October 27, 2000





Mr. F.A. Sam Hernandez Bureau of Indian Affairs P.O. Box 220 Fort Hall, Idaho 83203

Re: Copies of Gay Mine Landfarming Closure Reports and Revegetation Plan

Dear Sam:

Attached are copies of the following reports:

Gay Mine Landfarming Closure Report

Revegetation Plan, Landfarm Site at the Gay Mine

Copies of these reports, prepared by Brown and Caldwell and North Wind Environmental for Simplot and FMC, were submitted to the Tribe in June 2000. It is my understanding that copies were never forwarded to you. I apologize for this mix up; from now on we will be sure to submit documents directly to you.

If you have questions or comments on these reports, please don't hesitate in calling me at (208) 342-3779.

Very truly yours,

HDR ENGINEERING, INC.

Michael R. Murray, Ph.D.

minh

Project Manager

**Enclosures** 

CC: Rob Hartman, FMC (w/o enclosures)

Karl Gurr, Brown and Caldwell (w/o enclosures)

Silvia Medina, North Wind Environmental (w/o enclosures)

Bruce Winegar, Simplot (w/o enclosures)

Ward Wolleson, Simplot (w/o enclosures)

### GAY MINE LANDFARMING CLOSURE REPORT

June 7, 2000

### **GAY MINE**

### **CLOSURE REPORT**

June 7, 2000

### Prepared for:

FMC Corporation P.O. Box 4111 Pocatello, Idaho 83205

and

J.R. Simplot Company P.O. Box 912 Pocatello, Idaho 83204

### Prepared By:

Brown and Caldwell 380 East ParkCenter Boulevard, Suite 240 Boise, Idaho 83706

> North Wind Environmental P.O. Box 51174 Idaho Fall, Idaho 51174

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### **SECTION 1.0**

### INTRODUCTION

This report summarizes 1999 activities associated with landfarming of petroleum impacted soils at the Gay Mine and presents soil sampling results to support site closure. Field sampling and closure activities were conducted in accordance with the *Soil Bioremediation Work Plan* (Brown and Caldwell, 1994). This Work Plan was approved by the Shoshone-Bannock Tribes of the Fort Hall Reservation in 1994.

### 1.1 BACKGROUND

FMC Corporation (FMC) and the J.R. Simplot Company (Simplot) operated the Gay Mine, a phosphate ore mining operation located within the Fort Hall Reservation northeast of Pocatello, Idaho, on land leased from the Shoshone-Bannock Tribes (Figure 1). Operation of the mine began in 1946 and ended in the fall of 1993. In preparation for returning the leased land to the Shoshone-Bannock Tribes, FMC and Simplot initiated field investigation activities in November 1992 to assess potential environmental impacts associated with mine facilities. Procedures and findings of this investigation are summarized in the reports Gay Mine Site Characterization Report, February 1993 (Brown and Caldwell, 1993a) and Gay Mine Phase II Site Characterization Report, November 1993 (Brown and Caldwell, 1993b).

In brief, petroleum impacted soils were found at shallow depths (1 to 20 feet) at a number of locations at the mine. Groundwater was not encountered during investigation activities, where the maximum subsurface investigation depth was 350 feet below the ground surface (bgs).

Based on site investigation results and Tribal, FMC, and Simplot requirements, landfarming of petroleum contaminated soils following excavation was selected as the remedial option. Landfarming involves spreading petroleum-impacted soils over the land surface and managing the soil environment to enhance biodegradation of contaminants by native microorganisms.

Soil excavation and landfarming treatment area construction occurred during late summer 1995. Field activities and sampling results are presented in the document *Gay Mine Landfarming Annual Report, 1995* (Brown and Caldwell, 1995). Approximately 35,000 cubic yards of petroleum impacted soils were excavated and placed in the landfarming area for treatment. Active treatment activities (e.g. tillage, irrigation and nutrient additions) were conducted from June 1996 to September 1996, June 1997 to September 1997, June 1998 to October 1998, and June 1999 to September 1999. Annual reports summarizing landfarming activities and sampling results from 1996 through 1998 have been submitted to the Shoshone-Bannock Tribes.

Landfarming activities for 1999 are summarized in Section 2.0 of this report. Section 3.0 presents closure sampling results and statistical analysis. Section 4.0 presents a Risk Based Corrective Action evaluation of landfarm soils, and Section 5.0 presents recommendations for site closure.

### **SECTION 2.0**

### TREATMENT ACTIVITIES FOR 1999

Approximately 35,000 cubic yards of petroleum impacted soils were excavated and placed onto the 12 acre landfarm treatment area in late summer 1995. The treatment area was divided into four cells (Figure 2). Treatment Cells 1 through 3 were unlined and reserved for the treatment of diesel and heavy oil impacted soils. Treatment Cell 4 was a lined cell for gasoline impacted soils. The depth of soils placed in the treatment cells ranged from 1.5 to 3.0 feet. The landfarming cells were surrounded by a 3-foot berm to prevent stormwater from entering the cells and also to prevent irrigation water from leaving the cells. Soils were tilled by using a large tandem disk pulled by a bulldozer. Disking provides for mixing and aeration of the upper 1.5 feet of soil. Periodically soils were deep plowed using a moldboard type plow that was capable of turning the soils to a maximum depth of 3 feet. Treatment Cells were irrigated using four post-mounted big gun irrigation sprinklers and a hand-set sprinkler.

Based on input from the Shoshone-Bannock Tribes and the Idaho Division of Environmental Quality (IDEQ), cleanup goals were set at 1000 mg/kg Total Petroleum Hydrocarbon (TPH). Final site closure was to be based on a statistical evaluation for attainment of these goals (Section 3.0). For Treatment Cell 4, TPH was below the cleanup criteria of 100 mg/kg after the 1996 treatment season. In addition, the gasoline constituents' benzene, toluene, ethylbenzene, and xylenes (BTEX) were below detection limits after one season. Thus, this cell did not receive any additional treatment after 1996. The liner associated with this cell was removed in 1998 and properly disposed of off-site. Treatment Cell 3 met cleanup criteria of 1000 mg/kg TPH in 1998. This cell was not actively treated in 1999. Soils in Treatment Cells 1 and 2 were activity treated in 1999. Furthermore, all four treatment cells were sampled as part of the facility closure activities in 1999 (Section 3.0).

### 2.1 FIELD MANAGEMENT ACTIVITIES

In accordance with the Work Plan, soils for Treatment Cells 1 and 2 were tilled and irrigated during the summer of 1999. These activities are summarized below:

- Soils were tilled on June 13 (disked), July 11 (disked), July 25 (disked/ripped), August 1 (disked/ripped), August 8 (disked/ripped), August 21 (disked/ripped), September 10 (disked/ripped) and September 27 (disked), 1999, by Arrow-Head Sand, Inc.
- Soils were irrigated on June 20, July 25, August 1, August 21, and September 10, 1999, by Arrow-Head Sand, Inc.
- Soil testing results from samples collected in June 1999 indicated sufficient nutrient levels in soils. Thus, there was no fertilizer additions in 1999.

### 2.2 PERFORMANCE MONITORING

Brown and Caldwell collected soil samples from Treatment Cells 1 and 2 on the following dates:

July 12, 1999 August 26, 1999 September 17, 1999 For each treatment cell, 10 subsamples were collected from randomly selected points and composited into a single sample. The composite sample was then split into two sample jars; one jar for hydrocarbon analysis and the second jar for nutrient analysis. For quality control purposes, the following additional samples were secured:

- A split sample was secured by dividing a composite sample from a selected cell into two separate samples and labeling the second sample LF-C-S.
- A duplicate composite sample was secured by collecting additional 10 subsamples from a selected cell and compositing these samples into a single sample labeled LF-C-D.

Samples were analyzed for TPH using U.S. EPA Method 418.1 modified. Samples were analyzed by Oregon Analytical Laboratory (OAL) of Beaverton, Oregon or by NEL Laboratories of Reno, Nevada. Soil nutrients were analyzed by Agri-Check Laboratory of Umatilla, Oregon.

