on Page 87

Read and Understood By

JG HOGAN
Signed11-9-99
Date

Signed

Date

PROJECT SPENT NUCLEAR FUEL / RE-SAMPLE

Notebook No. WMI-SML-HZ7

87

Continued From Page

Sample Point: K9/10-soil

Lead Sampler: HOGAN, J.G.

Sample Matrix: SOIL

Sample ID	Date Collected: Time Collected	Analysis	Preservative(s)	Container	Lot #	Laboratory COC#
S0007-04	11/4/99	Gamma Energy Analysis (Lab Specific)	Cool to 4°C	500 mL P	N/A	WSCF
	1100	Sr-90, Am-241, AEA, Pu-238, -239, -240, Pu-241				101764
S0007-04	11/4/99	ICP-All Possible Metals by 200.8	Cool to 4°C	250 mL aG	3030040	WSCF
	1100	Uranium Iso (AEA), Cn (335.3), Anions (300.0) F, Cl, Br, NO2, NO3, PO4, SO4				101764
S0007-04	11/4/99	PCBs/Pesticides (8082/8081A)	Cool to 4°C	120 mL aG	3310020	WSCF
	1100					101764

Sample Point: K9/10-Cryptogams

Lead Sampler: HOGAN, J.G.

Sample Matrix: VEGETATION

Sample ID	Date Collected: Time Collected	Analysis	Preservative(s)	Container	Lot #	Laboratory COC#
S0007-08	11/4/99	Gamma Energy Analysis (Lab Specific)	Cool to 4°C	Bag mL P	N/A	WSCF
	1100	Sr-90, Am-241, Pu-238, 239/240, Pu-241				101764
S0007-08	11/4/99	ICP-All Possible metals by 200.8	Cool to 4°C	Bag mL P	N/A	WSCF
	1100	Arsenic, Lead, Isotopic Uranium, Mercury, PCBs/Pesticides (8082/8081A)				101764

Sample Point: K9/10-Vegetation

Lead Sampler: HOGAN, J.G.

Sample Matrix: VEGETATION

Sample ID	Date Collected: Time Collected	Analysis	Preservative(s)	Container	Lot #	Laboratory COC#
S0007-10	11/4/99	Gamma Energy Analysis (Lab Specific)	Cool to 4°C	Bag mL P	N/A	WSCF
	1110	Sr-90, Am-241, Pu-238, 239/240, Pu-241				101764
S0007-10	11/4/99	ICP-All Possible Metals by 200.8	Cool to 4°C	Bag mL P	N/A	WSCF
	1110	Arsenic, Lead, Isotopic Uranium, Mercury, PCBs/Pesticides (8082/8081A)				101764

THREE FORMS ATTACHED THIS PAGE

Continued on Page 88

Read and Understood By

JG HOGAN JG HOGAN
Signed

11-11-99

Date

Signed

Date

88

PROJECT SPENT NUCLEAR FUEL/RE-SAMPLENotebook No. 11M-SML-H27
Continued From Page 87

Sample Point: K11-Soil

Lead Sampler: HOGAN, J.G.

Sample Matrix: SOIL

Sample ID	Date Collected: Time Collected	Analysis	Preservative(s)	Container	Lot #	Laboratory COC#
S0007-03	11/4/99	Gamma Energy Analysis (Lab Specific)	Cool to 4°C	600 mL P	N/A	WSCF
	1030	Sr-90, Am-241, AEA, Pu-238, -239, -240, Pu-241				101763
S0007-03	11/4/99	ICP-All Possible Metals by 200.8	Cool to 4°C	250 mL aG	3030040	WSCF
	1030	Uranium iso (AEA), Cn (335.3), Anions (300.0) F, Cl, Br, NO ₂ , NO ₃ , PO ₄ , SO ₄				101763
S0007-03	11/4/99	PCB's/Pesticides (8082/8081A)	Cool to 4°C	120 mL aG	3310020	WSCF
	1030					101763

Sample Point: K11-Cryptogams

Lead Sampler: HOGAN, J.G.

Sample Matrix: VEGETATION

Sample ID	Date Collected: Time Collected	Analysis	Preservative(s)	Container	Lot #	Laboratory COC#
S0007-07	11/4/99	Gamma Energy Analysis (Lab Specific)	Cool to 4°C	Bag mL P	N/A	WSCF
	1030	Sr-90, Am-241, Pu-238, 239/240, Pu-241				101763
S0007-07	11/4/99	ICP-All Possible metals by 200.8	Cool to 4°C	Bag mL P	N/A	WSCF
	1030	Arsenic, lead, isotopic, Uranium, Mercury, PCB's/Pesticides (8082/8081A)				101763

Sample Point: K11-Vegetations

Lead Sampler: HOGAN, J.G.

Sample Matrix: VEGETATION

Sample ID	Date Collected: Time Collected	Analysis	Preservative(s)	Container	Lot #	Laboratory COC#
S0007-09	11/4/99	Gamma Energy Analysis (Lab Specific)	Cool to 4°C	Bag mL P	N/A	WSCF
	1040	Sr-90, Am-241, Pu-238, 239/240, Pu-241				101763
S0007-09	11/4/99	ICP-All Possible Metals by 200.8	Cool to 4°C	Bag mL P	N/A	WSCF
	1040	Arsenic, Lead, Isotopic Uranium, Mercury, PCBs/Pesticides (8082/8081A)				101763

THREE FORMS ATTACHED THIS PAGE

Continued on Page NCNE

Read and Understood By

JG HOGAN JG Hogan
Signed11-11-99
Date

Signed

Date

11/05/98 08:48 0509 3737113

6268 WSCF

6004

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# 101764	
Collector	JG Hagan	Contact/Responsible	MITCHELL, RONALD		Fed. No.	376-5122	MSRN HI-11 FAX
SAF Number	S0-007	Sample Origin	100K - SITE 9/10		Purchase Order/Charge Code	116789/CAYO	
Project Title	Spent Nuclear Fuels/Re-Sample	Logbook #	WM-SNL-H27		See Client #	SNL 15 Temp 4°C	
Shipped To (Lab)	WSCF	Method of Shipment	GOVT TENDR		Bill of Lading/Air Bill No.		
Principal RCRA	99001724	Date Transferred	4/20/98		Offsite Property No.		
Sample No.	Lab ID	Date	Time	Net Type Container	Sample Analysis	Preservative	
S0007-04	W77900127	8/14/98	1100	(1) 500 P	Chemical Energy Analysis (Lab Specimen), S-20, Am-241, ARA, Pu-238, 239, 240, Pu-241	Cool to 4°C	
S0007-04				(1) 250 AG	K20-All Possible Metals by 200.2, Uranium by (ARA), Ca (GIC), Selenium (200.9), Cl, Br, NO ₂ , NO ₃ , PO ₄ , SO ₄	Cool to 4°C	
S0007-04				(1) 120 AG	PC20-Organics (200.2001A)	Cool to 4°C	
S0007-08	W779001124			(1) Bag P	Chemical Energy Analysis (Lab Specimen), S-20, Am-241, Pu-238, 239, 240, Pu-241	Cool to 4°C	
S0007-08				(1) Bag P	K20-All Possible Metals by 200.2, Uranium by (ARA), Selenium (200.9), Cl, Br, NO ₂ , NO ₃ , PO ₄ , SO ₄	Cool to 4°C	
S0007-10	W779001127			(1) Bag P	Chemical Energy Analysis (Lab Specimen), S-20, Am-241, Pu-238, 239, 240, Pu-241	Cool to 4°C	
S0007-10				(1) Bag P	K20-All Possible Metals by 200.2, Uranium by (ARA), Selenium (200.9), Cl, Br, NO ₂ , NO ₃ , PO ₄ , SO ₄	Cool to 4°C	

Re-telecom by DM Southwick with
Client on 11/4/99. Delete 200.2 JSU h.
Leave 150 u by ARA. DM. Southwick

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# 101764	
Collector	JG Hagan	Contact/Responsible	MITCHELL, RONALD		Fed. No.	376-5122	MSRN HI-11 FAX
SAF Number	S0-007	Sample Origin	100K - SITE 9/10		Purchase Order/Charge Code	116789/CAYO	
Project Title	Spent Nuclear Fuels/Re-Sample	Logbook #	WM-SNL-H27		See Client #	SNL 15 Temp 4°C	
Shipped To (Lab)	WSCF	Method of Shipment	GOVT TENDR		Bill of Lading/Air Bill No.		
Principal RCRA	99001724	Date Transferred	4/20/98		Offsite Property No.		
Sample No.	Lab ID	Date	Time	Net Type Container	Sample Analysis	Preservative	
S0007-04	W77900127	8/14/98	1100	(1) 500 P	Chemical Energy Analysis (Lab Specimen), S-20, Am-241, ARA, Pu-238, 239, 240, Pu-241	Cool to 4°C	
S0007-04				(1) 250 AG	K20-All Possible Metals by 200.2, Uranium by (ARA), Ca (GIC), Selenium (200.9), Cl, Br, NO ₂ , NO ₃ , PO ₄ , SO ₄	Cool to 4°C	
S0007-04				(1) 120 AG	PC20-Organics (200.2001A)	Cool to 4°C	
S0007-08	W779001124			(1) Bag P	Chemical Energy Analysis (Lab Specimen), S-20, Am-241, Pu-238, 239, 240, Pu-241	Cool to 4°C	
S0007-08				(1) Bag P	K20-All Possible Metals by 200.2, Uranium by (ARA), Selenium (200.9), Cl, Br, NO ₂ , NO ₃ , PO ₄ , SO ₄	Cool to 4°C	
S0007-10	W779001127			(1) Bag P	Chemical Energy Analysis (Lab Specimen), S-20, Am-241, Pu-238, 239, 240, Pu-241	Cool to 4°C	
S0007-10				(1) Bag P	K20-All Possible Metals by 200.2, Uranium by (ARA), Selenium (200.9), Cl, Br, NO ₂ , NO ₃ , PO ₄ , SO ₄	Cool to 4°C	

Re-telecom by DM Southwick with
Client on 11/4/99. Delete 200.2 JSU h.
Leave 150 u by ARA. DM. Southwick

11/08/99 08:44

02509 3737113

6266 WSCF

6001

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				COG# 101761
Collector	J.G. HOGAN					Page 1 of 1
SAP Number	S0-007					Ref. No. 376-5122 M80N HJ-11 FAX
Project Title	Spent Nuclear Fuels/Ro-Sample					Purchase Order/Charge Code 105650/CA40
Shipped To (Lab)	WSCF					See Chart # SML15 Test 4°C
Protocol	RCRA 99001721					Bill of Lading/Air Bill No.
Sample No.	Lab. ID	Date	Time	No. Type Container	Sample Analysis	Preservative
S0007-01	699001721	9-4-99	0710	(1) 500 P	Chemical Energy Analysis (Lab Specimen), 2-40, Am-241, ARA, 2-250-255, 3-04, P-241	Cool to 4°C
S0007-01				(1) 250 AG	ICP-MS Possible Metals by 200.2, Uranium by (ARA), Cu (ELI3), Arsenic (200.0) P, Cl, Br, NO2, NO3, PO4, SO4	Cool to 4°C
S0007-01				(1) 120 AG	PCV Substances (200.2/200.1A)	Cool to 4°C
S0007-05	6990001720			(1) Bag P	Chemical Energy Analysis (Lab Specimen), 2-40, Am-241, P-250, 250/240, P-241	Cool to 4°C
S0007-05				(1) Bag P	ICP-MS Possible metals by 200.2, Arsenic (200.0) P, Arsenic (200.0) P, PCV Substances (200.2/200.1A)	Cool to 4°C

Per telecon by D.M. Sauterick with
client on 11/14/99, Delete 200.8 ISOH.
Leave ISOH by ARA.

D.M. Sauterick

11/14/99

POSSIBLE SAMPLE HAZARD/REMARKS		REDS	Yes	No	SPECIAL INSTRUCTIONS	Hold Time
Submitted By	Print	Sign	Date/Time	Sign	Date/Time	Matrix
Submitted By	J.G. Hogan	11/4/99	13:00	John Piers	11/4/99 13:00	S - Soil SS - Sediment SD - Solid SL - Sludge W - Water O - Oil A - Air DS - Dross Solids LX - Dross Liquid Y - Yttrium WT - Wt L - Liquid V - Vegetation X - Other
Submitted By						
Submitted By						
FINAL SAMPLE DISPOSITION Disposal Method: e.g. Return to customer, per lab procedure, used in process. Disposed By: _____ Date/Time: _____						

All samples containing hazardous materials shall be picked up by requester and returned to parent container or site of origin.

A-6001-500 (07/96)

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				COCS 101763	
Collector	HOGAN, J.G.	Contract/Supervisor	MITCHELL, RONALD		Tel. No.	376-5122	MSRN HI-11 FAX
SAF Number	S0-087	Sample Origin	18-K SITE 11		Purchase Order/Charge Code	106789/CA40	
Project Title	Spec No. 2008 Fuel/Re-Sample	Logbook #	WPM-SML-427		Site Chart #	SML15	
Shipped To (Lab)	WSP	Method of Shipment	GOUT: TRUCK		Bill of Lading/Air Bill No.		
Protocol RCRA	9900723	Date Transmitted	40 DAYS		Outside Property No.		
Sample No.	Lab ID	Date	Time	No/Type Container	Sample Analysis	Preservative	
S0007-03	WPM00124	11-14-94	1030	(1) 500 P	Quant Energy Analysis (Lab Specimen), S-90, Am-241, AEA, P-238, 239, 240, P-241	Cool to 4°C	
S0007-03				(1) 250 AG	ICP-All Possible Metals by 200.3, Uranium Ion (AEA), Cs (213), Arsenic (200.9) P, Cl, Br, KCl, NaCl, PO4, NO3	Cool to 4°C	
S0007-03				(1) 120 AG	ICP-Previdides (8821001A)	Cool to 4°C	
S0007-07	WPM00125			(1) Bag P	Quant Energy Analysis (Lab Specimen), S-90, Am-241, P-238, 239, 240, P-241	Cool to 4°C	
S0007-07				(1) Bag P	ICP-All Possible Metals by 200.3, Arsenic, End Isotope, Uranium, Manganese, P-238, 239, 240, P-241	Cool to 4°C	
S0007-09	WPM00126			(1) Bag P	Quant Energy Analysis (Lab Specimen), S-90, Am-241, P-238, 239, 240, P-241	Cool to 4°C	
S0007-09				(1) Bag P	ICP-All Possible Metals by 200.3, Arsenic, Lead, Isotope, Uranium, Manganese, P-238, 239, 240, P-241	Cool to 4°C	

Per telecon by D.M. Sacknick with client on 11/14/94, Delete 200.8 utso. Leave ISO 4 by AEA. D.M. Sacknick

POSSIBLE SAMPLE HANDLING REMARKS		MSDS		Yes		No		SPECIAL INSTRUCTIONS		Hold Time	
Subsampled By	Date	Signature	Date/Time	Subsampled By	Date/Time	Subsampled By	Date/Time	Subsampled By	Date/Time	Subsampled By	Date/Time
J. G. Hogan	11-14-94	13:00	11-14-94	13:00	11-14-94	13:00	11-14-94	13:00	11-14-94	13:00	11-14-94
Subsampled By	Date	Signature	Date/Time	Subsampled By	Date/Time	Subsampled By	Date/Time	Subsampled By	Date/Time	Subsampled By	Date/Time
Subsampled By	Date	Signature	Date/Time	Subsampled By	Date/Time	Subsampled By	Date/Time	Subsampled By	Date/Time	Subsampled By	Date/Time
<p>FINAL SAMPLE DISPOSITION</p> <p>Disposal Method: e.g. Route to customer, per lab procedure, used in process.</p> <p>Disposed By: _____ Date/Time: _____</p>											

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-0007-000 (07/92)

11/05/99 08:45 11/05/99 08:45

0200 WSCF

0002

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		COC# 101762	
Collector	J. G. HOGAN	Contact/Requester	MITCHELL, RONALD	Ref. No.	376-5122 MSIN HI-11 FAX
SAF Number	S0-007	Sample Origin	CSB - SITE 2	Purchase Order/Charge Code	105650/CA40
Project Title	Spent Nuclear Fuels/Re-Sample	Employee #	WM-2ML-H27	Kit Count #	5ML15
Shipped To (Lab)	WSCF	Method of Shipment	NOVT. TRUCK	Bill of Lading/Air Bill No.	
Protocol	RCRA	Date Transferred	18 DAYS	Offsite Property No.	
Sample No.	Lab. ID	Date	Time	No/Type Container	Sample Analysis
S0007-02	W97001122	S	11-5-99 0740	(1) 500 P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, ASX, Pu-238/239, -240, Pu-241
S0007-02		S	1	(1) 250 AG	KCP-All Possible Metals by 200.1, Uranium by (ASX), G. (235,3), Actinium (200.0) P, Cl, Br, NO2, NO3, PO4, SO4
S0007-02		S	1	(1) 120 AG	PCP-Substances (200.2/200.1A)
S0007-06	W97001123	V	1	(1) Bag P	Gamma Energy Analysis (Lab Specific), Sr-90, Am-241, Pu-238, 238/240, Pu-241
S0007-06		V	1	(1) Bag P	KCP-All Possible metals by 200.1, Actinoid, Lead, Uranium, Radium, Mercury, PCB-Substances (200.2/200.1A)
					Preservative
					Cool to 4°C
					Cool to 4°C
					Cool to 4°C
					Cool to 4°C

Per telex by D.M. Sawchuk with
client on 11/4/99 Delete 200.8 ISO4.
Leave ISO 4 by AEA.

D.M. Sawchuk

POSSIBLE SAMPLE HAZARDS/REMARKS		MSDS Yes ☐ No ☐		SPECIAL INSTRUCTIONS		Hold Time	
List all known wastes.							
Requested By	J. G. HOGAN	Date/Time	11-4-99 1330	By	Vicki Smith	Date/Time	11/4/99 1330
Relinquished By		Date/Time		Received By		Date/Time	
Relinquished By		Date/Time		Received By		Date/Time	
Relinquished By		Date/Time		Received By		Date/Time	
FINAL SAMPLE DEPOSITION		Disposal Method e.g. Return to customer, per lab procedure, used in process.		Disposed By		Date/Time	
All samples containing hazardous materials shall be picked up by requester and returned to parent container or site of origin.							

74

PROJECT SOIL ANALYSIS FOR EM + INotebook No. WM-SAWS-H32Continued From Page NONESAF# R100-0282-24-00CHARGE CODE: 106789WORK DONE TO RCRA PROTOCOLLOCATION: 100 K AREAPERSONNEL: JG HOGAN
RM MITCHELLSAMPLER
CUSTOMER 376-5122 H1-11PURPOSE: TO SET A PRE-OPERATIONAL ENVIRONMENTAL BASELINE FOR
THE COLD VACUUM STORAGE FACILITY BEING BUILT AT 100-K.PPE: BLUES, SAFETY GLASSES, SURGEONS GLOVES, HARD HATWEATHER: CLEAR, CALM 45°SAMPLE EVENT: DUE TO SOME ANOMALIES IN THE ANALYSIS OF THE
SAMPLES COLLECTED ON 11/4/99 (SEE LOGBOOK WM-SML-H27), NEW
SAMPLES WERE COLLECTED FROM THE EASTERN SIDE OF THE 100-K
AREA. A DUPLICATE SOIL SAMPLE AND AN EQUIPMENT BLANK OF CLEAN
SILICA SAND WAS COLLECTED. THE EQUIPMENT BLANK WAS COLLECTED
NEAR SITE #11 WHILE THE SOIL SAMPLES WAS COLLECTED AT SITE #7
(SEE MAP ON PAGE 78 OF THIS LOGBOOK.)SAMPLE METHOD: THE EQUIPMENT BLANK WAS COLLECTED BY POURING
CLEAN SILICA SAND OVER THE SAMPLE EQUIPMENT WHICH WAS GOING
TO BE USED TO COLLECT THE SOIL SAMPLES. THE SAND WAS THEN
TRANSFERRED TO VENDOR CLEANED SAMPLE CONTAINERS AND THE
SAMPLE EQUIPMENT WAS RE-WRAPPED FOR FURTHER USE. THE SOIL
SAMPLE WAS COLLECTED BY USING A STAINLESS STEEL SPOON
TO SCOOP THE TOP ONE INCH OF SOIL FROM THE SELECTED AREA.
THE SOIL WAS MIXED IN A LARGE S/S BOWL TO ENSURE HOMOGENEITY
AND THEN TRANSFERRED TO VENDOR CLEANED SAMPLE CONTAINERS.
TWO SETS OF IDENTICAL SAMPLES WERE COLLECTED FOR THE
EVALUATION OF THE LABORATORY'S PERFORMANCE BY BEING ABLE
TO COMPARE THE ANALYTICAL RESULTS. ALL SAMPLE EQUIPMENT WAS
CLEANED PER ES-SSPM-001 SP 2-5Continued on Page 75

JG HOGAN

Signed

2-25-00

Date

Read and Understood By

Signed

Date

PROJECT SOIL ANALYSIS FOR EM+INotebook No. WM-SAWS-H32-75
Continued From Page 74TRANSPORTATION: SAMPLES WERE EVIDENCE TAPED, PACKED ON WET ICE IN A POLY COOLER AND SHIPPED TO THE WSCF LAB IN THE 600 AREA.

JA 2-25-00 # R100-028 Project Name: Soil Analysis for EM & I

Field Screening Results:

Date: 2-24-00Sample Point: 100 K / SITE # 7Lead Sampler: HOGAN, J.G.Sample Matrix: SOIL

Sample ID / Cust ID	Blank / T/F/E	Analysis / Parameters	Preservative(s)	Container	Serial # / Lot #	Date / Time	EW/R	COC#	Laboratory	IC #
KON4V7	N/A	EPA200.8	Cool to 4°C	250 mL aG	5010030	2/24/00 0830		R100-028-1	WSCF	
			/ IC Anions(EPA 300.0), Cyanide(EPA 335.2)							
KON4V7	N/A	Gamma Spectroscopy (GAMMA)	Cool to 4°C	500 mL P	N/A	2/24/00 0830		R100-028-1	WSCF	
			/ Americium-241(AM241), Plutonium-241(PU241), Isotopic Plutonium(PUAEA), Strontium-90(SR90), Isotopic Uranium(UAEA)							
KON4V8	N/A	EPA200.8	Cool to 4°C	250 mL aG	5010030	2/24/00 0830		R100-028-1	WSCF	
			/ IC Anions(EPA 300.0), Cyanide(EPA 335.2)							
KON4V8	N/A	Gamma Spectroscopy (GAMMA)	Cool to 4°C	500 mL P	N/A	2/24/00 0830		R100-028-1	WSCF	
			/ Americium-241(AM241), Plutonium-241(PU241), Isotopic Plutonium(PUAEA), Strontium-90(SR90), Isotopic Uranium(UAEA)							
KON4V9	EQUIP BLANK	EPA200.8	Cool to 4°C	250 mL aG	5010030	2/24/00 0810		R100-028-1	WSCF	
			/ IC Anions(EPA 300.0), Cyanide(EPA 335.2)							
KON4V9	EQUIP BLANK	Gamma Spectroscopy (GAMMA)	Cool to 4°C	500 mL P	N/A	2/24/00 0810		R100-028-1	WSCF	
			/ Americium-241(AM241), Plutonium-241(PU241), Isotopic Plutonium(PUAEA), Strontium-90(SR90), Isotopic Uranium(UAEA)

NOTE: ONE FORM, ONE PHOTO
ATTACHED THIS PAGE0900
2-24-00
J. Hogan
SOIL ANALYSIS FOR EM+I
SAF# R100-028
SITE #7 LOOKING WESTContinued on Page 78

JG HOGAN

Signed

2-25-00

Date

Read and Understood By

Signed

Date

76

PROJECT VEGETATION ANALYSIS FOR EM+INotebook No. WM-SANS-H32Continued From Page NONESAF # R100-029

2-24-00

CHARGE CODE: 105650

WORK DONE TO RCRA PROTOCOL

LOCATION: 100-K AREAPERSONNEL: JG HOGAN
RM MITCHELLSAMPLER
CUSTOMER 376-5122 H1-11PURPOSE: TO SET A PRE-OPERATIONAL ENVIRONMENTAL BASELINE FOR THE COLD VACUUM STORAGE FACILITY BEING BUILT AT 100-KPPE: BLUES, SAFETY GLASSES, SURGEONS GLOVES, HARD HATWEATHER: CLEAR, CALM 48°SAMPLE EVENT: DUE TO SOME ANOMALIES IN THE ANALYSIS OF THE SAMPLES COLLECTED ON 11/4/99 (SEE LOGBOOK WM-SML-H27) NEW VEGETATION SAMPLES WERE COLLECTED FROM THE WESTERN SIDE OF THE 100-K AREA. A DUPLICATE SAMPLE OF THE SAGEBRUSH WAS COLLECTED FROM SITE #5 (SEE MAP ON PAGE 78 OF THIS LOGBOOK).SAMPLE METHOD: SAMPLES WERE COLLECTED BY SNIPPING PIECES OF THE SAGEBRUSH WITH CLEAN STAINLESS STEEL SCISSORS AND COMPOSITING THEM IN A LARGE CLEAN PLASTIC BAG. AFTER SUFFICIENT VOLUME WAS COLLECTED, THE SAGEBRUSH WAS HOMOGENIZED AND THEN TWO IDENTICAL SAMPLE SETS WERE COLLECTED IN CLEAN FREEZER BAGS FOR THE EVALUATION OF THE LABORATORY'S PERFORMANCE BY BEING ABLE TO COMPARE THE ANALYTICAL RESULTS. ALL SAMPLE EQUIPMENT WAS CLEANED PER ES-SSPM-001 SP 2-5.TRANSPORTATION: SAMPLES WERE EVIDENCE TAPED, PLACED ON WET ICE IN A POLY COOLER AND SHIPPED TO WSCF LAB IN THE 600 AREA.Continued on Page 77

JG HOGAN

Signed

2-25-00

Date

Read and Understood By

Signed

Date

PROJECT VEGETATION ANALYSIS FOR EM & INotebook No. WM-SAWS-H 32 77
Continued From Page 76SAP # R100-029 Project Name: Vegetation Analysis for EM & I

Field Screening Results:

Date: 2-24-00
Lead Sampler: HOGAN, J.G.Sample Point: 100 K / SITE # 5
Sample Matrix: VEGETATION

Sample ID / Cust ID	Blank	Analysis	Preservative(s)	Container	Serial # / Lot #	Date / Time	EMR	COC#	Laboratory	IC #
KON4VS	N/A	EPA200.8	Cool to 4°C	mL		2/24/00				
			Cyanide (Total) EPA335.2		N/A	0950		R100-029-1	WSCF	
KON4VS	N/A	Gamma Spectroscopy (GAMMA)	Cool to 4°C	mL		2/24/00				
			Americium-241 (AM241), Plutonium-241 (PU241), Isotopic Plutonium (PUAEA), Strontium-90 (SR90), Isotopic Uranium (UAEA)		N/A	0950		R100-029-1	WSCF	
KON4VE	N/A	EPA200.8	Cool to 4°C	mL		2/24/00				
			Cyanide (Total) EPA335.2		N/A	0950		R100-029-1	WSCF	
KON4VE	N/A	Gamma Spectroscopy (GAMMA)	Cool to 4°C	mL		2/24/00				
			Americium-241 (AM241), Plutonium-241 (PU241), Isotopic Plutonium (PUAEA), Strontium-90 (SR90), Isotopic Uranium (UAEA)		N/A	0950		R100-029-1	WSCF

NOTE: ONE FORM, ONE PHOTO
ATTACHED THIS PAGE.1000
2-24-00
JG Hogan
VEGETATION ANALYSIS FOR EM & I
SAP # R100-029
SITE # 5
LOOKING EAST

BEST AVAILABLE COPY

Continued on Page 78

JG HOGAN

JG Hogan
Signed

2-25-00

Date

Read and Understood By

Signed

Date

78

PROJECT SOIL/VEGETATION SAMPLES FOR EM+I

Notebook No. WM-SANS-H32
Continued From Page 74/77

NOTE: ONE MAP ATTACHED THIS PAGE

Continued on Page NONE

JG HOGAN

JG Hogan
Signed

2-25-00
Date

Read and Understood By

Signed

Date

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# K100-028-1	
Collector HOGAN, J.G.	Contact/Requestor MITCHELL, RONALD	Ref. No. 376-5122	MSIN H-1-1	FAX	Page	of	
SAF Number R100-028	Sample Origin 100 K AREA	Purchase Order/Charge Code 106789	CA 40-5				
Project Title Soil Analysis for EM & I	Logbook # WM-SAWS-H32	Ice Chest #	Temp.				
Shipped To (Lab) WSCF	Method of Shipment GOUT TRUCK	Bill of Lading/Air Bill No. N/A					
Protocol RCRA	Data Turnaround 45 DAYS	Offsite Property No. N/A					
Sample No.	Lab. ID	* Date	Time	No/Type Container	Simple Analysis	Preservative	
KON4V7		S 2-24-00	0830	(1) 250 aG	EPA200.8, IC Aqueous (EPA 300.0), Cyanide (EPA 332.2)	Cool to 4°C	
KON4V7		S 2-24-00	0830	(1) 500 P	Gamma Spectroscopy (GAMMA), Americium-241 (AM241), Isotopic Plutonium (PUAEA), Strontium-90 (SR90), Isotopic Uranium (UAEA)	Cool to 4°C	
KON4V8		S 2-24-00	0830	(1) 250 aG	EPA200.8, IC Aqueous (EPA 300.0), Cyanide (EPA 332.2)	Cool to 4°C	
KON4V8		S 2-24-00	0830	(1) 500 P	Gamma Spectroscopy (GAMMA), Americium-241 (AM241), Isotopic Plutonium (PUAEA), Strontium-90 (SR90), Isotopic Uranium (UAEA)	Cool to 4°C	
KON4V9		S 2-24-00	0810	(1) 250 aG	EPA200.8, IC Aqueous (EPA 300.0), Cyanide (EPA 332.2)	Cool to 4°C	
KON4V9		S 2-24-00	0810	(1) 500 P	Gamma Spectroscopy (GAMMA), Americium-241 (AM241), Isotopic Plutonium (PUAEA), Strontium-90 (SR90), Isotopic Uranium (UAEA)	Cool to 4°C	

POSSIBLE SAMPLE HAZARDS/REMARKS		MSDS		Yes ☐ No ☐		SPECIAL INSTRUCTIONS		Hold Time	
List all known wastes.									
Relinquished By J. Hogan	Print	Sign	Date/Time 2-24-00/1330	Received By J. Hogan	Print	Sign	Date/Time 2/24/00	Received By J. Hogan	Print
Relinquished By			Date/Time	Received By			Date/Time	Received By	
Relinquished By			Date/Time	Received By			Date/Time	Received By	
Relinquished By			Date/Time	Received By			Date/Time	Received By	
FINAL SAMPLE DISPOSITION		Disposal Method e.g. Return to customer, per lab procedure, used in process.		Disposed By		Date/Time		Date/Time	
All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.									

A-8001-500 (07/95)

Waste Management Northwest		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# K100-029-1	
Collector	HOGAN, J.G.	Contact/Requestor	MITCHELL, RONALD		Tel. No.	376-3122	MSIN HI-11 FAX
SAP Number	R100-029	Sample Origin	100 K AREA		Purchase Order/Charge Code	105650/Ca 40-5	
Project Title	Vegetation Analysis for EM & I	Logbook #	WM-SANS - H37		Ice Chest #	Temp.	
Shipped To (Lab)	WSCF	Method of Shipment	CAPUT. TRUCK		Bill of Lading/Air Bill No.	N/A	
Protocol	KCRA	Date Turnaround	45 DAYS		Offsite Property No.	N/A	
Sample No.	Lab. ID	#	Date	Time	Not Type Container	Sample Analysis	Preservative
KONV5		V	2-24-00	1150	(1) 1 GAL BAG	EPA200.8, Cymide (Total) EPA335.2	Cool to 4°C
KONV5		V	2-24-00	0750	(1) 1 GAL BAG	Gamma Spectroscopy (GAMMA), Americium-241 (AM241), Plutonium-241 (PU241), Isotopic Plutonium (PUA), Surrogate-90 (SR90), Isotopic Uranium (UA), EPA200.8, Cymide (Total) EPA335.2	Cool to 4°C
KONV6		V	2-24-00	1150	(1) 1 GAL BAG	4039	Cool to 4°C
KONV6		V	2-24-00	1150	(1) 1 GAL BAG	Gamma Spectroscopy (GAMMA), Americium-241 (AM241), Plutonium-241 (PU241), Isotopic Plutonium (PUA), Surrogate-90 (SR90), Isotopic Uranium (UA), EPA200.8, Cymide (Total) EPA335.2	Cool to 4°C

POSSIBLE SAMPLE HAZARDS/REMARKS		MSDS		Yes		No		SPECIAL INSTRUCTIONS		Hold Time	
List all known wastes.								For copy of sample receipt and Chain of Custody to Sandy Wells within 24 hours of sample receipt. For Summary report (LABCORE report with attached QC) to Sandy Wells and Ron Mitchell within 45 days of sample receipt.			
Relinquished By	Print	Signature	Date/Time	Received By	Print	Signature	Date/Time	Received By	Print	Signature	Date/Time
Relinquished By	J. G. Hogan	2-24-00	1330	Received By	R. Mitchell	2-24-00	1330	Received By			
Relinquished By				Received By				Received By			
Relinquished By				Received By				Received By			
FINAL SAMPLE DISPOSITION		Disposal Method e.g. Return to customer, per lab procedure, used in process.		Disposed By		Date/Time					
All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.											

A-6001-500 (07/95)

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APPENDIX C
LABORATORY ANALYTICAL DATA

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**WSCF
ANALYTICAL LABORATORY REPORT**

for

Waste Management Northwest
H1-13

Richland WA 99352

Attention: Ron Mitchell H1-13/FX 6-1435

Report#: 99000789
Report Date: 18-aug-1999
Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Project Number			Ron Mitchell H1-13/FX 6-1435 EM&I :Environmental Monitoring			Group #: 99000789					
Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000489	S9015-01	Arsenic by ICP-MS	SOLID	EPA 200.8	J	2.1	ug/g	0.24	06/28/99	05/18/99	05/20/99
W990000489	S9015-01	Cyanide by Niki/FA	SOLID	LA-695-410	U	0.0	mg/kg	0.10	06/04/99	05/18/99	05/20/99
W990000489	S9015-01	Lead by ICP-MS	SOLID	EPA 200.8	8	5.9	ug/g	0.24	06/29/99	05/18/99	05/20/99
W990000489	S9015-01	Mercury by ICP-MS	SOLID	EPA 200.8	U	< 0.24	ug/g	0.24	06/29/99	05/18/99	05/20/99
W990000489	S9015-01	Am-241 by AEA	SOLID	LA-508-472		3.7e-02	pCi/g	0.02	07/16/99	05/18/99	05/20/99
W990000489	S9015-01	Am-241 by AEA Total Ctrg Error	SOLID	LA-508-472		63.	%	0.00	07/16/99	05/18/99	05/20/99
W990000489	S9015-01	Bromide (Br) by IC	SOLID	EPA 300.0	U	< 0.6	ug/g	0.59	06/16/99	05/18/99	05/20/99
W990000489	S9015-01	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.8	ug/g	0.11	06/16/99	05/18/99	05/20/99
W990000489	S9015-01	Fluoride (F) by IC	SOLID	EPA 300.0	J	0.8	ug/g	0.10	06/16/99	05/18/99	05/20/99
W990000489	S9015-01	Nitrate (N) by IC	SOLID	EPA 300.0		3.08	ug/g	0.18	06/16/99	05/18/99	05/20/99
W990000489	S9015-01	Nitrite (NI) by IC	SOLID	EPA 300.0	U	< 0.4	ug/g	0.39	06/16/99	05/18/99	05/20/99
W990000489	S9015-01	Phosphate (P) by IC	SOLID	EPA 300.0	U	< 0.6	ug/g	0.57	06/16/99	05/18/99	05/20/99
W990000489	S9015-01	Sulfate (SO4) by IC	SOLID	EPA 300.0	J	4	ug/g	1.03	06/16/99	05/18/99	05/20/99
W990000489	S9015-01	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		303.	%	0.00	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Ce-144 by GEA	SOLID	LA-508-462	U	-2.84e-02	pCi/g	0.14	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Ce-144 Rel. % Count Error	SOLID	LA-508-462		303.	%	0.00	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Ce-144 by GEA	SOLID	LA-508-462	U	-5.69e-02	pCi/g	0.28	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		466.	%	0.00	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Co-60 by GEA	SOLID	LA-508-462	U	2.08e-03	pCi/g	0.02	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		44.3	%	0.00	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Ce-134 by GEA	SOLID	LA-508-462		2.03e-02	pCi/g	0.02	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		20.6	%	0.00	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Ce-137 by GEA	SOLID	LA-508-462		1.27e-01	pCi/g	0.02	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Eu-152 by GEA	SOLID	LA-508-462	U	1.35e-03	pCi/g	0.05	06/24/99	05/18/99	05/20/99
W990000489	S9015-01	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/24/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

B - The analyte was detected in the associated method blank

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

* Indicates results that have NOT been validated.

Report W0004/ver. 3

Waste Management Northwest

D - Compound concentration resulted from a dilution.

J - Estimated value.

U - The analyte was analyzed for but not detected.

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435
Project Number EM&I Environmental Monitoring Group #: 99000789

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000489	S9015-01	Eu-154 by GEA	SOLID	LA-508-462	U	-2.16e-03	pCi/g	0.06	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		129.	%	0.00	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Eu-155 by GEA	SOLID	LA-508-462	U	3.72e-02	pCi/g	0.08	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		343.	%	0.00	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Nb-94 by GEA	SOLID	LA-508-462	U	2.91e-03	pCi/g	0.02	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		189.	%	0.00	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Ru-103 by GEA	SOLID	LA-508-462	U	-5.49e-03	pCi/g	0.02	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		696.	%	0.00	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Ru-106 by GEA	SOLID	LA-508-462	U	-1.31e-02	pCi/g	0.15	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000.	%	0.00	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Sb-125 by GEA	SOLID	LA-508-462	U	-1.80e-03	pCi/g	0.06	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		441.	%	0.00	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Sn-113 by GEA	SOLID	LA-508-462	U	-2.99e-03	pCi/g	0.02	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		112.	%	0.00	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Zn-65 by GEA	SOLID	LA-508-462	U	2.44e-02	pCi/g	0.03	05/24/99	05/18/99	05/20/99
W990000489	S9015-01	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.02	07/06/99	05/18/99	05/20/99
W990000489	S9015-01	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000489	S9015-01	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000489	S9015-01	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000489	S9015-01	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000489	S9015-01	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Aldrin	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

8 - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Revirt WMD/ver 3

D - Compound concentration resulted from a dilution.

J - Estimated value.

Z - See Comments.

U - The analyte was analyzed for but not detected.

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring
Group #: 99000789

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000489	S9015-01	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Endrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	gamma-BHC (lindane)	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000489	S9015-01	Pu-238 by AEA	SOLID	LA-508-472	U	-1.3e-02	pCi/g	0.06	06/04/99	05/18/99	05/20/99
W990000489	S9015-01	Pu-238 by AEA Total Cntg Err	SOLID	LA-508-472		240	%	0.00	06/04/99	05/18/99	05/20/99
W990000489	S9015-01	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		85	%	0.00	06/04/99	05/18/99	05/20/99
W990000489	S9015-01	Pu-239/240 by AEA	SOLID	LA-508-472		1.5e-02	pCi/g	0.01	06/04/99	05/18/99	05/20/99
W990000489	S9015-01	Sr-90 Rel % Count Error	SOLID	LA-220-403		25	%	0.00	06/23/99	05/18/99	05/20/99
W990000489	S9015-01	U-234 by Beta Counting	SOLID	LA-220-403		1.4	pCi/g	0.30	06/23/99	05/18/99	05/20/99
W990000489	S9015-01	U-234 by AEA	SOLID	LA-508-472		1.7e-01	pCi/g	4.70e-003	06/03/99	05/18/99	05/20/99
W990000489	S9015-01	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		37	%	0.00	06/03/99	05/18/99	05/20/99
W990000489	S9015-01	U-235 by AEA	SOLID	LA-508-472		2.1e-02	pCi/g	5.10e-003	06/03/99	05/18/99	05/20/99
W990000489	S9015-01	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		68	%	0.00	06/03/99	05/18/99	05/20/99
W990000489	S9015-01	U-238 by AEA	SOLID	LA-508-472		2.3e-01	pCi/g	4.70e-003	06/03/99	05/18/99	05/20/99

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J - Estimated value
Z - See Comments
U - The analyte was analyzed for but not detected

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
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Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000789
 Project Number EM&I Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000488	S9015-01	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		35.	%	0.10	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Arsenic by ICP-MS	SOLID	EPA 200.8		2.16	ug/g	0.35	07/13/99	05/18/99	05/20/99
W990000490	S9015-02	Cyanide by MedifIA	SOLID	LA-695-410		0.52	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W990000490	S9015-02	Lead by ICP-MS	SOLID	EPA 200.8		6.47	ug/g	8.87e-003	07/13/99	05/18/99	05/20/99
W990000490	S9015-02	Mercury by ICP-MS	SOLID	EPA 200.8	J	0.08	ug/g	0.07	07/13/99	05/18/99	05/20/99
W990000490	S9015-02	Am-241 by AEA	SOLID	LA-508-472		3.8e-02	pCi/g	0.02	06/28/99	05/18/99	05/20/99
W990000490	S9015-02	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		54.	%	0.00	06/28/99	05/18/99	05/20/99
W990000490	S9015-02	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		228	%	0.00	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Ce-144 by GEA	SOLID	LA-508-462	U	-4.88e-02	pCi/g	0.16	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	CaPr-144 Rel. % Count Error	SOLID	LA-508-462		228	%	0.00	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	CaPr-144 by GEA	SOLID	LA-508-462	U	-9.76e-02	pCi/g	0.32	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		894.	%	0.00	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Co-60 by GEA	SOLID	LA-508-462	U	1.74e-03	pCi/g	0.02	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		80.4	%	0.00	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Ce-134 by GEA	SOLID	LA-508-462	U	2.18e-02	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		14.7	%	0.00	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Ce-137 by GEA	SOLID	LA-508-462		7.52e-01	pCi/g	0.02	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Eu-152 by GEA	SOLID	LA-508-462	U	-1.37e-03	pCi/g	0.07	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		100.	%	0.00	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Eu-154 by GEA	SOLID	LA-508-462	U	-4.42e-02	pCi/g	0.07	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		390.	%	0.00	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Eu-155 by GEA	SOLID	LA-508-462	U	1.95e-02	pCi/g	0.08	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		879.	%	0.00	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Nb-94 by GEA	SOLID	LA-508-462	U	1.51e-03	pCi/g	0.02	06/03/99	05/18/99	05/20/99
W990000490	S9015-02	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/03/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring

Group #: 99000789

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000490	S9015-02	Ru-103 by GEA	SOLID	LA-508-462	U	5.89e-04	pCi/g	0.02	06/03/99	05/18/99	05/20/99
W9900000490	S9015-02	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	280.	%	0.00	06/03/99	05/18/99	05/20/99
W9900000490	S9015-02	Ru-106 by GEA	SOLID	LA-508-462	U	4.39e-02	pCi/g	0.21	06/03/99	05/18/99	05/20/99
W9900000490	S9015-02	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	470.	%	0.00	06/03/99	05/18/99	05/20/99
W9900000490	S9015-02	Sb-125 by GEA	SOLID	LA-508-462	U	-7.83e-03	pCi/g	0.06	06/03/99	05/18/99	05/20/99
W9900000490	S9015-02	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	176.	%	0.00	06/03/99	05/18/99	05/20/99
W9900000490	S9015-02	Sn-113 by GEA	SOLID	LA-508-462	U	-1.03e-02	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W9900000490	S9015-02	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	545.	%	0.00	06/03/99	05/18/99	05/20/99
W9900000490	S9015-02	Zn-65 by GEA	SOLID	LA-508-462	U	6.12e-03	pCi/g	0.05	06/03/99	05/18/99	05/20/99
W9900000490	S9015-02	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/13/99	05/18/99	05/20/99
W9900000490	S9015-02	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000490	S9015-02	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000490	S9015-02	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000490	S9015-02	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000490	S9015-02	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Aldrin	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Endrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99

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Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I :Environmental Monitoring Group #: 99000789

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000490	S9015-02	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	gamma-BHC (lindane)	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000490	S9015-02	Pu-238 by AEA	SOLID	EPA 8081	U	1.2e-01	pCi/g	0.01	06/28/99	05/18/99	05/20/99
W9900000490	S9015-02	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		36.	%	0.00	06/28/99	05/18/99	05/20/99
W9900000490	S9015-02	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		42.	%	0.00	06/28/99	05/18/99	05/20/99
W9900000490	S9015-02	Pu-239/240 by AEA	SOLID	LA-508-472		4.3e-02	pCi/g	2.50e-003	06/28/99	05/18/99	05/20/99
W9900000490	S9015-02	Si-90 Rel % Count Error	SOLID	LA-220-403		30	%	0.00	07/14/99	05/18/99	05/20/99
W9900000490	S9015-02	Si-90 by Beta Counting	SOLID	LA-220-403		1.1	pCi/g	0.20	07/14/99	05/18/99	05/20/99
W9900000490	S9015-02	U-234 by AEA	SOLID	LA-508-472		2.1e-01	pCi/g	2.80e-003	06/28/99	05/18/99	05/20/99
W9900000490	S9015-02	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		34.	%	0.00	06/28/99	05/18/99	05/20/99
W9900000490	S9015-02	U-235 by AEA	SOLID	LA-508-472		9.8e-02	pCi/g	0.01	06/28/99	05/18/99	05/20/99
W9900000490	S9015-02	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.00	06/28/99	05/18/99	05/20/99
W9900000490	S9015-02	U-238 by AEA	SOLID	LA-508-472		1.7e-01	pCi/g	7.50e-003	06/28/99	05/18/99	05/20/99
W9900000490	S9015-02	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		34.	%	0.10	06/28/99	05/18/99	05/20/99
W9900000491	S9015-03	Arsenic by ICP-MS	SOLID	EPA 200.8		1.13	ug/g	0.38	07/13/99	05/18/99	05/20/99
W9900000491	S9015-03	Cyanide by Mid/FIA	SOLID	LA-695-410	J	0.21	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W9900000491	S9015-03	Lead by ICP-MS	SOLID	EPA 200.8	B	1.28	ug/g	9.50e-003	07/13/99	05/18/99	05/20/99
W9900000491	S9015-03	Mercury by ICP-MS	SOLID	EPA 200.8	J	0.08	ug/g	0.08	07/13/99	05/18/99	05/20/99
W9900000491	S9015-03	Am-241 by AEA	SOLID	LA-508-472	U	3.3e-02	pCi/g	0.04	06/28/99	05/18/99	05/20/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.
D - Compound concentration resulted from a dilution.
J - Estimated value.
Z - See Comments.
U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435
 Project Number EM&I Environmental Monitoring
 Group #: 99000789

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000491	S9015-03	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		80.	%	0.00	06/28/99	05/18/99	05/20/99
W990000491	S9015-03	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		152.	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Ce-144 by GEA	SOLID	LA-508-462	U	-6.82e-02	pCi/g	0.17	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	CaPr-144 Rel. % Count Error	SOLID	LA-508-462		152.	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	CaPr-144 by GEA	SOLID	LA-508-462	U	-1.36e-01	pCi/g	0.34	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		100.	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Co-60 by GEA	SOLID	LA-508-462	U	-3.14e-02	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		349.	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Ce-134 by GEA	SOLID	LA-508-462	U	-5.51e-03	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		95.7	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Ce-137 by GEA	SOLID	LA-508-462	U	2.04e-02	pCi/g	0.04	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		408.	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Eu-152 by GEA	SOLID	LA-508-462	U	-1.17e-02	pCi/g	0.08	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Eu-154 by GEA	SOLID	LA-508-462	U	-4.88e-03	pCi/g	0.11	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		543.	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Eu-155 by GEA	SOLID	LA-508-462	U	1.01e-02	pCi/g	0.09	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Nb-94 by GEA	SOLID	LA-508-462	U	6.30e-05	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		304.	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Ru-103 by GEA	SOLID	LA-508-462	U	-5.85e-03	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Ru-106 by GEA	SOLID	LA-508-462	U	-7.98e-03	pCi/g	0.30	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		104	%	0.00	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Sb-125 by GEA	SOLID	LA-508-462	U	-4.62e-02	pCi/g	0.08	06/03/99	05/18/99	05/20/99
W990000491	S9015-03	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		189	%	0.00	06/03/99	05/18/99	05/20/99

MDL = Minimum Detection Limit
 RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W0041ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435			Group #: 99000789								
Project Number EM&I			:Environmental Monitoring								
Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000491	S9015-03	Sr-113 by GEA	SOLID	LA-508-462	U	-1.15e-02	pCi/g	0.04	06/03/99	05/18/99	05/20/99
W9900000491	S9015-03	Zn-65 Rel.% Count Error (GEA)	SOLID	LA-508-462	U	280.	%	0.00	06/03/99	05/18/99	05/20/99
W9900000491	S9015-03	Zn-65 by GEA	SOLID	LA-508-462	U	-1.65e-02	pCi/g	0.08	06/03/99	05/18/99	05/20/99
W9900000491	S9015-03	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/15/99	05/18/99	05/20/99
W9900000491	S9015-03	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000491	S9015-03	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000491	S9015-03	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000491	S9015-03	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000491	S9015-03	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Aldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Endrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Endrin Alderhyde	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000491	S9015-03	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000789
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000491	S9015-03	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	06/20/99
W990000491	S9015-03	gamma-BHC (lindane)	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	06/20/99
W990000491	S9015-03	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	06/20/99
W990000491	S9015-03	Pu-238 by AEA	SOLID	LA-508-472	U	7.5e-03	pCi/g	0.01	06/28/99	05/18/99	06/20/99
W990000491	S9015-03	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		120	%	0.00	06/28/99	05/18/99	06/20/99
W990000491	S9015-03	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		65	%	0.00	06/28/99	05/18/99	06/20/99
W990000491	S9015-03	Pu-239/240 by AEA	SOLID	LA-508-472		1.5e-02	pCi/g	3.40e-003	06/28/99	05/18/99	06/20/99
W990000491	S9015-03	Sr-90 Rel. % Count Error	SOLID	LA-220-403		40	%	0.00	07/14/99	05/18/99	06/20/99
W990000491	S9015-03	Sr-90 by Beta Counting	SOLID	LA-220-403		6.7E-01	pCi/g	0.10	07/14/99	05/18/99	06/20/99
W990000491	S9015-03	U-234 by AEA	SOLID	LA-508-472		1.8e-01	pCi/g	3.20e-003	06/28/99	05/18/99	06/20/99
W990000491	S9015-03	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		35	%	0.00	06/28/99	05/18/99	06/20/99
W990000491	S9015-03	U-235 by AEA	SOLID	LA-508-472		8.2e-02	pCi/g	3.50e-003	06/28/99	05/18/99	06/20/99
W990000491	S9015-03	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		40	%	0.00	06/28/99	05/18/99	06/20/99
W990000491	S9015-03	U-238 by AEA	SOLID	LA-508-472		6.9e-02	pCi/g	8.60e-003	06/28/99	05/18/99	06/20/99
W990000491	S9015-03	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		41	%	0.10	06/28/99	05/18/99	06/20/99

MDL=Minimum Detection Limit
 RQ=Result Qualifier

D - Compound concentration resulted from a dilution.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL COMMENT REPORT

Attention:		Ron Mitchell H1-13/FX 6-1435		Group #:	
Project Number		EM&I			
Sample #	Client ID	Lab Area	Test	Comment	
VALGROUP					
W990000489	S9015-01	VALTEST	Anions by Ion Chromatography	ICP-MS: (W990000489) Estimated arsenic result due to high calibration data. The preparation blank contains about 0.6 ug/g (ppm) lead. The sample dilution factor is applied to the blank. LCS recoveries within advisory range for the standard. PEST: LCS, LCSD and MS ran high. Extract Hold time exceeded. PQB: LCS-DUP was low. IC: Fluoride, chloride and sulfate were detected, but at concentrations less than those of the lowest calibration level. Both the fluoride MS/MSD were consistently low. This indicates a potential interference with fluoride. Did not test for the presence of oxidizer or sulfide. Low LCS recovery (87%). Fluoride, chloride and sulfate were detected, but at concentrations less than those of the lowest calibration level. Both the fluoride MS/MSD were consistently low. This indicates a potential interference with fluoride. LCS recovery within advisory range for the standard. LCS recovery within advisory range for the standard. High bias observed in cal-check standard recovery(116%) at 5ug/g Hg.	
W990000490	S9015-02	VALTEST	Cyanide by Mili/FIA	High LCS recovery for Hg(159%).	
		VALTEST	Fluoride (F) by IC	LCS recovery within advisory range for the standard.	
		VALTEST	Arsenic by ICP-MS	LCS recovery within advisory range for the standard.	
		VALTEST	Lead by ICP-MS	LCS recovery within advisory range for the standard.	
		VALTEST	Mercury by ICP-MS	Preb blank yielded 0.28ug/L Pb.	
W990000491	S9015-03	VALTEST	Arsenic by ICP-MS		
		VALTEST	Lead by ICP-MS		

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c1/2 Report#: 99000789

Report Date: 18-aug-1999

Page 1

WSCF ANALYTICAL COMMENT REPORT

Attention:		Ron Mitchell H1-13/FX 6-1435		Group #:	99000789
Project Number		EM&I			
Sample #	Client ID	Lab Area	Test	Comment	
		VALTEST	Mercury by ICP-MS	High bias observed in cal-check standard recovery(118%) at 5ug/g Hg. High LCS recovery for Hg(159%).	

