APPENDIX A

EPA GIS DATABASE QUERY

GEOGRAPHIC INFORMATION QUERY SYSTEM (Version 96.3.19) August 25, 1997
==========

Title : Hillyard Dross
Sub-Title: Unspecified

Zip Code: 99207 (SPOKANE)
SPOKANE County, WA.

Location in Lat/Long: 47 41 58 117 21 34 (DMS)

UTM Coordinates: X= 473030 Y= 5282739 (Meters UTM Zone 11)
Region 10 Albers: X= 48086 Y= 661378 (Meters)

Notes:

Read Notes on accuracy and extent of all GIS database coverages!!!

Note Version Id on top line as we are continuously upgrading data layers, quality, and calculation methods for this report and associated graphics.

Disclaimer:

This computer representation has been compiled by the Environmental Protection Agency (EPA) from sources which have supplied data or information that has not been verified by the EPA. This data is offered here as a general representation only, and is not to be used for commercial purposes without verification by an independant professional qualified to verify such data or information. The EPA does not guarantee the accuracy, completeness, or timeliness of the information shown, and shall not be liable for any loss or injury resulting from reliance upon the information shown.

Options in effect for this request:

Analysis Radius: 5 Miles
Special Keywords:

Summary Text Report Options:
Yes - General EPA Regulated Facilities Section
Optional detailed facility and discharge sections from Envirofacts:
No - NPDES facility and discharge info from the Envirofacts/PCS link.
n/a - TRI facility and discharge info from the Envirofacts/TRIS link.
n/a - CERCLIS facility info from the Envirofacts/CERCLIS link.
n/a - RCRIS facility info from the Envirofacts/RCRIS link.
Yes - Census Population Section
Yes - Public Water Supply/Aquifer Section
Yes - Sensitive Environments/Habitats Section

Map Display Data Options:
Map Background (one of following per map):
Yes - Population Densities
No - Pct People of Color
No - Pct Persons Living Below Poverty
No - Land Ownership
Overlay Data (all combinations available):
Yes - Roads/Railroads
Yes - Streams/Lakes
Yes - Wetlands
Yes - National Parks/Recreation Areas
Yes - EPA CERCLIS (Superfund) Facilities
Yes - EPA RCRA (Hazardous Waste Treatment, Storage, Disposal) Facilities
Yes - EPA NPDES (Permitted dischargers to waterways) Facilities
Yes - EPA TRI (Toxic Release Inventory) Facilities

Yes - Public Groundwater Supplies
Yes - Public Surface Water Supplies
Yes - Streams marked with Fisheries/Habitat Values - WA. only
Yes - Latitude/Longitude Grid (1 minute cells)

*** End of Notes ***

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** EPA Regulated Site / Management Information **
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Indian Nation Information
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Site apparently not located within 1 mile any Indian Nation areas.

Air Non-Attainment Area Information
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Site located in Spokane PM10 non-attainment area.
Site located in Spokane Carbon Monoxide non-attainment area.

EPA Facility Databases Information
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Distance Range From 0 to 1 mile(s):

CERCLA: 7 sites in distance 0 to 1 mile(s):
Rec# 814 Fac ID:WAD000812883 Lat/Long: 47 42 15.0 117 21 47.0
Name: BURLINGTON NORTHERN HILLYARD SHOP
NPL Status: N Archived From CERCLIS: X
Rec# 957 Fac ID:WAD027521483 Lat/Long: 47 41 46.0 117 21 47.0
Name: UNION CARBIDE CORP - LINDE DIV
NPL Status: N Archived From CERCLIS: X
Rec# 974 Fac ID:WAD037991528 Lat/Long: 47 42 14.0 117 21 09.0
Name: WASHINGTON CHEMICAL INC
NPL Status: N Archived From CERCLIS:
Rec# 988 Fac ID:WAD043005651 Lat/Long: 47 42 02.0 117 21 30.0
Name: ALUMINUM RECYCLING CORP
NPL Status: N Archived From CERCLIS:
Rec#1072 Fac ID:WAD078204021 Lat/Long: 47 41 12.0 117 21 57.0
Name: INLAND FOUNDRY CO INC
NPL Status: N Archived From CERCLIS: X
Rec#1171 Fac ID:WAD980639363 Lat/Long: 47 41 32.0 117 21 38.0
Name: IDEAL BASIC INDUSTRIES OLD IRVIN
NPL Status: N Archived From CERCLIS: X
Rec#1387 Fac ID:WAD981767296 Lat/Long: 47 41 22.0 117 22 29.0
Name: SPOKANE JUNKYARD/ASSOCIATED PROPERTIES
NPL Status: F Archived From CERCLIS:

RCRA TSD: 1 sites in distance 0 to 1 mile(s):
Rec# 60 Fac ID:WAD037991528 Lat/Long: 47 42 20.0 117 21 00.6
Name: WASHINGTON CHEMICAL INC SPOKANE
Trtmnt-Stor: X Land Disp: Incinerate:
Discharge Indicator: GW: SW: Soil: Air:
Corrective Action: X

Toxic Release Inventory (TRI): 1 sites in distance 0 to 1 mile(s):
Rec# 599 Fac ID:99207HLLST3525N Lat/Long: 47 40 00 117 29 00
Name: MILES INC. City: SPOKANE

NPDES (Mostly Majors): 0 sites in distance 0 to 1 mile(s):

Distance Range From 1 to 5 mile(s):

CERCLA: 25 sites in distance 1 to 5 mile(s):

Rec# 697 Fac ID:WA0001038629 Lat/Long: 47 39 20.5 117 19 39.6
Name: SPOKANE DRUM SITE AKA HSCI
NPL Status: N Archived From CERCLIS:

Rec# 760 Fac ID:WA6170023414 Lat/Long: 47 41 30.0 117 27 00.0
Name: USNAVY NAVAL & MARINE CORPS RESERVE CTR
NPL Status: N Archived From CERCLIS:

Rec# 766 Fac ID:WA6891406336 Lat/Long: 47 45 06.4 117 22 26.0
Name: USDOE BPA BELL SUBSTATIONS
NPL Status: N Archived From CERCLIS: X

Rec# 790 Fac ID:WAD000065508 Lat/Long: 47 45 17.9 117 22 30.4
Name: KAISER ALUMINUM MEAD WORKS
NPL Status: F Archived From CERCLIS:

Rec# 797 Fac ID:WAD000641548 Lat/Long: 47 43 52.2 117 21 34.3
Name: NORTH MARKET STREET
NPL Status: F Archived From CERCLIS:

Rec# 810 Fac ID:WAD000712398 Lat/Long: 47 43 00.0 117 21 47.0
Name: WESTERN FRUIT EXPRESS-HILLYARD STATION
NPL Status: N Archived From CERCLIS: X

Rec# 823 Fac ID:WAD001865450 Lat/Long: 47 40 22.4 117 20 40.5
Name: GENERAL ELECTRIC CO. (SPOKANE SHOP)
NPL Status: F Archived From CERCLIS:

Rec# 832 Fac ID:WAD006233332 Lat/Long: 47 39 34.0 117 21 54.0
Name: COLUMBIA PAINT CO INC
NPL Status: N Archived From CERCLIS: X

Rec# 849 Fac ID:WAD009063827 Lat/Long: 47 40 45.0 117 19 10.0
Name: INLAND EMPIRE PLATING
NPL Status: N Archived From CERCLIS: X

Rec# 850 Fac ID:WAD009065186 Lat/Long: 47 40 02.0 117 19 37.0
Name: B J CARNEY & CO
NPL Status: N Archived From CERCLIS: X

Rec# 852 Fac ID:WAD009068578 Lat/Long: 47 42 42.0 117 20 00.0
Name: TRAVIS PATTERN & FOUNDRY INC
NPL Status: N Archived From CERCLIS:

Rec# 952 Fac ID:WAD027495266 Lat/Long: 47 40 00.0 117 21 30.0
Name: ALASKA STEEL AND SUPPLY
NPL Status: N Archived From CERCLIS: X

Rec# 953 Fac ID:WAD027496306 Lat/Long: 47 39 40.0 117 24 35.0
Name: ATOMIC CHEMICAL CORP
NPL Status: N Archived From CERCLIS: X

Rec# 955 Fac ID:WAD027507771 Lat/Long: 47 39 24.0 117 22 48.0
Name: INLAND METALS
NPL Status: N Archived From CERCLIS: X

Rec# 956 Fac ID:WAD027521277 Lat/Long: 47 39 27.0 117 22 29.0
Name: TROY LAUNDRY
NPL Status: N Archived From CERCLIS: X

Rec#1025 Fac ID:WAD055501977 Lat/Long: 47 44 04.0 117 21 45.0
Name: DRAPER TRACTOR PARTS
NPL Status: N Archived From CERCLIS: X

Rec#1026 Fac ID:WAD056053820 Lat/Long: 47 40 09.0 117 18 49.0
Name: GREAT WESTERN CHEM CO OF WA
NPL Status: N Archived From CERCLIS:

Rec#1036 Fac ID:WAD058613647 Lat/Long: 47 39 08.0 117 16 42.0
Name: AMERICAN BUILDING CTR
NPL Status: N Archived From CERCLIS: X

Rec#1057 Fac ID:WAD067543512 Lat/Long: 47 40 15.0 117 19 16.0
Name: AMERICAN RECYCLING
NPL Status: N Archived From CERCLIS: X

Rec#1219 Fac ID:WAD980664825 Lat/Long: 47 43 35.0 117 21 50.0
Name: MIDGET OIL CO
NPL Status: A Archived From CERCLIS:

Rec#1223 Fac ID:WAD980665525 Lat/Long: 47 39 50.0 117 22 20.0
Name: SPOKANE TRANSFORMER CO
NPL Status: N Archived From CERCLIS: X

Rec#1238 Fac ID:WAD980722912 Lat/Long: 47 43 07.0 117 16 50.0
Name: ARGONNE RD BONEKO WASTE SITE

NPL Status: N Archived From CERCLIS: X
Rec#1298 Fac ID:WAD980834865 Lat/Long: 47 40 59.0 117 24 27.0
Name: WASHINGTON STATE DEPT OF TRANSP
NPL Status: N Archived From CERCLIS: X
Rec#1378 Fac ID:WAD981762990 Lat/Long: 47 39 54.0 117 26 00.0
Name: SPOKANE GAS MANUFACTURING SITE
NPL Status: N Archived From CERCLIS: X
Rec#1382 Fac ID:WAD981766272 Lat/Long: 47 39 38.0 117 23 35.0
Name: AMERICAN TAR COMPANY
NPL Status: N Archived From CERCLIS: X

RCRA TSD: 1 sites in distance 1 to 5 mile(s):
Rec# 42 Fac ID:WAD000712034 Lat/Long: 47 41 43.0 117 16 37.0
Name: SAFETY KLEEN CORP 1 183 01
Trtmnt-Stor: X Land Disp: Incinerate:
Discharge Indicator: GW: SW: Soil: Air:
Corrective Action: X

Toxic Release Inventory (TRI): 10 sites in distance 1 to 5 mile(s):
Rec# 590 Fac ID:99021KSRLME211H Lat/Long: 47 47 02 117 22 33
Name: KAISER ALUMINUM & CHEMICAL City: MEAD
Rec# 595 Fac ID:99202CLMBPN112H Lat/Long: 47 52 30 118 47 15
Name: COLUMBIA PAINT CO. City: SPOKANE
Rec# 596 Fac ID:99202LQDRCE4230 Lat/Long: 0
Name: LIQUID AIR CORP. City: SPOKANE
Rec# 598 Fac ID:99206PRNML4714E Lat/Long: 47 38 00 117 16 00
Name: PURINA MILLS INC. City: SPOKANE
Rec# 600 Fac ID:99207MTLLCE1027 Lat/Long: 47 45 00 117 22 00
Name: METALLIC ARTS City: SPOKANE
Rec# 601 Fac ID:99207TRVSPE1413 Lat/Long: 47 40 06 117 20 01
Name: TRAVIS PATTERN & FNDY. INC. City: SPOKANE
Rec# 602 Fac ID:99212MLCHRE6017 Lat/Long: 47 40 18 117 19 27
Name: MELCHER MFG. CO. INC. City: SPOKANE
Rec# 603 Fac ID:99212NLNDMN3320 Lat/Long: 47 35 30 117 15 75
Name: INLAND EMPIRE PAPER CO. City: SPOKANE
Rec# 609 Fac ID:99216HNTWDBLDG2 Lat/Long: 47 40 58 117 19 01
Name: HUNTWOOD IND. City: SPOKANE
Rec# 613 Fac ID:99216NWCSTBLDG4 Lat/Long: 47 40 06 117 20 00
Name: N. E. W. CASTINGS INC. City: SPOKANE

NPDES (Mostly Majors): 3 sites in distance 1 to 5 mile(s):
Rec# 351 Fac ID:WA0000825 Lat/Long: 47 41 17 117 16 45
Name: INLAND EMPIRE PAPER CO
Plant: City:
Major: M Permit Expires:
Rec# 354 Fac ID:WA0000876 Lat/Long: 47 45 19 117 22 29
Name: KAISER ALUMINUM & CHEMICAL
Plant: MEAD City:
Major: M Permit Expires: 04/95
Rec# 649 Fac ID:WA0045195 Lat/Long: 47 40 30 117 23 12
Name: WASHINGTON WATER POWER CO, THE
Plant: City:
Major: Permit Expires: 05/94

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** Human Health Factors/Concerns **
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Population Factors Using 1990 Census Data
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Approximate Population and Demographic Analysis

Notes:

1) Based on summing Census Tract/Block centroids within distance ranges. A portion of actual block may extend beyond distance (overcount), or portions of some blocks may be within distance but centroid is outside (undercount). Usually within 5% in the 1 to 5 mile range.
2) The Hispanic Origin category is defined as an ethnic category, not as a race in the official Census definitions. Hispanic Origin may include counts from any of the Census race categories including White. PL171 Census data included a cross tabulation of origin versus race. Our definition for Total People of Color is Total Population - White Origin as tabulated in the PL171 data. The individual race summaries are summarized as originally defined.

Distance Range From 0 to 1 mile(s):

293 Census Tract/Block Centroids within distance of 0 to 1 mile(s):

			Comparison
Houshold Units =	3438		
Total Population =	7991		
Age Over 18 =	5565	69.6%	ID,OR,WA
Age Under 18 =	2426	30.4%	Stats
By Race: White =	7354	92.0%	90.6%
Black =	89	1.1%	2.3%
Amer Indian =	247	3.1%	1.5%
Asian =	236	3.0%	3.3%
Other =	65	0.8%	2.3%
By Origin: Hispanic Org =	137	1.7%	4.4%
Total People of Color =	708	8.9%	11.3% See note 2.

Average Pop Density per sq mi = 2543 (Centroids/Distance Radius Area)

Distance Range From 0 to 5 mile(s):

5012 Census Tract/Block Centroids within distance of 0 to 5 mile(s):

			Comparison
Houshold Units =	79375		
Total Population =	176287		
Age Over 18 =	133664	75.8%	ID,OR,WA
Age Under 18 =	42623	24.2%	Stats
By Race: White =	164531	93.3%	90.6%
Black =	3366	1.9%	2.3%
Amer Indian =	3784	2.1%	1.5%
Asian =	3399	1.9%	3.3%
Other =	1207	0.7%	2.3%
By Origin: Hispanic Org =	3753	2.1%	4.4%
Total People of Color =	14020	8.0%	11.3% See note 2.

Average Pop Density per sq mi = 2241 (Centroids/Distance Radius Area)

Groundwater Sole Source Aquifer Information

Site located within the Spokane Valley Rathdrum Prairie Aquifer
Class: Aquifer Status: Designated
Date Petitioned: 10/15/1976 Designated: 02/09/1978

Site located 1 mile or less from the Spokane Valley Rathdrum Prairie Aquifer
Class: Source Status: Designated
Date Petitioned: 10/15/1976 Designated: 02/09/1978

Public Groundwater Supply Information
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Distance Range From 0 to 1 mile(s):

Washington Public Groundwater Supply Wells: 4 within distance 0 to 1 mile(s):

Rec#3194
System ID: 26N 46E 31K1 Lat/Long: 474210 1172235
Name: CONSOLIDATED IRD 19 SYS 1 State Permit#: 10220T
Total System Population Served = 13110.

Rec#3195
System ID: 26N 46E 31K2 Lat/Long: 474205 1172235
Name: CONSOLIDATED IRD 19 SYS 1 State Permit#: 10220T
Total System Population Served = 13110.

Rec#3196
System ID: 26N 46E 31K3 Lat/Long: 474210 1172230
Name: CONSOLIDATED IRD 19 SYS 1 State Permit#: 10220T
Total System Population Served = 13110.

Rec#3345
System ID: 474200117223901 Lat/Long: 474200 1172239
Name: SPOKANE CITY OF State Permit#: 83100K
Total System Population Served = 179850.

Distance Range From 1 to 5 mile(s):

Washington Public Groundwater Supply Wells: 60 within distance 1 to 5 mile(s):

Rec#3187
System ID: 473917117201401 Lat/Long: 473917 1172014
Name: CARNHOPE IRRG DIST #7 State Permit#: 11250M
Total System Population Served = 1600.

Rec#3227
System ID: 474020117125903 Lat/Long: 474020 1172555
Name: CONSOLIDATED IRD 19 SYS 2 State Permit#: 10221A
Total System Population Served = 950.

Rec#3236
System ID: 25N 44E 19C2 Lat/Long: 473900 1171740
Name: DISHMAN WATER COMPANY INC State Permit#: 19450D
Total System Population Served = 483.

Rec#3240
System ID: 473822117185201 Lat/Long: 473822 1171852
Name: EAST SPOKANE WTR DIST #1 State Permit#: 216506
Total System Population Served = 3469.

Rec#3241
System ID: 473846117181601 Lat/Long: 473846 1171816
Name: EAST SPOKANE WTR DIST #1 State Permit#: 216506
Total System Population Served = 3469.

Rec#3242
System ID: 473857117185201 Lat/Long: 473857 1171852
Name: EAST SPOKANE WTR DIST #1 State Permit#: 216506
Total System Population Served = 3469.

Rec#3243
System ID: 473859117183201 Lat/Long: 473859 1171832
Name: EAST SPOKANE WTR DIST #1 State Permit#: 216506
Total System Population Served = 3469.

Rec#3262
System ID: 25N 44E 18J2 Lat/Long: 473950 1171710
Name: HUTCHINSON IRR DIST #16 State Permit#: 35100J
Total System Population Served = 2293.

Rec#3263
System ID: 25N 44E 18J3 Lat/Long: 473945 1171715
Name: HUTCHINSON IRR DIST #16 State Permit#: 35100J
Total System Population Served = 2293.

Rec#3264
System ID: 25N 44E 18J4 Lat/Long: 473945 1171710

Name: HUTCHINSON IRR DIST #16 State Permit#: 35100J
Total System Population Served = 2293.
Rec#3265
System ID: 473949117171301 Lat/Long: 473949 1171713
Name: HUTCHINSON IRR DIST #16 State Permit#: 35100J
Total System Population Served = 2293.
Rec#3266
System ID: 25N 44E 09E4 Lat/Long: 474040 1171530
Name: IRVIN WATER DISTRICT #6 State Permit#: 36050R
Total System Population Served = 2350.
Rec#3273
System ID: 25N 44E 08F3 Lat/Long: 474035 1171625
Name: MILLWOOD TOWN OF State Permit#: 54850Q
Total System Population Served = 1720.
Rec#3274
System ID: 474106117165101 Lat/Long: 474109 1171635
Name: MILLWOOD TOWN OF State Permit#: 54850Q
Total System Population Served = 1720.
Rec#3275
System ID: 474110117154001 Lat/Long: 474110 1171540
Name: MILLWOOD TOWN OF State Permit#: 54850Q
Total System Population Served = 1720.
Rec#3279
System ID: 25N 43E 21L7 Lat/Long: 473835 1172255
Name: MODEL IRRIGATION DIST #18 State Permit#: 55550D
Total System Population Served = 6916.
Rec#3280
System ID: 25N 43E 21L8 Lat/Long: 473840 1172255
Name: MODEL IRRIGATION DIST #18 State Permit#: 55550D
Total System Population Served = 6916.
Rec#3281
System ID: 25N 43E 21N1 Lat/Long: 473825 1172310
Name: MODEL IRRIGATION DIST #18 State Permit#: 55550D
Total System Population Served = 6916.
Rec#3282
System ID: 25N 43E 21N5 Lat/Long: 473820 1172310
Name: MODEL IRRIGATION DIST #18 State Permit#: 55550D
Total System Population Served = 6916.
Rec#3283
System ID: 25N 43E 28L4 Lat/Long: 473745 1172305
Name: MODEL IRRIGATION DIST #18 State Permit#: 55550D
Total System Population Served = 6916.
Rec#3288
System ID: 473939117164401 Lat/Long: 473939 1171644
Name: MODERN ELECTRIC WATER CO State Permit#: 556008
Total System Population Served = 14205.
Rec#3293
System ID: 474027117163701 Lat/Long: 474027 1171637
Name: MODERN ELECTRIC WATER CO State Permit#: 556008
Total System Population Served = 14205.
Rec#3297
System ID: 26N 43E 28H2 Lat/Long: 474320 1172150
Name: NORTH SPOKANE IRR DIST #8 State Permit#: 61300M
Total System Population Served = 2500.
Rec#3298
System ID: 26N 43E 28H3 Lat/Long: 474325 1172145
Name: NORTH SPOKANE IRR DIST #8 State Permit#: 61300M
Total System Population Served = 2500.
Rec#3299
System ID: 26N 43E 28H4 Lat/Long: 474320 1172145
Name: NORTH SPOKANE IRR DIST #8 State Permit#: 61300M
Total System Population Served = 2500.
Rec#3300
System ID: 474325117215001 Lat/Long: 474325 1172150
Name: NORTH SPOKANE IRR DIST #8 State Permit#: 61300M
Total System Population Served = 2500.

Rec#3301
System ID: 25N 44E 07H1 Lat/Long: 474030 1171700
Name: ORCHARD AVE IRRIG DIST #6 State Permit#: 64000E
Total System Population Served = 4650.
Rec#3302
System ID: 474057117174101 Lat/Long: 474057 1171741
Name: ORCHARD AVE IRRIG DIST #6 State Permit#: 64000E
Total System Population Served = 4650.
Rec#3303
System ID: 25N 44E 05P3 Lat/Long: 474105 1171625
Name: PASADENA PARK IRR DIST317 State Permit#: 66300Y
Total System Population Served = 3000.
Rec#3304
System ID: 474135117161401 Lat/Long: 474132 1171605
Name: PASADENA PARK IRR DIST317 State Permit#: 66300Y
Total System Population Served = 3000.
Rec#3305
System ID: 474149117170301 Lat/Long: 474149 1171703
Name: PASADENA PARK IRR DIST317 State Permit#: 66300Y
Total System Population Served = 3000.
Rec#3314
System ID: 26N 43E 10L5 Lat/Long: 474535 1172135
Name: SPO CO WTR DIST #3 SYS 3B State Permit#: 933547
Total System Population Served = 2170.
Rec#3315
System ID: 474552117211801 Lat/Long: 474552 1172118
Name: SPO CO WTR DIST #3 SYS 3B State Permit#: 933547
Total System Population Served = 2170.
Rec#3319
System ID: 25N 43E 13H6 Lat/Long: 473955 1171830
Name: SPO CO WTR DIST #3 SYS 1 State Permit#: 933505
Total System Population Served = 5100.
Rec#3320
System ID: 25N 44E 18D7 Lat/Long: 473955 1171800
Name: SPO CO WTR DIST #3 SYS 1 State Permit#: 933505
Total System Population Served = 5100.
Rec#3321
System ID: 473920117194501 Lat/Long: 473915 1171940
Name: SPO CO WTR DIST #3 SYS 1 State Permit#: 933505
Total System Population Served = 5100.
Rec#3322
System ID: 473920117194502 Lat/Long: 473920 1171945
Name: SPO CO WTR DIST #3 SYS 1 State Permit#: 933505
Total System Population Served = 5100.
Rec#3323
System ID: 473952117173401 Lat/Long: 473952 1171734
Name: SPO CO WTR DIST #3 SYS 1 State Permit#: 933505
Total System Population Served = 5100.
Rec#3324
System ID: 474034117170001 Lat/Long: 474034 1171700
Name: SPO CO WTR DIST #3 SYS 1 State Permit#: 933505
Total System Population Served = 5100.
Rec#3325
System ID: 474305117244401 Lat/Long: 474305 1172444
Name: SPO CO WTR DIST #3 SYS 3A State Permit#: 93353P
Total System Population Served = 4050.
Rec#3326
System ID: 474351117242901 Lat/Long: 474351 1172429
Name: SPO CO WTR DIST #3 SYS 3A State Permit#: 93353P
Total System Population Served = 4050.
Rec#3340
System ID: 25N 43E 11K3 Lat/Long: 474025 1172005
Name: SPOKANE CITY OF State Permit#: 83100K
Total System Population Served = 179850.
Rec#3341
System ID: 473901117214201 Lat/Long: 473901 1172142

Name: SPOKANE CITY OF State Permit#: 83100K
Total System Population Served = 179850.
Rec#3342
System ID: 474059117200001 Lat/Long: 474059 1172000
Name: SPOKANE CITY OF State Permit#: 83100K
Total System Population Served = 179850.
Rec#3343
System ID: 474100117233601 Lat/Long: 474100 1172336
Name: SPOKANE CITY OF State Permit#: 83100K
Total System Population Served = 179850.
Rec#3344
System ID: 474100117233801 Lat/Long: 474059 1172332
Name: SPOKANE CITY OF State Permit#: 83100K
Total System Population Served = 179850.
Rec#3346
System ID: 474242117244901 Lat/Long: 474242 1172449
Name: SPOKANE CITY OF State Permit#: 83100K
Total System Population Served = 179850.
Rec#3362
System ID: 474516117250801 Lat/Long: 474516 1172508
Name: WHITWORTH COLLEGE State Permit#: 96580C
Total System Population Served = 1108.
Rec#3364
System ID: 26N 43E 12E1 Lat/Long: 474555 1171920
Name: WHITWORTH WTR DST 2 SYS 2 State Permit#: 96601Y
Total System Population Served = 11899.
Rec#3365
System ID: 26N 43E 19C4 Lat/Long: 474420 1172525
Name: WHITWORTH WTR DST 2 SYS 2 State Permit#: 96601Y
Total System Population Served = 11899.
Rec#3366
System ID: 26N 43E 19C6 Lat/Long: 474415 1172525
Name: WHITWORTH WTR DST 2 SYS 2 State Permit#: 96601Y
Total System Population Served = 11899.
Rec#3367
System ID: 474325117251701 Lat/Long: 474325 1172517
Name: WHITWORTH WTR DST 2 SYS 2 State Permit#: 96601Y
Total System Population Served = 11899.
Rec#3368
System ID: 474358117251701 Lat/Long: 474358 1172517
Name: WHITWORTH WTR DST 2 SYS 2 State Permit#: 96601Y
Total System Population Served = 11899.
Rec#3369
System ID: 474437117243501 Lat/Long: 474437 1172435
Name: WHITWORTH WTR DST 2 SYS 2 State Permit#: 96601Y
Total System Population Served = 11899.
Rec#3370
System ID: 474530117251601 Lat/Long: 474530 1172516
Name: WHITWORTH WTR DST 2 SYS 2 State Permit#: 96601Y
Total System Population Served = 11899.
Rec#3417
System ID: 474044117185001 Lat/Long: 474044 1171850
Name: HOLIDAY TAILER COURT State Permit#: 33679H
Total System Population Served = 50.
Rec#3418
System ID: 474202117155201 Lat/Long: 474202 1171552
Name: HUTTON SETTLEMENT State Permit#: 35125M
Total System Population Served = 53.
Rec#3430
System ID: 26N 43E 27C1 Lat/Long: 474325 1172135
Name: MOUNT SAINT MICHAELS State Permit#: 565573
Total System Population Served = 162.
Rec#3451
System ID: 474215117155601 Lat/Long: 474202 1171556
Name: PLEASANT PRAIRIE ADDITION State Permit#: 67880Q
Total System Population Served = 90.

Rec#3492
System ID: 473855117173801 Lat/Long: 473855 1171738
Name: WOODLAND PARK TRLR COURT State Permit#: 981908
Total System Population Served = 60.

Public Surface Water Supply Information
==========

Distance Range From 0 to 1 mile(s):

Washington Public Surface Water Intakes: DATABASE NOT AVAILABLE.

Distance Range From 1 to 5 mile(s):

Washington Public Surface Water Intakes: DATABASE NOT AVAILABLE.

Food Chain Information
==========

Distance Range From 0 to 1 mile(s):

Washington Stream Segments with Fisheries Catch Data: DATABASE NOT AVAILABLE.

Distance Range From 1 to 5 mile(s):

Washington Stream Segments with Fisheries Catch Data: DATABASE NOT AVAILABLE.

****
** Ecosystem/Sensitive Environments Factors/Concerns **
****

National Park Information
==========
Site apparently not located within 1 mile any National Park areas.

Priority/Sensitive Animals, Plants, and Habitats
==========
In general, agreements, concerns, and legislative requirements with the providers of the following databases prevent us from plotting and/or analyzing in more detail the sensitive areas and points on maps that may be released to the general public. Contact the local database source for the most recent or further detailed information.

State Natural Heritage Databases
Individual State Heritage Programs compile databases containing significant site observations of selected species of concern, including federal and state species listed threatened, endangered, sensitive and other priority species.

Washington Priority Habitats and Species
Database from Washington Dept of Fish & Wildlife - Jan 1994. Includes priority habitats and species information. May include DUPLICATE information from the Washington Heritage database. Contact the WDW Data Request Line (Lori Adkins) at 360-902-2543 for more information.

State Heritage Databases

Sorry -- Due to restrictive distribution agreements with the State Heritage Database programs, this information is available for internal EPA users only. You must separately contact the individual State Heritage programs for info.

Washington Natural Heritage Program
Mail: snmm490@wadnr.gov
Phone: 360-902-1667

Washington Priority Habitats and Species

Distance Range From 0 to 1 mile(s):

Washington - Priority Habitats/Species areas/points: 1/0 within 0 to 1 mile(s):
Areas below may be overlapping - Actual total of areas = 9608.2 acres.
Also, portions of the Spec/Hab areas may lay outside of distance ring.

Spec/Hab: Urban Natural Open Space Species Use:
Desc: URBAN NATURAL OPEN SPACE- ASSOCIATED WITH BREEDING WESTERN AND MOUNTA IN BLUEBIRDS AND NESTING RED-TAILED HAWKS, PILEATED WOODPECKER FEEDIN G AREAS NESTING COOPERS HAWKS
Areas= 1 Sum Area= 9608.2 acres

Distance Range From 1 to 5 mile(s):

Washington - Priority Habitats/Species areas/points: 23/0 within 1 to 5 mile(s):
Areas below may be overlapping - Actual total of areas = 17195.6 acres.
Also, portions of the Spec/Hab areas may lay outside of distance ring.

Spec/Hab: Old growth/mature forest Species Use:
Desc: OLD GROWTH/MATURE FOREST WITH ASSOCIATED USE BY PILEATED WOODPECKER A S FORAGINGHABITAT
Areas= 3 Sum Area= 187.7 acres
Spec/Hab: Urban Natural Open Space Species Use:
Desc: URBAN NATURAL OPEN SPACE- ASSOCIATED WITH REGULAR INDIVIDUAL OCCURENC ES OF WINTERING BALD EAGLES. (BALD EAGLE- 10 OR LESS), ALSO INDIVIDUA L OCCURRENCE OF NESTING OSPREY; WINTER WATERFOWL CONCENTRATIONS NESTI NG RED-TAILED HAWKS.
Areas= 4 Sum Area= 1398.1 acres
Spec/Hab: Cliff/bluff Species Use:
Desc: CLIFF HABITAT ABOVE SPOKANE RIVER, ASSOCIATED WITH GREATER SPOKANE RI VER CORRIDOR SEASONAL USAGE BY BALD EAGLE, RED-TAILED HAWK.
Areas= 1 Sum Area= 8.2 acres
Spec/Hab: Northwest White-tailed Deer Species Use: Regular Medium Concentration
Desc: WHITE-TAILED DEER WINTER RANGE MEDIUM DENSITY USE AREA
Areas= 1 Sum Area= 1773.7 acres
Spec/Hab: Urban Natural Open Space Species Use:
Desc: URBAN NATURAL OPEN SPACE- ASSOCIATED WITH RED-TAILED HAWK, GREAT HORN ED OWL NESTING, REGULAR OCCURRENCE OF THICKET HAIRSTREAK + COMPTON TO RTOISESHELL. CORRIDORBETWEEN NATURAL AREA AND RURAL AREA TO THE SOUTH . USE BY COUGAR, DEER + ELK.
Areas= 3 Sum Area= 2133.2 acres
Spec/Hab: Urban Natural Open Space Species Use:
Desc: URBAN NATURAL OPEN SPACE- MOSAIC OF MATURE FOREST, WETLAND/RIPARIAN + BUNCHGRASS' HABITATS ASSOCIATED WITH GREAT HORNED OWLS, MIGRATORY WA TERFOWL, MARMOTS, FORAG'ING RED-TAILED HAWKS AND GREAT BLUE HERON. DI VERSE SONGBIRD POPULATIONS.
Areas= 2 Sum Area= 98.6 acres

Spec/Hab: Urban Natural Open Space Species Use:
Desc: URBAN NATURAL OPEN SPACE- REMNANT OF NATURAL HABITAT CONNECTED WITH L ITTLE SPOKANE RIVER COMPLEX ALONG N. END CORRIDOR. OTHERWISE SURROUND ED BY URBANIZATION. ASSOCIATED WITH NESTING WESTERN BLUEBIRDS
Areas= 2 Sum Area= 206.7 acres
Spec/Hab: Urban Natural Open Space Species Use:
Desc: URBAN NATURAL OPEN SPACE- ASSOCIATED WITH NESTING WESTERN BLUEBIRDS. SURROUNDEDALMOST ENTIRELY BY URBANIZATION-DEVELOPMENT
Areas= 2 Sum Area= 2519.6 acres
Spec/Hab: Urban Natural Open Space Species Use:
Desc: URBAN NATURAL OPEN SPACE- ASSOCIATED W/REGULAR INDIVIDUAL OCCURENCES OF WINTERING BALD EAGLE AND NESTING RED TAILED HAWKS. BALD EAGLE- 1 0 OR LESS. WINTER WATERFOWL CONCENTRATIONS, CAVITY NESTING DUCKS,+ PI LEATED WOODPECKER. COOPERS HAWK.
Areas= 1 Sum Area= 2649.9 acres
Spec/Hab: Urban Natural Open Space Species Use:
Desc: URBAN NATURAL OPEN SPACE-WITH ASSOCIATED NESTING WESTERN BLUEBIRDS, R ED-TAILED H'AWKS, COOPER''S HAWKS. WINTERING GOSHAWKS. COYOTE OCCUREN CE DOCUMENTED. GREAT HOR'NED OWL NESTING DOCUMENTED.
Areas= 1 Sum Area= 4408.4 acres
Spec/Hab: Old growth/mature forest Species Use:
Desc: OLD GROWTH/MATURE TIMBER ASSOCIATED WITH PILEATED WOODPECKER FORAGING , USE BY WHITE TAILED DEER, WINTER + SPRING USE BY BALD EAGLES
Areas= 1 Sum Area= 37.6 acres
Spec/Hab: Urban Natural Open Space Species Use:
Desc: URBAN NATURAL OPEN SPACE- ASSOCIATED WITH REGULAR INDIVIDUAL OCCURREN CE OF FORAGING GREAT BLUE HERON. NATIVE HABITAT BLOCKS SUPPORT DIVERS E AVIAN GAME AND NONGAME BIRD POPULATIONS INCLUDING CAVITY NESTING SP ECIES. ISOLATED HABITAT BLOCK.
Areas= 1 Sum Area= 76.7 acres
Spec/Hab: Urban Natural Open Space Species Use:
Desc: URBAN NATURAL OPEN SPACE- ASSOCIATED WITH BREEDING WESTERN AND MOUNTA IN BLUEBIRDS AND NESTING RED-TAILED HAWKS, PILEATED WOODPECKER FEEDIN G AREAS NESTING COOPERS HAWKS
Areas= 1 Sum Area= 1725.6 acres
Spec/Hab: Urban Natural Open Space Species Use:
Desc: URBAN NATURAL OPEN SPACE- ASSOCIATED W/REGULAR INDIVIDUAL OCCURANCES OF NESTING'REDTAIL HAWK AND COOPER''S HAWK ADJACENT TO LITTLE SPOKANE ECOSYSTEM'
Areas= 2 Sum Area= 1753.4 acres

Wetlands Areas

Portions of any reported wetland area(s) may lay outside of the actual specified distance range.
Washington Database from USF&W National Wetlands Inventory (NWI). Obtained from Washington Dept Ecology in 1992. We are reporting only a subset of wetland type: US EM FO RS SB SS.