A summary of analytical results is presented in Table 1 and laboratory reports are presented in Appendix A. TPH concentrations in Treatment Cell 1 had concentrations ranging from 2,800 mg/kg in July 1999 to a low of 130 mg/kg in August 1999. Treatment Cell No. 2 had TPH concentrations ranging from 2,400 mg/kg in July 1999 to 190 mg/kg in August 1999. Treatment Cells 3 and 4 were not activily treated in 1999.

### 2.3 ENVIRONMENTAL IMPACT MONITORING

On October 19, 1999, a backhoe was used to excavate a test pit from Treatment Cells 1 through 3. Soils from beneath the treatment cells were kept separate from the impacted soil by placing the clean soil onto plastic. Once the excavation was completed, the clean soil was placed back into the pit. From each test pit, a sample was collected from the treatment soil and from soils beneath the treatment surface. Soil samples were collected directly from the backhoe bucket. Samples were analyzed for TPH, benzene, toluene, ethylbenzene, and xylenes (BTEX), and nitrate-N. Table 2 summarizes sampling results for the environmental impact monitoring. Laboratory reports are presented in Appendix B. A total of 11 samples were collected. Pit 1 was advanced in Treatment Cell 1 to a depth of 9 feet bgs. Backhoe bucket refusal was reached at 7 feet bgs for Treatment Cell 2 and at 5 feet bgs at Treatment Cell 3. The subsurface material is mine overburden comprised mainly of shale and limestone. All samples had non-detect concentrations for BTEX compounds. Nitrate concentrations ranged from 30 mg/kg in the treatment soil of Treatment Cell 2 to non-detect for 5 of the 7 subsurface samples. TPH concentrations were highest for the treatment soils and near surface. As described in previous reports, the shale overburden material beneath the landfarm site has natural organic compounds that result in TPH detection using U.S. EPA Method 418.1M. Concentration levels as high as 500 mg/kg have been quantified in native shale materials. TPH concentrations in the deeper pit samples were all within natural levels found for shale overburden material.

### **SECTION 3.0**

### CLOSURE SOIL SAMPLING AND EVALUATION

To support closure of the landfarm site, 60 discrete soil samples were collected on October 12, 1999. Sample locations were randomly selected from the landfarm site that encompassed Treatment Cells 1 through 4. Random sampling procedures followed protocol outlined in the U.S. EPA document *Methods for the Attainment of Cleanup Standards* (EPA 230/02-89-042). Samples were collected using a hand held bucket auger. For each sample location, the entire soil treatment depth was collected (generally 1 to 3 feet depending upon location). The sample was placed into a clean mixing bowl, homogenized by lightly mixing the soil by hand, and then placed into a laboratory-supplied jar. Samplers wore clean latex gloves and sampling equipment was cleaned between each boring to limit cross contamination. Samples were placed in a chilled cooler and shipped to NEL Laboratories for TPH analysis using U.S. EPA Method 418.1 M.

Sample reports and a summary spreadsheet are presented in Appendix B. Table 3 presents sample statistics. The average TPH concentration for the landfarm site was 671 mg/kg. A condition of approval of the 1994 Soil Bioremediation Work Plan (Brown and Caldwell, 1994) by the Shoshone-Bannock Tribes was that the cleanup criteria of 1000 mg/kg TPH be based on U.S. EPA's statistical criteria presented in the document, Method for Attainment of Cleanup Standards (EPA 230/02-89-042). Specially, the upper 90 percent confidence interval of the mean must be less than the cleanup criteria of 1000 mg/kg. Using the following equation:

$$UL_{1-\alpha} = x_{mean} + t_{1-\alpha,n-1} s / \sqrt{n}$$

and a mean of 671 mg/kg, a standard deviation (s) of 1047, and a sampling number (n) of 60 results in:

This upper 90 percent confidence interval value is less than 1000 mg/kg TPH. Thus, the land farm site soils meet the cleanup criteria.

### **SECTION 4.0**

### RISK BASED CORRECTIVE ACTION EVALUATION

Recently, the U.S. EPA, as well as many state regulatory agencies, have developed and implemented risk based cleanup levels for petroleum impacted sites. This approach is based on evaluating potential exposure of individual petroleum constituents to humans and other environmental receptors. It has been recognized that TPH based clean up levels (e.g. 1000 mg/kg TPH) is somewhat arbitrary and may not directly address the risk that individual petroleum constituents may present to human health and the environment.

Idaho has developed Risk Based Corrective Action (RBCA) guidelines for fuels as well as for used oil. In the RBCA approach, impacted soils and/or groundwater are analyzed for chemicals of concern found in the various petroleum products. For example, potential chemicals of concern found in diesel fuel and used oil include benzene, toluene, ethylbenzene, xylenes, polycyclic aromatic hydrocarbons (13 compounds), and chlorinated solvents. The Idaho guidelines present a series of procedures for calculating risk based site specific target levels (SSTLs) (cleanup levels) that are protective of human health and the environment. If any of the chemicals of concern in the soils or groundwater exceed the SSTLs, then treatment would be required. If all chemicals of concern were below SSTLs, then the site could be closed without further action.

The original Gay Mine Work Plan for the landfarming activities is based on a statistical-based cleanup level of 1000 mg/kg. This cleanup standard was based on Idaho guidelines at that time. The guidelines have since changed and now incorporate a RBCA approach. Several members of the Shoshone-Bannack Tribes expressed concern regarding using only TPH for cleanup criteria and that a risk approach would be more appropriate. To ensure that petroleum constituent levels at the Gay Mine landfarming site are protective of human health and the environment, a risk evaluation was conducted for the landfarm soils.

### 4.1 SOIL SAMPLING FOR CHEMICALS OF CONCERN

On October 13, 1999, Brown and Caldwell collected nine composite soil samples from each of the four landfarm Treatment Cells. These samples were collected following protocol outlined in the *Work Plan* and described in Section 2.0 above. Samples were analyzed for chemicals of concern as identified in Idaho's RBCA handbook for diesel and gasoline fuels, and used oil (Table 4). Chemical groups analyzed were: volatile organic compounds using U.S. EPA method 8260 (this includes the BTEX compounds and solvents) and polycyclic aromatic hydrocarbons (PAHs) using U.S. EPA Method 8270. Laboratory reports are presented in Appendix C. No chemicals of concern were detected for any of the samples.

### 4.2 RBCA EVALUATION

Idaho's RBCA is conducted following a tiered approach. The first step in this approach is to compare soil sample results for chemicals of concern to Tier 0 look up values. These Tier 0 look up values represent concentrations that are very conservative so that, if achieved, there is a high degree of certainty that little or no risk to current or potential future receptors remains at the site (Idaho RBCA Guidance, 1996). If soil samples exceed the Tier 0 look up values, then a Tier 1 or Tier 2 evaluation is performed to determine if corrective action is warranted. The Tier 0 cleanup levels were derived for each chemical of concern by IDEQ to be protective of future site residence including surficial soil ingestion, inhalation, and dermal contact, subsurface soil volatilization to outdoor air and to enclosed spaces and soil leaching to groundwater.

The analytical results for the October 1999 soil samples are presented in Table 5 along with the Tier 0 values for comparison. None of the constituents analyzed were detected above laboratory reporting limits. Although two of the constituents have reporting limits at or above their Tier 0 values, these chemicals would not be present without other petroleum constituents at levels greater than their respective reporting limits. This is based on knowledge of the components of gasoline and other petroleum products and levels of contamination detected at other petroleum contaminated sites.

Based on this evaluation, landfarm treatment soils are below Tier 0 levels. Consistent with RBCA protocol, therefore, further treatment of these soils is not warranted.