Lab Areas:	VALGROUP - Group Validation LOGSAMP - Login for Sample	VALTEST - Test Validation LOGTEST - Login for Tests	TESTDATA - Test Data Entry
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w04c/2 Report#: 99000789

Report Date: 18.aug.1999

Page 2

WSCF TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:		Group #:		99000789		
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.
 N - Identification is based on a mass spectral library search.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

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W04E Report# 99000789 Report Date: 18-aug-1999

Page 1

WSCF
ANALYTICAL LABORATORY REPORT

for

Waste Management Northwest
H1-13

Richland WA 99352

Attention: Ron Mitchell H1-13/FX 6-1435

Report#: 99000790
Report Date: 19-aug-1999
Report W004/ver. 3
Waste Management Northwest

Page 1

WSCF
ANALYTICAL LABORATORY REPORT

Attention: Project Number			Ron Mitchell H1-13/FX 6-1435 EM&I :Environmental Monitoring			Group #: 99000790					
Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000492	S9015-04	Arsenic by ICP-MS	SOLID	EPA 200.8	J	2.0	ug/g	0.18	06/29/99	06/18/99	06/20/99
W9900000492	S9015-04	Cyanide by Hg/FA	SOLID	LA-695-410	U	0.0	mg/kg	0.10	06/04/99	06/18/99	06/20/99
W9900000492	S9015-04	Lead by ICP-MS	SOLID	EPA 200.8	B	5.8	ug/g	0.18	06/29/99	06/18/99	06/20/99
W9900000492	S9015-04	Mercury by ICP-MS	SOLID	EPA 200.8	J	0.19	ug/g	0.18	06/29/99	06/18/99	06/20/99
W9900000492	S9015-04	Am-241 by AEA	SOLID	LA-508-472	U	6.4e-02	pCi/g	0.07	06/04/99	06/18/99	06/20/99
W9900000492	S9015-04	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472	U	76	%	0.00	06/04/99	06/18/99	06/20/99
W9900000492	S9015-04	Bromide (Br) by IC	SOLID	EPA 300.0	U	<	ug/g	0.61	06/18/99	06/18/99	06/20/99
W9900000492	S9015-04	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.7	ug/g	0.11	06/18/99	06/18/99	06/20/99
W9900000492	S9015-04	Fluoride (F) by IC	SOLID	EPA 300.0	J	0.7	ug/g	0.10	06/18/99	06/18/99	06/20/99
W9900000492	S9015-04	Nitrate (N) by IC	SOLID	EPA 300.0	U	3.37	ug/g	0.19	06/18/99	06/18/99	06/20/99
W9900000492	S9015-04	Nitrite (N) by IC	SOLID	EPA 300.0	U	<	ug/g	0.40	06/18/99	06/18/99	06/20/99
W9900000492	S9015-04	Phosphate (P) by IC	SOLID	EPA 300.0	U	<	ug/g	0.59	06/18/99	06/18/99	06/20/99
W9900000492	S9015-04	Sulfate (SO4) by IC	SOLID	EPA 300.0	U	<	ug/g	1.08	06/18/99	06/18/99	06/20/99
W9900000492	S9015-04	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	417	%	0.00	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	Ce-144 by GEA	SOLID	LA-508-462	U	1.67e-02	pCi/g	0.12	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	CePh-144 Rel. % Count Error	SOLID	LA-508-462	U	417	%	0.00	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	CePh-144 by GEA	SOLID	LA-508-462	U	3.34e-02	pCi/g	0.23	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	Ce-60 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	405	%	0.00	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	Ce-60 by GEA	SOLID	LA-508-462	U	-2.51e-03	pCi/g	0.02	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	54.5	%	0.00	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	Ce-134 by GEA	SOLID	LA-508-462	U	3.52e-02	pCi/g	0.02	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	18.6	%	0.00	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	Ce-137 by GEA	SOLID	LA-508-462	U	2.54e-01	pCi/g	0.02	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	1000	%	0.00	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	Eu-152 by GEA	SOLID	LA-508-462	U	-1.52e-03	pCi/g	0.06	06/24/99	06/18/99	06/20/99
W9900000492	S9015-04	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	183	%	0.00	06/24/99	06/18/99	06/20/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

• • Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

D - Compound concentration resulted from a dilution.

J - Estimated value.

U . The analyte was analyzed for but not detected.

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435
Project Number EM&I Environmental Monitoring
Group #: 99000790

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000492	S9015-04	Eu-154 by GEA	SOLID	LA-508-462	U	1.94e-02	pCi/g	0.06	05/24/99	05/18/99	05/20/99
W980000492	S9015-04	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		113.	%	0.00	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Eu-155 by GEA	SOLID	LA-508-462	U	3.38e-02	pCi/g	0.07	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		94.1	%	0.00	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Nb-94 by GEA	SOLID	LA-508-462	U	9.04e-03	pCi/g	0.02	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		223.	%	0.00	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Ru-103 by GEA	SOLID	LA-508-462	U	4.00e-03	pCi/g	0.01	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		283.	%	0.00	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Ru-106 by GEA	SOLID	LA-508-462	U	2.85e-02	pCi/g	0.14	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		153.	%	0.00	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Sb-125 by GEA	SOLID	LA-508-462	U	1.71e-02	pCi/g	0.04	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		254.	%	0.00	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Sn-113 by GEA	SOLID	LA-508-462	U	4.53e-03	pCi/g	0.02	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Zn-66 Rel. % Count Error (GEA)	SOLID	LA-508-462		306.	%	0.00	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Zn-66 by GEA	SOLID	LA-508-462	U	8.19e-03	pCi/g	0.04	05/24/99	05/18/99	05/20/99
W990000492	S9015-04	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.02	07/06/99	05/18/99	05/20/99
W990000492	S9015-04	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000492	S9015-04	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000492	S9015-04	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000492	S9015-04	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000492	S9015-04	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	20.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	20.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	20.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Aldrin	SOLID	EPA 8081	U	0	ug/kg	10.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	20.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	10.00	08/10/99	05/18/99	05/20/99

MDL = Minimum Detection Limit
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B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring

Group #: 99000790

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000492	S9015-04	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	20.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	20.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Endrin	SOLID	EPA 8081	U	0	ug/kg	20.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	20.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	20.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	10.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	10.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	10.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	10.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	10.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	10.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	gamma-BHC (lindane)	SOLID	EPA 8081	U	0	ug/kg	10.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	10.00	08/10/99	05/18/99	05/20/99
W990000492	S9015-04	Pu-238 by AEA	SOLID	LA-508-472	U	2.6e-02	pCi/g	0.04	06/07/99	05/18/99	05/20/99
W990000492	S9015-04	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472	U	100	%	0.00	06/07/99	05/18/99	05/20/99
W990000492	S9015-04	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472	U	66	%	0.00	06/07/99	05/18/99	05/20/99
W990000492	S9015-04	Pu-239/240 by AEA	SOLID	LA-508-472	U	2.8e-02	pCi/g	0.02	06/07/99	05/18/99	05/20/99
W990000492	S9015-04	Sr-90 Rel. % Count Error	SOLID	LA-220-403	U	40	%	0.00	06/07/99	05/18/99	05/20/99
W990000492	S9015-04	Sr-90 by Beta Counting	SOLID	LA-220-403	U	8.4e-01	pCi/g	0.35	06/07/99	05/18/99	05/20/99
W990000492	S9015-04	U-234 by AEA	SOLID	LA-508-472	U	2.1e-01	pCi/g	4.80e-003	06/03/99	05/18/99	05/20/99
W990000492	S9015-04	U-234 by AEA Total Cntg Error	SOLID	LA-508-472	U	36	%	0.00	06/03/99	05/18/99	05/20/99
W990000492	S9015-04	U-235 by AEA	SOLID	LA-508-472	U	3.3e-02	pCi/g	5.20e-003	06/03/99	05/18/99	05/20/99
W990000492	S9015-04	U-235 by AEA Total Cntg Error	SOLID	LA-508-472	U	57	%	0.00	06/03/99	05/18/99	05/20/99
W990000492	S9015-04	U-238 by AEA	SOLID	LA-508-472	U	2.3e-01	pCi/g	4.80e-003	06/03/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
 Project Number EM&I : Environmental Monitoring
 Group #: 99000790

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000492	S9015-04	U-238 by AEA Total Count Error	SOLID	LA-508-472		35	%	0.10	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Arsenic by ICP-MS	SOLID	EPA 200.8		2.59	ug/g	0.40	07/13/99	05/18/99	05/20/99
W9900000493	S9015-05	Cyanide by Mili/FTA	SOLID	LA-695-410		0.76	mg/kg	0.25	05/22/99	05/18/99	05/20/99
W9900000493	S9015-05	Lead by ICP-MS	SOLID	EPA 200.8		8.78	ug/g	9.91e-003	07/13/99	05/18/99	05/20/99
W9900000493	S9015-05	Mercury by ICP-MS	SOLID	EPA 200.8		0.38	ug/g	0.08	07/13/99	05/18/99	05/20/99
W9900000493	S9015-05	Am-241 by AEA	SOLID	LA-508-472		6.9e-02	pCi/g	0.03	06/28/99	05/18/99	05/20/99
W9900000493	S9015-05	Am-241 by AEA Total Count Error	SOLID	LA-508-472		45	%	0.00	06/28/99	05/18/99	05/20/99
W9900000493	S9015-05	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		792	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Ce-144 by GEA	SOLID	LA-508-462	U	1.49e-02	pCi/g	0.17	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	CaPr-144 Rel. % Count Error	SOLID	LA-508-462		792	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	CaPr-144 by GEA	SOLID	LA-508-462	U	2.98e-02	pCi/g	0.34	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		104	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Co-60 by GEA	SOLID	LA-508-462	U	1.28e-02	pCi/g	0.02	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		164	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Ce-134 by GEA	SOLID	LA-508-462	U	1.19e-02	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		14.5	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Ce-137 by GEA	SOLID	LA-508-462		1.84e+00	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		156	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Eu-152 by GEA	SOLID	LA-508-462	U	3.02e-02	pCi/g	0.08	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		564	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Eu-154 by GEA	SOLID	LA-508-462	U	7.50e-03	pCi/g	0.07	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		113	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Eu-155 by GEA	SOLID	LA-508-462	U	5.15e-02	pCi/g	0.10	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Nb-94 by GEA	SOLID	LA-508-462	U	-8.49e-04	pCi/g	0.02	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/03/99	05/18/99	05/20/99

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Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Project Number			Ron Mitchell H1-13/FX 6-1435 EM&I :Environmental Monitoring			Group #: 99000790					
Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000493	S9015-05	Ru-103 by GEA	SOLID	LA-508-462	U	1.92e-04	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		170.	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Ru-106 by GEA	SOLID	LA-508-462	U	-7.55e-02	pCi/g	0.21	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		364.	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Sb-125 by GEA	SOLID	LA-508-462	U	-1.20e-02	pCi/g	0.07	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		292.	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Sn-113 by GEA	SOLID	LA-508-462	U	-6.66e-03	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Zn-65 by GEA	SOLID	LA-508-462	U	8.42e-04	pCi/g	0.05	06/03/99	05/18/99	05/20/99
W9900000493	S9015-05	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/13/99	05/18/99	05/20/99
W9900000493	S9015-05	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000493	S9015-05	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000493	S9015-05	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000493	S9015-05	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000493	S9015-05	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000493	S9015-05	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000493	S9015-05	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000493	S9015-05	Aldrin	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000493	S9015-05	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000493	S9015-05	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000493	S9015-05	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000493	S9015-05	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000493	S9015-05	Endrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000493	S9015-05	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000493	S9015-05	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000493	S9015-05	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring Group #: 99000790

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000493	S9015-05	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	06/20/99
W990000493	S9015-05	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000493	S9015-05	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000493	S9015-05	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W990000493	S9015-05	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W990000493	S9015-05	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W990000493	S9015-05	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W990000493	S9015-05	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W990000493	S9015-05	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W990000493	S9015-05	Pu-238 by AEA	SOLID	LA-508-472		8.4e-02	pCi/g	0.02	06/28/99	05/18/99	05/20/99
W990000493	S9015-05	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		40.	%	0.00	06/28/99	05/18/99	05/20/99
W990000493	S9015-05	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		47.	%	0.00	06/28/99	05/18/99	05/20/99
W990000493	S9015-05	Pu-239/240 by AEA	SOLID	LA-508-472		3.7e-02	pCi/g	3.20e-003	06/28/99	05/18/99	05/20/99
W990000493	S9015-05	Sr-90 Rel. % Count Error	SOLID	LA-220-403		40	%	0.00	07/14/99	05/18/99	05/20/99
W990000493	S9015-05	Sr-90 by Beta Counting	SOLID	LA-220-403		6.2E-01	pCi/g	0.10	07/14/99	05/18/99	05/20/99
W990000493	S9015-05	U-234 by AEA	SOLID	LA-508-472		3.7e-01	pCi/g	3.50e-003	06/28/99	05/18/99	05/20/99
W990000493	S9015-05	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		33.	%	0.00	06/28/99	05/18/99	05/20/99
W990000493	S9015-05	U-235 by AEA	SOLID	LA-508-472		1.7e-01	pCi/g	3.80e-003	06/28/99	05/18/99	05/20/99
W990000493	S9015-05	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		36.	%	0.00	06/28/99	05/18/99	05/20/99
W990000493	S9015-05	U-238 by AEA	SOLID	LA-508-472		2.2e-01	pCi/g	9.50e-003	06/28/99	05/18/99	05/20/99
W990000493	S9015-05	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		34.	%	0.10	06/28/99	05/18/99	05/20/99
W990000494	S9015-06	Arsenic by ICP-MS	SOLID	EPA 200.8	U	<	ug/g	0.39	07/13/99	05/18/99	05/20/99
W990000494	S9015-06	Cyanide by MidifIA	SOLID	LA-695-410	J	0.16	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W990000494	S9015-06	Lead by ICP-MS	SOLID	EPA 200.8	J	0.47	ug/g	9.66e-003	07/13/99	05/18/99	05/20/99
W990000494	S9015-06	Mercury by ICP-MS	SOLID	EPA 200.8	J	0.14	ug/g	0.08	07/13/99	05/18/99	05/20/99
W990000494	S9015-06	Am-241 by AEA	SOLID	LA-508-472		4.2e-02	pCi/g	0.04	06/28/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
J - Estimated value.
U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

.. Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435 Group #: 99000790
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000494	S9015-06	Am-241 by AEA Total Count Error	SOLID	LA-508-472		66.	%	0.00	06/28/99	05/18/99	05/20/99
W990000494	S9015-06	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		382.	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Ce-144 by GEA	SOLID	LA-508-462	U	-3.98e-02	pCi/g	0.25	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	CaPr-144 Rel. % Count Error	SOLID	LA-508-462		382.	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	CaPr-144 by GEA	SOLID	LA-508-462	U	-7.98e-02	pCi/g	0.51	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Co-60 by GEA	SOLID	LA-508-462	U	2.91e-04	pCi/g	0.04	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		228.	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Ce-134 by GEA	SOLID	LA-508-462	U	9.96e-03	pCi/g	0.04	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		500.	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Cs-137 by GEA	SOLID	LA-508-462	U	4.35e-03	pCi/g	0.04	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		315.	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Eu-152 by GEA	SOLID	LA-508-462	U	2.04e-02	pCi/g	0.11	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		100.	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Eu-154 by GEA	SOLID	LA-508-462	U	-6.77e-02	pCi/g	0.11	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		207.	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Eu-155 by GEA	SOLID	LA-508-462	U	3.92e-02	pCi/g	0.14	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		784.	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Nb-94 by GEA	SOLID	LA-508-462	U	2.63e-03	pCi/g	0.04	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		276.	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Ru-103 by GEA	SOLID	LA-508-462	U	-7.73e-03	pCi/g	0.04	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		643.	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Ru-106 by GEA	SOLID	LA-508-462	U	-3.02e-02	pCi/g	0.33	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Sb-125 by GEA	SOLID	LA-508-462	U	3.54e-03	pCi/g	0.10	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Sm-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		667.	%	0.00	06/03/99	05/18/99	05/20/99

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 Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000790
 Project Number EM&I Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000494	S9015-06	Sn-113 by GEA	SOLID	LA-508-462	U	-4.06e-03	pCi/g	0.05	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	110	%	0.00	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Zn-65 by GEA	SOLID	LA-508-462	U	-4.57e-02	pCi/g	0.08	06/03/99	05/18/99	05/20/99
W990000494	S9015-06	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/13/99	05/18/99	05/20/99
W990000494	S9015-06	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000494	S9015-06	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000494	S9015-06	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000494	S9015-06	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000494	S9015-06	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Aldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Endrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000494	S9015-06	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.

J - Estimated value Z - See Comments.

U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

- Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000790
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000494	S9015-06	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000494	S9015-06	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000494	S9015-06	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000494	S9015-06	Pu-238 by AEA	SOLID	LA-508-472	U	3.0e-03	pCi/g	0.02	06/28/99	05/18/99	05/20/99
W9900000494	S9015-06	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		320	%	0.00	06/28/99	05/18/99	05/20/99
W9900000494	S9015-06	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		95.	%	0.00	06/28/99	05/18/99	05/20/99
W9900000494	S9015-06	Pu-239/240 by AEA	SOLID	LA-508-472		5.0e-03	pCi/g	2.70e-003	06/28/99	05/18/99	05/20/99
W9900000494	S9015-06	Sr-90 Rel. % Count Error	SOLID	LA-220-403		55	%	0.00	07/14/99	05/18/99	05/20/99
W9900000494	S9015-06	Sr-90 by Beta Counting	SOLID	LA-220-403		4.0E-01	pCi/g	0.20	07/14/99	05/18/99	05/20/99
W9900000494	S9015-06	U-234 by AEA	SOLID	LA-508-472		9.0e-02	pCi/g	8.10e-003	06/28/99	05/18/99	05/20/99
W9900000494	S9015-06	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.00	06/28/99	05/18/99	05/20/99
W9900000494	S9015-06	U-235 by AEA	SOLID	LA-508-472		4.4e-02	pCi/g	8.80e-003	06/28/99	05/18/99	05/20/99
W9900000494	S9015-06	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		46.	%	0.00	06/28/99	05/18/99	05/20/99
W9900000494	S9015-06	U-238 by AEA	SOLID	LA-508-472		4.5e-02	pCi/g	3.00e-003	06/28/99	05/18/99	05/20/99
W9900000494	S9015-06	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		44.	%	0.10	06/28/99	05/18/99	05/20/99

MDL = Minimum Detection Limit
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 N - Identification is based on a mass spectral library search.
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Report W0004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL COMMENT REPORT

Attention: Project Number		Ron Mitchell H1-13/FX 6-1435 EM&I		Group #:	99000790
Sample #	Client ID	Lab Area	Test	Comment	
VALGROUP					
W990000492	S9015-04	VALTEST	Anions by Ion Chromatography	ICP-MS: (W990000492) Estimated arsenic and mercury results due to high calibration data.	
				The preparation blank contains about 0.6 ug/g (ppm) lead.	
				Sample dilution factor is applied to the blank.	
				ICP-MS: (All) LCS recoveries within advisory range for the LCS standard.	
				PEST: Extract Hold time exceeded, LCS, LCSD, MS, MSD ran high.	
				IC: Fluoride and chloride were detected, but at concentrations less than those of the lowest calibration level.	
				Did not test for the presence of oxidizer or sulfide.	
				Low LCS recovery (87%).	
				Fluoride and chloride were detected, but at concentrations less than those of the lowest calibration level.	
				High bias observed in cal-check standard recovery(116%) at 5ug/g Hg.	
W990000494	S9015-06	VALTEST	Mercury by ICP-MS		

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report#: 99000790

Report Date: 19-aug-1999

Page 1

WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:	Group #:		99000790	
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ Result Units

RQ=Result Qualifier		B - The analyte was detected in the associated method blank.		J - Estimated value.	
		N - Identification is based on a mass spectral library search.		U - The analyte was analyzed for but not detected.	
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W04E	Report#:	99000790	Report Date:		19-Aug-1999
					Page 1

WASTE MANAGEMENT LABORATORY

WSCF
ANALYTICAL LABORATORY REPORT

for

Waste Management Northwest
H1-13

Richland WA 99352

Attention: Ron Mitchell H1-13/FX 6-1435

Report#: 99000791
Report Date: 18-aug-1999
Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&J : Environmental Monitoring Group #: 99000791

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000495	S9015-07	Arsenic by ICP-MS	SOLID	EPA 200.8	J	1.8	ug/g	0.17	06/29/99	05/18/99	05/20/99
W9900000495	S9015-07	Cyanide by Mide/FIA	SOLID	LA-695-410	U	0.0	mg/kg	0.10	06/04/99	05/18/99	05/20/99
W9900000495	S9015-07	Lead by ICP-MS	SOLID	EPA 200.8	B	5.7	ug/g	0.17	06/29/99	05/18/99	05/20/99
W9900000495	S9015-07	Mercury by ICP-MS	SOLID	EPA 200.8	U	< 0.17	ug/g	0.17	06/29/99	05/18/99	05/20/99
W9900000495	S9015-07	Am-241 by AEA	SOLID	LA-508-472		5.9e-02	pCi/g	0.06	06/04/99	05/18/99	05/20/99
W9900000495	S9015-07	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		73.	%	0.00	06/04/99	05/18/99	05/20/99
W9900000495	S9015-07	Bromide (Br) by IC	SOLID	EPA 300.0	U	< 0.6	ug/g	0.56	06/16/99	05/18/99	05/20/99
W9900000495	S9015-07	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.7	ug/g	0.10	06/16/99	05/18/99	05/20/99
W9900000495	S9015-07	Fluoride (F) by IC	SOLID	EPA 300.0	U	< 0.09	ug/g	0.09	06/16/99	05/18/99	05/20/99
W9900000495	S9015-07	Nitrate (N) by IC	SOLID	EPA 300.0	U	3.36	ug/g	0.17	06/16/99	05/18/99	05/20/99
W9900000495	S9015-07	Nitrite (NI) by IC	SOLID	EPA 300.0	U	< 0.4	ug/g	0.35	06/16/99	05/18/99	05/20/99
W9900000495	S9015-07	Phosphate (P) by IC	SOLID	EPA 300.0	U	< 0.5	ug/g	0.54	06/16/99	05/18/99	05/20/99
W9900000495	S9015-07	Sulfate (SO4) by IC	SOLID	EPA 300.0	U	< 1	ug/g	0.98	06/16/99	05/18/99	05/20/99
W9900000495	S9015-07	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Ce-144 by GEA	SOLID	LA-508-462	U	-7.31e-03	pCi/g	0.13	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	CePr-144 Rel. % Count Error	SOLID	LA-508-462		1000	%	0.00	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	CePr-144 by GEA	SOLID	LA-508-462	U	-1.46e-02	pCi/g	0.26	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		490.	%	0.00	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Co-60 by GEA	SOLID	LA-508-462	U	1.86e-03	pCi/g	0.02	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		85.3	%	0.00	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Ce-134 by GEA	SOLID	LA-508-462	U	8.51e-03	pCi/g	0.02	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		20.7	%	0.00	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Cs-137 by GEA	SOLID	LA-508-462		1.47e-01	pCi/g	0.01	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Eu-152 by GEA	SOLID	LA-508-462	U	3.52e-04	pCi/g	0.06	06/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		217.	%	0.00	06/24/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Project Number		Ron Mitchell H1-13/FX 6-1435 EM&I :Environmental Monitoring				Group #: 99000791					
Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000495	S9015-07	Eu-154 by GEA	SOLID	LA-508-462	U	-1.29e-02	pCi/g	0.05	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		95.5	%	0.00	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Eu-155 by GEA	SOLID	LA-508-462	U	4.54e-02	pCi/g	0.07	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		175.	%	0.00	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Nb-94 by GEA	SOLID	LA-508-462	U	4.45e-03	pCi/g	0.01	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		403.	%	0.00	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Ru-103 by GEA	SOLID	LA-508-462	U	-1.99e-03	pCi/g	0.01	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		294.	%	0.00	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Ru-106 by GEA	SOLID	LA-508-462	U	-2.70e-02	pCi/g	0.13	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		157.	%	0.00	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Sb-125 by GEA	SOLID	LA-508-462	U	-1.54e-02	pCi/g	0.04	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		154.	%	0.00	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Sn-113 by GEA	SOLID	LA-508-462	U	-7.26e-03	pCi/g	0.02	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Zn-65 by GEA	SOLID	LA-508-462	U	-1.84e-03	pCi/g	0.03	05/24/99	05/18/99	05/20/99
W9900000495	S9015-07	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.02	07/06/99	05/18/99	05/20/99
W9900000495	S9015-07	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W9900000495	S9015-07	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W9900000495	S9015-07	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W9900000495	S9015-07	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W9900000495	S9015-07	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000495	S9015-07	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000495	S9015-07	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000495	S9015-07	Aldrin	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000495	S9015-07	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000495	S9015-07	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.

B - The analyte was detected in the associated method blank.

J - Estimated value. Z - See Comments.

E - Compound concentration exceeded calibration range.

U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000791
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000495	S9015-07	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	Endrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000495	S9015-07	Pu-238 by AEA	SOLID	LA-508-472	U	1.6e-03	pCi/g	0.05	06/07/99	05/18/99	05/20/99
W990000495	S9015-07	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		1000	%	0.00	06/07/99	05/18/99	05/20/99
W990000495	S9015-07	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		67	%	0.00	06/07/99	05/18/99	05/20/99
W990000495	S9015-07	Pu-239/240 by AEA	SOLID	LA-508-472		2.1e-02	pCi/g	0.01	06/07/99	05/18/99	05/20/99
W990000495	S9015-07	Sr-90 Rel. % Count Error	SOLID	LA-220-403		31	%	0.00	06/23/99	05/18/99	05/20/99
W990000495	S9015-07	Sr-90 by Beta Counting	SOLID	LA-220-403		1.2	pCi/g	0.40	06/23/99	05/18/99	05/20/99
W990000495	S9015-07	U-234 by AEA	SOLID	LA-508-472		1.5e-01	pCi/g	0.01	06/03/99	05/18/99	05/20/99
W990000495	S9015-07	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		37	%	0.00	06/03/99	05/18/99	05/20/99
W990000495	S9015-07	U-235 by AEA	SOLID	LA-508-472		1.5e-02	pCi/g	4.40e-003	06/03/99	05/18/99	05/20/99
W990000495	S9015-07	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		73	%	0.00	06/03/99	05/18/99	05/20/99
W990000495	S9015-07	U-238 by AEA	SOLID	LA-508-472		1.6e-01	pCi/g	4.00e-003	06/03/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention:		Ron Mitchell H1-13/FX 6-1435		Group #:		99000791	
Project Number		EM&I : Environmental Monitoring					
Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units
W990000495	SS015-07	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		36.	%
						0.10	MDL
						05/18/99	Analyzed
						05/20/99	Sampled
							Received

MDL = Minimum Detection Limit
RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
J - Estimated value.
Z - See Comments.
U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W0004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL COMMENT REPORT

Attention:		Ron Mitchell H1-13/FX 6-1435		Group #: 99000791	
Project Number		EM&I			
Sample #	Client ID	Lab Area	Test	Comment	
VALGROUP					
W990000495	S9015-07	VALTEST	Anions by Ion Chromatography	ICP-MS: Estimated arsenic result due to high calibration data.	
				The preparation blank contains about 0.5 ug/g (ppm) lead.	
				Sample dilution factor is applied to the blank.	
				PEST: Extract Hold time exceeded. LCS/LCSD/MS/MSD ran high.	
				IC: Chloride was detected, but at a concentration less than that of the lowest calibration level.	
				Did not test for the presence of oxidizer or sulfide.	
				Low LCS recovery (87%).	
				Chloride was detected, but at a concentration less than that of the lowest calibration level.	
		VALTEST	Cyanide by Mdi/FIA		
		VALTEST	Fluoride (F) by IC		

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report#: 99000791

Report Date: 18-aug-1999

Page 1

WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:	Group #:		99000791	
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ Result Units

RQ = Result Qualifier

B - The analyte was detected in the associated method blank. J - Estimated value.
N - Identification is based on a mass spectral library search. U - The analyte was analyzed for but not detected.
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WASTE MANAGEMENT LABORATORY

**WSCF
ANALYTICAL LABORATORY REPORT**

for

Waste Management Northwest
HI-13

Richland WA 99352

Attention: Ron Mitchell HI-13/FX 6-1435

Report#: 99000792
Report Date: 19-aug-1999
Report W004/ver. 3
Waste Management Northwest

Page 1

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000792
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000496	S9015-08	Arsenic by ICP-MS	SOLID	EPA 200.8	J	1.7	ug/g	0.21	06/29/99	05/18/99	05/20/99
W9900000496	S9015-08	Cyanide by Mili/RIA	SOLID	LA-595-410	U	0.0	mg/kg	0.10	06/04/99	05/18/99	05/20/99
W9900000496	S9015-08	Lead by ICP-MS	SOLID	EPA 200.8	B	5.6	ug/g	0.21	06/29/99	05/18/99	05/20/99
W9900000496	S9015-08	Mercury by ICP-MS	SOLID	EPA 200.8	U	< 0.21	ug/g	0.21	06/29/99	05/18/99	05/20/99
W9900000496	S9015-08	Am-241 by AEA	SOLID	LA-508-472		7.9e-02	pCi/g	0.05	06/04/99	05/18/99	05/20/99
W9900000496	S9015-08	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		57.	%	0.00	06/04/99	05/18/99	05/20/99
W9900000496	S9015-08	Bromide (Br) by IC	SOLID	EPA 300.0	U	< 0.6	ug/g	0.61	06/16/99	05/18/99	05/20/99
W9900000496	S9015-08	Chloride (Cl) by IC	SOLID	EPA 300.0	J	1	ug/g	0.11	06/16/99	05/18/99	05/20/99
W9900000496	S9015-08	Fluoride (F) by IC	SOLID	EPA 300.0	J	0.7	ug/g	0.10	06/16/99	05/18/99	05/20/99
W9900000496	S9015-08	Nitrate (N) by IC	SOLID	EPA 300.0		2.56	ug/g	0.19	06/16/99	05/18/99	05/20/99
W9900000496	S9015-08	Nitrite (NI) by IC	SOLID	EPA 300.0	U	< 0.4	ug/g	0.40	06/16/99	05/18/99	05/20/99
W9900000496	S9015-08	Phosphate (P) by IC	SOLID	EPA 300.0	J	3	ug/g	0.59	06/16/99	05/18/99	05/20/99
W9900000496	S9015-08	Sulfate (SO4) by IC	SOLID	EPA 300.0	U	< 1	ug/g	1.07	06/16/99	05/18/99	05/20/99
W9900000496	S9015-08	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Ce-144 by GEA	SOLID	LA-508-462	U	-5.23e-04	pCi/g	0.08	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	CePr-144 Rel. % Count Error	SOLID	LA-508-462		1000	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	CePr-144 by GEA	SOLID	LA-508-462	U	-1.04e-03	pCi/g	0.16	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		154.	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Co-60 by GEA	SOLID	LA-508-462	U	2.98e-03	pCi/g	8.07e-003	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		38.2	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Cs-134 by GEA	SOLID	LA-508-462		2.20e-02	pCi/g	0.01	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		13.9	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Cs-137 by GEA	SOLID	LA-508-462		2.39e-01	pCi/g	9.12e-003	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		183.	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Eu-152 by GEA	SOLID	LA-508-462	U	9.77e-03	pCi/g	0.03	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		287.	%	0.00	05/26/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

B : The analyte was detected in the associated method blank.

E : Compound concentration exceeded calibration range.

N : Identification is based on a mass spectral library search.

.. Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

D : Compound concentration resulted from a dilution.

J : Estimated value.

U : The analyte was analyzed for but not detected.

Z : See Comments.

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000792
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000496	S9015-08	Eu-154 by GEA	SOLID	LA-508-462	U	6.19e-03	pCi/g	0.03	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Eu-155 Rel % Count Error (GEA)	SOLID	LA-508-462	U	61.7	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Eu-155 by GEA	SOLID	LA-508-462	U	4.17e-02	pCi/g	0.04	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Nb-94 Rel % Count Error (GEA)	SOLID	LA-508-462	U	202.	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Nb-94 by GEA	SOLID	LA-508-462	U	2.41e-03	pCi/g	8.35e-003	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Ru-103 Rel % Count Error (GEA)	SOLID	LA-508-462	U	1000	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Ru-103 by GEA	SOLID	LA-508-462	U	3.29e-04	pCi/g	8.42e-003	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Ru-106 Rel % Count Error (GEA)	SOLID	LA-508-462	U	265.	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Ru-106 by GEA	SOLID	LA-508-462	U	1.76e-02	pCi/g	0.08	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Sb-125 Rel % Count Error (GEA)	SOLID	LA-508-462	U	572.	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Sb-125 by GEA	SOLID	LA-508-462	U	2.66e-03	pCi/g	0.03	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Sn-113 Rel % Count Error (GEA)	SOLID	LA-508-462	U	147.	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Sn-113 by GEA	SOLID	LA-508-462	U	-4.87e-03	pCi/g	0.01	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Zn-65 Rel % Count Error (GEA)	SOLID	LA-508-462	U	361.	%	0.00	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Zn-65 by GEA	SOLID	LA-508-462	U	3.67e-03	pCi/g	0.02	05/26/99	05/18/99	05/20/99
W9900000496	S9015-08	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.02	07/06/99	05/18/99	05/20/99
W9900000496	S9015-08	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W9900000496	S9015-08	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W9900000496	S9015-08	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W9900000496	S9015-08	Aroclor-1290 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W9900000496	S9015-08	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	0.01	07/06/99	05/18/99	05/20/99
W9900000496	S9015-08	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Aldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

D - Compound concentration resulted from a dilution.

B - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

J - Estimated value.

Z - See Comments.

U - The analyte was analyzed for but not detected.

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000792
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000496	S9015-08	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Endrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Endrin Aldohyde	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000496	S9015-08	Pu-238 by AEA	SOLID	LA-508-472	U	1.8E-03	pCi/g	0.04	06/04/99	05/18/99	05/20/99
W9900000496	S9015-08	Pu-238 by AEA Total Cntg Err	SOLID	LA-508-472	U	1000	%	0.00	06/04/99	05/18/99	05/20/99
W9900000496	S9015-08	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472	U	63	%	0.00	06/04/99	05/18/99	05/20/99
W9900000496	S9015-08	Pu-239/240 by AEA	SOLID	LA-508-472	U	2.3e-02	pCi/g	4.90e-003	06/04/99	05/18/99	05/20/99
W9900000496	S9015-08	Sr-90 Rel.% Count Error	SOLID	LA-220-403	U	40	%	0.00	06/23/99	05/18/99	05/20/99
W9900000496	S9015-08	Sr-90 by Beta Counting	SOLID	LA-220-403	U	7.6e-01	pCi/g	0.30	06/23/99	05/18/99	05/20/99
W9900000496	S9015-08	U-234 by AEA	SOLID	LA-508-472	U	1.5e-01	pCi/g	5.30e-003	06/03/99	05/18/99	05/20/99
W9900000496	S9015-08	U-234 by AEA Total Cntg Error	SOLID	LA-508-472	U	39	%	0.00	06/03/99	05/18/99	05/20/99
W9900000496	S9015-08	U-235 by AEA	SOLID	LA-508-472	U	2.1e-02	pCi/g	0.02	06/03/99	05/18/99	05/20/99
W9900000496	S9015-08	U-235 by AEA Total Cntg Error	SOLID	LA-508-472	U	76	%	0.00	06/03/99	05/18/99	05/20/99
W9900000496	S9015-08	U-238 by AEA	SOLID	LA-508-472	U	1.4e-01	pCi/g	5.30e-003	06/03/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

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 J - Estimated value.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

... Indicates results that have NOT been validated.
 Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I Environmental Monitoring Group #: 99000792

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000496	S9015-08	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		39.	%	0.10	06/03/99	05/18/99	05/20/99
W990000497	S9015-09	Arsenic by ICP-MS	SOLID	EPA 200.8		2.19	ug/g	0.39	07/13/99	05/18/99	05/20/99
W990000497	S9015-09	Cyanide by Mili/FIA	SOLID	LA-695-410		0.90	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W990000497	S9015-09	Lead by ICP-MS	SOLID	EPA 200.8		7.41	ug/g	9.84e-003	07/13/99	05/18/99	05/20/99
W990000497	S9015-09	Mercury by ICP-MS	SOLID	EPA 200.8	J	0.17	ug/g	0.08	07/13/99	05/18/99	05/20/99
W990000497	S9015-09	Am-241 by AEA	SOLID	LA-508-472		4.2e-02	pCi/g	0.03	06/28/99	05/18/99	05/20/99
W990000497	S9015-09	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		62.	%	0.00	06/28/99	05/18/99	05/20/99
W990000497	S9015-09	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		127.	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Ce-144 by GEA	SOLID	LA-508-462	U	-1.18e-01	pCi/g	0.25	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	CePr-144 Rel. % Count Error	SOLID	LA-508-462		127.	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	CePr-144 by GEA	SOLID	LA-508-462	U	-2.36e-01	pCi/g	0.49	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		182.	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Co-60 by GEA	SOLID	LA-508-462		1.17e-02	pCi/g	0.03	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	105.	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Cs-134 by GEA	SOLID	LA-508-462		1.97e-02	pCi/g	0.04	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		13.2	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Cs-137 by GEA	SOLID	LA-508-462		1.96e+00	pCi/g	0.03	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		277.	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Eu-152 by GEA	SOLID	LA-508-462	U	2.33e-02	pCi/g	0.11	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		232.	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Eu-154 by GEA	SOLID	LA-508-462		2.73e-02	pCi/g	0.09	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		149.	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Eu-155 by GEA	SOLID	LA-508-462	U	5.14e-02	pCi/g	0.13	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		63.6	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Nb-94 by GEA	SOLID	LA-508-462	U	4.4E-02	pCi/g	0.04	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	05/26/99	05/18/99	05/20/99

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J - Estimated value.
U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000792
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000497	S9015-09	Ru-103 by GEA	SOLID	LA-508-462	U	-1.75e-04	pCi/g	0.03	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	612	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Ru-106 by GEA	SOLID	LA-508-462	U	2.66e-02	pCi/g	0.28	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	225	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Sb-125 by GEA	SOLID	LA-508-462	U	2.78e-02	pCi/g	0.11	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	100	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Sn-113 by GEA	SOLID	LA-508-462	U	-3.48e-02	pCi/g	0.05	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	359	%	0.00	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Zn-65 by GEA	SOLID	LA-508-462	U	-1.33e-02	pCi/g	0.07	05/26/99	05/18/99	05/20/99
W990000497	S9015-09	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	07/13/99	05/18/99	05/20/99
W990000497	S9015-09	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/13/99	05/18/99	05/20/99
W990000497	S9015-09	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/13/99	05/18/99	05/20/99
W990000497	S9015-09	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/13/99	05/18/99	05/20/99
W990000497	S9015-09	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/13/99	05/18/99	05/20/99
W990000497	S9015-09	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000497	S9015-09	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000497	S9015-09	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000497	S9015-09	Aldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000497	S9015-09	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000497	S9015-09	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000497	S9015-09	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000497	S9015-09	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000497	S9015-09	Endrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000497	S9015-09	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000497	S9015-09	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000497	S9015-09	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

B - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

D - Compound concentration resulted from a dilution.

J - Estimated value.

U - The analyte was analyzed for but not detected.

Z - See Comments.