Distance Range From 0 to 1 mile(s):

Washington Wetlands (USF&W NWI): 0 within distance 0 to 1 mile(s):

Distance Range From 1 to 5 mile(s):

Washington Wetlands (USF&W NWI): 31 within distance 1 to 5 mile(s):
1 Wetland(s) with FWS Code: PEM1B and total area of 0.3 acres.
6 Wetland(s) with FWS Code: PEM1C and total area of 5.0 acres.
7 Wetland(s) with FWS Code: PFO1C and total area of 14.7 acres.
1 Wetland(s) with FWS Code: PUSCX and total area of 0.3 acres.
9 Wetland(s) with FWS Code: PSS1C and total area of 7.5 acres.
1 Wetland(s) with FWS Code: PSS1CH and total area of 1.2 acres.

1 Wetland(s) with FWS Code: PEM1CX and total area of 0.6 acres.
2 Wetland(s) with FWS Code: PFO1A and total area of 1.2 acres.
3 Wetland(s) with FWS Code: PSS1A and total area of 2.1 acres.
Total area of wetlands= 32.7 acres.

Stream Segments of Concern
==========

Portions of reported segments may occur outside of distance ranges.
Note that streams may not register correctly with other stream traces on maps due to differing source data scales and other considerations.
Washington streams information from 1992 WARIS GIS Database from the Department of Fish & Wildlife. Contact Martin Hudson at F&W for any more infomation at 206-664-0383.
The report indicates overall quality of reach for resident fish, existence of critical spawning habitats, presence species of concern, and the number of anadroumous species present.

Distance Range From 0 to 1 mile(s):

Washington Stream Segments with data: 0 in distance 0 to 1 mile(s):

Distance Range From 1 to 5 mile(s):

Washington Stream Segments with data: 18 in distance 1 to 5 mile(s):

Reach #/Stream Name		Length Miles	Res Fish Quality	Crit Spawn	Spec Cncrn	#Anad Pres
17010305-1	SPOKANE R	3.76	Substantial	-	-	0
17010305-1	SPOKANE R	8.09	Moderate	-	-	0
17010305-732	Name not specified	1.19	Low	-	-	0
17010305-846	Name not specified	4.64	Low	-	-	0
17010305-910	Name not specified	0.05	Low	-	-	0
17010307-21	SPOKANE R	13.14	Substantial	Y	-	0
17010308-1018	Name not specified	2.60	Low	-	-	0
17010308-1021	Name not specified	0.96	Low	-	-	0
17010308-1022	Name not specified	0.67	Low	-	-	0
17010308-1033	Name not specified	3.58	Low	-	-	0
17010308-1036	Name not specified	1.55	Low	-	-	0
17010308-1040	Name not specified	1.53	Low	-	-	0
17010308-1041	Name not specified	1.19	Low	-	-	0
17010308-1047	Name not specified	1.38	Low	-	-	0
17010308-1051	Name not specified	1.40	Low	-	-	0
17010308-1054	Name not specified	1.31	Moderate	-	-	0
17010308-1059	Name not specified	0.68	Moderate	-	-	0
17010308-1061	Name not specified	2.16	Moderate	-	-	0

****
*** End of Report ***
****

APPENDIX B

WATER WELL SURVEY

Well
B

(1)

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG

No. Appl. 583
Cert. 126-A

Date Jan 14, 1948

Record by

Source Driller's record

Location: State of WASHINGTON

County Spokane

Area

~~xxx~~ Block 13 of West Minnehaha Addition to City of Spokane

¼ ¼ sec. T. N., R. W.

DIAGRAM OF SECTION

Drilling Co. Olin E. Zinkgraf

Address E 1606 Sharp Avenue, Spokane, Wn.

Method of Drilling (dug) Date March 8 19 48

Owner Baird-Naundorf Lumber Company

Address Spokane, Washington

Land surface, datum ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)		
	Mixture of gravel, sand & boulders	156	156
	Fine sand	4	160
	Mixture sand and gravel	8	168
	Pump test:		
	Dim: 168' x 24"		
	SWL: 156'		
	Dd: 155¼'		
	Yield: 200 g.p.m.		
	Casing: 24" from 0 to 152'		
	26" " 152' " 168'		
	Perforations:		
	(12' perforated 3/8" x 1½") from 152' to 168'		

Turn up

Sheet of sheets

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 060941

Water Right Permit No. _____

(1) OWNER: Name Washington Water Power Address P.O. Box 3727, Spokane, WA 99220

LOCATION OF WELL: County Spokane SW ¼ NE ¼ Sec. 4 T. 25 N., R. 43E W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) _____

(3) PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ ☐ Irrigation ☒ DeWater ☐ Test Well ☐ Other ☒
Cathodic Protection

(4) TYPE OF WORK: Owner's number of well (if more than one) _____
Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☐ Jetted ☐
Mud Rotary

(5) DIMENSIONS: Diameter of well 10 inches.
Drilled 380 feet. Depth of completed well 380 ft.

(6) CONSTRUCTION DETAILS:
Casing Installed: 10 " Diam. from 1 ft. to 15 ft.
Welded ☒ PVC 6 " Diam. from 0 ft. to 200 ft.
Liner installed
Threaded ☐ _____ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☒
Manufacturer's Name _____
Type _____ Model No. _____
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 200 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level _____ ft. below top of well Date _____
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Over Burden	0	1
Sand & Gravel (Coarse)	1	14
Sand & Gravel W/Cobbles	14	129
Sand (Coarse)	129	159
Sand & Gravel (Coarse)	159	380
10" Drive Shoe Utilized		

RECEIVED

Work started 12-21-93, 19. Completed 1-28-93, 19

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Ponderosa Drilling & Development, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address E. 6010 Broadway, Spokane, WA 99212

(Signed) _____ License No. 1544
(WELL DRILLER) (Mike Robinson)

Contractor's Registration No. PO-ND-EI*248JE Date January 31, 19 93

(USE ADDITIONAL SHEETS IF NECESSARY)

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

Well E

(1) OWNER: Name Allen D. Maggard Address East 7002 Marietta - Spokane, WA 99206

LOCATION OF WELL: County Spokane — NW ¼ SE ¼ Sec 33 T 26 N., R 43E W.M.

...ing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6" inches.
Drilled 220' ft. Depth of completed well 220' ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6" " Diam. from +1' ft. to 214' ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 40' ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ~2052 ft.
Static level 59' ft. below top of well Date 05/01/79
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: 80 gal./min. with ft. drawdown after hrs.
" Estimated Airlift " "
" " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

5/2/79

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Clay	0	70
Sandy Clay	70	160
Clay	160	210
Gravel, Sand & Water	210	220

It is recommended that no more than 20 gpm be pumped.

RECEIVED
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

Work started 04/26 19 79 Completed 05/01 19 79

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Ponderosa Drilling & Development, Inc.
(Person, firm, or corporation) (Type or print)
Address East 6010 Broadway - Spokane, WA 99206
[Signed] Paul Hawkins
(Well Driller)
License No. 1007 Date 05/01, 19 79

(USE ADDITIONAL SHEETS IF NECESSARY)

Well F

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG

No. Appl'n. #250
Cert. #192-D

Date July 23, 1928

Record by Thomas Balmer

Source Decla. of G. W. Claim

Location: State of WASHINGTON

County Spokane

Area

Map

SE ¼ SW ¼ sec. 34 T. 26 N., R. 43 E. ☒

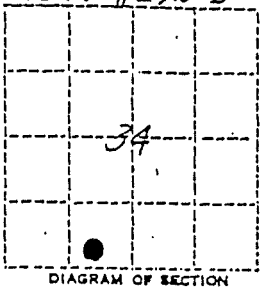

DIAGRAM OF SECTION

Drilling Co. 580 N 1150 W of S ¼ Cor

Address

Method of Drilling dug Date July 23 1928

Owner Great Northern Railway Company

Address 404 Union St., Seattle 1, Wash.

Land surface, datum ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	All in sand and gravel except for surface soil.		
Pump	test:		
	Dim: 210' x 72"		
	SWL: 182'		
	D.D. 1.6'		
	Yield 1230 g.p.m.		
	Casing: 72" dia. brick & concrete from 0 to 131'; 72-168" dia. brick & concrete from 131to 168'; 168" dia. brick & concrete from 168 to 180'; 48'dia. steel screen from 180-210'.		
	Perforations: 48" dia. steel screen 30' long;;5/8" holes - 3" centers from 180' to 210'.		

(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)

Turn up (over) Sheet ____ of ____ sheets

Well H

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT

WELL LOG No. Decla. #200
Cert. #190-A

Date Jan. 1922, 19
Record by M. J. Schiffer
Source G. W. Decla. Claim

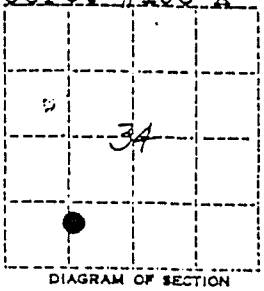

DIAGRAM OF SECTION

Location: State of WASHINGTON
County Spokane
Area
Map Englebrate Add. to Spokane
Blk. 4/¼ ¼ sec 34 T. 26 N., R. 43 E.

Drilling Co. L T Z C Z
Address
Method of Drilling Dug Date Mar. 1 1922
Owner Great Northern Icing Co.
Address Spokane, Wash.
Land surface, datum ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary; in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)		
	Well log:		
	Gravel with considerable dirt	10	10
	Very coarse gravel	180	190
	Pump Test:		
	Dim.: 190' deep; 5' diam.		
	SWL: 177'		
	DD: 8"		
	Yield: 250 g.p.m.		
	Type & Size of Motor: 30 h.p.		
	" " " " Pump: Lee-Courtney Centrifugal Two Stage		
	Perfs.: Bottome 24' is perforated casing, of the well; 42" dia. with perfs. 3/8" dia. one to each inch		

Turn up Sheet ____ of ____ sheets

APPENDIX C

BORING LOGS FOR BORING AND MONITORING WELL LOCATIONS

EMR INCORPORATED	PROJECT: BN ALUMINUM DROSS	BORING/WELL I.D.: MW-3
	LOCATION: SPOKANE, WA	OWNER: BNSF
	PROJECT #: 338	DATE COMPLETED: 6/2/97

BORING	DEPTH: 176'	DIAMETER: 6"	LOG BY: GREG MCCORMICK
SCREEN	DIAMETER: 2"	LENGTH: 10'	SLOT SIZE: 0.01
CASING	DIAMETER: 2"	LENGTH: 161'	TYPE: PVC

GRAVEL PACK: SAND	SEAL: BENT.	BOX TYPE: STICKUP
DRILLING CO.: ENVI. WEST	DRILLING METHOD: AIR ROT.	DRILLER:
LISCENCE #:	SAMP. METHOD: SS	RIG TYPE: MOBILE B-90

Depth (ft)	Soil Boring Schematic	Groundwater	Sample Recovery	Sample #	Blow Counts	PID Readings	Graphic Log	SOIL DESCRIPTION/CLASSIFICATION
0	CONC. / CASING / GROUT							Dark brown surface soil, organics, silt and sand
								Silty gravel, fine
20								Gravel (gray)
40								Fine gravel
60								Coarse gravel
80								

Elevation Reference:	Top of Casing Elevation:	PAGE 1 of 3
Surface Elevation:	Survey Method:	

EMR INCORPORATED	PROJECT: BN ALUMINUM DROSS	BORING/WELL I.D.: MW-3
	LOCATION: SPOKANE, WA	OWNER: BNSF
	PROJECT #: 338	DATE COMPLETED: 6/2/97

BORING	DEPTH: 176'	DIAMETER: 6"	LOG BY: GREG MCCORMICK
SCREEN	DIAMETER: 2"	LENGTH: 10'	SLOT SIZE: 0.01
CASING	DIAMETER: 2"	LENGTH: 161'	TYPE: PVC

GRAVEL PACK: SAND	SEAL: BENT.	BOX TYPE: STICKUP
DRILLING CO.: ENVI. WEST	DRILLING METHOD: AIR ROT.	DRILLER:
LISCENCE #:	SAMP. METHOD: SS	RIG TYPE: MOBILE B-90

Depth (ft)	Soil Boring Schematic	Groundwater	Sample Recovery	Sample #	Blow Counts	PID Readings	Graphic Log	SOIL DESCRIPTION/CLASSIFICATION
80	CASING, GROUT, B, sand							Silty gravel (gray)
100								Sandy gravel
120								
140								Silty sand w/some gravel
160								

Elevation Reference:	Top of Casing Elevation:	PAGE 2 of 3
Surface Elevation:	Survey Method:	

EMR INCORPORATED

PROJECT: BN ALUMINUM DROSS		BORING/WELL I.D.: MW-3
LOCATION: SPOKANE, WA		OWNER: BNSF
PROJECT #: 338		DATE COMPLETED: 6/2/97
BORING	DEPTH: 176'	DIAMETER: 6"
SCREEN	DIAMETER: 2"	LENGTH: 10'
CASING	DIAMETER: 2"	LENGTH: 161'
GRAVEL PACK: SAND	SEAL: BENT.	BOX TYPE: STICKUP
DRILLING CO.: ENVI. WEST	DRILLING METHOD: AIR ROT.	DRILLER:
LISCENCE #:	SAMP. METHOD: SS	RIG TYPE: MOBILE B-90

Depth (ft)	Soil Boring Schematic	Groundwater	Sample Recovery	Sample #	Blow Counts	PID Readings	Graphic Log	SOIL DESCRIPTION/CLASSIFICATION
160	SAND							Silty sand w/some gravel
180								
200								
240								
260								

Elevation Reference:	Top of Casing Elevation:	PAGE 3 of 3
Surface Elevation:	Survey Method:	

Well Log and Construction

Well No. MW-4

Date Completed: 12/9/98 **County:** Spokane **Use:** MONITORING

Location: SE Corner of Dross Area

Owner BNSF **Address:** Spokane (Hillyard), WA off Wellesley Ave

Driller: Don Claasen, Environmental West Exploration **Geologist:** David L. Welch

Drilling Method: Air Rotary Hammer **Sampling Method:** 2-inch Split Spoon

BORING: **Diameter:** 8-inch **Total Depth:** 200 FEET

CASING: **Type:** PVC **Diameter:** 2-inch **Length:** 170 Feet

SCREEN: **Type/Slot:** PVC/0.01-inch **Diameter:** 2-inch **Length:** 20 Feet

Gravel Pack Size: 10/20 Sand **Casing Seal:** Bentonite Chips **Static Water Level:** 173.20'

DEPTH BGS FEET	SAMPLES SUBMITTED FOR TESTING	WELL DESIGN	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0		M		3 foot stickup on monument
		B / C / B	SC	0-2 feet: Brown Sandy CLAY (Loam).
			GM	
10				2-5 feet: Brown Silty SAND & GRAVEL with COBBLES, dry, very dense (N=50+ blows/foot)
20				
30			GM	5 feet to 42 feet: Brown, Silty GRAVEL, dry very dense (N=50+ blows/ft)
40	MW-4, 40' (Geotech)			SIEVE: 49% Gravel, 48% Sand, 3% Silt/Clay MOISTURE: 2.6%
50				
60			GW	42 to 75 feet: Gray GRAVEL with SAND stringers, dry, very dense (N=50+ blow counts/foot)
70				
80			GW	75 to 85 feet: Brown fine GRAVEL with coarse SAND dry, very dense (N=50+ blows/foot)
90	MW-4, 90' (Geotech)		GW	SIEVE: 16% Gravel, 78% Sand, 6% Silt/Clay MOISTURE: 2.6%
100				85 to 110 feet: Brown fine GRAVEL with fine SAND dry, very dense (N=50+ blows/foot)

WELL CONSTRUCTION SYMBOLS: SC = WELLSCREEN, S=SANDPACK, C=CASING, B=BENTONITE, G=GROUT, M=MONUMENT

Well Log and Construction

Well No. *MW-4*

Date Completed: *12/9/98* **County:** *Spokane* **Use:** *MONITORING*

Location: *SE Corner of Dross Area*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

Driller: *Don Claasen, Environmental West Exploration* **Geologist:** *David L. Welch*

Drilling Method: *Air Rotary Hammer* **Sampling Method:** *2-inch Split Spoon*

BORING: **Diameter:** *8-inch* **Total Depth:** *200 FEET*

CASING: **Type:** *PVC* **Diameter:** *2-inch* **Length:** *170 Feet*

SCREEN: **Type/Slot:** *PVC/0.01-inch* **Diameter:** *2-inch* **Length:** *20 Feet*

Gravel Pack Size: *10/20 Sand* **Casing Seal:** *Bentonite Chips* **Static Water Level:** *173.20'*

DEPTH BGS FEET	SAMPLES SUBMITTED FOR TESTING	WELL DESIGN	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
100				
110		B / C / B	GW	*85 to 110 feet: Brown fine GRAVEL with fine SAND dry, very dense (N=50+ blows/foot)*
120			SW	*110 feet to 135 feet: Brown fine to coarse SAND, trace SILT and GRAVEL, dry, very dense (N=50+ blows/foot)*
130				
140				
150		B / C / B		
160			SW	*135 to 175 feet: Brown, fine to coarse SAND, trace GRAVEL, very dense (N=50+ blows/foot), moist*
170				*SIEVE: 82% Sand, 4% Silt, 14% Clay* *MOISTURE: 27.4%*
	MW-4, 175' (Geotech)			*SIEVE: 43% Fine Gravel, 50% Coarse Sand, 6% Medium Sand, 1% Silt*
180	MW-4, 180' (Geotech)		GW	*MOISTURE: 3.5%* *175 to 185 feet: Gray fine to coarse GRAVEL, trace to some SAND, wet, very dense (N=50+blows/foot)*
190		S / SC / S	SW	*185 to 200 feet: Gray fine to coarse SAND, trace trace GRAVEL, very dense (N=50+ blows/foot) saturated.*
200				
		NATIVE		

WELL CONSTRUCTION SYMBOLS: SC = WELLSCREEN, S=SANDPACK, C=CASING, B=BENTONITE, G=GROUT, M=MONUMENT

Well Log and Construction

Well No. *MW-5*

Date Completed: *12/4/98* **County:** *Spokane* **Use:** *MONITORING*

Location: *NE Corner of Dross Area*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

Driller: *Don Claasen, Environmental West Exploration* **Geologist:** *David L. Welch*

Drilling Method: *Air Rotary Hammer* **Sampling Method:** *2-inch Split Spoon*

BORING: **Diameter:** *8-inch* **Total Depth:** *200 FEET*

CASING: **Type:** *PVC* **Diameter:** *2-inch* **Length:** *170 Feet*

SCREEN: **Type/Slot:** *PVC/0.01-inch* **Diameter:** *2-inch* **Length:** *20 Feet*

Gravel Pack Size: *10/20 Sand* **Casing Seal:** *Bentonite Chips* **Static Water Level:** *176.62'*

DEPTH BGS FEET	SAMPLES SUBMITTED FOR TESTING	WELL DESIGN	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0		M		*3 foot stickup on monument*
		B	SC	*0-1 feet: Red SAND and CLAY fill.*
10		B		
20		C		
30				
40				*2 feet to 70 feet: Gray fine to coarse SAND, some gravel and COBBLES, very dense (N=50+ blows/ft), dry @ 15' moist, @17' dry*
50		B C B		
60			SW	
70				
80			SW	*70 to 85 feet: Gray fine to coarse SAND with GRAVEL, some COBBLES, very dense, (N=50+ blows/foot), dry*
90			GW	*85 to 95 feet: Gray SAND and GRAVEL., very dense (N=50+ blows/foot), dense, dry*
100			SW	

WELL CONSTRUCTION SYMBOLS: SC = WELLSCREEN, S=SANDPACK, C=CASING, B=BENTONITE, G=GROUT, M=MONUMENT

Well Log and Construction

Well No. ***MW-5***

Date Completed: *12/4/98* **County:** *Spokane* **Use:** *MONITORING*

Location: *NE Corner of Dross Area*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

Driller: *Don Claasen, Environmental West Exploration* **Geologist:** *David L. Welch*

Drilling Method: *Air Rotary Hammer* **Sampling Method:** *2-inch Split Spoon*

BORING: **Diameter:** *8-inch* **Total Depth:** *200 FEET*

CASING: **Type:** *PVC* **Diameter:** *2-inch* **Length:** *170 Feet*

SCREEN: **Type/Slot:** *PVC/0.01-inch* **Diameter:** *2-inch* **Length:** *20 Feet*

Gravel Pack Size: *10/20 Sand* **Casing Seal:** *Bentonite Chips* **Static Water Level:** *176.62'*

DEPTH BGS FEET	SAMPLES SUBMITTED FOR TESTING	WELL DESIGN	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
100		B / C / B		
110				
120				*95 feet to 140 feet: Gray medium to coarse SAND, trace fine SAND and SILT, some fine GRAVEL., very dense, (N=50+ blows/foot)*
130				
140				
150			SW	*140 to 173 feet: Gray, fine to coarse SAND, trace SILT, very dense (N=50+ blows/foot), moist*
160				
170	MW-5, 170' (Geotech)			*SIEVE: 91% Sand, 9% Silt/Clay MOISTURE: 3.3%*
180		SC / S / S	SW	*173 to 185 feet: Gray fine to coarse SAND, some SILT, very dense (N=50+ blows/foot), moist-wet,*
190			GW	*185 to 197 feet: Gray fine to coarse SAND, very dense (N=50+ blows/foot), saturated*
200		NATIVE	SW	

WELL CONSTRUCTION SYMBOLS: SC = WELLSCREEN, S=SANDPACK, C=CASING, B=BENTONITE, G=GROUT, M=MONUMENT

Well Log and Construction

Well No. *MW-6*

Date Completed: *12/14/98* **County:** *Spokane* **Use:** *MONITORING*

Location: *North of Dross Area across Wellesley Ave.*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

Driller: *Don Claasen, Environmental West Exploration* **Geologist:** *David L. Welch*

Drilling Method: *Air Rotary Hammer* **Sampling Method:** *2-inch Split Spoon*

BORING: **Diameter:** *8-inch* **Total Depth:** *200 FEET*

CASING: **Type:** *PVC* **Diameter:** *2-inch* **Length:** *170 Feet*

SCREEN: **Type/Slot:** *PVC/0.01-inch* **Diameter:** *2-inch* **Length:** *20 Feet*

Gravel Pack Size: *10/20 Sand* **Casing Seal:** *Bentonite Chips* **Static Water Level:** *177.20'*

DEPTH BGS FEET	SAMPLES SUBMITTED FOR TESTING	WELL DESIGN	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0		M		*3 foot stickup on monument*
		B	*SC*	*0-2 feet: Dark Brown Sandy CLAY.*
			Concrete	*2-5 feet: Concrete Rubble*
10				
			GW	*5-15 feet: Brown fine to coarse GRAVEL with some SAND and SILT, dry, very dense (N=50+ blows/foot)*
20		C		
			SW	*15 feet to 42 feet: Brown medium to coarse SAND, dry, very dense (N=50+ blows/ft)*
30				
40				
		B	*GW*	*42 feet to 55 feet: Gray fine to coarse GRAVEL dry, very dense (N=50+ blows/ft)*
50		C		
60			*GW*	*55 feet to 70 feet: Gray medium to coarse GRAVEL dry, very dense (N=50+ blows/ft)*
70				
80			*GW*	*70 to 85 feet: Gray fine to coarse GRAVEL with some SAND, dry, very dense, (N=50+ blows/foot),*
90			*GW*	*85 to 115 feet: Gray to Brown, fine to coarse GRAVEL trace SAND, dry, very dense (N=50+ blows/foot) Encounter Boulder @ 88 feet.*
100				

WELL CONSTRUCTION SYMBOLS: SC = WELLSCREEN, S=SANDPACK, C=CASING, B=BENTONITE, G=GROUT, M=MONUMENT

Well Log and Construction

Well No. *MW-6*

Date Completed: *12/14/98* **County:** *Spokane* **Use:** *MONITORING*

Location: *North of Dross Area across Wellesley Avenue*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

Driller: *Don Claasen, Environmental West Exploration* **Geologist:** *David L. Welch*

Drilling Method: *Air Rotary Hammer* **Sampling Method:** *2-inch Split Spoon*

BORING: **Diameter:** *8-inch* **Total Depth:** *200 FEET*

CASING: **Type:** *PVC* **Diameter:** *2-inch* **Length:** *170 Feet*

SCREEN: **Type/Slot:** *PVC/0.01-inch* **Diameter:** *2-inch* **Length:** *20 Feet*

Gravel Pack Size: *10/20 Sand* **Casing Seal:** *Bentonite Chips* **Static Water Level:** *177.20'*

DEPTH BGS FEET	SAMPLES SUBMITTED FOR TESTING	WELL DESIGN	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
100				
110		B / C / B	GW	*85 to 115 feet: Gray to Brown, fine to coarse GRAVEL trace SAND, dry, very dense (N=50+ blows/foot)*
120				
130			GW	*115 feet to 135 feet: Brown fine to coarse GRAVEL, with SAND, very dense (N=50+ blows/foot)*
140			SW	*135 to 150 feet: Brown, fine to coarse SAND, some GRAVEL, damp, very dense (N=50+ blows/foot)*
150		B / C / B		
160			SW	*150 to 170 feet: Brown, fine to coarse SAND, trace GRAVEL, damp, very dense (N=50+ blows/foot)*
170				
180			SW	*170 to 180 feet: Brown medium to coarse SAND, very dense (N=50+ blows/foot), moist, wet @ 180 feet.*
190		SC / S / S	SW	*180 to 200 feet: Brown medium to coarse SAND, saturated, very dense (N=50+ blows/foot)*
200		NATIVE		

WELL CONSTRUCTION SYMBOLS: SC = WELLSCREEN, S=SANDPACK, C=CASING, B=BENTONITE, G=GROUT, M=MONUMENT

BORING LOG

Boring No. *B-1*

Date Completed: *12/14/98* **County:** *Spokane* **Use:** *EXPLORATORY*

Location: *On top of Dross Pile "A"*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

Driller: *Don Claasen, Environmental West Exploration* **Geologist:** *David L. Welch*

Drilling Method: *Hollow Stem Auger* **Sampling Method:** *2-inch Split Spoon*

BORING: Diameter: *8-inch* **Total Depth:** *30 feet*

DEPTH BGS FEET	SAMPLE NUMBER	BLOW COUNTS 6"	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0				
1		5 5		
2		4 5		
3				
4		3 3		
5		3 3		
6		4		
7	B1-7(GT)	6 6		*SIEVE:* 13% Gravel, 72% Sand, 15% Silt/Clay
8		5		MOISTURE: 30.80%
9	B1-9(CH)	4 5		
10		5 7		0 to 15 feet: Gray, fine to coarse grained ALUMINUM DROSS SAND with some gravel and silt/clay sized material, trace pink particulates/flakes, moist, loose, strong ammonia odor
11		4	ALUMINUM DROSS	
12		2 2		
13		3		
14		3 5		
15		10 25		
16		25		15 to 17.5 feet: Gray, fine to coarse grained ALUMINUM DROSS in sand-size range with cobble-sized, light blue solid, moist, dense, strong ammonia odor
17		25 20		
18		50/5		
19		15 30		
20		50		17.5 to 22 feet: Gray, fine to coarse grained ALUMINUM DROSS in sand-size range with pink particulates/flakes, moist, dense, strong ammonia odor
21		15		
22		20 25		
23	B1-23(CH)	40	GM	22 to 22.5 feet: Dark Brown, silty GRAVEL with SAND, moist, very dense, strong ammonia odor
24		25 25		
25		35 25		
26				
27	B1-27(CH)		GM	22.5 to 30 feet: Brown, silty GRAVEL with SAND, moist, dense to very dense, moderate ammonia odor
28				
29	B1-29(GT)	20 20		SIEVE: 47% Gravel, 32% Sand, 13% Silt/Clay
30		20 20		MOISTURE: 5.20%
				Soil Boring Terminated at 30 feet depth.

GT = Geotech Analysis Sample, CH=Chemical Analysis Sample

BORING LOG

Boring No. *B-2*

Date Completed: *12/15/98* **County:** *Spokane* **Use:** *EXPLORATORY*

Location: *West near base of Pile "A"*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

riller: *Don Claasen, Environmental West Exploration* **Geologist:** *David L. Welch*

Drilling Method: *Hollow Stem Auger* **Sampling Method:** *2-inch Split Spoon*

BORING: **Diameter:** *8-inch* **Total Depth:** *5 feet*

DEPTH BGS FEET	SAMPLE NUMBER	BLOW COUNTS 6"	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0	B2-S(GT)			
1	B2-1(CH)	5 5		*SIEVE:* 37% Gravel, 44% Sand, 19% Silt/Clay *MOISTURE:* 10.40%
2		4 5	**SW**	*0 to 2.5 feet: Dark Brown Gravelly SAND with Silt/Clay, Moist, Loose, No Ammonia Odor*
3				
4		3 3	**GM**	*2.5 to 5 feet: Brown, Silty GRAVEL with SAND, Moist, Loose, No Ammonia Odor*
5	B2-5(CH)	3 3		
6				*Soil Boring Terminated at 5 Feet Depth, No Aluminum Dross Observed.*
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

GT = Geotech Analysis Sample, CH=Chemical Analysis Sample

BORING LOG

Boring No. *B-3*

Date Completed: *12/15/98* **County:** *Spokane* **Use:** *EXPLORATORY*

Location: *South of Pile "A"*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

riller: *Don Claasen, Environmental West Exploration* **Geologist:** *David L. Welch*

Drilling Method: *Hollow Stem Auger* **Sampling Method:** *2-inch Split Spoon*

BORING: Diameter: *8-inch* **Total Depth:** *7.5 feet*

DEPTH BGS FEET	SAMPLE NUMBER	BLOW COUNTS 6"	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0				*SIEVE: 24% Gravel, 64% Sand, 12% Silt/Clay*
1	B3-1(GT)	3	ALUMINUM DROSS	*MOISTURE: 29.70%*
	B3-1(CH)	4		
2		4		*0 to 2 feet: Gray, fine to coarse grained ALUMINUM DROSS SAND some Gravel and Silt/Clay-sized material, trace pink particulate/flakes, moist, loose, faint ammonia odor*
3	B3-3(GT)	7		*SIEVE: 46% Gravel, 36% Sand, 18% Silt/Clay*
	B3-3(CH)	6		*MOISTURE: 10.90%*
4		10	GW	
		12		*2-to 5 feet: Dark Brown Sandy GRAVEL, some silt, medium dense, no ammonia odor*
5		8		
6		5		
		17	GM	*5 to 7.5 feet: Dark Brown Silty GRAVEL, moist, medium dense, no ammonia odor*
7	B3-7(CH)	40		
		45		
8				*Soil Boring Terminated at 7.5 feet depth.*
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

GT = Geotech Analysis Sample, CH=Chemical Analysis Sample

BORING LOG

Boring No. *B-4*

Date Completed: *12/15/98* **County:** *Spokane* **Use:** *EXPLORATORY*

Location: *South-Central Dross Area*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

riller: *Don Claasen, Environmental West Exploration* **Geologist:** *David L. Welch*

Drilling Method: *Hollow Stem Auger* **Sampling Method:** *2-inch Split Spoon*

BORING: **Diameter:** *8-inch* **Total Depth:** *7.5 feet*

DEPTH BGS FEET	SAMPLE NUMBER	BLOW COUNTS 6"	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0	B4-S(GT)			*SIEVE: 24% Gravel, 64% Sand, 12% Silt/Clay*
	B4-S(CH)	3	DROSS	*MOISTURE: 29.70%*
1		4		
		4	GW	*0 to 0.5 feet: Gray, fine to coarse grained ALUMINUM DROSS SAND, some Gravel and Silt/Clay-sized material, trace pink particulate/flakes, moist, loose, faint ammonia odor.*
2	B4-2(CH)	7		
3				*SIEVE: 46% Gravel, 36% Sand, 18% Silt/Clay*
		6		*MOISTURE: 10.90%*
4	B4-4(GT)	10		
		12		*0.5-to 2.5 feet: Dark Brown Sandy GRAVEL, some Silt/Clay, moist,*
5	B4-5(CH)	8	GM	*medium dense, no ammonia odor.*
6		5		
		17		*2.5 to 7.5 feet: Brown Silty GRAVEL with Sand, moist, medium dense, no*
7		40		*ammonia odor*
		45		
8				*Soil Boring Terminated at 7.5 feet depth.*
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

GT = Geotech Analysis Sample, CH=Chemical Analysis Sample

BORING LOG

Boring No. *B-5*

Date Completed: *12/15/98* **County:** *Spokane* **Use:** *EXPLORATORY*
Location: *SW Corner of Dross Site South of Building Slab*
Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*
riller: *Don Claasen, Environmental West Exploration* **Geologist:** *David L. Welch*
Drilling Method: *Hollow Stem Auger* **Sampling Method:** *2-inch Split Spoon*
BORING: Diameter: *8-inch* **Total Depth:** *7.5 feet*

DEPTH BGS FEET	SAMPLE NUMBER	BLOW COUNTS 6"	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0	B5-S(GT)			*SIEVE: 17% Gravel, 54% Sand, 29% Silt/Clay*
	B5-S(CH)	6	DROSS	*MOISTURE: 29.70%*
1		28		
		42	GW	*0 to 0.5 feet: Gray, fine to coarse grained ALUMINUM DROSS SAND*
2	B5-2(CH)	50/3		*with Silt/Clay-sized grains, some Gravel-sized grains, trace pink particulates/flakes, moist, loose, faint ammonia odor.*
3				*SIEVE: 46% Gravel, 36% Sand, 18% Silt/Clay*
		40		*MOISTURE: 10.90%*
4	B5-4(GT)	30		
		30		*0.5-to 2.5 feet: Dark Brown Sandy GRAVEL, some Silt/Clay, moist,*
5	B5-5(CH)	35	GM	*very dense, no ammonia odor.*
6				
7				*2.5 to 7.0 feet: Brown Silty GRAVEL with Sand, moist, no ammonia odor*
8				*Soil Boring Terminated at 7.0 feet depth.*
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
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23				
24				
25				
26				
27				
28				
29				
30				

GT = Geotech Analysis Sample, CH=Chemical Analysis Sample

TEST PIT LOG

Test Pit No. *TP-1*

Date Completed: *12/3/98* **County:** *Spokane* **Use:** *EXPLORATORY*

Location: *North end of East Dross Pit*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

ontractor: *Environmental West Exploration* **Geologist:** *Gregory McCormick*

Test Pit Method: *Backhoe* **Sampling Method:** *Backhoe Bucket*

Test Pit Diameter: *2.0 feet* **Total Depth:** *7.0 feet*

DEPTH BGS FEET	SAMPLE NUMBER FOR GEOTECH OR CHEMICAL TESTING	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0			*SIEVE: 3% Gravel, 85% Sand, 2% Silt, 10% Clay*
0.5	TP1 Gray Dross (GT)	ALUMINUM DROSS	*MOISTURE: 29.70%* MAXIMUM DENSITY: 101.5
1			*OPTIMUM MOISTURE: 21.6*
1.5	TP1 (Dross Interface)(CH)		*0 to 1.5 feet: Gray, fine to coarse grained ALUMINUM DROSS in sand-sized range, trace gravel -sized grains, trace Silt-sized grains, trace Clay-sized grains*
2	TP1(Soil Interface)(CH)		
2.5			
3	TP1 (Soil 1')(CH)		
3.5			
4			
4.5		SM	*1.5 to 7 feet: Brown Silty SAND*
5			
5.5			
6			
6.5	TP1 (Soil 5')(CH)		
7			
7.5			Test Pit terminated at 7.0 feet depth
8			

GT = Geotech Analysis Sample, CH=Chemical Analysis Sample

TEST PIT LOG

Test Pit No. *TP-2*

Date Completed: *12/3/98* **County:** *Spokane* **Use:** *EXPLORATORY*

Location: *South end of East Dross Pit*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

Contractor: *Environmental West Exploration* **Geologist:** *Gregory McCormick*

Test Pit Method: *Backhoe* **Sampling Method:** *Backhoe Bucket*

Test Pit Diameter: *2.0 feet* **Total Depth:** *7.0 feet*

DEPTH BGS FEET	SAMPLE NUMBER FOR GEOTECH OR CHEMICAL TESTING	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0			
0.5		ALUMINUM DROSS	*0 to 1.5 feet: Gray ALUMINUM DROSS*
1			
1.5	TP2 (Dross Interface)(CH) TP2(Soil Interface)(CH)		
2			
2.5			
3	TP2 (Soil 1')(CH)		
3.5			
4		SW	*1.5 to 7 feet: Brown Gravelly SAND*
4.5			
5			
5.5			
6			
6.5	TP2 (Soil 5')(CH)		
7			Cobbles at 7.0 feet
7.5			Test Pit terminated at 7.0 feet depth
8			

GT = Geotech Analysis Sample, CH=Chemical Analysis Sample

TEST PIT LOG

Test Pit No. *TP-3*

Date Completed: *12/3/98* **County:** *Spokane* **Use:** *EXPLORATORY*

Location: *South end of West Dross Pit*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

Contractor: *Environmental West Exploration* **Geologist:** *Gregory McCormick*

Test Pit Method: *Backhoe* **Sampling Method:** *Backhoe Bucket*

Test Pit Diameter: *2.0 feet* **Total Depth:** *7.0 feet*

DEPTH BGS FEET	SAMPLE NUMBER FOR GEOTECH OR CHEMICAL TESTING	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0			
0.5		ALUMINUM DROSS	*0 to 2.0 feet: Gray ALUMINUM DROSS*
1			
1.5			
2	TP3 (Dross Interface)(CH) TP3(Soil Interface)(CH)		
2.5			
3	TP3 (Soil 1')(CH)		
3.5			
4		SW	*2.0 to 7 feet: Brown Gravelly SAND*
4.5			
5			
5.5			
6	TP3 (Soil 5')(CH)		
6.5			
7			Encounter Cobbles/Boulders at 7.0 feet
7.5			Test Pit terminated at 7.0 feet depth
8			

GT = Geotech Analysis Sample, CH=Chemical Analysis Sample

TEST PIT LOG

Test Pit No. *TP-4*

Date Completed: *12/3/98* **County:** *Spokane* **Use:** *EXPLORATORY*

Location: *North end of West Dross Pit*

Owner *BNSF* **Address:** *Spokane (Hillyard), WA off Wellesley Ave*

Contractor: *Environmental West Exploration* **Geologist:** *Gregory McCormick*

Test Pit Method: *Backhoe* **Sampling Method:** *Backhoe Bucket*

Test Pit Diameter: *2.0 feet* **Total Depth:** *7.0 feet*

DEPTH BGS FEET	SAMPLE NUMBER FOR GEOTECH OR CHEMICAL TESTING	USCS LOG	IDENTIFICATION OF SOILS/REMARKS
0			
0.5		ALUMINUM DROSS	*0 to 1.5 feet: Gray ALUMINUM DROSS with White ALUMINUM DROSS at base.*
1			
1.5	TP4 (Dross Interface)(CH) TP4(Soil Interface)(CH)		
2			
2.5			
3	TP4 (Soil 1')(CH)		
3.5			
4		SW	*1.5 to 7 feet: Brown Gravelly SAND*
4.5			
5			
5.5			
6			
6.5	TP5 (Soil 5')(CH)		
7			Cobbles at 7.0 feet
7.5			Test Pit terminated at 7.0 feet depth
8			

GT = Geotech Analysis Sample, CH=Chemical Analysis Sample

APPENDIX D

[redacted]

LOCATION AND ELEVATION SURVEY DATA

COORDINATE TEXT FILE

The following is a text file listing of the coordinates, Northing, Easting, Elevation, Description, and Ground Distance from top of casing to ground elevation for the Monitoring Wells located.