### **SECTION 5.0**

### **SUMMARY AND CONCLUSIONS**

Based on soil sampling results for 1999, the following conclusions are made:

- Soil samples for closure reveal that the one-sided upper 90 percent confidence limit for the mean is below the cleanup level of 1000 mg/kg TPH.
- At the recommendation of the Shoshone-Bannock Tribes, a RBCA evaluation was conducted following Idaho guidelines. Soil samples were analyzed for chemicals of concern, which included volatile organic compounds and polyaromatic hydrocarbons. Chemicals of concern were below Idaho's Tier 0 values. As stated in Idaho's guidelines, Tier 0 values are very conservative so that, if achieved, there is a high degree of certainty that little or no risk to current or potential future receptors remains at the site (Idaho RBCA Guidance, 1996).

Based on soil sampling results for TPH and on the RBCA evaluation, it is recommended that the landfarm site be closed. Closure activities should include the revegetation of landfarm cells.

### **SECTION 6.0**

### **REFERENCES**

Brown and Caldwell. 1999. Gay Mine, 1998 Landfarming Annual Report. April 2, 1999.

Brown and Caldwell. 1998. Gay Mine Landfarming Annual Report 1997. March 1998.

Brown and Caldwell. 1997. Gay Mine Landfarming Annual Report, 1996. March 1997.

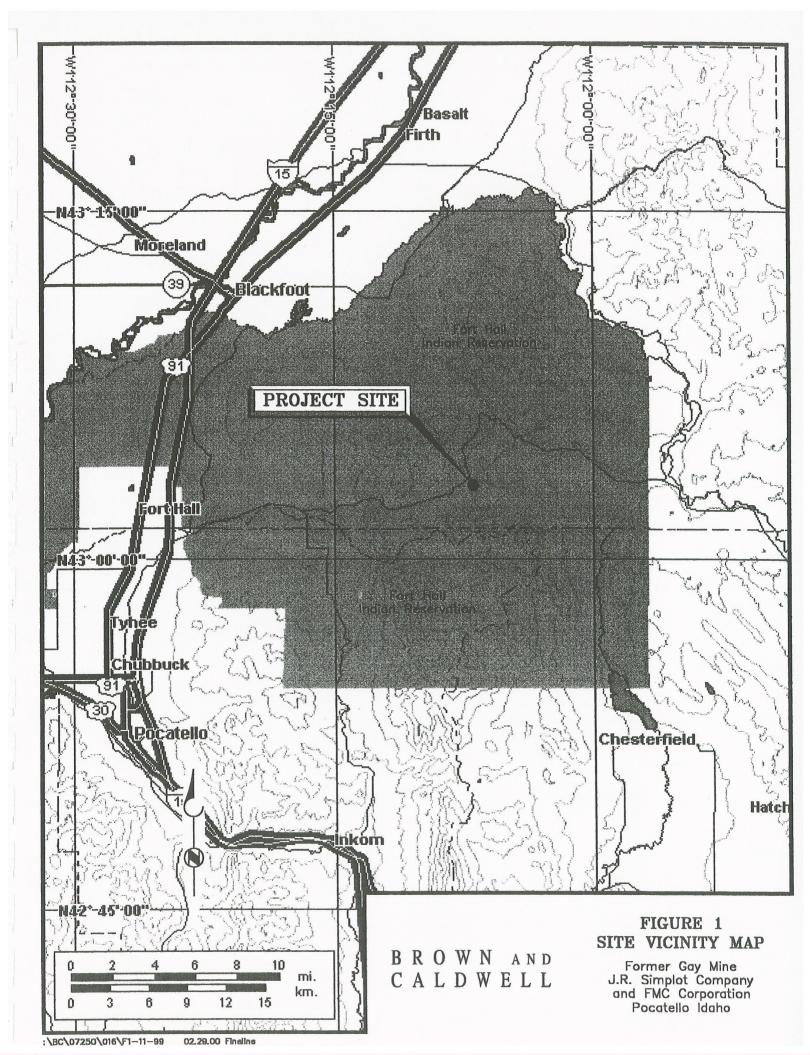
Brown and Caldwell. 1996. Gay Mine Landfarming Annual Report, 1995. April 1996.

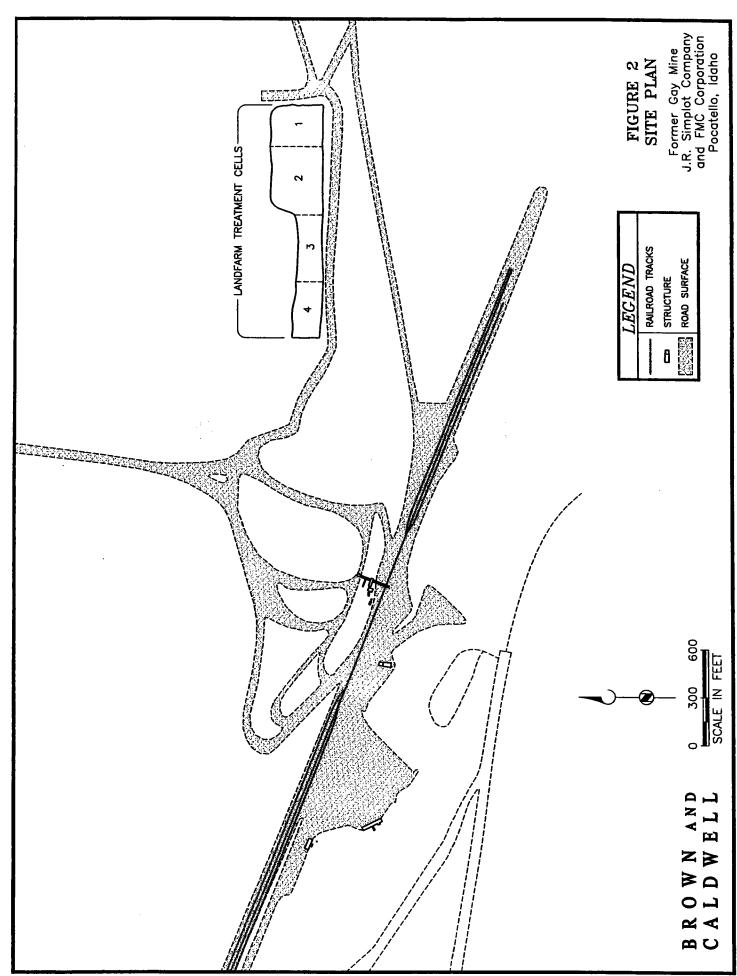
Brown and Caldwell. 1994. Soil Bioremediation Work Plan for Gay Mine. April 1994.

Brown and Caldwell. 1993a. Gay Mine Site Characterization Report. February 1993.

Brown and Caldwell. 1993b. Gay Mine Phase II Site Characterization Report. November 1993.

Idaho Division of Environmental Quality, 1996, Risk Based Corrective Action, Guidance Document for Petroleum Releases.