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring Group #: 99000792

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000497	S9015-09	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	06/20/99
W9900000497	S9015-08	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/18/99	06/20/99
W9900000497	S9015-09	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/18/99	06/20/99
W9900000497	S9015-09	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	06/20/99
W9900000497	S9015-09	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	06/20/99
W9900000497	S9015-09	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	06/20/99
W9900000497	S9015-09	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	06/20/99
W9900000497	S9015-09	gamma-BHC (lindane)	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	06/20/99
W9900000497	S9015-09	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	06/20/99
W9900000497	S9015-09	Pu-238 by AEA	SOLID	LA-508-472	U	8.7e-03	pCi/g	0.02	06/28/99	05/18/99	06/20/99
W9900000497	S9015-09	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472	U	130	%	0.00	06/28/99	05/18/99	06/20/99
W9900000497	S9015-09	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472	U	48	%	0.00	06/28/99	05/18/99	06/20/99
W9900000497	S9015-09	Pu-239/240 by AEA	SOLID	LA-508-472	U	2.8e-02	pCi/g	2.60e-003	06/28/99	05/18/99	06/20/99
W9900000497	S9015-09	Sr-90 Rel. % Count Error	SOLID	LA-220-403	U	40	%	0.00	07/14/99	05/18/99	06/20/99
W9900000497	S9015-09	Sr-90 by Beta Counting	SOLID	LA-220-403	U	1.0	pCi/g	0.20	07/14/99	05/18/99	06/20/99
W9900000497	S9015-09	U-234 by AEA	SOLID	LA-508-472	U	3.5e-01	pCi/g	0.01	06/28/99	05/18/99	06/20/99
W9900000497	S9015-09	U-234 by AEA Total Cntg Error	SOLID	LA-508-472	U	33	%	0.00	06/28/99	05/18/99	06/20/99
W9900000497	S9015-09	U-235 by AEA	SOLID	LA-508-472	U	1.4e-01	pCi/g	4.30e-003	06/28/99	05/18/99	06/20/99
W9900000497	S9015-09	U-235 by AEA Total Cntg Error	SOLID	LA-508-472	U	37	%	0.00	06/28/99	05/18/99	06/20/99
W9900000497	S9015-09	U-238 by AEA	SOLID	LA-508-472	U	2.5e-01	pCi/g	0.01	06/28/99	05/18/99	06/20/99
W9900000497	S9015-09	U-238 by AEA Total Cntg Error	SOLID	LA-508-472	U	34	%	0.10	06/28/99	05/18/99	06/20/99
W9900000498	S9015-10	Arsenic by ICP-MS	SOLID	EPA 200.8	U	0.43	ug/g	0.36	07/13/99	05/18/99	06/20/99
W9900000498	S9015-10	Cyanide by Mili/FIA	SOLID	LA-595-410	U	0.0	mg/kg	0.25	06/22/99	05/18/99	06/20/99
W9900000498	S9015-10	Lead by ICP-MS	SOLID	EPA 200.8	U	0.31	ug/g	9.12e-003	07/13/99	05/18/99	06/20/99
W9900000498	S9015-10	Mercury by ICP-MS	SOLID	EPA 200.8	U	0.073	ug/g	0.07	07/13/99	05/18/99	06/20/99
W9900000498	S9015-10	Am-241 by AEA	SOLID	LA-508-472	U	4.7e-02	pCi/g	0.03	06/29/99	05/18/99	06/20/99

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.. Indicates results that have NOT been validated
Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000792
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000498	S9015-10	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		56	%	0.00	06/29/99	05/18/99	05/20/99
W990000498	S9015-10	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		578	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Ce-144 by GEA	SOLID	LA-508-462	U	2.12e-02	pCi/g	0.21	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	CePr-144 Rel. % Count Error	SOLID	LA-508-462		578	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	CePr-144 by GEA	SOLID	LA-508-462	U	4.25e-02	pCi/g	0.42	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		722	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Co-60 by GEA	SOLID	LA-508-462	U	-2.33e-03	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		310	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Cs-134 by GEA	SOLID	LA-508-462	U	5.46e-03	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		254	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Cs-137 by GEA	SOLID	LA-508-462	U	7.68e-03	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		657	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Eu-152 by GEA	SOLID	LA-508-462	U	-8.04e-03	pCi/g	0.09	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Eu-154 by GEA	SOLID	LA-508-462	U	-3.85e-03	pCi/g	0.09	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		104	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Eu-155 by GEA	SOLID	LA-508-462	U	6.05e-02	pCi/g	0.11	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		309	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Nb-94 by GEA	SOLID	LA-508-462	U	4.95e-03	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		100	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Ru-103 by GEA	SOLID	LA-508-462	U	-1.98e-02	pCi/g	0.03	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		164	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Ru-106 by GEA	SOLID	LA-508-462	U	9.37e-02	pCi/g	0.27	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		147	%	0.00	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Sb-125 by GEA	SOLID	LA-508-462	U	-3.25e-02	pCi/g	0.08	06/03/99	05/18/99	05/20/99
W990000498	S9015-10	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		112	%	0.00	06/03/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

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B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

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Report W0004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000792
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000498	S9015-10	Sn-113 by GEA	SOLID	LA-508-462	U	2.05e-02	pCi/g	0.04	06/03/99	05/18/99	05/20/99
W9900000498	S9015-10	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	174	%	0.00	06/03/99	05/18/99	05/20/99
W9900000498	S9015-10	Zn-65 by GEA	SOLID	LA-508-462	U	2.39e-02	pCi/g	0.06	06/03/99	05/18/99	05/20/99
W9900000498	S9015-10	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/15/99	05/18/99	05/20/99
W9900000498	S9015-10	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000498	S9015-10	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000498	S9015-10	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000498	S9015-10	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000498	S9015-10	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Aldrin	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Endrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	2.50e+003	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	2.50e+003	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I :Environmental Monitoring

Group #: 99000792

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000498	S9015-10	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000498	S9015-10	Pu-238 by AEA	SOLID	LA-508-472	U	3.8e-03	pCi/g	0.01	06/29/99	05/18/99	05/20/99
W9900000498	S9015-10	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		1.9e+02	%	0.00	06/29/99	05/18/99	05/20/99
W9900000498	S9015-10	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		68.	%	0.00	06/29/99	05/18/99	05/20/99
W9900000498	S9015-10	Pu-239/240 by AEA	SOLID	LA-508-472		1.0e-02	pCi/g	2.50e-003	06/29/99	05/18/99	05/20/99
W9900000498	S9015-10	Sr-90 Rel % Count Error	SOLID	LA-220-403		50	%	0.00	07/14/99	05/18/99	05/20/99
W9900000498	S9015-10	Sr-90 by Beta Counting	SOLID	LA-220-403		3.3E-01	pCi/g	0.20	07/14/99	05/18/99	05/20/99
W9900000498	S9015-10	U-234 by AEA	SOLID	LA-220-403		2.0e-01	pCi/g	3.30e-003	06/30/99	05/18/99	05/20/99
W9900000498	S9015-10	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		35.	%	0.00	06/30/99	05/18/99	05/20/99
W9900000498	S9015-10	U-235 by AEA	SOLID	LA-508-472		9.9e-02	pCi/g	3.60e-003	06/30/99	05/18/99	05/20/99
W9900000498	S9015-10	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		39.	%	0.00	06/30/99	05/18/99	05/20/99
W9900000498	S9015-10	U-238 by AEA	SOLID	LA-508-472		6.8e-02	pCi/g	3.30e-003	06/30/99	05/18/99	05/20/99
W9900000498	S9015-10	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		41.	%	0.10	06/30/99	05/18/99	05/20/99

MDL=Minimum Detection Limit

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL COMMENT REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000792
Project Number EM&I

Sample #	Client ID	Lab Area	Test	Comment
VALGROUP				
W990000496	S9015-08	VALTEST	Anions by Ion Chromatography	ICP-MS: (W990000496) Estimated arsenic result due to high calibration data. The preparation blank contains about 0.6 ug/g (ppm) lead. Sample dilution factor is applied to the blank. ICP-MS: (All) LCS recoveries within advisory range for the LCS standard. PEST: LCS, LCSD, and MS ran high. Extract Hold time exceeded. IC: Fluoride, chloride, and phosphate were detected, but at concentrations less than those of the lowest calibration level. Did not test for the presence of oxidizer or sulfide. Low LCS recovery (87%). Fluoride, chloride, and phosphate were detected, but at concentrations less than those of the lowest calibration level. High bias observed in cal-check standard recovery (116%) at 5ug/g Hg
W990000497	S9015-09	VALTEST	Cyanide by Midi/FIA	
		VALTEST	Fluoride (F) by IC	
		VALTEST	Mercury by ICP-MS	

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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W04/c/2 Report#: 99000792

Report Date: 19-aug-1999

Page 1

WSCF TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:		Group #:		99000792		
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.
 N - Identification is based on a mass spectral library search.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

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W04E Report#: 99000792

Report Date: 19 aug 1999

Page 1

WASTE MANAGEMENT LABORATORY

**WSCF
ANALYTICAL LABORATORY REPORT**

for

Waste Management Northwest
HI-13

Richland WA 99352

Attention: Ron Mitchell HI-13/FX 6-1435

Report#: 99000793
Report Date: 19-aug-1999
Report W004/ver. 3
Waste Management Northwest

Page 1

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
 Project Number EM&J : Environmental Monitoring Group #: 99000793

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000499	S9015-11	Arsenic by ICP-MS	SOLID	EPA 200.8	J	1.4	ug/g	0.16	06/29/99	05/18/99	06/20/99
W990000499	S9015-11	Cyanide by MiliFIA	SOLID	LA-695-410	U	0.0	mg/kg	0.10	06/04/99	05/18/99	06/20/99
W990000499	S9015-11	Lead by ICP-MS	SOLID	EPA 200.8	B	5.7	ug/g	0.16	06/29/99	05/18/99	06/20/99
W990000499	S9015-11	Mercury by ICP-MS	SOLID	EPA 200.8	U	< 0.16	ug/g	0.16	06/29/99	05/18/99	06/20/99
W990000499	S9015-11	Am-241 by AEA	SOLID	LA-508-472		8.3e-02	pCi/g	0.06	06/04/99	05/18/99	06/20/99
W990000499	S9015-11	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		57.	%	0.00	06/04/99	05/18/99	06/20/99
W990000499	S9015-11	Bromide (Br) by IC	SOLID	EPA 300.0	U	< 0.6	ug/g	0.57	06/16/99	05/18/99	06/20/99
W990000499	S9015-11	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.9	ug/g	0.10	06/16/99	05/18/99	06/20/99
W990000499	S9015-11	Fluoride (F) by IC	SOLID	EPA 300.0	J	0.7	ug/g	0.09	06/16/99	05/18/99	06/20/99
W990000499	S9015-11	Nitrate (N) by IC	SOLID	EPA 300.0		4.60	ug/g	0.18	06/16/99	05/18/99	06/20/99
W990000499	S9015-11	Nitrite (N) by IC	SOLID	EPA 300.0	U	< 0.4	ug/g	0.37	06/16/99	05/18/99	06/20/99
W990000499	S9015-11	Phosphate (P) by IC	SOLID	EPA 300.0		3.57	ug/g	0.55	06/16/99	05/18/99	06/20/99
W990000499	S9015-11	Sulfate (SO4) by IC	SOLID	EPA 300.0	U	< 1	ug/g	1.00	06/16/99	05/18/99	06/20/99
W990000499	S9015-11	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	203.	%	0.00	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Ce-144 by GEA	SOLID	LA-508-462	U	5.27e-02	pCi/g	0.16	05/24/99	05/18/99	06/20/99
W990000499	S9015-11	CePr-144 Rel. % Count Error	SOLID	LA-508-462		203.	%	0.00	05/24/99	05/18/99	06/20/99
W990000499	S9015-11	CePr-144 by GEA	SOLID	LA-508-462	U	1.05e-01	pCi/g	0.32	05/24/99	05/18/99	06/20/99
W990000499	S9015-11	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	05/24/99	05/18/99	06/20/99
W990000499	S9015-11	Co-60 by GEA	SOLID	LA-508-462	U	5.22e-04	pCi/g	0.02	05/24/99	05/18/99	06/20/99
W990000499	S9015-11	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		60.5	%	0.00	05/24/99	05/18/99	06/20/99
W990000499	S9015-11	Cs-134 by GEA	SOLID	LA-508-462		2.45e-02	pCi/g	0.02	05/24/99	05/18/99	06/20/99
W990000499	S9015-11	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		21.7	%	0.00	05/24/99	05/18/99	06/20/99
W990000499	S9015-11	Cs-137 by GEA	SOLID	LA-508-462		1.58e-01	pCi/g	0.02	05/24/99	05/18/99	06/20/99
W990000499	S9015-11	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		189.	%	0.00	05/24/99	05/18/99	06/20/99
W990000499	S9015-11	Eu-152 by GEA	SOLID	LA-508-462	U	-2.40e-02	pCi/g	0.06	05/24/99	05/18/99	06/20/99
W990000499	S9015-11	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	05/24/99	05/18/99	06/20/99

MDL=Minimum Detection Limit

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B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
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Report W004/ver. 3

Waste Management Northwest

D - Compound concentration resulted from a dilution.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000793
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000499	S9015-11	Eu-154 by GEA	SOLID	LA-508-462	U	2.00e-03	pCi/g	0.06	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		119.	%	0.00	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Eu-155 by GEA	SOLID	LA-508-462	U	4.42e-02	pCi/g	0.09	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		125.	%	0.00	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Nb-94 by GEA	SOLID	LA-508-462	U	7.70e-03	pCi/g	0.02	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		115.	%	0.00	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Ru-103 by GEA	SOLID	LA-508-462	U	9.16e-03	pCi/g	0.02	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Ru-106 by GEA	SOLID	LA-508-462	U	6.00e-03	pCi/g	0.15	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		174.	%	0.00	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Sb-125 by GEA	SOLID	LA-508-462	U	1.85e-02	pCi/g	0.05	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		149.	%	0.00	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Sn-113 by GEA	SOLID	LA-508-462	U	9.66e-03	pCi/g	0.02	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		283.	%	0.00	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Zn-65 by GEA	SOLID	LA-508-462	U	-9.98e-03	pCi/g	0.04	05/24/99	05/18/99	05/20/99
W990000499	S9015-11	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.02	07/06/99	05/18/99	05/20/99
W990000499	S9015-11	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000499	S9015-11	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000499	S9015-11	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000499	S9015-11	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000499	S9015-11	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000499	S9015-11	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000499	S9015-11	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000499	S9015-11	Aldrin	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000499	S9015-11	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000499	S9015-11	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99

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Report W0004/ver. 3
 Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435 **Group #:** 99000793
Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000499	S9015-11	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	Endrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W9900000499	S9015-11	Pu-238 by AEA	SOLID	LA-508-472	U	-1.8e-03	pCi/g	0.04	06/07/99	05/18/99	05/20/99
W9900000499	S9015-11	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		1000	%	0.00	06/07/99	05/18/99	05/20/99
W9900000499	S9015-11	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		150	%	0.00	06/07/99	05/18/99	05/20/99
W9900000499	S9015-11	Pu-239/240 by AEA	SOLID	LA-508-472	U	3.6e-03	pCi/g	4.90e-003	06/07/99	05/18/99	05/20/99
W9900000499	S9015-11	Sr-90 Rel. % Count Error	SOLID	LA-220-403		45	%	0.00	06/23/99	05/18/99	05/20/99
W9900000499	S9015-11	Sr-90 by Beta Counting	SOLID	LA-220-403		6.8e-01	pCi/g	0.30	06/23/99	05/18/99	05/20/99
W9900000499	S9015-11	U-234 by AEA	SOLID	LA-508-472		1.7e-01	pCi/g	0.02	06/03/99	05/18/99	05/20/99
W9900000499	S9015-11	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.00	06/03/99	05/18/99	05/20/99
W9900000499	S9015-11	U-235 by AEA	SOLID	LA-508-472		1.5e-02	pCi/g	6.60e-003	06/03/99	05/18/99	05/20/99
W9900000499	S9015-11	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		87	%	0.00	06/03/99	05/18/99	05/20/99
W9900000499	S9015-11	U-238 by AEA	SOLID	LA-508-472		1.7e-01	pCi/g	6.00e-003	06/03/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.

J - Estimated value. Z - See Comments.

U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W0004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring Group #: 99000793

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000499	S9015-11	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.10	06/03/99	05/18/99	05/20/99
W990000500	S9015-12	Arsenic by ICP-MS	SOLID	EPA 200.8		0.75	ug/g	0.40	07/13/99	05/18/99	05/20/99
W990000500	S9015-12	Cyanide by Mili/FIA	SOLID	LA-695-410		0.67	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W990000500	S9015-12	Lead by ICP-MS	SOLID	EPA 200.8		2.26	ug/g	9.89e-003	07/13/99	05/18/99	05/20/99
W990000500	S9015-12	Mercury by ICP-MS	SOLID	EPA 200.8	J	0.08	ug/g	0.08	07/13/99	05/18/99	05/20/99
W990000500	S9015-12	Am-241 by AEA	SOLID	LA-508-472		4.1e-02	pCi/g	0.03	06/29/99	05/18/99	05/20/99
W990000500	S9015-12	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		57.	%	0.00	06/29/99	05/18/99	05/20/99
W990000500	S9015-12	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	204.	%	0.00	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Ce-144 by GEA	SOLID	LA-508-462		-9.34e-02	pCi/g	0.30	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	CaPr-144 Rel. % Count Error	SOLID	LA-508-462		204.	%	0.00	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	CaPr-144 by GEA	SOLID	LA-508-462	U	-1.87e-01	pCi/g	0.61	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Co-60 by GEA	SOLID	LA-508-462	U	-2.58e-03	pCi/g	0.05	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		242.	%	0.00	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Cs-134 by GEA	SOLID	LA-508-462	U	1.25e-02	pCi/g	0.05	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		25.8	%	0.00	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Cs-137 by GEA	SOLID	LA-508-462		2.89e-01	pCi/g	0.05	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		112.	%	0.00	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Eu-152 by GEA	SOLID	LA-508-462	U	8.57e-02	pCi/g	0.15	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		244.	%	0.00	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Eu-154 by GEA	SOLID	LA-508-462	U	3.34e-02	pCi/g	0.14	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		359.	%	0.00	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Eu-155 by GEA	SOLID	LA-508-462	U	-2.81e-02	pCi/g	0.17	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		240.	%	0.00	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Nb-94 by GEA	SOLID	LA-508-462	U	1.15e-02	pCi/g	0.05	06/01/99	05/18/99	05/20/99
W990000500	S9015-12	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		211.	%	0.00	06/01/99	05/18/99	05/20/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

D - Compound concentration resulted from a dilution.
J - Estimated value.
U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring Group #: 99000793

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000500	S9015-12	Ru-103 by GEA	SOLID	LA-508-462	U	-1.64e-02	pCi/g	0.05	06/01/99	05/18/99	05/20/99
W9900000500	S9015-12	Ru-106 Rel % Count Error (GEA)	SOLID	LA-508-462	U	145.	%	0.00	06/01/99	05/18/99	05/20/99
W9900000500	S9015-12	Ru-106 by GEA	SOLID	LA-508-462	U	-1.86e-01	pCi/g	0.44	06/01/99	05/18/99	05/20/99
W9900000500	S9015-12	Sb-125 Rel % Count Error (GEA)	SOLID	LA-508-462	U	436.	%	0.00	06/01/99	05/18/99	05/20/99
W9900000500	S9015-12	Sb-125 by GEA	SOLID	LA-508-462	U	1.71e-02	pCi/g	0.13	06/01/99	05/18/99	05/20/99
W9900000500	S9015-12	Se-113 Rel % Count Error (GEA)	SOLID	LA-508-462	U	202.	%	0.00	06/01/99	05/18/99	05/20/99
W9900000500	S9015-12	Se-113 by GEA	SOLID	LA-508-462	U	1.89e-02	pCi/g	0.06	06/01/99	05/18/99	05/20/99
W9900000500	S9015-12	Zn-65 Rel % Count Error (GEA)	SOLID	LA-508-462	U	100.	%	0.00	06/01/99	05/18/99	05/20/99
W9900000500	S9015-12	Zn-65 by GEA	SOLID	LA-508-462	U	-1.27e-01	pCi/g	0.10	06/01/99	05/18/99	05/20/99
W9900000500	S9015-12	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000500	S9015-12	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000500	S9015-12	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000500	S9015-12	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000500	S9015-12	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000500	S9015-12	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000500	S9015-12	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000500	S9015-12	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000500	S9015-12	Aldrin	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000500	S9015-12	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000500	S9015-12	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000500	S9015-12	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000500	S9015-12	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000500	S9015-12	Endrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000500	S9015-12	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000500	S9015-12	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000500	S9015-12	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99

MDL = Minimum Detection Limit
RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
J - Estimated Value.
U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W0004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I Environmental Monitoring Group #: 99000793

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000500	S9015-12	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000500	S9015-12	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	2.50e+003	08/10/99	05/18/99	05/20/99
W990000500	S9015-12	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	2.50e+003	08/10/99	05/18/99	05/20/99
W990000500	S9015-12	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000500	S9015-12	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000500	S9015-12	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000500	S9015-12	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000500	S9015-12	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000500	S9015-12	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000500	S9015-12	Pu-238 by AEA	SOLID	LA-508-472		5.1e-02	pCi/g	0.01	06/29/99	05/18/99	05/20/99
W990000500	S9015-12	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		42.	%	0.00	06/29/99	05/18/99	05/20/99
W990000500	S9015-12	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		65.	%	0.00	06/29/99	05/18/99	05/20/99
W990000500	S9015-12	Pu-239/240 by AEA	SOLID	LA-508-472		1.2e-02	pCi/g	2.60e-003	06/29/99	05/18/99	05/20/99
W990000500	S9015-12	Sr-90 Rel. % Count Error	SOLID	LA-220-403		30	%	0.00	07/14/99	05/18/99	05/20/99
W990000500	S9015-12	Sr-90 by Beta Counting	SOLID	LA-220-403		5.9E-01	pCi/g	0.20	07/14/99	06/18/99	05/20/99
W990000500	S9015-12	U-234 by AEA	SOLID	LA-508-472		2.1e-01	pCi/g	3.60e-003	06/30/99	05/18/99	05/20/99
W990000500	S9015-12	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		35.	%	0.00	06/30/99	05/18/99	05/20/99
W990000500	S9015-12	U-235 by AEA	SOLID	LA-508-472		1.2e-01	pCi/g	0.01	06/30/99	05/18/99	05/20/99
W990000500	S9015-12	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.00	06/30/99	05/18/99	05/20/99
W990000500	S9015-12	U-238 by AEA	SOLID	LA-508-472		1.4e-01	pCi/g	9.80e-003	06/30/99	05/18/99	05/20/99
W990000500	S9015-12	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		36.	%	0.10	06/30/99	05/18/99	05/20/99
W990000501	S9015-13	Arsenic by ICP-MS	SOLID	EPA 200.8	U <	0.4	ug/g	0.37	07/13/99	05/18/99	05/20/99
W990000501	S9015-13	Cyanide by ICP-MS	SOLID	EPA 200.8	U	0.0	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W990000501	S9015-13	Lead by ICP-MS	SOLID	EPA 200.8		0.60	ug/g	9.35e-003	07/13/99	05/18/99	05/20/99
W990000501	S9015-13	Mercury by ICP-MS	SOLID	EPA 200.8	U <	0.075	ug/g	0.07	07/13/99	05/18/99	05/20/99
W990000501	S9015-13	Am-241 by AEA	SOLID	LA-508-472		3.7e-02	pCi/g	0.03	06/29/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

B - The analyte was detected in the associated method blank.
D - Compound concentration resulted from a dilution.
E - Compound concentration exceeded calibration range.
J - Estimated value.
N - Identification is based on a mass spectral library search.
Z - See Comments.
U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Project Number Client ID Sample # Ron Mitchell H1-13/FX 6-1435 Group #: 99000793
EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000501	S9015-13	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		62.	%	0.00	06/29/99	06/18/99	05/20/99
W990000501	S9015-13	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		318.	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Ce-144 by GEA	SOLID	LA-508-462	U	3.43e-02	pCi/g	0.19	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	CePr-144 Rel. % Count Error	SOLID	LA-508-462		317.	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	CePr-144 by GEA	SOLID	LA-508-462	U	6.87e-02	pCi/g	0.37	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Co-60 by GEA	SOLID	LA-508-462	U	-2.07e-03	pCi/g	0.04	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		114.	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Cs-134 by GEA	SOLID	LA-508-462	U	2.24e-02	pCi/g	0.04	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		221.	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Cs-137 by GEA	SOLID	LA-508-462	U	-9.55e-03	pCi/g	0.04	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		303.	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Eu-152 by GEA	SOLID	LA-508-462	U	1.81e-02	pCi/g	0.10	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Eu-154 by GEA	SOLID	LA-508-462	U	2.24e-03	pCi/g	0.12	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		163.	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Eu-155 by GEA	SOLID	LA-508-462	U	3.67e-02	pCi/g	0.10	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Nb-94 by GEA	SOLID	LA-508-462	U	2.72e-04	pCi/g	0.03	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		245.	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Ru-103 by GEA	SOLID	LA-508-462	U	8.82e-03	pCi/g	0.04	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Ru-106 by GEA	SOLID	LA-508-462	U	5.47e-03	pCi/g	0.34	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		374.	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Sb-125 by GEA	SOLID	LA-508-462	U	-1.47e-02	pCi/g	0.09	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/01/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

8 - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.
D - Compound concentration resulted from a dilution.
J - Estimated value.
Z - See Comments.
U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring Group #: 99000793

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000501	S9015-13	Sn-113 by GEA	SOLID	LA-508-462	U	4.40e-04	pCi/g	0.04	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	100.	%	0.00	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Zn-65 by GEA	SOLID	LA-508-462	U	-7.93e-02	pCi/g	0.08	06/01/99	05/18/99	05/20/99
W990000501	S9015-13	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/15/99	05/18/99	05/20/99
W990000501	S9015-13	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W990000501	S9015-13	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W990000501	S9015-13	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W990000501	S9015-13	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W990000501	S9015-13	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Aldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Endrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000793
Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000501	S9015-13	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000501	S9015-13	Pu-238 by AEA	SOLID	LA-508-472		1.8e-02	pCi/g	0.01	06/29/99	05/18/99	05/20/99
W990000501	S9015-13	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		63.	%	0.00	06/29/99	05/18/99	05/20/99
W990000501	S9015-13	Pu-238/240 AEA Total Cntg Err	SOLID	LA-508-472		70.	%	0.00	06/29/99	05/18/99	05/20/99
W990000501	S9015-13	Pu-238/240 by AEA	SOLID	LA-508-472		8.7e-03	pCi/g	2.40e-003	06/29/99	05/18/99	05/20/99
W990000501	S9015-13	Sr-90 Rel. % Count Error	SOLID	LA-220-403		35	%	0.00	07/14/99	05/18/99	05/20/99
W990000501	S9015-13	Sr-90 by Beta Counting	SOLID	LA-220-403		4.9E-01	pCi/g	0.20	07/14/99	05/18/99	05/20/99
W990000501	S9015-13	U-234 by AEA	SOLID	LA-508-472		1.4e-01	pCi/g	8.20e-003	06/30/99	05/18/99	05/20/99
W990000501	S9015-13	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		36.	%	0.00	06/30/99	05/18/99	05/20/99
W990000501	S9015-13	U-235 by AEA	SOLID	LA-508-472		1.0e-01	pCi/g	3.30e-003	06/30/99	05/18/99	05/20/99
W990000501	S9015-13	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.00	06/30/99	05/18/99	05/20/99
W990000501	S9015-13	U-238 by AEA	SOLID	LA-508-472		5.7e-02	pCi/g	3.00e-003	06/30/99	05/18/99	05/20/99
W990000501	S9015-13	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		42.	%	0.00	06/30/99	05/18/99	05/20/99
W990000502	S9015-14	Arsenic by ICP-MS	SOLID	EPA 200.8		1.03	ug/g	0.39	07/13/99	05/18/99	05/20/99
W990000502	S9015-14	Cyanide by Mili/FIA	SOLID	LA-595-410		0.39	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W990000502	S9015-14	Lead by ICP-MS	SOLID	EPA 200.8		14.8	ug/g	9.70e-003	07/13/99	05/18/99	05/20/99
W990000502	S9015-14	Mercury by ICP-MS	SOLID	EPA 200.8	U	< 0.078	ug/g	0.08	07/13/99	05/18/99	05/20/99
W990000502	S9015-14	Am-241 by AEA	SOLID	LA-508-472		3.3e-02	pCi/g	0.03	06/28/99	05/18/99	05/20/99
W990000502	S9015-14	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		70.	%	0.00	06/29/99	05/18/99	05/20/99
W990000502	S9015-14	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		703.	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Ce-144 by GEA	SOLID	LA-508-462	U	-1.61e-02	pCi/g	0.19	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	CaPr-144 Rel. % Count Error	SOLID	LA-508-462		703.	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	CaPr-144 by GEA	SOLID	LA-508-462	U	-3.22e-02	pCi/g	0.38	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Ce-90 Rel. % Count Error (GEA)	SOLID	LA-508-462		978.	%	0.00	06/02/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/EX 6-1435 Group #: 99000793
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000502	S9015-14	Co-60 by GEA	SOLID	LA-508-462	U	1.45e-03	pCi/g	0.02	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		101.	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Cs-134 by GEA	SOLID	LA-508-462	U	1.87e-02	pCi/g	0.03	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		14.2	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Cs-137 by GEA	SOLID	LA-508-462		6.96e-01	pCi/g	0.03	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		481.	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Eu-152 by GEA	SOLID	LA-508-462	U	1.03e-02	pCi/g	0.08	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		196.	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Eu-154 by GEA	SOLID	LA-508-462	U	-2.14e-02	pCi/g	0.07	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		152.	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Eu-155 by GEA	SOLID	LA-508-462	U	3.95e-02	pCi/g	0.10	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		217.	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Nb-94 by GEA	SOLID	LA-508-462	U	6.57e-03	pCi/g	0.03	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		128.	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Ru-103 by GEA	SOLID	LA-508-462	U	-1.35e-02	pCi/g	0.03	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		308.	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Ru-106 by GEA	SOLID	LA-508-462	U	-4.47e-02	pCi/g	0.23	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		152.	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Sb-125 by GEA	SOLID	LA-508-462	U	-2.98e-02	pCi/g	0.07	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		100.	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Sn-113 by GEA	SOLID	LA-508-462	U	-2.60e-02	pCi/g	0.03	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Zn-65 by GEA	SOLID	LA-508-462	U	-1.92e-03	pCi/g	0.06	06/02/99	05/18/99	05/20/99
W990000502	S9015-14	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/13/99	05/18/99	05/20/99
W990000502	S9015-14	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000502	S9015-14	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99

MDL=Minimum Detection Limit

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D - Compound concentration resulted from a dilution.
 J - Estimated value. Z - See Comments.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000793
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000502	S9015-14	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000502	S9015-14	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000502	S9015-14	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Aldrin	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Endrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	2.50e+003	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	2.50e+003	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	2.50e+003	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W990000502	S9015-14	Pu-238 by AEA	SOLID	LA-508-472	U	5.4e-02	pCi/g	0.02	06/29/99	05/18/99	05/20/99
W990000502	S9015-14	Pu-238 by AEA	SOLID	LA-508-472	U	44.	%	0.00	06/29/99	05/18/99	05/20/99
W990000502	S9015-14	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472	U	53.	%	0.00	06/29/99	05/18/99	05/20/99

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.. Indicates results that have NOT been validated

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000793
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000502	S9015-14	Pu-239/240 by AEA	SOLID	LA-508-472		2.1e-02	pCi/g	2.70e-003	06/29/99	05/18/99	05/20/99
W980000502	S9015-14	Sr-90 Rel. % Count Error	SOLID	LA-220-403		30	%	0.00	07/14/99	06/18/99	06/20/99
W990000502	S9015-14	Sr-90 by Beta Counting	SOLID	LA-220-403		5.5E-01	pCi/g	0.20	07/14/99	05/18/99	05/20/99
W990000502	S9015-14	U-234 by AEA	SOLID	LA-508-472		1.3e-01	pCi/g	7.40e-003	06/30/99	05/18/99	05/20/99
W990000502	S9015-14	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		36	%	0.00	06/30/99	05/18/99	05/20/99
W990000502	S9015-14	U-235 by AEA	SOLID	LA-508-472		2.8e-02	pCi/g	3.00e-003	06/30/99	05/18/99	05/20/99
W990000502	S9015-14	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		50	%	0.00	06/30/99	05/18/99	05/20/99
W990000502	S9015-14	U-238 by AEA	SOLID	LA-508-472		1.0e-01	pCi/g	2.70e-003	06/30/99	05/18/99	05/20/99
W990000502	S9015-14	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		37	%	0.10	06/30/99	05/18/99	05/20/99

MDL = Minimum Detection Limit
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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL COMMENT REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 **Group #:** 99000793
Project Number EM&I

Sample #	Client ID	Lab Area	Test	Comment
VALGROUP				
W990000499	S9015-11	VALTEST	Anions by Ion Chromatography	ICP-MS: (W990000500) Estimated arsenic result due to high calibration data. The preparation blank contains 0.6ug/L (ppm) lead. Sample dilution factor is applied to the blank.
				ICP-MS: (All) LCS recoveries within advisory range for the LCS standard.
				PEST: LCS, LCS.D, MS ran high. Extract Hold time exceeded
				IC: Fluoride and chloride were detected, but at concentrations less than those of the lowest calibration level.
				Did not test for the presence of oxidizer or sulfide.
				Low LCS recovery (87%).
				Fluoride and chloride were detected, but at concentrations less than those of the lowest calibration level.
W990000500	S9015-12	VALTEST	Mercury by ICP-MS	High bias observed in cal-check standard recovery(116%) at 5ug/g Hg.

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
 LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report#: 99000793

Report Date: 19-aug-1999

Page 1

WSCF

TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		Group #:		99000793				
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units

RQ = Result Qualifier

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WD4E Report#: 99000793

Report Date: 19-aug-1999

Page 1

**WSCF
ANALYTICAL LABORATORY REPORT**

for

Waste Management Northwest
H1-13

Richland WA 99352

Attention: Ron Mitchell H1-13/FX 6-1435

Report#: 99000794
Report Date: 19-aug-1999
Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000794
Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000503	S9015-15	Arsenic by ICP-MS	SOLID	EPA 200.8	B J	3.1	ug/g	0.27	06/30/99	05/18/99	05/20/99
W990000503	S9015-15	Cyanide by Mid/FlA	SOLID	LA-695-410	U J	0.0	mg/kg	0.10	06/04/99	05/18/99	05/20/99
W990000503	S9015-15	Lead by ICP-MS	SOLID	EPA 200.8	B	7.8	ug/g	0.27	06/30/99	05/18/99	05/20/99
W990000503	S9015-15	Mercury by ICP-MS	SOLID	EPA 200.8	U <	0.27	ug/g	0.27	06/30/99	05/18/99	05/20/99
W990000503	S9015-15	Am-241 by AEA	SOLID	LA-508-472	U	7.1e-02	pCi/g	0.09	06/14/99	05/18/99	05/20/99
W990000503	S9015-15	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		88.	%	0.00	06/14/99	05/18/99	05/20/99
W990000503	S9015-15	Bromide (Br) by IC	SOLID	EPA 300.0	U <	0.6	ug/g	0.57	06/16/99	05/18/99	05/20/99
W990000503	S9015-15	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.8	ug/g	0.10	06/16/99	05/18/99	05/20/99
W990000503	S9015-15	Fluoride (F) by IC	SOLID	EPA 300.0	J	0.9	ug/g	0.09	06/16/99	05/18/99	05/20/99
W990000503	S9015-15	Nitrate (NI) by IC	SOLID	EPA 300.0		2.98	ug/g	0.18	06/16/99	05/18/99	05/20/99
W990000503	S9015-15	Nitrite (NI) by IC	SOLID	EPA 300.0	J	0.7	ug/g	0.38	06/16/99	05/18/99	05/20/99
W990000503	S9015-15	Phosphate (P) by IC	SOLID	EPA 300.0		4.30	ug/g	0.55	06/16/99	05/18/99	05/20/99
W990000503	S9015-15	Sulfate (SO4) by IC	SOLID	EPA 300.0	J	4	ug/g	1.00	06/16/99	05/18/99	05/20/99
W990000503	S9015-15	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		185.	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Ce-144 by GEA	SOLID	LA-508-462	U	-3.48e-02	pCi/g	0.09	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	CePr-144 Rel. % Count Error	SOLID	LA-508-462		185.	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	CePr-144 by GEA	SOLID	LA-508-462	U	-6.96e-02	pCi/g	0.18	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		447.	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Co-60 by GEA	SOLID	LA-508-462	U	-1.43e-03	pCi/g	0.01	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		34.3	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Cs-134 by GEA	SOLID	LA-508-462		3.70e-02	pCi/g	0.01	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		15.9	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Cs-137 by GEA	SOLID	LA-508-462		1.79e-01	pCi/g	0.01	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		337.	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Eu-152 by GEA	SOLID	LA-508-462	U	-7.29e-03	pCi/g	0.03	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		164.	%	0.00	05/25/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000794
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000503	S9015-15	Eu-154 by GEA	SOLID	LA-508-462	U	1.50e-02	pCi/g	0.04	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		103.	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Eu-155 by GEA	SOLID	LA-508-462	U	4.43e-02	pCi/g	0.05	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Nb-94 by GEA	SOLID	LA-508-462	U	-3.82e-05	pCi/g	0.01	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Ru-103 by GEA	SOLID	LA-508-462	U	6.96e-06	pCi/g	0.01	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		199.	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Ru-106 by GEA	SOLID	LA-508-462	U	-3.00e-02	pCi/g	0.10	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		283.	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Sb-125 by GEA	SOLID	LA-508-462	U	6.36e-03	pCi/g	0.03	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		236.	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Sn-113 by GEA	SOLID	LA-508-462	U	-3.85e-03	pCi/g	0.01	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Zn-65 by GEA	SOLID	LA-508-462	U	1.16e-03	pCi/g	0.03	05/25/99	05/18/99	05/20/99
W990000503	S9015-15	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.02	07/06/99	05/18/99	05/20/99
W990000503	S9015-15	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000503	S9015-15	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000503	S9015-15	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000503	S9015-15	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/18/99	05/20/99
W990000503	S9015-15	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	Aldrin	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99

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Report W004/ver. 3
 Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435 Group #: 99000794
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000503	S9015-15	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	06/20/99
W990000503	S9015-15	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	Endrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/18/99	05/20/99
W990000503	S9015-15	Pu-238 by AEA	SOLID	LA-508-472	U	6.1e-03	pCi/g	0.03	06/14/99	05/18/99	05/20/99
W990000503	S9015-15	Pu-238 by AEA Total Cntg Err	SOLID	LA-508-472	U	2.8e+02	%	0.00	06/14/99	05/18/99	05/20/99
W990000503	S9015-15	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472	U	60.	%	0.00	06/14/99	05/18/99	05/20/99
W990000503	S9015-15	Pu-239/240 by AEA	SOLID	LA-508-472	U	3.0e-02	pCi/g	5.50e-003	06/14/99	05/18/99	05/20/99
W990000503	S9015-15	Sr-90 Rel. % Count Error	SOLID	LA-220-403	U	41	%	0.00	06/23/99	05/18/99	05/20/99
W990000503	S9015-15	Sr-90 by Beta Counting	SOLID	LA-220-403	U	7.3E-01	pCi/g	0.26	06/23/99	05/18/99	05/20/99
W990000503	S9015-15	U-234 by AEA	SOLID	LA-508-472	U	1.5e-01	pCi/g	5.10e-003	06/08/99	05/18/99	05/20/99
W990000503	S9015-15	U-234 by AEA Total Cntg Error	SOLID	LA-508-472	U	38.	%	0.00	06/08/99	05/18/99	05/20/99
W990000503	S9015-15	U-235 by AEA	SOLID	LA-508-472	U	1.6e-02	pCi/g	5.50e-003	06/08/99	05/18/99	05/20/99
W990000503	S9015-15	U-235 by AEA Total Cntg Error	SOLID	LA-508-472	U	77.	%	0.00	06/08/99	05/18/99	05/20/99
W990000503	S9015-15	U-238 by AEA	SOLID	LA-508-472	U	1.6e-01	pCi/g	5.10e-003	06/08/99	05/18/99	05/20/99

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Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435
Project Number EM&I Environmental Monitoring Group #: 99000794

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000503	S9015-15	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.10	06/08/99	05/18/99	05/20/99
W990000504	S9015-16	Arsenic by ICP-MS	SOLID	EPA 200.8		1.17	ug/g	0.39	07/13/99	05/18/99	05/20/99
W990000504	S9015-16	Cyanide by Mid/FIA	SOLID	LA-695-410		0.75	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W990000504	S9015-16	Lead by ICP-MS	SOLID	EPA 200.8		3.74	ug/g	9.64e-003	07/13/99	05/18/99	05/20/99
W990000504	S9015-16	Mercury by ICP-MS	SOLID	EPA 200.8	J	0.09	ug/g	0.08	07/13/99	05/18/99	05/20/99
W990000504	S9015-16	Am-241 by AEA	SOLID	LA-508-472		3.8e-02	pCi/g	0.02	06/29/99	05/18/99	05/20/99
W990000504	S9015-16	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		57.	%	0.00	06/29/99	05/18/99	05/20/99
W990000504	S9015-16	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		227.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Ce-144 by GEA	SOLID	LA-508-462	U	7.69e-02	pCi/g	0.30	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	CePr-144 Rel. % Count Error	SOLID	LA-508-462		227.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	CePr-144 by GEA	SOLID	LA-508-462	U	1.54e-01	pCi/g	0.60	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		763.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Co-60 by GEA	SOLID	LA-508-462	U	-2.98e-03	pCi/g	0.04	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		129.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Cs-134 by GEA	SOLID	LA-508-462	U	1.96e-02	pCi/g	0.05	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		24.9	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Cs-137 by GEA	SOLID	LA-508-462		2.10e-01	pCi/g	0.05	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		492.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Eu-152 by GEA	SOLID	LA-508-462	U	-1.62e-02	pCi/g	0.14	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		222.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Eu-154 by GEA	SOLID	LA-508-462	U	-3.10e-02	pCi/g	0.12	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		161.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Eu-155 by GEA	SOLID	LA-508-462	U	5.68e-02	pCi/g	0.16	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		219.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Nb-94 by GEA	SOLID	LA-508-462	U	1.02e-02	pCi/g	0.04	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		360.	%	0.00	06/03/99	05/18/99	05/20/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

D - Compound concentration resulted from a dilution.

E - The analyte was detected in the associated method blank.

F - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
 Project Number EM&I : Environmental Monitoring Group #: 99000794

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000504	S9015-16	Ru-103 by GEA	SOLID	LA-508-462	U	-7.56e-03	pCi/g	0.05	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		187.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Ru-106 by GEA	SOLID	LA-508-462	U	1.13e-01	pCi/g	0.38	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		149.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Sb-125 by GEA	SOLID	LA-508-462	U	-4.80e-02	pCi/g	0.12	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		315.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Sn-113 by GEA	SOLID	LA-508-462	U	1.06e-02	pCi/g	0.06	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		408.	%	0.00	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Zn-65 by GEA	SOLID	LA-508-462	U	1.47e-02	pCi/g	0.09	06/03/99	05/18/99	05/20/99
W990000504	S9015-16	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/13/99	05/18/99	05/20/99
W990000504	S9015-16	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000504	S9015-16	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000504	S9015-16	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000504	S9015-16	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000504	S9015-16	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000504	S9015-16	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000504	S9015-16	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000504	S9015-16	Aldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000504	S9015-16	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000504	S9015-16	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000504	S9015-16	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000504	S9015-16	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000504	S9015-16	Endrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000504	S9015-16	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000504	S9015-16	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000504	S9015-16	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

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 J - Estimated value
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000794
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000504	S9015-16	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000504	S9015-16	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	2.50e+003	08/10/99	05/18/99	05/20/99
W9900000504	S9015-16	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	2.50e+003	08/10/99	05/18/99	05/20/99
W9900000504	S9015-16	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000504	S9015-16	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000504	S9015-16	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000504	S9015-16	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000504	S9015-16	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000504	S9015-16	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000504	S9015-16	Pu-238 by AEA	SOLID	LA-508-472		1.2e-01	pCi/g	0.02	06/29/99	05/18/99	05/20/99
W9900000504	S9015-16	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		36.	%	0.00	06/29/99	05/18/99	05/20/99
W9900000504	S9015-16	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		57.	%	0.00	06/29/99	05/18/99	05/20/99
W9900000504	S9015-16	Pu-239/240 by AEA	SOLID	LA-508-472		1.6e-02	pCi/g	2.50e-003	06/29/99	05/18/99	05/20/99
W9900000504	S9015-16	Sr-90 Rel. % Count Error	SOLID	LA-220-403		30	%	0.00	07/14/99	05/18/99	05/20/99
W9900000504	S9015-16	U-234 by AEA	SOLID	LA-508-472		1.2e-01	pCi/g	8.30e-003	06/30/99	05/18/99	05/20/99
W9900000504	S9015-16	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		37.	%	0.00	06/30/99	05/18/99	05/20/99
W9900000504	S9015-16	U-235 by AEA	SOLID	LA-508-472		5.5e-02	pCi/g	3.40e-003	06/30/99	05/18/99	05/20/99
W9900000504	S9015-16	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		43.	%	0.00	06/30/99	05/18/99	05/20/99
W9900000504	S9015-16	U-238 by AEA	SOLID	LA-508-472		1.4e-01	pCi/g	3.10e-003	06/30/99	05/18/99	05/20/99
W9900000504	S9015-16	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		36.	%	0.10	06/30/99	05/18/99	05/20/99
W9900000505	S9015-17	Arsenic by ICP-MS	SOLID	EPA 200.8	U	< 0.40	ug/g	0.39	07/13/99	05/18/99	05/20/99
W9900000505	S9015-17	Cyanide by Mercur	SOLID	LA-695-410	U	0.0	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W9900000505	S9015-17	Lead by ICP-MS	SOLID	EPA 200.8	B	0.85	ug/g	9.81e-003	07/13/99	05/18/99	05/20/99
W9900000505	S9015-17	Mercury by ICP-MS	SOLID	EPA 200.8	U	< 0.079	ug/g	0.08	07/13/99	05/18/99	05/20/99
W9900000505	S9015-17	Am-241 by AEA	SOLID	LA-508-472	U	5.0e-02	pCi/g	0.07	07/01/99	05/18/99	05/20/99

MDL = Minimum Detection Limit
 RQ = Result Qualifier

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 J - Estimated value.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435 Group #: 99000794
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000505	S9015-17	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		96.	%	0.00	07/01/99	05/18/99	05/20/99
W990000505	S9015-17	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Ce-144 by GEA	SOLID	LA-508-462	U	1.39e-02	pCi/g	0.24	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	CePr-144 Rel. % Count Error	SOLID	LA-508-462		1000	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	CePr-144 by GEA	SOLID	LA-508-462	U	2.77e-02	pCi/g	0.49	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		100.	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Co-60 by GEA	SOLID	LA-508-462	U	-3.20e-02	pCi/g	0.05	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		174.	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Cs-134 by GEA	SOLID	LA-508-462	U	-1.58e-02	pCi/g	0.05	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		165.	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Cs-137 by GEA	SOLID	LA-508-462	U	-1.58e-02	pCi/g	0.04	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Eu-152 by GEA	SOLID	LA-508-462	U	1.49e-03	pCi/g	0.13	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		126.	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Eu-154 by GEA	SOLID	LA-508-462	U	-7.14e-02	pCi/g	0.15	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		179.	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Eu-155 by GEA	SOLID	LA-508-462	U	4.58e-02	pCi/g	0.15	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		157.	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Nb-94 by GEA	SOLID	LA-508-462	U	-1.67e-02	pCi/g	0.04	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Ru-103 by GEA	SOLID	LA-508-462	U	-2.89e-04	pCi/g	0.05	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		126.	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Ru-106 by GEA	SOLID	LA-508-462	U	-1.93e-01	pCi/g	0.40	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		318.	%	0.00	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Sb-125 by GEA	SOLID	LA-508-462	U	2.25e-02	pCi/g	0.13	06/02/99	05/18/99	05/20/99
W990000505	S9015-17	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		407.	%	0.00	06/02/99	05/18/99	05/20/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

B - The analyte was detected in the associated method blank

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

D - Compound concentration resulted from a dilution.

J - Estimated value.

Z - See Comments.

U - The analyte was analyzed for but not detected.

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I :Environmental Monitoring Group #: 99000794

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000505	S9015-17	Sn-113 by GEA	SOLID	LA-508-462	U	-8.02e-03	pCi/g	0.06	06/02/99	05/18/99	05/20/99
W9900000506	S9015-17	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	100.	%	0.00	06/02/99	05/18/99	05/20/99
W9900000505	S9015-17	Zn-65 by GEA	SOLID	LA-508-462	U	-1.05e-01	pCi/g	0.10	06/02/99	05/18/99	05/20/99
W9900000505	S9015-17	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/15/99	05/18/99	05/20/99
W9900000505	S9015-17	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000505	S9015-17	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000505	S9015-17	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000505	S9015-17	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W9900000505	S9015-17	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Aldrin	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Endrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Endrin Alddehyde	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	2.50e+003	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	2.50e+003	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

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J - Estimated value.
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Report W0004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring Group #: 99000794

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000505	S9015-17	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	08/10/99	05/18/99	05/20/99
W9900000505	S9015-17	Pu-238 by AEA	SOLID	LA-508-472	U	-3.7e-03	pCi/g	0.04	07/01/99	05/18/99	05/20/99
W9900000505	S9015-17	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472	U	580	%	0.00	07/01/99	05/18/99	05/20/99
W9900000505	S9015-17	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472	U	70	%	0.00	07/01/99	05/18/99	05/20/99
W9900000505	S9015-17	Pu-239/240 by AEA	SOLID	LA-508-472	U	1.9e-02	pCi/g	5.00e-003	07/01/99	05/18/99	05/20/99
W9900000505	S9015-17	Sr-90 Rel. % Count Error	SOLID	LA-220-403	U	45	%	0.00	07/21/99	05/18/99	05/20/99
W9900000505	S9015-17	Sr-90 by Beta Counting	SOLID	LA-220-403	U	6.9E-01	pCi/g	0.30	07/21/99	05/18/99	05/20/99
W9900000505	S9015-17	U-234 by AEA	SOLID	LA-508-472	U	2.2e-02	pCi/g	6.00e-003	06/30/99	05/18/99	05/20/99
W9900000505	S9015-17	U-234 by AEA Total Cntg Error	SOLID	LA-508-472	U	70	%	0.00	06/30/99	05/18/99	05/20/99
W9900000505	S9015-17	U-235 by AEA	SOLID	LA-508-472	U	1.4e-02	pCi/g	0.02	06/30/99	05/18/99	05/20/99
W9900000505	S9015-17	U-235 by AEA Total Cntg Error	SOLID	LA-508-472	U	99	%	0.00	06/30/99	05/18/99	05/20/99
W9900000505	S9015-17	U-238 by AEA	SOLID	LA-508-472	U	1.3e-02	pCi/g	0.02	06/30/99	05/18/99	05/20/99
W9900000505	S9015-17	U-238 by AEA Total Cntg Error	SOLID	LA-508-472	U	99	%	0.10	06/30/99	05/18/99	05/20/99
W9900000506	S9015-18	Arsenic by ICP-MS	SOLID	EPA 200.8	U	1.37	ug/g	0.37	07/13/99	05/18/99	05/20/99
W9900000506	S9015-18	Cyanide by Midefia	SOLID	LA-695-410	U	0.72	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W9900000506	S9015-18	Lead by ICP-MS	SOLID	EPA 200.8	U	5.18	ug/g	9.14e-003	07/13/99	05/18/99	05/20/99
W9900000506	S9015-18	Mercury by ICP-MS	SOLID	EPA 200.8	U	0.074	ug/g	0.07	07/13/99	05/18/99	05/20/99
W9900000506	S9015-18	Am-241 by AEA	SOLID	LA-508-472	U	1.0e-01	pCi/g	0.06	07/01/99	05/18/99	05/20/99
W9900000506	S9015-18	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472	U	55	%	0.00	07/01/99	05/18/99	05/20/99
W9900000506	S9015-18	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	208	%	0.00	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Ce-144 by GEA	SOLID	LA-508-462	U	-6.67e-02	pCi/g	0.20	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	CePr-144 Rel. % Count Error	SOLID	LA-508-462	U	208	%	0.00	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	CePr-144 by GEA	SOLID	LA-508-462	U	-1.33e-01	pCi/g	0.40	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	226	%	0.00	06/02/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

D - Compound concentration resulted from a dilution.
J - Estimated value.
U - The analyte was analyzed for but not detected.