Pnt	Northing	Easting	Elevation	Descriptor	Ground Distance
1,	274791.583,	2495389.350,	2038.106,	MON	
2,	274624.822,	2495108.499,	2038.506,	MON	
3,	274723.401,	2494567.278,	2039.190,	DEA CON	
4,	273566.657,	2494598.992,	2038.967,	DEA CON	
5,	273581.624,	2495644.691,	2036.316,	DEA CON	
6,	273592.085,	2496111.298,	2037.662,	DEA CON	
7,	274865.993,	2496018.624,	2037.757,	DEA CON	
9,	274508.807,	2495461.537,	2059.002,	DEA CON	
500,	274737.415,	2495193.084,	2039.010,	WELL #3	-2.60 FT
501,	274762.270,	2495626.533,	2041.800,	WELL #5	-2.95 FT
502,	275049.022,	2495008.615,	2042.730,	WELL #6	-3.05 FT
503,	274735.640,	2495630.769,	2037.712,	CLF	
510,	274733.790,	2494586.157,	2039.344,	BRIDGE	
511,	274830.897,	2494581.774,	2039.712,	BRIDGE	
512,	274832.491,	2494616.182,	2039.702,	BRIDGE	
513,	274735.149,	2494620.643,	2039.503,	BRIDGE	
514,	274728.505,	2494595.696,	2039.251,	RR	
515,	274840.843,	2494590.685,	2039.682,	RR	
520,	274015.718,	2495526.072,	2038.865,	CLF	
521,	274045.064,	2495699.946,	2039.420,	WELL #4	2.70 FT
522,	274591.224,	2495186.684,	2022.900,	TEST PIT #1	
523,	274465.634,	2495249.913,	2018.890,	TEST PIT #2	
524,	274369.085,	2495094.505,	2019.150,	TEST PIT #3	
525,	274424.377,	2495078.476,	2018.570,	TEST PIT #4	
526,	274608.786,	2495565.457,	2058.200,	BORE HOLE #1	
527,	274664.757,	2495409.769,	2037.450,	BORE HOLE #2	
528,	274220.126,	2495377.162,	2039.620,	BORE HOLE #4	
529,	274284.312,	2495542.853,	2039.870,	BORE HOLE #3	
530,	274307.544,	2495205.731,	2039.390,	BORE HOLE #5A	
531,	274207.109,	2495238.478,	2040.010,	BORE HOLE #5B	
533,	274590.100,	2495388.692,	2039.060,	WELL #BN-2	-1.15 FT

Horizontal = Nad 83/91
Vertical = Navd 88

APPENDIX E

GEOTECHNICAL ANALYSES REPORTS

3820 E. Broadway Spokane, Washington 99202

budinger & associates, inc.
geotechnical & material engineers

Don Clabaugh
EMR, Inc.
2509 152nd Avenue NE, Suite B
Redmond, WA 98052

January 15, 1999

Project Number L98431
Corrected Copy

PROJECT: BNSF Aluminum Dross
Hillyard, WA

SUBJECT: Results of Laboratory Testing
Report #1

Dear Mr. Clabaugh,

At your request, we are providing laboratory testing services for the subject project. Our services are limited to the performance of specific laboratory tests, selected at your discretion.

For this period our involvement was limited to laboratory testing of 15 samples submitted to our laboratory on December 16, 1998. At your request, the following tests were conducted in general accordance with the methods listed:

1.	Moisture Content	ASTM D-2216
2.	Modified Proctor	ASTM D-1557
3.	Atterberg Limits/Non Plastic Determination	ASTM D-4318
4.	Particle Size Analysis of Soils (with and without hydrometer, as requested)	ASTM D-422

Results are presented on the attached *Laboratory Summary*. Results of Sieve Analysis are also presented graphically.

It has been a pleasure to be of service to you on this project. If you have any questions regarding this report, please call.

Respectfully Submitted:
BUDINGER & ASSOCIATES

Scott L. Walters
Mgr. Construction Services

SLW/sa
Addressee - 2
Attachments
- Laboratory Summary

(509) 535-8841
FAX (509) 535-9589

LABORATORY SUMMARY

			UNITS								
LABORATORY NUMBER				98-1293	98-1294	98-1295	98-1296	98-1297	98-1298	98-1299	98-1300
BORING NUMBER				MW-5	TP 1	MW-4	MW-4	MW-4	MW-4	B1-29	B1-7
SAMPLE ID				170'	Grey Dross	175'	180'	90'	40'	Soil	Dross
MAXIMUM DENSITY			pcf		101½						
SAMPLE MIOSTURE			%	3.3	23.4	27.4	3.5	2.4	2.6	5.2	30.8
OPTIMUM MOISTURE			%		21.6						
PLATICITY INDEX					Non Plastic						
	3"										
	1½"										
	1"									100	
S	3/4"		%		100					93	100
I	1/2"	GRAVEL			99		100	100	100	80	99
E	3/8"		P	100	99	100	98	100-	93	72	96
V	#4		A	100-	97	100-	57	84	51	53	87
E	#10		S	93	86	99	7	42	23	36	71
	#16		S	71	74	98	2	19	12	29	61
S	#30	SAND	I	32	58	90	2	10	6	23	47
I	#40		N	20	48	76	2	8	5	21	39
Z	#100		G	11	23	34	2	7	4	16	24
E	#200			9	12	18	1	6	3	13	15
	.05 mm				10	14					
	.01 mm	SILT			5	7					
	.001 mm	CLAY			2	1					

BN.. .luminum Dross
Hillyard, WA

Project Nu... .. L98431

LABORATORY SUMMARY

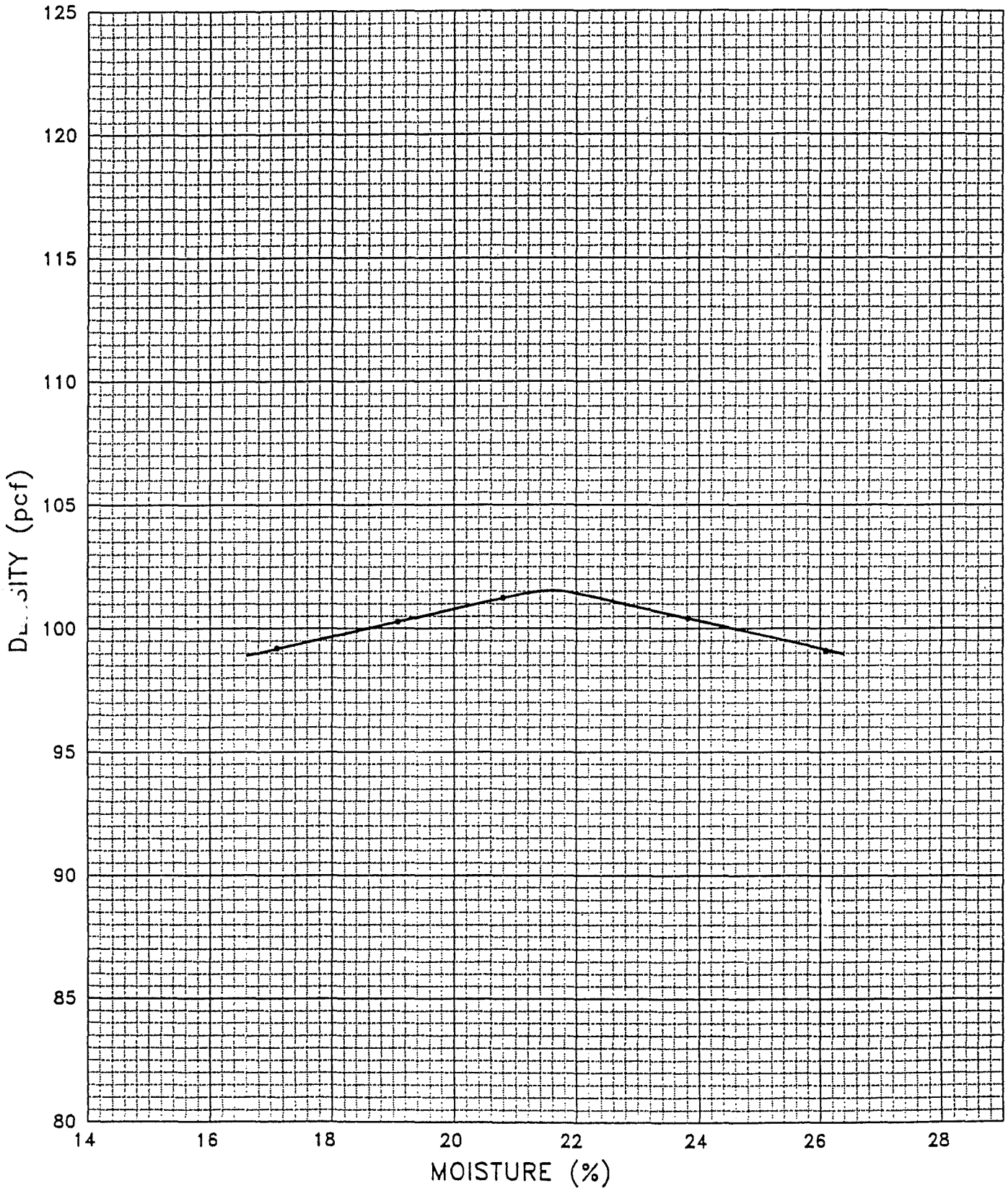
			UNITS							
LABORATORY NUMBER				98-1301	98-1302	98-1303	98-1304	98-1305	98-1306	98-1307
BORING NUMBER				B2-S	B3-1	B3-3	B4-S	B4-4	B5-S	B5-4
SAMPLE ID				Soil	Dross	Soil	Dross	Soil	Dross	Soil
MAXIMUM DENSITY			pcf							
SAMPLE MOISTURE			%	10.4	29.7	10.9	35.5	5.9	36.0	8.3
OPTIMUM MOISTURE			%							
PLASTICITY INDEX										
	3"									
	1½"							100		
	1"			100		100		91	100	100
S	3/4"		%	94	100	96	100	85	98	95
I	1/2"	GRAVEL		89	96	84	98	68	95	91
E	3/8"		P	81	92	67	98	56	92	79
V	#4		A	63	76	54	89	37	83	69
E	#10		S	43	59	36	77	25	73	51
	#16		S	36	48	31	70	22	68	37
S	#30	SAND	I	33	36	27	59	18	58	32
I	#40		N	31	31	26	52	17	52	26
Z	#100		G	24	18	22	37	12	38	22
E	#200			19	12	18	27	9	29	18
	.05 mm									
	.01 mm	SILT								
	.001 mm	CLAY								

BNSF ALUMINUM DROSS
SPOKANE, WA

PROJECT #L98431

MOISTURE/DENSITY RELATIONSHIP

ASTM D1557 (B)



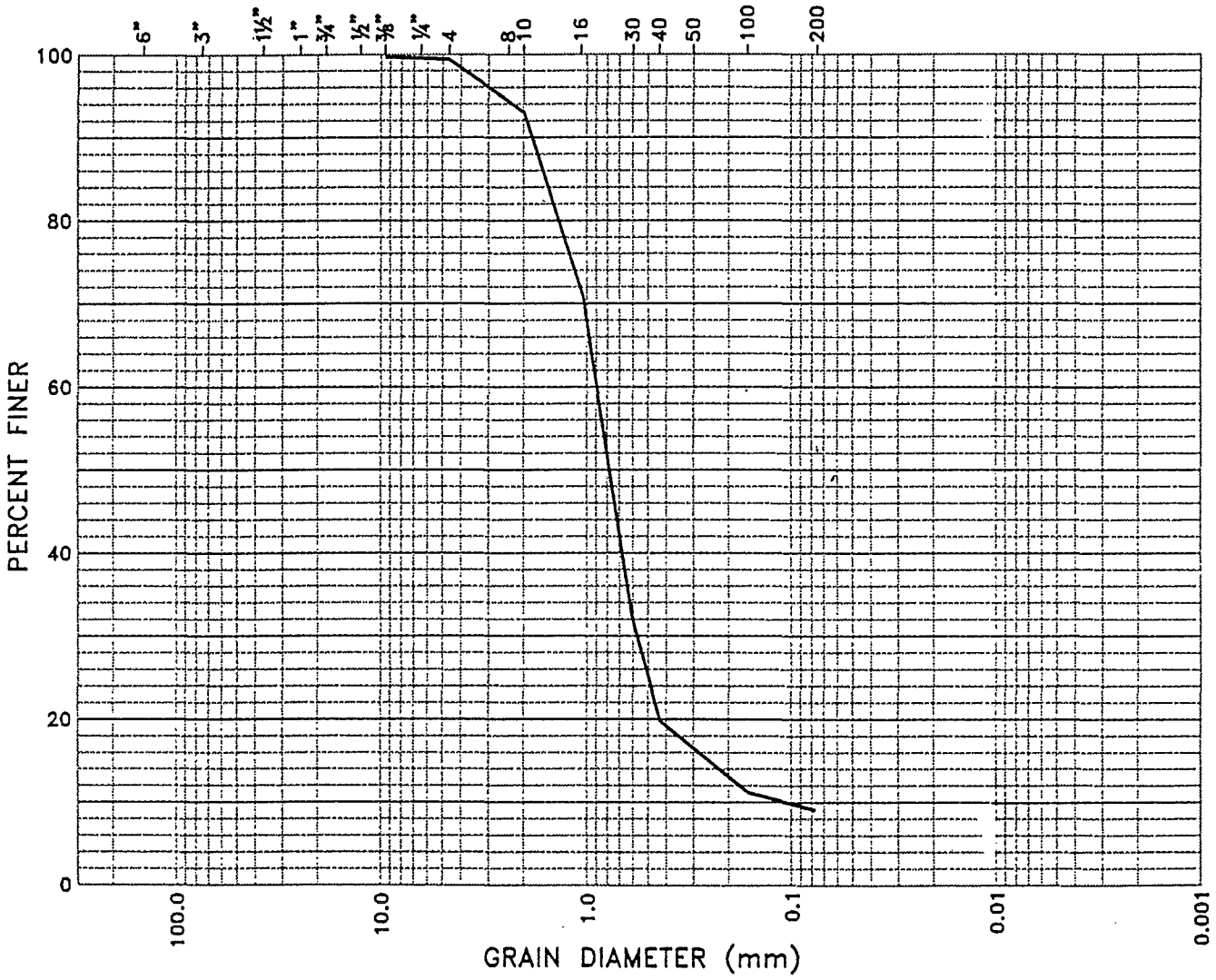
budinger & associates
geotechnical & material engineers

BNSF ALUMINUM DROSS
SPOKANE, WA

PROJECT NUMBER L98431
MW-5 @ 170'

RESULTS OF GRADATION

COBBLE	GRAVEL: COARSE	GRAVEL: FINE	SAND: COARSE	SAND: MEDIUM	SAND: FINE	SILT	CLAY



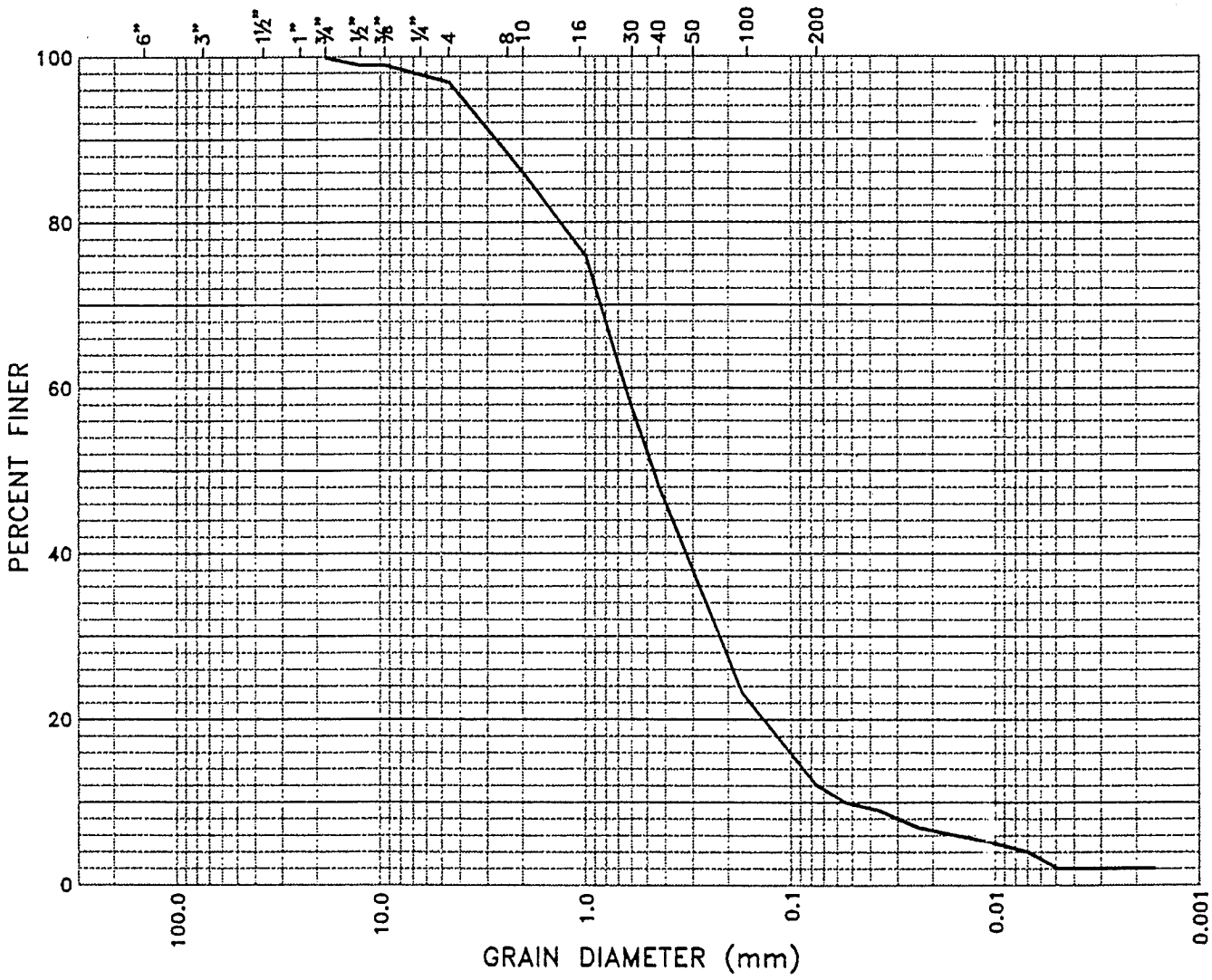
budinger & associates
geotechnical & material engineers

BNSF ALUMINUM DROSS
SPOKANE, WA

PROJECT NUMBER L98431
TP-1 GREY DROSS

RESULTS OF GRADATION

COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



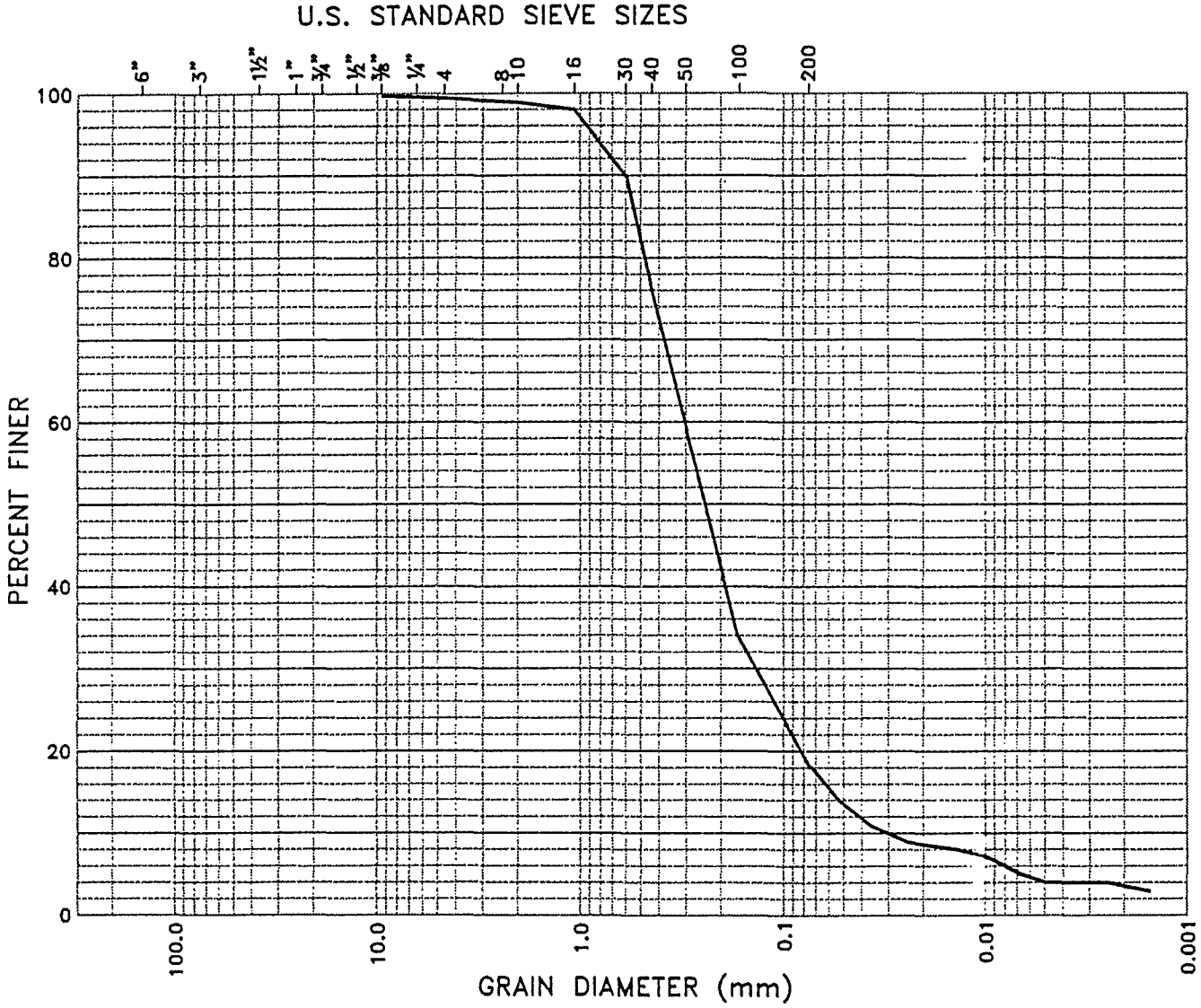
budinger & associates
geotechnical & material engineers

BNSF ALUMINUM DROSS
SPOKANE, WA

PROJECT NUMBER L98431
MW-4 @ 175'

RESULTS OF GRADATION

COBBLE	GRAVEL: COARSE	GRAVEL: FINE	SAND: COARSE	SAND: MEDIUM	SAND: FINE	SILT	CLAY



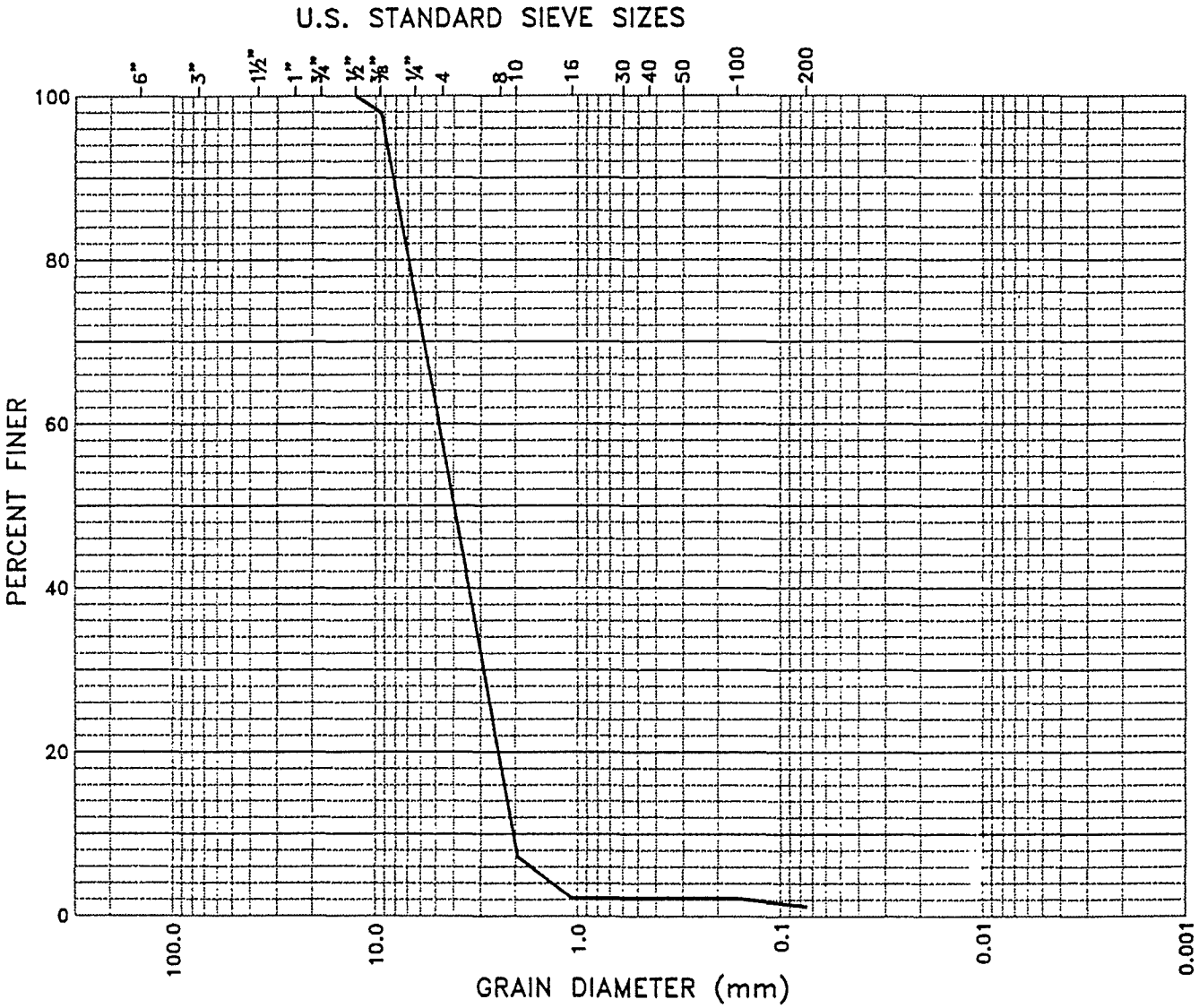
budinger & associates
geotechnical & material engineers

BNSF ALUMINUM DROSS
SPOKANE, WA

PROJECT NUMBER L98431
MW-4 @ 180'

RESULTS OF GRADATION

COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



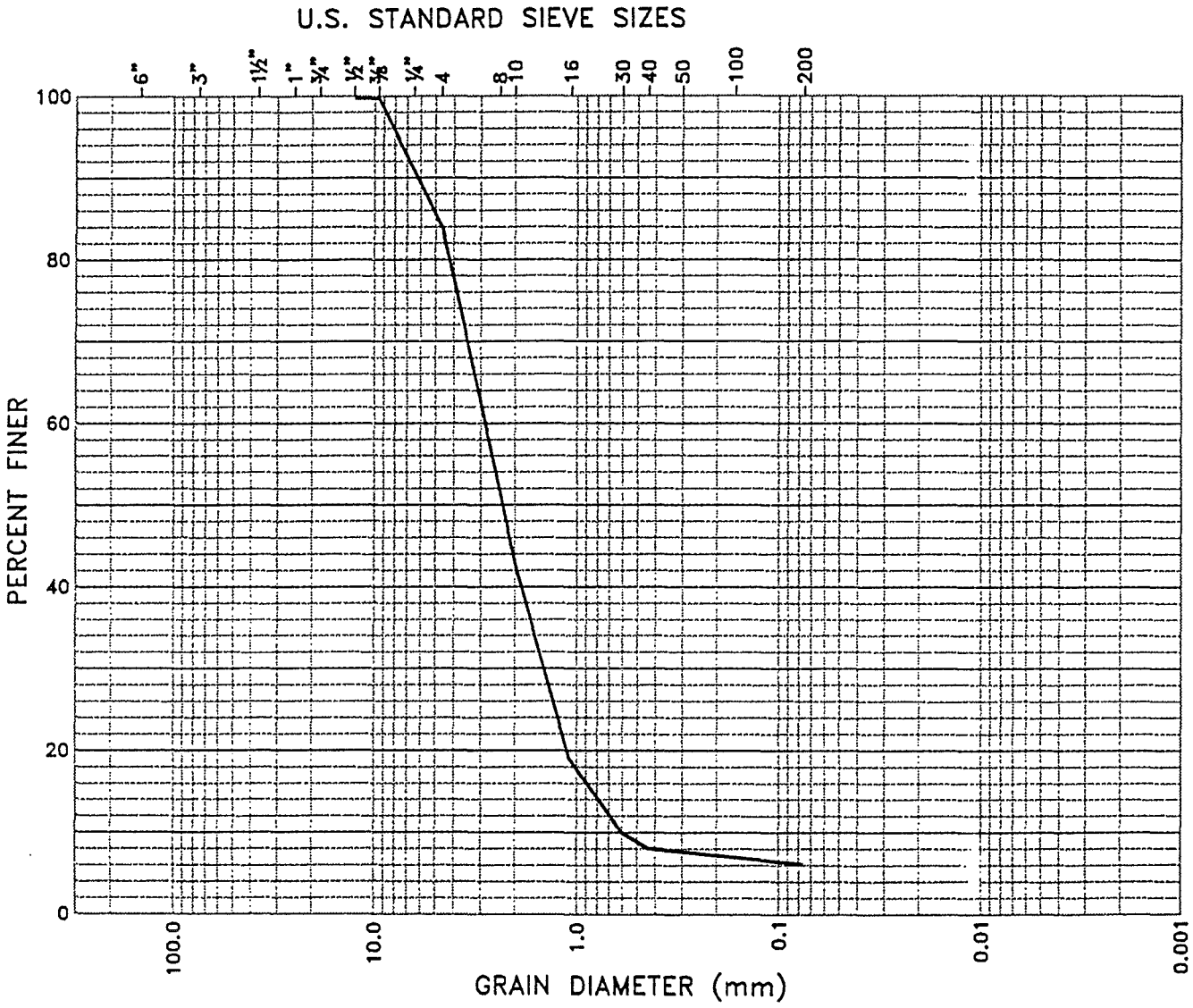
budinger & associates
geotechnical & material engineers

BNSF ALUMINUM DROSS
SPOKANE, WA

PROJECT NUMBER L98431
MW-4 @ 90'