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Souther ID         Description         Titled on the composite Call 1         Titled on the call of	Table 1. Po	Performance Monitoring Re	ing Results					
Description   Sampling Date   TPH   DH   Phosphotos   Nitrate-N   Ammonish				mg/kg		u	ıg/kg	
Composite Cell I         7/21/9/5         13,000         8.3         15         2         15           8/13/96         660         8.0         19         22         4         4         3           8/13/96         660         8.0         19         25         4         4         3           1/12/96         3800         8.1         16         44         25         4         3           1/12/96         3800         1.5         2.3         4         2.5         4         3           1/12/98         3800         7.5         2.3         6.6         5         6         5           1/11/12/98         2800         7.7         2.7         4.5         5         5         6         5           1/12/98         2800         7.7         84         90         1         1         6         5         5         6         6         5         5         8         6         6         5         5         5         8         6         6         5         6         6         5         5         3         3         4         6         5         5         5         3         3	Sample ID	Description	Sampling Date	ТРН	Phosphorus		Ammonia-N	Inorganic-N
712/96   1000   810   20   13   13   14   15   15   15   15   15   15   15	LF-C-1	Composite Cell 1	9/20/95	13,000	15	2	1.5	3.5
String			7/2/96	1000	20	13	13	26
10/18/96   3800   81   16   44   3   5   5   5   5   5   5   5   5   5	-		8/13/96	099	19	22	4	- J
10/8/96   3400   8.3   34   2.5   3.3   3.4   3.4   3.5			9/12/96	3800	16	1 4	. ~	47
7/31/97   3800   7.5   22   5   6   5   5   6   5   5   6   5   5			10/8/96	3400	34	2.5	33	· •
7,31/97			5/28/97	3800	23	j r	5, 4	o <del>†</del>
11/10/97   3300   1			7/31/97	-1	} <del>(</del>	, 99	o u	7.1
11/10/97   2620   7.8   12   41.5   5.8   5.8   1.0   1.1/10/97   2620   2.87   2.7   2.7   2.85			8/26/97	3300	2	8	<b>3</b>	1/
No. 100   No.			11/10/97	0696		7 7	1 K	ī,
Shift of LIP-C-1   Syld-ye   Syld-			7/16/98	5500	27	C:1+ &	 8	5,7
Composite Cell 2   7/12/99   2800   7.7   84   90   11     11/2/98   2600   7.7   108   60   5     11/2/99   2800   7.7   108   60   5     11/2/99   2800   7.7   108   48   4     11/2/99   4000   8.2   112   41   6     11/2/96   4000   8.2   116   7   18     11/2/96   4000   8.2   14   8     11/2/96   4000   8.2   14   8     11/2/96   4000   8.2   14   8     11/2/97   1.0   7.8   19   8.5   6.5     11/2/98   8.0   8.2   15   8.3     11/2/98   8.0   8.2   15   8.3     11/2/99   2400   8.1   17   5.3   3.3     11/2/99   2400   8.1   10   10     11/2/99   2400   8.1   10   10     11/2/99   150   8.0   66   59     11/2/99   150   8.0   66   59     11/2/99   150   8.1   10     11/2/99   150   8.1   10     11/2/99   150   8.1   10     11/2/99   150   8.1   10     11/2/99   150   8.1   10     11/2/99   150   8.1   10     11/2/99   150   8.1   10     11/2/99   140   8.1   14     11/2/99   140   8.1   14     11/2/99   140   120   120     11/2/99   140   120     11/2/99   120     11/2/99   120     11/2/99   120     11/2/99   120			8/13/98	2287	ì	?	0.5	<u>+</u>
10/1/98			0/17/0	6500	1,		, c	. [
11/2/98   2500   7.7   108   60   5   5   5   5   5   5   5   5   5			10/1/08	730	01	+ 6	J., J	C:/
Composite Cell 2         7/12/99         2800         7.7         108         60         5           8/26/99         130         7.5         68         46         4         4           9/17/99         400         8.0         112         41         6         4           100         130         7.5         68         46         4         4         4           100         1,000         8.0         16         7         18         4			11/2/08	2600	40	20	1.1	101
Composite Cell 2         9/17/99         2600         7.7         108         60         5           Composite Cell 2         9/17/99         400         8.0         112         41         6           R 17/99         400         8.0         16         7         18         7           R 1/3/96         11,000         8.2         16         7         18         7           R 1/3/96         1400         8.0         14         8         3         18         3           8/13/96         1400         8.1         14         8         3         18         3         18         3         18         3         18         3         18         3			11/2/90	2000	, 4	, (	, ,	, ;
Composite Cell 2         9/12/99         130         7.5         68         48         4           Composite Cell 2         9/12/95         11,000         8.0         16         7         18           R 1 29         172/96         4000         8.0         18         29         7.3           R 1 29         172/96         4000         8.1         18         14         18           R 1 29         10/8/96         4000         8.1         18         14         18           R 1 29         10/8/96         4400         8.1         18         14         18           R 1 29         8.1         14         8         8         3.8         3.8           R 1 29         8.1         14         8         8         3.8         4           R 1 2 3         1 2         1.4         1.4         4.5         3.3         4			66/21/1	7800	108	99	ıc.	65
Composite Cell 2         9/17/99         400         8.0         112         41         6           Composite Cell 2         9/20/95         11,000         8.2         16         7         1.8           8/13/96         11,000         8.1         18         29         7.3         7.3           8/13/96         1600         8.1         18         29         7.3         7.3           10/8/96         1400         8.1         14         8         3.8         3.8           10/8/96         10/8/96         1400         8.7         14         4.5         3.3           10/8/96         10/8/96         1400         8.7         1.9         8         6.5         5.2           10/8/97         1.0         1.0         8         1.0         8.5         6.5         5.3         4.5         5.3         4.5         5.3         4.5         5.3 </td <td></td> <td></td> <td>8/26/99</td> <td>130</td> <td>89</td> <td>88</td> <td>4</td> <td>52</td>			8/26/99	130	89	88	4	52
Composite Cell 2         9/20/95         11,000         8.2         16         7         1.8           1/2/96         4000         8.0         18         29         7.3           8/13/96         4000         8.1         14         4.5           9/12/96         4400         8.4         38         6.5           10/8/96         4400         8.4         38         6.5           10/8/96         4400         8.4         38         6.5           10/8/96         10/8/96         4400         8.7         19         8.5         6.5           10/8/96         10/8/96         1.1         7.8         19         8.5         6.5         3.3           8/26/97         2200         -			9/17/99	400	112	41	9	47
7/2/96         4000         8.0         18         29         7.3           9/12/96         1400         8.1         18         4.5           9/12/96         4400         8.3         14         4.5           9/12/96         4400         8.4         38         6         3.3           10/8/96         4400         8.7         19         8.5         6.5         3.3           5/28/97         1300         8.7         19         8.5         6.5         3.3           8/26/97         11/10/97         11/10/97         11/10/97         1.0         8.2         15         6.8         4           8/26/97         10/10/98         3000         8.2         15         6.8         3.3           11/10/97         10/10/98         880         80         47         77         2.1           8/13/98         3401         8.1         42         2.3         2.3         2.3           11/12/98         3000         -         -         -         -         -         -           8/26/99         140         8.0         44         5.3         3         3           11/12/99         350 <t< td=""><td>LF-C-2</td><td>Composite Cell 2</td><td>9/20/95</td><td>11,000</td><td>16</td><td>7</td><td>1.8</td><td>8.8</td></t<>	LF-C-2	Composite Cell 2	9/20/95	11,000	16	7	1.8	8.8
8/13/96   1500   81   18   14   4.5     1/12/96   4400   8.3   14   8   3.8     1/08/96   4400   8.4   3.8   6   5.3     1/08/97   1300   8.7   19   8.5   6.5     1/11/097   1050   8.2   15   6.8   3.3     1/11/098   3411			7/2/96	4000	18	29	7.3	36