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Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435			Group #: 99000794							
Project Number EM&J :Environmental Monitoring										
Sample #	Client ID	Test Performed	Matrix	Method RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000506	S9015-18	Co-60 by GEA	SOLID	LA-508-462	U	-6.43e-03	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Ca-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		73.9	%	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Ca-134 by GEA	SOLID	LA-508-462		3.92e-02	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Ca-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		20.9	%	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Ca-137 by GEA	SOLID	LA-508-462		2.20e-01	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		1.21	%	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Eu-152 by GEA	SOLID	LA-508-462	U	4.97e-02	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		943.	%	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Eu-154 by GEA	SOLID	LA-508-462	U	-4.66e-03	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		130.	%	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Eu-155 by GEA	SOLID	LA-508-462	U	5.12e-02	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		586.	%	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Nb-94 by GEA	SOLID	LA-508-462	U	-2.60e-03	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		207.	%	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Ru-103 by GEA	SOLID	LA-508-462	U	-9.26e-03	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Ru-106 by GEA	SOLID	LA-508-462	U	-3.43e-03	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		505.	%	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Sb-125 by GEA	SOLID	LA-508-462	U	8.60e-03	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Sr-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		206.	%	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Sr-113 by GEA	SOLID	LA-508-462	U	1.06e-02	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		503.	%	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Zn-65 by GEA	SOLID	LA-508-462	U	-8.22e-03	pCi/g	06/02/99	05/18/99	05/20/99
W9900000506	S9015-18	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	07/13/99	05/18/99	05/20/99
W9900000506	S9015-18	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	07/13/99	05/18/99	05/20/99
W9900000506	S9015-18	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	07/13/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
 Project Number EM&I :Environmental Monitoring Group #: 99000794

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000506	S9015-18	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000506	S9015-18	Aroclor-1280 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W9900000506	S9015-18	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Aldrin	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Endrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	50.00	08/10/99	05/18/99	05/20/99
W9900000506	S9015-18	Pu-238 by AEA	SOLID	LA-508-472	U	1.8e-02	pCi/g	0.05	07/01/99	05/18/99	05/20/99
W9900000506	S9015-18	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		160	%	0.00	07/01/99	05/18/99	05/20/99
W9900000506	S9015-18	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		77.	%	0.00	07/01/99	05/18/99	05/20/99

MDL=Minimum Detection Limit

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 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000794
 Project Number EM&J : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000506	S9015-18	Pu-239/240 by AEA	SOLID	LA-508-472		2.0e-02	pCi/g	0.02	07/01/99	05/18/99	05/20/99
W990000506	S9015-18	Sr-90 Rel. % Count Error	SOLID	LA-220-403		30	%	0.00	07/21/99	05/18/99	05/20/99
W990000506	S9015-18	Sr-90 by Beta Counting	SOLID	LA-220-403		1.2	pCi/g	0.30	07/21/99	05/18/99	05/20/99
W990000506	S9015-18	U-234 by AEA	SOLID	LA-508-472		1.3e-01	pCi/g	5.60e-003	06/30/99	05/18/99	05/20/99
W990000506	S9015-18	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		40.	%	0.00	06/30/99	05/18/99	05/20/99
W990000506	S9015-18	U-235 by AEA	SOLID	LA-508-472		2.5e-02	pCi/g	6.10e-003	06/30/99	05/18/99	05/20/99
W990000506	S9015-18	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		68.	%	0.00	06/30/99	05/18/99	05/20/99
W990000506	S9015-18	U-238 by AEA	SOLID	LA-508-472		1.2e-01	pCi/g	0.01	06/30/99	05/18/99	05/20/99
W990000506	S9015-18	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		41.	%	0.10	06/30/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

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B - The analyte was detected in the associated method blank.
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 N - Identification is based on a mass spectral library search.

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL COMMENT REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000794
Project Number EM&I

Sample #	Client ID	Lab Area	Test	Comment
VALGROUP				
W990000503	S9015-15	VALTEST	Anions by Ion Chromatography	ICP-MS: (W990000503) The preparation blank contains 1.4 ug/g (ppm) arsenic and 1.3 ug/g lead. The sample preparation factor is applied to the blank. Estimated arsenic result due to high calibration data. Pest.LCS.LCSD.MS ran high.Holding time for extracts exceeded IC: Fluoride, chloride, nitrite, and sulfate were detected, but at concentrations less than those of the lowest calibration level. Low LCS recovery (87%). Fluoride, chloride, nitrite, and sulfate were detected, but at concentrations less than those of the lowest calibration level.
W990000504	S9015-16	VALTEST VALTEST	Cyanide by Midl/FIA Fluoride (F) by IC	LCS recovery within advisory range for the standard. LCS recovery within advisory range for the standard. Prep blank yielded 0.28ug/L Pb. High bias observed in cal-check standard recovery(118%) at 5ug/g Hg.
W990000505	S9015-17	VALTEST	Lead by ICP-MS	High LCS recovery for Hg(159%). LCS recovery within advisory range for the standard.
W990000506	S9015-18	VALTEST VALTEST	Arsenic by ICP-MS Lead by ICP-MS	Prep blank yielded 0.28ug/L Pb. LCS recovery within advisory range for the standard. LCS recovery within advisory range for the standard.

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report#: 99000794

Report Date: 19-aug-1999

Page 1

WSCF

TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:	Group #: 99000794			
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ Result Units

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.
 N - Identification is based on a mass spectral library search.
 J - Estimated value
 U - The analyte was analyzed for but not detected.

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W04E Report#: 99000794

Report Date: 19-aug-1999

Page 1

**WSCF
ANALYTICAL LABORATORY REPORT**

for

Waste Management Northwest
H1-13

Richland WA 99352

Attention: Ron Mitchell H1-13/FX 6-1435

Report#: 99000795
Report Date: 19-aug-1999
Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000795
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000507	S9015-19	Arsenic by ICP-MS	SOLID	EPA 200.8	B J	2.2	ug/g	0.28	06/30/99	05/19/99	05/20/99
W9900000507	S9015-19	Cyanide by Mid/Flu	SOLID	LA-895-410	U J	0.0	mg/kg	0.10	06/04/99	05/19/99	05/20/99
W9900000507	S9015-19	Lead by ICP-MS	SOLID	EPA 200.8	B	4.5	ug/g	0.28	06/30/99	05/19/99	05/20/99
W9900000507	S9015-19	Mercury by ICP-MS	SOLID	EPA 200.8	U	<	ug/g	0.28	06/30/99	05/19/99	05/20/99
W9900000507	S9015-19	Am-241 by AEA	SOLID	LA-508-472	U	4.5e-02	pCi/g	0.08	06/14/99	05/19/99	05/20/99
W9900000507	S9015-19	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472	U	1.2e+02	%	0.00	06/14/99	05/19/99	05/20/99
W9900000507	S9015-19	Bromide (Br) by IC	SOLID	EPA 300.0	U	<	ug/g	0.59	06/16/99	05/19/99	05/20/99
W9900000507	S9015-19	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.9	ug/g	0.11	06/16/99	05/19/99	05/20/99
W9900000507	S9015-19	Fluoride (F) by IC	SOLID	EPA 300.0	J	1	ug/g	0.10	06/16/99	05/19/99	05/20/99
W9900000507	S9015-19	Nitrate (N) by IC	SOLID	EPA 300.0	J	1.73	ug/g	0.18	06/16/99	05/19/99	05/20/99
W9900000507	S9015-19	Nitrite (N) by IC	SOLID	EPA 300.0	J	0.6	ug/g	0.39	06/16/99	05/19/99	05/20/99
W9900000507	S9015-19	Phosphate (P) by IC	SOLID	EPA 300.0	J	4.07	ug/g	0.57	06/16/99	05/19/99	05/20/99
W9900000507	S9015-19	Sulfate (SO4) by IC	SOLID	EPA 300.0	U	<	ug/g	1.04	06/16/99	05/19/99	05/20/99
W9900000507	S9015-19	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	125.	%	0.00	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	Ce-144 by GEA	SOLID	LA-508-462	U	-3.12e-02	pCi/g	0.06	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	CePr-144 Rel. % Count Error	SOLID	LA-508-462	U	125.	%	0.00	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	CePr-144 by GEA	SOLID	LA-508-462	U	-6.23e-02	pCi/g	0.13	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	52.1	%	0.00	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	Co-60 by GEA	SOLID	LA-508-462	U	8.23e-03	pCi/g	0.01	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	36.2	%	0.00	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	Cs-134 by GEA	SOLID	LA-508-462	U	3.19e-02	pCi/g	0.01	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	17.6	%	0.00	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	Cs-137 by GEA	SOLID	LA-508-462	U	1.35e-01	pCi/g	9.64e-003	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	21.7	%	0.00	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	Eu-152 by GEA	SOLID	LA-508-462	U	6.94e-02	pCi/g	0.03	05/25/99	05/19/99	05/20/99
W9900000507	S9015-19	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	430.	%	0.00	05/25/99	05/19/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I Environmental Monitoring Group #: 99000795

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000507	S9015-19	Eu-154 by GEA	SOLID	LA-508-462	U	-4.44e-03	pCi/g	0.03	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		109.	%	0.00	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Eu-155 by GEA	SOLID	LA-508-462	U	2.71e-02	pCi/g	0.03	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		131.	%	0.00	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Nb-94 by GEA	SOLID	LA-508-462	U	-3.90e-03	pCi/g	8.38e-003	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		103.	%	0.00	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Ru-103 by GEA	SOLID	LA-508-462	U	-5.10e-03	pCi/g	8.59e-003	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		83.2	%	0.00	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Ru-106 by GEA	SOLID	LA-508-462	U	5.85e-02	pCi/g	0.08	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		461.	%	0.00	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Sb-125 by GEA	SOLID	LA-508-462	U	3.12e-03	pCi/g	0.02	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		144.	%	0.00	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Sn-113 by GEA	SOLID	LA-508-462	U	-4.68e-03	pCi/g	0.01	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		267.	%	0.00	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Zn-65 by GEA	SOLID	LA-508-462	U	-6.03e-03	pCi/g	0.02	05/25/99	05/19/99	05/20/99
W990000507	S9015-19	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.02	07/06/99	05/19/99	05/20/99
W990000507	S9015-19	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W990000507	S9015-19	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W990000507	S9015-19	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W990000507	S9015-19	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W990000507	S9015-19	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Aldrin	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435 Group #: 99000795
Project Number EM&I Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000507	S9015-19	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Endrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000507	S9015-19	Pu-238 by AEA	SOLID	LA-508-472	U	-3.7e-03	pCi/g	0.03	06/14/99	05/19/99	05/20/99
W990000507	S9015-19	Pu-238 by AEA Total Cntg Err	SOLID	LA-508-472		4.0e+02	%	0.00	06/14/99	05/19/99	05/20/99
W990000507	S9015-19	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		50.	%	0.00	06/14/99	05/19/99	05/20/99
W990000507	S9015-19	Pu-238/240 by AEA	SOLID	LA-508-472		4.6e-02	pCi/g	5.00e-003	06/14/99	05/19/99	05/20/99
W990000507	S9015-19	Sr-90 Rel. % Count Error	SOLID	LA-220-403		26	%	0.00	06/23/99	05/19/99	05/20/99
W990000507	S9015-19	Sr-90 by Beta Counting	SOLID	LA-220-403		1.5	pCi/g	0.30	06/23/99	05/19/99	05/20/99
W990000507	S9015-19	U-234 by AEA	SOLID	LA-508-472		1.4e-01	pCi/g	4.80e-003	06/08/99	05/19/99	05/20/99
W990000507	S9015-19	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.00	06/08/99	05/19/99	05/20/99
W990000507	S9015-19	U-235 by AEA	SOLID	LA-508-472		2.5e-02	pCi/g	5.20e-003	06/08/99	05/19/99	05/20/99
W990000507	S9015-19	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		63.	%	0.00	06/08/99	05/19/99	05/20/99
W990000507	S9015-19	U-238 by AEA	SOLID	LA-508-472		1.3e-01	pCi/g	4.80e-003	06/08/99	05/19/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF

Group #: 99000795

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Report W004/ver. 3

Waste Management Northwest

D. Compound concentration resulted from a dilution.

J - Estimated value.

U - The analyte was analyzed for but not detected.

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000795
Project Number EM&I Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000508	S9015-20	Ru-103 by GEA	SOLID	LA-508-462	U	3.10e-02	pCi/g	0.06	06/02/99	05/19/99	05/20/99
W990000508	S9015-20	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		422	%	0.00	06/02/99	05/19/99	05/20/99
W990000508	S9015-20	Ru-106 by GEA	SOLID	LA-508-462	U	7.03e-02	pCi/g	0.50	06/02/99	05/19/99	05/20/99
W990000508	S9015-20	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		583	%	0.00	06/02/99	05/19/99	05/20/99
W990000508	S9015-20	Sb-125 by GEA	SOLID	LA-508-462	U	1.35e-02	pCi/g	0.14	06/02/99	05/19/99	05/20/99
W990000508	S9015-20	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		250	%	0.00	06/02/99	05/19/99	05/20/99
W990000508	S9015-20	Sn-113 by GEA	SOLID	LA-508-462	U	1.50e-02	pCi/g	0.06	06/02/99	05/19/99	05/20/99
W990000508	S9015-20	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		156	%	0.00	06/02/99	05/19/99	05/20/99
W990000508	S9015-20	Zn-65 by GEA	SOLID	LA-508-462	U	7.74e-02	pCi/g	0.12	06/02/99	05/19/99	05/20/99
W990000508	S9015-20	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/13/99	05/19/99	05/20/99
W990000508	S9015-20	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/19/99	05/20/99
W990000508	S9015-20	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/19/99	05/20/99
W990000508	S9015-20	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/19/99	05/20/99
W990000508	S9015-20	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/19/99	05/20/99
W990000508	S9015-20	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Aldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Endrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Endrin Alddehyde	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/19/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring Group #: 99000795

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000508	S9015-20	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/19/99	05/20/99
W990000508	S9015-20	Pu-238 by AEA	SOLID	LA-508-472	U	-3.5e-03	pCi/g	0.05	07/01/99	05/19/99	05/20/99
W990000508	S9015-20	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472	U	710	%	0.00	07/01/99	05/19/99	05/20/99
W990000508	S9015-20	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472	U	72	%	0.00	07/01/99	05/19/99	05/20/99
W990000508	S9015-20	Pu-239/240 by AEA	SOLID	LA-508-472	U	1.9e-02	pCi/g	0.01	07/01/99	05/19/99	05/20/99
W990000508	S9015-20	Sr-90 Rel. % Count Error	SOLID	LA-220-403	U	30	%	0.00	07/21/99	05/19/99	05/20/99
W990000508	S9015-20	Sr-90 by Beta Counting	SOLID	LA-220-403	U	1.0	pCi/g	0.30	07/21/99	05/19/99	05/20/99
W990000508	S9015-20	U-234 by AEA	SOLID	LA-508-472	U	8.3e-02	pCi/g	5.90e-003	06/30/99	05/19/99	05/20/99
W990000508	S9015-20	U-234 by AEA Total Cntg Error	SOLID	LA-508-472	U	45	%	0.00	06/30/99	05/19/99	05/20/99
W990000508	S9015-20	U-235 by AEA	SOLID	LA-508-472	U	1.7e-02	pCi/g	6.50e-003	06/30/99	05/19/99	05/20/99
W990000508	S9015-20	U-235 by AEA Total Cntg Error	SOLID	LA-508-472	U	82	%	0.00	06/30/99	05/19/99	05/20/99
W990000508	S9015-20	U-238 by AEA	SOLID	LA-508-472	U	8.5e-02	pCi/g	0.02	06/30/99	05/19/99	05/20/99
W990000508	S9015-20	U-238 by AEA Total Cntg Error	SOLID	LA-508-472	U	45	%	0.10	06/30/99	05/19/99	05/20/99
W990000509	S9015-21	Arsenic by ICP-MS	SOLID	EPA 200.8	U	< 0.35	ug/g	0.34	07/13/99	05/18/99	05/20/99
W990000509	S9015-21	Cyanide by Mid/FIA	SOLID	LA-695-410	U	0.0	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W990000509	S9015-21	Lead by ICP-MS	SOLID	EPA 200.8	B	0.84	ug/g	8.63e-003	07/13/99	05/18/99	05/20/99
W990000509	S9015-21	Mercury by ICP-MS	SOLID	EPA 200.8	U	< 0.059	ug/g	0.07	07/13/99	05/18/99	05/20/99
W990000509	S9015-21	Am-241 by AEA	SOLID	LA-508-472	U	8.6e-02	pCi/g	0.04	07/01/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000795
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000509	S9015-21	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		51.	%	0.00	07/01/99	05/18/99	05/20/99
W990000509	S9015-21	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Ce-144 by GEA	SOLID	LA-508-462	U	1.85e-03	pCi/g	0.18	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	CePr-144 Rel. % Count Error	SOLID	LA-508-462		1000	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	CePr-144 by GEA	SOLID	LA-508-462	U	3.70e-03	pCi/g	0.35	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		133.	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Co-60 by GEA	SOLID	LA-508-462	U	1.67e-02	pCi/g	0.04	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		340.	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Cs-134 by GEA	SOLID	LA-508-462	U	6.06e-03	pCi/g	0.04	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		565.	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Cs-137 by GEA	SOLID	LA-508-462	U	2.96e-03	pCi/g	0.03	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		147.	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Eu-152 by GEA	SOLID	LA-508-462	U	-3.41e-02	pCi/g	0.08	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		206.	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Eu-154 by GEA	SOLID	LA-508-462	U	3.10e-02	pCi/g	0.11	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		239.	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Eu-155 by GEA	SOLID	LA-508-462	U	2.33e-02	pCi/g	0.10	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		397.	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Nb-94 by GEA	SOLID	LA-508-462	U	-4.40e-03	pCi/g	0.03	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		303.	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Ru-103 by GEA	SOLID	LA-508-462	U	6.44e-03	pCi/g	0.03	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		366.	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Ru-106 by GEA	SOLID	LA-508-462	U	4.79e-02	pCi/g	0.31	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		583.	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Sb-125 by GEA	SOLID	LA-508-462	U	-7.95e-03	pCi/g	0.08	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Sm-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		146.	%	0.00	06/02/99	05/18/99	05/20/99

MDL = Minimum Detection Limit
 RQ = Result Qualifier

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 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

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Report W004/ver. 3
 Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000795
 Project Number EM&J :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000509	S9015-21	Sn-113 by GEA	SOLID	LA-508-462	U	1.56e-02	pCi/g	0.04	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Zn-65 Rel.% Count Error (GEA)	SOLID	LA-508-462	U	100.	%	0.00	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Zn-65 by GEA	SOLID	LA-508-462	U	-1.18e-01	pCi/g	0.07	06/02/99	05/18/99	05/20/99
W990000509	S9015-21	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/15/99	05/18/99	05/20/99
W990000509	S9015-21	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W990000509	S9015-21	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W990000509	S9015-21	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W990000509	S9015-21	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/15/99	05/18/99	05/20/99
W990000509	S9015-21	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Aldrin	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Endrin	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	1.00e+003	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	5.00e+003	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

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ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435 **Group #:** 99000795
Project Number EM&J : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000509	S9015-21	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	5.00e+002	08/10/99	05/18/99	05/20/99
W990000509	S9015-21	Pu-238 by AEA	SOLID	LA-508-472	U	7.2e-03	pCi/g	0.06	07/01/99	05/18/99	05/20/99
W990000509	S9015-21	Pu-238 by AEA Total Cntg Err	SOLID	LA-508-472	U	450	%	0.00	07/01/99	05/18/99	05/20/99
W990000509	S9015-21	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472	U	66	%	0.00	07/01/99	05/18/99	05/20/99
W990000509	S9015-21	Pu-239/240 by AEA	SOLID	LA-508-472	U	2.7e-02	pCi/g	0.02	07/01/99	05/18/99	05/20/99
W990000509	S9015-21	Sr-90 Rel. % Count Error	SOLID	LA-220-403	U	40	%	0.00	07/21/99	05/18/99	05/20/99
W990000509	S9015-21	Sr-90 by Beta Counting	SOLID	LA-220-403	U	8.8E-01	pCi/g	0.30	07/21/99	05/18/99	05/20/99
W990000509	S9015-21	U-234 by AEA	SOLID	LA-508-472	U	4.2e-02	pCi/g	0.01	06/30/99	05/18/99	05/20/99
W990000509	S9015-21	U-234 by AEA Total Cntg Err	SOLID	LA-508-472	U	51	%	0.00	06/30/99	05/18/99	05/20/99
W990000509	S9015-21	U-235 by AEA	SOLID	LA-508-472	U	5.3e-03	pCi/g	0.01	06/30/99	05/18/99	05/20/99
W990000509	S9015-21	U-235 by AEA Total Cntg Err	SOLID	LA-508-472	U	1.5e+02	%	0.00	06/30/99	05/18/99	05/20/99
W990000509	S9015-21	U-238 by AEA	SOLID	LA-508-472	U	2.0e-02	pCi/g	4.40e-003	06/30/99	05/18/99	05/20/99
W990000509	S9015-21	U-238 by AEA Total Cntg Err	SOLID	LA-508-472	U	59	%	0.10	06/30/99	05/18/99	05/20/99
W990000510	S9015-22	Arsenic by ICP-MS	SOLID	EPA 200.8	U	1.32	ug/g	0.37	07/13/99	05/18/99	05/20/99
W990000510	S9015-22	Cyanide by Nidif/IA	SOLID	LA-695-410	U	0.28	mg/kg	0.25	06/22/99	05/18/99	05/20/99
W990000510	S9015-22	Lead by ICP-MS	SOLID	EPA 200.8	U	1030	ug/g	9.34e-003	07/13/99	05/18/99	05/20/99
W990000510	S9015-22	Mercury by ICP-MS	SOLID	EPA 200.8	U	0.075	ug/g	0.07	07/13/99	05/18/99	05/20/99
W990000510	S9015-22	Am-241 by AEA	SOLID	LA-508-472	U	9.4e-01	pCi/g	0.05	07/01/99	05/18/99	05/20/99
W990000510	S9015-22	Am-241 by AEA Total Cntg Err	SOLID	LA-508-472	U	32	%	0.00	07/01/99	05/18/99	05/20/99
W990000510	S9015-22	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	96.2	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Ce-144 by GEA	SOLID	LA-508-462	U	2.03e-01	pCi/g	0.33	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	CaPr-144 Rel. % Count Error	SOLID	LA-508-462	U	96.2	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	CaPr-144 by GEA	SOLID	LA-508-462	U	4.07e-01	pCi/g	0.65	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	8.06	%	0.00	06/02/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000795
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000510	S9015-22	Ce-80 by GEA	SOLID	LA-508-462		1.75e+00	pCi/g	0.02	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Ce-134 Rel.% Count Error (GEA)	SOLID	LA-508-462		78.2	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Ce-134 by GEA	SOLID	LA-508-462	U	3.36e-02	pCi/g	0.04	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Ce-137 Rel.% Count Error (GEA)	SOLID	LA-508-462		12.8	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Ce-137 by GEA	SOLID	LA-508-462		2.60e+01	pCi/g	0.04	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Eu-152 Rel.% Count Error (GEA)	SOLID	LA-508-462		4.63	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Eu-152 by GEA	SOLID	LA-508-462		2.87e+01	pCi/g	0.14	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Eu-154 Rel.% Count Error (GEA)	SOLID	LA-508-462		7.20	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Eu-154 by GEA	SOLID	LA-508-462		3.44e+00	pCi/g	0.08	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Eu-155 Rel.% Count Error (GEA)	SOLID	LA-508-462		97.1	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Eu-155 by GEA	SOLID	LA-508-462	U	1.61e-01	pCi/g	0.21	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Nb-94 Rel.% Count Error (GEA)	SOLID	LA-508-462		175.	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Nb-94 by GEA	SOLID	LA-508-462	U	1.18e-02	pCi/g	0.03	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Ru-103 Rel.% Count Error (GEA)	SOLID	LA-508-462		720.	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Ru-103 by GEA	SOLID	LA-508-462	U	-4.52e-03	pCi/g	0.05	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Ru-106 Rel.% Count Error (GEA)	SOLID	LA-508-462		200.	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Ru-106 by GEA	SOLID	LA-508-462	U	-1.14e-01	pCi/g	0.38	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Sb-125 Rel.% Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Sb-125 by GEA	SOLID	LA-508-462	U	-5.50e-03	pCi/g	0.14	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Sn-113 Rel.% Count Error (GEA)	SOLID	LA-508-462		189.	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Sn-113 by GEA	SOLID	LA-508-462	U	1.99e-02	pCi/g	0.06	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Zn-65 Rel.% Count Error (GEA)	SOLID	LA-508-462		24.3	%	0.00	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Zn-65 by GEA	SOLID	LA-508-462		4.55e-01	pCi/g	0.09	06/02/99	05/18/99	05/20/99
W990000510	S9015-22	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.10	07/13/99	05/18/99	05/20/99
W990000510	S9015-22	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000510	S9015-22	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99

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B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.
 * - Indicates results that have NOT been validated.

D - Compound concentration resulted from a dilution.
 J - Estimated value
 Z - See Comments.
 U - The analyte was analyzed for but not detected.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&J : Environmental Monitoring Group #: 99000795

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000510	S9015-22	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000510	S9015-22	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.05	07/13/99	05/18/99	05/20/99
W990000510	S9015-22	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	3.00e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	3.00e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	3.00e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Aldrin	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	3.00e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	3.00e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	3.00e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Endrin	SOLID	EPA 8081	U	0	ug/kg	3.00e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	3.00e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	3.00e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	08/10/99	05/18/99	05/20/99
W990000510	S9015-22	Pu-238 by AEA	SOLID	EPA 8081	U	1.1e-01	pCi/g	0.03	07/01/99	05/18/99	05/20/99
W990000510	S9015-22	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472	43	%		0.00	07/01/99	05/18/99	05/20/99
W990000510	S9015-22	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472	32	%		0.00	07/01/99	05/18/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 **Group #:** 99000795
Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000510	S9015-22	Pu-239/240 by AEA	SOLID	LA-508-472		1.1e+00	pCi/g	0.01	07/01/99	05/18/99	05/20/99
W9900000510	S9015-22	Sr-90 Rel. % Count Error	SOLID	LA-220-403		30	%	0.00	07/21/99	05/18/99	05/20/99
W9900000510	S9015-22	Sr-90 by Beta Counting	SOLID	LA-220-403		1.2	pCi/g	0.30	07/21/99	05/18/99	05/20/99
W9900000510	S9015-22	U-234 by AEA	SOLID	LA-508-472		1.4e-01	pCi/g	0.01	06/30/99	05/18/99	05/20/99
W9900000510	S9015-22	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.00	06/30/99	05/18/99	05/20/99
W9900000510	S9015-22	U-235 by AEA	SOLID	LA-508-472		1.3e-02	pCi/g	4.80e-003	06/30/99	05/18/99	05/20/99
W9900000510	S9015-22	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		82.	%	0.00	06/30/99	05/18/99	05/20/99
W9900000510	S9015-22	U-238 by AEA	SOLID	LA-508-472		1.3e-01	pCi/g	4.40e-003	06/30/99	05/18/99	05/20/99
W9900000510	S9015-22	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.10	06/30/99	05/18/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
 J - Estimated value. Z - See Comments.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

... Indicates results that have NOT been validated.

Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL COMMENT REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000795
Project Number EM&I

Sample #	Client ID	Lab Area	Test	Comment
VALGROUP				
W990000507	S9015-19	VALTEST	Anions by Ion Chromatography	ICP-MS: (W990000507) The preparation blank contains 1.5 ug/g (ppm) arsenic and 1.4 ug/g lead. The sample preparation factor is applied to the blank. Estimated arsenic result due to high calibration data. PEST:LCS,tLCS,D,MS ran high.Extract Hold time exceeded. IC: Fluoride, chloride, and nitrite were detected, but at concentrations less than those of the lowest calibration level. Low LCS recovery (87%). Fluoride, chloride, and nitrite were detected, but at concentrations less than those of the lowest calibration level. LCS recovery within advisory range for the standard. LCS recovery within advisory range for the standard. High LCS recovery (159%). High bias observed for cal-check standard recovery(118%) at 5ug/g Hg.
W990000508	S9015-20	VALTEST VALTEST VALTEST	Cyanide by Mid/IFA Fluoride (F) by IC	LCS recovery within advisory range for the standard. LCS recovery within advisory range for the standard. High LCS recovery (159%). High bias observed for cal-check standard recovery(118%) at 5ug/g Hg.
W990000509	S9015-21	VALTEST	Lead by ICP-MS	LCS recovery within advisory range for the standard. Prep blank yielded 0.28ug/g Pb.
W990000510	S9015-22	VALTEST VALTEST	Arsenic by ICP-MS Lead by ICP-MS	LCS recovery within advisory range for the standard. LCS recovery within advisory range for the standard.

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report#: 99000795 Report Date: 19-aug-1999

WSCF TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:	Group #:		99000795	
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ Result Units

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.
 N - Identification is based on a mass spectral library search.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

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W04E Report# 99000795 Report Date: 19-aug-1999

Page 1

WSCF
ANALYTICAL LABORATORY REPORT

for

Waste Management Northwest
H1-13

Richland WA 99352

Attention: Ron Mitchell H1-13/FX 6-1435

Report#: 99000796
Report Date: 19-aug-1999
Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435 Group #: 99000796
Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000511	S9015-23	Arsenic by ICP-MS	SOLID	EPA 200.8	B J	1.8	ug/g	0.22	06/30/99	05/19/99	06/20/99
W990000511	S9015-23	Cyanide by NidifIA	SOLID	LA-685-410	U J	0.0	mg/kg	0.10	06/04/99	05/19/99	06/20/99
W990000511	S9015-23	Lead by ICP-MS	SOLID	EPA 200.8	B	5.9	ug/g	0.22	06/30/99	05/19/99	06/20/99
W990000511	S9015-23	Mercury by ICP-MS	SOLID	EPA 200.8	U	0.22	ug/g	0.22	06/30/99	05/19/99	06/20/99
W990000511	S9015-23	Am-241 by AEA	SOLID	LA-508-472		1.4e-01	pCi/g	0.08	06/14/99	05/19/99	06/20/99
W990000511	S9015-23	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		55.	%	0.00	06/14/99	05/19/99	06/20/99
W990000511	S9015-23	Bromide (Br) by IC	SOLID	EPA 300.0	U	0.6	ug/g	0.80	06/16/99	05/19/99	06/20/99
W990000511	S9015-23	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.9	ug/g	0.11	06/16/99	05/19/99	06/20/99
W990000511	S9015-23	Fluoride (F) by IC	SOLID	EPA 300.0	J	0.8	ug/g	0.10	06/16/99	05/19/99	06/20/99
W990000511	S9015-23	Nitrate (N) by IC	SOLID	EPA 300.0		1.27	ug/g	0.19	06/16/99	05/19/99	06/20/99
W990000511	S9015-23	Nitrite (N) by IC	SOLID	EPA 300.0	U	0.4	ug/g	0.39	06/16/99	05/19/99	06/20/99
W990000511	S9015-23	Phosphate (P) by IC	SOLID	EPA 300.0		3.14	ug/g	0.58	06/16/99	05/19/99	06/20/99
W990000511	S9015-23	Sulfate (SO4) by IC	SOLID	EPA 300.0	U	1	ug/g	1.05	06/16/99	05/19/99	06/20/99
W990000511	S9015-23	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		247.	%	0.00	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	Ce-144 by GEA	SOLID	LA-508-462	U	2.73e-02	pCi/g	0.07	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	CaPr-144 Rel. % Count Error	SOLID	LA-508-462		247.	%	0.00	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	CaPr-144 by GEA	SOLID	LA-508-462	U	5.46e-02	pCi/g	0.15	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	Ce-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		539.	%	0.00	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	Ce-60 by GEA	SOLID	LA-508-462	U	9.02e-04	pCi/g	8.39e-003	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		28.1	%	0.00	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	Ce-134 by GEA	SOLID	LA-508-462		2.72e-02	pCi/g	0.01	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		17.9	%	0.00	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	Ce-137 by GEA	SOLID	LA-508-462		8.14e-02	pCi/g	9.44e-003	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		184.	%	0.00	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	Eu-152 by GEA	SOLID	LA-508-462	U	-8.66e-03	pCi/g	0.03	05/25/99	05/19/99	06/20/99
W990000511	S9015-23	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		154.	%	0.00	05/25/99	05/19/99	06/20/99

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E - Compound concentration exceeded calibration range.

M - Identification is based on a mass spectral library search.

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000796
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000511	S9015-23	Eu-154 by GEA	SOLID	LA-508-462	U	-1.05e-02	pCi/g	0.03	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		591.	%	0.00	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Eu-155 by GEA	SOLID	LA-508-462	U	4.09e-03	pCi/g	0.04	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		205.	%	0.00	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Nb-94 by GEA	SOLID	LA-508-462	U	-2.24e-03	pCi/g	7.53e-003	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		331.	%	0.00	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Ru-103 by GEA	SOLID	LA-508-462	U	1.41e-03	pCi/g	7.93e-003	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		293.	%	0.00	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Ru-106 by GEA	SOLID	LA-508-462	U	1.48e-02	pCi/g	0.07	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		184.	%	0.00	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Sb-125 by GEA	SOLID	LA-508-462	U	7.43e-03	pCi/g	0.02	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		101.	%	0.00	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Sn-113 by GEA	SOLID	LA-508-462	U	-6.47e-03	pCi/g	0.01	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		590.	%	0.00	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Zn-65 by GEA	SOLID	LA-508-462	U	-2.28e-03	pCi/g	0.02	05/25/99	05/19/99	05/20/99
W9900000511	S9015-23	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.02	07/06/99	05/19/99	05/20/99
W9900000511	S9015-23	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W9900000511	S9015-23	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W9900000511	S9015-23	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W9900000511	S9015-23	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W9900000511	S9015-23	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000511	S9015-23	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000511	S9015-23	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000511	S9015-23	Aldrin	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000511	S9015-23	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000511	S9015-23	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99

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 J - Estimated value.
 U - The analyte was analyzed for but not detected.

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 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

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Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000796
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000511	S9015-23	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	Endrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000511	S9015-23	Pu-238 by AEA	SOLID	LA-508-472	U	-4.2e-03	pCi/g	0.03	06/14/99	05/19/99	05/20/99
W990000511	S9015-23	Pu-238 by AEA Total Cntg Err	SOLID	LA-508-472	U	2.8e+02	%	0.00	06/14/99	05/19/99	05/20/99
W990000511	S9015-23	Pu-238/240 AEA Total Cntg Err	SOLID	LA-508-472	U	62.	%	0.00	06/14/99	05/19/99	05/20/99
W990000511	S9015-23	Pu-238/240 by AEA	SOLID	LA-508-472	U	3.0e-02	pCi/g	5.70e-003	06/14/99	05/19/99	05/20/99
W990000511	S9015-23	Sr-90 Rel. % Count Error	SOLID	LA-220-403	U	32	%	0.00	06/23/99	05/19/99	05/20/99
W990000511	S9015-23	Sr-90 by Beta Counting	SOLID	LA-220-403	U	1.1	pCi/g	0.30	06/23/99	05/19/99	05/20/99
W990000511	S9015-23	U-234 by AEA	SOLID	LA-508-472	U	1.5e-01	pCi/g	0.02	06/08/99	05/19/99	05/20/99
W990000511	S9015-23	U-234 by AEA Total Cntg Err	SOLID	LA-508-472	U	38.	%	0.00	06/08/99	05/19/99	05/20/99
W990000511	S9015-23	U-235 by AEA	SOLID	LA-508-472	U	1.7e-02	pCi/g	5.10e-003	06/08/99	05/19/99	05/20/99
W990000511	S9015-23	U-235 by AEA Total Cntg Err	SOLID	LA-508-472	U	73.	%	0.00	06/08/99	05/19/99	05/20/99
W990000511	S9015-23	U-238 by AEA	SOLID	LA-508-472	U	1.7e-01	pCi/g	4.70e-003	06/08/99	05/19/99	05/20/99

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Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000796
Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000511	S9015-23	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		37.	%	0.10	06/08/99	05/19/99	05/20/99
W9900000512	S9015-24	Arsenic by ICP-MS	SOLID	EPA 200.8	B J	1.6	ug/g	0.18	06/30/99	05/19/99	05/20/99
W9900000512	S9015-24	Cyanide by Mtd/FIA	SOLID	LA-695-410	U J	0.0	mg/kg	0.10	06/04/99	05/19/99	05/20/99
W9900000512	S9015-24	Lead by ICP-MS	SOLID	EPA 200.8		28.9	ug/g	0.18	06/30/99	05/19/99	05/20/99
W9900000512	S9015-24	Mercury by ICP-MS	SOLID	EPA 200.8	U <	0.18	ug/g	0.18	06/30/99	05/19/99	05/20/99
W9900000512	S9015-24	Am-241 by AEA	SOLID	LA-508-472		8.0e-02	pCi/g	0.07	06/14/99	05/19/99	05/20/99
W9900000512	S9015-24	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		68.	%	0.00	06/14/99	05/19/99	05/20/99
W9900000512	S9015-24	Bromide (Br) by IC	SOLID	EPA 300.0	U <	0.6	ug/g	0.58	06/16/99	05/19/99	05/20/99
W9900000512	S9015-24	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.9	ug/g	0.10	06/16/99	05/19/99	05/20/99
W9900000512	S9015-24	Fluoride (F) by IC	SOLID	EPA 300.0	J	0.8	ug/g	0.08	06/16/99	05/19/99	05/20/99
W9900000512	S9015-24	Nitrate (N) by IC	SOLID	EPA 300.0		1.78	ug/g	0.18	06/16/99	05/19/99	05/20/99
W9900000512	S9015-24	Nitrite (NI) by IC	SOLID	EPA 300.0	J	0.7	ug/g	0.38	06/16/99	05/19/99	05/20/99
W9900000512	S9015-24	Phosphate (P) by IC	SOLID	EPA 300.0		3.73	ug/g	0.56	06/16/99	05/19/99	05/20/99
W9900000512	S9015-24	Sulfate (SO4) by IC	SOLID	EPA 300.0	U <	1	ug/g	1.01	06/16/99	05/19/99	05/20/99
W9900000512	S9015-24	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		171.	%	0.00	05/25/99	05/19/99	05/20/99
W9900000512	S9015-24	Ce-144 by GEA	SOLID	LA-508-462	U	2.82e-02	pCi/g	0.08	06/25/99	05/19/99	05/20/99
W9900000512	S9015-24	CaPr-144 Rel. % Count Error	SOLID	LA-508-462		171.	%	0.00	06/25/99	05/19/99	05/20/99
W9900000512	S9015-24	CaPr-144 by GEA	SOLID	LA-508-462	U	5.65e-02	pCi/g	0.15	06/25/99	05/19/99	05/20/99
W9900000512	S9015-24	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		292.	%	0.00	06/25/99	05/19/99	05/20/99
W9900000512	S9015-24	Co-60 by GEA	SOLID	LA-508-462	U	1.46e-03	pCi/g	7.40e-003	06/25/99	05/19/99	05/20/99
W9900000512	S9015-24	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		30.9	%	0.00	06/25/99	05/19/99	05/20/99
W9900000512	S9015-24	Ce-134 by GEA	SOLID	LA-508-462		2.27e-02	pCi/g	0.01	06/25/99	05/19/99	05/20/99
W9900000512	S9015-24	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		12.9	%	0.00	06/25/99	05/19/99	05/20/99
W9900000512	S9015-24	Cs-137 by GEA	SOLID	LA-508-462		1.08e+00	pCi/g	8.32e-003	06/25/99	05/19/99	05/20/99
W9900000512	S9015-24	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		27.3	%	0.00	06/25/99	05/19/99	05/20/99
W9900000512	S9015-24	Eu-152 by GEA	SOLID	LA-508-462		5.13e-02	pCi/g	0.03	06/25/99	05/19/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.

B - The analyte was detected in the associated method blank.

J - Estimated value.

E - Compound concentration exceeded calibration range.

Z - See Comments.

N - Identification is based on a mass spectral library search.

U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&J : Environmental Monitoring

Group #: 99000796

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000512	S9015-24	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	1000	%	0.00	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Eu-154 by GEA	SOLID	LA-508-462	U	-5.04e-04	pCi/g	0.02	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	70.0	%	0.00	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Eu-155 by GEA	SOLID	LA-508-462	U	3.58e-02	pCi/g	0.04	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	541	%	0.00	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Nb-94 by GEA	SOLID	LA-508-462	U	7.72e-04	pCi/g	7.12e-003	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	510	%	0.00	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Ru-103 by GEA	SOLID	LA-508-462	U	-1.06e-03	pCi/g	8.92e-003	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	164	%	0.00	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Ru-106 by GEA	SOLID	LA-508-462	U	-2.68e-02	pCi/g	0.07	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	1000	%	0.00	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Sb-125 by GEA	SOLID	LA-508-462	U	1.39e-03	pCi/g	0.03	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	145	%	0.00	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Sn-113 by GEA	SOLID	LA-508-462	U	5.06e-03	pCi/g	0.01	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	100	%	0.00	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Zn-65 by GEA	SOLID	LA-508-462	U	-3.53e-02	pCi/g	0.02	05/25/99	05/19/99	05/20/99
W990000512	S9015-24	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.02	07/06/99	05/19/99	05/20/99
W990000512	S9015-24	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W990000512	S9015-24	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W990000512	S9015-24	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W990000512	S9015-24	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W990000512	S9015-24	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000512	S9015-24	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000512	S9015-24	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000512	S9015-24	Aldrin	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W990000512	S9015-24	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000796
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000512	S9015-24	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	Endrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000512	S9015-24	Pu-238 by AEA	SOLID	EPA 8081	U	1.8e-02	pCi/g	0.02	08/14/99	05/19/99	05/20/99
W9900000512	S9015-24	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472	U	91.	%	0.00	06/14/99	05/19/99	05/20/99
W9900000512	S9015-24	Pu-239/240 AEA Total Cntg Error	SOLID	LA-508-472	U	45.	%	0.00	06/14/99	05/19/99	05/20/99
W9900000512	S9015-24	Pu-239/240 by AEA	SOLID	LA-508-472	U	7.7e-02	pCi/g	5.50e-003	06/14/99	05/19/99	05/20/99
W9900000512	S9015-24	Sr-90 Rel. % Count Error	SOLID	LA-220-403	U	30	%	0.00	08/23/99	05/19/99	05/20/99
W9900000512	S9015-24	Sr-90 by Beta Counting	SOLID	LA-220-403	U	1.1	pCi/g	0.20	08/23/99	05/19/99	05/20/99
W9900000512	S9015-24	U-234 by AEA	SOLID	LA-508-472	U	1.3e-01	pCi/g	5.70e-003	06/08/99	05/19/99	05/20/99
W9900000512	S9015-24	U-234 by AEA Total Cntg Error	SOLID	LA-508-472	U	40.	%	0.00	06/08/99	05/19/99	05/20/99
W9900000512	S9015-24	U-235 by AEA	SOLID	LA-508-472	U	2.8e-02	pCi/g	0.02	06/08/99	05/19/99	05/20/99
W9900000512	S9015-24	U-235 by AEA Total Cntg Error	SOLID	LA-508-472	U	70.	%	0.00	06/08/99	05/19/99	05/20/99

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 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

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Report W7004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99000796
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000512	S9015-24	U-238 by AEA	SOLID	LA-508-472		1.3e-01	pCi/g	5.70e-003	06/08/99	05/19/99	05/20/99
W990000512	S9015-24	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		40.	%	0.10	06/08/99	05/19/99	05/20/99
W990000513	S9015-25	Arsenic by ICP-MS	SOLID	EPA 200.8	B J	1.6	ug/g	0.22	06/30/99	05/19/99	05/20/99
W990000513	S9015-25	Cyanide by Mili/FIA	SOLID	LA-685-410	U J	0.0	mg/kg	0.10	06/04/99	06/19/99	06/20/99
W990000513	S9015-25	Lead by ICP-MS	SOLID	EPA 200.8	8	5.6	ug/g	0.22	06/30/99	05/19/99	05/20/99
W990000513	S9015-25	Mercury by ICP-MS	SOLID	EPA 200.8	U <	0.22	ug/g	0.22	06/30/99	05/19/99	05/20/99
W990000513	S9015-25	Am-241 by AEA	SOLID	LA-508-472	U	4.3e-02	pCi/g	0.06	06/14/99	05/19/99	05/20/99
W990000513	S9015-25	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		94.	%	0.00	06/14/99	05/19/99	05/20/99
W990000513	S9015-25	Bromide (Br) by IC	SOLID	EPA 300.0	U <	0.6	ug/g	0.56	06/18/99	05/19/99	05/20/99
W990000513	S9015-25	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.9	ug/g	0.10	06/18/99	05/19/99	05/20/99
W990000513	S9015-25	Fluoride (F) by IC	SOLID	EPA 300.0	J	0.9	ug/g	0.09	06/18/99	05/19/99	05/20/99
W990000513	S9015-26	Nitrate (N) by IC	SOLID	EPA 300.0	J	0.9	ug/g	0.17	06/18/99	05/19/99	05/20/99
W990000513	S9015-25	Nitrite (N) by IC	SOLID	EPA 300.0	J	0.6	ug/g	0.37	06/18/99	05/19/99	05/20/99
W990000513	S9015-26	Phosphate (P) by IC	SOLID	EPA 300.0	U <	2.93	ug/g	0.54	06/18/99	05/19/99	05/20/99
W990000513	S9015-25	Sulfate (SO4) by IC	SOLID	EPA 300.0	U <	1	ug/g	0.98	06/18/99	05/19/99	05/20/99
W990000513	S9015-25	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-482	U	1000	%	0.00	06/25/99	05/19/99	05/20/99
W990000513	S9015-25	Ce-144 by GEA	SOLID	LA-508-482	U	2.13e-03	pCi/g	0.08	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	CaP-144 Rel. % Count Error	SOLID	LA-508-482	U	1000	%	0.00	06/25/99	05/19/99	05/20/99
W990000513	S9015-25	CaP-144 by GEA	SOLID	LA-508-482	U	4.25e-03	pCi/g	0.16	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-482	U	300.	%	0.00	06/25/99	05/19/99	05/20/99
W990000513	S9015-25	Co-60 by GEA	SOLID	LA-508-482	U	1.69e-03	pCi/g	8.86e-003	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-482	U	38.3	%	0.00	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Ce-134 by GEA	SOLID	LA-508-482		2.11e-02	pCi/g	0.01	06/25/99	05/19/99	05/20/99
W990000513	S9015-25	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-482		19.9	%	0.00	06/25/99	05/19/99	05/20/99
W990000513	S9015-25	Ce-137 by GEA	SOLID	LA-508-482		7.89e-02	pCi/g	0.01	06/25/99	05/19/99	05/20/99
W990000513	S9015-25	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-482		1000	%	0.00	05/25/99	05/19/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
 Project Number EM&I : Environmental Monitoring
 Group #: 99000796

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000513	S9015-25	Eu-152 by GEA	SOLID	LA-508-462	U	-9.85e-04	pCi/g	0.03	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		576.	%	0.00	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Eu-154 by GEA	SOLID	LA-508-462	U	-2.83e-03	pCi/g	0.03	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Eu-155 by GEA	SOLID	LA-508-462	U	7.08e-04	pCi/g	0.04	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		189.	%	0.00	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Nb-94 by GEA	SOLID	LA-508-462	U	3.05e-03	pCi/g	8.76e-003	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		135.	%	0.00	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Ru-103 by GEA	SOLID	LA-508-462	U	3.84e-03	pCi/g	8.96e-003	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		364.	%	0.00	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Ru-106 by GEA	SOLID	LA-508-462	U	-1.30e-02	pCi/g	0.08	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		573.	%	0.00	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Sb-125 by GEA	SOLID	LA-508-462	U	2.63e-03	pCi/g	0.03	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Sn-113 by GEA	SOLID	LA-508-462	U	-6.78e-04	pCi/g	0.01	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		448.	%	0.00	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Zn-65 by GEA	SOLID	LA-508-462	U	-3.32e-03	pCi/g	0.02	05/25/99	05/19/99	05/20/99
W990000513	S9015-25	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.02	07/06/99	05/19/99	05/20/99
W990000513	S9015-25	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W990000513	S9015-25	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W990000513	S9015-25	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.01	07/06/99	05/19/99	05/20/99
W990000513	S9015-25	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000513	S9015-25	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000513	S9015-25	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W990000513	S9015-25	Aldrin	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Project Number			Ron Mitchell H1-13/FX 6-1435 EM&I :Environmental Monitoring			Group #: 99000796					
Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900000513	S9015-25	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	Endrin	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	8.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	40.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	4.00	08/10/99	05/19/99	05/20/99
W9900000513	S9015-25	Pu-238 by AEA	SOLID	LA-508-472	U	1.9e-03	pCi/g	0.03	08/14/99	05/19/99	05/20/99
W9900000513	S9015-25	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		1000	%	0.00	06/14/99	05/19/99	05/20/99
W9900000513	S9015-25	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		65	%	0.00	06/14/99	05/19/99	05/20/99
W9900000513	S9015-25	Pu-239/240 by AEA	SOLID	LA-508-472		2.3e-02	pCi/g	5.10e-003	08/14/99	05/19/99	05/20/99
W9900000513	S9015-25	Sr-90 Rel % Count Error	SOLID	LA-220-403		40	%	0.00	06/23/99	05/19/99	05/20/99
W9900000513	S9015-25	Sr-90 by Beta Counting	SOLID	LA-220-403		8.2E-01	pCi/g	0.30	06/23/99	05/19/99	05/20/99
W9900000513	S9015-25	U-234 by AEA	SOLID	LA-508-472		1.4e-01	pCi/g	0.01	06/08/99	05/19/99	05/20/99
W9900000513	S9015-25	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		39	%	0.00	06/08/99	05/19/99	05/20/99
W9900000513	S9015-25	U-235 by AEA	SOLID	LA-508-472		9.9e-03	pCi/g	5.40e-003	06/08/99	05/19/99	05/20/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

D - Compound concentration resulted from a dilution.

E - Compound concentration exceeded calibration range.

J - Estimated value.

N - Identification is based on a mass spectral library search.