RESULTS OF GRADATION

COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



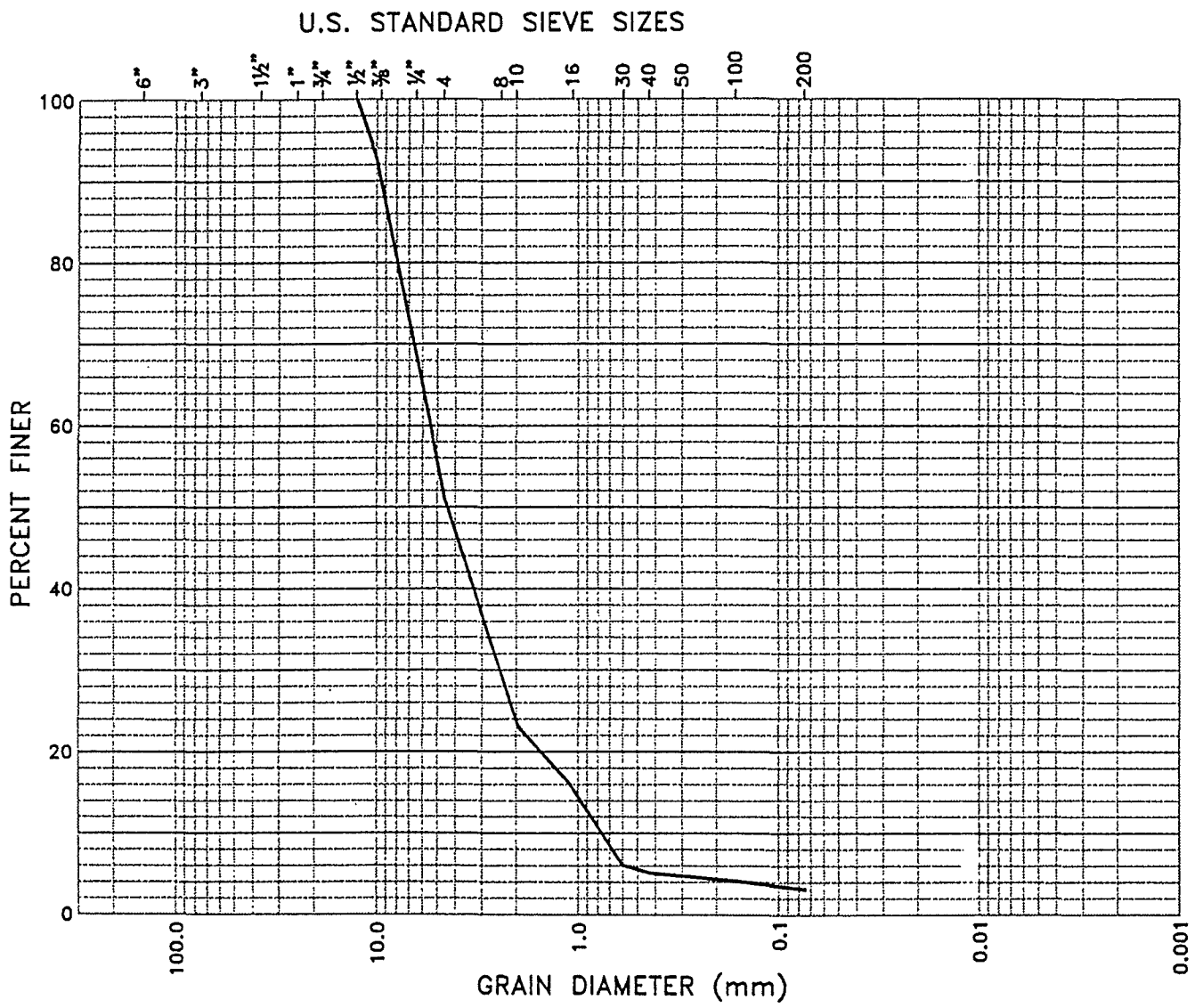
budinger & associates
geotechnical & material engineers

BNSF ALUMINUM DROSS
SPOKANE, WA

PROJECT NUMBER L98431
MW-4 @ 40'

RESULTS OF GRADATION

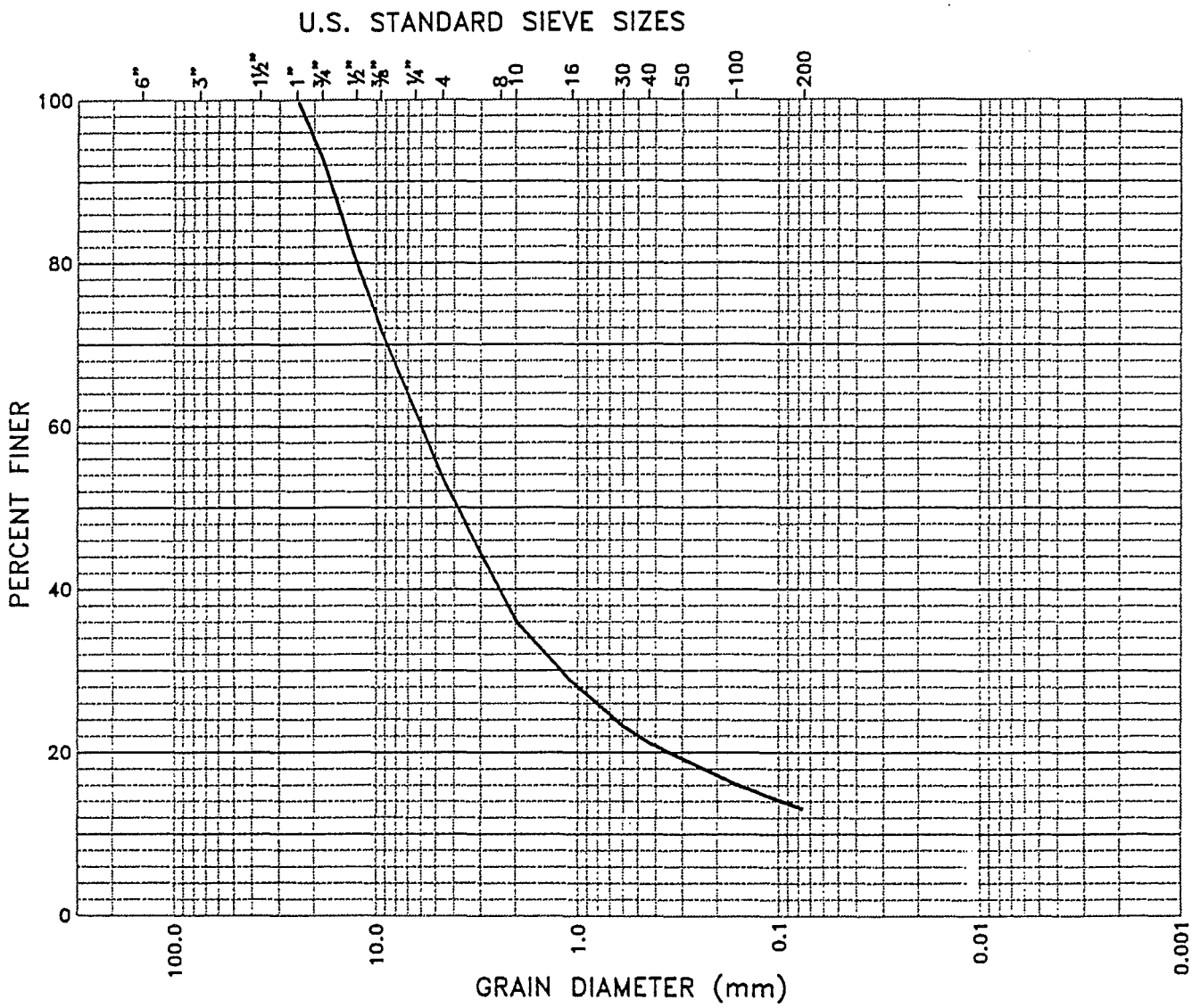
COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



budinger & associates
geotechnical & material engineers

RESULTS OF GRADATION

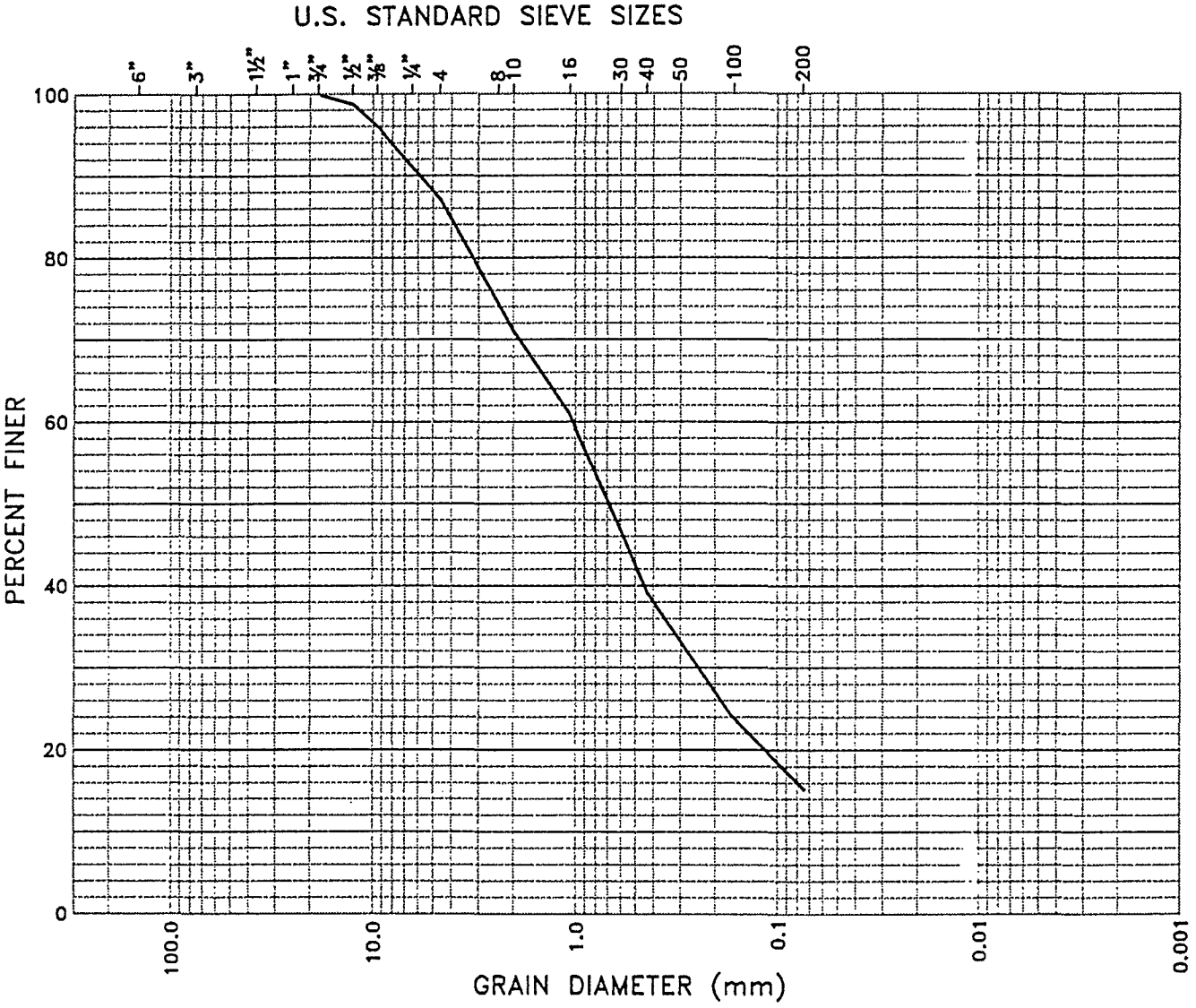
COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



budinger & associates
geotechnical & material engineers

RESULTS OF GRADATION

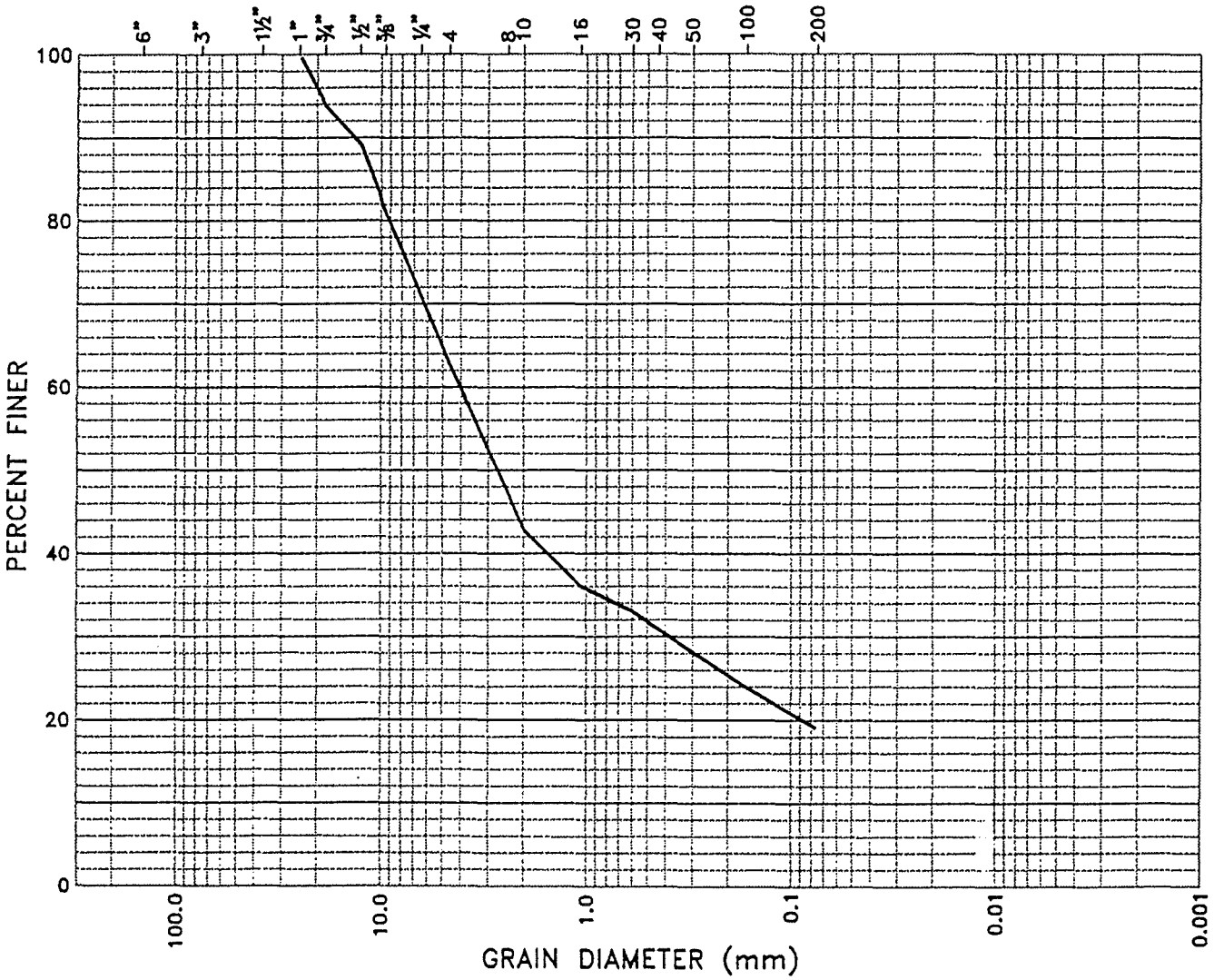
COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



budinger & associates
geotechnical & material engineers

RESULTS OF GRADATION

COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



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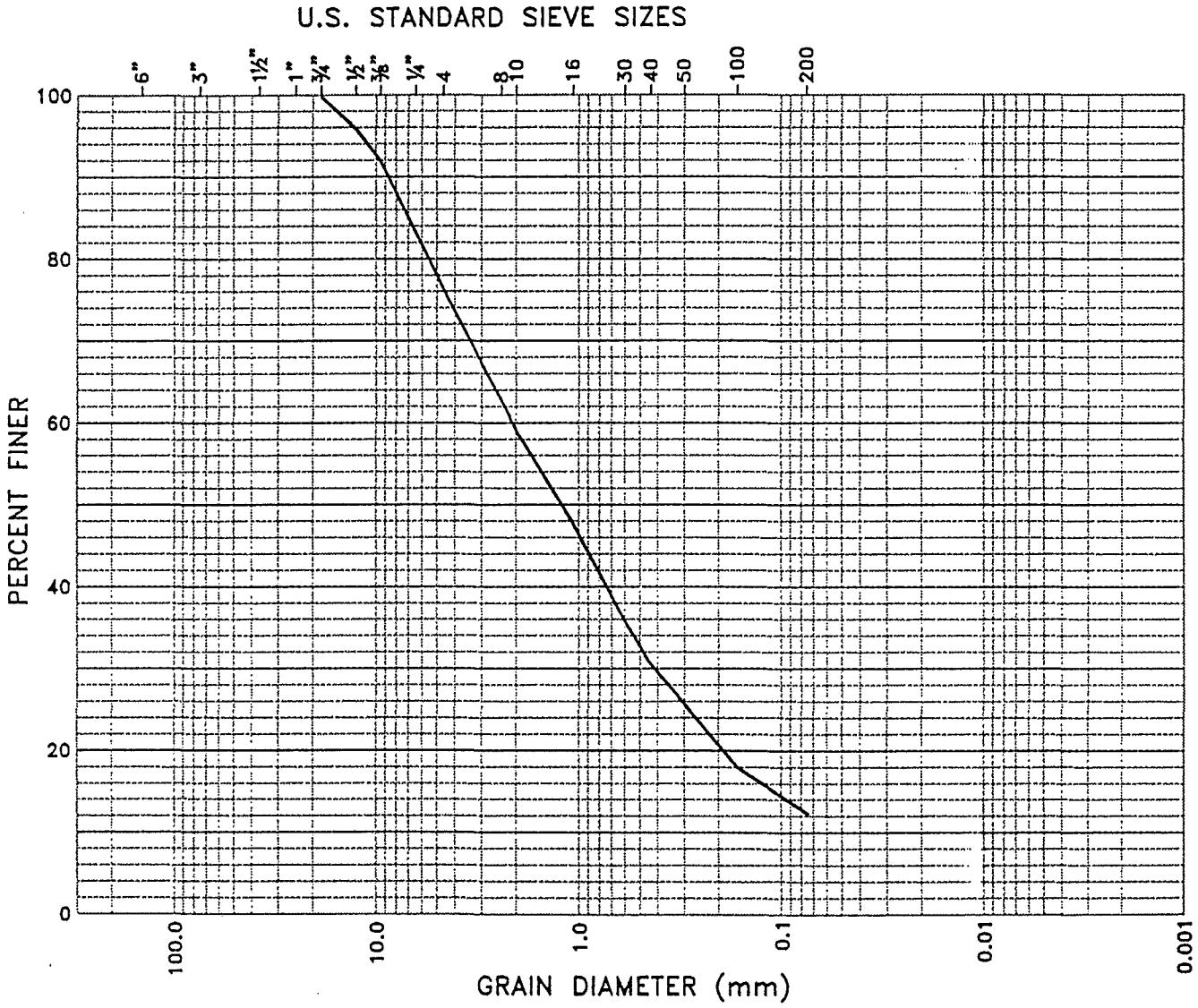
geotechnical & material engineers

BNSF ALUMINUM DROSS
SPOKANE, WA

PROJECT NUMBER L98431
B3-1 DROSS

RESULTS OF GRADATION

COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



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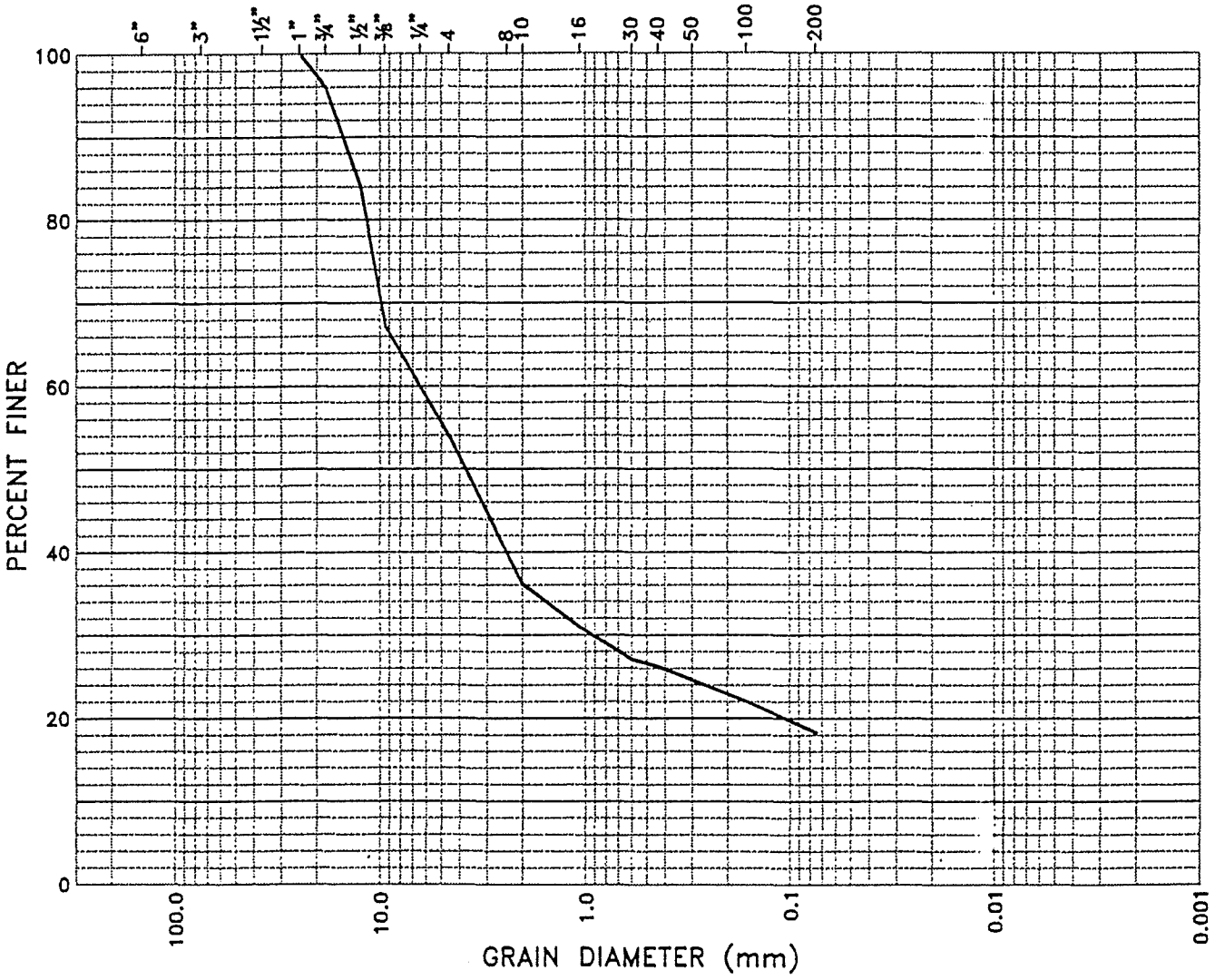
RESULTS OF GRADATION

COBBLE	GRAVEL (COARSE / FINE)	SAND (COARSE / MEDIUM / FINE)	SILT	CLAY



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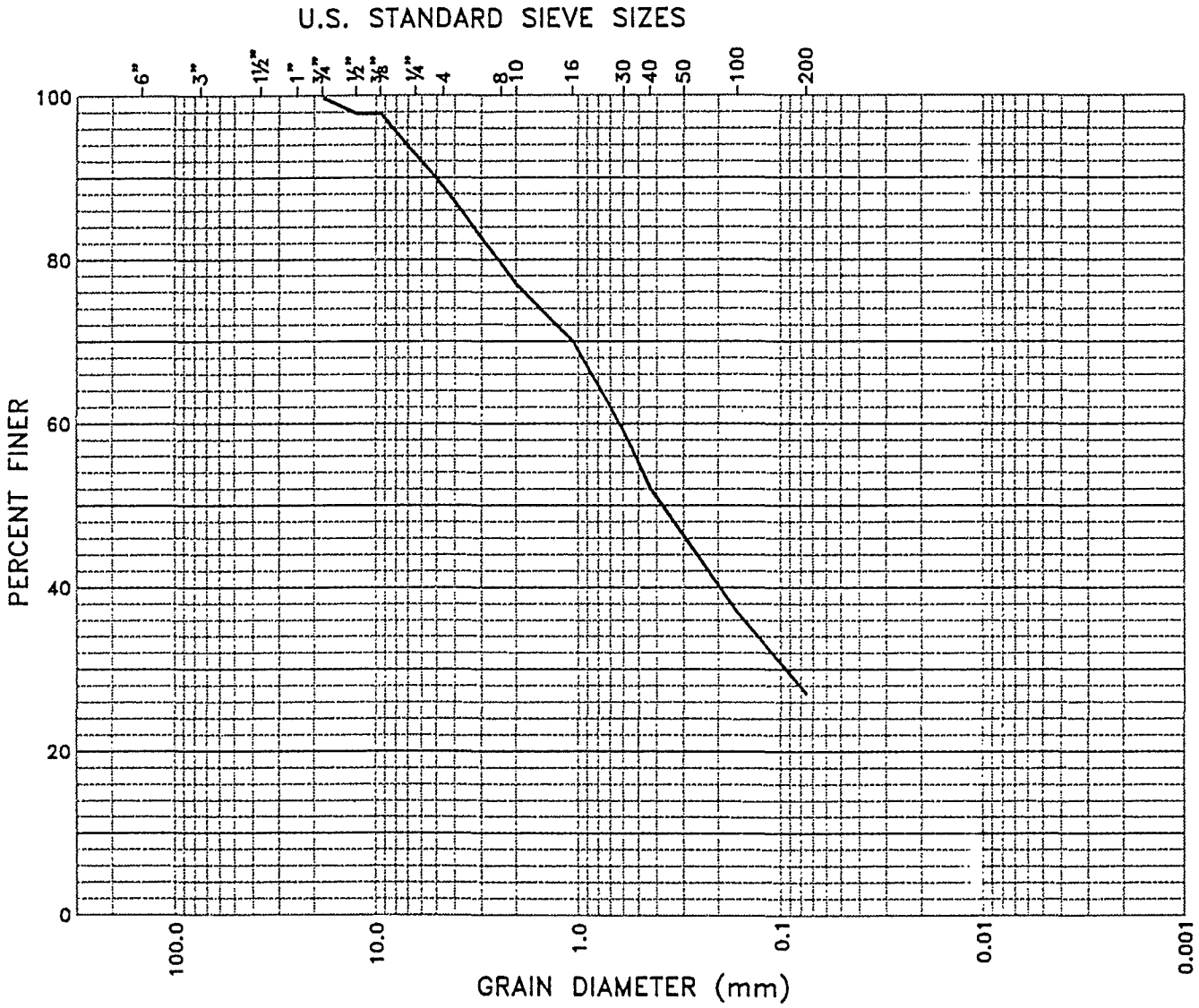
BNSF ALUMINUM DROSS
SPOKANE, WA

PROJECT NUMBER L98431
B4-5 DROSS

RESULTS OF GRADATION

COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



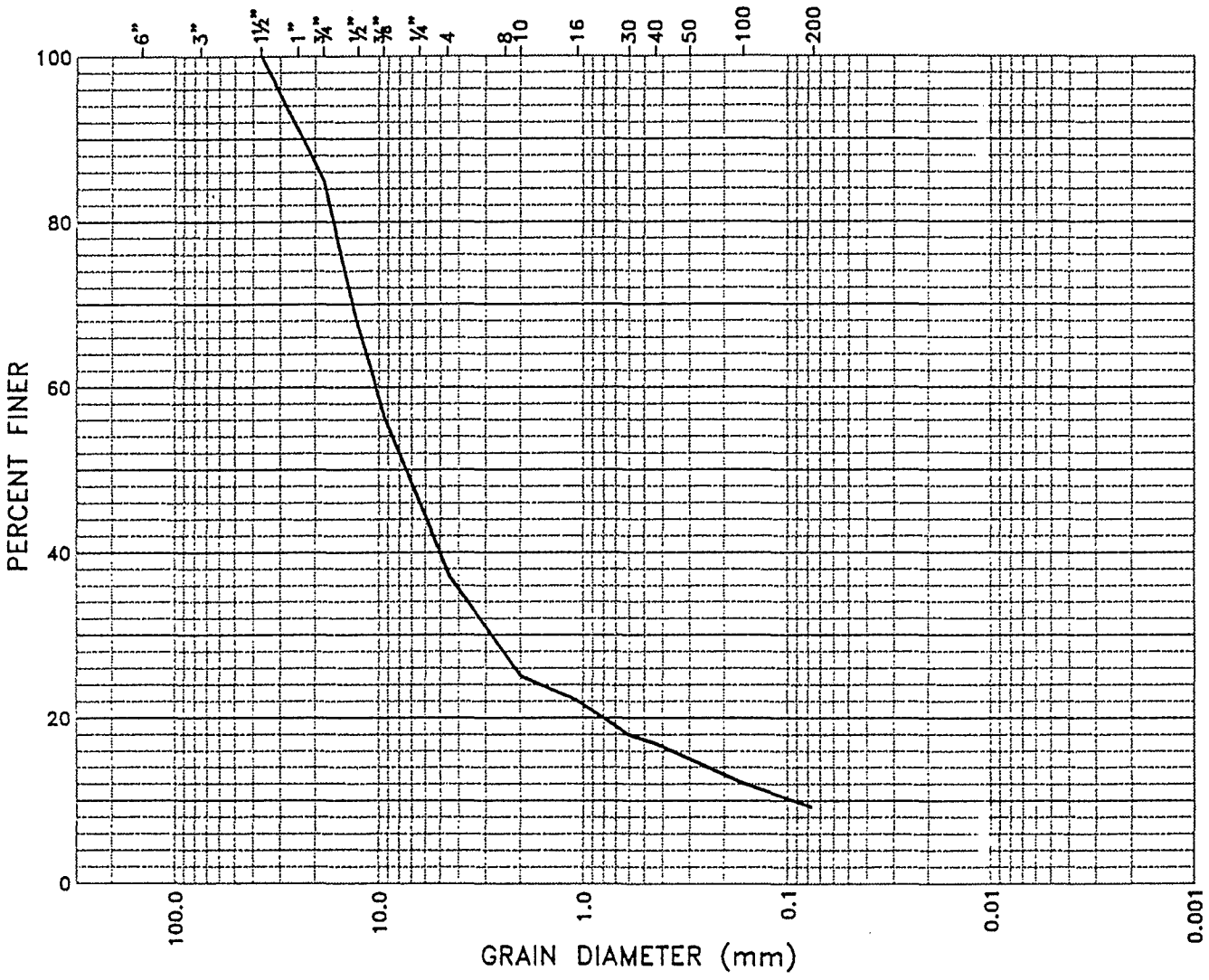
budinger & associates
geotechnical & material engineers

BNSF ALUMINUM DROSS
SPOKANE, WA

PROJECT NUMBER L98431
B4-4 SOIL

RESULTS OF GRADATION

COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



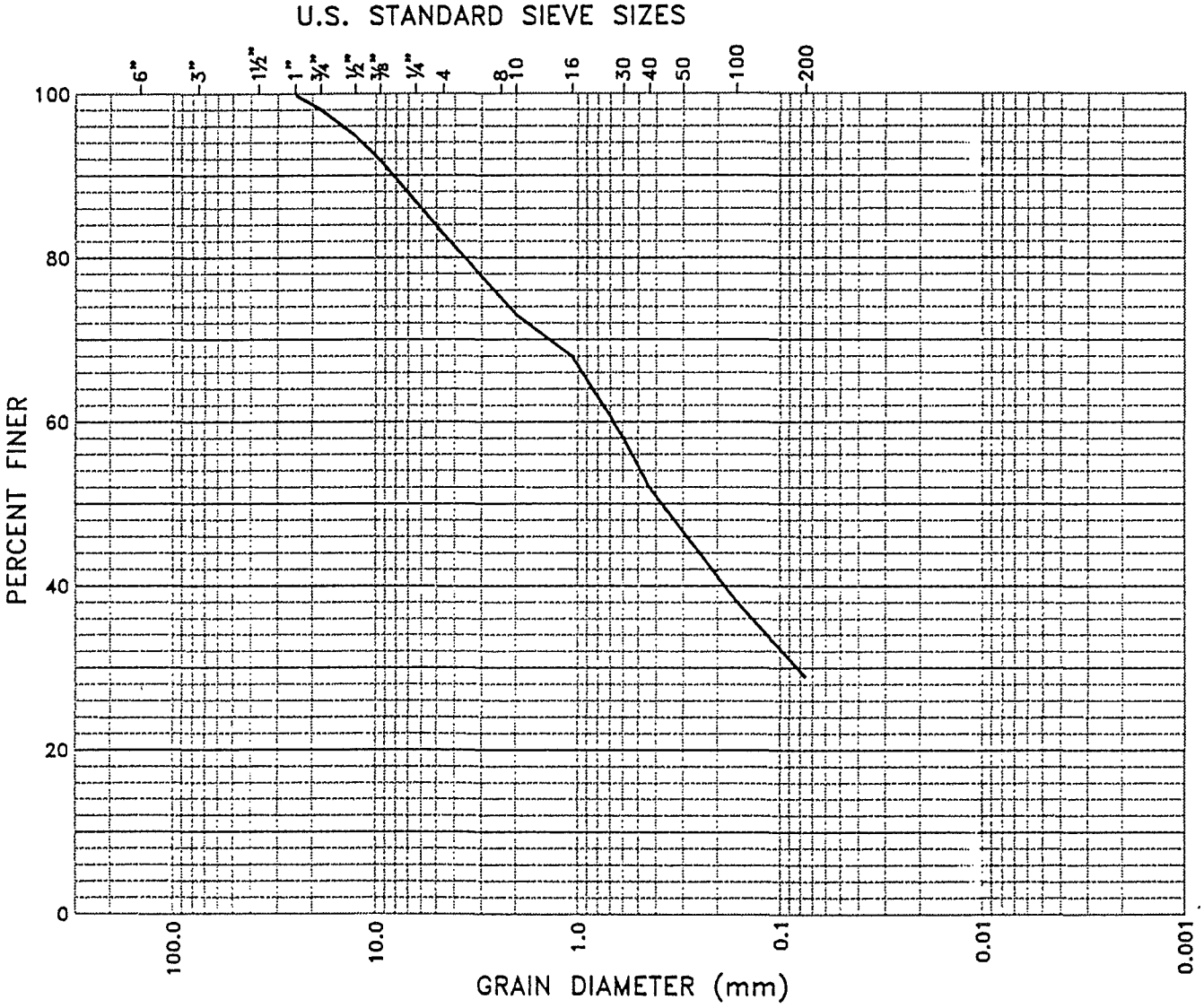
budinger & associates
geotechnical & material engineers

BNSF ALUMINUM DROSS
SPOKANE, WA

PROJECT NUMBER L98431
B5-5 DROSS

RESULTS OF GRADATION

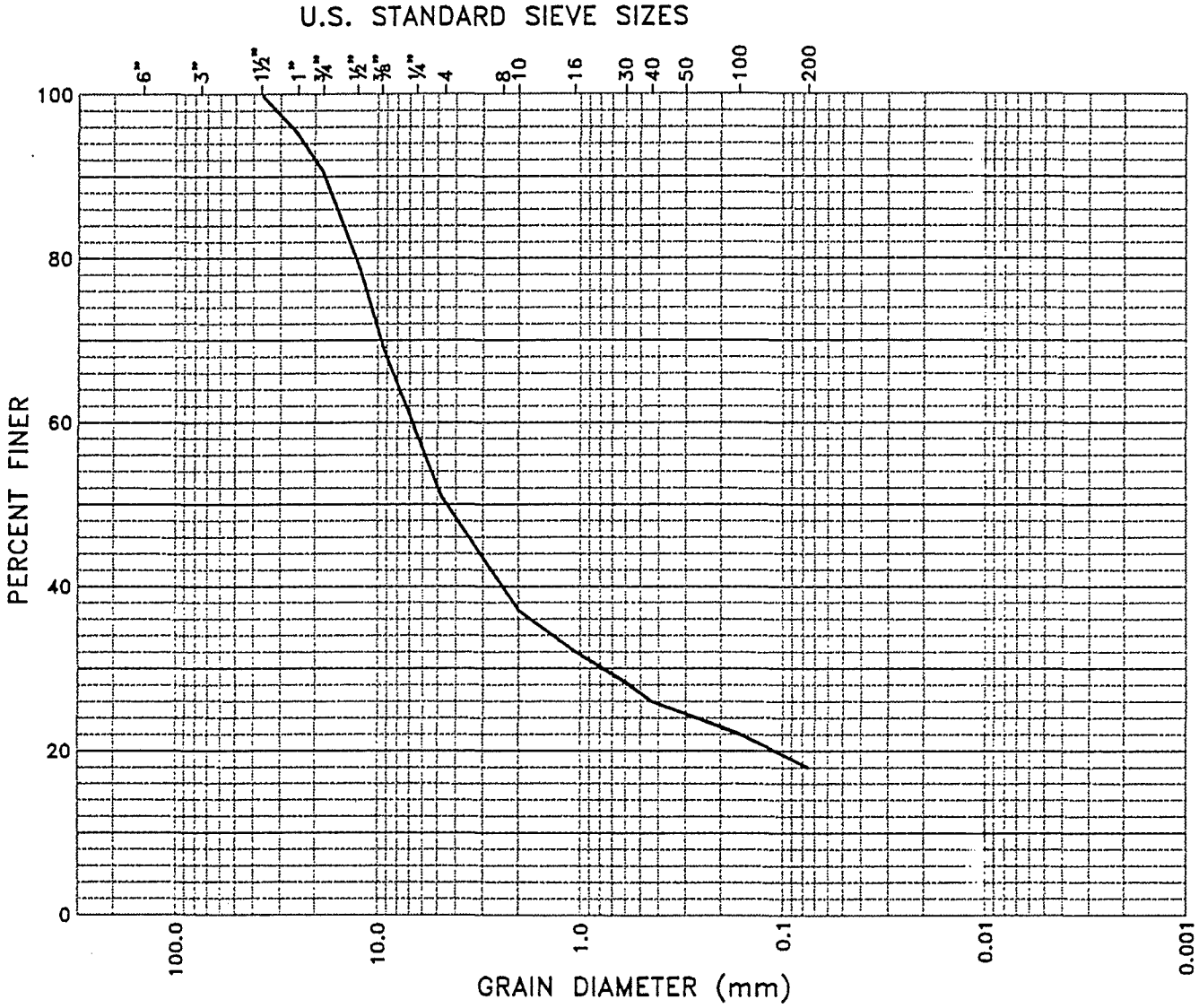
COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



budinger & associates
geotechnical & material engineers

RESULTS OF GRADATION

COBBLE	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		



budinger & associates
geotechnical & material engineers

APPENDIX F

[redacted]