9/12/96         4400         8.3         14         8         3.8           10/8/96         4400         8.4         38         6         3.3           5/28/97         1300         8.7         19         8.5         6.5           7/31/97         -1         7.8         19         8.5         6.5           8/26/97         2200         -         -         -         -           11/10/97         1050         8.3         16         43.5         3.3           11/10/98         3000         8.2         15         6.8         3.5           8/11/98         3411         -         -         -         -         -           9/3/98         900         8.0         47         77         21           11/2/98         3000         -         -         -         -           11/2/98         3000         -         -         -         -           11/2/99         350         8.0         47         77         23           8/26/99         150         8.0         66         59         3           8/26/99         410         7.7         97         38         4<			8/13/96	1500	18	14	4.5	19
10/8/96   4400   8.4   38   6   5.5     10/8/97   1300   8.7   19   8.5   6.5     1/31/97   -1   7.8   19   5.8   4     8/26/97   2200   -1   -1   -1     1/10/97   1050   8.2   16   6.8   3.5     1/11/10/97   1050   8.2   17   5.3   3.5     1/11/98   3401   -1   -1   -1   -1     1/12/98   3000   -1   -1   -1     1/12/99   2400   8.0   66   59   3.5     1/12/99   2400   8.0   66   59   3.5     1/12/99   2400   8.0   66   59   3.5     1/12/99   2400   8.0   66   59   3.5     1/12/99   2400   8.0   58   45.5   3.3     1/12/99   2400   8.0   58   45.5   3.3     1/12/99   2400   8.0   58   45.5   3.3     1/12/99   2400   8.0   58   45.5   3.3     1/12/99   2400   8.0   58   45.5   3.3     1/12/99   2400   8.0   58   45.5   3.5     1/12/99   2400   8.1   54   36   3.5     1/12/99   2400   8.1   54   36   3.5     1/12/99   2400   27.8   3.5     1/12/99   2400   27.8   3.5     1/12/99   2400   27.8   3.5     1/12/99   2400   27.8   3.5     2/12/99   2400   2400   27.8     2/12/99   2400   2400   27.8     2/12/99   2400   2400   27.8     2/12/99   2400   27.8     2/12/99   2400   27.8     2/12/99   2400   27.8     2/12/99   2400   27.8     2/12/99   2400   27.8     2/12/99   2400   27.8     2/12/90   27.8     2/12/90   27.8     2/12/90   27.8     2/12/90   27.8     2/12/90   27.8     2/12/90   27.8     2/12/90   27.8     2/12/9			9/12/96	4400	14	8	3.8	12
5/28/97         1300         8.7         19         8.5         6.5           7/31/97         -1         7.8         19         58         4           8/26/97         2200         -         -         -         -           11/10/97         1050         8.3         16         43.5         3.3           7/16/98         3000         8.2         15         6.8         3.5           8/13/98         3411         -         -         -         -           9/3/98         900         8.2         17         5.3         3.5           10/1/98         880         8.0         47         77         21           11/2/98         3000         -         -         -         -         -           11/2/98         3000         - <td< td=""><td></td><td></td><td>10/8/96</td><td>4400</td><td>. 38</td><td>9</td><td>3.3</td><td>6</td></td<>			10/8/96	4400	. 38	9	3.3	6
National N			5/28/97	1300	19	8.5	6.5	15
8/26/97         2200         -			7/31/97		19	58	4	62
11/10/97   1050   8.3   16   43.5   3.3   3.5			8/26/97	2200	ı	1	•	
7/16/98         3000         8.2         15         6.8         3.5           8/13/98         3411         - </td <td></td> <td></td> <td>11/10/97</td> <td>1050</td> <td>16</td> <td>43.5</td> <td>3.3</td> <td>47</td>			11/10/97	1050	16	43.5	3.3	47
8/13/98       3411       -			7/16/98	3000	15	8.9	3.5	10
9/3/98         900         8.2         17         5.3         3           10/1/98         880         8.0         47         77         21           11/2/98         3000         -         -         -         -         -         -           7/12/99         2400         8.1         42         23         2.3         2.3           8/26/99         190         8.0         66         59         3         3           9/17/99         350         8.0         101         51         6.5         4           8/26/99         410         7.9         130         38         4         4           9/17/99         500         7.7         97         51         6           8/26/99         140         8.1         54         6         5           8/26/99         140         8.1         54         36         3           8/26/99         140         7.9         120         77         7           140         7.9         120         77         7         7			8/13/98	3411		1	ı	-
10/1/98   880   8.0   47   77   21     11/2/98   3000   -			9/3/98	006	17	5.3	3	8.3
11/2/98         3000         -		-	10/1/98	880	47	77	21	86
Applicate at Cell 1         7/12/99         2400         8.1         42         23         2.3           Duplicate at Cell 1         7/12/99         190         8.0         66         59         3.5           Split of LF-C-1         7/12/99         150         8.0         58         45.5         3.3           Split of LF-C-1         7/12/99         500         7.7         97         51         6           8/26/99         140         8.2         46         27.8         2.5           8/26/99         140         8.1         54         36         3           9/17/99         140         7.9         120         77         7			11/2/98	3000	,	ı	1	1
Split of LF-C-1         7/12/99         190         8.0         66         59         3           Split of LF-C-1         7/12/99         150         8.0         101         51         6.5           Split of LF-C-1         7/12/99         410         7.9         130         38         4           Split of LF-C-1         7/12/99         1800         8.2         46         27.8         2.5           8/26/99         140         8.1         54         36         3         4           9/17/99         1400         7.9         120         77         7         7			7/12/99	2400	42	23	2.3	25
Duplicate at Cell 1         7/12/99         350         8.0         101         51         6.5           Duplicate at Cell 1         7/12/99         150         8.0         58         45.5         3.3           8/26/99         410         7.9         130         38         4           9/17/99         500         7.7         97         51         6           8/26/99         140         8.2         46         27.8         2.5           8/26/99         140         7.9         120         77         7			8/56/99	190	99	59	3	62
Duplicate at Cell 1         7/12/99         150         8.0         58         45.5         3.3           8/26/99         410         7.9         130         38         4           9/17/99         500         7.7         97         51         6           Split of LF-C-1         7/12/99         1800         8.2         46         27.8         2.5           8/26/99         140         8.1         54         36         3           9/17/99         1400         7.9         120         77         7			9/17/99	350	101	51	6.5	58
8/26/99         410         7.9         130         38         4           9/17/99         500         7.7         97         51         6           Split of LF-C-1         7/12/99         1800         8.2         46         27.8         2.5           8/26/99         140         8.1         54         36         3           9/17/99         1400         7.9         120         77         7	LF-C-D	Duplicate at Cell 1	7/12/99	150	28	45.5	3.3	49
Split of LF-C-1         7/12/99         500         7.7         97         51         6           8/26/99         140         8.1         54         27.8         2.5           8/26/99         140         8.1         54         36         3           9/17/99         1400         7.9         120         77         7		-	8/56/99	410	130	38	4	42
Split of LF-C-1         7/12/99         1800         8.2         46         27.8         2.5           8/26/99         140         8.1         54         36         3           9/17/99         1400         7.9         120         77         7			9/11/99	200	26	51	9	57
9 140 8.1 54 36 3 9 1400 7.9 120 77 7	LF-C-S	Split of LF-C-1	7/12/99	1800	46	27.8	2.5	30
9 1400 7.9 120 77 7			8/26/99	140	54	36	3	39
			9/17/99	1400	120	77	7	84