U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Project Number		Ron Mitchell HI-13/FX 6-1435 EM&I :Environmental Monitoring				Group #: 99000796					
Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000513	S8015-25	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		95.	%	0.00	06/08/99	05/19/99	05/20/99
W990000513	S8015-25	U-238 by AEA	SOLID	LA-508-472		1.5e-01	pCi/g	4.90e-003	06/08/99	05/19/99	05/20/99
W990000513	S8015-25	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.10	06/08/99	05/19/99	05/20/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

B - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

D - Compound concentration resulted from a dilution.

J - Estimated value.

U - The analyte was analyzed for but not detected.

WSCF ANALYTICAL COMMENT REPORT

Attention: Project Number		Ron Mitchell H1-13/FX 6-1435 EM&I		Group #:	99000796
Sample #	Client ID	Lab Area	Test	Comment	
VALGROUP					
W990000511	S9015-23	VALTEST	Anions by Ion Chromatography	ICP-MS: The preparation blank contains 1.2 ug/g (ppm) arsenic and 1.1 ug/g lead. The sample preparation factor is applied to the blank. Estimated arsenic result due to high calibration data. PEST: LCS, LCSD, MS ran high. Extract hold time exceeded. IC: Fluoride and chloride were detected, but at concentrations less than those of the lowest calibration level.	
		VALTEST	Cyanide by Mdi/FIA	Low LCS recovery (87%).	
		VALTEST	Fluoride (F) by IC	Fluoride and chloride were detected, but at concentrations less than those of the lowest calibration level.	
		VALTEST	Anions by Ion Chromatography	IC: Fluoride, chloride, and nitrite were detected, but at concentrations less than those of the lowest calibration level.	
		VALTEST	Cyanide by Mdi/FIA Fluoride (F) by IC	Low LCS recovery (87%). Fluoride, chloride and nitrite were detected, but at concentrations less than those of the lowest calibration level.	
		VALTEST	Anions by Ion Chromatography	IC: Fluoride, chloride, nitrite, and nitrate were detected, but at concentrations less than those of the lowest calibration level.	
		VALTEST	Cyanide by Mdi/FIA Fluoride (F) by IC	Low LCS recovery (87%). Fluoride, chloride, nitrite and nitrate were detected, but at concentrations less than those of the lowest calibration level.	

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04/c/2 Report#: 99000796

Report Date: 19-aug-1999

Page 1

WSCF ANALYTICAL COMMENT REPORT

Attention:		Ron Mitchell H1-13/FX 6-1435		Group #:		99000796
Project Number		EM&I				
Sample #	Client ID	Lab Area	Test	Comment		
level						

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report#: 99000796

Report Date: 19-aug-1999

Page 2

WSCF TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:	Group #:		99000796	
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ Result Units

RQ= Result Qualifier

B - The analyte was detected in the associated method blank.
 N - Identification is based on a mass spectral library search.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

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W04E Report#: 99000796 Report Date: 19-aug-1999

Page 1

99000317

Mice cubes
SPF Alar - May 1999

VALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6863
Lab Sample#: S99M000351
2/1999 11:07

Sample Date:
Recv. Date: 08/1

PARAMETER	RESULTS	UNITS
Env GEA Large Library Method		
Ac-228 GEA Rel % Counting Err	n/a	% Ct.
Error		
Actinium-228 by GEA	< 3.186e-06	uCi/g
Am-241 GEA Rel. % Count Error	n/a	% Ct.
Error		
Am-243 GEA Rel. % Count Error	n/a	% Ct.
Error		
Americium-241 by GEA	< 4.695e-06	uCi/g
Americium-243 by GEA	< 1.265e-06	uCi/g
Antimony-125 by GEA	< 1.587e-06	uCi/g
Bi-212 GEA Rel % Counting Err	n/a	% Ct.
Error		
Bi-214 GEA Rel % Counting Err	n/a	% Ct.
Error		
Bismuth-212 by GEA	< 8.417e-06	uCi/g
Bismuth-214 by GEA	< 1.697e-06	uCi/g
Cadmium-109 by GEA	< 1.255e-05	uCi/g
Cd-109 GEA Rel % Counting Err	n/a	% Ct.
Error		
Ce/Pr-144 GEA Rel % Count Err	n/a	% Ct.
Error		
Ce/Pr-144 by GEA	< 5.470e-06	uCi/g
Cesium-134 by GEA	< 5.125e-07	uCi/g
Cesium-137 by GEA	< 9.427e-07	uCi/g
Co-56 GEA Rel. % Count Error	n/a	% Ct.
Error		
Co-57 GEA Rel. % Count Error	n/a	% Ct.
Error		
Co-60 GEA Rel. % Count Error	n/a	% Ct.
Error		
Cobalt-56 by GEA	< 5.473e-07	uCi/g
Cobalt-57 by GEA	< 3.586e-07	uCi/g
Cobalt-60 by GEA	< 6.186e-07	uCi/g
Cs-134 GEA Rel. % Count Error	n/a	% Ct.
Error		
Cs-137 GEA Rel. % Count Error	n/a	% Ct.

99000317

Error	Eu-152 GEA Rel % Counting Err	n/a	% Ct.
Error	Eu-154 GEA Rel % Counting Err	n/a	% Ct.
Error	Eu-155 GEA Rel % Counting Err	n/a	% Ct.
Error	Europium-152 by GEA	< 1.083e-06	uCi/g
	Europium-154 by GEA	< 1.838e-06	uCi/g
	Europium-155 by GEA	< 1.502e-06	uCi/g
	Hg-203 GEA Rel % Counting Err	n/a	% Ct.
Error	I-131 GEA Rel % Counting Err	n/a	% Ct.
Error	Iodine-131 by GEA	< 5.508e-07	uCi/g
	K-40 GEA Rel. % Count Error	n/a	% Ct.
Error	Lead-212 by GEA	< 1.006e-06	uCi/g
	Lead-214 by GEA	< 5.631e-06	uCi/g
	Mercury-203 by GEA	< 5.072e-07	uCi/g
	Na-22 GEA Rel. % Count Error	n/a	% Ct.
Error	Na-24 GEA Rel. % Count Error	n/a	% Ct.
Error	Nb-94 GEA Rel % Counting Error	n/a	% Ct.
Error	Neptunium-237 by GEA	< 3.993e-06	uCi/g
	Neptunium-239 by GEA	< 1.486e-06	uCi/g
	Niobium-94 by GEA	< 5.234e-07	uCi/g
	Np-237 GEA Rel % Counting Err	n/a	% Ct.
Error	Np-239 GEA Rel % Counting Err	n/a	% Ct.
Error	Pa-233 GEA Rel % Counting Err	n/a	% Ct.
Error	Pa-234m GEA Rel % Counting Err	n/a	% Ct.
Error			

- 1 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6863
Lab Sample#: S99M000351
2/1999 11:07

Sample Date:
Recv. Date: 08/1

PARAMETER	RESULTS	UNITS
-----	-----	-----

99000317

-----	Pb-212 GEA Rel % Counting Err	n/a	% Ct.
Error	Pb-214 GEA Rel % Counting Err	n/a	% Ct.
Error	Plutonium-239 by GEA	< 4.801e-03	uCi/g
dit v2	Potassium-40 by GEA	< 2.401e-05	uCi/g
	Protactinium-233 by GEA	< 1.098e-06	uCi/g
	Protactinium-234m by GEA	< 9.749e-05	uCi/g
	Pu-239 GEA Rel % Counting Err	n/a	% Ct.
Error	Ra-224 GEA Rel % Counting Err	n/a	% Ct.
Error	Ra-226 GEA Rel % Counting Err	n/a	% Ct.
Error	Radium-224 by GEA	< 1.010e-05	uCi/g
	Radium-226 by GEA	< 1.036e-05	uCi/g
	Ru-103 GEA Rel % Count Error	n/a	% Ct.
Error	Ru/Rh-106 GEA Rel. % Count Err	n/a	% Ct.
Error	Ru/Rh-106 by GEA	< 1.016e-05	uCi/g
	Ruthenium-103 by GEA	< 5.188e-07	uCi/g
	Sb-125 GEA Rel % Counting Err	n/a	% Ct.
Error	Se-75 GEA Rel. % Count Error	n/a	% Ct.
Error	Selenium-75 by GEA	< 6.805e-07	uCi/g
	Sn-113 GEA Rel % Counting Err	n/a	% Ct.
Error	Sodium-22 by GEA	< 6.324e-07	uCi/g
	Sodium-24 by GEA	< 5.995e-07	uCi/g
	Sr-85 GEA Rel. % Count Error	n/a	% Ct.
Error	Strontium-85 by GEA	< 6.391e-07	uCi/g
	Th-228 GEA Rel % Counting Err	n/a	% Ct.
Error	Th-229 GEA Rel % Counting Err	n/a	% Ct.
Error	Th-234 GEA Rel % Counting Err	n/a	% Ct.
Error	Thallium-208 by GEA	< 6.602e-06	uCi/g
	Thorium-228 by GEA	< 4.206e-05	uCi/g
	Thorium-229 by GEA	< 1.802e-06	uCi/g
	Thorium-234 by GEA	< 3.502e-05	uCi/g
	Tin-113 by GEA	< 6.678e-07	uCi/g
	Tl-208 GEA Rel % Counting Err	n/a	% Ct.
Error			

99000317

Error	U-235 GEA Rel % Counting Err	n/a	% Ct.
Error	U/Th-233 GEA Rel % Count Err	n/a	% Ct.
	Uranium-235 by GEA	< 6.370e-07	uCi/g
	Uranium/Thorium-233 by GEA	< 3.452e-04	uCi/g
Error	Y-88 GEA Rel. % Count Error	n/a	% Ct.
	Yttrium-88 by GEA	< 4.003e-07	uCi/g
Error	Zr/Nb-95 GEA Rel % Count. Err	n/a	% Ct.
	Zr/Nb-95 by GEA	< 2.307e-06	uCi/g
Env	Sr-89/90 for Solids		
covery	Sr-89/90 Env. Sol: % Carr Rec	7.65E+01	% Rec
	Sr-89/90 Env. Solids	< 6.41E-07	uCi/g
Error	Sr-89/90 Sol: Rel % Cnt Err	1.18E+02	% Ct.
	ICP (Acid Dig.) Routine Metals		
	Aluminium -ICP-Acid Digest	6.89e+01	ug/g
	Antimony -ICP-Acid Digest	< 6.58e+00	ug/g
	Arsenic -ICP-Acid Digest	< 1.10e+01	ug/g
	Barium -ICP-Acid Digest	8.70e+00	ug/g
	Beryllium -ICP-Acid Digest	< 5.48e-01	ug/g

- 2 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6863
Lab Sample#: S99M000351
2/1999 11:07

Sample Date:
Recv. Date: 08/1

PARAMETER	RESULTS	UNITS
-----	-----	-----
Bismuth -ICP-Acid Digest	< 1.10e+01	ug/g
Boron -ICP-Acid Digest	< 5.48e+00	ug/g
Cadmium -ICP-Acid Digest	< 5.48e-01	ug/g
Calcium -ICP-Acid Digest	1.07e+04	ug/g
Cerium -ICP-Acid Digest	< 1.10e+01	ug/g
Chromium -ICP-Acid Digest	< 1.10e+00	ug/g
Cobalt -ICP-Acid Digest	< 2.19e+00	ug/g
Copper -ICP-Acid Digest	2.92e+00	ug/g
Iron -ICP-Acid Digest	1.05e+02	ug/g
Lanthanum -ICP-Acid Digest	< 5.48e+00	ug/g
Lead -ICP-Acid Digest	< 1.10e+01	ug/g
Lithium -ICP-Acid Digest	< 1.10e+00	ug/g

99000317

Magnesium -ICP-Acid Digest 4.70e+02 ug/g
 Manganese -ICP-Acid Digest 3.42e+00 ug/g
 Molybdenum -ICP-Acid Digest < 5.48e+00 ug/g
 Neodymium -ICP-Acid Digest < 1.10e+01 ug/g
 Nickel -ICP-Acid Digest < 2.19e+00 ug/g
 Phosphorus -ICP-Acid Digest 7.95e+03 ug/g
 Potassium -ICP-Acid Digest 3.06e+03 ug/g
 Samarium -ICP-Acid Digest < 1.10e+01 ug/g
 Selenium -ICP-Acid Digest < 1.10e+01 ug/g
 Silicon -ICP-Acid Digest 9.12e+00 ug/g
 Silver -ICP-Acid Digest < 1.10e+00 ug/g
 Sodium -ICP-Acid Digest 1.65e+03 ug/g
 Strontium -ICP-Acid Digest 5.35e+00 ug/g
 Sulfur -ICP-Acid Digest 1.43e+03 ug/g
 Thallium -ICP-Acid Digest < 2.19e+01 ug/g
 Titanium-ICP-Acid Digest < 1.10e+00 ug/g
 Uranium -ICP-Acid Digest < 5.48e+01 ug/g
 Vanadium -ICP-Acid Digest < 5.48e+00 ug/g
 Zinc -ICP-Acid Digest 7.80e+01 ug/g
 Zirconium -ICP-Acid Digest < 1.10e+00 ug/g
 Iso Uranium by ICP/MS-AcidD159
 Uranium-233 by ICP/MS AcidD159 < 1.928e-02 ug/g
 Uranium-234 by ICP/MS AcidD159 < 1.928e-02 ug/g
 Uranium-235 by ICP/MS AcidD159 < 1.928e-02 ug/g
 Uranium-236 by ICP/MS AcidD159 < 2.571e-02 ug/g
 Uranium-238 by ICP/MS AcidD159 < 1.928e-02 ug/g
 Pu238,239 by TRU-SPEC Resin
 Pu-236 Tracer % Recovery 9.34E+01 % Rec
 overy Pu-238 Relative % Counting Err 1.00E+02 % Ct.
 Error Pu-238 by Ion Exchange < 2.04E-07 uCi/g
 Pu-239/240 by TRU-SPEC Resin < 2.04E-07 uCi/g
 Pu239 Relative % Count Error 1.00E+02 % Ct.
 Error
 OTHER ANALYSIS
 Acid Dig.ICP/AA/Radchem Aliq. 374.0 g/L

- 3 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
 20 Sep 1999

Customer ID: 6864
 Lab Sample#: S99M000352

Sample Date:
 Recv. Date: 08/1

99000317

2/1999 11:07

PARAMETER	RESULTS	UNITS
Customer ID: 6864	Sample Date:	
Lab Sample#: S99M000352	Recv. Date: 08/1	
2/1999 11:07		

PARAMETER	RESULTS	UNITS
Env GEA Large Library Method		
Ac-228 GEA Rel % Counting Err	n/a	% Ct.
Error		
Actinium-228 by GEA	< 3.735e-06	uCi/g
Am-241 GEA Rel. % Count Error	n/a	% Ct.
Error		
Am-243 GEA Rel. % Count Error	n/a	% Ct.
Error		
Americium-241 by GEA	< 5.653e-06	uCi/g
Americium-243 by GEA	< 1.500e-06	uCi/g
Antimony-125 by GEA	< 1.855e-06	uCi/g
Bi-212 GEA Rel % Counting Err	n/a	% Ct.
Error		
Bi-214 GEA Rel % Counting Err	n/a	% Ct.
Error		
Bismuth-212 by GEA	< 1.030e-05	uCi/g
Bismuth-214 by GEA	< 1.947e-06	uCi/g
Cadmium-109 by GEA	< 1.503e-05	uCi/g
Cd-109 GEA Rel % Counting Err	n/a	% Ct.
Error		
Ce/Pr-144 GEA Rel % Count Err	n/a	% Ct.
Error		
Ce/Pr-144 by GEA	< 6.484e-06	uCi/g
Cesium-134 by GEA	< 6.138e-07	uCi/g
Cesium-137 by GEA	< 1.049e-06	uCi/g
Co-56 GEA Rel. % Count Error	n/a	% Ct.
Error		
Co-57 GEA Rel. % Count Error	n/a	% Ct.
Error		
Co-60 GEA Rel. % Count Error	n/a	% Ct.
Error		
Cobalt-56 by GEA	< 6.902e-07	uCi/g
Cobalt-57 by GEA	< 4.327e-07	uCi/g
Cobalt-60 by GEA	< 6.757e-07	uCi/g
Cs-134 GEA Rel. % Count Error	n/a	% Ct.

99000317

Error	Cs-137 GEA Rel. % Count Error	n/a	% Ct.
Error	Eu-152 GEA Rel % Counting Err	n/a	% Ct.
Error	Eu-154 GEA Rel % Counting Err	n/a	% Ct.
Error	Eu-155 GEA Rel % Counting Err	n/a	% Ct.
Error	Europium-152 by GEA	< 1.301e-06	uCi/g
	Europium-154 by GEA	< 1.997e-06	uCi/g
	Europium-155 by GEA	< 1.772e-06	uCi/g
	Hg-203 GEA Rel % Counting Err	n/a	% Ct.
Error	I-131 GEA Rel % Counting Err	n/a	% Ct.
Error	Iodine-131 by GEA	< 6.270e-07	uCi/g
	K-40 GEA Rel. % Count Error	n/a	% Ct.
Error	Lead-212 by GEA	< 1.206e-06	uCi/g
	Lead-214 by GEA	< 6.746e-06	uCi/g
	Mercury-203 by GEA	< 5.870e-07	uCi/g
	Na-22 GEA Rel. % Count Error	n/a	% Ct.
Error	Na-24 GEA Rel. % Count Error	n/a	% Ct.
Error	Nb-94 GEA Rel % Counting Error	n/a	% Ct.
Error	Neptunium-237 by GEA	< 4.719e-06	uCi/g
	Neptunium-239 by GEA	< 1.743e-06	uCi/g

- 4 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6864
Lab Sample#: S99M000352
2/1999 11:07

Sample Date:
Recv. Date: 08/1

	PARAMETER	RESULTS	UNITS
	-----	-----	-----
	Niobium-94 by GEA	< 6.789e-07	uCi/g
Error	Np-237 GEA Rel % Counting Err	n/a	% Ct.
	Np-239 GEA Rel % Counting Err	n/a	% Ct.
Error	Pa-233 GEA Rel % Counting Err	n/a	% Ct.

99000317

Error	Pa-234m GEA Rel % Counting Err	n/a	% Ct.
Error	Pb-212 GEA Rel % Counting Err	n/a	% Ct.
Error	Pb-214 GEA Rel % Counting Err	n/a	% Ct.
Error	Plutonium-239 by GEA	< 5.623e-03	uCi/g
	Potassium-40 by GEA	< 2.778e-05	uCi/g
	Protactinium-233 by GEA	< 1.283e-06	uCi/g
	Protactinium-234m by GEA	< 1.077e-04	uCi/g
	Pu-239 GEA Rel % Counting Err	n/a	% Ct.
Error	Ra-224 GEA Rel % Counting Err	n/a	% Ct.
Error	Ra-226 GEA Rel % Counting Err	n/a	% Ct.
Error	Radium-224 by GEA	< 1.233e-05	uCi/g
	Radium-226 by GEA	< 1.196e-05	uCi/g
	Ru-103 GEA Rel % Count Error	n/a	% Ct.
Error	Ru/Rh-106 GEA Rel. % Count Err	n/a	% Ct.
Error	Ru/Rh-106 by GEA	< 1.202e-05	uCi/g
	Ruthenium-103 by GEA	< 6.232e-07	uCi/g
	Sb-125 GEA Rel % Counting Err	n/a	% Ct.
Error	Se-75 GEA Rel. % Count Error	n/a	% Ct.
Error	Selenium-75 by GEA	< 7.960e-07	uCi/g
	Sn-113 GEA Rel % Counting Err	n/a	% Ct.
Error	Sodium-22 by GEA	< 6.874e-07	uCi/g
	Sodium-24 by GEA	< 7.071e-07	uCi/g
	Sr-85 GEA Rel. % Count Error	n/a	% Ct.
Error	Strontium-85 by GEA	< 7.794e-07	uCi/g
	Th-228 GEA Rel % Counting Err	n/a	% Ct.
Error	Th-229 GEA Rel % Counting Err	n/a	% Ct.
Error	Th-234 GEA Rel % Counting Err	n/a	% Ct.
Error	Thallium-208 by GEA	< 7.695e-06	uCi/g
	Thorium-228 by GEA	< 5.076e-05	uCi/g
	Thorium-229 by GEA	< 2.163e-06	uCi/g
	Thorium-234 by GEA	< 4.133e-05	uCi/g
	Tin-113 by GEA	< 8.110e-07	uCi/g

99000317

Error	Tl-208 GEA Rel % Counting Err	n/a	% Ct.
Error	U-235 GEA Rel % Counting Err	n/a	% Ct.
Error	U/Th-233 GEA Rel % Count Err	n/a	% Ct.
Error	Uranium-235 by GEA	< 7.234e-07	uCi/g
	Uranium/Thorium-233 by GEA	< 4.128e-04	uCi/g
	Y-88 GEA Rel. % Count Error	n/a	% Ct.
Error	Yttrium-88 by GEA	< 5.739e-07	uCi/g
Error	Zr/Nb-95 GEA Rel % Count. Err	n/a	% Ct.
	Zr/Nb-95 by GEA	< 2.948e-06	uCi/g
Env	Sr-89/90 for Solids		
covery	Sr-89/90 Env. Sol: % Carr Rec	7.02E+01	% Rec
	Sr-89/90 Env. Solids	< 5.85E-07	uCi/g
Error	Sr-89/90 Sol: Rel % Cnt Err	2.77E+02	% Ct.

- 5 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6864
Lab Sample#: S99M000352
2/1999 11:07

Sample Date:
Recv. Date: 08/1

PARAMETER	RESULTS	UNITS
ICP (Acid Dig.) Routine Metals		
Aluminium -ICP-Acid Digest	1.10e+02	ug/g
Antimony -ICP-Acid Digest	< 7.78e+00	ug/g
Arsenic -ICP-Acid Digest	< 1.30e+01	ug/g
Barium -ICP-Acid Digest	9.59e+00	ug/g
Beryllium -ICP-Acid Digest	< 6.49e-01	ug/g
Bismuth -ICP-Acid Digest	< 1.30e+01	ug/g
Boron -ICP-Acid Digest	< 6.49e+00	ug/g
Cadmium -ICP-Acid Digest	< 6.49e-01	ug/g
Calcium -ICP-Acid Digest	9.18e+03	ug/g
Cerium -ICP-Acid Digest	< 1.30e+01	ug/g
Chromium -ICP-Acid Digest	< 1.30e+00	ug/g
Cobalt -ICP-Acid Digest	< 2.59e+00	ug/g
Copper -ICP-Acid Digest	3.26e+00	ug/g
Iron -ICP-Acid Digest	1.85e+02	ug/g

99000317

Lanthanum -ICP-Acid Digest	<	6.49e+00	ug/g
Lead -ICP-Acid Digest	<	1.30e+01	ug/g
Lithium -ICP-Acid Digest	<	1.30e+00	ug/g
Magnesium -ICP-Acid Digest		4.86e+02	ug/g
Manganese -ICP-Acid Digest		2.99e+00	ug/g
Molybdenum -ICP-Acid Digest	<	6.49e+00	ug/g
Neodymium -ICP-Acid Digest	<	1.30e+01	ug/g
Nickel -ICP-Acid Digest	<	2.59e+00	ug/g
Phosphorus -ICP-Acid Digest		7.88e+03	ug/g
Potassium -ICP-Acid Digest		3.14e+03	ug/g
Samarium -ICP-Acid Digest	<	1.30e+01	ug/g
Selenium -ICP-Acid Digest	<	1.30e+01	ug/g
Silicon -ICP-Acid Digest		9.12e+00	ug/g
Silver -ICP-Acid Digest	<	1.30e+00	ug/g
Sodium -ICP-Acid Digest		1.47e+03	ug/g
Strontium -ICP-Acid Digest		6.69e+00	ug/g
Sulfur -ICP-Acid Digest		1.32e+03	ug/g
Thallium -ICP-Acid Digest	<	2.59e+01	ug/g
Titanium-ICP-Acid Digest	<	1.30e+00	ug/g
Uranium -ICP-Acid Digest	<	6.49e+01	ug/g
Vanadium -ICP-Acid Digest	<	6.49e+00	ug/g
Zinc -ICP-Acid Digest		4.26e+01	ug/g
Zirconium -ICP-Acid Digest	<	1.30e+00	ug/g
Iso Uranium by ICP/MS-AcidD159			
Uranium-233 by ICP/MS AcidD159	<	2.282e-02	ug/g
Uranium-234 by ICP/MS AcidD159	<	2.282e-02	ug/g
Uranium-235 by ICP/MS AcidD159	<	2.282e-02	ug/g
Uranium-236 by ICP/MS AcidD159	<	3.043e-02	ug/g
Uranium-238 by ICP/MS AcidD159	<	2.282e-02	ug/g
Pu238,239 by TRU-SPEC Resin			
Pu-236 Tracer % Recovery		1.03E+02	% Rec
overy			
Pu-238 Relative % Counting Err		1.00E+02	% Ct.
Error			
Pu-238 by Ion Exchange	<	2.09E-07	uCi/g
Pu-239/240 by TRU-SPEC Resin	<	2.09E-07	uCi/g
Pu239 Relative % Count Error		1.00E+02	% Ct.
Error			

- 6 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6864
Lab Sample#: S99M000352
2/1999 11:07

Sample Date:
Recv. Date: 08/1

PARAMETER	RESULTS	UNITS
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99000317

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OTHER ANALYSIS
  Acid Dig.ICP/AA/Radchem Aliq.      316.0      g/L

Customer ID: 6865
Lab Sample#: S99M000353
2/1999 11:07
Sample Date:
Recv. Date: 08/1

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PARAMETER	RESULTS	UNITS
Env GEA Large Library Method		
Ac-228 GEA Rel % Counting Err	n/a	% Ct.
Error		
Actinium-228 by GEA	< 3.228e-06	uCi/g
Am-241 GEA Rel. % Count Error	n/a	% Ct.
Error		
Am-243 GEA Rel. % Count Error	n/a	% Ct.
Error		
Americium-241 by GEA	< 4.947e-06	uCi/g
Americium-243 by GEA	< 1.328e-06	uCi/g
Antimony-125 by GEA	< 1.659e-06	uCi/g
Bi-212 GEA Rel % Counting Err	n/a	% Ct.
Error		
Bi-214 GEA Rel % Counting Err	n/a	% Ct.
Error		
Bismuth-212 by GEA	< 9.132e-06	uCi/g
Bismuth-214 by GEA	< 1.724e-06	uCi/g
Cadmium-109 by GEA	< 1.290e-05	uCi/g
Cd-109 GEA Rel % Counting Err	n/a	% Ct.
Error		
Ce/Pr-144 GEA Rel % Count Err	n/a	% Ct.
Error		
Ce/Pr-144 by GEA	< 5.796e-06	uCi/g
Cesium-134 by GEA	< 5.224e-07	uCi/g
Cesium-137 by GEA	< 9.489e-07	uCi/g
Co-56 GEA Rel. % Count Error	n/a	% Ct.
Error		
Co-57 GEA Rel. % Count Error	n/a	% Ct.
Error		
Co-60 GEA Rel. % Count Error	n/a	% Ct.
Error		
Cobalt-56 by GEA	< 5.707e-07	uCi/g
Cobalt-57 by GEA	< 3.730e-07	uCi/g
Cobalt-60 by GEA	< 6.359e-07	uCi/g
Cs-134 GEA Rel. % Count Error	n/a	% Ct.
Error		

99000317

Error	Cs-137 GEA Rel. % Count Error	n/a	% Ct.
Error	Eu-152 GEA Rel % Counting Err	n/a	% Ct.
Error	Eu-154 GEA Rel % Counting Err	n/a	% Ct.
Error	Eu-155 GEA Rel % Counting Err	n/a	% Ct.
	Europium-152 by GEA	< 1.134e-06	uCi/g
	Europium-154 by GEA	< 1.844e-06	uCi/g
	Europium-155 by GEA	< 1.533e-06	uCi/g
Error	Hg-203 GEA Rel % Counting Err	n/a	% Ct.
Error	I-131 GEA Rel % Counting Err	n/a	% Ct.
Error	Iodine-131 by GEA	< 5.481e-07	uCi/g
Error	K-40 GEA Rel. % Count Error	n/a	% Ct.
	Lead-212 by GEA	< 1.003e-06	uCi/g
	Lead-214 by GEA	< 6.125e-06	uCi/g
	Mercury-203 by GEA	< 5.286e-07	uCi/g
Error	Na-22 GEA Rel. % Count Error	n/a	% Ct.
Error	Na-24 GEA Rel. % Count Error	n/a	% Ct.
Error	Nb-94 GEA Rel % Counting Error	n/a	% Ct.

- 7 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6865
Lab Sample#: S99M000353
2/1999 11:07

Sample Date:
Recv. Date: 08/1

	PARAMETER	RESULTS	UNITS
	-----	-----	-----
	Neptunium-237 by GEA	< 4.087e-06	uCi/g
	Neptunium-239 by GEA	< 1.503e-06	uCi/g
	Niobium-94 by GEA	< 5.447e-07	uCi/g
Error	Np-237 GEA Rel % Counting Err	n/a	% Ct.
Error	Np-239 GEA Rel % Counting Err	n/a	% Ct.
Error	Pa-233 GEA Rel % Counting Err	n/a	% Ct.

99000317

Error	Pa-234m GEA Rel % Counting Err	n/a	% Ct.
Error	Pb-212 GEA Rel % Counting Err	n/a	% Ct.
Error	Pb-214 GEA Rel % Counting Err	n/a	% Ct.
	Plutonium-239 by GEA	< 4.949e-03	uCi/g
	Potassium-40 by GEA	< 2.412e-05	uCi/g
	Protactinium-233 by GEA	< 1.099e-06	uCi/g
	Protactinium-234m by GEA	< 1.007e-04	uCi/g
	Pu-239 GEA Rel % Counting Err	n/a	% Ct.
Error	Ra-224 GEA Rel % Counting Err	n/a	% Ct.
Error	Ra-226 GEA Rel % Counting Err	n/a	% Ct.
Error	Radium-224 by GEA	< 1.067e-05	uCi/g
	Radium-226 by GEA	< 1.019e-05	uCi/g
	Ru-103 GEA Rel % Count Error	n/a	% Ct.
Error	Ru/Rh-106 GEA Rel. % Count Err	n/a	% Ct.
Error	Ru/Rh-106 by GEA	< 1.004e-05	uCi/g
	Ruthenium-103 by GEA	< 5.459e-07	uCi/g
	Sb-125 GEA Rel % Counting Err	n/a	% Ct.
Error	Se-75 GEA Rel. % Count Error	n/a	% Ct.
Error	Selenium-75 by GEA	< 7.080e-07	uCi/g
	Sn-113 GEA Rel % Counting Err	n/a	% Ct.
Error	Sodium-22 by GEA	< 6.342e-07	uCi/g
	Sodium-24 by GEA	< 5.913e-07	uCi/g
	Sr-85 GEA Rel. % Count Error	n/a	% Ct.
Error	Strontium-85 by GEA	< 6.632e-07	uCi/g
	Th-228 GEA Rel % Counting Err	n/a	% Ct.
Error	Th-229 GEA Rel % Counting Err	n/a	% Ct.
Error	Th-234 GEA Rel % Counting Err	n/a	% Ct.
Error	Thallium-208 by GEA	< 6.618e-06	uCi/g
	Thorium-228 by GEA	< 4.388e-05	uCi/g
	Thorium-229 by GEA	< 1.847e-06	uCi/g
	Thorium-234 by GEA	< 3.604e-05	uCi/g
	Tin-113 by GEA	< 7.116e-07	uCi/g
	Tl-208 GEA Rel % Counting Err	n/a	% Ct.

99000317

Error	U-235 GEA Rel % Counting Err	n/a	% Ct.
Error	U/Th-233 GEA Rel % Count Err	n/a	% Ct.
Error	Uranium-235 by GEA	< 6.240e-07	uCi/g
	Uranium/Thorium-233 by GEA	< 3.523e-04	uCi/g
	Y-88 GEA Rel. % Count Error	n/a	% Ct.
Error	Yttrium-88 by GEA	< 4.318e-07	uCi/g
	Zr/Nb-95 GEA Rel % Count. Err	n/a	% Ct.
Error	Zr/Nb-95 by GEA	< 2.512e-06	uCi/g
Env	Sr-89/90 for Solids		
	Sr-89/90 Env. Sol: % Carr Rec	7.32E+01	% Rec
overy	Sr-89/90 Env. Solids	7.72E-06	uCi/g

- 8 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6865
Lab Sample#: S99M000353
2/1999 11:07

Sample Date:
Recv. Date: 08/1

PARAMETER	RESULTS	UNITS
-----	-----	-----
Sr-89/90 Sol: Rel % Cnt Err	7.45E+00	% Ct.
Error		
ICP (Acid Dig.) Routine Metals		
Aluminium -ICP-Acid Digest	6.04e+01	ug/g
Antimony -ICP-Acid Digest	< 6.76e+00	ug/g
Arsenic -ICP-Acid Digest	< 1.13e+01	ug/g
Barium -ICP-Acid Digest	7.53e+00	ug/g
Beryllium -ICP-Acid Digest	< 5.63e-01	ug/g
Bismuth -ICP-Acid Digest	< 1.13e+01	ug/g
Boron -ICP-Acid Digest	< 5.63e+00	ug/g
Cadmium -ICP-Acid Digest	< 5.63e-01	ug/g
Calcium -ICP-Acid Digest	8.72e+03	ug/g
Cerium -ICP-Acid Digest	< 1.13e+01	ug/g
Chromium -ICP-Acid Digest	< 1.13e+00	ug/g
Cobalt -ICP-Acid Digest	< 2.25e+00	ug/g
Copper -ICP-Acid Digest	3.80e+00	ug/g
Iron -ICP-Acid Digest	1.34e+02	ug/g
Lanthanum -ICP-Acid Digest	< 5.63e+00	ug/g
Lead -ICP-Acid Digest	< 1.13e+01	ug/g

99000317

Lithium -ICP-Acid Digest	<	1.13e+00	ug/g
Magnesium -ICP-Acid Digest		5.45e+02	ug/g
Manganese -ICP-Acid Digest		2.69e+00	ug/g
Molybdenum -ICP-Acid Digest	<	5.63e+00	ug/g
Neodymium -ICP-Acid Digest	<	1.13e+01	ug/g
Nickel -ICP-Acid Digest	<	2.25e+00	ug/g
Phosphorus -ICP-Acid Digest		7.44e+03	ug/g
Potassium -ICP-Acid Digest		2.97e+03	ug/g
Samarium -ICP-Acid Digest	<	1.13e+01	ug/g
Selenium -ICP-Acid Digest	<	1.13e+01	ug/g
Silicon -ICP-Acid Digest		9.03e+00	ug/g
Silver -ICP-Acid Digest	<	1.13e+00	ug/g
Sodium -ICP-Acid Digest		1.23e+03	ug/g
Strontium -ICP-Acid Digest		4.07e+00	ug/g
Sulfur -ICP-Acid Digest		1.35e+03	ug/g
Thallium -ICP-Acid Digest	<	2.25e+01	ug/g
Titanium-ICP-Acid Digest	<	1.13e+00	ug/g
Uranium -ICP-Acid Digest	<	5.63e+01	ug/g
Vanadium -ICP-Acid Digest	<	5.63e+00	ug/g
Zinc -ICP-Acid Digest		3.62e+01	ug/g
Zirconium -ICP-Acid Digest	<	1.13e+00	ug/g
Iso Uranium by ICP/MS-AcidD159			
Uranium-233 by ICP/MS AcidD159	<	1.981e-02	ug/g
Uranium-234 by ICP/MS AcidD159	<	1.981e-02	ug/g
Uranium-235 by ICP/MS AcidD159	<	1.981e-02	ug/g
Uranium-236 by ICP/MS AcidD159	<	2.642e-02	ug/g
Uranium-238 by ICP/MS AcidD159	<	1.981e-02	ug/g
Pu238,239 by TRU-SPEC Resin			
Pu-236 Tracer % Recovery		1.12E+02	% Rec
overly Pu-238 Relative % Counting Err		1.00E+02	% Ct.
Error Pu-238 by Ion Exchange	<	1.90E-07	uCi/g
Pu-239/240 by TRU-SPEC Resin	<	1.90E-07	uCi/g

- 9 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6865
Lab Sample#: S99M000353
2/1999 11:07

Sample Date:
Recv. Date: 08/1

PARAMETER	RESULTS	UNITS
-----	-----	-----
Pu239 Relative % Count Error	1.00E+02	% Ct.
Error		

99000317

OTHER ANALYSIS

Acid Dig. ICP/AA/Radchem Aliq.

364.0

g/L

Customer ID: 6866

Sample Date:

Lab Sample#: S99M000354

Recv. Date: 08/1

2/1999 11:07

PARAMETER	RESULTS	UNITS
Env GEA Large Library Method		
Ac-228 GEA Rel % Counting Err	n/a	% Ct.
Error		
Actinium-228 by GEA	< 3.448e-06	uCi/g
Am-241 GEA Rel. % Count Error	n/a	% Ct.
Error		
Am-243 GEA Rel. % Count Error	n/a	% Ct.
Error		
Americium-241 by GEA	< 5.547e-06	uCi/g
Americium-243 by GEA	< 1.467e-06	uCi/g
Antimony-125 by GEA	< 1.745e-06	uCi/g
Bi-212 GEA Rel % Counting Err	n/a	% Ct.
Error		
Bi-214 GEA Rel % Counting Err	n/a	% Ct.
Error		
Bismuth-212 by GEA	< 9.825e-06	uCi/g
Bismuth-214 by GEA	< 4.584e-06	uCi/g
Cadmium-109 by GEA	< 1.433e-05	uCi/g
Cd-109 GEA Rel % Counting Err	n/a	% Ct.
Error		
Ce/Pr-144 GEA Rel % Count Err	n/a	% Ct.
Error		
Ce/Pr-144 by GEA	< 6.102e-06	uCi/g
Cesium-134 by GEA	< 5.918e-07	uCi/g
Cesium-137 by GEA	< 1.016e-06	uCi/g
Co-56 GEA Rel. % Count Error	n/a	% Ct.
Error		
Co-57 GEA Rel. % Count Error	n/a	% Ct.
Error		
Co-60 GEA Rel. % Count Error	n/a	% Ct.
Error		
Cobalt-56 by GEA	< 5.693e-07	uCi/g
Cobalt-57 by GEA	< 4.111e-07	uCi/g
Cobalt-60 by GEA	< 6.206e-07	uCi/g
Cs-134 GEA Rel. % Count Error	n/a	% Ct.
Error		
Cs-137 GEA Rel. % Count Error	n/a	% Ct.
Error		

99000317

Error	Eu-152 GEA Rel % Counting Err	n/a	% Ct.
Error	Eu-154 GEA Rel % Counting Err	n/a	% Ct.
Error	Eu-155 GEA Rel % Counting Err	n/a	% Ct.
	Europium-152 by GEA	< 1.228e-06	uCi/g
	Europium-154 by GEA	< 1.958e-06	uCi/g
	Europium-155 by GEA	< 1.662e-06	uCi/g
Error	Hg-203 GEA Rel % Counting Err	n/a	% Ct.
Error	I-131 GEA Rel % Counting Err	n/a	% Ct.
	Iodine-131 by GEA	< 6.073e-07	uCi/g
Error	K-40 GEA Rel. % Count Error	n/a	% Ct.
	Lead-212 by GEA	< 1.122e-06	uCi/g
	Lead-214 by GEA	< 6.552e-06	uCi/g
	Mercury-203 by GEA	< 5.731e-07	uCi/g
Error	Na-22 GEA Rel. % Count Error	n/a	% Ct.
Error	Na-24 GEA Rel. % Count Error	n/a	% Ct.

- 10 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6866
Lab Sample#: S99M000354
2/1999 11:07

Sample Date:
Recv. Date: 08/1

	PARAMETER	RESULTS	UNITS
	-----	-----	-----
Error	Nb-94 GEA Rel % Counting Error	n/a	% Ct.
	Neptunium-237 by GEA	< 4.425e-06	uCi/g
	Neptunium-239 by GEA	< 1.645e-06	uCi/g
	Niobium-94 by GEA	< 6.365e-07	uCi/g
Error	Np-237 GEA Rel % Counting Err	n/a	% Ct.
Error	Np-239 GEA Rel % Counting Err	n/a	% Ct.
Error	Pa-233 GEA Rel % Counting Err	n/a	% Ct.
Error	Pa-234m GEA Rel % Counting Err	n/a	% Ct.

99000317

Error	Pb-212 GEA Rel % Counting Err	n/a	% Ct.
Error	Pb-214 GEA Rel % Counting Err	n/a	% Ct.
	Plutonium-239 by GEA	< 5.440e-03	uCi/g
	Potassium-40 by GEA	< 2.607e-05	uCi/g
	Protactinium-233 by GEA	< 1.177e-06	uCi/g
	Protactinium-234m by GEA	< 9.969e-05	uCi/g
Error	Pu-239 GEA Rel % Counting Err	n/a	% Ct.
Error	Ra-224 GEA Rel % Counting Err	n/a	% Ct.
Error	Ra-226 GEA Rel % Counting Err	n/a	% Ct.
	Radium-224 by GEA	< 1.143e-05	uCi/g
	Radium-226 by GEA	< 1.147e-05	uCi/g
Error	Ru-103 GEA Rel % Count Error	n/a	% Ct.
Error	Ru/Rh-106 GEA Rel. % Count Err	n/a	% Ct.
	Ru/Rh-106 by GEA	< 1.062e-05	uCi/g
	Ruthenium-103 by GEA	< 5.826e-07	uCi/g
Error	Sb-125 GEA Rel % Counting Err	n/a	% Ct.
Error	Se-75 GEA Rel. % Count Error	n/a	% Ct.
	Selenium-75 by GEA	< 7.657e-07	uCi/g
Error	Sn-113 GEA Rel % Counting Err	n/a	% Ct.
	Sodium-22 by GEA	< 6.741e-07	uCi/g
	Sodium-24 by GEA	< 5.868e-07	uCi/g
Error	Sr-85 GEA Rel. % Count Error	n/a	% Ct.
	Strontium-85 by GEA	< 7.073e-07	uCi/g
Error	Th-228 GEA Rel % Counting Err	n/a	% Ct.
Error	Th-229 GEA Rel % Counting Err	n/a	% Ct.
Error	Th-234 GEA Rel % Counting Err	n/a	% Ct.
	Thallium-208 by GEA	< 7.360e-06	uCi/g
	Thorium-228 by GEA	< 4.644e-05	uCi/g
	Thorium-229 by GEA	< 2.056e-06	uCi/g
	Thorium-234 by GEA	< 3.769e-05	uCi/g
	Tin-113 by GEA	< 7.868e-07	uCi/g
Error	Tl-208 GEA Rel % Counting Err	n/a	% Ct.
	U-235 GEA Rel % Counting Err	n/a	% Ct.

99000317

Error	U/Th-233 GEA Rel % Count Err	n/a	% Ct.
Error	Uranium-235 by GEA	< 7.019e-07	uCi/g
	Uranium/Thorium-233 by GEA	< 3.921e-04	uCi/g
	Y-88 GEA Rel. % Count Error	n/a	% Ct.
Error	Yttrium-88 by GEA	< 4.745e-07	uCi/g
	Zr/Nb-95 GEA Rel % Count. Err	n/a	% Ct.
Error	Zr/Nb-95 by GEA	< 2.620e-06	uCi/g
Env	Sr-89/90 for Solids		
overy	Sr-89/90 Env. Sol: % Carr Rec	7.83E+01	% Rec

- 11 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6866
Lab Sample#: S99M000354
2/1999 11:07

Sample Date:
Recv. Date: 08/1

PARAMETER	RESULTS	UNITS
-----	-----	-----
Sr-89/90 Env. Solids	5.40E-06	uCi/g
Sr-89/90 Sol: Rel % Cnt Err	9.60E+00	% Ct.
Error		
ICP (Acid Dig.) Routine Metals		
Aluminium -ICP-Acid Digest	5.64e+01	ug/g
Antimony -ICP-Acid Digest	< 7.32e+00	ug/g
Arsenic -ICP-Acid Digest	< 1.22e+01	ug/g
Barium -ICP-Acid Digest	7.04e+00	ug/g
Beryllium -ICP-Acid Digest	< 6.10e-01	ug/g
Bismuth -ICP-Acid Digest	< 1.22e+01	ug/g
Boron -ICP-Acid Digest	< 6.10e+00	ug/g
Cadmium -ICP-Acid Digest	< 6.10e-01	ug/g
Calcium -ICP-Acid Digest	7.75e+03	ug/g
Cerium -ICP-Acid Digest	< 1.22e+01	ug/g
Chromium -ICP-Acid Digest	< 1.22e+00	ug/g
Cobalt -ICP-Acid Digest	< 2.44e+00	ug/g
Copper -ICP-Acid Digest	2.85e+00	ug/g
Iron -ICP-Acid Digest	7.55e+01	ug/g
Lanthanum -ICP-Acid Digest	< 6.10e+00	ug/g
Lead -ICP-Acid Digest	< 1.22e+01	ug/g
Lithium -ICP-Acid Digest	< 1.22e+00	ug/g
Magnesium -ICP-Acid Digest	4.14e+02	ug/g

99000317

Manganese -ICP-Acid Digest	2.64e+00	ug/g
Molybdenum -ICP-Acid Digest	< 6.10e+00	ug/g
Neodymium -ICP-Acid Digest	< 1.22e+01	ug/g
Nickel -ICP-Acid Digest	< 2.44e+00	ug/g
Phosphorus -ICP-Acid Digest	6.85e+03	ug/g
Potassium -ICP-Acid Digest	2.84e+03	ug/g
Samarium -ICP-Acid Digest	< 1.22e+01	ug/g
Selenium -ICP-Acid Digest	< 1.22e+01	ug/g
Silicon -ICP-Acid Digest	7.42e+00	ug/g
Silver -ICP-Acid Digest	< 1.22e+00	ug/g
Sodium -ICP-Acid Digest	1.23e+03	ug/g
Strontium -ICP-Acid Digest	2.06e+00	ug/g
Sulfur -ICP-Acid Digest	1.27e+03	ug/g
Thallium -ICP-Acid Digest	< 2.44e+01	ug/g
Titanium-ICP-Acid Digest	< 1.22e+00	ug/g
Uranium -ICP-Acid Digest	< 6.10e+01	ug/g
Vanadium -ICP-Acid Digest	< 6.10e+00	ug/g
Zinc -ICP-Acid Digest	3.68e+01	ug/g
Zirconium -ICP-Acid Digest	< 1.22e+00	ug/g
Iso Uranium by ICP/MS-AcidD159		
Uranium-233 by ICP/MS AcidD159	< 2.146e-02	ug/g
Uranium-234 by ICP/MS AcidD159	< 2.146e-02	ug/g
Uranium-235 by ICP/MS AcidD159	< 2.146e-02	ug/g
Uranium-236 by ICP/MS AcidD159	< 2.862e-02	ug/g
Uranium-238 by ICP/MS AcidD159	< 2.146e-02	ug/g
Pu238,239 by TRU-SPEC Resin		
Pu-236 Tracer % Recovery	1.07E+02	% Rec
overly Pu-238 Relative % Counting Err	1.00E+02	% Ct.
Error Pu-238 by Ion Exchange	< 2.10E-07	uCi/g

- 12 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6866
Lab Sample#: S99M000354
2/1999 11:07

Sample Date:
Recv. Date: 08/1

PARAMETER	RESULTS	UNITS
Pu-239/240 by TRU-SPEC Resin	< 2.10E-07	uCi/g
Pu239 Relative % Count Error	1.00E+02	% Ct.
OTHER ANALYSIS		
Acid Dig.ICP/AA/Radchem Aliq.	336.0	g/L

99000317

Customer ID: 6867
 Lab Sample#: S99M000355
 2/1999 11:07

Sample Date:
 Recv. Date: 08/1

PARAMETER	RESULTS	UNITS
-----	-----	-----
Env GEA Large Library Method		
Ac-228 GEA Rel % Counting Err	n/a	% Ct.
Error		
Actinium-228 by GEA	< 3.190e-06	uCi/g
Am-241 GEA Rel. % Count Error	n/a	% Ct.
Error		
Am-243 GEA Rel. % Count Error	n/a	% Ct.
Error		
Americium-241 by GEA	< 5.074e-06	uCi/g
Americium-243 by GEA	< 1.346e-06	uCi/g
Antimony-125 by GEA	< 1.583e-06	uCi/g
Bi-212 GEA Rel % Counting Err	n/a	% Ct.
Error		
Bi-214 GEA Rel % Counting Err	n/a	% Ct.
Error		
Bismuth-212 by GEA	< 8.690e-06	uCi/g
Bismuth-214 by GEA	< 4.130e-06	uCi/g
Cadmium-109 by GEA	< 1.259e-05	uCi/g
Cd-109 GEA Rel % Counting Err	n/a	% Ct.
Error		
Ce/Pr-144 GEA Rel % Count Err	n/a	% Ct.
Error		
Ce/Pr-144 by GEA	< 5.585e-06	uCi/g
Cesium-134 by GEA	< 5.270e-07	uCi/g
Cesium-137 by GEA	< 9.422e-07	uCi/g
Co-56 GEA Rel. % Count Error	n/a	% Ct.
Error		
Co-57 GEA Rel. % Count Error	n/a	% Ct.
Error		
Co-60 GEA Rel. % Count Error	n/a	% Ct.
Error		
Cobalt-56 by GEA	< 5.333e-07	uCi/g
Cobalt-57 by GEA	< 3.702e-07	uCi/g
Cobalt-60 by GEA	< 5.515e-07	uCi/g
Cs-134 GEA Rel. % Count Error	n/a	% Ct.
Error		
Cs-137 GEA Rel. % Count Error	n/a	% Ct.
Error		
Eu-152 GEA Rel % Counting Err	n/a	% Ct.
Error		

99000317

Error	Eu-154 GEA Rel % Counting Err	n/a	% Ct.
Error	Eu-155 GEA Rel % Counting Err	n/a	% Ct.
	Europium-152 by GEA	< 1.117e-06	uCi/g
	Europium-154 by GEA	< 1.805e-06	uCi/g
	Europium-155 by GEA	< 1.499e-06	uCi/g
Error	Hg-203 GEA Rel % Counting Err	n/a	% Ct.
Error	I-131 GEA Rel % Counting Err	n/a	% Ct.
	Iodine-131 by GEA	< 5.221e-07	uCi/g
Error	K-40 GEA Rel. % Count Error	n/a	% Ct.
	Lead-212 by GEA	< 9.972e-07	uCi/g
	Lead-214 by GEA	< 5.924e-06	uCi/g
	Mercury-203 by GEA	< 5.113e-07	uCi/g
Error	Na-22 GEA Rel. % Count Error	n/a	% Ct.