ANALYTICAL RESULTS FOR SOIL AND GROUND WATER SAMPLES

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/5/99 10:16

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
BN2/12/15/98	S812053-01	Water	12/15/98
BN2/12/15/98D	S812053-02	Water	12/15/98
MW-5/12/15/98	S812053-03	Water	12/15/98
MW-4/12/16/98	S812053-04	Water	12/15/98
MW-3/12/16/98	S812053-05	Water	12/15/98
MW-6/12/16/98	S812053-06	Water	12/15/98

Dennis Wells, Lab Director

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/5/99 10:16

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
BN2/12/15/98			S812053-01				Water	
Calcium	1280071	12/30/98	12/30/98	EPA 6010A	0.413	66.6	mg/l	
Iron	"	"	"	EPA 6010A	0.108	ND	"	
Magnesium	"	"	"	EPA 6010A	0.105	33.0	"	
Manganese	"	"	"	EPA 6010A	0.00757	0.205	"	
Potassium	"	"	"	EPA 6010A	0.440	175	"	
Sodium	"	"	"	EPA 6010A	0.0781	414	"	
BN2/12/15/98D			S812053-02				Water	
Calcium	1280071	12/30/98	12/30/98	EPA 6010A	0.413	66.5	mg/l	
Iron	"	"	"	EPA 6010A	0.108	ND	"	
Magnesium	"	"	"	EPA 6010A	0.105	33.9	"	
Manganese	"	"	"	EPA 6010A	0.00757	0.191	"	
Potassium	"	"	"	EPA 6010A	0.440	173	"	
Sodium	"	"	"	EPA 6010A	0.0781	420	"	
'-5/12/15/98			S812053-03				Water	
,cium	1280071	12/30/98	12/30/98	EPA 6010A	0.413	69.4	mg/l	
Iron	"	"	"	EPA 6010A	0.108	0.139	"	
Magnesium	"	"	"	EPA 6010A	0.105	28.6	"	
Manganese	"	"	"	EPA 6010A	0.00757	0.0113	"	
Potassium	"	"	"	EPA 6010A	0.440	255	"	
Sodium	"	"	"	EPA 6010A	0.0781	401	"	
MW-4/12/16/98			S812053-04				Water	
Calcium	1280071	12/30/98	12/30/98	EPA 6010A	0.413	29.2	mg/l	
Iron	"	"	"	EPA 6010A	0.108	1.38	"	
Magnesium	"	"	"	EPA 6010A	0.105	9.86	"	
Manganese	"	"	"	EPA 6010A	0.00757	0.0213	"	
Potassium	"	"	"	EPA 6010A	0.440	0.886	"	
Sodium	"	"	"	EPA 6010A	0.0781	2.30	"	
MW-3/12/16/98			S812053-05				Water	
Calcium	1280071	12/30/98	12/30/98	EPA 6010A	0.413	120	mg/l	
Iron	"	"	"	EPA 6010A	0.108	80.1	"	
Magnesium	"	"	"	EPA 6010A	0.105	72.3	"	
Manganese	"	"	"	EPA 6010A	0.00757	1.86	"	
Potassium	"	"	"	EPA 6010A	0.440	72.4	"	
Sodium	"	"	"	EPA 6010A	0.0781	184	"	
MW-6/12/16/98			S812053-06				Water	
Calcium	1280071	12/30/98	12/30/98	EPA 6010A	0.413	21.3	mg/l	

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/5/99 10:16

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-6/12/16/98 (continued)			S812053-06				Water	
Iron	1280071	12/30/98	12/30/98	EPA 6010A	0.108	**0.210**	mg/l	
Magnesium	"	"	"	EPA 6010A	0.105	**8.36**	"	
Manganese	"	"	"	EPA 6010A	0.00757	**0.0125**	"	
Potassium	"	"	"	EPA 6010A	0.440	**34.8**	"	
Sodium	"	"	"	EPA 6010A	0.0781	**15.4**	"	

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/5/99 10:16

Conventional Chemistry Parameters by APHA/EPA Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
BN2/12/15/98			S812053-01				Water	
Total Alkalinity	1280649	12/22/98	12/22/98	EPA 310.1	5.00	164	mg/l	
Ammonia-Nitrogen	1280625	12/21/98	"	EPA 350.3	0.100	1.23	"	
BN2/12/15/98D			S812053-02				Water	
Total Alkalinity	1280649	12/22/98	12/22/98	EPA 310.1	5.00	165	mg/l	
Ammonia-Nitrogen	1280625	12/21/98	"	EPA 350.3	0.100	0.998	"	
MW-5/12/15/98			S812053-03				Water	
Total Alkalinity	1280649	12/22/98	12/22/98	EPA 310.1	5.00	151	mg/l	
Ammonia-Nitrogen	1280625	12/21/98	"	EPA 350.3	0.100	7.34	"	
MW-4/12/16/98			S812053-04				Water	
Total Alkalinity	1280649	12/22/98	12/22/98	EPA 310.1	5.00	102	mg/l	
Ammonia-Nitrogen	1280625	12/21/98	"	EPA 350.3	0.100	0.743	"	
-3/12/16/98			S812053-05				Water	
al Alkalinity	1280649	12/22/98	12/22/98	EPA 310.1	5.00	240	mg/l	
Ammonia-Nitrogen	1280625	12/21/98	"	EPA 350.3	0.100	0.407	"	
MW-6/12/16/98			S812053-06				Water	
Total Alkalinity	1280649	12/22/98	12/22/98	EPA 310.1	5.00	122	mg/l	
Ammonia-Nitrogen	1280625	12/21/98	"	EPA 350.3	0.100	0.206	"	

th Creek Analytical, Inc.

Refer to end of report for text of notes and definitions.

Dennis Wells, Lab Director

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/5/99 10:16

Ion Scan by EPA Method 300.0
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
BN2/12/15/98			S812053-01				Water	
Fluoride	1280840	12/21/98	12/21/98	EPA 300.0	0.100	ND	mg/l	
Chloride	"	"	12/31/98	EPA 300.0	50.0	657	"	
Nitrite-Nitrogen	"	"	12/21/98	EPA 300.0	0.100	ND	"	
Bromide	"	"	"	EPA 300.0	0.200	0.724	"	
Nitrate-Nitrogen	"	"	"	EPA 300.0	5.00	13.5	"	
Orthophosphate-phosphorus	"	"	"	EPA 300.0	0.200	ND	"	
Sulfate	"	"	"	EPA 300.0	10.0	24.8	"	
BN2/12/15/98D			S812053-02				Water	
Fluoride	1280840	12/21/98	12/21/98	EPA 300.0	0.100	ND	mg/l	
Chloride	"	"	12/31/98	EPA 300.0	50.0	651	"	
Nitrite-Nitrogen	"	"	12/21/98	EPA 300.0	0.100	ND	"	
Bromide	"	"	"	EPA 300.0	0.200	0.697	"	
Nitrate-Nitrogen	"	"	"	EPA 300.0	5.00	28.6	"	
Orthophosphate-phosphorus	"	"	"	EPA 300.0	0.200	ND	"	
ate	"	"	"	EPA 300.0	10.0	32.8	"	
MW-5/12/15/98			S812053-03				Water	
Fluoride	1280840	12/21/98	12/21/98	EPA 300.0	0.100	ND	mg/l	
Chloride	"	"	12/31/98	EPA 300.0	50.0	690	"	
Nitrite-Nitrogen	"	"	12/21/98	EPA 300.0	0.100	ND	"	
Bromide	"	"	"	EPA 300.0	0.200	0.696	"	
Nitrate-Nitrogen	"	"	"	EPA 300.0	5.00	19.4	"	
Orthophosphate-phosphorus	"	"	"	EPA 300.0	0.200	ND	"	
Sulfate	"	"	"	EPA 300.0	10.0	27.5	"	
MW-4/12/16/98			S812053-04				Water	
Fluoride	1280840	12/21/98	12/21/98	EPA 300.0	0.100	0.123	mg/l	
Chloride	"	"	12/31/98	EPA 300.0	0.100	2.46	"	
Nitrite-Nitrogen	"	"	12/21/98	EPA 300.0	0.100	ND	"	
Bromide	"	"	"	EPA 300.0	0.200	ND	"	
Nitrate-Nitrogen	"	"	"	EPA 300.0	0.100	1.22	"	
Orthophosphate-phosphorus	"	"	"	EPA 300.0	0.200	ND	"	
Sulfate	"	"	"	EPA 300.0	10.0	22.3	"	
MW-3/12/16/98			S812053-05				Water	
Fluoride	1280840	12/21/98	12/21/98	EPA 300.0	0.100	0.375	mg/l	
Chloride	"	"	12/31/98	EPA 300.0	5.00	181	"	
Nitrite-Nitrogen	"	"	12/21/98	EPA 300.0	0.100	ND	"	
Bromide	"	"	"	EPA 300.0	0.200	0.226	"	
Nitrate-Nitrogen	"	"	"	EPA 300.0	5.00	42.4	"	

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/5/99 10:16

Ion Scan by EPA Method 300.0
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-3/12/16/98 (continued)			S812053-05				Water	
Orthophosphate-phosphorus	1280840	12/21/98	12/21/98	EPA 300.0	0.200	ND	mg/l	
Sulfate	"	"	"	EPA 300.0	10.0	**70.0**	"	
MW-6/12/16/98			S812053-06				Water	
Fluoride	1280840	12/21/98	12/21/98	EPA 300.0	0.100	**0.164**	mg/l	
Chloride	"	"	12/31/98	EPA 300.0	2.50	**14.2**	"	
Nitrite-Nitrogen	"	"	12/21/98	EPA 300.0	0.100	ND	"	
Bromide	"	"	"	EPA 300.0	0.200	**0.262**	"	
Nitrate-Nitrogen	"	"	"	EPA 300.0	5.00	**7.85**	"	
Orthophosphate-phosphorus	"	"	"	EPA 300.0	0.200	ND	"	
Sulfate	"	"	"	EPA 300.0	10.0	**17.5**	"	

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/5/99 10:16

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1280071	**Date Prepared: 12/30/98**					**Extraction Method: EPA 3010 Water**				
Blank	**1280071-BLK1**									
Calcium	12/30/98			ND	mg/l	0.413				
Iron	"			ND	"	0.108				
Magnesium	"			ND	"	0.105				
Manganese	"			ND	"	0.00757				
Potassium	"			ND	"	0.440				
Sodium	"			ND	"	0.0781				
LCS	**1280071-BS1**									
Calcium	12/30/98	1.00		1.07	mg/l	80.0-120	107			
Iron	"	1.00		1.12	"	80.0-120	112			
Magnesium	"	1.00		1.20	"	80.0-120	120			
Manganese	"	1.00		0.962	"	80.0-120	96.2			
Potassium	"	10.0		8.32	"	80.0-135	83.2			
Sodium	"	10.0		10.6	"	80.0-154	106			
Duplicate	**1280071-DUP1**		**S812053-03**							
Calcium	12/30/98		69.4	73.7	mg/l			20.0	6.01	
Iron	"		0.139	0.128	"			20.0	8.24	
Magnesium	"		28.6	30.8	"			20.0	7.41	
Manganese	"		0.0113	0.0118	"			20.0	4.33	
Potassium	"		255	285	"			20.0	11.1	
Sodium	"		401	370	"			20.0	8.04	
Matrix Spike	**1280071-MS1**		**S812053-03**							
Calcium	12/30/98	1.00	69.4	68.6	mg/l	70.0-130	NR			1
Iron	"	1.00	0.139	1.23	"	70.0-130	109			
Magnesium	"	1.00	28.6	30.4	"	70.0-130	180			1
Manganese	"	1.00	0.0113	1.04	"	70.0-130	103			
Potassium	"	10.0	255	263	"	70.0-130	80.0			
Sodium	"	10.0	401	406	"	70.0-130	50.0			1
Matrix Spike Dup	**1280071-MSD1**		**S812053-03**							
Calcium	12/30/98	1.00	69.4	74.0	mg/l	70.0-130	NR	20.0	NR	1
Iron	"	1.00	0.139	1.20	"	70.0-130	106	20.0	2.79	
Magnesium	"	1.00	28.6	30.9	"	70.0-130	NR	20.0	24.4	1
Manganese	"	1.00	0.0113	1.04	"	70.0-130	103	20.0	0	
Potassium	"	10.0	255	279	"	70.0-130	NR	20.0	100	1
Sodium	"	10.0	401	403	"	70.0-130	20.0	20.0	85.7	1

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/5/99 10:16

Conventional Chemistry Parameters by APHA/EPA Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1280625	**Date Prepared: 12/21/98**					**Extraction Method: General Preparation**				
Blank	1280625-BLK1									
Ammonia-Nitrogen	12/22/98			ND	mg/l	0.100				
LCS	1280625-BS1									
Ammonia-Nitrogen	12/22/98	2.00		2.03	mg/l	89.0-110	101			
Duplicate	1280625-DUP1		B812328-01							
Ammonia-Nitrogen	12/22/98		59.5	58.6	mg/l			17.0	1.52	
Matrix Spike	1280625-MS1		B812328-01							
Ammonia-Nitrogen	12/22/98	2.00	59.5	61.9	mg/l	80.0-120	120			
Batch: 1280649	**Date Prepared: 12/22/98**					**Extraction Method: General Preparation**				
Blank	1280649-BLK1									
Total Alkalinity	12/22/98			ND	mg/l	5.00				
..plicate	1280649-DUP1		B812383-01							
Total Alkalinity	12/22/98		56.0	57.5	mg/l			6.00	2.64	

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/5/99 10:16

Ion Scan by EPA Method 300.0/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1280840	**Date Prepared: 12/21/98**					**Extraction Method: General Preparation**				
Blank	1280840-BLK1									
Fluoride	12/21/98			ND	mg/l	0.100				
Chloride	12/31/98			ND	"	0.100				
Nitrite-Nitrogen	12/21/98			ND	"	0.100				
Bromide	"			ND	"	0.200				
Nitrate-Nitrogen	"			ND	"	0.100				
Orthophosphate-phosphorus	"			ND	"	0.200				
Sulfate	"			ND	"	0.200				
LCS	1280840-BS1									
Fluoride	12/21/98	1.00		0.992	mg/l	90.0-110	99.2			
Chloride	12/31/98	2.00		1.97	"	90.0-110	98.5			
Bromide	12/21/98	4.00		4.03	"	90.0-110	101			
Nitrate-Nitrogen	"	0.900		0.925	"	90.0-110	103			
Orthophosphate-phosphorus	"	1.94		1.98	"	90.0-110	102			
ate	"	4.00		3.96	"	90.0-110	99.0			
LCS	1280840-BS2									
Nitrite-Nitrogen	12/21/98	2.00		1.99	mg/l	90.0-110	99.5			
Duplicate	1280840-DUP1		S812053-01							
Fluoride	12/21/98		ND	ND	mg/l			25.0		
Chloride	12/31/98		657	626	"			16.0	4.83	
Nitrite-Nitrogen	12/21/98		ND	ND	"			25.0		
Bromide	"		0.724	0.710	"			25.0	1.95	
Nitrate-Nitrogen	"		13.5	13.6	"			8.00	0.738	
Orthophosphate-phosphorus	"		ND	ND	"			25.0		
Sulfate	"		24.8	25.1	"			8.00	1.20	
Matrix Spike	1280840-MS1		S812053-01							
Fluoride	12/21/98	100	ND	201	mg/l	75.0-125	NR			2
Bromide	"	400	0.724	205	"	75.0-125	51.1			2
Nitrate-Nitrogen	"	90.0	13.5	212	"	77.0-117	NR			2
Orthophosphate-phosphorus	"	194	ND	209	"	75.0-125	108			
Sulfate	"	400	24.8	208	"	57.0-134	45.8			2
Matrix Spike	1280840-MS2		S812053-01							
Nitrite-Nitrogen	12/21/98	200	ND	215	mg/l	72.0-134	108			
Matrix Spike	1280840-MS3		S812053-01							
Chloride	12/31/98	1000	657	1680	mg/l	56.0-140	102			

th Creek Analytical, Inc.

Refer to end of report for text of notes and definitions.

Dennis Wells, Lab Director

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/5/99 10:16

Notes and Definitions

#	Note
1	The spike recovery for this QC sample cannot be accurately calculated due to high concentration of analyte in the sample.
2	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

[illegible] RTH CREEK ANALYTICAL
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CHAIN OF CUSTODY REPORT

Work Order # S812053

REPORT TO: ENVIRONMENTAL MANAGEMENT RESOURCES, INC.
ATTENTION: DON CLABAUGH
ADDRESS: 2509 152ND AVE NE, SUITE B
REDMOND, WA 98052
PHONE: 425 861-4561 FAX: 425-869-7820
PROJECT NAME: BNSF ALUMINUM DROSS
PROJECT NUMBER: 338.32
SAMPLED BY: DAVID L. WELCH

INVOICE TO: (SAME)
ATTENTION:
ADDRESS:
P.O. NUMBER:
NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: (10 Standard) 7 5 4 3 2 1 Same Day
Fuels & Hydrocarbon Analyses: 5 Standard 3-4 2 1 Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	RCRA 8 METALS + Cr	CHLORIDE	Na, K, Ca, Mg	Fe, Mn	ALKALINITY (METHYL-ORANGE ENDPOINT)	AMMONIA	FLUORIDE	FULL ANION SCAN (Br, Cl, F, NO2, NO3, SO4)	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. BN2-12-15-98	12-15-98 11:30A	S812053-01	X		X		X	X	X	X	W	3	
2. BN2-12-15-98D	12-15-98 11:30A	-02	X		X		X	X	X	X	W	3	
3. MW-5-12-15-98	12-15-98 3:00P	-03	X		X		X	X	X	X	W	3	
4. MW4-12-16-98	12-16-98 8:30A	-04	X		X		X	X	X	X	W	3	
5. MW3-12-16-98	12-16-98 11:30A	-05	X		X		X	X	X	X	W	3	
6. MW6-12-16-98	12-16-98 9:30A	-06	X		X		X	X	X	X	W	3	
7.													
8.													
9.													
10.													

RELINQUISHED BY (Signature): D. L. Welch DATE: 12-16-98
PRINT NAME: DAVID L. WELCH FIRM: EMR, INC. TIME:

RECEIVED BY (Signature): H. Himes DATE: 12/16
PRINT NAME: FIRM: TIME: 15

RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

PAGE 1 OF 1

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/7/99 10:15

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
B1-9	S812054-01	Soil	12/14/98
B1-23	S812054-02	Soil	12/14/98
B1-27	SS12054-03	Soil	12/14/98
B2-1	S812054-04	Soil	12/15/98
B2-5	S812054-05	Soil	12/15/98
B3-1	S812054-06	Soil	12/15/98
B3-3	S812054-07	Soil	12/15/98
B3-7	S812054-08	Soil	12/15/98
[illegible] S	S812054-09	Soil	12/15/98
[illegible] 2	S812054-10	Soil	12/15/98
B4-5	S812054-11	Soil	12/15/98
B5-S	S812054-12	Soil	12/15/98
B5-2	S812054-13	Soil	12/15/98
B5-5	S812054-14	Soil	12/15/98

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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~ .R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/7/99 10:15

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
B1-9			S812054-01				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	629	mg/kg dry	
Sodium	"	"	"	EPA 6010A	1.95	19100	"	
B1-23			S812054-02				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	441	mg/kg dry	
Potassium	"	"	"	EPA 6010A	22.3	24300	"	
Sodium	"	"	"	EPA 6010A	1.95	25900	"	
B1-27			S812054-03				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	194	mg/kg dry	
Potassium	"	"	"	EPA 6010A	22.3	15900	"	
Sodium	"	"	"	EPA 6010A	1.95	14800	"	
B2-1			S812054-04				Soil	
~per	1280072	12/30/98	12/30/98	EPA 6010A	0.354	18.6	mg/kg dry	
~ssium	"	"	"	EPA 6010A	22.3	1110	"	
Sodium	"	"	"	EPA 6010A	1.95	374	"	
B2-5			S812054-05				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	16.6	mg/kg dry	
Potassium	"	"	"	EPA 6010A	22.3	1720	"	
Sodium	"	"	"	EPA 6010A	1.95	287	"	
B3-1			S812054-06				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	1220	mg/kg dry	
B3-3			S812054-07				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	29.9	mg/kg dry	
Potassium	"	"	"	EPA 6010A	22.3	3040	"	
Sodium	"	"	"	EPA 6010A	1.95	1160	"	
B3-7			S812054-08				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	16.2	mg/kg dry	
Potassium	"	"	"	EPA 6010A	22.3	2110	"	
Sodium	"	"	"	EPA 6010A	1.95	800	"	
B4-S			S812054-09				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	2420	mg/kg dry	
B4-2			S812054-10				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	80.6	mg/kg dry	

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2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/7/99 10:15

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
B4-2 (continued)			S812054-10				Soil	
Potassium	1280072	12/30/98	12/30/98	EPA 6010A	22.3	8900	mg/kg dry	
Sodium	"	"	"	EPA 6010A	1.95	3320	"	
B4-5			S812054-11				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	42.9	mg/kg dry	
Potassium	"	"	"	EPA 6010A	22.3	4270	"	
Sodium	"	"	"	EPA 6010A	1.95	933	"	
B5-S			S812054-12				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	1460	mg/kg dry	
B5-2			S812054-13				Soil	
Copper	1280072	12/30/98	12/30/98	EPA 6010A	0.354	34.7	mg/kg dry	
Potassium	"	"	"	EPA 6010A	22.3	8910	"	
dium	"	"	"	EPA 6010A	1.95	892	"	
B5-5			S812054-14				Soil	
Potassium	1280072	12/30/98	12/30/98	EPA 6010A	22.3	5650	mg/kg dry	
Sodium	"	"	"	EPA 6010A	1.95	606	"	

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Refer to end of report for text of notes and definitions.

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.R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/7/99 10:15

TCLP Metals and Chloride by EPA 1311/6010/7000/300 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
B1-9			S812054-01				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	327	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	535	mg/l	
Chloride	1280855	12/31/98	12/31/98	EPA 300.0	2.00	7.16	mg/l	
B3-1			S812054-06				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	114	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	147	mg/l	
Chloride	1280855	12/31/98	12/31/98	EPA 300.0	2.00	7.10	mg/l	
B4-S			S812054-09				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	277	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	334	mg/l	
Chloride	1280855	12/31/98	12/31/98	EPA 300.0	2.00	6.64	mg/l	
[illegible]S			S812054-12				Soil	
[illegible]assium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	86.2	mg/l	
[illegible]odium	"	"	"	EPA 6010A	0.0781	78.7	mg/l	
Chloride	1280855	12/31/98	12/31/98	EPA 300.0	2.00	6.96	mg/l	

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..R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/7/99 10:15

Anions by EPA Method 300.0
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
B1-9			S812054-01				Soil	
Chloride	1280804	12/29/98	12/29/98	EPA 300.0	0.100	**21.9**	mg/kg dry	
B1-23			S812054-02				Soil	
Chloride	1280804	12/29/98	12/29/98	EPA 300.0	200	**17500**	mg/kg dry	
B1-27			S812054-03				Soil	
Chloride	1280804	12/29/98	12/29/98	EPA 300.0	200	**13700**	mg/kg dry	
B2-1			S812054-04				Soil	
Chloride	1280828	12/30/98	12/30/98	EPA 300.0	0.100	**34.4**	mg/kg dry	
B2-5			S812054-05				Soil	
Chloride	1280828	12/30/98	12/30/98	EPA 300.0	0.100	**49.0**	mg/kg dry	
·1			S812054-06				Soil	
oride	1280828	12/30/98	12/30/98	EPA 300.0	0.100	**43.4**	mg/kg dry	
B3-3			S812054-07				Soil	
Chloride	1280828	12/30/98	12/30/98	EPA 300.0	0.100	**14.7**	mg/kg dry	
B3-7			S812054-08				Soil	
Chloride	1280828	12/30/98	12/30/98	EPA 300.0	0.100	**12.5**	mg/kg dry	
B4-S			S812054-09				Soil	
Chloride	1280828	12/30/98	12/30/98	EPA 300.0	0.100	**37.6**	mg/kg dry	
B4-2			S812054-10				Soil	
Chloride	1280828	12/30/98	12/30/98	EPA 300.0	0.100	**51.7**	mg/kg dry	
B4-5			S812054-11				Soil	
Chloride	1280828	12/30/98	12/30/98	EPA 300.0	0.100	**43.1**	mg/kg dry	
B5-S			S812054-12				Soil	
Chloride	1280828	12/30/98	12/30/98	EPA 300.0	0.100	**35.6**	mg/kg dry	
B5-2			S812054-13				Soil	
Chloride	1280828	12/30/98	12/30/98	EPA 300.0	0.100	**37.5**	mg/kg dry	
B5-5			S812054-14				Soil	
Chloride	1280828	12/30/98	12/30/98	EPA 300.0	0.100	**39.1**	mg/kg dry	

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/7/99 10:15

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
B1-9	S812054-01	Soil	79.5	%
B1-23	S812054-02	Soil	93.9	%
B1-27	S812054-03	Soil	96.6	%
B2-1	S812054-04	Soil	93.1	%
B2-5	S812054-05	Soil	85.5	%
B3-1	S812054-06	Soil	74.7	%
B3-3	S812054-07	Soil	92.5	%
B3-7	S812054-08	Soil	93.8	%
S	S812054-09	Soil	76.4	%
B4-2	S812054-10	Soil	91.8	%
B4-5	S812054-11	Soil	95.2	%
B5-S	S812054-12	Soil	80.0	%
B5-2	S812054-13	Soil	92.2	%
B5-5	S812054-14	Soil	91.7	%

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.R, INC.	Project:	BNSF Aluminum Dross	Sampled:	12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received:	12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported:	1/7/99 10:15

Dry Weight Determination
North Creek Analytical - Spokane

Sample Name	Lab ID	Matrix	Result	Units
B1-9	S812054-01	Soil	77.3	%
B1-23	S812054-02	Soil	92.8	%
B1-27	S812054-03	Soil	90.1	%
B2-1	S812054-04	Soil	88.5	%
B2-5	S812054-05	Soil	85.6	%
B3-1	S812054-06	Soil	73.9	%
B3-3	S812054-07	Soil	89.3	%
B3-7	S812054-08	Soil	92.5	%
S	S812054-09	Soil	69.2	%
B4-2	S812054-10	Soil	91.6	%
B4-5	S812054-11	Soil	88.0	%
B5-S	S812054-12	Soil	76.6	%
B5-2	S812054-13	Soil	88.4	%
B5-5	S812054-14	Soil	91.3	%

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2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/7/99 10:15

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1280072	**Date Prepared: 12/30/98**					**Extraction Method: EPA 3050**				
Blank	1280072-BLK1									
Copper	12/30/98			ND	mg/kg dry	0.354				
Potassium	"			ND	"	22.3				
Sodium	"			ND	"	1.95				
LCS	1280072-BS1									
Copper	12/30/98	50.0		50.2	mg/kg dry	70.0-135	100			
Potassium	"	500		416	"	70.0-120	83.2			
Sodium	"	500		540	"	80.0-200	108			
Duplicate	1280072-DUP1		S812054-03							
Copper	12/30/98		194	248	mg/kg dry			20.0	24.4	
Potassium	"		15900	15600	"			20.0	1.90	
Sodium	"		14800	15800	"			20.0	6.54	
;rix Spike	1280072-MS1		S812054-03							
Copper	12/30/98	55.5	194	224	mg/kg dry	69.0-130	54.1			2
Potassium	"	555	15900	15200	"	70.0-130	NR			1
Sodium	"	555	14800	13100	"	70.0-130	NR			1
Matrix Spike Dup	1280072-MSD1		S812054-03							
Copper	12/30/98	55.5	194	262	mg/kg dry	69.0-130	123	20.0	77.8	
Potassium	"	555	15900	13800	"	70.0-130	NR	20.0	-100	1
Sodium	"	555	14800	13100	"	70.0-130	NR	20.0	0	1

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[illegible]R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/7/99 10:15

TCLP Metals by EPA 1311/6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0190006	**Date Prepared: 1/5/99**					**Extraction Method: EPA 3010 TCLP**				
Blank	0190006-BLK1									
Potassium	1/5/99			ND	mg/l	0.446				
Sodium	"			ND	mg/l	0.0781				
LCS	0190006-BS1									
Potassium	1/5/99	10.0		8.56	mg/l	80.0-120	85.6			
Sodium	"	2.00		2.21	mg/l	80.0-120	111			
Duplicate	0190006-DUP1		S812016-03							
Potassium	1/5/99		26.1	34.0	mg/l			20.0	26.3	
Sodium	"		14.3	17.6	mg/l			20.0	20.7	
Matrix Spike	0190006-MS1		S812016-03							
[illegible]assium	1/5/99	10.0	26.1	38.0	mg/l	70.0-130	119			
[illegible]um	"	2.00	14.3	16.0	mg/l	70.0-130	85.0			
Matrix Spike Dup	0190006-MSD1		S812016-03							
Potassium	1/5/99	10.0	26.1	38.1	mg/l	70.0-130	120	20.0	0.837	
Sodium	"	2.00	14.3	16.5	mg/l	70.0-130	110	20.0	25.6	

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2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/7/99 10:15

Anions by EPA Method 300.0/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1280804	**Date Prepared: 12/29/98**					**Extraction Method: General Preparation**				
Blank	1280804-BLK1									
Chloride	12/29/98			ND	mg/kg dry	0.100				
LCS	1280804-BS1									
Chloride	12/29/98	20.0		19.2	mg/kg dry	90.0-110	96.0			
Duplicate	1280804-DUP1		S812054-01							
Chloride	12/29/98		21.9	23.9	mg/kg dry			25.0	8.73	
Matrix Spike	1280804-MS1		S812054-01							
Chloride	12/29/98	25.5	21.9	55.2	mg/kg dry	62.0-157	131			
Batch: 1280828	**Date Prepared: 12/30/98**					**Extraction Method: General Preparation**				
Blank	1280828-BLK1									
'oride	12/30/98			ND	mg/kg dry	0.100				
LCS	1280828-BS1									
Chloride	12/30/98	20.0		19.4	mg/kg dry	90.0-110	97.0			
Duplicate	1280828-DUP1		S812054-04							
Chloride	12/30/98		34.4	39.2	mg/kg dry			25.0	13.0	
Matrix Spike	1280828-MS1		S812054-04							
Chloride	12/30/98	18.9	34.4	53.2	mg/kg dry	62.0-157	99.5			
Batch: 1280855	**Date Prepared: 12/31/98**					**Extraction Method: General Preparation**				
Blank	1280855-BLK1									
Chloride	12/31/98			ND	mg/l	0.100				
LCS	1280855-BS1									
Chloride	12/31/98	2.00		1.97	mg/l	90.0-110	98.5			
Duplicate	1280855-DUP1		S812054-01							
Chloride	12/31/98		7.16	7.14	mg/l			16.0	0.280	
Matrix Spike	1280855-MS1		S812054-01							
Chloride	12/31/98	100	7.16	106	mg/l	56.0-140	98.8			

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2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/7/99 10:15

Notes and Definitions

#	Note
1	The spike recovery for this QC sample cannot be accurately calculated due to high concentration of analyte in the sample.
2	The spike recovery for this QC sample is outside of NCA established control limits. Alternate sources of QC have been used to validate the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

rth Creek Analytical, Inc.