P:\JOBS\0700\7250 SIMPLOT; GAY MINE\REPORTS\GAYclosurc.DOC\06/07/00\JBB

		Inorganic-N	5.8	32	25	38	19	16.3	89		44	12
	mg/kg	Ammonia-N	1.8	14	7.3	3.5	3	4.3	2	1	2.5	3.0
	T)	Nitrate-N	4	18	18	35	16	12	63	1	41	8.5
		Phosphorus	16	16	15	15	4	13	16	1	11	10
		pH	9.8	8.2	8.3	8.3	8.4	9.6	7.9	,1	8.5	9.8
inued)	mg/kg	TPH	11,000	200	390	1300	096	140	-	780		280
ing Results (continued		Sampling Date	9/20/95	7/2/96	8/13/96	9/12/96	10/8/96	5/28/97	7/31/97	8/26/97	11/10/97	7/16/98
Table 1. Performance Monitoring		Description	Composite Cell 3									
Table 1. Per		Sample ID	I.F.C-3						•			

Sample analyzed for U.S. EPA Method 418.1 rather than 418.1 Modified.

Table 2	Table 2. Environmental Impact Monitoring Results for October 1999	for Octobe	r 1999				
			<b>3.</b>	µ.g/kg		8w	mg/kg
Field ID	Description	Benzene	Toluene	ethylbenzene	Xylenes	Nitrate-N	TPH (418.1M)
Pit-1-S	Treatment Cell 1, treatment soils	<5.0	<5.0	<5.0	<5.0	9.4	3200
Pit-1-2	Treatment Cell 1, 2 feet below native surface	<5.0	<5.0	<5.0	<5.0	6.6	20
Pit-1-5	Treatment Cell 1, 5 feet below native surface	<5.0	<5.0	<5.0	<5.0	5.2	12
Pit-1-9	Treatment Cell 1, 9 feet below native surface	<5.0	<5.0	<5.0	<5.0	<5.0	12
Pit-2-S	Treatment Cell 2, treatment soils	<5.0	<5.0	<5.0	<5.0	30	2300
Pit-2-2	Treatment Cell 2, 2 feet below native surface	<5.0	<5.0	<5.0	<5.0	<5.0	2800
Pit-2-5	Treatment Cell 2, 5 feet below native surface	<5.0	<5.0	<5.0	<5.0	5.2	410
Pit-2-7	Treatment Cell 2, 7 feet below native surface	<5.0	<5.0	<5.0	<5.0	<5.0	16
Pit-3-S	Treatment Cell 3, treatment soils	<5.0	<5.0	<5.0	<5.0	20	64
Pit-3-2	Treatment Cell 3, 2 feet below native surface	<5.0	<5.0	<5.0	<5.0	<5.0	21
Pit-3-5	Treatment Cell 3, 5 feet below native surface	<5.0	<5.0	<5.0	<5.0	<5.0	23

Table 3. Summary of Closure Sample Result	110
Parameter	
Number of Samples Collected	09
Minimum	5 mg/kg
Maximum	4800 mg/kg TPH
Average	671 mg/kg TPH
Standard Deviation	1047 mg/kg TPH

October 12, 1999 soil sampling results. Laboratory reports presented in Appendix B.

Table 4. Matrix of Chemicals of Concern For Various Petroleum Products	als of Con	cern For	Various I	etroleum	Products			
	PRODUCT							
1 4 ( 1) 4 ( 11 )	;		Fuel Oil	Fuel Oil				
CHEMICAL	Gasoline	Diesel	No. 2	No. 4	Kerosene	JP-4	JP-5	Used Oil
Benzene	×	×	×	ŀ	X	X	1	×
Toluene	×	×	×	1	×	×	ł	×
Ethylbenzene	×	×	×	1	×	×	1	×
Xylenes (mixed)	×	×	×	1	×	×	1	×
Ethylene Dibromide (EDB)	ΪX	ŀ	ł	I		;	1	1
1,2 Dichloroethane (EDC)	īΧ	I	1	1	ł	ł	ŀ	1
Methyl Tert-Butyl Ether (MTBE)	X	1	1	1	1	ł	ļ	-
PAHs								
Acenapthene	1	×	×	×	×		×	×
Anthracene	1	×	×	×	×	ł	×	×
Benzo(a)pyrene	1	×	×	×	×	1	×	×
Benzo(a)fluoranthene	1	×	×	×	×	ŀ	×	×
Benzo(k)flouranthene	;	×	×	×	×	ł	×	×
Benzo(g,h,i)perylene	,	×	×	×	×	ł	×	×
Chrysene	1	×	×	×	×	;	×	×
Fluorene	ł	×	×	×	×	;	×	×
Fluoranthene	1	×	×	×	×	ł	×	×
Naphthalene	×	×	×	×	×	×	×	×
Phenanthrene	1	×	×	×	×	ļ	×	×
Pyrene	1	×	×	×	×	1	×	×
Chlorinated Solvents	}	-	-	1	1	1	ł	×

<sup>1:</sup> Leaded Regular Only X: Chemical of Concern Reference: Risk Based Corrective Action Guidance Document for Petroleum Releases, August 1996

	Sample Concentration!	Tier 0 <sup>2</sup> RBSLs (mg/kg)
Chemical Constituent	(mg/kg Soil)	
Benzene	< 0.005	0.06
Toluene	<0.005	5.4
Ethylbenzene	<0.005	10
Xylenes (Total Mixed)	<0.015	7
Ethylene dibromide (EDB)	<0.005	0.001
1,2-Dichloroethane (EDC)	<0.005	0.014
Methyl tert-butyl ether (MTBE)	<0.005	0.6
Acenaphthene	<0.500	1.1
Anthracene	<0.500	0.8
Benzo(a)pyrene	<0.500	0.12
Benzo(a)fluoranthene	<0.500	1.22
Benzo(k)fluoranthene	<0.500	4.4
Benzo(a)anthracene	<0.500	1.22
Benzo(g,h,I)perylene	<0.500	0.4
Chrysene	<0.500	0.5
Fluorene	<0.500	4.2
Fluoranthene	<0.500	4.4
Naphthalene	<0.500	5.5
Phenanthrene	<0.500	8.4
Pyrene	<0.500	10

<sup>&</sup>lt;sup>18</sup> composite samples from all 4 treatment cells were collected from the Gay Mine in October 1999. All values shown are the laboratory reporting limits/

<sup>&</sup>lt;sup>2</sup>Tier 0 RBSLs were taken from Table 3.1 Tier 0 Soil Cleanup Levels. Applicable to land farm soils Reference: Risk Based Corrective Action Guidance Document for Petroleum Releases, August 1996

### APPENDIX A

### 1999 LANDFARM MONITORING LABORATORY REPORTS

Reno · Las Vegas Phoenix • Irvine

Reno Division 1030 Matley Lane • Reno, Nevada 89502 (702) 348-2522 • Fax: (702) 348-2546 1-800-368-5221

JUI 26 1999 BROWN AND CALDWELL BOISE, IDAHO

CLIENT:

Brown & Caldwell

380 E. Parkcenter Ste. 240

Boise, ID 83706

ATTN:

Mike Murray

PROJECT NAME: Gay Mine

NEL ORDER ID: P9907044

PROJECT #:

07250.016

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 7/14/99.

Samples were analyzed as received.

Where applicable we have included the following quality control data:

Method blank - used to demonstrate absence of contamination or interferences in the analytical process. Laboratory Control Spike (LCS) - used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix.

Surrogates - compounds added to each sample to ensure that the method requirements are met for each individual sample.

Should you have any questions or comments, please feel free to contact our Client Services department at (602) 437-0099.

The BTEX 4-Bromofluorobenzene surrogate failed for sample LF-C-1. We believe this failure is due to high organic material present in the sample. The surrogate recoveries were confirmed in duplicate analyses.

### Some results have been flagged as follows:

- This concentration should be considered an estimate due to surrogate failure.

### Some QA results have been flagged as follows:

- Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.
- J1 The batch MS and/or MSD were outside acceptance limits. The LCS was acceptable.

### Some surrogate results have been flagged as follows:

Sf - This surrogate was outside acceptance limits.

leen in Ferguson

Eileen M. Ferguson Laboratory Manager

**CERTIFICATIONS:** 

Las Vegas S. California Reno AZ0520

California 1707 US Army Corps Certified

of Engineers

Arizona

AZ0605 AZ0518 2002 2264 Certified

Idaho Montana

Nevada L.A.C.S.D. Reno Certified Certified NV033

Las Vegas S. California Certified Certified

NV052

7/22/99

CA084 10228

1

CLIENT:

Brown & Caldwell

PROJECT ID:

Gay Mine

PROJECT #:

07250.016

CLIENT ID:

LF-C-1

DATE SAMPLED: 7/12/99

NEL SAMPLE ID: P9907044-01

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

LIMIT

**UNITS** 

ANALYZED

RESULT

**PARAMETER** TRPH

2800

200.