- 13 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6867
Lab Sample#: S99M000355
2/1999 11:07

Sample Date:
Recv. Date: 08/1

	PARAMETER	RESULTS	UNITS
	-----	-----	-----
Error	Na-24 GEA Rel. % Count Error	n/a	% Ct.
Error	Nb-94 GEA Rel % Counting Error	n/a	% Ct.
	Neptunium-237 by GEA	< 3.997e-06	uCi/g
	Neptunium-239 by GEA	< 1.527e-06	uCi/g
	Niobium-94 by GEA	< 5.395e-07	uCi/g
Error	Np-237 GEA Rel % Counting Err	n/a	% Ct.
Error	Np-239 GEA Rel % Counting Err	n/a	% Ct.
Error	Pa-233 GEA Rel % Counting Err	n/a	% Ct.
Error	Pa-234m GEA Rel % Counting Err	n/a	% Ct.
Error	Pb-212 GEA Rel % Counting Err	n/a	% Ct.

99000317

Error	Pb-214 GEA Rel % Counting Err	n/a	% Ct.
	Plutonium-239 by GEA	< 4.738e-03	uCi/g
	Potassium-40 by GEA	< 2.376e-05	uCi/g
	Protactinium-233 by GEA	< 1.113e-06	uCi/g
	Protactinium-234m by GEA	< 9.007e-05	uCi/g
Error	Pu-239 GEA Rel % Counting Err	n/a	% Ct.
Error	Ra-224 GEA Rel % Counting Err	n/a	% Ct.
Error	Ra-226 GEA Rel % Counting Err	n/a	% Ct.
Error	Radium-224 by GEA	< 1.073e-05	uCi/g
	Radium-226 by GEA	< 1.059e-05	uCi/g
Error	Ru-103 GEA Rel % Count Error	n/a	% Ct.
Error	Ru/Rh-106 GEA Rel. % Count Err	n/a	% Ct.
	Ru/Rh-106 by GEA	< 1.025e-05	uCi/g
	Ruthenium-103 by GEA	< 5.235e-07	uCi/g
Error	Sb-125 GEA Rel % Counting Err	n/a	% Ct.
Error	Se-75 GEA Rel. % Count Error	n/a	% Ct.
Error	Selenium-75 by GEA	< 6.913e-07	uCi/g
	Sn-113 GEA Rel % Counting Err	n/a	% Ct.
Error	Sodium-22 by GEA	< 6.215e-07	uCi/g
	Sodium-24 by GEA	< 5.922e-07	uCi/g
Error	Sr-85 GEA Rel. % Count Error	n/a	% Ct.
	Strontium-85 by GEA	< 6.496e-07	uCi/g
Error	Th-228 GEA Rel % Counting Err	n/a	% Ct.
Error	Th-229 GEA Rel % Counting Err	n/a	% Ct.
Error	Th-234 GEA Rel % Counting Err	n/a	% Ct.
	Thallium-208 by GEA	< 6.673e-06	uCi/g
	Thorium-228 by GEA	< 4.314e-05	uCi/g
	Thorium-229 by GEA	< 1.822e-06	uCi/g
	Thorium-234 by GEA	< 3.435e-05	uCi/g
	Tin-113 by GEA	< 7.217e-07	uCi/g
Error	Tl-208 GEA Rel % Counting Err	n/a	% Ct.
Error	U-235 GEA Rel % Counting Err	n/a	% Ct.
Error	U/Th-233 GEA Rel % Count Err	n/a	% Ct.

99000317

Error	Uranium-235 by GEA	< 6.456e-07	uCi/g
	Uranium/Thorium-233 by GEA	< 3.630e-04	uCi/g
	Y-88 GEA Rel. % Count Error	n/a	% Ct.
Error	Yttrium-88 by GEA	< 4.448e-07	uCi/g
	Zr/Nb-95 GEA Rel % Count. Err	n/a	% Ct.
Error	Zr/Nb-95 by GEA	< 2.333e-06	uCi/g

- 14 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6867
Lab Sample#: S99M000355
2/1999 11:07

Sample Date:
Recv. Date: 08/1

	PARAMETER	RESULTS	UNITS
	-----	-----	-----
	Env Sr-89/90 for Solids		
	Sr-89/90 Env. Sol: % Carr Rec	7.76E+01	% Rec
overy	Sr-89/90 Env. Solids	6.00E-06	uCi/g
	Sr-89/90 Sol: Rel % Cnt Err	8.24E+00	% Ct.
Error	ICP (Acid Dig.) Routine Metals		
	Aluminium -ICP-Acid Digest	6.23e+01	ug/g
	Antimony -ICP-Acid Digest	< 6.65e+00	ug/g
	Arsenic -ICP-Acid Digest	< 1.11e+01	ug/g
	Barium -ICP-Acid Digest	8.40e+00	ug/g
	Beryllium -ICP-Acid Digest	< 5.54e-01	ug/g
	Bismuth -ICP-Acid Digest	< 1.11e+01	ug/g
	Boron -ICP-Acid Digest	< 5.54e+00	ug/g
	Cadmium -ICP-Acid Digest	< 5.54e-01	ug/g
	Calcium -ICP-Acid Digest	7.20e+03	ug/g
	Cerium -ICP-Acid Digest	< 1.11e+01	ug/g
	Chromium -ICP-Acid Digest	< 1.11e+00	ug/g
	Cobalt -ICP-Acid Digest	< 2.22e+00	ug/g
	Copper -ICP-Acid Digest	2.76e+00	ug/g
	Iron -ICP-Acid Digest	9.05e+01	ug/g
	Lanthanum -ICP-Acid Digest	< 5.54e+00	ug/g
	Lead -ICP-Acid Digest	< 1.11e+01	ug/g
	Lithium -ICP-Acid Digest	< 1.11e+00	ug/g
	Magnesium -ICP-Acid Digest	3.92e+02	ug/g
	Manganese -ICP-Acid Digest	3.35e+00	ug/g

99000317

Molybdenum -ICP-Acid Digest	< 5.54e+00	ug/g
Neodymium -ICP-Acid Digest	< 1.11e+01	ug/g
Nickel -ICP-Acid Digest	< 2.22e+00	ug/g
Phosphorus -ICP-Acid Digest	6.28e+03	ug/g
Potassium -ICP-Acid Digest	2.67e+03	ug/g
Samarium -ICP-Acid Digest	< 1.11e+01	ug/g
Selenium -ICP-Acid Digest	< 1.11e+01	ug/g
Silicon -ICP-Acid Digest	< 5.54e+00	ug/g
Silver -ICP-Acid Digest	< 1.11e+00	ug/g
Sodium -ICP-Acid Digest	1.33e+03	ug/g
Strontium -ICP-Acid Digest	3.63e+00	ug/g
Sulfur -ICP-Acid Digest	8.84e+02	ug/g
Thallium -ICP-Acid Digest	< 2.22e+01	ug/g
Titanium -ICP-Acid Digest	< 1.11e+00	ug/g
Uranium -ICP-Acid Digest	< 5.54e+01	ug/g
Vanadium -ICP-Acid Digest	< 5.54e+00	ug/g
Zinc -ICP-Acid Digest	3.23e+01	ug/g
Zirconium -ICP-Acid Digest	< 1.11e+00	ug/g
Iso Uranium by ICP/MS-AcidD159		
Uranium-233 by ICP/MS AcidD159	< 1.949e-02	ug/g
Uranium-234 by ICP/MS AcidD159	< 1.949e-02	ug/g
Uranium-235 by ICP/MS AcidD159	< 1.949e-02	ug/g
Uranium-236 by ICP/MS AcidD159	< 2.599e-02	ug/g
Uranium-238 by ICP/MS AcidD159	< 1.949e-02	ug/g
Pu238,239 by TRU-SPEC Resin		
Pu-236 Tracer % Recovery	9.93E+01	% Rec

overy

- 15 -

PVALIDATED RESULTS SHORT REPORT - PRELIMINARY
20 Sep 1999

Customer ID: 6867
Lab Sample#: S99M000355
2/1999 11:07

Sample Date:
Recv. Date: 08/1

PARAMETER	RESULTS	UNITS
-----	-----	-----
Pu-238 Relative % Counting Err	1.00E+02	% Ct.
Error		
Pu-238 by Ion Exchange	< 1.97E-07	uCi/g
Pu-239/240 by TRU-SPEC Resin	< 1.97E-07	uCi/g
Pu239 Relative % Count Error	1.00E+02	% Ct.
Error		
OTHER ANALYSIS		
Acid Dig.ICP/AA/Radchem Aliq.	370.0	g/L

**WSCF
ANALYTICAL LABORATORY REPORT**

for

**Waste Management Northwest
H1-13**

Richland WA 99352

Attention: Ron Mitchell H1-13/FX 6-1435

**Report#: 99001721
Report Date: 4-jan-2000
Report W004/ver. 3
Waste Management Northwest**

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435
 Project Number EM&I :Environmental Monitoring

Group #: 99001721

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Cyanide by Multi/Spectrophotom	SOLID	LA-695-401		0.267	mg/kg	0.25	01/03/00	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Am-241 by AEA	SOLID	LA-508-472		5.5e-02	pCi/g	0.03	12/02/98	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		56	%	0.00	12/02/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Bromide (Br) by IC	SOLID	EPA 300.0	U	0.6	ug/g	0.62	11/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.8	ug/g	0.11	11/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Fluoride (F) by IC	SOLID	EPA 300.0	J	1	ug/g	0.10	11/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Nitrate (N) by IC	SOLID	EPA 300.0	J	2.35	ug/g	0.19	11/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Nitrite (N) by IC	SOLID	EPA 300.0	U	0.4	ug/g	0.41	11/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Phosphate (P) by IC	SOLID	EPA 300.0	J	3	ug/g	0.60	11/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Sulfate (SO4) by IC	SOLID	EPA 300.0	J	4	ug/g	1.08	11/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		114	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Ce-144 by GEA	SOLID	LA-508-462	U	4.02e-02	pCi/g	0.07	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	CaPr-144 Rel. % Count Error	SOLID	LA-508-462		114	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	CaPr-144 by GEA	SOLID	LA-508-462	U	8.06e-02	pCi/g	0.14	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		185	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Co-60 by GEA	SOLID	LA-508-462	U	2.35e-03	pCi/g	7.15e-003	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		34.1	%	0.01	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Cs-134 by GEA	SOLID	LA-508-462	U	2.70e-02	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		13.6	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Cs-137 by GEA	SOLID	LA-508-462		3.10e-01	pCi/g	9.11e-003	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		100	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Eu-152 by GEA	SOLID	LA-508-462	U	2.13e-02	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		316	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Eu-154 by GEA	SOLID	LA-508-462	U	4.49e-03	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		84.9	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-462	U	2.76e-02	pCi/g	0.04	11/10/99	11/04/99	11/04/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&J : Environmental Monitoring

Group #: 99001721

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	553.	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Nb-94 by GEA	SOLID	LA-508-462	U	7.89e-04	pCi/g	7.36e-003	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	1000	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Ru-103 by GEA	SOLID	LA-508-462	U	-6.72e-05	pCi/g	8.01e-003	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	271.	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Ru-106 by GEA	SOLID	LA-508-462	U	-1.53e-02	pCi/g	0.07	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	172.	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Sb-125 by GEA	SOLID	LA-508-462	U	8.18e-03	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	111.	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Sn-113 by GEA	SOLID	LA-508-462	U	-5.96e-03	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	109.	%	0.00	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Zn-65 by GEA	SOLID	LA-508-462	U	-1.13e-02	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Aluminum by ICP-MS	SOLID	EPA 200.8	B	4.50e+03	ug/g	3.99	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Antimony by ICP-MS	SOLID	EPA 200.8	B	2.18e-01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Arsenic by ICP-MS	SOLID	EPA 200.8	B	2.15e+00	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Beryllium by ICP-MS	SOLID	EPA 200.8	B	7.32e+01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Cadmium by ICP-MS	SOLID	EPA 200.8	B	1.75e-01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Chromium by ICP-MS	SOLID	EPA 200.8	B	7.07e+00	ug/g	0.60	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Cobalt by ICP-MS	SOLID	EPA 200.8	B	6.59e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Copper by ICP-MS	SOLID	EPA 200.8	B	8.45e+00	ug/g	0.40	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Lead by ICP-MS	SOLID	EPA 200.8	B	5.29e+00	ug/g	0.60	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Manganese by ICP-MS	SOLID	EPA 200.8	B	3.13e+02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Mercury by ICP-MS	SOLID	EPA 200.8	U	4.98e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Molybdenum by ICP-MS	SOLID	EPA 200.8	B	5.93e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001119	S0007-01 SPENT NUC FUEL/RE-SPL	Nickel by ICP-MS	SOLID	EPA 200.8	B	7.20e+00	ug/g	1.00	12/29/99	11/04/99	11/04/99

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E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

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Report W004/ver. 3

Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
 Project Number EM&I : Environmental Monitoring
 Group #: 99001721

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		2.17e-01	ug/g	0.15	12/29/99	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8	U	< 9.98e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8	U	< 4.99e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		2.85e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		3.56e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		4.81e+01	ug/g	0.20	12/29/99	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		3.74e+01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99

MDL = Minimum Detection Limit

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Report W004/ver. 3

Waste Management Northwest

WSCF
ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I :Environmental Monitoring

Group #: 99001721

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	TOXAPHENE								
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	01/03/00	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	4.0e-02	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	180	%	0.00	12/02/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	60	%	0.00	12/02/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	6.0e-02	pCi/g	0.01	12/02/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-461	U	30	%	0.00	12/16/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-461	U	1.2	pCi/g	2.20	12/16/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-220-403	U	30	%	0.00	01/04/00	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-220-403	U	9.6e-01	pCi/g	0.20	01/04/00	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	1.6e-01	pCi/g	0.01	12/02/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	37	%	0.00	12/02/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	1.2e-02	pCi/g	4.80e-003	12/02/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	82	%	0.00	12/02/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	1.5e-01	pCi/g	4.40e-003	12/02/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	37	%	0.10	12/02/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	4.7e-02	pCi/g	0.02	12/16/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-472	U	46	%	0.00	12/16/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462	U	248	%	0.00	11/16/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462	U	4.25e-02	pCi/g	0.17	11/16/99	11/04/99	11/04/99
W9900001119	S0007-01	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462	U	248	%	0.00	11/16/99	11/04/99	11/04/99

MDL = Minimum Detection Limit

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D - Compound concentration resulted from a dilution.
J - Estimated value. Z - See Comments.
U - The analyte was analyzed for but not detected.

B. The analyte was detected in the associated method blank.
E. Compound concentration exceeded calibration range.
N. Identification is based on a mass spectral library search.

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001721
Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Ce-144 by GEA	SOLID	LA-508-482	U	8.51e-02	pCi/g	0.34	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Ce-80 Rel. % Count Error (GEA)	SOLID	LA-508-482		304	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Co-60 by GEA	SOLID	LA-508-482	U	-3.75e-03	pCi/g	0.02	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-482		56.6	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Ce-134 by GEA	SOLID	LA-508-482		3.07e-02	pCi/g	0.03	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-482		13.3	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Ce-137 by GEA	SOLID	LA-508-482		1.22e+00	pCi/g	0.02	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-482		253	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Eu-152 by GEA	SOLID	LA-508-482		-1.60e-02	pCi/g	0.07	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-482		337	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Eu-154 by GEA	SOLID	LA-508-482		-1.46e-02	pCi/g	0.06	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-482		72.0	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-482		7.52e-02	pCi/g	0.08	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-482		1000	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Nb-94 by GEA	SOLID	LA-508-482		3.14e-04	pCi/g	0.02	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-482		578	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Ru-103 by GEA	SOLID	LA-508-482		2.26e-03	pCi/g	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-482		171	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Ru-106 by GEA	SOLID	LA-508-482		-6.50e-02	pCi/g	0.18	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-482		442	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Sb-125 by GEA	SOLID	LA-508-482		8.51e-03	pCi/g	0.06	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-482		1000	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Sn-113 by GEA	SOLID	LA-508-482		1.38e-03	pCi/g	0.03	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-482		136	%	0.00	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Zn-65 by GEA	SOLID	LA-508-482		2.19e-02	pCi/g	0.05	11/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Aluminum by ICP-MS	SOLID	EPA 200.8		2.85e+03	ug/g	3.88	12/29/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

D - Compound concentration resulted from a dilution.

J - Estimated value.

U - The analyte was analyzed for but not detected.

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001721
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Antimony by ICP-MS	SOLID	EPA 200.8	B J	1.92e-01	ug/g	0.09	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Arsenic by ICP-MS	SOLID	EPA 200.8		1.64e+00	ug/g	0.09	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Barium by ICP-MS	SOLID	EPA 200.8		4.85e+01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Beryllium by ICP-MS	SOLID	EPA 200.8		1.20e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Cadmium by ICP-MS	SOLID	EPA 200.8		1.12e-01	ug/g	0.09	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Chromium by ICP-MS	SOLID	EPA 200.8		5.43e+00	ug/g	0.55	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Cobalt by ICP-MS	SOLID	EPA 200.8		3.41e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Copper by ICP-MS	SOLID	EPA 200.8		8.35e+00	ug/g	0.37	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Lead by ICP-MS	SOLID	EPA 200.8		3.21e+00	ug/g	0.55	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Manganese by ICP-MS	SOLID	EPA 200.8		1.64e+02	ug/g	0.09	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Mercury by ICP-MS	SOLID	EPA 200.8	U	4.60e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Molybdenum by ICP-MS	SOLID	EPA 200.8		5.90e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Nickel by ICP-MS	SOLID	EPA 200.8		6.11e+00	ug/g	0.92	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Selenium by ICP-MS	SOLID	EPA 200.8		1.59e-01	ug/g	0.14	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Silver by ICP-MS	SOLID	EPA 200.8	U	9.20e-02	ug/g	0.09	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Thallium by ICP-MS	SOLID	EPA 200.8		1.37e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Thorium by ICP-MS	SOLID	EPA 200.8		2.36e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Uranium by ICP-MS	SOLID	EPA 200.8		2.03e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Vanadium by ICP-MS	SOLID	EPA 200.8		1.92e+01	ug/g	0.18	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Zinc by ICP-MS	SOLID	EPA 200.8		2.97e+01	ug/g	0.80	12/29/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Arcochlor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.40	11/15/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Arcochlor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.40	11/15/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Arcochlor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.40	11/15/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Arcochlor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.40	11/15/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Arcochlor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.40	11/15/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	4,4'-DDB	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

B - The analyte was detected in the associated method blank.
 J - Compound concentration exceeded calibration range.
 U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.
 Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring
Client ID Group #: 99001721

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Aldrin	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Endosulfen I	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Endosulfen II	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Endosulfen sulfate	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Endrin	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Endrin Alderhyde	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	2.00e+002	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA	SOLID	LA-508-472	U	6.7e-03	pCi/g	0.04	12/17/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA Total Cntg Err	SOLID	LA-508-472		330	%	0.00	12/17/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		68	%	0.00	12/17/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Pu-239/240 by AEA	SOLID	LA-508-472		2.4e-02	pCi/g	0.02	12/17/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Pu-241 by AEA	SOLID	LA-508-461		100	%	0.00	01/04/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Pu-241 by liquid scint. & AEA	SOLID	LA-508-461	U	-1.4	pCi/g	1.10	01/04/00	11/04/99	11/04/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

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J - Estimated value.
U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

** Indicates results that have NOT been validated.
Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001721
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Sr-90 Rat % Count Error	SOLID	LA-220-403		32	%	0.00	01/04/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	Sr-90 by Beta Counting	SOLID	LA-220-403		4.8E-01	pCi/g	0.30	01/04/00	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	U-234 by AEA	SOLID	LA-508-472		1.5E-01	pCi/g	2.40E-003	12/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		34	%	0.00	12/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	U-235 by AEA	SOLID	LA-508-472		1.9E-02	pCi/g	7.20E-003	12/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		57	%	0.00	12/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	U-238 by AEA	SOLID	LA-508-472		1.4E-01	pCi/g	6.60E-003	12/16/99	11/04/99	11/04/99
W990001120	S0007-05 SPENT NUC FUEL/RE-SPL	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		35	%	0.10	12/16/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL COMMENT REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001721
Project Number EM&I

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICPMS: Most LCS recoveries were biased high at an average 125%. This is probably the result of a low sample weight used for the solid LCS. Matrix spike recoveries were acceptable with the exception of Sb(69%). Prep blank yielded the equivalent of 0.1ug/g Sb. PES: Extract hold times exceeded due to instrument malfunction.
W990001119	S0007-01 SPENT NUC FUEL/RE-SM	VALTEST	Anions by Ion Chromatography	Fluoride was detected in the sample, but not in the duplicate. The amount of fluoride found in the sample was less than that of the lowest calibration standard. An unknown peak was detected in the duplicate, matrix spike and matrix spike duplicate. This unknown peak is co-eluting with fluoride, and thus causing an interference. Chloride and sulfate were also detected, but at concentrations less than those of the lowest calibration standard. Both the phosphate matrix spike and matrix spike duplicate had low results. This indicates a potential matrix interference with phosphate. Prep blank yielded the equivalent of 0.1ug/g Sb.
		VALTEST	ICP-2008 MS All possible metal	

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report#: 99001721

Report Date: 4-Jan-2000

Page 1

WSCF

TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:	Group #: 99001721			
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ Result Units

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.
 N - Identification is based on a mass spectral library search.
 J - Estimated value.
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W04E Report#: 99001721

Report Date: 4-Jan-2000

Page 1

WSCF
ANALYTICAL LABORATORY REPORT

for

**Waste Management Northwest
H1-13**

Richland WA 99352

Attention: Ron Mitchell H1-13/FX 6-1435

Post-It® Fax Note	7671	Date	01/05	# of pages	10
To	R. Mitchell	From	WSCF		
Co./Dept.		Co.			
Phone #		Phone #	3-7118		
Fax #	2-1435	Fax #			

Report#: 99001722
Report Date: 4-jan-2000
Report W004/ver. 3
Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001722
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Cyanide by MM/Spectrophotom	SOLID	LA-508-401	U	<	mg/kg	0.25	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Am-241 by AEA	SOLID	LA-508-472		5.0e-02	pCi/g	0.04	12/02/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		67.	%	0.00	12/02/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Bromide (Br) by IC	SOLID	EPA 300.0	U	0.6	ug/g	0.55	11/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.5	ug/g	0.10	11/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Fluoride (F) by IC	SOLID	EPA 300.0	U	0.08	ug/g	0.08	11/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Nitrate (N) by IC	SOLID	EPA 300.0	U	2.01	ug/g	0.17	11/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Nitrite (N) by IC	SOLID	EPA 300.0	U	0.4	ug/g	0.36	11/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Phosphate (P) by IC	SOLID	EPA 300.0	U	2.91	ug/g	0.53	11/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Sulfate (SO4) by IC	SOLID	EPA 300.0	J	3	ug/g	0.97	11/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		333.	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Ce-144 by GEA	SOLID	LA-508-462	U	1.45e-02	pCi/g	0.07	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Co-60 Rel. % Count Error	SOLID	LA-508-462		333.	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Co-60 by GEA	SOLID	LA-508-462	U	2.90e-02	pCi/g	0.15	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		100.	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Ce-134 by GEA	SOLID	LA-508-462	U	5.66e-03	pCi/g	8.08e-003	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		30.2	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Ce-137 by GEA	SOLID	LA-508-462	U	3.07e-02	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		15.9	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Eu-152 by GEA	SOLID	LA-508-462	U	1.77e-01	pCi/g	9.04e-003	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Eu-154 by GEA	SOLID	LA-508-462	U	3.51e-04	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		177.	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-462	U	1.61e-02	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		291.	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-462	U	8.39e-03	pCi/g	0.04	11/10/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001722
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462		1000	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462	U	1.87e-04	pCi/g	7.99e-003	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462		261	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462	U	-2.01e-03	pCi/g	8.79e-003	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462		105	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462	U	-4.36e-02	pCi/g	0.07	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462		290	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462	U	-4.88e-03	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462		197	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462	U	-3.69e-03	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462		1000	%	0.00	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	LA-508-462	U	3.75e-04	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		4.48e+03	ug/g	3.78	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8	8	1.77e-01	ug/g	0.09	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		1.99e+00	ug/g	0.09	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		7.81e+01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		2.10e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		1.87e-01	ug/g	0.08	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		6.51e+00	ug/g	0.57	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		6.73e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		8.70e+00	ug/g	0.38	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		5.82e+00	ug/g	0.57	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		3.12e+02	ug/g	0.09	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8	U	4.73e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		4.09e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001122	50007-02	SPENT NUC FUEL/RE-SPL	SOLID	EPA 200.8		7.01e+00	ug/g	0.94	12/29/99	11/04/99	11/04/99

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Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001722
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Selenium by ICP-MS	SOLID	EPA 200.8	U	2.23e-01	ug/g	0.14	12/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Silver by ICP-MS	SOLID	EPA 200.8	U	9.44e-02	ug/g	0.08	12/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Thallium by ICP-MS	SOLID	EPA 200.8	U	6.52e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Thorium by ICP-MS	SOLID	EPA 200.8	U	2.38e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Uranium by ICP-MS	SOLID	EPA 200.8	U	3.62e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Vanadium by ICP-MS	SOLID	EPA 200.8	U	4.30e+01	ug/g	0.19	12/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Zinc by ICP-MS	SOLID	EPA 200.8	U	3.62e+01	ug/g	0.61	12/29/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Arsenic-133 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Arsenic-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Arsenic-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Arsenic-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Arsenic-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Aldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Endrin	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Endrin Aldohyde	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	80.00	01/03/00	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring
Client ID

Group #: 99001722

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA	SOLID	LA-508-472	U	2.3e-02	pCi/g	0.10	12/02/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		240	%	0.00	12/02/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		87	%	0.00	12/02/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Pu-239/240 by AEA	SOLID	LA-508-472		2.8e-02	pCi/g	0.01	12/02/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Pu-241 by AEA Total Cntg Error	SOLID	LA-508-461		30	%	0.00	12/16/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Pu-241 by liquid scint. & AEA	SOLID	LA-508-461	U	0.8	pCi/g	2.00	12/16/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Sr-90 Rel. % Count Error	SOLID	LA-220-403		90	%	0.00	01/04/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	Sr-90 by Beta Counting	SOLID	LA-220-403		1.0	pCi/g	0.20	01/04/00	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	U-234 by AEA	SOLID	LA-508-472		1.5e-01	pCi/g	0.01	12/02/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		37	%	0.00	12/02/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	U-235 by AEA	SOLID	LA-508-472		2.0e-02	pCi/g	4.80e-003	12/02/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		68	%	0.00	12/02/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	U-238 by AEA	SOLID	LA-508-472		1.9e-01	pCi/g	4.40e-003	12/02/99	11/04/99	11/04/99
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		36	%	0.10	12/02/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Am-241 by AEA	SOLID	LA-508-472		4.5e-02	pCi/g	0.02	12/16/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		48	%	0.00	12/16/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Ce-144 Rel. % Count Error (DEA)	SOLID	LA-508-462		143	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Ce-144 by GEA	SOLID	LA-508-462	U	6.50e-02	pCi/g	0.16	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Ce-144 Rel. % Count Error	SOLID	LA-508-462		143	%	0.00	11/15/99	11/04/99	11/04/99

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Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HJ-13/FX 6-1435 Group #: 99001722
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	CaP-144 by GEA	SOLID	LA-508-482	U	1.30e-01	pCi/g	0.31	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-482		689.	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Co-60 by GEA	SOLID	LA-508-482	U	2.45e-03	pCi/g	0.03	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Ca-134 Rel. % Count Error (GEA)	SOLID	LA-508-482		66.3	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Ca-134 by GEA	SOLID	LA-508-482	U	2.47e-02	pCi/g	0.03	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Ca-137 Rel. % Count Error (GEA)	SOLID	LA-508-482		16.4	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Ca-137 by GEA	SOLID	LA-508-482		7.84e-01	pCi/g	0.03	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-482		152.	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Eu-152 by GEA	SOLID	LA-508-482	U	-3.05e-02	pCi/g	0.07	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-482		118.	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Eu-154 by GEA	SOLID	LA-508-482	U	-3.85e-02	pCi/g	0.07	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-482		94.4	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-482	U	5.09e-02	pCi/g	0.08	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-482		1000.	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Nb-94 by GEA	SOLID	LA-508-482	U	-5.29e-04	pCi/g	0.02	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-482		381.	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Ru-103 by GEA	SOLID	LA-508-482	U	-3.81e-03	pCi/g	0.02	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-482		111.	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Ru-106 by GEA	SOLID	LA-508-482	U	1.16e-01	pCi/g	0.23	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-482		138.	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Sb-125 by GEA	SOLID	LA-508-482	U	-2.87e-02	pCi/g	0.06	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-482		211.	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Sn-113 by GEA	SOLID	LA-508-482	U	8.56e-03	pCi/g	0.03	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-482		143.	%	0.00	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Zn-65 by GEA	SOLID	LA-508-482	U	2.84e-02	pCi/g	0.06	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Aluminum by ICP-MS	SOLID	EPA 200.8		2.88e+03	ug/g	3.88	12/29/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001722
Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Antimony by ICP-MS	SOLID	EPA 200.8	B	1.60e-01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Arsenic by ICP-MS	SOLID	EPA 200.8		1.56e+00	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Barium by ICP-MS	SOLID	EPA 200.8		5.50e+01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Beryllium by ICP-MS	SOLID	EPA 200.8		1.29e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Cadmium by ICP-MS	SOLID	EPA 200.8		1.19e-01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Chromium by ICP-MS	SOLID	EPA 200.8		5.67e+00	ug/g	0.58	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Cobalt by ICP-MS	SOLID	EPA 200.8		3.39e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Copper by ICP-MS	SOLID	EPA 200.8		7.82e+00	ug/g	0.39	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Lead by ICP-MS	SOLID	EPA 200.8		3.82e+00	ug/g	0.58	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Manganese by ICP-MS	SOLID	EPA 200.8		1.60e+02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Mercury by ICP-MS	SOLID	EPA 200.8	U	4.82e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Molybdenum by ICP-MS	SOLID	EPA 200.8		3.16e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Nickel by ICP-MS	SOLID	EPA 200.8		4.73e+00	ug/g	0.95	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Selenium by ICP-MS	SOLID	EPA 200.8	U	1.45e-01	ug/g	0.14	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Silver by ICP-MS	SOLID	EPA 200.8	U	9.64e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Thallium by ICP-MS	SOLID	EPA 200.8	U	4.82e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Thorium by ICP-MS	SOLID	EPA 200.8		3.77e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Uranium by ICP-MS	SOLID	EPA 200.8		3.17e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Vanadium by ICP-MS	SOLID	EPA 200.8		1.95e+01	ug/g	0.19	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Zinc by ICP-MS	SOLID	EPA 200.8		2.56e+01	ug/g	0.83	12/29/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.50	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.50	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.50	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.50	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.50	11/15/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	4,4'-DDO	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
 Project Number EM&I : Environmental Monitoring
 Group #: 99001722

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Aldrin	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Eridith	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Endrin Alderhyde	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	2.00e+002	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA Total Cntg Err	SOLID	LA-508-472	U	-1.3e-02	pCi/g	0.04	12/17/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Pu-238/240 by AEA	SOLID	LA-508-472	U	98	%	0.00	12/17/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Pu-238/240 by AEA	SOLID	LA-508-472	U	1.1e-02	pCi/g	0.01	12/17/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Pu-241 by AEA Total Cntg Err	SOLID	LA-508-461	U	100	%	0.00	01/04/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Pu-241 by liquid scint & AEA	SOLID	LA-508-461	U	-1.8	pCi/g	1.00	01/04/00	11/04/99	11/04/99

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 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

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Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
 Project Number EM&I : Environmental Monitoring
 Group #: 99001722

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Sr-90 Rel. % Count Error	SOLID	LA-220-403		31	%	0.00	01/04/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	Sr-90 by Beta Counting	SOLID	LA-220-403		4.8E-01	pCi/g	0.20	01/04/00	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	U-234 by AEA	SOLID	LA-508-472		1.5E-02	pCi/g	8.50E-003	12/16/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		64.	%	0.00	12/16/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	U-235 by AEA	SOLID	LA-508-472		5.0E-03	pCi/g	2.70E-003	12/16/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		95.	%	0.00	12/16/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	U-238 by AEA	SOLID	LA-508-472		1.1E-02	pCi/g	6.70E-003	12/16/99	11/04/99	11/04/99
W990001123	S0007-06 SPENT NUC FUEL/RE-SPL	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		70.	%	0.10	12/16/99	11/04/99	11/04/99

MDL = Minimum Detection Limit

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 Z - See Comments.
 U - The analyte was analyzed for but not detected.

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL COMMENT REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 **Group #:** 99001722
Project Number EM&I

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICPMS: Most LCS recoveries were biased high at an average 125%. This is probably the result of a low sample weight used for the solid LCS. Matrix spike recoveries were acceptable with the exception of Sb (89%). Prep blank yielded the equivalent of 0.1 ug/g Sb.
W990001122	S0007-02 SPENT NUC FUEL/RE-SPL	VALTEST	Anions by Ion Chromatography	PES: Hold time exceeded because of instrument malfunction anions: Chloride and sulfate were detected, but at concentration less than those of the lowest calibration standard.

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report#: 99001722

Report Date: 4-Jan-2000

Page 1

WSCF

TENTATIVELY IDENTIFIED PEAK REPORT

Attention:		:		Group #:		99001722	
Project Number							
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result Units

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.
 N - Identification is based on a mass spectral library search.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

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W04E Report#: 99001722 Report Date: 4-Jan-2000

Page 1

WASTE MANAGEMENT LABORATORY

**WSCF
ANALYTICAL LABORATORY REPORT**

for

Waste Management Northwest
H1-13

Richland WA 99352

Attention: Ron Mitchell H1-13/FX 6-1435

Report#: 99001723
Report Date: 4-jan-2000
Report W004/ver. 3
Waste Management Northwest

Page 1

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001723
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Cyanide by Melt/Spectrophotom	SOLID	LA-595-401	U	< 0.250	mg/kg	0.25	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Am-241 by AEA	SOLID	LA-508-472		8.9e-02	pCi/g	0.05	12/02/98	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		62	%	0.00	12/02/98	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Bromide (Br) by IC	SOLID	EPA 300.0	U	0.5	ug/g	0.53	11/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Chloride (Cl) by IC	SOLID	EPA 300.0	J	0.8	ug/g	0.10	11/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Fluoride (F) by IC	SOLID	EPA 300.0	J	0.9	ug/g	0.09	11/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Nitrate (N) by IC	SOLID	EPA 300.0	J	0.9	ug/g	0.17	11/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Nitrite (N) by IC	SOLID	EPA 300.0	U	0.3	ug/g	0.35	11/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Phosphate (P) by IC	SOLID	EPA 300.0		3.49	ug/g	0.52	11/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Sulfate (SO4) by IC	SOLID	EPA 300.0	J	3	ug/g	0.94	11/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	163	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Ce-144 by GEA	SOLID	LA-508-462	U	2.86e-02	pCi/g	0.07	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Co-144 Rel. % Count Error	SOLID	LA-508-462	U	163	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Co-144 Rel. % Count Error	SOLID	LA-508-462	U	5.32e-02	pCi/g	0.14	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		70.7	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Co-60 by GEA	SOLID	LA-508-462	U	9.18e-03	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		35.7	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Ce-134 by GEA	SOLID	LA-508-462		2.89e-02	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		16.6	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Ce-137 by GEA	SOLID	LA-508-462		2.59e-01	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		22.5	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Eu-152 by GEA	SOLID	LA-508-462		7.54e-02	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		190	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Eu-154 by GEA	SOLID	LA-508-462	U	1.09e-02	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		128	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-462	U	1.92e-02	pCi/g	0.04	11/10/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001723
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		161.	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Nb-94 by GEA	SOLID	LA-508-462	U	3.51e+03	pCi/g	9.70e-003	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		168.	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Ru-103 by GEA	SOLID	LA-508-462	U	-4.14e+03	pCi/g	9.59e-003	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		98.9	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Ru-106 by GEA	SOLID	LA-508-462	U	5.29e+02	pCi/g	9.09	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		266.	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Sb-125 by GEA	SOLID	LA-508-462	U	7.67e+03	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		296.	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Sn-113 by GEA	SOLID	LA-508-462	U	2.66e+03	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		100.	%	0.00	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Zn-65 by GEA	SOLID	LA-508-462	U	-2.09e+02	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Aluminum by ICP-MS	SOLID	EPA 200.8	B, J	5.66e+03	ug/g	3.97	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Antimony by ICP-MS	SOLID	EPA 200.8		2.11e+01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Arsenic by ICP-MS	SOLID	EPA 200.8		1.83e+00	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Barium by ICP-MS	SOLID	EPA 200.8		6.70e+01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Beryllium by ICP-MS	SOLID	EPA 200.8		2.16e+01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Cadmium by ICP-MS	SOLID	EPA 200.8		1.77e+01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Chromium by ICP-MS	SOLID	EPA 200.8		9.80e+00	ug/g	0.59	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Cobalt by ICP-MS	SOLID	EPA 200.8		6.10e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Copper by ICP-MS	SOLID	EPA 200.8		1.09e+01	ug/g	0.40	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Lead by ICP-MS	SOLID	EPA 200.8		7.57e+00	ug/g	0.59	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Manganese by ICP-MS	SOLID	EPA 200.8		2.69e+02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Mercury by ICP-MS	SOLID	EPA 200.8	U	4.98e+02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Molybdenum by ICP-MS	SOLID	EPA 200.8		3.98e+01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Nickel by ICP-MS	SOLID	EPA 200.8		1.23e+01	ug/g	0.98	12/29/99	11/04/99	11/04/99

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 Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001723
Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Selenium by ICP-MS	SOLID	EPA 8008	U	1.90e-01	ug/g	0.15	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Silver by ICP-MS	SOLID	EPA 8008	U	< 9.92e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Thallium by ICP-MS	SOLID	EPA 8008	U	5.13e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Thallium by ICP-MS	SOLID	EPA 8008	U	1.17e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Uranium by ICP-MS	SOLID	EPA 8008	U	3.64e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Vanadium by ICP-MS	SOLID	EPA 8008	U	4.14e+01	ug/g	0.20	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Zinc by ICP-MS	SOLID	EPA 8008	U	3.71e+01	ug/g	0.65	12/29/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.50	11/15/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.50	11/15/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.50	11/15/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.50	11/15/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.50	11/15/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Aldrin	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Endrin	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Endrin Aldahyde	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	40.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	2.00e+002	01/03/00	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/EX 6-1435 Group #: 99001723
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	2.50e+002	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA	SOLID	LA-508-472	U	2.3e-02	pCi/g	0.08	12/02/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		170	%	0.00	12/02/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Pu-238/240 by AEA	SOLID	LA-508-472	U	1.4e-02	pCi/g	0.04	12/02/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Pu-238/240 by AEA	SOLID	LA-508-472	U	1.4e-02	pCi/g	0.04	12/02/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Pu-241 by AEA Total Cntg Error	SOLID	LA-508-461	U	30	%	0.00	12/16/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Pu-241 by AEA Total Cntg Error	SOLID	LA-508-461	U	0.3	pCi/g	1.90	12/16/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Sr-90 by Beta Counting	SOLID	LA-220-403		32	%	0.00	01/04/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Sr-90 by Beta Counting	SOLID	LA-220-403		7.2E-01	pCi/g	0.20	01/04/00	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	U-234 by AEA	SOLID	LA-508-472		1.6e-01	pCi/g	4.00e-003	12/02/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		36	%	0.00	12/02/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	U-235 by AEA	SOLID	LA-508-472		2.3e-02	pCi/g	0.01	12/02/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		65	%	0.00	12/02/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	U-235 by AEA	SOLID	LA-508-472		1.5e-01	pCi/g	4.00e-003	12/02/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	U-238 by AEA	SOLID	LA-508-472		37	%	0.10	12/02/99	11/04/99	11/04/99
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	Am-241 by AEA	SOLID	LA-508-472		9.7e-02	pCi/g	0.03	12/02/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		44	%	0.00	12/02/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ce-144 by AEA	SOLID	LA-508-462		154	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ce-144 by GEA	SOLID	LA-508-462	U	7.95e-02	pCi/g	0.20	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Co-144 by GEA	SOLID	LA-508-462		154	%	0.00	11/10/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
 Project Number EM&I Environmental Monitoring
 Group #: 99001723

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ca-144 by GEA	SOLID	LA-508-462	U	1.59e-01	pCi/g	0.39	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		45.5	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Co-60 by GEA	SOLID	LA-508-462		3.22e-02	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		43.1	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ce-134 by GEA	SOLID	LA-508-462		5.04e-02	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		14.5	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ce-137 by GEA	SOLID	LA-508-462		2.55e+00	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		10.1	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-152 by GEA	SOLID	LA-508-462		5.98e-01	pCi/g	0.08	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		95.4	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-154 by GEA	SOLID	LA-508-462		5.39e-02	pCi/g	0.09	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		64.6	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-462		1.30e-01	pCi/g	0.11	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		88.7	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Nb-94 by GEA	SOLID	LA-508-462		1.72e-02	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		39.1	%	0.06	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ru-103 by GEA	SOLID	LA-508-462		-4.12e-03	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		100	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ru-106 by GEA	SOLID	LA-508-462		-1.64e-01	pCi/g	0.22	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Sr-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		100	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Sr-125 by GEA	SOLID	LA-508-462		-5.32e-02	pCi/g	0.06	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Sr-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		243	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Sr-113 by GEA	SOLID	LA-508-462		8.83e-03	pCi/g	0.04	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		958	%	0.00	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Zn-65 by GEA	SOLID	LA-508-462		-9.14e-03	pCi/g	0.06	11/10/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Aluminum by ICP-MS	SOLID	EPA 200.8		6.18e+03	ug/g	3.93	12/29/99	11/04/99	11/04/99

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 Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Group #: 99001723

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Antimony by ICP-MS	SOLID	EPA 200.8	3.69e-01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Arsenic by ICP-MS	SOLID	EPA 200.8	3.09e+00	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Barium by ICP-MS	SOLID	EPA 200.8	8.44e+01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Beryllium by ICP-MS	SOLID	EPA 200.8	1.97e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Cadmium by ICP-MS	SOLID	EPA 200.8	1.71e-01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Cerium by ICP-MS	SOLID	EPA 200.8	1.05e+01	ug/g	0.59	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Cobalt by ICP-MS	SOLID	EPA 200.8	5.61e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Copper by ICP-MS	SOLID	EPA 200.8	1.52e+01	ug/g	0.39	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Lead by ICP-MS	SOLID	EPA 200.8	1.83e+01	ug/g	0.59	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Manganese by ICP-MS	SOLID	EPA 200.8	1.87e+02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Mercury by ICP-MS	SOLID	EPA 200.8	2.44e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Molybdenum by ICP-MS	SOLID	EPA 200.8	5.49e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Nickel by ICP-MS	SOLID	EPA 200.8	2.52e+01	ug/g	0.98	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Selenium by ICP-MS	SOLID	EPA 200.8	2.09e-01	ug/g	0.15	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Silver by ICP-MS	SOLID	EPA 200.8	9.82e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Thallium by ICP-MS	SOLID	EPA 200.8	5.93e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Thorium by ICP-MS	SOLID	EPA 200.8	3.26e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Uranium by ICP-MS	SOLID	EPA 200.8	4.07e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Vanadium by ICP-MS	SOLID	EPA 200.8	5.57e+01	ug/g	0.20	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Zinc by ICP-MS	SOLID	EPA 200.8	4.35e+01	ug/g	0.84	12/29/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Aroclor-1232 Method 8082	SOLID	EPA 8082	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Aroclor-1242 Method 8082	SOLID	EPA 8082	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Aroclor-1248 Method 8082	SOLID	EPA 8082	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Aroclor-1254 Method 8082	SOLID	EPA 8082	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Aroclor-1260 Method 8082	SOLID	EPA 8082	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	4,4'-DDO	SOLID	EPA 8081	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99

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U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring

Group #: 99001723

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Aldrin	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ethion	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	1.20e+002	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA	SOLID	LA-508-472	U	-3.7e-03	pCi/g	0.07	12/03/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA Total Cntg Err	SOLID	LA-508-472	U	1000	%	0.00	12/03/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472	U	49	%	0.00	12/03/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Pu-239/240 by AEA	SOLID	LA-508-472	U	1.0e-01	pCi/g	0.01	12/03/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Pu-241 by AEA Total Cntg Err	SOLID	LA-508-461	U	30	%	0.00	12/16/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Pu-241 by liquid scint. & AEA	SOLID	LA-508-461	U	1.2	pCi/g	1.90	12/16/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001723
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Sr-90 Rel. % Count Error	SOLID	LA-220-403		30	%	0.00	01/04/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Sr-90 by Beta Counting	SOLID	LA-220-403		9.3E-01	pCi/g	0.20	01/04/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	U-234 by AEA	SOLID	LA-508-472		1.5E-01	pCi/g	0.02	12/02/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		37.	%	0.00	12/02/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	U-235 by AEA	SOLID	LA-508-472		3.3E-02	pCi/g	0.02	12/02/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		57.	%	0.00	12/02/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	U-238 by AEA	SOLID	LA-508-472		1.2E-01	pCi/g	0.01	12/02/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		38.	%	0.10	12/02/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Am-241 by AEA	SOLID	LA-508-472		4.1E-02	pCi/g	0.02	12/16/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		49.	%	0.00	12/16/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		217.	%	0.00	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ce-144 by GEA	SOLID	LA-508-462	U	6.40E-02	pCi/g	0.24	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Co-60 Rel. % Count Error	SOLID	LA-508-462		217.	%	0.00	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	1.38E-01	pCi/g	0.48	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Co-60 by GEA	SOLID	LA-508-462		368.	%	0.00	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Co-134 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	-8.01E-03	pCi/g	0.04	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Co-134 by GEA	SOLID	LA-508-462		179.	%	0.00	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	1.23E-02	pCi/g	0.04	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Ce-137 by GEA	SOLID	LA-508-462		234.	%	0.00	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	-9.86E-03	pCi/g	0.04	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-152 by GEA	SOLID	LA-508-462		376.	%	0.00	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	-3.76E-02	pCi/g	0.10	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-154 by GEA	SOLID	LA-508-462		187.	%	0.00	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	3.58E-02	pCi/g	0.12	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-462		376.	%	0.00	11/15/99	11/04/99	11/04/99
W990001125	S0007-07 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-462	U	2.13E-02	pCi/g	0.14	11/15/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001723
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	364.	%	0.00	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Nb-94 by GEA	SOLID	LA-508-462	U	-5.66e-03	pCi/g	0.03	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	228.	%	0.00	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Ru-103 by GEA	SOLID	LA-508-462	U	9.56e-03	pCi/g	0.04	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	100.	%	0.00	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Ru-106 by GEA	SOLID	LA-508-462	U	-2.30e-01	pCi/g	0.34	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Sr-125 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	682.	%	0.00	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Sr-125 by GEA	SOLID	LA-508-462	U	8.90e-03	pCi/g	0.10	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	189.	%	0.00	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Sn-113 by GEA	SOLID	LA-508-462	U	-1.47e-02	pCi/g	0.05	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	100.	%	0.00	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Zn-65 by GEA	SOLID	LA-508-462	U	-1.03e-01	pCi/g	0.08	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Aluminum by ICP-MS	SOLID	EPA 200.8	U	1.36e+02	ug/g	3.90	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Antimony by ICP-MS	SOLID	EPA 200.8	U	1.15e+01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Arsenic by ICP-MS	SOLID	EPA 200.8	U	9.74e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Barium by ICP-MS	SOLID	EPA 200.8	U	3.28e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Beryllium by ICP-MS	SOLID	EPA 200.8	U	4.87e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Cadmium by ICP-MS	SOLID	EPA 200.8	U	9.74e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Chromium by ICP-MS	SOLID	EPA 200.8	U	1.53e+00	ug/g	0.58	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Cobalt by ICP-MS	SOLID	EPA 200.8	U	1.06e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Copper by ICP-MS	SOLID	EPA 200.8	U	4.71e+00	ug/g	0.39	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Lead by ICP-MS	SOLID	EPA 200.8	U	5.84e-01	ug/g	0.58	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Manganese by ICP-MS	SOLID	EPA 200.8	U	2.10e+01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Mercury by ICP-MS	SOLID	EPA 200.8	U	4.87e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Molybdenum by ICP-MS	SOLID	EPA 200.8	U	3.52e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Nickel by ICP-MS	SOLID	EPA 200.8	U	1.37e+00	ug/g	0.97	12/29/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001723
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Selenium by ICP-MS	SOLID	EPA 200.8	U	< 1.46e-01	ug/g	0.15	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Silver by ICP-MS	SOLID	EPA 200.8	U	< 9.74e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Thallium by ICP-MS	SOLID	EPA 200.8	U	< 4.87e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Thallium by ICP-MS	SOLID	EPA 200.8	U	< 4.87e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Uranium by ICP-MS	SOLID	EPA 200.8	U	< 4.87e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Vanadium by ICP-MS	SOLID	EPA 200.8	U	< 9.30e-01	ug/g	0.20	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Zinc by ICP-MS	SOLID	EPA 200.8	B	8.22e+00	ug/g	0.63	12/29/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Arsenic-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Arsenic-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Arsenic-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Arsenic-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Arsenic-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Alkyl	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Endrin	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Endrin Alkyls	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	80.00	01/03/00	11/04/99	11/04/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

D - Compound concentration resulted from a dilution.