Dennis Wells, Lab Director

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NORTH CREEK ANALYTICAL
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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

L AR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/8/99 15:57

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
B1-9	S812054-01	Soil	12/14/98
B1-23	S812054-02	Soil	12/14/98
B2-1	S812054-04	Soil	12/15/98
B2-5	S812054-05	Soil	12/15/98
B3-1	S812054-06	Soil	12/15/98
B3-3	S812054-07	Soil	12/15/98
B3-7	S812054-08	Soil	12/15/98
B4-S	S812054-09	Soil	12/15/98
?	S812054-10	Soil	12/15/98
B4-5	S812054-11	Soil	12/15/98
B5-S	S812054-12	Soil	12/15/98
B5-2	S812054-13	Soil	12/15/98

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..R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/8/99 15:57

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
B1-9			S812054-01				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	196	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	25.1	"	
Cadmium	"	"	"	EPA 6010A	0.214	0.356	"	
Chromium	"	"	"	EPA 6010A	0.195	112	"	
Lead	"	"	"	EPA 6010A	1.59	38.3	"	
Selenium	"	"	"	EPA 6010A	2.32	5.30	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
B1-23			S812054-02				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	8.30	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	108	"	
Cadmium	"	"	"	EPA 6010A	0.214	0.388	"	
Chromium	"	"	"	EPA 6010A	0.195	12.0	"	
Lead	"	"	"	EPA 6010A	1.59	23.4	"	
...nium	"	"	"	EPA 6010A	2.32	ND	"	
...r	"	"	"	EPA 6010A	2.26	ND	"	
B2-1			S812054-04				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	17.1	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	81.9	"	
Cadmium	"	"	"	EPA 6010A	0.214	1.46	"	
Chromium	"	"	"	EPA 6010A	0.195	10.4	"	
Lead	"	"	"	EPA 6010A	1.59	30.0	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
B2-5			S812054-05				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	20.5	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	149	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	10.0	"	
Lead	"	"	"	EPA 6010A	1.59	13.0	"	
Selenium	"	"	"	EPA 6010A	2.32	8.79	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
B3-1			S812054-06				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	283	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	45.8	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	138	"	
Lead	"	"	"	EPA 6010A	1.59	38.6	"	

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...R, INC.	Project: BNSF Aluminum Dross	Sampled:	12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number: 338.32	Received:	12/16/98
REDMOND, WA 98052	Project Manager: DON CLABAUGH	Reported:	1/8/99 15:57

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
B3-1 (continued)			S812054-06				Soil	
Selenium	0190015	1/7/99	1/7/99	EPA 6010A	2.32	**3.13**	mg/kg dry	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
B3-3			S812054-07				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	**10.2**	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	**68.3**	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	**8.34**	"	
Lead	"	"	"	EPA 6010A	1.59	**14.3**	"	
Selenium	"	"	"	EPA 6010A	2.32	**18.2**	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
B3-7			S812054-08				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	**6.00**	mg/kg dry	
...ium	"	"	"	EPA 6010A	0.313	**43.3**	"	
...nium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	**6.25**	"	
Lead	"	"	"	EPA 6010A	1.59	**16.6**	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
B4-S			S812054-09				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	**378**	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	**24.2**	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	**173**	"	
Lead	"	"	"	EPA 6010A	1.59	**25.8**	"	
Selenium	"	"	"	EPA 6010A	2.32	**25.3**	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
B4-2			S812054-10				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	**23.4**	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	**110**	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	**17.8**	"	
Lead	"	"	"	EPA 6010A	1.59	**17.8**	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
B4-5			S812054-11				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	**7.00**	mg/kg dry	

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..R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/8/99 15:57

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
B4-5 (continued)			S812054-11				Soil	
Barium	0190015	1/7/99	1/7/99	EPA 6010A	0.313	**54.2**	mg/kg dry	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	**14.0**	"	
Lead	"	"	"	EPA 6010A	1.59	**16.0**	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
B5-S			S812054-12				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	**307**	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	**35.4**	"	
Cadmium	"	"	"	EPA 6010A	0.214	**0.231**	"	
Chromium	"	"	"	EPA 6010A	0.195	**149**	"	
Lead	"	"	"	EPA 6010A	1.59	**7.51**	"	
Selenium	"	"	"	EPA 6010A	2.32	**8.74**	"	
..r	"	"	"	EPA 6010A	2.26	ND	"	
B5-2			S812054-13				Soil	
Arsenic	0190015	1/7/99	1/7/99	EPA 6010A	2.07	**4.83**	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	**128**	"	
Cadmium	"	"	"	EPA 6010A	0.214	**0.339**	"	
Chromium	"	"	"	EPA 6010A	0.195	**12.9**	"	
Lead	"	"	"	EPA 6010A	1.59	**485**	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	

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2509 152ND AVE NE, STE B	Project Number:	338.32	Received:	12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported:	1/8/99 15:57

Dry Weight Determination
North Creek Analytical - Spokane

Sample Name	Lab ID	Matrix	Result	Units
B1-9	S812054-01	Soil	77.3	%
B1-23	S812054-02	Soil	92.8	%
B2-1	S812054-04	Soil	88.5	%
B2-5	S812054-05	Soil	85.6	%
B3-1	S812054-06	Soil	73.9	%
B3-3	S812054-07	Soil	89.3	%
B3-7	S812054-08	Soil	92.5	%
B4-S	S812054-09	Soil	69.2	%
-2	S812054-10	Soil	91.6	%
B4-5	S812054-11	Soil	88.0	%
B5-S	S812054-12	Soil	76.6	%
B5-2	S812054-13	Soil	88.4	%

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2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/8/99 15:57

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0190015	**Date Prepared: 1/7/99**					**Extraction Method: EPA 3050**				
Blank	0190015-BLK1									
Arsenic	1/7/99			ND	mg/kg dry	2.07				
Barium	"			ND	"	0.313				
Cadmium	"			ND	"	0.214				
Chromium	"			ND	"	0.195				
Lead	"			ND	"	1.59				
Selenium	"			ND	"	2.32				
Silver	"			ND	"	2.26				
LCS	0190015-BS1									
Arsenic	1/7/99	50.0		55.0	mg/kg dry	80.0-140	110			
Barium	"	50.0		49.5	"	80.0-149	99.0			
Cadmium	"	50.0		50.0	"	70.0-140	100			
Chromium	"	50.0		49.4	"	70.0-135	98.8			
...d	"	50.0		51.0	"	70.0-135	102			
...nium	"	50.0		48.3	"	80.0-130	96.6			
Silver	"	25.0		18.4	"	70.0-130	73.6			
Duplicate	0190015-DUP1		S812070-02							
Arsenic	1/7/99		9.00	12.3	mg/kg dry			20.0	31.0	
Barium	"		ND	ND	"			20.0		
Cadmium	"		2.56	2.54	"			20.0	0.784	
Chromium	"		22.7	22.4	"			20.0	1.33	
Lead	"		4.58	9.51	"			20.0	70.0	
Selenium	"		ND	ND	"			20.0		
Silver	"		ND	ND	"			20.0		
Matrix Spike	0190015-MS1		S812070-02							
Arsenic	1/7/99	50.0	9.00	58.6	mg/kg dry	70.0-130	99.2			
Barium	"	50.0	ND	50.3	"	70.0-130	101			
Cadmium	"	50.0	2.56	56.1	"	70.0-130	107			
Chromium	"	50.0	22.7	72.8	"	70.0-130	100			
Lead	"	50.0	4.58	55.9	"	70.0-130	103			
Selenium	"	50.0	ND	49.8	"	70.0-130	99.6			
Silver	"	25.0	ND	19.1	"	70.0-130	76.4			
Matrix Spike Dup	0190015-MSD1		S812070-02							
Arsenic	1/7/99	50.0	9.00	52.5	mg/kg dry	70.0-130	87.0	20.0	13.1	
Barium	"	50.0	ND	51.0	"	70.0-130	102	20.0	0.985	
Cadmium	"	50.0	2.56	55.8	"	70.0-130	106	20.0	0.939	
Chromium	"	50.0	22.7	74.3	"	70.0-130	103	20.0	2.96	

...th Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/8/99 15:57

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup (continued)	0190015-MSD1		S812070-02							
Lead	1/7/99	50.0	4.58	55.7	mg/kg dry	70.0-130	102	20.0	0.976	
Selenium	"	50.0	ND	62.8	"	70.0-130	126	20.0	23.4	
Silver	"	25.0	ND	18.8	"	70.0-130	75.2	20.0	1.58	

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.R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/8/99 15:57

Notes and Definitions

#	Note

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

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CHAIN OF CUSTODY REPORT

Work Order # S812054

REPORT TO: ENVIRONMENTAL MANAGEMENT RESOURCES, INC.
ATTENTION: DON CLABAUGH
ADDRESS: 2509 152ND AVE NE SUITE B
REDMOND, WA 98052
PHONE: 425-861-4561 FAX: 425-869-7820
PROJECT NAME: BNSF ALUMINUM DROSS
PROJECT NUMBER: 338.32
SAMPLED BY: DAVID L. WELCH

INVOICE TO:
ATTENTION: (SAME)
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: RCRA 8 + Cu METALS	TCLP	SODIUM & CHLORIDE	POTASSIUM, SODIUM & CHLORIDE	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. B1-9	12-14-98	S812054-01	X	X			D	1 QT	D = DROSS
2. B1-23	12-14-98	-02	X			X	S	1 QT	1' BELOW DROSS
3. B1-27	12-14-98	-03	X			X	S	1 QT	5' BELOW DROSS
4. B2-1	12-15-98	-04	X			X	S	1 QT	1' BELOW DROSS
5. B2-5	12-15-98	-05	X			X	S	1 QT	5' BELOW DROSS
6. B3-1	12-15-98	-06	X	X			D	1 QT	D = DROSS
7. B3-3	12-15-98	-07	X			X	S	1 QT	1' BELOW DROSS
8. B3-7	12-15-98	-08	X			X	S	1 QT	5' BELOW DROSS
9. B4-5	12-15-98	-09	X	X			D	1 QT	D = DROSS
10. B4-2	12-15-98	-10	X			X	S	1 QT	1' BELOW DROSS

RELINQUISHED BY (Signature): David Welch DATE: 12-16-98
PRINT NAME: DAVID L. WELCH FIRM: EMR, Inc. TIME:
RECEIVED BY (Signature): H. Haines DATE: 12/16
PRINT NAME: FIRM: TIME: 1550

RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:
RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

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L ..R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
TP 1 (Soil 1')	S812016-01	Soil	12/3/98
TP-1 (Soil Interface)	S812016-02	Soil	12/3/98
TP-1 (Soil 5')	S812016-03	Soil	12/3/98
TP-1 (Dross interface)	S812016-04	Soil	12/3/98
TP-2 (Soil 1')	S812016-05	Soil	12/3/98
TP-2 (Dross Interface)	S812016-06	Soil	12/3/98
TP-2 (Soil 5')	S812016-07	Soil	12/3/98
Mud Pit	S812016-08	Soil	12/3/98
TP 3 (Soil 2')	S812016-09	Soil	12/3/98
TP-3 (Dross 20")	S812016-10	Soil	12/3/98
TP-3 (Soil 7')	S812016-11	Soil	12/3/98
TP-4 (Dross 18")	S812016-12	Soil	12/3/98
TP-4 (Soil 1')	S812016-13	Soil	12/3/98
TP-4 (Soil 5')	S812016-14	Soil	12/3/98

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, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP 1 (Soil 1')			**S812016-01**				**Soil**	
Arsenic	1280055	12/17/98	12/17/98	EPA 6010A	2.07	**2.46**	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	**42.1**	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	**7.98**	"	
Copper	"	"	"	EPA 6010A	0.354	**30.3**	"	
Lead	"	"	"	EPA 6010A	1.59	**12.6**	"	
Potassium	"	"	"	EPA 6010A	22.3	**3130**	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	**351**	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	ND	"	
TP-1 (Soil Interface)			**S812016-02**				**Soil**	
Barium	1280055	12/17/98	12/17/98	EPA 6010A	0.313	**46.7**	mg/kg dry	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
mium	"	"	"	EPA 6010A	0.195	**11.3**	"	
pper	"	"	"	EPA 6010A	0.354	**26.4**	"	
Lead	"	"	"	EPA 6010A	1.59	ND	"	
Potassium	"	"	"	EPA 6010A	22.3	**3530**	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	**308**	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	**0.00529**	"	
TP-1 (Soil 5')			**S812016-03**				**Soil**	
Barium	1280055	12/17/98	12/17/98	EPA 6010A	0.313	**44.4**	mg/kg dry	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	**9.41**	"	
Copper	"	"	"	EPA 6010A	0.354	**17.5**	"	
Lead	"	"	"	EPA 6010A	1.59	**4.46**	"	
Potassium	"	"	"	EPA 6010A	22.3	**3410**	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	**328**	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	ND	"	
TP-1 (Dross interface)			**S812016-04**				**Soil**	
Barium	1280055	12/17/98	12/17/98	EPA 6010A	0.313	**480**	mg/kg dry	
Cadmium	"	"	"	EPA 6010A	0.214	**2.06**	"	
Chromium	"	"	"	EPA 6010A	0.195	**477**	"	
Copper	"	"	"	EPA 6010A	0.354	**2840**	"	
Lead	"	"	"	EPA 6010A	1.59	**80.8**	"	

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NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP-1 (Dross interface) (continued)			**S812016-04**				**Soil**	
Potassium	1280055	12/17/98	12/17/98	EPA 6010A	22.3	**33800**	mg/kg dry	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	**3290**	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	**0.00697**	"	
TP-2 (Soil 1')			**S812016-05**				**Soil**	
Arsenic	1280055	12/17/98	12/17/98	EPA 6010A	2.07	**8.69**	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	**60.6**	"	
Cadmium	"	"	"	EPA 6010A	0.214	**0.229**	"	
Chromium	"	"	"	EPA 6010A	0.195	**49.3**	"	
Copper	"	"	"	EPA 6010A	0.354	**231**	"	
Lead	"	"	"	EPA 6010A	1.59	**15.8**	"	
Potassium	"	"	"	EPA 6010A	22.3	**5150**	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	**1230**	"	
cury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	ND	"	
TP-2 (Dross Interface)			**S812016-06**				**Soil**	
Arsenic	1280055	12/17/98	12/17/98	EPA 6010A	2.07	ND	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	**107**	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	**295**	"	
Copper	"	"	"	EPA 6010A	0.354	**2370**	"	
Lead	"	"	"	EPA 6010A	1.59	ND	"	
Potassium	"	"	"	EPA 6010A	22.3	**8220**	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	**19100**	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	**0.0163**	"	
TP-2 (Soil 5')			**S812016-07**				**Soil**	
Arsenic	1280055	12/17/98	12/17/98	EPA 6010A	2.07	ND	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	**37.8**	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	**9.33**	"	
Copper	"	"	"	EPA 6010A	0.354	**18.9**	"	
Lead	"	"	"	EPA 6010A	1.59	ND	"	
Potassium	"	"	"	EPA 6010A	22.3	**2530**	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	ND	"	

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., INC.	Project: BNSF Aluminum Dross	Sampled:	12/3/98
2509 152ND AVE NE, STE B	Project Number: 338.32	Received:	12/3/98
REDMOND, WA 98052	Project Manager: DON CLABAUGH	Reported:	1/20/99 12:10

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP-2 (Soil 5') (continued)			S812016-07				Soil	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	0.00729	mg/kg dry	
Mud Pit			S812016-08				Soil	
Barium	1280055	12/17/98	12/17/98	EPA 6010A	0.313	153	mg/kg dry	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	172	"	
Copper	"	"	"	EPA 6010A	0.354	2210	"	
Lead	"	"	"	EPA 6010A	1.59	71.1	"	
Potassium	"	"	"	EPA 6010A	22.3	12700	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	7730	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	ND	"	
TP-3 (Soil 2')			S812016-09				Soil	
Arsenic	1280055	12/17/98	12/17/98	EPA 6010A	2.07	ND	mg/kg dry	
ium	"	"	"	EPA 6010A	0.313	31.4	"	
.dmium	"	"	"	EPA 6010A	0.214	0.388	"	
Chromium	"	"	"	EPA 6010A	0.195	8.83	"	
Copper	"	"	"	EPA 6010A	0.354	32.3	"	
Lead	"	"	"	EPA 6010A	1.59	12.2	"	
Potassium	"	"	"	EPA 6010A	22.3	2530	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	321	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	0.00416	"	
TP-3 (Dross 20")			S812016-10				Soil	
Barium	1280055	12/17/98	12/17/98	EPA 6010A	0.313	33.6	mg/kg dry	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	499	"	
Copper	"	"	"	EPA 6010A	0.354	4520	"	
Lead	"	"	"	EPA 6010A	1.59	6.59	"	
Potassium	"	"	"	EPA 6010A	22.3	1770	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	3970	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	ND	"	
TP-3 (Soil 7')			S812016-11				Soil	
Arsenic	1280055	12/17/98	12/17/98	EPA 6010A	2.07	ND	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	6.36	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	4.71	"	

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
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Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP-3 (Soil 7') (continued)			S812016-11				Soil	
Copper	1280055	12/17/98	12/17/98	EPA 6010A	0.354	15.9	mg/kg dry	
Lead	"	"	"	EPA 6010A	1.59	2.63	"	
Potassium	"	"	"	EPA 6010A	22.3	2340	"	
Selenium	"	"	"	EPA 6010A	2.32	6.36	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	220	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	0.00564	"	
TP-4 (Dross 18")			S812016-12				Soil	
Barium	1280055	12/17/98	12/17/98	EPA 6010A	0.313	65.4	mg/kg dry	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	432	"	
Copper	"	"	"	EPA 6010A	0.354	3720	"	
Lead	"	"	"	EPA 6010A	1.59	6.28	"	
P.tassium	"	"	"	EPA 6010A	22.3	4750	"	
nium	"	"	"	EPA 6010A	2.32	ND	"	
.ver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	8680	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	0.0140	"	
TP-4 (Soil 1')			S812016-13				Soil	
Arsenic	1280055	12/17/98	12/17/98	EPA 6010A	2.07	12.7	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	64.3	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	11.5	"	
Copper	"	"	"	EPA 6010A	0.354	19.3	"	
Lead	"	"	"	EPA 6010A	1.59	4.95	"	
Potassium	"	"	"	EPA 6010A	22.3	5120	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	668	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	ND	"	
TP-4 (Soil 5')			S812016-14				Soil	
Arsenic	1280055	12/17/98	12/17/98	EPA 6010A	2.07	7.23	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	58.2	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	7.07	"	
Copper	"	"	"	EPA 6010A	0.354	14.5	"	
Lead	"	"	"	EPA 6010A	1.59	2.83	"	
Potassium	"	"	"	EPA 6010A	22.3	3250	"	

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L .., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
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REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP-4 (Soil 5') (continued)			**S812016-14**				**Soil**	
Selenium	1280055	12/17/98	12/17/98	EPA 6010A	2.32	ND	mg/kg dry	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Sodium	"	"	"	EPA 6010A	1.95	332	"	
Mercury	1280048	12/16/98	12/16/98	EPA 7471A Mod.	0.00400	0.0120	"	

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[illegible], INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

TCLP Metals by EPA 1311/6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP 1 (Soil 1')			S812016-01				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	29.4	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	18.4	mg/l	
TP-1 (Soil Interface)			S812016-02				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	27.1	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	15.8	mg/l	
TP-1 (Soil 5')			S812016-03				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	26.1	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	14.3	mg/l	
TP-1 (Dross interface)			S812016-04				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	465	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	31.4	mg/l	
[illegible] (Soil 1')			S812016-05				Soil	
[illegible]otassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	33.3	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	38.3	mg/l	
TP-2 (Dross Interface)			S812016-06				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	131	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	150	mg/l	
TP-2 (Soil 5')			S812016-07				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	24.9	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	16.4	mg/l	
Mud Pit			S812016-08				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	516	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	73.6	mg/l	
TP-3 (Soil 2')			S812016-09				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	23.9	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	17.0	mg/l	
TP-3 (Dross 20")			S812016-10				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	249	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	99.1	mg/l	
TP-3 (Soil 7')			S812016-11				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	30.0	mg/l	

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

TCLP Metals by EPA 1311/6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP-3 (Soil 7') (continued)			S812016-11				Soil	
Sodium	0190006	1/5/99	1/5/99	EPA 6010A	0.0781	18.3	mg/l	
TP-4 (Dross 18")			S812016-12				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	656	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	99.7	mg/l	
TP-4 (Soil 1')			S812016-13				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	52.4	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	26.7	mg/l	
TP-4 (Soil 5')			S812016-14				Soil	
Potassium	0190006	1/5/99	1/5/99	EPA 6010A	0.446	32.7	mg/l	
Sodium	"	"	"	EPA 6010A	0.0781	20.9	mg/l	

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

Anions by EPA Method 300.0
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP 1 (Soil 1')			S812016-01				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	**1.59**	mg/kg dry	
TP-1 (Soil Interface)			S812016-02				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	ND	mg/kg dry	
TP-1 (Soil 5')			S812016-03				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	**3.72**	mg/kg dry	
TP-1 (Dross interface)			S812016-04				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	**7.85**	mg/kg dry	
TP-2 (Soil 1')			S812016-05				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	ND	mg/kg dry	
TP-2 (Dross Interface)			S812016-06				Soil	
ate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	**6.03**	mg/kg dry	
TP-2 (Soil 5')			S812016-07				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	ND	mg/kg dry	
Mud Pit			S812016-08				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	**1.16**	mg/kg dry	
TP-3 (Soil 2')			S812016-09				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	**5.29**	mg/kg dry	
TP-3 (Dross 20")			S812016-10				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	**32.0**	mg/kg dry	
TP-3 (Soil 7')			S812016-11				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	**4.94**	mg/kg dry	
TP-4 (Dross 18")			S812016-12				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	**1.05**	mg/kg dry	
TP-4 (Soil 1')			S812016-13				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	**2.09**	mg/kg dry	
TP-4 (Soil 5')			S812016-14				Soil	
Nitrate-Nitrogen	1280407	12/14/98	12/14/98	EPA 300.0	1.00	**3.39**	mg/kg dry	

th Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Dennis Wells, Lab Director

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NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

., INC.	Project: BNSF Aluminum Dross	Sampled:	12/3/98
2509 152ND AVE NE, STE B	Project Number: 338.32	Received:	12/3/98
REDMOND, WA 98052	Project Manager: DON CLABAUGH	Reported:	1/20/99 12:10

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP-1 (Soil Interface)			S812016-02				Soil	
Arsenic	0190147	1/8/99	1/10/99	EPA 6020	0.500	**10.1**	mg/kg dry	
TP-1 (Soil 5')			S812016-03				Soil	
Arsenic	0190147	1/8/99	1/10/99	EPA 6020	0.500	**12.9**	mg/kg dry	
Selenium	"	"	"	EPA 6020	0.500	ND	"	
TP-1 (Dross interface)			S812016-04				Soil	
Arsenic	0190147	1/8/99	1/10/99	EPA 6020	0.500	**1.34**	mg/kg dry	
Selenium	"	"	"	EPA 6020	0.500	ND	"	
TP-2 (Soil 1')			S812016-05				Soil	
Arsenic	0190147	1/8/99	1/10/99	EPA 6020	0.500	**10.3**	mg/kg dry	
Selenium	"	"	"	EPA 6020	0.500	ND	"	
Mud Pit			S812016-08				Soil	
Arsenic	0190147	1/8/99	1/10/99	EPA 6020	0.500	**12.7**	mg/kg dry	
Selenium	"	"	"	EPA 6020	0.500	ND	"	
TP-3 (Soil 2')			S812016-09				Soil	
Selenium	0190147	1/8/99	1/10/99	EPA 6020	0.500	**0.514**	mg/kg dry	
TP-3 (Dross 20")			S812016-10				Soil	
Arsenic	0190147	1/8/99	1/10/99	EPA 6020	0.500	**19.9**	mg/kg dry	
Selenium	"	"	"	EPA 6020	0.500	ND	"	
TP-4 (Dross 18")			S812016-12				Soil	
Arsenic	0190147	1/8/99	1/10/99	EPA 6020	0.500	**6.45**	mg/kg dry	
TP-4 (Soil 1')			S812016-13				Soil	
Arsenic	0190147	1/8/99	1/10/99	EPA 6020	0.500	**22.2**	mg/kg dry	

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.R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

Anions by EPA Method 300.0
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP-1 (Soil 1')			S812016-01				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	ND	mg/kg dry	1,2
TP-1 (Soil Interface)			S812016-02				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	ND	mg/kg dry	1,2
TP-1 (Soil 5')			S812016-03				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	ND	mg/kg dry	1,2
TP-1 (Dross interface)			S812016-04				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	4.85	mg/kg dry	1,2
TP-2 (Soil 1')			S812016-05				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	ND	mg/kg dry	1,2
TP-2 (Dross Interface)			S812016-06				Soil	
oride		12/14/98	1/7/99	EPA 300.0	0.100	22.4	mg/kg dry	1,2
TP-2 (Soil 5')			S812016-07				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	3.64	mg/kg dry	1,2
Mud Pit			S812016-08				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	ND	mg/kg dry	1,2
TP-3 (Soil 2')			S812016-09				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	9.53	mg/kg dry	1,2
TP-3 (Dross 20")			S812016-10				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	56.5	mg/kg dry	1,2
TP-3 (Soil 7')			S812016-11				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	1.00	112	mg/kg dry	1,2
TP-4 (Dross 18")			S812016-12				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	2.90	mg/kg dry	1,2
TP-4 (Soil 1')			S812016-13				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	ND	mg/kg dry	1,2
TP-4 (Soil 5')			S812016-14				Soil	
Chloride		12/14/98	1/7/99	EPA 300.0	0.100	3.08	mg/kg dry	1,2

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

TCLP Anions by EPA 1311/300 Series Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP 1 (Soil 1')			S812016-01				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	ND	mg/L	
TP-1 (Soil Interface)			S812016-02				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	ND	mg/L	
TP-1 (Soil 5')			S812016-03				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	ND	mg/L	
TP-1 (Dross interface)			S812016-04				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	ND	mg/L	
TP-2 (Soil 1')			S812016-05				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	ND	mg/L	
TP-2 (Dross Interface)			S812016-06				Soil	
oride		12/17/98	12/17/98	EPA 300.0	0.100	7.58	mg/L	
TP-2 (Soil 5')			S812016-07				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	ND	mg/L	
Mud Pit			S812016-08				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	ND	mg/L	
TP-3 (Soil 2')			S812016-09				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	ND	mg/L	
TP-3 (Dross 20")			S812016-10				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	6.76	mg/L	
TP-3 (Soil 7')			S812016-11				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	1.00	8.26	mg/L	
TP-4 (Dross 18")			S812016-12				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	ND	mg/L	
TP-4 (Soil 1')			S812016-13				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	ND	mg/L	
TP-4 (Soil 5')			S812016-14				Soil	
Chloride		12/17/98	12/17/98	EPA 300.0	0.100	6.08	mg/L	

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ıR, INC.	Project:	BNSF Aluminum Dross	Sampled:	12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received:	12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported:	1/20/99 12:10

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
TP 1 (Soil 1')	S812016-01	Soil	96.1	%
TP-1 (Soil Interface)	S812016-02	Soil	95.9	%
TP-1 (Soil 5')	S812016-03	Soil	94.8	%
TP-1 (Dross interface)	S812016-04	Soil	80.4	%
TP-2 (Soil 1')	S812016-05	Soil	94.0	%
TP-2 (Dross Interface)	S812016-06	Soil	73.1	%
TP-2 (Soil 5')	S812016-07	Soil	95.8	%
Mud Pit	S812016-08	Soil	67.8	%
3 (Soil 2')	S812016-09	Soil	95.2	%
TP-3 (Dross 20")	S812016-10	Soil	77.4	%
TP-3 (Soil 7')	S812016-11	Soil	76.4	%
TP-4 (Dross 18")	S812016-12	Soil	93.0	%
TP-4 (Soil 1')	S812016-13	Soil	96.0	%
TP-4 (Soil 5')	S812016-14	Soil	97.6	%

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', INC.	Project:	BNSF Aluminum Dross	Sampled:	12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received:	12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported:	1/20/99 12:10

Dry Weight Determination
North Creek Analytical - Spokane

Sample Name	Lab ID	Matrix	Result	Units
TP 1 (Soil 1')	S812016-01	Soil	95.2	%
TP-1 (Soil Interface)	S812016-02	Soil	94.5	%
TP-1 (Soil 5')	S812016-03	Soil	94.4	%
TP-1 (Dross interface)	S812016-04	Soil	78.9	%
TP-2 (Soil 1')	S812016-05	Soil	87.4	%
TP-2 (Dross Interface)	S812016-06	Soil	73.8	%
TP-2 (Soil 5')	S812016-07	Soil	96.0	%
Mud Pit	S812016-08	Soil	64.5	%
3 (Soil 2')	S812016-09	Soil	96.1	%
TP-3 (Dross 20")	S812016-10	Soil	74.2	%
TP-3 (Soil 7')	S812016-11	Soil	97.6	%
TP-4 (Dross 18")	S812016-12	Soil	75.1	%
TP-4 (Soil 1')	S812016-13	Soil	91.6	%
TP-4 (Soil 5')	S812016-14	Soil	96.1	%

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1280048	**Date Prepared: 12/16/98**					**Extraction Method: EPA 3050**				
Blank	1280048-BLK1									
Mercury	12/16/98			0.00450	mg/kg dry	0.00400				
LCS	1280048-BS1									
Mercury	12/16/98	0.250		0.255	mg/kg dry	85.0-110	102			
Duplicate	1280048-DUP1		S812016-06							
Mercury	12/16/98		0.0163	0.0142	mg/kg dry			15.7	13.8	
Matrix Spike	1280048-MS1		S812016-06							
Mercury	12/16/98	0.339	0.0163	0.341	mg/kg dry	75.0-125	95.8			
Matrix Spike Dup	1280048-MSD1		S812016-06							
Mercury	12/16/98	0.339	0.0163	0.348	mg/kg dry	75.0-125	97.8	20.0	2.07	
ch: 1280055	**Date Prepared: 12/17/98**					**Extraction Method: EPA 3050**				
..nk	1280055-BLK1									
Arsenic	12/17/98			ND	mg/kg dry	2.07				
Barium	"			ND	"	0.313				
Cadmium	"			ND	"	0.214				
Chromium	"			ND	"	0.195				
Copper	"			ND	"	0.354				
Lead	"			ND	"	1.59				
Potassium	"			ND	"	22.3				
Selenium	"			ND	"	2.32				
Silver	"			ND	"	2.26				
Sodium	"			ND	"	1.95				
LCS	1280055-BS1									
Arsenic	12/17/98	50.0		50.3	mg/kg dry	80.0-140	101			
Barium	"	50.0		74.3	"	80.0-149	149			
Cadmium	"	50.0		45.7	"	70.0-140	91.4			
Chromium	"	50.0		43.1	"	70.0-135	86.2			
Copper	"	50.0		51.4	"	70.0-135	103			
Lead	"	50.0		37.8	"	70.0-135	75.6			
Potassium	"	500		550	"	70.0-120	110			
Selenium	"	50.0		39.4	"	80.0-130	78.8			3
Silver	"	25.0		30.0	"	70.0-130	120			
Sodium	"	500		640	"	80.0-200	128			

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.R, INC.	Project: BNSF Aluminum Dross	Sampled:	12/3/98
2509 152ND AVE NE, STE B	Project Number: 338.32	Received:	12/3/98
REDMOND, WA 98052	Project Manager: DON CLABAUGH	Reported:	1/20/99 12:10

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Duplicate	1280055-DUP1		S812016-01							
Arsenic	12/17/98		2.46	17.7	mg/kg dry			20.0	151	
Barium	"		42.1	42.5	"			20.0	0.946	
Cadmium	"		ND	ND	"			20.0		
Chromium	"		7.98	8.51	"			20.0	6.43	
Copper	"		30.3	38.0	"			20.0	22.5	
Lead	"		12.6	13.1	"			20.0	3.89	
Potassium	"		3130	3430	"			20.0	9.15	
Selenium	"		ND	20.6	"			20.0		
Silver	"		ND	ND	"			20.0		
Sodium	"		351	376	"			20.0	6.88	
Matrix Spike	1280055-MS1		S812016-01							
Arsenic	12/17/98	52.5	2.46	47.6	mg/kg dry	70.0-130	86.0			
Barium	"	52.5	42.1	106	"	70.0-130	122			
Cadmium	"	52.5	ND	51.6	"	70.0-130	98.3			
ɔmium	"	52.5	7.98	66.7	"	70.0-130	112			
ɹpper	"	52.5	30.3	83.2	"	69.0-130	101			
Lead	"	52.5	12.6	75.7	"	70.0-130	120			
Potassium	"	525	3130	4670	"	70.0-130	NR			3
Selenium	"	52.5	ND	52.4	"	70.0-130	99.8			
Silver	"	26.3	ND	33.9	"	80.0-120	129			3
Sodium	"	525	351	469	"	70.0-130	22.5			3
Matrix Spike Dup	1280055-MSD1		S812016-01							
Arsenic	12/17/98	52.5	2.46	62.9	mg/kg dry	70.0-130	115	20.0	28.9	
Barium	"	52.5	42.1	87.0	"	70.0-130	85.5	20.0	35.2	
Cadmium	"	52.5	ND	51.5	"	70.0-130	98.1	20.0	0.204	
Chromium	"	52.5	7.98	61.9	"	70.0-130	103	20.0	8.37	
Copper	"	52.5	30.3	79.0	"	69.0-130	92.8	20.0	8.46	
Lead	"	52.5	12.6	82.3	"	70.0-130	133	20.0	10.3	3
Potassium	"	525	3130	2890	"	70.0-130	NR	20.0	NR	3
Selenium	"	52.5	ND	47.8	"	70.0-130	91.0	20.0	9.22	
Silver	"	26.3	ND	35.0	"	80.0-120	133	20.0	3.05	3
Sodium	"	525	351	389	"	70.0-130	7.24	20.0	103	3

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', INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

TCLP Metals by EPA 1311/6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0190006	**Date Prepared: 1/5/99**					**Extraction Method: EPA 3010 TCLP**				
Blank	0190006-BLK1									
Potassium	1/5/99			ND	mg/kg	0.446				
Sodium	"			1.04	mg/l	0.0781				
LCS	0190006-BS1									
Potassium	1/5/99	10.0		8.56	mg/kg	80.0-120	85.6			
Sodium	"	10.0		10.8	mg/l	80.0-120	108			
Duplicate	0190006-DUP1		S812016-03							
Potassium	1/5/99		26.1	34.0	mg/kg			20.0	26.3	
Sodium	"		14.3	17.6	mg/l			20.0	20.7	
Duplicate	0190006-DUP2		S812016-08							
Potassium	1/5/99		516	32.7	mg/kg			20.0	176	
Sodium	"		73.6	69.5	mg/l			20.0	5.73	
Matrix Spike	0190006-MS1		S812016-03							
Potassium	1/5/99	10.0	26.1	38.0	mg/kg	70.0-130	119			
Sodium	"	10.0	14.3	16.0	mg/l	70.0-130	17.0			3
Matrix Spike Dup	0190006-MSD1		S812016-03							
Potassium	1/5/99	10.0	26.1	38.1	mg/kg	70.0-130	120	20.0	0.837	
Sodium	"	10.0	14.3	16.5	mg/l	70.0-130	22.0	20.0	25.6	3

th Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Dennis Wells, Lab Director

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, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

Anions by EPA Method 300.0/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1280407	**Date Prepared: 12/14/98**				**Extraction Method: General Preparation**					
Blank	**1280407-BLK1**									
Nitrate-Nitrogen	12/14/98			ND	mg/kg dry	1.00				
LCS	**1280407-BS1**									
Nitrate-Nitrogen	12/14/98	9.00		8.50	mg/kg dry	90.0-110	94.4			
Duplicate	**1280407-DUP1**		**S812016-01**							
Nitrate-Nitrogen	12/14/98		1.59	1.02	mg/kg dry			14.0	**43.7**	4
Matrix Spike	**1280407-MS1**		**S812016-01**							
Nitrate-Nitrogen	12/14/98	8.59	1.59	8.85	mg/kg dry	52.0-148	**84.5**			
Batch: 1280635	**Date Prepared: 12/17/98**				**Extraction Method: General Preparation**					
Blank	**1280635-BLK1**									
Chloride	12/17/98			ND	mg/l	0.100				
LCS	**1280635-BS1**									
Chloride	12/17/98	2.00		1.81	mg/l	90.0-110	90.5			
Duplicate	**1280635-DUP1**		**S812016-01**							
Chloride	12/17/98		ND	ND	mg/l			16.0		1,2
Matrix Spike	**1280635-MS1**		**S812016-01**							
Chloride	12/17/98	40.0	ND	43.6	mg/l	56.0-140	109			1,2

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

Total Metals by EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0190147	**Date Prepared: 1/8/99**					**Extraction Method: EPA 3050B**				
Blank	**0190147-BLK1**									
Arsenic	1/10/99			ND	mg/kg dry	0.500				
Selenium	"			ND	"	0.500				
LCS	**0190147-BS1**									
Arsenic	1/10/99	25.0		25.8	mg/kg dry	70.0-130	103			
Selenium	"	25.0		25.2	"	70.0-130	101			
Duplicate	**0190147-DUP1**		**B901087-01**							
Arsenic	1/10/99		1.41	1.38	mg/kg dry			20.0	**2.15**	
Selenium	"		ND	ND	"			20.0		
Matrix Spike	**0190147-MS1**		**B901087-01**							
Arsenic	1/10/99	24.7	1.41	26.0	mg/kg dry	70.0-130	99.6			
Selenium	"	24.7	ND	24.5	"	70.0-130	99.2			

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', INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

Anions by EPA Method 300.0/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0190135	**Date Prepared: 12/14/98**					**Extraction Method: General Preparation**				
Blank	0190135-BLK1									
Chloride	12/14/98			ND	mg/kg dry	0.100				
Blank	0190135-BLK2									
Chloride	1/7/99			ND	mg/kg dry	0.100				
LCS	0190135-BS1									
Chloride	12/14/98	20.0		17.9	mg/kg dry	90.0-110	89.5			5
LCS	0190135-BS2									
Chloride	1/7/99	20.0		19.9	mg/kg dry	90.0-110	99.5			
Duplicate	0190135-DUP1		S812016-01							
Chloride	12/14/98		ND	ND	mg/kg dry			25.0		
licate	0190135-DUP2		S812016-11							
oride	1/7/99		112	114	mg/kg dry			25.0	1.77	
Matrix Spike	0190135-MS1		S812016-01							
Chloride	12/14/98	20.8	ND	21.1	mg/kg dry	62.0-157	101			
Matrix Spike	0190135-MS2		S812016-11							
Chloride	1/7/99	262	112	390	mg/kg dry	62.0-157	106			

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Refer to end of report for text of notes and definitions.

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/3/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/20/99 12:10

Notes and Definitions

#	Note
1	Samples were diluted due to a matrix interference
2	Reporting limits must still be raised to account for extraction procedure
3	The spike recovery for this QC sample is outside of NCA established control limits. Alternate sources of QC have been used to validate the batch.
4	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
5	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

rth Creek Analytical, Inc.

Dennis Wells, Lab Director

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9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order #: 338.32 S812016

CLIENT: EMR, Inc.
ADDRESS: 2509 152nd Ave NE, Ste B Redmond, WA 98052
PHONE: (425) 861-4561 FAX: (425) 869-7820
PROJECT NAME: BNSF Aluminum Dross
PROJECT NUMBER: 338
SAMPLED BY: Greg McCormick

REPORT TO: EMR, Inc.
ATTENTION: Don Clabaugh
BILLING TO: EMR, Inc
P.O. NUMBER:
NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: [X] 10 [ ] 5 [ ] 3 [ ] 2 [ ] 1
Fuels & Hydrocarbon Analyses: [ ] 5 [ ] 3 [ ] 2 [ ] 1
[ ] OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

NCA SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	RCRA & Metals	Copper (Cu)	Sodium	Potassium	Chloride	TCLP-Sodium	TCLP-Potassium	Chloride	Nitrate, Nitrite	MATRIX (W, S, O)	# OF CONTAINERS	COMMENTS & PRESERVATIVES USED
S812016-01	1. TP-1 (Soil 1')	12/3/98	X	X	X	X	X	X	X	X		S	1	Cold
02	2. TP-1 Soil interface											S	1	
03	3. TP-1 (Soil 5')											S	1	
04	4. TP-1 Dross interface											S	1	
05	5. TP-2 (Soil 1')											S	1	
06	6. TP-2 (Dross interface)											S	1	
07	7. TP-2 (Soil 5')											S	1	
08 GrabML	8. ~~TP-2~~ Mud Pit											S	1	
09	9. TP-3 (Soil 2')											S	1	
10	10. TP-3 (Dross 20")											S	1	

RELINQUISHED BY: Greg M Cormick DATE: 12/3/98
PRINT NAME: Greg McCormick FIRM: EMR, Inc TIME: 3:00PM

RECEIVED BY: Heidi Hines DATE: 12/3
PRINT NAME: H. Hines FIRM: TIME: 3 00

RELINQUISHED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS: WDOE EDD chloride TCLP is erroneously entered twice above.
RCRA Metals As, Ba, Cd, Cr, Pb Hg, Se, Ag 11/24/98 W.O.

PAG OF 2

COC Rev 7, 8/95

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CHAIN OF CUSTODY REPORT

Work Order #: 338.32 S812016

CLIENT: EMR, Inc.

ADDRESS: 2509 152nd Ave NE, Ste B
Redmond, WA 98052

PHONE: (425) 861-4561 FAX (425) 869-7820

PROJECT NAME: BNSF Aluminum Dross

PROJECT NUMBER: 338

SAMPLED BY: Greg McCormick

REPORT TO: EMR, Inc

ATTENTION: Don Clabaugh

BILLING TO:

P.O. NUMBER:

NCA QUOTE #:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: [X] 10 [ ] 5 [ ] 3 [ ] 2 [ ] 1

Fuels & Hydrocarbon Analyses: [ ] 5 [ ] 3 [ ] 2 [ ] 1

[ ] OTHER Specify:

** Turnaround Requests less than standard may incur Rush Charges.*

NCA SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	Analysis Request: RCRA 8 metals (WA/1000)	Copper (CU)	Sodium	Potassium	Chloride 9251	TCLP Sodium	TCLP Potassium	Chloride TCLP 9100	Nitrate 9100			MATRIX (W, S, O)	# OF CONTAINERS	COMMENTS & PRESERVATIVES USED
S812016-11	1. TP-3 (Soil 7')	12/3/98	X	X	X	X	X	X	X	X				S	1	Cold
-12	2. TP-4 (Dross 18")	↓	↓	↓	↓	↓	↓	↓	↓	↓				S	1	↓
-13	3. TP-4 (Soil 11')		↓	↓	↓	↓	↓	↓	↓	↓				S	1	↓
-14	4. TP-4 (Soil 5')	↓	↓	↓	↓	↓	↓	↓	↓	↓						
	5.															
	6.															
	7.															
	8.															
	9.															
	10.															

RELINQUISHED BY: Greg M Cormick DATE: 12/3/98
PRINT NAME: Greg McCormick FIRM: EMR, Inc TIME: 3:00 PM

RECEIVED BY: H. Hims DATE: 12/3/98
PRINT NAME: H. Hims FIRM: TIME: 3⁰⁰

RELINQUISHED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2009 152ND AVE NE, STE B	Project Number:	338.32	Received: 1/18/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/27/99 10:42

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
B5-5	S901032-01	Soil	12/15/98

Dennis Wells, Lab Director

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2..9 152ND AVE NE, STE B	Project Number:	338.32	Received: 1/18/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/27/99 10:42

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
B5-5			S901032-01				Soil	
Arsenic	0190040	1/25/99	1/25/99	EPA 6010A	2.07	**4.71**	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	**71.5**	"	
Cadmium	"	"	"	EPA 6010A	0.214	**0.254**	"	
Chromium	"	"	"	EPA 6010A	0.195	**13.2**	"	
Copper	"	"	"	EPA 6010A	0.354	**18.4**	"	
Lead	"	"	"	EPA 6010A	1.59	**14.8**	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	**5.27**	"	
Mercury	0190039	"	"	EPA 7471A Mod.	0.00400	ND	"	

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., INC.	Project:	BNSF Aluminum Dross	Sampled:	12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received:	1/18/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported:	1/27/99 10:42

Dry Weight Determination
North Creek Analytical - Spokane

Sample Name	Lab ID	Matrix	Result	Units
B5-5	S901032-01	Soil	91.3	%

NORTH CREEK ANALYTICAL
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℄, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 1/18/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/27/99 10:42

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0190039	**Date Prepared: 1/25/99**					**Extraction Method: EPA 3050**				
Blank	0190039-BLK1									
Mercury	1/25/99			ND	mg/kg dry	0.00400				
LCS	0190039-BS1									
Mercury	1/25/99	0.250		0.262	mg/kg dry	85.0-110	105			
Duplicate	0190039-DUP1		S901031-01							
Mercury	1/25/99		ND	ND	mg/kg dry			15.7		
Matrix Spike	0190039-MS1		S901031-01							
Mercury	1/25/99	0.270	ND	0.265	mg/kg dry	75.0-125	98.1			
Matrix Spike Dup	0190039-MSD1		S901031-01							
Mercury	1/25/99	0.270	ND	0.288	mg/kg dry	75.0-125	107	20.0	8.68	
h: 0190040	**Date Prepared: 1/25/99**					**Extraction Method: EPA 3050**				
ank	0190040-BLK1									
Arsenic	1/25/99			ND	mg/kg dry	2.07				
Barium	"			ND	"	0.313				
Cadmium	"			ND	"	0.214				
Chromium	"			ND	"	0.195				
Copper	"			0.826	"	0.354				
Lead	"			5.80	"	1.59				
Selenium	"			ND	"	2.32				
Silver	"			ND	"	2.26				
LCS	0190040-BS1									
Arsenic	1/25/99	50.0		48.5	mg/kg dry	80.0-140	97.0			
Barium	"	50.0		48.4	"	80.0-149	96.8			
Cadmium	"	50.0		46.6	"	70.0-140	93.2			
Chromium	"	50.0		45.0	"	70.0-135	90.0			
Copper	"	50.0		47.5	"	70.0-135	95.0			
Lead	"	50.0		47.5	"	70.0-135	95.0			
Selenium	"	50.0		42.6	"	80.0-130	85.2			
Silver	"	25.0		33.0	"	70.0-130	132			1
Duplicate	0190040-DUP1		S901027-01							
Arsenic	1/25/99		4.29	4.05	mg/kg dry			20.0	5.76	
Barium	"		70.4	89.9	"			20.0	24.3	
Cadmium	"		0.724	ND	"			20.0		
Chromium	"		9.84	11.2	"			20.0	12.9	

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 1/18/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/27/99 10:42

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Duplicate (continued)	0190040-DUP1		S901027-01							
Copper	1/25/99		10.3	13.5	mg/kg dry			20.0	26.9	
Lead	"		9.01	8.18	"			20.0	9.66	
Selenium	"		4.36	8.30	"			20.0	62.5	
Silver	"		ND	4.83	"			20.0		
Matrix Spike	0190040-MS1		S901027-01							
Arsenic	1/25/99	53.7	4.29	70.3	mg/kg dry	70.0-130	123			
Barium	"	53.7	70.4	128	"	70.0-130	107			
Cadmium	"	53.7	0.724	55.6	"	70.0-130	102			
Chromium	"	53.7	9.84	64.5	"	70.0-130	102			
Copper	"	53.7	10.3	66.1	"	69.0-130	104			
Lead	"	53.7	9.01	64.1	"	70.0-130	103			
Selenium	"	53.7	4.36	52.8	"	70.0-130	90.2			
Silver	"	26.9	ND	20.6	"	70.0-130	76.6			
'rix Spike Dup	0190040-MSD1		S901027-01							
.nic	1/25/99	53.7	4.29	66.7	mg/kg dry	70.0-130	116	20.0	5.86	
Barium	"	53.7	70.4	139	"	70.0-130	128	20.0	17.9	
Cadmium	"	53.7	0.724	54.7	"	70.0-130	101	20.0	0.985	
Chromium	"	53.7	9.84	64.5	"	70.0-130	102	20.0	0	
Copper	"	53.7	10.3	67.3	"	69.0-130	106	20.0	1.90	
Lead	"	53.7	9.01	64.2	"	70.0-130	103	20.0	0	
Selenium	"	53.7	4.36	71.8	"	70.0-130	126	20.0	33.1	
Silver	"	26.9	ND	21.0	"	70.0-130	78.1	20.0	1.94	

'th Creek Analytical, Inc.

Refer to end of report for text of notes and definitions.

Dennis Wells, Lab Director

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
9 152ND AVE NE, STE B	Project Number:	338.32	Received: 1/18/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 1/27/99 10:42

Notes and Definitions

#	Note
1	The spike recovery for this QC sample is outside of NCA established control limits.

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Dennis Wells, Lab Director

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EMR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/9/99 11:54

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-5/12/15/98	S902012-01	Water	12/15/98

Dennis Wells, Lab Director

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2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/9/99 11:54

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-5/12/15/98			S902012-01				Water	
Arsenic	0290069	2/2/99	2/3/99	EPA 6020	0.00100	**0.00148**	mg/l	
Barium	"	"	"	EPA 6020	0.0100	**0.134**	"	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00154**	"	
Copper	"	"	"	EPA 6020	0.00100	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Selenium	"	"	"	EPA 6020	0.00100	**0.00150**	"	
Silver	"	"	"	EPA 6020	0.00100	ND	"	
Mercury	0290189	2/5/99	2/8/99	EPA 7470A	0.00100	ND	"	

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EMR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/9/99 11:54

Total Metals by EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0290069	**Date Prepared: 2/2/99**					**Extraction Method: EPA 3020A**				
Blank	0290069-BLK1									
Arsenic	2/3/99			ND	mg/l	0.00100				
Barium	"			ND	"	0.0100				
Cadmium	"			ND	"	0.00100				
Chromium	"			ND	"	0.00100				
Copper	"			ND	"	0.00100				
Lead	"			ND	"	0.00100				
Selenium	"			ND	"	0.00100				
Silver	"			ND	"	0.00100				
LCS	0290069-BS1									
Arsenic	2/3/99	0.200		0.204	mg/l	80.0-120	102			
Barium	"	0.200		0.205	"	80.0-120	102			
Cadmium	"	0.200		0.202	"	80.0-120	101			
ɔmium	"	0.200		0.200	"	80.0-120	100			
ɹpper	"	0.200		0.197	"	80.0-120	98.5			
Lead	"	0.200		0.205	"	80.0-120	102			
Selenium	"	0.200		0.205	"	80.0-120	102			
Silver	"	0.200		0.201	"	80.0-120	101			
Duplicate	0290069-DUP1		S902012-01							
Arsenic	2/3/99		0.00148	0.00142	mg/l			20.0	4.14	
Barium	"		0.134	0.133	"			20.0	0.749	
Cadmium	"		ND	ND	"			20.0		
Chromium	"		0.00154	0.00157	"			20.0	1.93	
Copper	"		ND	ND	"			20.0		
Lead	"		ND	ND	"			20.0		
Selenium	"		0.00150	0.00128	"			20.0	15.8	
Silver	"		ND	ND	"			20.0		
Matrix Spike	0290069-MS1		S902012-01							
Arsenic	2/3/99	0.200	0.00148	0.205	mg/l	75.0-125	102			
Barium	"	0.200	0.134	0.350	"	75.0-125	108			
Cadmium	"	0.200	ND	0.185	"	75.0-125	92.5			
Chromium	"	0.200	0.00154	0.189	"	75.0-125	93.7			
Copper	"	0.200	ND	0.161	"	75.0-125	80.5			
Lead	"	0.200	ND	0.216	"	75.0-125	108			
Selenium	"	0.200	0.00150	0.196	"	75.0-125	97.2			
Silver	"	0.200	ND	0.136	"	75.0-125	68.0			

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Refer to end of report for text of notes and definitions.

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2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/9/99 11:54

Total Metals by EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike	0290069-MS2		S902012-01							
Silver	2/4/99	1.00	ND	0.874	mg/l	75.0-125	87.4			2
Batch: 0290189	Date Prepared: 2/5/99					Extraction Method: EPA 7470A				
Blank	0290189-BLK1									
Mercury	2/8/99			ND	mg/l	0.00100				
LCS	0290189-BS1									
Mercury	2/8/99	0.00500		0.00543	mg/l	70.0-130	109			
Matrix Spike	0290189-MS1		S812053-03							
Mercury	2/8/99	0.00500	ND	0.00502	mg/l	75.0-125	100			
Matrix Spike Dup	0290189-MSD1		S812053-03							
Mercury	2/8/99	0.00500	ND	0.00512	mg/l	75.0-125	102	20.0	1.98	

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EMR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/9/99 11:54

Notes and Definitions

#	Note
1	The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference.
2	Post-digestion Matrix Spike.

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
D	Relative Percent Difference

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℄, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98
2009 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/11/99 11:21

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
B1-27	S902013-01	Soil	12/14/98

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², INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98
2009 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/11/99 11:21

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
B1-27			S902013-01				Soil	
Arsenic	0290031	2/9/99	2/9/99	EPA 6010A	2.07	**7.31**	mg/kg dry	
Barium	"	"	"	EPA 6010A	0.313	**52.4**	"	
Cadmium	"	"	"	EPA 6010A	0.214	ND	"	
Chromium	"	"	"	EPA 6010A	0.195	**11.9**	"	
Lead	"	"	"	EPA 6010A	1.59	**12.8**	"	
Selenium	"	"	"	EPA 6010A	2.32	ND	"	
Silver	"	"	"	EPA 6010A	2.26	ND	"	
Mercury	0290024	2/5/99	2/5/99	EPA 7471A Mod.	0.00400	**0.0344**	"	

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', INC.	Project:	BNSF Aluminum Dross	Sampled:	12/14/98
2009 152ND AVE NE, STE B	Project Number:	338.32	Received:	2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported:	2/11/99 11:21

Dry Weight Determination
North Creek Analytical - Spokane

Sample Name	Lab ID	Matrix	Result	Units
B1-27	S902013-01	Soil	90.1	%

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, INC.	Project: BNSF Aluminum Dross	Sampled: 12/14/98
2509 152ND AVE NE, STE B	Project Number: 338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager: DON CLABAUGH	Reported: 2/11/99 11:21

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0290024	**Date Prepared: 2/5/99**				**Extraction Method: EPA 3050**					
Blank	**0290024-BLK1**									
Mercury	2/5/99			ND	mg/kg dry	**0.00400**				
LCS	**0290024-BS1**									
Mercury	2/5/99	0.250		0.255	mg/kg dry	85.0-110	102			
Duplicate	**0290024-DUP1**		**S902019-02**							
Mercury	2/5/99		0.0203	0.0225	mg/kg dry			15.7	**10.3**	
Matrix Spike	**0290024-MS1**		**S902019-02**							
Mercury	2/5/99	0.267	0.0203	0.252	mg/kg dry	75.0-125	86.8			
Matrix Spike Dup	**0290024-MSD1**		**S902019-02**							
Mercury	2/5/99	0.267	0.0203	0.253	mg/kg dry	75.0-125	87.2	20.0	**0.460**	
h: 0290031	**Date Prepared: 2/9/99**				**Extraction Method: EPA 3050**					
k	**0290031-BLK1**									
Arsenic	2/9/99			ND	mg/kg dry	**2.07**				
Barium	"			ND	"	**0.313**				
Cadmium	"			ND	"	**0.214**				
Chromium	"			ND	"	**0.195**				
Lead	"			ND	"	**1.59**				
Selenium	"			ND	"	**2.32**				
Silver	"			ND	"	**2.26**				
LCS	**0290031-BS1**									
Arsenic	2/9/99	50.0		51.7	mg/kg dry	80.0-140	103			
Barium	"	50.0		45.4	"	80.0-149	90.8			
Cadmium	"	50.0		49.5	"	70.0-140	99.0			
Chromium	"	50.0		49.3	"	70.0-135	98.6			
Lead	"	50.0		53.5	"	70.0-135	107			
Selenium	"	50.0		52.4	"	80.0-130	105			
Silver	"	25.0		18.4	"	70.0-130	73.6			
Duplicate	**0290031-DUP1**		**S902018-01**							
Arsenic	2/9/99		4.99	16.2	mg/kg dry			20.0	**106**	
Barium	"		83.6	91.7	"			20.0	**9.24**	
Cadmium	"		ND	ND	"			20.0		
Chromium	"		12.3	14.3	"			20.0	**15.0**	
Lead	"		10.2	13.0	"			20.0	**24.1**	
Selenium	"		ND	ND	"			20.0		

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/11/99 11:21

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Duplicate (continued)	0290031-DUP1		S902018-01							
Silver	2/9/99		ND	ND	mg/kg dry			20.0		
Matrix Spike	0290031-MS1		S902018-01							
Arsenic	2/9/99	55.0	4.99	60.6	mg/kg dry	70.0-130	101			
Barium	"	55.0	83.6	136	"	70.0-130	95.3			
Cadmium	"	55.0	ND	55.7	"	70.0-130	101			
Chromium	"	55.0	12.3	66.9	"	70.0-130	99.3			
Lead	"	55.0	10.2	67.6	"	70.0-130	104			
Selenium	"	55.0	ND	62.9	"	70.0-130	114			
Silver	"	27.5	ND	20.0	"	70.0-130	72.7			
Matrix Spike Dup	0290031-MSD1		S902018-01							
Arsenic	2/9/99	55.0	4.99	66.0	mg/kg dry	70.0-130	111	20.0	9.43	
Barium	"	55.0	83.6	141	"	70.0-130	104	20.0	8.73	
Cadmium	"	55.0	ND	57.1	"	70.0-130	104	20.0	2.93	
[illegible]mium	"	55.0	12.3	68.7	"	70.0-130	103	20.0	3.66	
[illegible]d	"	55.0	10.2	69.0	"	70.0-130	107	20.0	2.84	
Selenium	"	55.0	ND	56.6	"	70.0-130	103	20.0	10.1	
Silver	"	27.5	ND	20.9	"	70.0-130	76.0	20.0	4.44	

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', INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98
2309 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/11/99 11:21

Notes and Definitions

#	Note
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

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.R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/3/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/11/99 12:06

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
B1-9	S902017-01	Soil	12/14/98
B2-5	S902017-02	Soil	12/15/98
B3-1	S902017-03	Soil	12/15/98
B4-S	S902017-04	Soil	12/15/98
B4-2	S902017-05	Soil	12/15/98
B5-S	S902017-06	Soil	12/15/98

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/3/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/11/99 12:06

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
B1-9			S902017-01				Soil	
Arsenic	0290178	2/5/99	2/8/99	EPA 6020	0.500	**1.51**	mg/kg dry	
B2-5			S902017-02				Soil	
Arsenic	0290178	2/5/99	2/8/99	EPA 6020	0.500	**7.24**	mg/kg dry	
B3-1			S902017-03				Soil	
Arsenic	0290178	2/5/99	2/8/99	EPA 6020	0.500	**1.01**	mg/kg dry	
B4-S			S902017-04				Soil	
Arsenic	0290178	2/5/99	2/8/99	EPA 6020	0.500	**5.75**	mg/kg dry	
Selenium	"	"	"	EPA 6020	0.500	ND	"	
B4-2			S902017-05				Soil	
Arsenic	0290178	2/5/99	2/8/99	EPA 6020	0.500	**22.2**	mg/kg dry	
B			S902017-06				Soil	
...senic	0290178	2/5/99	2/8/99	EPA 6020	0.500	**1.34**	mg/kg dry	

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.R, INC.	Project:	BNSF Aluminum Dross	Sampled:	12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received:	2/3/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported:	2/11/99 12:06

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
B1-9	S902017-01	Soil	76.3	%
B2-5	S902017-02	Soil	86.6	%
B3-1	S902017-03	Soil	72.0	%
B4-S	S902017-04	Soil	77.7	%
B4-2	S902017-05	Soil	90.6	%
B5-S	S902017-06	Soil	74.7	%

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/3/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/11/99 12:06

Dry Weight Determination
North Creek Analytical - Spokane

Sample Name	Lab ID	Matrix	Result	Units
B1-9	S902017-01	Soil	77.3	%
B2-5	S902017-02	Soil	85.6	%
B3-1	S902017-03	Soil	73.9	%
B4-S	S902017-04	Soil	69.2	%
B4-2	S902017-05	Soil	91.6	%
B5-S	S902017-06	Soil	76.6	%

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..R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/3/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/11/99 12:06

Total Metals by EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0290178	**Date Prepared: 2/5/99**					**Extraction Method: EPA 3050B**				
Blank	0290178-BLK1									
Arsenic	2/8/99			ND	mg/kg dry	0.500				
Selenium	"			ND	"	0.500				
LCS	0290178-BS1									
Arsenic	2/8/99	25.0		24.8	mg/kg dry	70.0-130	99.2			
Selenium	"	25.0		24.9	"	70.0-130	99.6			
Duplicate	0290178-DUP1		S902017-03							
Arsenic	2/8/99		1.01	1.48	mg/kg dry			20.0	37.8	1
Selenium	"		ND	ND	"			20.0		
Matrix Spike	0290178-MS1		S902017-03							
Arsenic	2/8/99	32.4	1.01	23.2	mg/kg dry	70.0-130	68.5			2
Selenium	"	32.4	ND	19.7	"	70.0-130	60.8			2
Matrix Spike	0290178-MS2		S902017-03							
Arsenic	2/10/99	661	1.01	685	mg/kg dry	70.0-130	103			3
Selenium	"	661	ND	676	"	70.0-130	102			3

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. .R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/3/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/11/99 12:06

Notes and Definitions

#	Note
1	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
2	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
3	Post-digestion Matrix Spike.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
)	Relative Percent Difference

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[illegible]R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 11:18

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
B1-9	S812054-01	Soil	12/14/98
B1-23	S812054-02	Soil	12/14/98
B2-1	S812054-04	Soil	12/15/98
B2-5	S812054-05	Soil	12/15/98
B3-1	S812054-06	Soil	12/15/98
B3-3	S812054-07	Soil	12/15/98
B3-7	S812054-08	Soil	12/15/98
B4-S	S812054-09	Soil	12/15/98
B4-2	S812054-10	Soil	12/15/98
B4-5	S812054-11	Soil	12/15/98
B5-S	S812054-12	Soil	12/15/98
B5-2	S812054-13	Soil	12/15/98

Dennis Wells, Lab Director

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..R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 11:18

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
B1-9			S812054-01				Soil	
Mercury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	**0.00971**	mg/kg dry	
B1-23			S812054-02				Soil	
Mercury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	ND	mg/kg dry	
B2-1			S812054-04				Soil	
Mercury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	**0.0164**	mg/kg dry	
B2-5			S812054-05				Soil	
Mercury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	**0.00643**	mg/kg dry	
B3-1			S812054-06				Soil	
Mercury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	**0.0122**	mg/kg dry	
B3-3			S812054-07				Soil	
cury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	ND	mg/kg dry	
B3-7			S812054-08				Soil	
Mercury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	**0.00487**	mg/kg dry	
B4-S			S812054-09				Soil	
Mercury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	**0.00939**	mg/kg dry	
B4-2			S812054-10				Soil	
Mercury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	**0.0235**	mg/kg dry	
B4-5			S812054-11				Soil	
Mercury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	**0.0295**	mg/kg dry	
B5-S			S812054-12				Soil	
Mercury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	**0.00914**	mg/kg dry	
B5-2			S812054-13				Soil	
Mercury	0190018	1/12/99	1/12/99	EPA 7471A Mod.	0.00400	**0.0192**	mg/kg dry	

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., INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 11:18

Dry Weight Determination
North Creek Analytical - Spokane

Sample Name	Lab ID	Matrix	Result	Units
B1-9	S812054-01	Soil	77.3	%
B1-23	S812054-02	Soil	92.8	%
B2-1	S812054-04	Soil	88.5	%
B2-5	S812054-05	Soil	85.6	%
B3-1	S812054-06	Soil	73.9	%
B3-3	S812054-07	Soil	89.3	%
B3-7	S812054-08	Soil	92.5	%
B4-S	S812054-09	Soil	69.2	%
2	S812054-10	Soil	91.6	%
B4-5	S812054-11	Soil	88.0	%
B5-S	S812054-12	Soil	76.6	%
B5-2	S812054-13	Soil	88.4	%

th Creek Analytical, Inc.

Dennis Wells, Lab Director

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[illegible], INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 11:18

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0190018	**Date Prepared: 1/12/99**					**Extraction Method: EPA 3050**				
Blank	0190018-BLK1									
Mercury	1/12/99			**ND**	mg/kg dry	**0.00400**				
LCS	0190018-BS1									
Mercury	1/12/99	0.250		0.285	mg/kg dry	85.0-110	114			
Duplicate	0190018-DUP1		S812054-01							
Mercury	1/12/99		0.00971	0.0162	mg/kg dry			15.7	**50.1**	
Matrix Spike	0190018-MS1		S812054-01							
Mercury	1/12/99	0.324	0.00971	0.311	mg/kg dry	75.0-125	**93.0**			
Matrix Spike Dup	0190018-MSD1		S812054-01							
Mercury	1/12/99	0.324	0.00971	0.264	mg/kg dry	75.0-125	**78.5**	20.0	16.9	

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/14/98 to 12/15/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 12/16/98
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 11:18

Notes and Definitions

#	Note
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

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Dennis Wells, Lab Director

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CHAIN OF CUSTODY REPORT

Work Order # S812054

REPORT TO: ENVIRONMENTAL MANAGEMENT RESOURCES, INC.
ATTENTION: DON CLABAUGH
ADDRESS: 2509 152ND AVE NE SUITE B
REDMOND, WA 98052
PHONE: 425-861-4561 FAX: 425-869-7820
PROJECT NAME: BNSF ALUMINUM DROSS
PROJECT NUMBER: 338.32
SAMPLED BY: DAVID L. WELCH

INVOICE TO:
ATTENTION: (SAME)
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 Standard | 3-4 | 2 | 1 | Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: RCRA 8 + Cu / Metals / TCLP / Sodium / Potassium / Sodium & Chloride / # Chloride	MATRIX (W. S. A. O)	# OF CONTAINERS	COMMENTS
1. B1-9	12-14-98	S812054-01	X X	D	1 QT	D = DROSS
2. B1-23	12-14-98	-02	X X	S	1 QT	1' BELOW DROSS
3. B1-27	12-14-98	-03	X X	S	1 QT	5' BELOW DROSS
4. B2-1	12-15-98	-04	X X	S	1 QT	1' BELOW DROSS
5. B2-5	12-15-98	-05	X X	S	1 QT	5' BELOW DROSS
6. B3-1	12-15-98	-06	X X	D	1 QT	D = DROSS
7. B3-3	12-15-98	-07	X X	S	1 QT	1' BELOW DROSS
8. B3-7	12-15-98	-08	X X	S	1 QT	5' BELOW DROSS
9. B4-S	12-15-98	-09	X X	D	1 QT	D = DROSS
10. B4-2	12-15-98	-10	X X	S	1 QT	1' BELOW DROSS

RELINQUISHED BY (Signature): DLW DATE: 12-16-98
PRINT NAME: DAVID L. WELCH FIRM: EMR, Inc. TIME:

RECEIVED BY (Signature): H. Haines DATE: 12/16
PRINT NAME: FIRM: TIME: 1550

RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

NORTH CREEK ANALYTICAL
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CHAIN OF CUSTODY REPORT

Work Order # S812054

REPORT TO: ATTENTION: (SEE PAGE 1) ADDRESS:

PHONE: FAX: PROJECT NAME: PROJECT NUMBER: (SEE PAGE 1) SAMPLED BY:

INVOICE TO: ATTENTION: (SEE PAGE 1) ADDRESS:

P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: [10] Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analyses: [5] Standard | 3-4 | 2 | 1 | Same Day

OTHER Specify:

** Turnaround Requests less than standard may incur Rush Charges.*

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: RCRA 8 + Cu	METALS	TCLP	SODIUM/POTASSIUM	SODIUM & CHLORIDE	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. B4-5	12-15-98	S812054-11	X			X		S	1QT	5' BELOW DROSS
2. B5-S	12-15-98	-12	X	X				D	1QT	D = DROSS
3. B5-2	12-15-98	-13	X			X		S	1QT	1' BELOW DROSS
4. B5-5	12-15-98	-14	X			X		S	1QT	5' BELOW DROSS
5.										
6.										
7.										
8.										
9.										
10.										

RELINQUISHED BY (Signature): DATE: 12-16-98
PRINT NAME: DAVID L. WELCH FIRM: EMR, INC. TIME:

RECEIVED BY (Signature): H. Himes DATE: 12/16/98
PRINT NAME: FIRM: TIME: 1550

RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

COC Rev 8, 1/96

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X, INC.	Project: BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number: 338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager: DON CLABAUGH	Reported: 2/16/99 10:16

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
TP 1 (Soil 1')	S902009-01	Soil	12/3/98
TP 1 (Soil 1')	S902009-01	Water	12/3/98
TP-1 (Soil Interface)	S902009-02	Soil	12/3/98
TP-1 (Soil Interface)	S902009-02	Water	12/3/98
TP-1 (Soil 5')	S902009-03	Soil	12/3/98
TP-1 (Soil 5')	S902009-03	Water	12/3/98
TP-1 (Dross interface)	S902009-04	Soil	12/3/98
TP-1 (Dross interface)	S902009-04	Water	12/3/98
TP-2 (Soil 1')	S902009-05	Soil	12/3/98
-2 (Soil 1')	S902009-05	Water	12/3/98
TP-2 (Dross Interface)	S902009-06	Soil	12/3/98
TP-2 (Dross Interface)	S902009-06	Water	12/3/98
TP-2 (Soil 5')	S902009-07	Soil	12/3/98
TP-2 (Soil 5')	S902009-07	Water	12/3/98
TP-3 (Soil 2')	S902009-08	Soil	12/3/98
TP-3 (Soil 2')	S902009-08	Water	12/3/98
TP-3 (Dross 20")	S902009-09	Soil	12/3/98
TP-3 (Dross 20")	S902009-09	Water	12/3/98
TP-3 (Soil 7')	S902009-10	Soil	12/3/98
TP-3 (Soil 7')	S902009-10	Water	12/3/98
TP-4 (Dross 18")	S902009-11	Soil	12/3/98

North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dennis Wells, Lab Director

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EMR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 10:16

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
TP-4 (Dross 18")	S902009-11	Water	12/3/98
TP-4 (Soil 1')	S902009-12	Soil	12/3/98
TP-4 (Soil 1')	S902009-12	Water	12/3/98
TP-4 (Soil 5')	S902009-13	Soil	12/3/98
TP-4 (Soil 5')	S902009-13	Water	12/3/98

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EMR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 10:16

Conventional Chemistry Parameters by APHA/EPA Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP 1 (Soil 1')			S902009-01				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	1.39	mg/l	
TP-1 (Soil Interface)			S902009-02				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	1.27	mg/l	
TP-1 (Soil 5')			S902009-03				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	1.46	mg/l	
TP-1 (Dross interface)			S902009-04				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-2 (Soil 1')			S902009-05				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-2 (Dross Interface)			S902009-06				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-2 (Soil 5')			S902009-07				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-3 (Soil 2')			S902009-08				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-3 (Dross 20")			S902009-09				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-3 (Soil 7')			S902009-10				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-4 (Dross 18")			S902009-11				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-4 (Soil 1')			S902009-12				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-4 (Soil 5')			S902009-13				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	0.156	mg/l	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Dennis Wells, Lab Director

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EMR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 10:16

Anions by EPA Method 300.0
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP 1 (Soil 1')			S902009-01				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	4.36	mg/kg dry	
TP-1 (Soil Interface)			S902009-02				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	2.79	mg/kg dry	
TP-1 (Soil 5')			S902009-03				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	ND	mg/kg dry	
TP-1 (Dross interface)			S902009-04				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	74.5	mg/kg dry	
TP-2 (Soil 1')			S902009-05				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	10.0	71.6	mg/kg dry	
TP-2 (Dross Interface)			S902009-06				Soil	
ioride	0290282	2/5/99	2/5/99	EPA 300.0	20.0	223	mg/kg dry	
TP-2 (Soil 5')			S902009-07				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	13.6	mg/kg dry	
TP-3 (Soil 2')			S902009-08				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	24.5	mg/kg dry	
TP-3 (Dross 20")			S902009-09				Soil	
Fluoride	0290467	2/15/99	2/15/99	EPA 300.0	20.0	423	mg/kg dry	
TP-3 (Soil 7')			S902009-10				Soil	
Fluoride	0290467	2/15/99	2/15/99	EPA 300.0	20.0	88.2	mg/kg dry	
TP-4 (Dross 18")			S902009-11				Soil	
Fluoride	0290467	2/15/99	2/15/99	EPA 300.0	10.0	370	mg/kg dry	
TP-4 (Soil 1')			S902009-12				Soil	
Fluoride	0290467	2/15/99	2/15/99	EPA 300.0	10.0	45.0	mg/kg dry	
TP-4 (Soil 5')			S902009-13				Soil	
Fluoride	0290467	2/15/99	2/15/99	EPA 300.0	10.0	25.1	mg/kg dry	

North Creek Analytical, Inc.

Refer to end of report for text of notes and definitions.