B - The analyte was detected in the associated method blank.

J - Estimated value.

E - Compound concentration exceeded calibration range.

Z - See Comments.

N - Identification is based on a mass spectral library search.

U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001126	S0007-08	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	01/03/00	11/04/98	11/04/99
W990001126	S0007-08	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/98	11/04/99
W990001126	S0007-08	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/98	11/04/99
W990001126	S0007-08	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-5068-472	U	1.1e-02	pCi/g	0.06	12/17/98	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-5068-472	U	230	%	0.00	12/17/98	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-5068-472	U	130	%	0.00	12/17/98	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-5068-472	U	7.3e-03	pCi/g	0.01	12/17/98	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-5068-481	U	100	%	0.00	01/04/00	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-5068-481	U	-0.9	pCi/g	1.20	01/04/00	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-220-403	U	3.6E-01	pCi/g	0.00	01/04/00	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-220-403	U	1.3e-02	pCi/g	6.80e-003	12/16/98	11/06/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-5068-472	U	67	%	0.00	12/16/98	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-5068-472	U	2.0e-03	pCi/g	2.70e-003	12/16/98	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-5068-472	U	150	%	0.00	12/16/98	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-5068-472	U	1.8e-03	pCi/g	5.30e-003	12/16/98	11/04/98	11/04/99
W990001126	S0007-09	SPENT NUC FUEL/RE-SPL	SOLID	LA-5068-472	U	260	%	0.10	12/16/98	11/04/98	11/04/99

MDL = Minimum Detection Limit
RQ = Result Qualifier B - The analyte

D - Compound concentration resulted from a dilution.
J - Estimated value. Z - See Comments.
U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

- - Indicates results that have NOT been validated.

Report W0044ver. 3

Waste Management Northwest

WSCF ANALYTICAL COMMENT REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001723
Project Number EM&I

Sample #	Client ID	Lab Area	Test	Comment
VALGROUP				
ICPMS: Most LCS recoveries were biased high at an average 125%. This is probably the result of a low sample weight used for the solid LCS. Matrix spike recoveries were acceptable with the exception of Sb (59%). Prep blank yielded the equivalent of 0.1ug/g Sb.				
PES: H&I times exceeded because of instrument malfunction				
Anions: Unknown peak interfering with fluoride analysis.				
Fluoride concentration is less than that of the lowest calibration standard. Chloride, nitrate, and sulfate were detected, but at concentrations less than those of the lowest calibration standard. Also, an additional unknown peak was detected in this sample.				
Prep blank yielded the equivalent of 1.8ug/g Zn.				
W990001124	S0007-03 SPENT NUC FUEL/RE-SPL	VALTEST	Anions by Ion Chromatography	
W990001126	S0007-09 SPENT NUC FUEL/RE-SPL	VALTEST	Aluminum by ICP-MS	

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report#: 99001723 Report Date: 4-Jan-2000

Page 1

WSCF TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:	Group #: 99001723					
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.
 N - Identification is based on a mass spectral library search.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

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W04E Report#: 99001723

Report Date: 4-Jan-2000

Page 1

**WSCF
ANALYTICAL LABORATORY REPORT**

for

Waste Management Northwest
H1-13

Richland WA 99352

Attention: Ron Mitchell H1-13/FX 6-1435

Report#: 99001724
Report Date: 5-jan-2000
Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001724
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Cyanide by Mili/Spectrophotom	SOLID	LA-695-401	U	< 0.250	mg/kg	0.25	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Am-241 by AEA	SOLID	LA-508-472		8.6e-02	pCi/g	0.05	12/02/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		54.	%	0.00	12/02/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Bismuth (Bi) by IC	SOLID	EPA 300.0	U	0.6	ug/g	0.62	11/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Chloride (Cl) by IC	SOLID	EPA 300.0	J	1	ug/g	0.11	11/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Fluoride (F) by IC	SOLID	EPA 300.0	J	1	ug/g	0.10	11/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Nitrate (N) by IC	SOLID	EPA 300.0	J	1.94	ug/g	0.19	11/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Nitrate (N) by IC	SOLID	EPA 300.0	J	0.5	ug/g	0.41	11/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Phosphate (P) by IC	SOLID	EPA 300.0	J	4.66	ug/g	0.60	11/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Sulfate (SO4) by IC	SOLID	EPA 300.0	J	6	ug/g	1.10	11/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Ca-144 Rel % Count Error (GEA)	SOLID	LA-508-462	U	387.	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Ca-144 Rel % Count Error	SOLID	LA-508-462	U	-1.51e-02	pCi/g	0.09	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	CaPr-144 Rel % Count Error	SOLID	LA-508-462	U	387.	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Co-60 Rel % Count Error (GEA)	SOLID	LA-508-462	U	-3.03e-02	pCi/g	0.18	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Co-60 Rel % Count Error	SOLID	LA-508-462	U	192.	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Co-60 by GEA	SOLID	LA-508-462	U	3.01e-03	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Co-134 Rel % Count Error (GEA)	SOLID	LA-508-462	U	37.9	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Co-134 by GEA	SOLID	LA-508-462	U	3.01e-02	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Co-137 Rel % Count Error (GEA)	SOLID	LA-508-462	U	12.9	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Co-137 by GEA	SOLID	LA-508-462	U	1.23e+00	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Eu-152 Rel % Count Error (GEA)	SOLID	LA-508-462	U	32.3	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Eu-152 by GEA	SOLID	LA-508-462	U	4.83e-02	pCi/g	0.04	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Eu-154 Rel % Count Error (GEA)	SOLID	LA-508-462	U	135.	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Eu-154 by GEA	SOLID	LA-508-462	U	1.33e-02	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Eu-155 Rel % Count Error (GEA)	SOLID	LA-508-462	U	93.5	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-462	U	3.08e-02	pCi/g	0.05	11/10/99	11/04/99	11/04/99

MDL = Minimum Detection Limit
 RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
 J - Estimated value.
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B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435
 Project Number EM&I : Environmental Monitoring Group #: 99001724

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-482	U	408.	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Nb-94 by GEA	SOLID	LA-508-482	U	1.34e-03	pCi/g	9.39e-003	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-482	U	204.	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Ru-103 by GEA	SOLID	LA-508-482	U	-3.41e-03	pCi/g	0.01	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-482	U	967.	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Ru-106 by GEA	SOLID	LA-508-482	U	5.99e-03	pCi/g	0.10	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Sr-125 Rel. % Count Error (GEA)	SOLID	LA-508-482	U	240.	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Sr-125 by GEA	SOLID	LA-508-482	U	8.48e-03	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-482	U	367.	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Sn-113 by GEA	SOLID	LA-508-482	U	-2.49e-03	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-482	U	100.	%	0.00	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Zn-65 by GEA	SOLID	LA-508-482	U	-1.92e-02	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Aluminum by ICP-MS	SOLID	EPA 200.8	B J	5.95e+03	ug/g	3.88	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Argonim by ICP-MS	SOLID	EPA 200.8	B J	3.63e-01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Arsenic by ICP-MS	SOLID	EPA 200.8	B J	1.82e+00	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Barium by ICP-MS	SOLID	EPA 200.8	B J	6.34e+01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Beryllium by ICP-MS	SOLID	EPA 200.8	B J	2.08e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Cadmium by ICP-MS	SOLID	EPA 200.8	B J	2.91e-01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Chromium by ICP-MS	SOLID	EPA 200.8	B J	8.62e+00	ug/g	0.58	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Cobalt by ICP-MS	SOLID	EPA 200.8	B J	6.42e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Copper by ICP-MS	SOLID	EPA 200.8	B J	1.67e+01	ug/g	0.39	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Lead by ICP-MS	SOLID	EPA 200.8	B J	1.88e+01	ug/g	0.58	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Manganese by ICP-MS	SOLID	EPA 200.8	B J	2.67e+02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Mercury by ICP-MS	SOLID	EPA 200.8	B J	5.92e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Molybdenum by ICP-MS	SOLID	EPA 200.8	B J	4.51e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Nickel by ICP-MS	SOLID	EPA 200.8	B J	1.74e+01	ug/g	0.96	12/29/99	11/04/99	11/04/99

MDL = Minimum Detection Limit

RQ = Result Qualifier

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 J - Estimated value.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001724
 Project Number EM&I :Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Selenium by ICP-MS	SOLID	EPA 200.8	U	2.18e-01	ug/g	0.14	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Silver by ICP-MS	SOLID	EPA 200.8	U	< 9.54e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Thallium by ICP-MS	SOLID	EPA 200.8	U	< 4.82e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Thorium by ICP-MS	SOLID	EPA 200.8	U	1.47e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Uranium by ICP-MS	SOLID	EPA 200.8	U	3.96e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Vanadium by ICP-MS	SOLID	EPA 200.8	U	4.38e+01	ug/g	0.19	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Zinc by ICP-MS	SOLID	EPA 200.8	U	7.31e+01	ug/g	0.63	12/29/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.20	11/15/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Aldrin	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Endrin	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Endrin Alderhyde	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	16.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	80.00	01/03/00	11/04/99	11/04/99

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 Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&I : Environmental Monitoring

Group #: 99001724

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	8.00	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA	SOLID	LA-508-472	U	1.4e-02	pCi/g	0.07	01/03/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		270	%	0.00	12/03/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		57	%	0.00	12/03/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Pu-239/240 by AEA	SOLID	LA-508-472		5.9e-02	pCi/g	9.40e-003	12/03/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Pu-241 by AEA Total Cntg Error	SOLID	LA-508-461		100	%	0.00	12/16/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Pu-241 by liquid scint. & AEA	SOLID	LA-508-461	U	-0.8	pCi/g	1.70	12/16/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Sr-90 Rel. % Count Error	SOLID	LA-220-403		30	%	0.00	01/04/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	Sr-90 by Beta Counting	SOLID	LA-220-403		9.4E-01	pCi/g	0.20	01/04/00	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	U-234 by AEA	SOLID	LA-508-472		1.1e-01	pCi/g	0.02	12/02/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		41	%	0.00	12/02/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	U-235 by AEA	SOLID	LA-508-472	U	5.2e-03	pCi/g	0.02	12/02/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		220	%	0.00	12/02/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	U-238 by AEA	SOLID	LA-508-472		1.2e-01	pCi/g	0.01	12/02/99	11/04/99	11/04/99
W990001127	S0007-04 SPENT NUC FUEL/RE-SPL	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		38	%	0.10	12/02/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Am-241 by AEA	SOLID	LA-508-472		8.1e-02	pCi/g	0.04	12/02/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		52	%	0.00	12/02/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		121	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Ce-144 by GEA	SOLID	LA-508-462	U	-9.07e-02	pCi/g	0.18	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	CeP-144 Rel. % Count Error	SOLID	LA-508-462		122	%	0.00	11/10/99	11/04/99	11/04/99

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Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435
Project Number EM&I : Environmental Monitoring
Group #: 99001724

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Ce-144 by GEA	SOLID	LA-508-462	U	-1.81e-01	pCi/g	0.36	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		238.	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Co-60 by GEA	SOLID	LA-508-462	U	5.61e-03	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		88.7	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Cs-134 by GEA	SOLID	LA-508-462	U	2.26e-02	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		15.4	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Ce-137 by GEA	SOLID	LA-508-462		1.51e+00	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		371.	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Eu-152 by GEA	SOLID	LA-508-462	U	-1.49e-02	pCi/g	0.08	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		881.	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Eu-154 by GEA	SOLID	LA-508-462	U	-5.79e-03	pCi/g	0.07	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		319.	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-462	U	1.88e-02	pCi/g	0.10	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		200.	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Nb-94 by GEA	SOLID	LA-508-462	U	-6.58e-03	pCi/g	0.02	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		597.	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Ru-103 by GEA	SOLID	LA-508-462	U	-2.48e-03	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		913.	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Ru-106 by GEA	SOLID	LA-508-462	U	-1.42e-02	pCi/g	0.22	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		88.2	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Sb-125 by GEA	SOLID	LA-508-462	U	6.53e-02	pCi/g	0.08	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		467.	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Sn-113 by GEA	SOLID	LA-508-462	U	4.12e-03	pCi/g	0.03	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		157.	%	0.00	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Zn-65 by GEA	SOLID	LA-508-462	U	-2.33e-02	pCi/g	0.05	11/10/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Aluminum by CP-MS	SOLID	EPA 200.8		3.79e+03	ug/g	3.83	12/29/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001724
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Antimony by ICP-MS	SOLID	EPA 200.8	B	1.82e-01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Arsenic by ICP-MS	SOLID	EPA 200.8		1.39e+00	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Barium by ICP-MS	SOLID	EPA 200.8		3.33e+01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Beryllium by ICP-MS	SOLID	EPA 200.8		1.10e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Cadmium by ICP-MS	SOLID	EPA 200.8		6.96e-01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Chromium by ICP-MS	SOLID	EPA 200.8		5.38e+00	ug/g	0.57	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Cobalt by ICP-MS	SOLID	EPA 200.8		3.86e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Copper by ICP-MS	SOLID	EPA 200.8		1.88e+01	ug/g	0.38	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Lead by ICP-MS	SOLID	EPA 200.8		1.29e+01	ug/g	0.57	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Manganese by ICP-MS	SOLID	EPA 200.8		1.43e+02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Mercury by ICP-MS	SOLID	EPA 200.8	U	4.79e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Molybdenum by ICP-MS	SOLID	EPA 200.8		6.41e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Nickel by ICP-MS	SOLID	EPA 200.8		7.79e+00	ug/g	0.96	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Selenium by ICP-MS	SOLID	EPA 200.8		2.56e-01	ug/g	0.14	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Silver by ICP-MS	SOLID	EPA 200.8	U	9.58e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Thallium by ICP-MS	SOLID	EPA 200.8	U	4.79e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Thorium by ICP-MS	SOLID	EPA 200.8	U	4.79e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Uranium by ICP-MS	SOLID	EPA 200.8		2.29e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Vanadium by ICP-MS	SOLID	EPA 200.8		2.22e+01	ug/g	0.19	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Zinc by ICP-MS	SOLID	EPA 200.8		1.75e+03	ug/g	0.82	12/29/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99

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 Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001724
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Aldrin	SOLID	EPA 8081	U	0	ug/kg	10.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Endrin	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	20.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	10.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	10.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	1.00e+002	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	1.25e+002	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	10.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	10.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	10.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	10.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	10.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	10.00	01/03/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA	SOLID	LA-508-472	U	2.8e-02	pCi/g	0.06	12/03/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472	U	140	%	0.00	12/03/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Pu-239/240 AEA Total Cntg Er	SOLID	LA-508-472	U	56	%	0.00	12/03/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Pu-239/240 by AEA	SOLID	LA-508-472	U	7.8e-02	pCi/g	0.03	12/03/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Pu-241 by AEA Total Cntg Error	SOLID	LA-508-461	U	25	%	0.00	12/16/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Pu-241 by liquid scint. & AEA	SOLID	LA-508-461	U	1.3	pCi/g	1.80	12/16/99	11/04/99	11/04/99

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Report W004/ver. 3
 Waste Management Northwest

WSCF

ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435 Group #: 99001724
 Project Number EM&I Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Sr-90 Rel. % Count Error	SOLID	LA-220-403		40	%	0.00	01/04/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	Sr-90 by Beta Counting	SOLID	LA-220-403		5.8E-01	pCi/g	0.20	01/04/00	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	U-234 by AEA	SOLID	LA-508-472		1.3e-01	pCi/g	3.20e-003	12/06/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		36.	%	0.00	12/06/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	U-235 by AEA	SOLID	LA-508-472		1.2e-02	pCi/g	3.50e-003	12/06/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		73.	%	0.00	12/06/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	U-238 by AEA	SOLID	LA-508-472		1.1e-01	pCi/g	3.20e-003	12/06/99	11/04/99	11/04/99
W990001128	S0007-08 SPENT NUC FUEL/RE-SPL	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		37.	%	0.10	12/06/99	11/04/99	11/04/99
W990001128	S0007-10 SPENT NUC FUEL/RE-SPL	Am-241 by AEA	SOLID	LA-508-472	U	1.6e-02	pCi/g	0.24	12/17/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		7.8e+02	%	0.00	12/17/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		109.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Ce-144 by GEA	SOLID	LA-508-462	U	-2.45e-01	pCi/g	0.43	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	CePr-144 Rel. % Count Error	SOLID	LA-508-462	U	109.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	CePr-144 by GEA	SOLID	LA-508-462	U	-4.91e-01	pCi/g	0.87	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		120.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Co-60 by GEA	SOLID	LA-508-462	U	3.27e-02	pCi/g	0.07	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		128.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Cs-134 by GEA	SOLID	LA-508-462	U	-3.14e-02	pCi/g	0.07	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		177.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Cs-137 by GEA	SOLID	LA-508-462	U	2.30e-02	pCi/g	0.07	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		352.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Eu-152 by GEA	SOLID	LA-508-462	U	-3.24e-02	pCi/g	0.18	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		343.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Eu-154 by GEA	SOLID	LA-508-462	U	3.06e-02	pCi/g	0.19	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		475.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Eu-155 by GEA	SOLID	LA-508-462	U	2.95e-02	pCi/g	0.24	11/19/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001724
 Project Number EM&I Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		198.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Nb-94 by GEA	SOLID	LA-508-462	U	1.89e-02	pCi/g	0.07	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		213.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Ru-103 by GEA	SOLID	LA-508-462	U	1.85e-02	pCi/g	0.07	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		662.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Ru-106 by GEA	SOLID	LA-508-462	U	-5.70e-02	pCi/g	0.64	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		310.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Sb-125 by GEA	SOLID	LA-508-462	U	3.31e-02	pCi/g	0.18	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		716.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Sn-113 by GEA	SOLID	LA-508-462	U	6.78e-03	pCi/g	0.08	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		325.	%	0.00	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Zn-65 by GEA	SOLID	LA-508-462	U	2.66e-02	pCi/g	0.13	11/19/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Aluminum by ICP-MS	SOLID	EPA 200.8		5.64e+01	ug/g	3.81	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Antimony by ICP-MS	SOLID	EPA 200.8	U	9.52e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Arsenic by ICP-MS	SOLID	EPA 200.8	U	9.52e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Barium by ICP-MS	SOLID	EPA 200.8		2.40e+00	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Beryllium by ICP-MS	SOLID	EPA 200.8	U	4.76e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Cadmium by ICP-MS	SOLID	EPA 200.8	U	9.52e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Chromium by ICP-MS	SOLID	EPA 200.8		1.46e+00	ug/g	0.57	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Cobalt by ICP-MS	SOLID	EPA 200.8		6.15e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Copper by ICP-MS	SOLID	EPA 200.8		3.19e+00	ug/g	0.38	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Lead by ICP-MS	SOLID	EPA 200.8	U	5.71e-01	ug/g	0.57	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Manganese by ICP-MS	SOLID	EPA 200.8		1.89e+01	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Mercury by ICP-MS	SOLID	EPA 200.8	U	4.76e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Molybdenum by ICP-MS	SOLID	EPA 200.8		1.46e-01	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Nickel by ICP-MS	SOLID	EPA 200.8		1.01e+00	ug/g	0.95	12/29/99	11/04/99	11/04/99

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Report W004/ver. 3

Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell H1-13/FX 6-1435
Project Number EM&J Environmental Monitoring Group #: 99001724

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Selenium by ICP-MS	SOLID	EPA 200.8	U	< 1.43e-01	ug/g	0.14	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Silver by ICP-MS	SOLID	EPA 200.8	U	< 9.52e-02	ug/g	0.10	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Thallium by ICP-MS	SOLID	EPA 200.8	U	< 4.76e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Thorium by ICP-MS	SOLID	EPA 200.8	U	< 4.76e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Uranium by ICP-MS	SOLID	EPA 200.8	U	< 4.76e-02	ug/g	0.05	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Vanadium by ICP-MS	SOLID	EPA 200.8	U	5.71e-01	ug/g	0.19	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Zinc by ICP-MS	SOLID	EPA 200.8	U	2.44e+01	ug/g	0.62	12/29/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Aroclor-1232 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Aroclor-1242 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Aroclor-1248 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Aroclor-1254 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Aroclor-1260 Method 8082	SOLID	EPA 8082	U	0	ug/g	0.30	11/15/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	4,4'-DDD	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	4,4'-DDE	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	4,4'-DDT	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Aldrin	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Dieldrin	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Endosulfan I	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Endosulfan II	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Endosulfan sulfate	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Endrin	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Endrin Aldehyde	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Endrin Ketone	SOLID	EPA 8081	U	0	ug/kg	24.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Heptachlor	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Heptachlor epoxide	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Methoxychlor	SOLID	EPA 8081	U	0	ug/kg	1.20e+002	01/03/00	11/04/99	11/04/99

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Report W004/ver. 3
Waste Management Northwest

WSCF ANALYTICAL LABORATORY REPORT

Attention: Ron Mitchell HI-13/FX 6-1435 Group #: 99001724
 Project Number EM&I : Environmental Monitoring

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Toxaphene	SOLID	EPA 8081	U	0	ug/kg	1.50e+002	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	alpha-BHC	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	alpha-Chlordane	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	beta-BHC	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	delta-BHC	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	gamma-BHC (Lindane)	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	gamma-Chlordane	SOLID	EPA 8081	U	0	ug/kg	12.00	01/03/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA	SOLID	LA-508-472	U	-1.5e-02	pCi/g	0.06	12/27/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		200	%	0.00	12/27/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Pu-239/240 AEA Total Cntg Er	SOLID	LA-508-472		81	%	0.00	12/27/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Pu-239/240 by AEA	SOLID	LA-508-472		1.9e-02	pCi/g	0.02	12/27/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Pu-241 by AEA Total Cntg Error	SOLID	LA-508-461		100	%	0.00	01/04/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Pu-241 by liquid scint. & AEA	SOLID	LA-508-461	U	-1.6	pCi/g	1.20	01/04/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Sr-90 Rel. % Count Error	SOLID	LA-220-403		30	%	0.00	01/04/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	Sr-90 by Beta Counting	SOLID	LA-220-403		4.9E-01	pCi/g	0.20	01/04/00	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	U-234 by AEA	SOLID	LA-508-472		1.6e-01	pCi/g	6.00e-003	12/16/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		34	%	0.00	12/16/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	U-235 by AEA	SOLID	LA-508-472		8.9e-03	pCi/g	8.20e-003	12/16/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		81	%	0.00	12/16/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	U-238 by AEA	SOLID	LA-508-472		1.6e-01	pCi/g	2.20e-003	12/16/99	11/04/99	11/04/99
W990001129	S0007-10 SPENT NUC FUEL/RE-SPL	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		34	%	0.10	12/16/99	11/04/99	11/04/99

MDL=Minimum Detection Limit
 RQ=Result Qualifier

D - Compound concentration resulted from a dilution.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated

Report W004/ver. 3
 Waste Management Northwest

WSCF ANALYTICAL COMMENT REPORT

Attention: Ron Mitchell H1-13/FX 6-1435 Group #: 99001724
Project Number EM&I

Sample # Client ID Lab Area Test Comment

VALGROUP

ICPMS: Most LCS recoveries were biased high at an average 126%. This is probably the result of a low sample weight used for the solid LCS. Matrix spike recoveries were acceptable with the exception of Sb(69%).
PES: Hold times exceeded because of instrument malfunction
Sample W990001129 for Am241 analysis has a very low Am-243 tracer recovery (only 4%) and the Am-241 LCS QC was slightly high. The sample W990001129 will be retested along with the LCS and a BLANK for Am241.
Prep blank yielded the equivalent of 0.1ug/g Sb.
ANIONS: Unknown peak is interfering with fluoride analysis. Fluoride concentration is less than that of the lowest calibration standard. Chloride, nitrite, and sulfate were detected, but at concentrations less than those of the lowest calibration standard.
Prep blank yielded the equivalent of 0.1ug/g Sb.

W990001127 S0007-04 SPENT NUC FUEL/RE-SPL VALTEST Aluminum by ICP-MS
VALTEST Arsenic by Ion Chromatography

W990001128 S0007-08 SPENT NUC FUEL/RE-SPL VALTEST Aluminum by ICP-MS

Lab Areas: VALGROUP - Group Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report #: 99001724

Report Date: 5-Jan-2000

WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:	Group #: 99001724			
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ Result Units

RQ = Result Qualifier

B - The analyte was detected in the associated method blank.
N - Identification is based on a mass spectral library search.

J - Estimated value.

U - The analyte was analyzed for but not detected.

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W04E Report# 99001724

Report Date: 5-Jan-2000

Page 1

**WSCF
ANALYTICAL LABORATORY REPORT**

for

**Environmental Monitoring and Investigation
H1-11
Hanford WA**

Attention: C.J.Perkins/Ron Mitchell

**Report#: 20000323
Report Date: 10-apr-2000
Report W004/ver. 3.1
Environmental Monitoring and Investigation**

Page 1

WSCF ANALYTICAL LABORATORY REPORT

Group #: 20000323

Attention: C.J. Perkins/Ron Mitchell

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000123	K0N4V7	Cyanide by Mdl/Spectrophotom	SOLID	LA-595-402	U	<	mg/kg	0.25	03/09/00	02/24/00	02/24/00
W000000123	K0N4V7	Am-241 by AEA	SOLID	LA-508-472		7.6e-02	pCi/g	0.04	03/20/00	02/24/00	02/24/00
W000000123	K0N4V7	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		52.	%	0.00	03/20/00	02/24/00	02/24/00
W000000123	K0N4V7	Bromide (Br) by IC	SOLID	EPA 300.0	U	1	ug/g	0.96	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	Chloride (Cl) by IC	SOLID	EPA 300.0	U	0.3	ug/g	0.29	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	Fluoride (F) by IC	SOLID	EPA 300.0	UJ	0.07	ug/g	0.07	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	Nitrate (N) by IC	SOLID	EPA 300.0	J	1	ug/g	0.38	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	Nitrite (N) by IC	SOLID	EPA 300.0	U	0.2	ug/g	0.19	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	Phosphate (P) by IC	SOLID	EPA 300.0	J	1	ug/g	0.57	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	Sulfate (SO4) by IC	SOLID	EPA 300.0	J	3	ug/g	1.91	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		227.	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Ce-144 by GEA	SOLID	LA-508-462	U	-2.52e-02	pCi/g	0.09	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	CePr-144 Rel. % Count Error	SOLID	LA-508-462		226.	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	CePr-144 by GEA	SOLID	LA-508-462	U	-5.03e-02	pCi/g	0.19	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		100.	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Co-60 by GEA	SOLID	LA-508-462	U	6.45e-03	pCi/g	0.01	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		44.9	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Cs-134 by GEA	SOLID	LA-508-462		3.33e-02	pCi/g	0.02	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		32.1	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Cs-137 by GEA	SOLID	LA-508-462		4.39e-02	pCi/g	0.01	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462		34.6	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Eu-152 by GEA	SOLID	LA-508-462		5.41e-02	pCi/g	0.03	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462		142.	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Eu-154 by GEA	SOLID	LA-508-462	U	1.31e-02	pCi/g	0.03	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Eu-155 by GEA	SOLID	LA-508-462	U	1.41e-03	pCi/g	0.05	02/28/00	02/24/00	02/24/00

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D - Compound concentration resulted from a dilution.

E - Compound concentration exceeded calibration range.

J - Estimated value.

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U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

Report W004/ver. 3.1

Environmental Monitoring and Investigation

WSCF ANALYTICAL LABORATORY REPORT

Group #: 20000323

Attention: C.J.Perkins/Ron Mitchell

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000123	K0N4V7	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462		245.	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Nb-94 by GEA	SOLID	LA-508-462	U	-2.47e-03	pCi/g	0.01	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462		257.	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Ru-103 by GEA	SOLID	LA-508-462	U	2.43e-03	pCi/g	0.01	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462		503.	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Ru-106 by GEA	SOLID	LA-508-462	U	-1.09e-02	pCi/g	0.09	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Sb-125 by GEA	SOLID	LA-508-462	U	7.58e-04	pCi/g	0.03	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462		1000	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Sn-113 by GEA	SOLID	LA-508-462	U	-8.03e-04	pCi/g	0.01	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462		100.	%	0.00	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Zn-65 by GEA	SOLID	LA-508-462	U	-2.07e-02	pCi/g	0.02	02/28/00	02/24/00	02/24/00
W000000123	K0N4V7	Aluminum by ICP-MS	SOLID	EPA 200.8		6.43e+03	ug/g	3.53	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Antimony by ICP-MS	SOLID	EPA 200.8		1.53e-01	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Arsenic by ICP-MS	SOLID	EPA 200.8		1.52e+00	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Barium by ICP-MS	SOLID	EPA 200.8		5.71e+01	ug/g	0.04	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Beryllium by ICP-MS	SOLID	EPA 200.8		2.24e-01	ug/g	0.04	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Cadmium by ICP-MS	SOLID	EPA 200.8		1.24e-01	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Chromium by ICP-MS	SOLID	EPA 200.8	J	1.00e+01	ug/g	0.53	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Cobalt by ICP-MS	SOLID	EPA 200.8		5.46e+00	ug/g	0.04	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Copper by ICP-MS	SOLID	EPA 200.8		9.83e+00	ug/g	0.35	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Lead by ICP-MS	SOLID	EPA 200.8		3.97e+00	ug/g	0.53	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Manganese by ICP-MS	SOLID	EPA 200.8		2.43e+02	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Mercury by ICP-MS	SOLID	EPA 200.8	U	4.41e-02	ug/g	0.04	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Molybdenum by ICP-MS	SOLID	EPA 200.8		4.50e-01	ug/g	0.04	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Nickel by ICP-MS	SOLID	EPA 200.8		8.34e+00	ug/g	0.88	03/23/00	02/24/00	02/24/00

MDL=Minimum Detection Limit

RQ=Result Qualifier

D - Compound concentration resulted from a dilution.

B - The analyte was detected in the associated method blank.

J - Estimated value.

E - Compound concentration exceeded calibration range.

Z - See Comments.

* - Indicates results that have NOT been validated.

N - Identification is based on a mass spectral library search.

U - The analyte was analyzed for but not detected.

Report W004/ver. 3.1

Environmental Monitoring and Investigation

WSCF ANALYTICAL LABORATORY REPORT

Group #: 20000323

Attention: C.J. Perkins/Ron Mitchell

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000123	K0N4V7	Selenium by ICP-MS	SOLID	EPA 200.8	U	2.06e-01	ug/g	0.13	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Silver by ICP-MS	SOLID	EPA 200.8	U	8.82e-02	ug/g	0.08	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Thallium by ICP-MS	SOLID	EPA 200.8		1.63e-01	ug/g	0.04	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Thorium by ICP-MS	SOLID	EPA 200.8		2.59e+00	ug/g	0.04	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Uranium by ICP-MS	SOLID	EPA 200.8		5.39e-01	ug/g	0.04	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Vanadium by ICP-MS	SOLID	EPA 200.8		3.42e+01	ug/g	0.18	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Zinc by ICP-MS	SOLID	EPA 200.8		3.00e+01	ug/g	0.57	03/23/00	02/24/00	02/24/00
W000000123	K0N4V7	Pu-238 by AEA	SOLID	LA-508-472	U	3.5e-03	pCi/g	0.08	03/21/00	02/24/00	02/24/00
W000000123	K0N4V7	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		1000	%	0.00	03/21/00	02/24/00	02/24/00
W000000123	K0N4V7	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		250	%	0.00	03/21/00	02/24/00	02/24/00
W000000123	K0N4V7	Pu-239/240 by AEA	SOLID	LA-508-472	U	7.1e-03	pCi/g	0.03	03/21/00	02/24/00	02/24/00
W000000123	K0N4V7	Pu-241 by AEA Total Cntg Error	SOLID	LA-508-481		30	%	0.00	04/10/00	02/24/00	02/24/00
W000000123	K0N4V7	Pu-241 by liquid scint. & AEA	SOLID	LA-508-481	U	1.5	pCi/g	2.00	04/10/00	02/24/00	02/24/00
W000000123	K0N4V7	Si-90 Rel. % Count Error	SOLID	LA-220-403		30	%	0.00	03/27/00	02/24/00	02/24/00
W000000123	K0N4V7	Si-90 by Beta Counting	SOLID	LA-220-403		1.1	pCi/g	0.20	03/27/00	02/24/00	02/24/00
W000000123	K0N4V7	U-234 by AEA	SOLID	LA-508-472		2.1e-01	pCi/g	0.01	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		36	%	0.00	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	U-235 by AEA	SOLID	LA-508-472		2.7e-02	pCi/g	5.60e-003	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		63	%	0.00	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	U-238 by AEA	SOLID	LA-508-472		2.2e-01	pCi/g	0.01	03/15/00	02/24/00	02/24/00
W000000123	K0N4V7	U-238 by AEA Total Cntg Error	SOLID	LA-508-472		36	%	0.10	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	Cyanide by Mili/Spectrophotom	SOLID	LA-686-402	U	0.25	mg/kg	0.25	03/08/00	02/24/00	02/24/00
W000000124	K0N4V8	Am-241 by AEA	SOLID	LA-508-472		7.1e-02	pCi/g	0.05	03/20/00	02/24/00	02/24/00
W000000124	K0N4V8	Am-241 by AEA Total Cntg Error	SOLID	LA-508-472		58	%	0.00	03/20/00	02/24/00	02/24/00
W000000124	K0N4V8	Bismide (Bi) by IC	SOLID	EPA 300.0	U	0.9	ug/g	0.95	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	Chloride (Cl) by IC	SOLID	EPA 300.0	U	0.3	ug/g	0.28	03/15/00	02/24/00	02/24/00

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Report W004/ver. 3.1

Environmental Monitoring and Investigation

WSCF ANALYTICAL LABORATORY REPORT

Group #: 20000323

Attention: C.J.J. Perkins/Ron Mitchell

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000124	K0N4V8	100 K.R. MITCHELL	SOLID	EPA 300.0	UJ	0.07	ug/g	0.07	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	Fluoride (F) by IC	SOLID	EPA 300.0	J	0.9	ug/g	0.38	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	Nitrate (N) by IC	SOLID	EPA 300.0	U	0.2	ug/g	0.19	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	Nitrite (N) by IC	SOLID	EPA 300.0	J	1	ug/g	0.57	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	Phosphate (P) by IC	SOLID	EPA 300.0	J	3	ug/g	1.90	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	Sulfate (SO4) by IC	SOLID	LA-508-462	U	453.	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	-1.29e-02	pCi/g	0.09	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Ce-144 by GEA	SOLID	LA-508-462	U	453.	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	CePr-144 Rel. % Count Error	SOLID	LA-508-462	U	-2.59e-02	pCi/g	0.19	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	CePr-144 by GEA	SOLID	LA-508-462	U	206.	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	-2.77e-03	pCi/g	9.44e-003	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Co-60 by GEA	SOLID	LA-508-462	U	28.4	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	3.62e-02	pCi/g	0.02	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Ce-134 by GEA	SOLID	LA-508-462	U	24.8	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	5.93e-02	pCi/g	0.01	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Ce-137 by GEA	SOLID	LA-508-462	U	82.4	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	4.11e-02	pCi/g	0.04	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Eu-152 by GEA	SOLID	LA-508-462	U	362.	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	5.49e-03	pCi/g	0.03	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Eu-154 by GEA	SOLID	LA-508-462	U	94.7	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	3.25e-02	pCi/g	0.05	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Eu-155 by GEA	SOLID	LA-508-462	U	145.	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	4.11e-03	pCi/g	0.01	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Nb-94 by GEA	SOLID	LA-508-462	U	384.	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	1.62e-03	pCi/g	0.01	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Ru-103 by GEA	SOLID	LA-508-462	U	125.	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462	U		%	0.00	02/25/00	02/24/00	02/24/00

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 J - Estimated value.
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Report W004/ver. 3.1

Environmental Monitoring and Investigation

WSCF ANALYTICAL LABORATORY REPORT

Group #: 20000323

Attention: C.J. Perkins/Ron Mitchell

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	LA-508-462	U	4.51e-02	pCi/g	0.10	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	LA-508-462		240.	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	LA-508-462	U	7.73e-03	pCi/g	0.03	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	LA-508-462		100.	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	LA-508-462	U	-8.76e-03	pCi/g	0.01	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	LA-508-462		124.	%	0.00	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	LA-508-462	U	-1.39e-02	pCi/g	0.02	02/25/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		5.13e+03	ug/g	3.77	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		1.13e-01	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		1.55e+00	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		6.07e+01	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		2.10e-01	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		1.37e-01	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8	J	7.73e+00	ug/g	0.56	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		5.82e+00	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		9.34e+00	ug/g	0.38	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		3.73e+00	ug/g	0.56	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		2.75e+02	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8	U	4.71e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		4.05e-01	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		7.36e+00	ug/g	0.94	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		2.41e-01	ug/g	0.14	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8	U	9.42e-02	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		1.50e-01	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		2.28e+00	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	100 K R. MITCHELL	SOLID	EPA 200.8		3.78e-01	ug/g	0.05	03/23/00	02/24/00	02/24/00

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Report W004/ver. 3.1

Environmental Monitoring and Investigation

WSCF ANALYTICAL LABORATORY REPORT

Attention: C.J. Perkins/Ron Mitchell

Group #: 20000323

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000124	K0N4V8	Vanadium by ICP-MS	SOLID	EPA 200.8		2.96e+01	ug/g	0.19	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	Zinc by ICP-MS	SOLID	EPA 200.8		2.85e+01	ug/g	0.61	03/23/00	02/24/00	02/24/00
W000000124	K0N4V8	Pu-238 by AEA	SOLID	LA-508-472	U	-4.7e-02	pCi/g	0.11	03/21/00	02/24/00	02/24/00
W000000124	K0N4V8	Pu-238 by AEA Total Cntg Err	SOLID	LA-508-472		120.	%	0.00	03/21/00	02/24/00	02/24/00
W000000124	K0N4V8	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		280.	%	0.00	03/21/00	02/24/00	02/24/00
W000000124	K0N4V8	Pu-239/240 by AEA	SOLID	LA-508-472	U	7.3e-03	pCi/g	0.04	03/21/00	02/24/00	02/24/00
W000000124	K0N4V8	Pu-241 by AEA Total Cntg Err	SOLID	LA-508-461		30	%	0.00	04/10/00	02/24/00	02/24/00
W000000124	K0N4V8	Pu-241 by AEA Total Cntg Err	SOLID	LA-508-461	U	0.5	pCi/g	2.00	04/10/00	02/24/00	02/24/00
W000000124	K0N4V8	Sr-90 Rel. % Count Error	SOLID	LA-220-403		40	%	0.00	03/27/00	02/24/00	02/24/00
W000000124	K0N4V8	Sr-90 by Beta Counting	SOLID	LA-220-403		6.9e-01	pCi/g	0.20	03/27/00	02/24/00	02/24/00
W000000124	K0N4V8	U-234 by AEA	SOLID	LA-508-472		2.1e-01	pCi/g	0.01	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	U-234 by AEA Total Cntg Err	SOLID	LA-508-472		36.	%	0.00	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	U-235 by AEA	SOLID	LA-508-472	U	8.4e-03	pCi/g	0.01	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	U-235 by AEA Total Cntg Err	SOLID	LA-508-472		130	%	0.00	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	U-238 by AEA	SOLID	LA-508-472		2.2e-01	pCi/g	5.20e-003	03/15/00	02/24/00	02/24/00
W000000124	K0N4V8	U-238 by AEA Total Cntg Err	SOLID	LA-508-472		36.	%	0.10	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	Cyanide by Mtd/Spectrophotom	SOLID	LA-695-402	U	0.25	mg/kg	0.25	03/09/00	02/24/00	02/24/00
W000000125	K0N4V9	Am-241 by AEA	SOLID	LA-508-472		6.5e-02	pCi/g	0.04	03/20/00	02/24/00	02/24/00
W000000125	K0N4V9	Am-241 by AEA Total Cntg Err	SOLID	LA-508-472		56.	%	0.00	03/20/00	02/24/00	02/24/00
W000000125	K0N4V9	Bromide (Br) by IC	SOLID	EPA 300.0	U	1	ug/g	0.97	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	Chloride (Cl) by IC	SOLID	EPA 300.0		2.32	ug/g	0.29	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	Fluoride (F) by IC	SOLID	EPA 300.0	UJ	0.07	ug/g	0.07	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	Nitrate (N) by IC	SOLID	EPA 300.0	J	0.4	ug/g	0.39	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	Nitrite (N) by IC	SOLID	EPA 300.0	U	0.2	ug/g	0.19	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	Phosphate (P) by IC	SOLID	EPA 300.0	U	0.6	ug/g	0.58	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	Sulfate (SO4) by IC	SOLID	EPA 300.0	J	4	ug/g	1.95	03/15/00	02/24/00	02/24/00

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E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

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Report W0004/ver. 3.1

Environmental Monitoring and Investigation

WSCF ANALYTICAL LABORATORY REPORT

Group #: 20000323

C.J. Perkins/Ron Mitchell

Attention:

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000125	K0N4V9	100 K.R. MITCHELL	SOLID	LA-508-462	U	610.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Ca-144 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	4.30e-03	pCi/g	0.04	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Ca-144 by GEA	SOLID	LA-508-462	U	611.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	CaPr-144 Rel. % Count Error	SOLID	LA-508-462	U	8.61e-03	pCi/g	0.09	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	CaPr-144 by GEA	SOLID	LA-508-462	U	519.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	-5.15e-04	pCi/g	4.62e-003	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Co-60 by GEA	SOLID	LA-508-462	U	51.0	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Cs-134 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	8.79e-03	pCi/g	6.61e-003	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Cs-134 by GEA	SOLID	LA-508-462	U	94.9	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Cs-137 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	3.99e-03	pCi/g	5.98e-003	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Cs-137 by GEA	SOLID	LA-508-462	U	172.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	-5.99e-03	pCi/g	0.02	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Eu-152 by GEA	SOLID	LA-508-462	U	112.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	-9.41e-03	pCi/g	0.01	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Eu-154 by GEA	SOLID	LA-508-462	U	289.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	-4.52e-03	pCi/g	0.02	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Eu-155 by GEA	SOLID	LA-508-462	U	131.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	2.32e-03	pCi/g	5.43e-003	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Nb-94 by GEA	SOLID	LA-508-462	U	954.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	3.54e-04	pCi/g	5.75e-003	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Ru-103 by GEA	SOLID	LA-508-462	U	178.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	1.68e-02	pCi/g	0.05	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Ru-106 by GEA	SOLID	LA-508-462	U	659.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	-1.59e-03	pCi/g	0.01	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Sb-125 by GEA	SOLID	LA-508-462	U	101.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Sn-113 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	-4.51e-03	pCi/g	7.30e-003	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Sn-113 by GEA	SOLID	LA-508-462	U						

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Report W004/ver. 3.1

Environmental Monitoring and Investigation

WSCF ANALYTICAL LABORATORY REPORT

Attention: C.J. Perkins/Ron Mitchell Group #: 20000323

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000125	K0N4V9	100 K R. MITCHELL	SOLID	LA-508-462		636.	%	0.00	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Zn-65 by GEA	SOLID	LA-508-462	U	-1.18e-03	pCi/g	0.01	02/28/00	02/24/00	02/24/00
W000000125	K0N4V9	Aluminum by ICP-MS	SOLID	EPA 200.8		6.37e+01	ug/g	4.10	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Antimony by ICP-MS	SOLID	EPA 200.8	U	< 1.03e-01	ug/g	0.10	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Arsenic by ICP-MS	SOLID	EPA 200.8	U	< 1.03e-01	ug/g	0.10	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Barium by ICP-MS	SOLID	EPA 200.8		1.40e-01	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Beryllium by ICP-MS	SOLID	EPA 200.8	U	< 5.13e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Cadmium by ICP-MS	SOLID	EPA 200.8	U	< 1.03e-01	ug/g	0.10	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Chromium by ICP-MS	SOLID	EPA 200.8	U	< 6.16e-01	ug/g	0.62	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Cobalt by ICP-MS	SOLID	EPA 200.8	U	< 5.13e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Copper by ICP-MS	SOLID	EPA 200.8	U	< 4.10e-01	ug/g	0.41	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Lead by ICP-MS	SOLID	EPA 200.8	U	< 6.16e-01	ug/g	0.62	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Manganese by ICP-MS	SOLID	EPA 200.8		3.87e-01	ug/g	0.10	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Mercury by ICP-MS	SOLID	EPA 200.8	U	< 5.13e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Molybdenum by ICP-MS	SOLID	EPA 200.8		7.84e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Nickel by ICP-MS	SOLID	EPA 200.8	U	< 1.03e+00	ug/g	1.03	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Selenium by ICP-MS	SOLID	EPA 200.8	U	< 1.54e-01	ug/g	0.15	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Silver by ICP-MS	SOLID	EPA 200.8	U	< 1.03e-01	ug/g	0.10	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Thallium by ICP-MS	SOLID	EPA 200.8	U	< 5.13e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Thorium by ICP-MS	SOLID	EPA 200.8		2.68e-01	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Uranium by ICP-MS	SOLID	EPA 200.8	U	< 5.13e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Vanadium by ICP-MS	SOLID	EPA 200.8	U	< 2.06e-01	ug/g	0.20	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Zinc by ICP-MS	SOLID	EPA 200.8	U	< 6.67e-01	ug/g	0.67	03/23/00	02/24/00	02/24/00
W000000125	K0N4V9	Pu-238 by AEA	SOLID	LA-508-472	U	3.8e-02	pCi/g	0.10	03/21/00	02/24/00	02/24/00
W000000125	K0N4V9	Pu-238 by AEA Total Cntg Err	SOLID	LA-508-472		160.	%	0.00	03/21/00	02/24/00	02/24/00
W000000125	K0N4V9	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		110.	%	0.00	03/21/00	02/24/00	02/24/00

MDL=Minimum Detection Limit

RQ=Result Qualifier

D - Compound concentration resulted from a dilution.
J - Estimated value.
U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

.. indicates results that have NOT been validated.