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...MR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 10:16

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
TP 1 (Soil 1')	S902009-01	Soil	95.4	%
TP 1 (Soil 1')	S902009-01	Water	95.4	%
TP-1 (Soil Interface)	S902009-02	Soil	94.7	%
TP-1 (Soil Interface)	S902009-02	Water	94.7	%
TP-1 (Soil 5')	S902009-03	Soil	94.3	%
TP-1 (Soil 5')	S902009-03	Water	94.3	%
TP-1 (Dross interface)	S902009-04	Soil	81.1	%
TP-1 (Dross interface)	S902009-04	Water	81.1	%
TP-2 (Soil 1')	S902009-05	Soil	92.8	%
TP-2 (Soil 1')	S902009-05	Water	92.8	%
TP-2 (Dross Interface)	S902009-06	Soil	74.5	%
TP-2 (Dross Interface)	S902009-06	Water	74.5	%
TP-2 (Soil 5')	S902009-07	Soil	96.8	%
TP-2 (Soil 5')	S902009-07	Water	96.8	%
TP-3 (Soil 2')	S902009-08	Soil	96.3	%
TP-3 (Soil 2')	S902009-08	Water	96.3	%
TP-3 (Dross 20")	S902009-09	Soil	75.6	%
TP-3 (Dross 20")	S902009-09	Water	75.6	%
TP-3 (Soil 7')	S902009-10	Soil	98.4	%
TP-3 (Soil 7')	S902009-10	Water	98.4	%
TP-4 (Dross 18")	S902009-11	Soil	78.6	%

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EMR, INC.	Project:	BNSF Aluminum Dross	Sampled:	12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received:	2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported:	2/16/99 10:16

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
TP-4 (Dross 18")	S902009-11	Water	78.6	%
TP-4 (Soil 1')	S902009-12	Soil	92.4	%
TP-4 (Soil 1')	S902009-12	Water	92.4	%
TP-4 (Soil 5')	S902009-13	Soil	95.5	%
TP-4 (Soil 5')	S902009-13	Water	95.5	%

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EMR, INC.	Project:	BNSF Aluminum Dross	Sampled:	12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received:	2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported:	2/16/99 10:16

Dry Weight Determination
North Creek Analytical - Spokane

Sample Name	Lab ID	Matrix	Result	Units
TP 1 (Soil 1')	S902009-01	Soil	95.2	%
TP-1 (Soil Interface)	S902009-02	Soil	0	%
TP-1 (Soil 5')	S902009-03	Soil	0	%
TP-1 (Dross interface)	S902009-04	Soil	0	%
TP-2 (Soil 1')	S902009-05	Soil	0	%
TP-2 (Dross Interface)	S902009-06	Soil	0	%
TP-2 (Soil 5')	S902009-07	Soil	0	%
TP-3 (Soil 2')	S902009-08	Soil	0	%
TP-3 (Dross 20")	S902009-09	Soil	0	%
TP-3 (Soil 7')	S902009-10	Soil	0	%
TP-4 (Dross 18")	S902009-11	Soil	0	%
TP-4 (Soil 1')	S902009-12	Soil	0	%
TP-4 (Soil 5')	S902009-13	Soil	0	%

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EMR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 10:16

Conventional Chemistry Parameters by APHA/EPA Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0290394	**Date Prepared: 2/12/99**					**Extraction Method: General Preparation**				
Blank	0290394-BLK1									
Ammonia-Nitrogen	2/12/99			ND	mg/l	0.100				
LCS	0290394-BS1									
Ammonia-Nitrogen	2/12/99	2.00		2.19	mg/l	89.0-110	110			
Duplicate	0290394-DUP1		S902009-01							
Ammonia-Nitrogen	2/12/99		1.39	1.49	mg/l			17.0	6.94	
Matrix Spike	0290394-MS1		S902009-01							
Ammonia-Nitrogen	2/12/99	2.00	1.39	3.57	mg/l	80.0-120	109			
Matrix Spike Dup	0290394-MSD1		S902009-01							
Ammonia-Nitrogen	2/12/99	2.00	1.39	3.64	mg/l	80.0-120	113	20.0	3.60	

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EMR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 10:16

Anions by EPA Method 300.0/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0290282	**Date Prepared: 2/5/99**					**Extraction Method: General Preparation**				
Blank	0290282-BLK1									
Fluoride	2/5/99			ND	mg/kg dry	2.00				
LCS	0290282-BS1									
Fluoride	2/5/99	10.0		9.71	mg/kg dry	90.0-110	97.1			
Duplicate	0290282-DUP1		S902009-01							
Fluoride	2/5/99		4.36	4.62	mg/kg dry			25.0	5.79	
Matrix Spike	0290282-MS1		S902009-01							
Fluoride	2/5/99	9.74	4.36	15.4	mg/kg dry	75.0-125	113			
Batch: 0290467	**Date Prepared: 2/15/99**					**Extraction Method: General Preparation**				
Blank	0290467-BLK1									
Fluoride	2/15/99			ND	mg/kg dry	2.00				
LCS	0290467-BS1									
Fluoride	2/15/99	10.0		10.1	mg/kg dry	90.0-110	101			
Duplicate	0290467-DUP1		S902009-09							
Fluoride	2/15/99		423	427	mg/kg dry			25.0	0.941	
Matrix Spike	0290467-MS1		S902009-09							
Fluoride	2/15/99	130	423	577	mg/kg dry	75.0-125	118			

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EMR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 10:16

Notes and Definitions

#	Note
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

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,R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/18/99 10:16

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
TP 1 (Soil 1')	S902009-01	Soil	12/3/98
TP-1 (Soil Interface)	S902009-02	Soil	12/3/98
TP-1 (Soil 5')	S902009-03	Soil	12/3/98
TP-1 (Dross interface)	S902009-04	Soil	12/3/98
TP-2 (Soil 1')	S902009-05	Soil	12/3/98
TP-2 (Dross Interface)	S902009-06	Soil	12/3/98
TP-2 (Soil 5')	S902009-07	Soil	12/3/98
TP-3 (Soil 2')	S902009-08	Soil	12/3/98
TP-3 (Dross 20")	S902009-09	Soil	12/3/98
-3 (Soil 7')	S902009-10	Soil	12/3/98
TP-4 (Dross 18")	S902009-11	Soil	12/3/98
TP-4 (Soil 1')	S902009-12	Soil	12/3/98
TP-4 (Soil 5')	S902009-13	Soil	12/3/98

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.R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/18/99 10:16

Ammonia - Nitrogen Total
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP 1 (Soil 1')			S902009-01				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-1 (Soil Interface)			S902009-02				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-1 (Soil 5')			S902009-03				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-1 (Dross interface)			S902009-04				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-2 (Soil 1')			S902009-05				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-2 (Dross Interface)			S902009-06				Soil	
monia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-2 (Soil 5')			S902009-07				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-3 (Soil 2')			S902009-08				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-3 (Dross 20")			S902009-09				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-3 (Soil 7')			S902009-10				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-4 (Dross 18")			S902009-11				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-4 (Soil 1')			S902009-12				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	
TP-4 (Soil 5')			S902009-13				Soil	
Ammonia-Nitrogen	0290515	2/17/99	2/17/99	EPA 350.3	2.00	ND	mg/kg dry	

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 10:16

Ammonia - Nitrogen TCLP
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP-1 (Soil 1')			S902009-01				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	**1.39**	mg/l	
TP-1 (Soil Interface)			S902009-02				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	**1.27**	mg/l	
TP-1 (Soil 5')			S902009-03				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	**1.46**	mg/l	
TP-1 (Dross interface)			S902009-04				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-2 (Soil 1')			S902009-05				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-2 (Dross Interface)			S902009-06				Water	
nonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-2 (Soil 5')			S902009-07				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-3 (Soil 2')			S902009-08				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-3 (Dross 20")			S902009-09				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-3 (Soil 7')			S902009-10				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-4 (Dross 18")			S902009-11				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-4 (Soil 1')			S902009-12				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	ND	mg/l	
TP-4 (Soil 5')			S902009-13				Water	
Ammonia-Nitrogen	0290394	2/12/99	2/12/99	EPA 350.3	0.100	**0.156**	mg/l	

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.R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/16/99 10:16

Anions by EPA Method 300.0
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
TP 1 (Soil 1')			S902009-01				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	**4.36**	mg/kg dry	
TP-1 (Soil Interface)			S902009-02				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	**2.79**	mg/kg dry	
TP-1 (Soil 5')			S902009-03				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	ND	mg/kg dry	
TP-1 (Dross interface)			S902009-04				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	**74.5**	mg/kg dry	
TP-2 (Soil 1')			S902009-05				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	10.0	**71.6**	mg/kg dry	
TP-2 (Dross Interface)			S902009-06				Soil	
oride	0290282	2/5/99	2/5/99	EPA 300.0	20.0	**223**	mg/kg dry	
TP-2 (Soil 5')			S902009-07				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	**13.6**	mg/kg dry	
TP-3 (Soil 2')			S902009-08				Soil	
Fluoride	0290282	2/5/99	2/5/99	EPA 300.0	2.00	**24.5**	mg/kg dry	
TP-3 (Dross 20")			S902009-09				Soil	
Fluoride	0290467	2/15/99	2/15/99	EPA 300.0	20.0	**423**	mg/kg dry	
TP-3 (Soil 7')			S902009-10				Soil	
Fluoride	0290467	2/15/99	2/15/99	EPA 300.0	20.0	**88.2**	mg/kg dry	
TP-4 (Dross 18")			S902009-11				Soil	
Fluoride	0290467	2/15/99	2/15/99	EPA 300.0	10.0	**370**	mg/kg dry	
TP-4 (Soil 1')			S902009-12				Soil	
Fluoride	0290467	2/15/99	2/15/99	EPA 300.0	10.0	**45.0**	mg/kg dry	
TP-4 (Soil 5')			S902009-13				Soil	
Fluoride	0290467	2/15/99	2/15/99	EPA 300.0	10.0	**25.1**	mg/kg dry	

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**Refer to end of report for text of notes and definitions.*

Dennis Wells, Lab Director

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NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

.R, INC.	Project:	BNSF Aluminum Dross	Sampled:	12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received:	2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported:	2/18/99 10:16

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
TP 1 (Soil 1')	S902009-01	Soil	95.4	%
TP-1 (Soil Interface)	S902009-02	Soil	94.7	%
TP-1 (Soil 5')	S902009-03	Soil	94.3	%
TP-1 (Dross interface)	S902009-04	Soil	81.1	%
TP-2 (Soil 1')	S902009-05	Soil	92.8	%
TP-2 (Dross Interface)	S902009-06	Soil	74.5	%
TP-2 (Soil 5')	S902009-07	Soil	96.8	%
TP-3 (Soil 2')	S902009-08	Soil	96.3	%
3 (Dross 20")	S902009-09	Soil	75.6	%
TP-3 (Soil 7')	S902009-10	Soil	98.4	%
TP-4 (Dross 18")	S902009-11	Soil	78.6	%
TP-4 (Soil 1')	S902009-12	Soil	92.4	%
TP-4 (Soil 5')	S902009-13	Soil	95.5	%

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2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/18/99 10:16

Conventional Chemistry Parameters by APHA/EPA Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0290394	**Date Prepared: 2/12/99**					**Extraction Method: General Preparation**				
Blank	0290394-BLK1									
Ammonia-Nitrogen	2/12/99			**ND**	mg/l	**0.100**				
LCS	0290394-BS1									
Ammonia-Nitrogen	2/12/99	2.00		2.19	mg/l	89.0-110	110			
Duplicate	0290394-DUP1		S902009-01							
Ammonia-Nitrogen	2/12/99		1.39	1.49	mg/l			17.0	**6.94**	
Matrix Spike	0290394-MS1		S902009-01							
Ammonia-Nitrogen	2/12/99	2.00	1.39	3.57	mg/l	80.0-120	**109**			
Matrix Spike Dup	0290394-MSD1		S902009-01							
Ammonia-Nitrogen	2/12/99	2.00	1.39	3.64	mg/l	80.0-120	**113**	20.0	**3.60**	
:h: 0290515	**Date Prepared: 2/17/99**					**Extraction Method: General Preparation**				
Blank	0290515-BLK1									
Ammonia-Nitrogen	2/17/99			**ND**	mg/kg dry	**2.00**				
LCS	0290515-BS1									
Ammonia-Nitrogen	2/17/99	1.00		0.956	mg/kg dry	89.0-110	95.6			
Duplicate	0290515-DUP1		S902009-01							
Ammonia-Nitrogen	2/17/99		ND	ND	mg/kg dry			26.0		
Matrix Spike	0290515-MS1		S902009-01							
Ammonia-Nitrogen	2/17/99	5.19	ND	4.88	mg/kg dry	80.0-120	**94.0**			

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R, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/18/99 10:16

Anions by EPA Method 300.0/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0290282	**Date Prepared: 2/5/99**					**Extraction Method: General Preparation**				
Blank	**0290282-BLK1**									
Fluoride	2/5/99			**ND**	mg/kg dry	**2.00**				
LCS	**0290282-BS1**									
Fluoride	2/5/99	10.0		9.71	mg/kg dry	90.0-110	97.1			
Duplicate	**0290282-DUP1**		**S902009-01**							
Fluoride	2/5/99		4.36	4.62	mg/kg dry			25.0	**5.79**	
Matrix Spike	**0290282-MS1**		**S902009-01**							
Fluoride	2/5/99	9.74	4.36	15.4	mg/kg dry	75.0-125	**113**			
Batch: 0290467	**Date Prepared: 2/15/99**					**Extraction Method: General Preparation**				
Blank	**0290467-BLK1**									
oride	2/15/99			**ND**	mg/kg dry	**2.00**				
LCS	**0290467-BS1**									
Fluoride	2/15/99	10.0		10.1	mg/kg dry	90.0-110	101			
Duplicate	**0290467-DUP1**		**S902009-09**							
Fluoride	2/15/99		423	427	mg/kg dry			25.0	**0.941**	
Matrix Spike	**0290467-MS1**		**S902009-09**							
Fluoride	2/15/99	130	423	577	mg/kg dry	75.0-125	**118**			

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ıR, INC.	Project:	BNSF Aluminum Dross	Sampled: 12/3/98
2509 152ND AVE NE, STE B	Project Number:	338.32	Received: 2/2/99
REDMOND, WA 98052	Project Manager:	DON CLABAUGH	Reported: 2/18/99 10:16

Notes and Definitions

#	Note
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

rth Creek Analytical, Inc.

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APPENDIX G

HELP MODEL OUTPUT

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**********************************************************************
**********************************************************************
**                                                                  **
**                                                                  **
**              HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE        **
**               HELP MODEL VERSION 3.01   (14 OCTOBER 1994)        **
**                  DEVELOPED BY ENVIRONMENTAL LABORATORY           **
**                    USAE WATERWAYS EXPERIMENT STATION             **
**            FOR USEPA RISK REDUCTION ENGINEERING LABORATORY       **
**                                                                  **
**                                                                  **
**********************************************************************
**********************************************************************


PRECIPITATION DATA FILE:     C:\MYDOCU~1\MODELS\HELP3\DATA4.D4
TEMPERATURE DATA FILE:       C:\MYDOCU~1\MODELS\HELP3\DATA7.D7
SOLAR RADIATION DATA FILE:   C:\MYDOCU~1\MODELS\HELP3\DATA13.D13
EVAPOTRANSPIRATION DATA:     C:\MYDOCU~1\MODELS\HELP3\DATA11.D11
SOIL AND DESIGN DATA FILE:   C:\MYDOCU~1\MODELS\HELP3\DATA10.D10
OUTPUT DATA FILE:            C:\MYDOCU~1\MODELS\HELP3\OUTDATA.OUT


TIME:  16: 3     DATE:   5/18/1999

**********************************************************************

     TITLE:  Hillyard Dross

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     NOTE:  INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE
              COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.


                                LAYER  1
                                --------

                  TYPE 1 - VERTICAL PERCOLATION LAYER
                      MATERIAL TEXTURE NUMBER   7
          THICKNESS                    =     30.00   INCHES
          POROSITY                     =      0.4730 VOL/VOL
          FIELD CAPACITY               =      0.2220 VOL/VOL
          WILTING POINT                =      0.1040 VOL/VOL
          INITIAL SOIL WATER CONTENT   =      0.2658 VOL/VOL
          EFFECTIVE SAT. HYD. COND.    =  0.520000001000E-03 CM/SEC
        NOTE:  SATURATED HYDRAULIC CONDUCTIVITY IS MULTIPLIED BY  1.80
                 FOR ROOT CHANNELS IN TOP HALF OF EVAPORATIVE ZONE.
```

LAYER 2

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 3

THICKNESS	=	2160.00	INCHES
POROSITY	=	0.4570	VOL/VOL
FIELD CAPACITY	=	0.0830	VOL/VOL
WILTING POINT	=	0.0330	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0830	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.310000009000E-02	CM/SEC

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT SOIL DATA BASE USING SOIL TEXTURE # 6 WITH BARE GROUND CONDITIONS, A SURFACE SLOPE OF 1.% AND A SLOPE LENGTH OF 200. FEET.

SCS RUNOFF CURVE NUMBER	=	85.60	
FRACTION OF AREA ALLOWING RUNOFF	=	100.0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	2.000	ACRES
EVAPORATIVE ZONE DEPTH	=	16.0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	4.865	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	7.568	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	1.664	INCHES
INITIAL SNOW WATER	=	0.000	INCHES
INITIAL WATER IN LAYER MATERIALS	=	187.309	INCHES
TOTAL INITIAL WATER	=	187.309	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM SPOKANE WASHINGTON

MAXIMUM LEAF AREA INDEX	=	1.00
START OF GROWING SEASON (JULIAN DATE)	=	130
END OF GROWING SEASON (JULIAN DATE)	=	275
AVERAGE ANNUAL WIND SPEED	=	8.70 MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	76.00 %
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	58.00 %
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	48.00 %
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	78.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR SPOKANE WASHINGTON

NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
2.47	1.61	1.36	1.08	1.38	1.23
0.50	0.74	0.71	1.08	2.06	2.49

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR SPOKANE WASHINGTON

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
25.70	32.40	37.60	45.80	54.30	61.70
69.70	68.10	59.40	47.60	34.90	29.00

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR SPOKANE WASHINGTON

STATION LATITUDE = 47.62 DEGREES

****

MONTHLY TOTALS (IN INCHES) FOR YEAR 1

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION	1.70	1.77	0.90	0.70	1.03	2.12
	0.00	0.74	0.91	1.06	1.34	3.93
RUNOFF	1.026	0.903	0.354	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	1.496
EVAPOTRANSPIRATION	0.603	0.926	1.730	0.851	0.506	2.656
	1.303	0.352	1.043	0.549	0.772	0.514
PERCOLATION THROUGH LAYER 2	0.0014	0.0012	0.0013	0.0007	0.0000	0.0002
	0.0007	0.0014	0.0013	0.0013	0.0013	0.0013

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ANNUAL TOTALS FOR YEAR 1

	INCHES	CU. FEET	PERCENT
PRECIPITATION	16.20	117612.016	100.00
RUNOFF	3.778	27431.328	23.32
EVAPOTRANSPIRATION	11.805	85701.023	72.87
PERC./LEAKAGE THROUGH LAYER 2	0.012074	87.661	0.07
CHANGE IN WATER STORAGE	0.605	4392.047	3.73
SOIL WATER AT START OF YEAR	187.309	1359865.000	
SOIL WATER AT END OF YEAR	187.914	1364257.120	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.045	0.00

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MONTHLY TOTALS (IN INCHES) FOR YEAR 2

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION	2.10	1.41	2.76	0.47	4.75	0.53
	0.78	0.41	0.95	0.14	1.91	2.10
RUNOFF	0.180	1.801	1.695	0.084	0.004	0.000
	0.000	0.000	0.000	0.000	0.000	0.679
EVAPOTRANSPIRATION	0.445	0.522	1.565	2.005	3.230	2.021
	0.524	0.393	0.979	0.294	0.472	0.421
PERCOLATION THROUGH	0.0013	0.0011	0.0012	0.0005	0.0007	0.0011
LAYER 2	0.0012	0.0012	0.0012	0.0012	0.0011	0.0011

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ANNUAL TOTALS FOR YEAR 2

	INCHES	CU. FEET	PERCENT
PRECIPITATION	18.31	132930.609	100.00
RUNOFF	4.443	32256.580	24.27
EVAPOTRANSPIRATION	12.871	93441.227	70.29
PERC./LEAKAGE THROUGH LAYER 2	0.013054	94.770	0.07
CHANGE IN WATER STORAGE	0.983	7137.922	5.37
SOIL WATER AT START OF YEAR	187.914	1364257.120	
SOIL WATER AT END OF YEAR	188.897	1371395.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	0.112	0.00

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MONTHLY TOTALS (IN INCHES) FOR YEAR 3

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION	1.50	2.89	1.11	1.89	0.42	0.41
	0.02	0.84	1.18	0.52	2.02	3.67
RUNOFF	0.615	1.786	0.544	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	1.565
EVAPOTRANSPIRATION	0.602	0.689	1.644	2.403	0.625	0.333
	0.398	0.147	0.732	1.054	0.636	0.375
PERCOLATION THROUGH	0.0011	0.0010	0.0011	0.0005	0.0009	0.0011
LAYER 2	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010

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ANNUAL TOTALS FOR YEAR 3

	INCHES	CU. FEET	PERCENT
PRECIPITATION	16.47	119572.250	100.00
RUNOFF	4.510	32741.072	27.38
EVAPOTRANSPIRATION	9.639	69976.242	58.52
PERC./LEAKAGE THROUGH LAYER 2	0.011900	86.392	0.07
CHANGE IN WATER STORAGE	2.310	16768.455	14.02
SOIL WATER AT START OF YEAR	188.897	1371395.000	
SOIL WATER AT END OF YEAR	190.224	1381028.500	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.983	7134.909	5.97
ANNUAL WATER BUDGET BALANCE	0.0000	0.086	0.00

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MONTHLY TOTALS (IN INCHES) FOR YEAR 4

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION	2.05	1.53	1.81	1.00	1.19	1.00
	0.25	1.48	1.28	0.84	2.46	1.41
RUNOFF	1.924	0.541	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.008	0.094
EVAPOTRANSPIRATION	0.524	0.961	1.527	2.363	0.628	1.096
	0.821	1.462	0.977	0.660	0.693	0.558
PERCOLATION THROUGH	0.0010	0.0009	0.0005	0.0009	0.0010	0.0009
LAYER 2	0.0010	0.0010	0.0009	0.0009	0.0009	0.0003

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ANNUAL TOTALS FOR YEAR 4

	INCHES	CU. FEET	PERCENT
PRECIPITATION	16.30	118338.008	100.00
RUNOFF	2.568	18643.727	15.75
EVAPOTRANSPIRATION	12.267	89061.352	75.26
PERC./LEAKAGE THROUGH LAYER 2	0.010216	74.171	0.06
CHANGE IN WATER STORAGE	1.454	10558.835	8.92
SOIL WATER AT START OF YEAR	190.224	1381028.500	
SOIL WATER AT END OF YEAR	192.096	1394618.620	
SNOW WATER AT START OF YEAR	0.983	7134.909	6.03
SNOW WATER AT END OF YEAR	0.565	4103.732	3.47
ANNUAL WATER BUDGET BALANCE	0.0000	-0.076	0.00

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MONTHLY TOTALS (IN INCHES) FOR YEAR 5

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION	2.85	1.34	0.55	0.64	1.40	2.55
	0.75	1.14	0.07	0.26	3.19	1.39
RUNOFF	2.173	0.721	0.021	0.000	0.000	0.004
	0.000	0.000	0.000	0.000	0.000	0.000
EVAPOTRANSPIRATION	0.467	0.823	1.716	0.743	1.399	2.441
	2.201	1.072	0.241	0.230	0.554	0.615
PERCOLATION THROUGH	0.0009	0.0008	0.0007	0.0005	0.0006	0.0007
LAYER 2	0.0007	0.0008	0.0009	0.0009	0.0008	0.0003

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ANNUAL TOTALS FOR YEAR 5

	INCHES	CU. FEET	PERCENT
PRECIPITATION	16.13	117103.805	100.00
RUNOFF	2.918	21187.066	18.09
EVAPOTRANSPIRATION	12.502	90765.070	77.51
PERC./LEAKAGE THROUGH LAYER 2	0.008718	63.293	0.05
CHANGE IN WATER STORAGE	0.701	5088.250	4.35
SOIL WATER AT START OF YEAR	192.096	1394618.620	
SOIL WATER AT END OF YEAR	193.362	1403810.500	
SNOW WATER AT START OF YEAR	0.565	4103.732	3.50
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	0.125	0.00

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 5

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	2.04	1.79	1.43	0.94	1.76	1.32
	0.36	0.92	0.88	0.56	2.18	2.50
STD. DEVIATIONS	0.52	0.64	0.88	0.56	1.71	0.96
	0.38	0.41	0.48	0.39	0.69	1.22
RUNOFF						
TOTALS	1.184	1.150	0.523	0.017	0.001	0.001
	0.000	0.000	0.000	0.000	0.002	0.767
STD. DEVIATIONS	0.849	0.601	0.694	0.038	0.002	0.002
	0.000	0.000	0.000	0.000	0.004	0.744
EVAPOTRANSPIRATION						
TOTALS	0.528	0.784	1.636	1.673	1.277	1.710
	1.049	0.685	0.794	0.557	0.625	0.497
STD. DEVIATIONS	0.074	0.181	0.090	0.816	1.148	0.975
	0.732	0.557	0.331	0.329	0.117	0.098
PERCOLATION/LEAKAGE THROUGH LAYER 2						
TOTALS	0.0012	0.0010	0.0010	0.0006	0.0006	0.0008
	0.0009	0.0011	0.0011	0.0011	0.0010	0.0008
STD. DEVIATIONS	0.0002	0.0002	0.0004	0.0002	0.0004	0.0004
	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 5

	INCHES		CU. FEET	PERCENT
PRECIPITATION	16.68	(0.919)	121111.3	100.00
RUNOFF	3.644	(0.8790)	26451.96	21.841
EVAPOTRANSPIRATION	11.817	(1.2775)	85788.98	70.835
PERCOLATION/LEAKAGE THROUGH FROM LAYER 2	0.01119	(0.00172)	81.257	0.06709
CHANGE IN WATER STORAGE	1.211	(0.6975)	8789.10	7.257

****

PEAK DAILY VALUES FOR YEARS 1 THROUGH 5

	(INCHES)	(CU. FT.)
PRECIPITATION	1.08	7840.800
RUNOFF	1.231	8939.1035
PERCOLATION/LEAKAGE THROUGH LAYER 2	0.000045	0.32650
SNOW WATER	2.88	20900.3906

MAXIMUM VEG. SOIL WATER (VOL/VOL) 0.3295

MINIMUM VEG. SOIL WATER (VOL/VOL) 0.0982

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FINAL WATER STORAGE AT END OF YEAR 5

LAYER	(INCHES)	(VOL/VOL)
1	7.8799	0.2627
2	185.4824	0.0859
SNOW WATER	0.000	

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APPENDIX H

PERTINENT FEDERAL AND STATE LAWS AND REGULATIONS

Pertinent Federal Laws and Regulations

Safe Drinking Water Act of 1974, 42 USC 300, et seq. National Primary Drinking Water Standards, 40 CFR 141	Establishes maximum contaminant levels (MCLs) and maximum contaminant level goals (MCLGs) that are drinking water criteria designed to protect human health from the potential adverse effects of contaminants in drinking water.	Ground water at the Hillyard Site is not a current drinking water source, but it is considered a potential future source of drinking water. In addition, ground-water is hydraulically connected to ground-water that is used for drinking water. MCLs and MCLGs should be considered in establishing cleanup levels that are protective of ground-water, points of compliance, and institutional controls.
National Secondary Drinking Water Standards, 40 CFR 143	Establishes secondary drinking water standards for use in establishing cleanup levels.	Federal secondary standards are not enforceable standards and are not typically applicable or relevant and appropriate requirements; however, the State of Washington Model Toxics Control Act requires that these standards be considered in establishing cleanup levels protective of ground-water.
Clean Water Act of 1977, 33 USC 1251, as amended Water Quality Standards, 40 CFR 131	Establishes the requirements and procedures for states to develop and adopt water quality standards based on federal water quality criteria that are at least as stringent as the federal standards. Provides EPA authority to review and approve state standards. Washington State has received EPA approval and has adopted more stringent standards under WAC 173-201A.	Not applicable (the requirement to develop standards applies to the states, not individual facilities) but relevant in establishing the basis for state regulation.
Resource Conservation and Recovery Act, 42 USC 6901, et seq. Criteria for Classification of Solid Waste Disposal Facilities and Practices, 40 CFR 257	Criteria specified under this standard are used to determine which solid waste disposal facilities and practices pose a reasonable possibility of adverse risk to human health and the environment.	Most of the provisions of this chapter have been delegated to the state. (See State Hazardous Waste Management Act.).
Clean Air Act of 1977, as amended 42 USC 7401, et seq. National Ambient Air Quality Standards, 40 CFR 50	Requirements of these regulations are applicable to airborne releases of criteria pollutants specified under the statute. Specific release limits for particulates are set at 50 $\mu g/m^3$ annually or 150 $\mu g/m^3$ per 24-hour period.	Applicable to airborne releases of criteria pollutants that might be generated during assessment or response actions.
Ambient Air Quality Monitoring, 40 CFR 58 areas.	This regulation presents the criteria and requirements for ambient air quality monitoring and reporting for local air pollution control agencies and operators of new sources of air pollutants.	Applicable to assessment or response actions that meet the regulatory definition of a new source. Also, these requirements may be considered relevant and appropriate to response actions that have the potential to emit air contaminants, even if they are not a new source.
Standards of Performance for New Stationary Sources, 40 CFR 60	These requirements provide standards for new stationary or modifications of existing sources.	Applicable if assessment or response actions include stationary sources.

Pertinent Federal Laws and Regulations (continued)

National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR 61	40 CFR 61 provides general requirements and listings for actions that will generate regulated emissions at a regulated facility.	These requirements are applicable to assessment or response actions that release air emissions into unrestricted
Hazardous Materials Transportation Act, 49 USC 1801, et seq. Hazardous Materials Regulation, 49 CFR 171	These requirements state that no person may offer to accept hazardous material for transportation in commerce unless the material is properly classed, described, packaged, marked, labeled, and in condition for shipment.	These requirements are applicable to hazardous material generated during assessment or response actions, which is sent offsite for disposal.
Hazardous Materials Tables, Hazardous Materials Communications Requirements, and Emergency Response Information Requirements, 49 CFR 172	Tables are used to identify requirements for labeling, packaging, and transportation based on categories of waste types. Small quantities of radioactive wastes are not subject to the requirements of the standard if activity levels are below limits established in paragraph 173.421, 173.422, or 173.424. Specific performance requirements are established for packages used for shipping and transport of hazardous materials.	These requirements are applicable if hazardous materials are transported offsite during assessment or response actions. In the event of a discharge of hazardous waste during transportation from the treatment facility to the disposal facility, this section is applicable.

Pertinent State Laws and Regulations

Hazardous Waste Clean Up/Model Toxics Control Act, Ch. 70.105D RCW Model Toxics Control Act, WAC 173-340-700	Establishes a process and requirements for cleanup of contaminated sites in the state. MTCA regulations have been authorized for use in implementing RCRA corrective action in the state. Specifies that all cleanup actions be protective of human health; comply with all applicable state and federal regulations; and provide for compliance monitoring. Identifies the methods used to develop cleanup standards and their use in selection of a cleanup action. Specifies cleanup goals, which implement the strictest federal or state cleanup criteria. In addition to meeting requirements of other regulations, MTCA uses three basic methods for establishing cleanup levels. These methods may be used to identify cleanup standards for ground-water, surface water, soils, and protection of air quality. Cleanup levels for soils may be calculated using Method A – routine; Method B - standard method; and Method C – conditional standards. MCLs, MCLGs, and secondary drinking water standards are identified in the regulation as ground-water cleanup criteria.	Requirements of MTCA are applicable to the Site.
Hazardous Waste Management Act, 70.105 RCW Dangerous Waste Regulations, WAC 173-303	Establishes the design, operation, and monitoring requirements for managing dangerous waste.	Dangerous waste is not present at the Hillyard Dross Site.
Solid Waste Management, Recovery and Recycling Act, Ch. 70.95 RCW Minimum Functional Standards for Solid Waste Handling, WAC 173-304	These standards establish requirements to be met for the management of solid waste. Solid waste controlled by this Act includes garbage, industrial waste, construction waste, and ashes. Requirements for containerized storage, collection, transportation, treatment, and disposal of solid waste are included. These standards set ground-water MCLs at the same levels as the state drinking water standards.	These regulations are applicable when solid waste is generated during assessment or response actions, and may be relevant and appropriate to aluminum dross at the Site.
Water Pollution Control/Water Resource Act of 1971, Ch. 90.48 RCW/Ch.90.54 RCW Surface Water Quality Standards, WAC 173-201A	These standards set water quality standards at levels protective of aquatic life.	Surface water quality criteria established under this chapter are not applicable in assessing risk and response actions.
Protection of Upper Aquifer Zones, WAC 173-154	This regulation directs Ecology to provide for protection of upper aquifers and upper aquifer zones to avoid depletions, excessive water level declines, or reductions in water quality.	This regulation is not applicable because it establishes the policy and program for Ecology. However, the regulation is relevant and appropriate because protection of the aquifer from adverse impacts caused by solid waste is a primary goal.

Pertinent State Laws and Regulations (continued)

State Waste Discharge Program, WAC 173-216	The regulation establishes requirements for industrial and commercial operations that discharge to the ground-water, surface waters, or municipal sewerage systems. Specific discharges prohibited under the program are identified. The intent of the regulation is to maintain the highest possible standards, and the law requires the use of all known available and reasonable methods to prevent and control the discharge of wastes into the waters of the state.	Requirements of this program are applicable to assessment or response actions that include discharges to the ground.
Department of Health Standards for Public Water Supplies, WAC 246-290	The rule established under WAC 246-290 defines the regulatory requirements necessary to protect consumers using public drinking water supplies. The rules are intended to conform with the federal SDWA, as amended. WAC 246-290-310 establishes MCLs that define the water quality requirements for public water supplies. WAC 246-290-310 establishes both primary and secondary MCLs and identifies that enforcement of the primary standards is the Department of Health's first priority.	The requirements of WAC 246-290-310 are relevant and appropriate because the ground-water at the Site is a source of drinking water.
Washington Clean Air Act, Ch. 70.94 RCW and Ch. 43.21A RCW General Regulations for Air Pollution, WAC 173-400	The regulation requires that all sources of air contaminants meet emission standards for visible, particulate, fugitive, odors, and hazardous air emissions. This section requires that all emission units use reasonably available control technology, which may be determined for some source categories to be more stringent than the emission limitations listed in this chapter. The regulation requires that source testing and monitoring be performed. A new source would include any process or source that may increase emissions or ambient air concentration of any contaminant for which federal or state ambient or emission standards have been established.	Requirements of this standard are applicable to assessment and response actions that could result in the emission of hazardous air pollutants.
Controls for New Sources of Air Pollution, WAC 173-460	This standard requires that new sources of air emissions provide emission estimates for toxic air contaminants listed in the regulation. The standard requires that emissions be quantified and used in risk modeling to evaluate ambient impacts and to establish acceptable source impact levels. The standard establishes three major requirements for new sources of air pollutants: use of best available control technology; quantification of toxic emissions; and demonstration that human health is protected.	The standard is applicable to assessment and response actions where contaminants identified as toxic air pollutants are present and air emissions might be generated.

Pertinent State Laws and Regulations (continued)

Ambient Air Quality Standards for Particulate Matter, WAC 173-470	These requirements set maximum acceptable levels for particulate matter in the ambient air and the 24-hour ambient air concentration standard for particles less than 10 μm in diameter (PM_{10}). The section defines standards for particle fallout in industrial, commercial, and residential areas. Alternate levels are set for areas where natural dust levels are high.	These requirements are applicable to assessment and response actions (e.g., drilling) that might emit particulate matter to the air.
Water Well Construction, Ch. 18.104 RCW Minimum Standards for Construction and Maintenance of Water Wells, WAC 173-160	These requirements establish minimum standards for design, construction, capping, and sealing of all wells. The requirements set additional requirements, including disinfection of equipment, decommissioning of wells, and quality of drilling water.	These requirements are applicable because assessment or response actions include construction of wells for ground-water monitoring of ground-water.
Rules and Regulations Governing the Licensing of Well Contractors and Operators, WAC 173-162	This regulation establishes training standards for well contractors and operators.	This regulation is relevant and appropriate because assessment or response actions could involve ground-water well installation or construction of geotechnical borings.
State Environmental Policy Act, Chapter 43.21C RCW SEPA Rules, WAC 197-11	These requirements establish compliance with the State Environmental Policy Act.	These requirements are applicable.
Water Quality Standards for Ground Waters of the State of Washington; WAC 173-200	Establishes ground-water quality standards to provide for protection of the environment and human health, as well as an antidegradation policy to protect existing and future beneficial uses of ground-water.	WAC 173-200 standards do not apply to cleanup actions undertaken pursuant to the Model Toxics Control Act (MTCA). Instead, MTCA establishes ground-water cleanup standards at such sites.

CFR = Code of Federal Regulations
Ecology = Washington Department of Ecology
MCL = maximum contaminant level
MCLG = maximum contaminant level goal
MTCA = Model Toxics Control Act
RCRA = Resource Conservation and Recovery Act
RCW = Revised Code of Washington
SEPA = State Environmental Policy Act
SDWA = Safe Drinking Water Act
WAC = Washington Administrative Code.