Report W004/ver. 3.1

Environmental Monitoring and Investigation

WSCF ANALYTICAL LABORATORY REPORT

Group #: 20000323

Attention: C.J.Perkins/Ron Mitchell

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000125	K0N4V9	100 K R. MITCHELL	SOLID	LA-508-472	U	1.9e-02	pCi/g	0.03	03/21/00	02/24/00	02/24/00
W000000125	K0N4V9	Pu-239/240 by AEA	SOLID	LA-508-461		30	%	0.00	04/10/00	02/24/00	02/24/00
W000000125	K0N4V9	Pu-241 by AEA Total Cntg Error	SOLID	LA-508-461	U	0.6	pCi/g	2.00	04/10/00	02/24/00	02/24/00
W000000125	K0N4V9	Pu-241 by liquid scint. & AEA	SOLID	LA-220-403		45	%	0.00	03/27/00	02/24/00	02/24/00
W000000125	K0N4V9	Sr-90 Rel % Count Error	SOLID	LA-220-403		7.5E-01	pCi/g	0.30	03/27/00	02/24/00	02/24/00
W000000125	K0N4V9	Sr-90 by Beta Counting	SOLID	LA-508-472		3.8e-02	pCi/g	5.60e-003	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	U-234 by AEA	SOLID	LA-508-472		56.	%	0.00	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	U-234 by AEA Total Cntg Error	SOLID	LA-508-472	U	6.8e-03	pCi/g	0.02	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	U-235 by AEA	SOLID	LA-508-472		150	%	0.00	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	U-235 by AEA Total Cntg Error	SOLID	LA-508-472	U	1.5e-02	pCi/g	0.02	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	U-238 by AEA	SOLID	LA-508-472		110	%	0.10	03/15/00	02/24/00	02/24/00
W000000125	K0N4V9	U-238 by AEA Total Cntg Error	SOLID	LA-508-472							

MDL=Minimum Detection Limit

RQ=Result Qualifier

D - Compound concentration resulted from a dilution.
J - Estimated value.
U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3.1
Environmental Monitoring and Investigation

WSCF ANALYTICAL COMMENT REPORT

Attention: C.J.J. Perkins/Ron Mitchell Group #: 20000323

Sample #	Client ID	Lab Area	Test	Comment
VALGROUP				
For sample W000000123 on GEA analysis the following K-40: K-40 - 11.5pCi/Gram with 12% error. Sample W000000124 on GEA analysis has the following K-40: K-40 - 11.4pCi/Gram with 12% error. Sample W000000125 on GEA analysis has the following K-40: K-40 - 0.67pCi/Gram with 20% error. ICPMS: Reported Hg levels represent inorganic mercury. The recovery of organic mercury compounds is incomplete using this digestion method. (Blank) An inorganic soil matrix blank ERA(Lot 57006) was used for the preparation blank. Results were within 20% of certified values with the exception of Mn(124%). No certified values for Mo, Th or U. (LCS) The LCS was prepared by spiking the inorganic soil blank with an aqueous standard. Recovery for Al and Mn was affected by the high level of these elements in the blank matrix. A high bias was observed for Ag(121%). MS(Matrix Spike): Recovery for Al, Ba, Mn, V and Zn was affected by the high level of these elements in the sample relative to the spike. A matrix effect should be suspected for Cr. Sample heterogeneity could also play a role in spike recovery. IC: Unknown peak potentially interfering with fluoride. Nitrate, phosphate, and sulfate were all detected, but at concentrations less than those of the lowest calibration				
W000000123	KON4V7	100 K.R. MITCHELL	VALTEST	Aluminum by ICP-MS
			VALTEST	Anions by Ion Chromatography

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report#: 20000323 Report Date: 10-apr-2000

Page: 1

WSCF ANALYTICAL COMMENT REPORT

Attention: C.J.Perkins/Ron Mitchell Group #: 20000323

Sample # Client ID Lab Area Test Comment

		VALTEST	ICP-2008 MS All possible metal	standard. MS(Matrix Spike): Recovery for Al, Ba, Mn, V and Zn was affected by the high level of these elements in the sample relative to the spike. A matrix effect should be suspected for Cr. Sample heterogeneity could also play a role in spike recovery.
W000000124	KON4V8 100 K R. MITCHELL	VALTEST	Anions by Ion Chromatography	IC: Unknown peak potentially interfering with fluoride. Nitrate, phosphate, and sulfate were detected, but at concentrations less than those of the lowest calibration standard.
W000000125	KON4V9 100 K R. MITCHELL	VALTEST	Aluminum by ICP-MS	MS(Matrix Spike): Recovery for Al was affected by the relatively high level in the sample.
		VALTEST	Anions by Ion Chromatography	IC: Unknown peak potentially interfering with fluoride. Nitrate and sulfate were detected, but at concentrations less than those of the lowest calibration standard.

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report #: 20000323

Report Date: 10-apr-2000

Page 2

WSCF

TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:	Group #: 20000323			
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ Result Units

RQ= Result Qualifier

B - The analyte was detected in the associated method blank.
 N - Identification is based on a mass spectral library search.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

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W04E Report: 20000323

Report Date: 10-apr-2000

Page 1

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000323
 Matrix: SOLID
 Test: Cyanide by Midi/Spectrophotom

SAF Number: R100-028
 Sample Date: 02/24/00
 Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000123							
BATCH QC ASSOCIATED WITH SAMPLE							
MS	Cyanide by Midi/Spectrophotom	57-12-5	98.700	% Recov	03/09/00	75.000	125.000
MSD	Cyanide by Midi/Spectrophotom	57-12-5	101.000	% Recov	03/09/00	75.000	125.000
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	2.303	Ratio	03/09/00	0.000	20.000
BATCH QC							
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	0.64	Ratio	03/09/00	0.000	300.000
BLNK-PREP	Cyanide by Midi/Spectrophotom	57-12-5	1.02	Ratio	03/09/00	0.000	300.000
DUP	Cyanide by Midi/Spectrophotom	57-12-5	n/a	Ratio	03/09/00	0.000	20.000
LCS	Cyanide by Midi/Spectrophotom	57-12-5	n/a	% Recov	03/09/00	90.000	110.000
LCS-2	Cyanide by Midi/Spectrophotom	57-12-5	n/a	% Recov	03/09/00	80.000	120.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000323
 Matrix: SOLID
 Test: Anions by Ion Chromatography

SAF Number: R100-028
 Sample Date: 02/24/00
 Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000125							
BATCH QC ASSOCIATED WITH SAMPLE							
DUP	Bromide (Br) by IC	24959-67-9	n/a	RPD	03/15/00	0.000	20.000
DUP	Chloride (Cl) by IC	16887-00-6	6.222	RPD	03/15/00	0.000	20.000
DUP	Fluoride (F) by IC	16984-48-8	n/a	RPD	03/15/00	0.000	20.000
DUP	Nitrite (N) by IC	14797-65-0	n/a	RPD	03/15/00	0.000	20.000
DUP	Nitrate (N) by IC	14797-55-8	n/a	RPD	03/15/00	0.000	20.000
DUP	Phosphate (P) by IC	14265-44-2	n/a	RPD	03/15/00	0.000	20.000
DUP	Sulfate (SO4) by IC	14808-79-8	n/a	RPD	03/15/00	0.000	20.000
MS	Bromide (Br) by IC	24959-67-9	98.974	% Recov	03/15/00	75.000	125.000
MS	Chloride (Cl) by IC	16887-00-6	93.971	% Recov	03/15/00	75.000	125.000
MS	Fluoride (F) by IC	16984-48-8	98.770	% Recov	03/15/00	75.000	125.000
MS	Nitrite (N) by IC	14797-65-0	96.970	% Recov	03/15/00	75.000	125.000
MS	Nitrate (N) by IC	14797-55-8	95.612	% Recov	03/15/00	75.000	125.000
MS	Phosphate (P) by IC	14265-44-2	91.493	% Recov	03/15/00	75.000	125.000
MS	Sulfate (SO4) by IC	14808-79-8	91.237	% Recov	03/15/00	75.000	125.000
MSD	Bromide (Br) by IC	24959-67-9	117.098	% Recov	03/15/00	75.000	125.000
MSD	Chloride (Cl) by IC	16887-00-6	114.616	% Recov	03/15/00	75.000	125.000
MSD	Fluoride (F) by IC	16984-48-8	116.563	% Recov	03/15/00	75.000	125.000
MSD	Nitrite (N) by IC	14797-65-0	99.388	% Recov	03/15/00	75.000	125.000
MSD	Nitrate (N) by IC	14797-55-8	113.551	% Recov	03/15/00	75.000	125.000
MSD	Phosphate (P) by IC	14265-44-2	111.702	% Recov	03/15/00	75.000	125.000
MSD	Sulfate (SO4) by IC	14808-79-8	107.812	% Recov	03/15/00	75.000	125.000
BATCH QC							
BLANK	Bromide (Br) by IC	24959-67-9	U 0.1	mg/L	03/15/00	0.000	300.000
BLANK	Bromide (Br) by IC	24959-67-9	U 0.1	mg/L	03/15/00	0.000	300.000
BLANK	Chloride (Cl) by IC	16887-00-6	U 0.03	mg/L	03/15/00	0.000	300.000
BLANK	Chloride (Cl) by IC	16887-00-6	U 0.03	mg/L	03/15/00	0.000	300.000
BLANK	Fluoride (F) by IC	16984-48-8	U 0.007	mg/L	03/15/00	0.000	300.000
BLANK	Fluoride (F) by IC	16984-48-8	U 0.007	mg/L	03/15/00	0.000	300.000
BLANK	Nitrite (N) by IC	14797-65-0	U 0.02	mg/L	03/15/00	0.000	300.000
BLANK	Nitrite (N) by IC	14797-65-0	U 0.02	mg/L	03/15/00	0.000	300.000
BLANK	Nitrate (N) by IC	14797-55-8	U 0.04	mg/L	03/15/00	0.000	300.000
BLANK	Nitrate (N) by IC	14797-55-8	U 0.04	mg/L	03/15/00	0.000	300.000
BLANK	Phosphate (P) by IC	14265-44-2	U 0.09	mg/L	03/15/00	0.000	300.000
BLANK	Phosphate (P) by IC	14265-44-2	U 0.09	mg/L	03/15/00	0.000	300.000
BLANK	Sulfate (SO4) by IC	14808-79-8	U 0.2	mg/L	03/15/00	0.000	300.000
BLANK	Sulfate (SO4) by IC	14808-79-8	U 0.2	mg/L	03/15/00	0.000	300.000
LCS	Bromide (Br) by IC	24959-67-9	99.223	% Recov	03/15/00	80.000	120.000
LCS	Chloride (Cl) by IC	16887-00-6	99.036	% Recov	03/15/00	80.000	120.000
LCS	Fluoride (F) by IC	16984-48-8	93.300	% Recov	03/15/00	80.000	120.000
LCS	Nitrite (N) by IC	14797-65-0	95.661	% Recov	03/15/00	80.000	120.000
LCS	Nitrate (N) by IC	14797-55-8	101.353	% Recov	03/15/00	80.000	120.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000323
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: R100-028
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
LCS	Phosphate (Pi) by IC	14265-44-2	102.825	% Recov	03/15/00	80.000	120.000
LCS	Sulfate (SO4) by IC	14808-79-8	102.879	% Recov	03/15/00	80.000	120.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000323
 Matrix: SOLID
 Test: Plutonium Isotopics by AEA

SAF Number: R100-028
 Sample Date: 02/24/00
 Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000123							
BATCH QC ASSOCIATED WITH SAMPLE							
DUP	Pu-239/240 by AEA	PU-239/240	108.882	RPD	03/21/00	0.000	20.000
BATCH QC							
BLANK	Pu-239/240 by AEA	PU-239/240	3.5e-03	mg/L	03/21/00	0.000	1000.000
LCS	Pu-239/240 by AEA	PU-239/240	104.000	% Recov	03/21/00	75.000	125.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000323
Matrix: SOLID
Test: Uranium Isotopics by AEA

SAF Number: R100-028
Sample Date: 02/24/00
Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000123							
BATCH QC ASSOCIATED WITH SAMPLE							
DUP	U-238 by AEA	24678-82-8	0.460	RPD	03/15/00	0.000	20.000
BATCH QC							
BLANK	U-238 by AEA	24678-82-8	1.7e-02	mg/L	03/15/00	0.000	1000.000
LCS	U-238 by AEA	24678-82-8	103.000	% Recov	03/15/00	75.000	125.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000323
Matrix: SOLID
Test: Americium by AEA

SAF Number: R100-028
Sample Date: 02/24/00
Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000123							
BATCH QC ASSOCIATED WITH SAMPLE							
DUP	Am-241 by AEA	14598-10-2	28.571	RPD	03/20/00	0.000	20.000
BATCH QC							
BLANK	Am-241 by AEA	14598-10-2	7.8e-02	mg/L	03/20/00	0.000	1000.000
LCS	Am-241 by AEA	14598-10-2	117.000	% Recov	03/20/00	75.000	125.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000323
Matrix: SOLID
Test: Strontium 90

SAF Number: R100-028
Sample Date: 02/24/00
Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000125							
BATCH QC ASSOCIATED WITH SAMPLE							
DUP	Sr-90 by Beta Counting	10098-87-2	45.902	RPD	03/27/00	0.000	20.000
BATCH QC							
BLANK	Sr-90 by Beta Counting	10098-87-2	1.1E-01	pCi/g	03/27/00	0.000	300.000
LCS	Sr-90 by Beta Counting	10098-87-2	101.000	% Recov	03/27/00	75.000	125.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000323
 Matrix: SOLID
 Test: ICP-2008 MS All possible metal

SAF Number: R100-028
 Sample Date: 02/24/00
 Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000123							
BATCH QC ASSOCIATED WITH SAMPLE							
MS	Silver by ICP-MS	7440-22-4	131.728	% Recov	03/23/00	70.000	130.000
MS	Aluminum by ICP-MS	7429-90-5	26033.994	% Recov	03/23/00	70.000	130.000
MS	Arsenic by ICP-MS	7440-38-2	98.867	% Recov	03/23/00	70.000	130.000
MS	Barium by ICP-MS	7440-39-3	30.695	% Recov	03/23/00	70.000	130.000
MS	Beryllium by ICP-MS	7440-41-7	97.734	% Recov	03/23/00	70.000	130.000
MS	Cadmium by ICP-MS	7440-43-9	113.314	% Recov	03/23/00	70.000	130.000
MS	Cobalt by ICP-MS	7440-48-4	92.635	% Recov	03/23/00	70.000	130.000
MS	Chromium by ICP-MS	7440-47-3	52.125	% Recov	03/23/00	70.000	130.000
MS	Copper by ICP-MS	7440-50-8	90.935	% Recov	03/23/00	70.000	130.000
MS	Mercury by ICP-MS	7439-97-6	107.386	% Recov	03/23/00	70.000	130.000
MS	Manganese by ICP-MS	7439-95-4	104.816	% Recov	03/23/00	70.000	130.000
MS	Molybdenum by ICP-MS	7439-98-7	103.966	% Recov	03/23/00	70.000	130.000
MS	Nickel by ICP-MS	7440-02-0	78.470	% Recov	03/23/00	70.000	130.000
MS	Lead by ICP-MS	7439-92-1	108.782	% Recov	03/23/00	70.000	130.000
MS	Antimony by ICP-MS	7440-36-0	77.904	% Recov	03/23/00	70.000	130.000
MS	Selenium by ICP-MS	7782-49-2	98.867	% Recov	03/23/00	70.000	130.000
MS	Thorium by ICP-MS	7440-29-1	76.771	% Recov	03/23/00	70.000	130.000
MS	Thallium by ICP-MS	7440-28-0	115.014	% Recov	03/23/00	70.000	130.000
MS	Uranium by ICP-MS	7440-61-1	112.748	% Recov	03/23/00	70.000	130.000
MS	Vanadium by ICP-MS	7440-62-2	45.326	% Recov	03/23/00	70.000	130.000
MS	Zinc by ICP-MS	7440-68-8	61.758	% Recov	03/23/00	70.000	130.000

Lab ID: W000000125
 BATCH QC ASSOCIATED WITH SAMPLE

MS	Silver by ICP-MS	7440-22-4	121.622	% Recov	03/23/00	70.000	130.000
MS	Aluminum by ICP-MS	7429-90-5	535.135	% Recov	03/23/00	70.000	130.000
MS	Arsenic by ICP-MS	7440-38-2	112.703	% Recov	03/23/00	70.000	130.000
MS	Barium by ICP-MS	7440-39-3	103.243	% Recov	03/23/00	70.000	130.000
MS	Beryllium by ICP-MS	7440-41-7	102.162	% Recov	03/23/00	70.000	130.000
MS	Cadmium by ICP-MS	7440-43-9	105.676	% Recov	03/23/00	70.000	130.000
MS	Cobalt by ICP-MS	7440-48-4	105.946	% Recov	03/23/00	70.000	130.000
MS	Chromium by ICP-MS	7440-47-3	112.973	% Recov	03/23/00	70.000	130.000
MS	Copper by ICP-MS	7440-50-8	110.811	% Recov	03/23/00	70.000	130.000
MS	Mercury by ICP-MS	7439-97-6	89.189	% Recov	03/23/00	70.000	130.000
MS	Manganese by ICP-MS	7439-95-4	103.243	% Recov	03/23/00	70.000	130.000
MS	Molybdenum by ICP-MS	7439-98-7	97.027	% Recov	03/23/00	70.000	130.000
MS	Nickel by ICP-MS	7440-02-0	107.297	% Recov	03/23/00	70.000	130.000
MS	Lead by ICP-MS	7439-92-1	105.135	% Recov	03/23/00	70.000	130.000
MS	Antimony by ICP-MS	7440-36-0	103.784	% Recov	03/23/00	70.000	130.000
MS	Selenium by ICP-MS	7782-49-2	115.135	% Recov	03/23/00	70.000	130.000
MS	Thorium by ICP-MS	7440-29-1	90.000	% Recov	03/23/00	70.000	130.000
MS	Thallium by ICP-MS	7440-28-0	105.946	% Recov	03/23/00	70.000	130.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000323
 Matrix: SOLID
 Test: ICP-2008 MS All possible metal

SAF Number: R100-028
 Sample Date: 02/24/00
 Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
MS	Uranium by ICP-MS	7440-61-1	101.882	% Recov	03/23/00	70.000	130.000
MS	Vanadium by ICP-MS	7440-62-2	107.568	% Recov	03/23/00	70.000	130.000
MS	Zinc by ICP-MS	7440-66-6	112.973	% Recov	03/23/00	70.000	130.000
BATCH QC							
BLANK	Silver by ICP-MS	7440-22-4	<4.68e-1	ug/L	03/23/00	-0.100	0.100
BLANK	Aluminum by ICP-MS	7429-90-5	4.22e+03	ug/L	03/23/00	-0.100	0.100
BLANK	Arsenic by ICP-MS	7440-38-2	1.63e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Barium by ICP-MS	7440-39-3	5.32e+01	ug/L	03/23/00	-0.100	0.100
BLANK	Beryllium by ICP-MS	7440-41-7	3.46e-01	ug/L	03/23/00	-0.100	0.100
BLANK	Cadmium by ICP-MS	7440-43-8	<4.68e-1	ug/L	03/23/00	-0.100	0.100
BLANK	Cobalt by ICP-MS	7440-48-4	2.83e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Chromium by ICP-MS	7440-47-3	7.41e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Copper by ICP-MS	7440-50-8	5.05e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Mercury by ICP-MS	7439-97-6	<2.34e-1	ug/L	03/23/00	-0.100	0.100
BLANK	Manganese by ICP-MS	7439-95-4	1.88e+02	ug/L	03/23/00	-0.100	0.100
BLANK	Molybdenum by ICP-MS	7439-98-7	4.25e-01	ug/L	03/23/00	-0.100	0.100
BLANK	Nickel by ICP-MS	7440-02-0	<4.68e0	ug/L	03/23/00	-0.100	0.100
BLANK	Lead by ICP-MS	7439-92-1	9.55e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Antimony by ICP-MS	7440-38-0	<4.68e-1	ug/L	03/23/00	-0.100	0.100
BLANK	Selenium by ICP-MS	7782-49-2	<7.02e-1	ug/L	03/23/00	-0.100	0.100
BLANK	Thorium by ICP-MS	7440-29-1	5.83e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Thallium by ICP-MS	7440-28-0	2.54e-01	ug/L	03/23/00	-0.100	0.100
BLANK	Uranium by ICP-MS	7440-61-1	8.89e-01	ug/L	03/23/00	-0.100	0.100
BLANK	Vanadium by ICP-MS	7440-62-2	1.73e+01	ug/L	03/23/00	-0.100	0.100
BLANK	Zinc by ICP-MS	7440-66-6	2.57e+01	ug/L	03/23/00	-0.100	0.100
LCS	Silver by ICP-MS	7440-22-4	120.809	% Recov	03/23/00	85.000	115.000
LCS	Aluminum by ICP-MS	7429-90-5	1791.908	% Recov	03/23/00	85.000	115.000
LCS	Arsenic by ICP-MS	7440-38-2	100.000	% Recov	03/23/00	85.000	115.000
LCS	Barium by ICP-MS	7440-39-3	101.156	% Recov	03/23/00	85.000	115.000
LCS	Beryllium by ICP-MS	7440-41-7	98.266	% Recov	03/23/00	85.000	115.000
LCS	Cadmium by ICP-MS	7440-43-8	104.046	% Recov	03/23/00	85.000	115.000
LCS	Cobalt by ICP-MS	7440-48-4	96.532	% Recov	03/23/00	85.000	115.000
LCS	Chromium by ICP-MS	7440-47-3	102.890	% Recov	03/23/00	85.000	115.000
LCS	Copper by ICP-MS	7440-60-8	101.734	% Recov	03/23/00	85.000	115.000
LCS	Mercury by ICP-MS	7439-97-6	106.829	% Recov	03/23/00	85.000	115.000
LCS	Manganese by ICP-MS	7439-95-4	n/a	% Recov	03/23/00	85.000	115.000
LCS	Molybdenum by ICP-MS	7439-98-7	99.422	% Recov	03/23/00	85.000	115.000
LCS	Nickel by ICP-MS	7440-02-0	101.156	% Recov	03/23/00	85.000	115.000
LCS	Lead by ICP-MS	7439-92-1	98.266	% Recov	03/23/00	85.000	115.000
LCS	Antimony by ICP-MS	7440-38-0	101.156	% Recov	03/23/00	85.000	115.000
LCS	Selenium by ICP-MS	7782-49-2	106.780	% Recov	03/23/00	85.000	115.000
LCS	Thorium by ICP-MS	7440-29-1	97.110	% Recov	03/23/00	85.000	115.000
LCS	Thallium by ICP-MS	7440-28-0	103.468	% Recov	03/23/00	85.000	115.000
LCS	Uranium by ICP-MS	7440-61-1	98.844	% Recov	03/23/00	85.000	115.000
LCS	Vanadium by ICP-MS	7440-62-2	95.954	% Recov	03/23/00	85.000	115.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000323
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: R100-028
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
LCS	Zinc by ICP-MS	7440-66-8	102.312	% Recov	03/23/00	85.000	115.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000323
Matrix: SOLID
Test: Pu 241 AEA/Liq. Scint.

SAF Number: R100-028
Sample Date: 02/24/00
Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000123							
BATCH QC ASSOCIATED WITH SAMPLE							
DUP	Pu-241 by liquid scint. & AEA	14119-32-5	300.000	RPD	04/10/00	0.000	20.000
BATCH QC							
BLANK	Pu-241 by liquid scint. & AEA	14119-32-5	0.3	mg/L	04/10/00	0.000	1000.000
LCS	Pu-241 by liquid scint. & AEA	14119-32-5	96.000	% Recov	04/10/00	75.000	125.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000324
Matrix: SOLID
Test: Pu 241 AEA/Liq. Scint.

SAF Number: R100-029
Sample Date: 02/24/00
Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000123							
BATCH QC ASSOCIATED WITH SAMPLE							
DUP	Pu-241 by liquid scint. & AEA	14119-32-5	300.000	RPD	04/10/00	0.000	20.000
BATCH QC							
BLANK	Pu-241 by liquid scint. & AEA	14119-32-5	0.3	mg/L	04/10/00	0.000	1000.000
LCS	Pu-241 by liquid scint. & AEA	14119-32-5	96.000	% Recov	04/10/00	75.000	125.000

**WSCF
ANALYTICAL LABORATORY REPORT**

for

**Environmental Monitoring and Investigation
H1-11
Hanford WA**

Attention: C.J.Perkins/Ron Mitchell

**Report#: 20000324
Report Date: 10-apr-2000
Report W004/ver. 3.1
Environmental Monitoring and Investigation**

Page 1

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WSCF ANALYTICAL LABORATORY REPORT

Group #: 20000324

Attention: C.J. Perkins/Ron Mitchell

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000126	KON4V5	100K R. MITCHELL	SOLID	LA-508-462	U	8.08e-03	pCi/g	0.08	02/29/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	LA-508-462		241	%	0.00	02/29/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	LA-508-462	U	1.04e-02	pCi/g	0.04	02/29/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	LA-508-462		205	%	0.00	02/29/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	LA-508-462	U	1.92e-02	pCi/g	0.06	02/29/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		1.16e+02	ug/g	3.63	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8	U	9.08e-02	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		1.16e-01	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		3.55e+00	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8	U	4.54e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8	U	9.08e-02	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		1.48e+00	ug/g	0.55	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		9.56e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		4.08e+00	ug/g	0.36	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8	U	5.45e-01	ug/g	0.55	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		2.99e+01	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8	U	4.54e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		6.55e-01	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		9.75e-01	ug/g	0.91	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8	U	1.36e-01	ug/g	0.14	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8	U	9.08e-02	ug/g	0.09	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		5.75e-02	ug/g	0.06	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8	J	1.37e-01	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8	U	4.54e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		7.16e-01	ug/g	0.18	03/23/00	02/24/00	02/24/00
W000000126	KON4V5	100K R. MITCHELL	SOLID	EPA 200.8		1.76e+01	ug/g	0.59	03/23/00	02/24/00	02/24/00

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3.1

Environmental Monitoring and Investigation

WSCF ANALYTICAL LABORATORY REPORT

Group #: 20000324

Attention: C.J. Perkins/Ron Mitchell

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000126	K0N4V5	100K R. MITCHELL	SOLID	LA-508-472	U	7.0e-03	pCi/g	0.04	03/21/00	02/24/00	02/24/00
W000000126	K0N4V5	Pu-238 by AEA	SOLID	LA-508-472		340	%	0.00	03/21/00	02/24/00	02/24/00
W000000126	K0N4V5	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		100	%	0.00	03/21/00	02/24/00	02/24/00
W000000126	K0N4V5	Pu-239/240 by AEA	SOLID	LA-508-472	U	1.8E-03	pCi/g	0.02	03/21/00	02/24/00	02/24/00
W000000126	K0N4V5	Pu-241 by AEA Total Cntg Err	SOLID	LA-508-461		30	%	0.00	04/10/00	02/24/00	02/24/00
W000000126	K0N4V5	Pu-241 by liquid scint. & AEA	SOLID	LA-508-461	U	0.3	pCi/g	1.00	04/10/00	02/24/00	02/24/00
W000000126	K0N4V5	Sr-90 Rel. % Count Error	SOLID	LA-220-403		35	%	0.00	03/27/00	02/24/00	02/24/00
W000000126	K0N4V5	Sr-90 by Beta Counting	SOLID	LA-220-403		4.1E-01	pCi/g	0.10	03/27/00	02/24/00	02/24/00
W000000126	K0N4V5	U-234 by AEA	SOLID	LA-508-472		1.9e-02	pCi/g	6.70e-003	03/15/00	02/24/00	02/24/00
W000000126	K0N4V5	U-234 by AEA Total Cntg Err	SOLID	LA-508-472		65	%	0.00	03/15/00	02/24/00	02/24/00
W000000126	K0N4V5	U-235 by AEA	SOLID	LA-508-472		5.9e-03	pCi/g	2.70e-003	03/15/00	02/24/00	02/24/00
W000000126	K0N4V5	U-235 by AEA Total Cntg Err	SOLID	LA-508-472		87	%	0.00	03/15/00	02/24/00	02/24/00
W000000126	K0N4V5	U-238 by AEA	SOLID	LA-508-472		1.2e-02	pCi/g	2.50e-003	03/15/00	02/24/00	02/24/00
W000000126	K0N4V5	U-238 by AEA Total Cntg Err	SOLID	LA-508-472		63	%	0.10	03/15/00	02/24/00	02/24/00
W000000127	K0N4V5	Cyanide by Mili/Spectrophotom	SOLID	LA-695-402	J	0.51	mg/kg	0.25	03/09/00	02/24/00	02/24/00
W000000127	K0N4V5	Am-241 by AEA	SOLID	LA-508-472	U	1.6e-02	pCi/g	0.03	03/20/00	02/24/00	02/24/00
W000000127	K0N4V5	Am-241 by AEA Total Cntg Err	SOLID	LA-508-472		120	%	0.00	03/20/00	02/24/00	02/24/00
W000000127	K0N4V5	Ce-144 Rel. % Count Error (GEA)	SOLID	LA-508-462		194	%	0.00	02/29/00	02/24/00	02/24/00
W000000127	K0N4V5	Ce-144 by GEA	SOLID	LA-508-462	U	1.42e-01	pCi/g	0.46	02/29/00	02/24/00	02/24/00
W000000127	K0N4V5	CeP-144 Rel. % Count Error	SOLID	LA-508-462		194	%	0.00	02/29/00	02/24/00	02/24/00
W000000127	K0N4V5	CeP-144 by GEA	SOLID	LA-508-482	U	2.84e-01	pCi/g	0.92	02/29/00	02/24/00	02/24/00
W000000127	K0N4V5	Co-60 Rel. % Count Error (GEA)	SOLID	LA-508-462		215	%	0.00	02/29/00	02/24/00	02/24/00
W000000127	K0N4V5	Co-60 by GEA	SOLID	LA-508-462	U	1.28e-02	pCi/g	0.05	02/29/00	02/24/00	02/24/00
W000000127	K0N4V5	Ce-134 Rel. % Count Error (GEA)	SOLID	LA-508-462		171	%	0.00	02/29/00	02/24/00	02/24/00
W000000127	K0N4V5	Ce-134 by GEA	SOLID	LA-508-462	U	1.87e-02	pCi/g	0.06	02/29/00	02/24/00	02/24/00
W000000127	K0N4V5	Ce-137 Rel. % Count Error (GEA)	SOLID	LA-508-462		417	%	0.00	02/29/00	02/24/00	02/24/00

MDL = Minimum Detection Limit

RQ = Result Qualifier

B - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3.1

Environmental Monitoring and Investigation

D - Compound concentration resulted from a dilution

J - Estimated value.

Z - See Comments.

U - The analyte was analyzed for but not detected.

WSCF ANALYTICAL LABORATORY REPORT

Group #: 20000324

Attention: C.J. Perkins/Ron Mitchell

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000127	K0N4V6	Cs-137 by GEA	SOLID	LA-508-462	U	6.31e-03	pCi/g	0.05	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Eu-152 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	117.	%	0.00	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Eu-152 by GEA	SOLID	LA-508-462	U	7.59e-02	pCi/g	0.13	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Eu-154 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	659.	%	0.00	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Eu-154 by GEA	SOLID	LA-508-462	U	1.25e-02	pCi/g	0.14	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Eu-155 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	414.	%	0.00	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Eu-155 by GEA	SOLID	LA-508-462	U	-2.41e-02	pCi/g	0.16	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Nb-94 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	281.	%	0.00	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Nb-94 by GEA	SOLID	LA-508-462	U	9.14e-03	pCi/g	0.04	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Ru-103 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	130.	%	0.00	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Ru-103 by GEA	SOLID	LA-508-462	U	6.64e-01	pCi/g	1.54	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Ru-106 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	1000	%	0.00	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Ru-106 by GEA	SOLID	LA-508-462	U	2.23e-02	pCi/g	0.60	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Sb-125 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	184.	%	0.00	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Sb-125 by GEA	SOLID	LA-508-462	U	-4.18e-02	pCi/g	0.13	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Sr-113 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	100.	%	0.00	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Sr-113 by GEA	SOLID	LA-508-462	U	-1.21e-01	pCi/g	0.18	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Zn-65 Rel. % Count Error (GEA)	SOLID	LA-508-462	U	100.	%	0.00	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Zn-65 by GEA	SOLID	LA-508-462	U	-3.28e-01	pCi/g	0.18	02/29/00	02/24/00	02/24/00
W0000000127	K0N4V6	Aluminum by ICP-MS	SOLID	EPA 200.8	U	1.35e+02	ug/g	3.96	03/23/00	02/24/00	02/24/00
W0000000127	K0N4V6	Antimony by ICP-MS	SOLID	EPA 200.8	U	< 9.90e-02	ug/g	0.10	03/23/00	02/24/00	02/24/00
W0000000127	K0N4V6	Arsenic by ICP-MS	SOLID	EPA 200.8	U	< 9.90e-02	ug/g	0.10	03/23/00	02/24/00	02/24/00
W0000000127	K0N4V6	Barium by ICP-MS	SOLID	EPA 200.8	U	3.04e+00	ug/g	0.05	03/23/00	02/24/00	02/24/00
W0000000127	K0N4V6	Beryllium by ICP-MS	SOLID	EPA 200.8	U	< 4.95e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W0000000127	K0N4V6	Cadmium by ICP-MS	SOLID	EPA 200.8	U	< 9.90e-02	ug/g	0.10	03/23/00	02/24/00	02/24/00
W0000000127	K0N4V6	Chromium by ICP-MS	SOLID	EPA 200.8	U	1.48e+00	ug/g	0.59	03/23/00	02/24/00	02/24/00

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.

J - Estimated value. Z - See Comments.

U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W0004/ver. 3.1

Environmental Monitoring and Investigation

WSCF ANALYTICAL LABORATORY REPORT

Group #: 20000324

Attention: C.J.Perkins/Ron Mitchell

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W000000127	K0N4V6	Cobalt by ICP-MS	SOLID	EPA 200.8		1.21e-01	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Copper by ICP-MS	SOLID	EPA 200.8		5.14e+00	ug/g	0.40	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Lead by ICP-MS	SOLID	EPA 200.8	U	< 5.94e-01	ug/g	0.59	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Manganese by ICP-MS	SOLID	EPA 200.8		2.37e-01	ug/g	0.10	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Mercury by ICP-MS	SOLID	EPA 200.8	U	< 4.95e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Molybdenum by ICP-MS	SOLID	EPA 200.8		8.70e-01	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Nickel by ICP-MS	SOLID	EPA 200.8	U	< 9.90e-01	ug/g	0.99	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Selenium by ICP-MS	SOLID	EPA 200.8	U	< 1.49e-01	ug/g	0.15	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Silver by ICP-MS	SOLID	EPA 200.8	U	< 9.90e-02	ug/g	0.10	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Thallium by ICP-MS	SOLID	EPA 200.8		6.79e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Thorium by ICP-MS	SOLID	EPA 200.8	J	1.32e-01	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Uranium by ICP-MS	SOLID	EPA 200.8	U	< 4.95e-02	ug/g	0.05	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Vanadium by ICP-MS	SOLID	EPA 200.8		7.80e-01	ug/g	0.20	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Zinc by ICP-MS	SOLID	EPA 200.8		2.27e+01	ug/g	0.64	03/23/00	02/24/00	02/24/00
W000000127	K0N4V6	Pu-238 by AEA	SOLID	LA-508-472	U	-3.8e-03	pCi/g	0.05	03/21/00	02/24/00	02/24/00
W000000127	K0N4V6	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-472		680	%	0.00	03/21/00	02/24/00	02/24/00
W000000127	K0N4V6	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-472		350	%	0.00	03/21/00	02/24/00	02/24/00
W000000127	K0N4V6	Pu-239/240 by AEA	SOLID	LA-508-472	U	1.9e-03	pCi/g	0.01	03/21/00	02/24/00	02/24/00
W000000127	K0N4V6	Pu-241 by AEA Total Cntg Error	SOLID	LA-508-461		30	%	0.00	04/10/00	02/24/00	02/24/00
W000000127	K0N4V6	Pu-241 by Liquid scint. & AEA	SOLID	LA-508-461	U	8.5E-02	pCi/g	1.00	04/10/00	02/24/00	02/24/00
W000000127	K0N4V6	Sr-90 Rel. % Count Error	SOLID	LA-220-403		65	%	0.00	03/27/00	02/24/00	02/24/00
W000000127	K0N4V6	Sr-90 by Beta Counting	SOLID	LA-220-403		2.0E-01	pCi/g	0.10	03/27/00	02/24/00	02/24/00
W000000127	K0N4V6	U-234 by AEA	SOLID	LA-508-472		1.4e-02	pCi/g	2.40e-003	03/15/00	02/24/00	02/24/00
W000000127	K0N4V6	U-234 by AEA Total Cntg Error	SOLID	LA-508-472		60	%	0.00	03/15/00	02/24/00	02/24/00
W000000127	K0N4V6	U-235 by AEA	SOLID	LA-508-472		3.0e-03	pCi/g	2.70e-003	03/15/00	02/24/00	02/24/00
W000000127	K0N4V6	U-235 by AEA Total Cntg Error	SOLID	LA-508-472		120	%	0.00	03/15/00	02/24/00	02/24/00

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
 E - Compound concentration exceeded calibration range.
 N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3.1

Environmental Monitoring and Investigation

WSCF ANALYTICAL LABORATORY REPORT

Attention: C.J.Perkins/Ron Mitchell Group #: 20000324

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
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W000000127	KON4V6	100K R. MITCHELL U-238 by AEA	SOLID	LA-508-472		1.4e-02	pCi/g	2.40e-003	03/15/00	02/24/00	02/24/00
W000000127	KON4V6	100K R. MITCHELL U-238 by AEA Total Cntg Error	SOLID	LA-508-472		80.	%	0.10	03/15/00	02/24/00	02/24/00

MDL = Minimum Detection Limit

RQ = Result Qualifier

D - Compound concentration resulted from a dilution.
J - Estimated value. Z - See Comments.
U - The analyte was analyzed for but not detected.

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

* - Indicates results that have NOT been validated.

Report W004/ver. 3.1

Environmental Monitoring and Investigation

Page 7

WSCF ANALYTICAL COMMENT REPORT

Attention: C.J. Perkins/Ron Mitchell Group #: 20000324

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>Sample W000000126 for GEA analysis has the following K-40: K-40 - 9.83 pCi/Gram with 15% error.</p> <p>Sample W000000127 for GEA analysis has the following K-40: K-40 - 14.2 pCi/Gram with 15% error.</p> <p>CN: Estimated cyanide results due to possible colorimetric interference as the absorbing solution was a pale yellow-green.</p> <p>ICPMS: Reported Hg levels represent inorganic mercury. The recovery of organic mercury compounds is incomplete using this digestion method.</p> <p>(Blank) An inorganic soil matrix blank ERA (Lot 57005) was used for the preparation blank. Results were within 20% of certified values with the exception of Mn(124%). No certified values for Mo, Th or U.</p> <p>(LCS) The LCS was prepared by spiking the inorganic soil blank with an aqueous standard. Recovery for Al and Mn was affected by the high level of these elements in the blank matrix. A high bias was observed for Ag(121%).</p> <p>MS(Matrix Spike) Recovery for Mn and Zn was affected by the high level of these elements in the sample relative to the spike. A matrix effect for Th should be suspected.</p>

Lab Areas: VALGROUP - Group Validation VALTEST - Test Validation TESTDATA - Test Data Entry
LOGSAMP - Login for Sample LOGTEST - Login for Tests

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w04c/2 Report#: 20000324

Report Date: 10-Apr-2000

Page 1

WSCF

TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:		Group #:		20000324		
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.
 N - Identification is based on a mass spectral library search.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

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W04E Report#: 20000324

Report Date: 10-apr 2000

Page 1

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000324
 Matrix: SOLID
 Test: Cyanide by Midi/Spectrophotom

SAF Number: R100-029
 Sample Date: 02/24/00
 Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000123							
BATCH QC ASSOCIATED WITH SAMPLE							
MS	Cyanide by Midi/Spectrophotom	57-12-5	98.700	% Recov	03/09/00	75.000	125.000
MSD	Cyanide by Midi/Spectrophotom	57-12-5	101.000	% Recov	03/09/00	75.000	125.000
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	2.303	Ratio	03/09/00	0.000	20.000
BATCH QC							
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	0.84	Ratio	03/09/00	0.000	300.000
BLNK-PREP	Cyanide by Midi/Spectrophotom	57-12-5	1.02	Ratio	03/09/00	0.000	300.000
DUP	Cyanide by Midi/Spectrophotom	57-12-5	n/a	Ratio	03/09/00	0.000	20.000
LCS	Cyanide by Midi/Spectrophotom	57-12-5	n/a	% Recov	03/09/00	90.000	110.000
LCS-2	Cyanide by Midi/Spectrophotom	57-12-5	n/a	% Recov	03/09/00	80.000	120.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000324
Matrix: SOLID
Test: Plutonium Isotopics by AEA

SAF Number: R100-029
Sample Date: 02/24/00
Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000123							
BATCH QC ASSOCIATED WITH SAMPLE							
DUP	Pu-239/240 by AEA	PU-239/240	108.682	RPD	03/21/00	0.000	20.000
BATCH QC							
BLANK	Pu-239/240 by AEA	PU-239/240	3.5e-03	mg/L	03/21/00	0.000	1000.000
LCS	Pu-239/240 by AEA	PU-239/240	104.000	% Recov	03/21/00	75.000	125.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000324
Matrix: SOLID
Test: Uranium Isotopics by AEA

SAF Number: R100-029
Sample Date: 02/24/00
Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000123							
BATCH QC ASSOCIATED WITH SAMPLE							
DUP	U-238 by AEA	24678-82-8	0.460	RPD	03/15/00	0.000	20.000
BATCH QC							
BLANK	U-238 by AEA	24678-82-8	1.7e-02	mg/L	03/15/00	0.000	1000.000
LCS	U-238 by AEA	24678-82-8	103.000	% Recov	03/15/00	75.000	125.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000324
Matrix: SOLID
Test: Americium by AEA

SAF Number: R100-029
Sample Date: 02/24/00
Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000123							
BATCH QC ASSOCIATED WITH SAMPLE							
DUP	Am-241 by AEA	14596-10-2	28.571	RPD	03/20/00	0.000	20.000
BATCH QC							
BLANK	Am-241 by AEA	14596-10-2	7.8e-02	mg/L	03/20/00	0.000	1000.000
LCS	Am-241 by AEA	14596-10-2	117.000	% Recov	03/20/00	75.000	125.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000324
Matrix: SOLID
Test: Strontium 90

SAF Number: R100-029
Sample Date: 02/24/00
Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000125							
BATCH QC ASSOCIATED WITH SAMPLE							
DUP	Sr-90 by Beta Counting	10098-97-2	45.902	RPD	03/27/00	0.000	20.000
BATCH QC							
BLANK	Sr-90 by Beta Counting	10098-97-2	1.1E-01	pCi/g	03/27/00	0.000	300.000
LCS	Sr-90 by Beta Counting	10098-97-2	101.000	% Recov	03/27/00	75.000	125.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000324
 Matrix: SOLID
 Test: ICP-2008 MS All possible metal

SAF Number: R100-029
 Sample Date: 02/24/00
 Receive Date: 02/24/00

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
Lab ID: W000000126 BATCH QC ASSOCIATED WITH SAMPLE							
MS	Silver by ICP-MS	7440-22-4	113.128	% Recov	03/23/00	70.000	130.000
MS	Aluminum by ICP-MS	7429-90-5	108.939	% Recov	03/23/00	70.000	130.000
MS	Arsenic by ICP-MS	7440-38-2	98.324	% Recov	03/23/00	70.000	130.000
MS	Barium by ICP-MS	7440-39-3	100.000	% Recov	03/23/00	70.000	130.000
MS	Beryllium by ICP-MS	7440-41-7	98.883	% Recov	03/23/00	70.000	130.000
MS	Cadmium by ICP-MS	7440-43-9	100.838	% Recov	03/23/00	70.000	130.000
MS	Cobalt by ICP-MS	7440-48-4	101.955	% Recov	03/23/00	70.000	130.000
MS	Chromium by ICP-MS	7440-47-3	108.101	% Recov	03/23/00	70.000	130.000
MS	Copper by ICP-MS	7440-50-8	109.497	% Recov	03/23/00	70.000	130.000
MS	Mercury by ICP-MS	7439-97-6	75.419	% Recov	03/23/00	70.000	130.000
MS	Manganese by ICP-MS	7439-95-4	217.588	% Recov	03/23/00	70.000	130.000
MS	Molybdenum by ICP-MS	7439-98-7	93.286	% Recov	03/23/00	70.000	130.000
MS	Nickel by ICP-MS	7440-02-0	103.631	% Recov	03/23/00	70.000	130.000
MS	Lead by ICP-MS	7439-92-1	102.514	% Recov	03/23/00	70.000	130.000
MS	Antimony by ICP-MS	7440-36-0	85.754	% Recov	03/23/00	70.000	130.000
MS	Selenium by ICP-MS	7782-49-2	104.749	% Recov	03/23/00	70.000	130.000
MS	Thorium by ICP-MS	7440-29-1	64.904	% Recov	03/23/00	70.000	130.000
MS	Thallium by ICP-MS	7440-28-0	92.179	% Recov	03/23/00	70.000	130.000
MS	Uranium by ICP-MS	7440-61-1	95.261	% Recov	03/23/00	70.000	130.000
MS	Vanadium by ICP-MS	7440-82-2	102.793	% Recov	03/23/00	70.000	130.000
MS	Zinc by ICP-MS	7440-66-6	158.939	% Recov	03/23/00	70.000	130.000

BATCH QC

BLANK	Silver by ICP-MS	7440-22-4	< 4.68e-1	ug/L	03/23/00	-0.100	0.100
BLANK	Aluminum by ICP-MS	7429-90-5	4.22e+03	ug/L	03/23/00	-0.100	0.100
BLANK	Arsenic by ICP-MS	7440-38-2	1.63e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Barium by ICP-MS	7440-39-3	5.32e+01	ug/L	03/23/00	-0.100	0.100
BLANK	Beryllium by ICP-MS	7440-41-7	3.48e-01	ug/L	03/23/00	-0.100	0.100
BLANK	Cadmium by ICP-MS	7440-43-9	< 4.68e-1	ug/L	03/23/00	-0.100	0.100
BLANK	Cobalt by ICP-MS	7440-48-4	2.83e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Chromium by ICP-MS	7440-47-3	7.41e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Copper by ICP-MS	7440-50-8	5.06e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Mercury by ICP-MS	7439-97-6	< 2.34e-1	ug/L	03/23/00	-0.100	0.100
BLANK	Manganese by ICP-MS	7439-95-4	1.98e+02	ug/L	03/23/00	-0.100	0.100
BLANK	Molybdenum by ICP-MS	7439-98-7	4.25e-01	ug/L	03/23/00	-0.100	0.100
BLANK	Nickel by ICP-MS	7440-02-0	< 4.68e0	ug/L	03/23/00	-0.100	0.100
BLANK	Lead by ICP-MS	7439-92-1	9.55e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Antimony by ICP-MS	7440-36-0	< 4.68e-1	ug/L	03/23/00	-0.100	0.100
BLANK	Selenium by ICP-MS	7782-49-2	< 7.02e-1	ug/L	03/23/00	-0.100	0.100
BLANK	Thorium by ICP-MS	7440-29-1	5.83e+00	ug/L	03/23/00	-0.100	0.100
BLANK	Thallium by ICP-MS	7440-28-0	2.54e-01	ug/L	03/23/00	-0.100	0.100
BLANK	Uranium by ICP-MS	7440-61-1	8.89e-01	ug/L	03/23/00	-0.100	0.100

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: 20000324
 Matrix: SOLID
 Test: ICP-2008 MS All possible metal

SAF Number: R100-029
 Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	Results	Units	Analysis Date	Lower Limit	Upper Limit
BLANK	Vanadium by ICP-MS	7440-62-2	1.73e+01	ug/L	03/23/00	-0.100	0.100
BLANK	Zinc by ICP-MS	7440-66-6	2.57e+01	ug/L	03/23/00	-0.100	0.100
LCS	Silver by ICP-MS	7440-22-4	120.809	% Recov	03/23/00	85.000	115.000
LCS	Aluminum by ICP-MS	7429-90-6	1791.908	% Recov	03/23/00	85.000	115.000
LCS	Arsenic by ICP-MS	7440-38-2	100.000	% Recov	03/23/00	85.000	115.000
LCS	Barium by ICP-MS	7440-39-3	101.156	% Recov	03/23/00	85.000	115.000
LCS	Beryllium by ICP-MS	7440-41-7	98.286	% Recov	03/23/00	85.000	115.000
LCS	Cadmium by ICP-MS	7440-43-9	104.046	% Recov	03/23/00	85.000	115.000
LCS	Cobalt by ICP-MS	7440-48-4	96.532	% Recov	03/23/00	85.000	115.000
LCS	Chromium by ICP-MS	7440-47-3	102.890	% Recov	03/23/00	85.000	115.000
LCS	Copper by ICP-MS	7440-50-8	101.734	% Recov	03/23/00	85.000	115.000
LCS	Mercury by ICP-MS	7439-97-6	106.829	% Recov	03/23/00	85.000	115.000
LCS	Manganese by ICP-MS	7439-96-4	n/a	% Recov	03/23/00	85.000	115.000
LCS	Molybdenum by ICP-MS	7439-98-7	99.422	% Recov	03/23/00	85.000	115.000
LCS	Nickel by ICP-MS	7440-02-0	101.156	% Recov	03/23/00	85.000	115.000
LCS	Lead by ICP-MS	7439-92-1	98.266	% Recov	03/23/00	85.000	115.000
LCS	Antimony by ICP-MS	7440-36-0	101.156	% Recov	03/23/00	85.000	115.000
LCS	Selenium by ICP-MS	7782-49-2	105.780	% Recov	03/23/00	85.000	115.000
LCS	Thorium by ICP-MS	7440-29-1	87.110	% Recov	03/23/00	85.000	115.000
LCS	Thallium by ICP-MS	7440-28-0	103.468	% Recov	03/23/00	85.000	115.000
LCS	Uranium by ICP-MS	7440-61-1	98.844	% Recov	03/23/00	85.000	115.000
LCS	Vanadium by ICP-MS	7440-62-2	95.954	% Recov	03/23/00	85.000	115.000
LCS	Zinc by ICP-MS	7440-66-6	102.312	% Recov	03/23/00	85.000	115.000