10

418.1AZ

mg/kg

7/20/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 990720TRPHS-BLK	ND	< 20. mg/kg	NA
LCS, 990720TRPHS-LCS	125 %	70 - 130	NA
LCSD 990720TRPHS-LCSD	123 %	70 - 130	NA
MSD, 990720TRPHS-MSD	-1,1 %	70 - 130	P9907044-01

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Gay Mine

PROJECT #:

07250.016

CLIENT ID:

LF-C-2

DATE SAMPLED: 7/12/99

NEL SAMPLE ID: P9907044-02

TEST:

TRPH

**Inorganic Non-Metals** 

MATRIX:

**PARAMETER** 

Solid

REPORTING

-	di oitano				
RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
2400	200	10	418.1AZ	mg/kg	7/20/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 990720TRPHS-BLK	ND	< 20. mg/kg	NA
LCS, 990720TRPHS-LCS	125 %	70 - 130	NA
LCSD 990720TRPHS-LCSD	123 %	70 - 130	NA
MSD, 990720TRPHS-MSD	-1,1 %	70 - 130	P9907044-01

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Gay Mine

PROJECT #:

07250.016

CLIENT ID:

LF-C-D

DATE SAMPLED: 7/12/99

NEL SAMPLE ID: P9907044-03

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

		WI OILI MIG				
PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
TRPH	150	20.	1	418.1AZ	mg/kg	7/20/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 990720TRPHS-BLK	ND	< 20. mg/kg	NA
LCS, 990720TRPHS-LCS	125 %	70 - 130	NA
LCSD 990720TRPHS-LCSD	123 %	70 - 130	NA
MSD, 990720TRPHS-MSD	-1,1 %	70 - 130	P9907044-01

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Gay Mine

PROJECT #:

**PARAMETER** 

07250.016

CLIENT ID:

LF-C-S

DATE SAMPLED: 7/12/99

NEL SAMPLE ID: P9907044-04

**ANALYZED** 7/20/99

TEST:

TRPH

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

1001011111						
	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	<u>UNITS</u>	
	1800	100	5	418 1 4 7	ma/ka	

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 990720TRPHS-BLK	ND	< 20. mg/kg	NA
LCS, 990720TRPHS-LCS	125 %	70 - 130	NA
LCSD 990720TRPHS-LCSD	123 %	70 - 130	NA
MSD, 990720TRPHS-MSD	-1,1 %	70 - 130	P9907044-01

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Gay Mine

PROJECT #:

07250.016

CLIENT ID:

**Method Blank** 

DATE SAMPLED: NA

NEL SAMPLE ID: 990720TRPHS-BLK

TEST:

TRPH

Non-Metals

REPORTING

RESULT ND

LIMIT 20

METHOD 418.1AZ

UNITS mg/kg

ANALYZED

7/20/99

D.F. - Dilution Factor

ND - Not Detected

**PARAMETER** 

CLIENT:

Brown & Caldwell

Gay Mine

07250.016

CLIENT ID:

DATE SAMPLED: 7/12/99

NEL SAMPLE ID: P9907044-01

PROJECT ID: PROJECT #:

DILUTION:

TEST:

Volatile Organic Compounds by EPA 8260B, Dec. 1996

MATRIX:

Solid

1

ANALYST:

SKV - Las Vegas Division

EXTRACTED:

7/22/99

ANALYZED:

7/16/99

LF-C-1

		Reporting		
PARAMETER	Result	Limit		
MTBE	ND	5. μg/kg		
Benzene	ND	2. μg/kg		
Toluene	ND	2. μg/kg		
Ethylbenzene	ND Jf	2. μg/kg		
Total Xylenes	ND Jf	2. μg/kg		
Naphthalene	ND Jf	. 5. μg/kg		

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range	
4-Bromofluorobenzene	52 Sf	74 - 121	
Toluene-d8	75	81 - 117	

### ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell

Gay Mine

PROJECT #:

07250.016

CLIENT ID:

LF-C-1

DATE SAMPLED: 7/12/99

NEL SAMPLE ID: P9907044-01

TEST:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

MATRIX: DILUTION: Solid 1

ANALYST:

JPR - Reno Division

EXTRACTED:

7/16/99

ANALYZED:

7/21/99

		Reporting
PARAMETER	Result	Limit
Acenaphthene	ND	500. μg/Kg
Acenaphthylene	ND	500. μg/Kg
Anthracene	ND	· 500. μg/Kg
Benzo (a) anthracene	ND	500. μg/Kg
Benzo (b&k) fluoranthene	ND	500. μg/Kg
Benzo (g,h,i) perylene	ND	500. μg/Kg
Benzo (a) pyrene	ND	500. μg/Kg
Chrysene	ND	500. μg/Kg
Dibenzo (a,h) anthracene	ND	500. μg/Kg
Fluoranthene	ND	500. μg/Kg
Fluorene	ND	500. μg/Kg
Indeno (1,2,3-c,d) pyrene	ND	500. μg/Kg
Naphthalene	ND	500. μg/Kg
Phenanthrene	ND	500. μg/Kg
Pyrene	ND	500. μg/Kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
2-Fluorobiphenyl	82	30 - 115
Nitrobenzene-d5	72	23 - 120
p-Terphenyl-d14	114	18 - 137

### ND - Not Detected

CLIENT:

Brown & Caldwell

CLIENT ID:

PROJECT ID: Gay Mine PROJECT #:

07250.016

Method Blank DATE SAMPLED: NA

NEL SAMPLE ID: 071699-E1-BLK

TEST:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

MATRIX:

ANALYST:

JPR - Reno Division

EXTRACTED:

7/16/99

7/21/99 ANALYZED:

		Reporting
PARAMETER	Result	Limit
Acenaphthene	ND	500. μg/Kg
Acenaphthylene	ND	500. μg/Kg
Anthracene	ND	500. μg/Kg
Benzo (a) anthracene	ND	500. μg/Kg
Benzo (b&k) fluoranthene	ND	500. μg/Kg
Benzo (g,h,i) perylene	ND	500. µg/Kg
Benzo (a) pyrene	ND	500. μg/Kg
Chrysene	ND	500. μg/Kg
Dibenzo (a,h) anthracene	ND	500. μg/Kg
Fluoranthene	ND	500. μg/Kg
Fluorene	ND	500. μg/Kg
Indeno (1,2,3-c,d) pyrene	ND	500. μg/Kg
Naphthalene	ND	500. μg/Kg
Phenanthrene	ND	500. μg/Kg
Ругеле	ND	500. μg/Kg

### **QUALITY CONTROL DATA:**

Surrogate	% Recovery	Acceptable Range
2-Fluorobiphenyl	69	30 - 115
Nitrobenzene-d5	67	23 - 120
p-Terphenyl-d14	86	18 - 137

### ND - Not Detected

CLIENT:

Brown & Caldwell

CLIENT ID:

Method Blank

PROJECT ID: PROJECT #:

Gay Mine

DATE SAMPLED: NA

TEST:

07250.016

NEL SAMPLE ID: 990716SBTEX-BLK

MATRIX:

Volatile Organic Compounds by EPA 8260B, Dec. 1996

ANALYST:

SKV - Las Vegas Division

EXTRACTED:

7/22/99

ANALYZED:

7/16/99

PARAMETER	Result	Reporting Limit
MTBE	ND	5. μg/kg
Benzene	ND	2. μg/kg
Toluene	ND	2. μg/kg
Total Xylenes	ND	2. μg/kg
Naphthalene	ND	5. μg/kg

### QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	100	74 - 121
Toluene-d8	98	81 - 117

### ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Gay Mine 07250.016

PROJECT #: TEST:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

MATRIX:

Solid

		Spike	Spike	Percent	Acceptable
PARAMETER	NEL Sample ID	Amount	Result	Recovery	Range RPD
Acenaphthene	071699-E1-LCS	80	61.3	77	47 - 145
Acenaphthene	P9907044-03-MS	80	78.1	98	47 - 145
Acenaphthene	P9907044-03-MSD	80	83.9	105	47 - 145
Acenaphthylene	071699-E1-LCS	80	63.6	80	33 - 145
Acenaphthylene	P9907044-03-MS	80	63.7	80	33 - 145
Acenaphthylene	P9907044-03-MSD	80	68	85	33 - 145
Anthracene	071699-E1-LCS	80	64.2	80	27 - 133
Anthracene	P9907044-03-MS	80	55.6	70	27 - 133
Anthracene	P9907044-03-MSD	80	52.9	66	27 - 133
Benzo (a) anthracene	071699-E1-LCS	80	64.2	80	33 - 143
Benzo (a) anthracene	P9907044-03-MS	80	66.1	83	33 - 143
Benzo (a) anthracene	P9907044-03-MSD	80	65.4	82	33 - 143
Benzo (b&k) fluoranthene	071699-E1-LCS	160	247	154	24 - 159
Benzo (b&k) fluoranthene	P9907044-03-MS	160	317	198 Л	24 - 159
Benzo (b&k) fluoranthene	P9907044-03-MSD	160	331	207 J1	24 - 159
Benzo (g,h,i) perylene	071699-E1-LCS	80	121	151	13 - 219
Benzo (g,h,i) perylene	P9907044-03-MS	80	78.5	98	13 - 219
Benzo (g,h,i) perylene	P9907044-03-MSD	80	65	81	13 - 219
Benzo (a) pyrene	071699-E1-LCS	80	118	148	17 - 163
Benzo (a) pyrene	P9907044-03-MS	80	122	153	17 - 163
Benzo (a) pyrene	P9907044-03-MSD	80	114	143	17 - 163
Chrysene	071699-E1-LCS	80	50	63	17 - 168
Chrysene	P9907044-03-MS	80	41.2	52	17 - 168
Chrysene	P9907044-03-MSD	80	43.8	55	17 - 168
Dibenzo (a,h) anthracene	071699-E1-LCS	80	105	131	13 - 227
Dibenzo (a,h) anthracene	P9907044-03-MS	80	61.7	77	13 - 227
Dibenzo (a,h) anthracene	P9907044-03-MSD	80	48.1	60	13 - 227
Fluoranthene	071699-E1-LCS	80	66.1	83	26 - 137
Fluoranthene	P9907044-03-MS	80	52.9	66	26 - 137
Fluoranthene	P9907044-03-MSD	80	49	61	26 - 137
Fluorene	071699-E1-LCS	80	62.7	78	59 - 121
Fluorene	P9907044-03-MS	80	78.4	98	59 - 121
Fluorene	P9907044-03-MSD	80	90	113	59 - 121
Indeno (1,2,3-c,d) pyrene	071699-E1-LCS	80	116	145	13 - 171
Indeno (1,2,3-c,d) pyrene	P9907044-03-MS	80	69.2	87	13 - 171
Indeno (1,2,3-c,d) pyrene	P9907044-03-MSD	80	57.8	72	13 - 171 18.
Naphthalene	071699-E1-LCS	80	60.6	76	21 - 133

ND - Not Detected

This report shall not be reproduced except in full, without the written approval of the laboratory.

CLIENT:

Brown & Caldwell

PROJECT ID:

Gay Mine

PROJECT #:

07250.016

TEST: MATRIX:

Pyrene

Pyrene

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996 Solid

Spike Spike Percent Acceptable RPD Amount Result Recovery Range **PARAMETER NEL Sample ID** 21 - 133 P9907044-03-MS 80 67 84 Naphthalene 69.6 87 21 - 133 3.8 Naphthalene P9907044-03-MSD 80 80 67.7 85 54 - 120 Phenanthrene 071699-E1-LCS 80 80.4 101 54 - 120 Phenanthrene P9907044-03-MS 54 - 120 Phenanthrene P9907044-03-MSD 80 84.9 106 5.4 071699-E1-LCS 80 61.5 77 52 - 115 Pyrene 52 - 115 P9907044-03-MS 80 52.3 65

P9907044-03-MSD

48.1

80

60

52 - 115

8.4

CLIENT:

Brown & Caldwell

PROJECT ID:

Gay Mine 07250.016

PROJECT #: TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

		Spike	Spike	Percent	Acceptable	
PARAMETER	<b>NEL Sample ID</b>	<b>Amount</b>	Result	Recovery	Range	RPD
TRPH	990720TRPHS-LCS	100	125	125	70 - 130	
TRPH	990720TRPHS-LCSD	100	123	123	70 - 130	1.6
TRPH	P9907044-01-MSD	100	1700	-1100 C	70 - 130	

Alchem Laboratories, Inc. 104 West 31st 8freet Boise, Idabo 83714 Phone (208) \$36,1172	74X70W 8,	A - MOTOR OILS	CC S CC S BLEX CH BC BLEX		.>=	~		Signature)		Received With Seal Intact? Thes Gallo Label Tag, COC Agree?
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30215,3545. A.Z. Phuenix, A.Z. S.	10 / 8520 )	MOF2 (604 \ 804 M2 AOC,2 (654 \ M2 AOC,2 (654 \ M2 AOC,2 (654 \ M2 (601-605 \ 805 M2 (601-605 \ 805 M3 (601 \ 805 M3 (6	CC-S AOC GC-N AOC GC-N	·		>~		TIME	10:35 an	Received for Laboratory By (Signature)
VELL	STATE SPOOF 14-0825 CHT	07250.016 1y Form	SAMPLE IDENTIFICATION $F-C-Z$	6-2	2-2	5-2		DATE	66-41-(	Date/Time Received for La
AND	M d	Lay Min	17 pl.01 p	7 55.11	1	- <u>47</u> _		RELINQUISHED BY (Signature)	A BX	Il Mar
NAME BROWN ATTENTION MIKE ADDRESS	PHONE # 336-		NUMBER DATE		03 1	1 60		-	From Fed By	Relinquished By (Signature)

July 15, 1999

BROWN & CALDWELL - B TADD GIESBRECHT **GAY MINE** S 9374 LF-C-1 SAMPLED GROWER: REPORT: CLIENT: FIELD

## AGRI-CHECK, INC

800.537.1129 \* 541.922.4894 323 Sixth St. - P.O. Box 1350 Agricultural Testing Laboratory OR 97882 Umatilla,



### **SOIL ANALYSIS REPORT**

CROP:

	CI	1
MOISTURE		1
	XX N	1
	Total Avail.	1 1 1 1
	Total %	1
	Total Base SMP Bases Sat.% Buf.pH	1
	Base Sat.%	1
	Total Bases	1
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	CEC	
	Fe ppm	1 1
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	Mn ppm	
	Zn ppm	21.6
	B mdd	2.4
	S bpm	50.1
OF N	NO3 NH4 #/A #/A	240 20
NITRO	NO3 #/A	240 20
	Mg meq	1
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	Р	108
	pH S.Salt O.M. P K Ca Mg mmhos % ppm ppm meq med	1
	S.S.	, <b>,</b>
		1 7.7
	Lab Depth No. Foot	· 
)	Lab No.	504

TOTAL INCHES: TOTALS: 240

# TOTAL BROADCAST FERTILITY NEEDS:

GYPSUM REQUIREMENT: LIME REQUIREMENT: YIELD GOAL/ACRE: PREVIOUS CROP: LBS PER ACRE N
LBS PER ACRE P205
LBS PER ACRE K20
LBS PER ACRE ACTUAL S
LBS PER ACRE ACTUAL B
LBS PER ACRE ACTUAL B COMMENTS: NITROGEN: PHOSPHORUS: POTASSIUM: SULFUR: BORON: OTHERS: ZINC

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES

% SAND: % SILT: % CLAY: CLASS:

**SOIL TEXTURE ANALYSIS:** 

# PLANT TISSUE ANALYSIS REPORT

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July 15, 1999 59374

BROWN & CALDWELL - B TADD GIESBRECHT **GAY MINE** LF-C-2 SAMPLED GROWER REPORT: CLIENT: FIELD:

### AGRICHECK, INC

800.537.1129 \* 541.922.4894 323 Sixth St. - P.O. Box 1350 Agricultural Testing Laboratory OR 97882 Umatilla,



# **SOIL ANALYSIS REPORT**

CROP:

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TOTALS:

TOTAL BROADCAST FERTILITY NEEDS

(IELD GOAL/ACRE: PREVIOUS CROP: LBS PER ACRE N
LBS PER ACRE P205
LBS PER ACRE K20
LBS PER ACRE ACTUAL S
LBS PER ACRE ACTUAL B
LBS PER ACRE ACTUAL B NITROGEN: PHOSPHORUS: POTASSIUM: SULFUR: BORON:

GYPSUM REQUIREMENT: LIME REQUIREMENT:

OTHERS: COMMENTS:

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES

**SOIL TEXTURE ANALYSIS:** 

TOTAL INCHES:

CLASS:

% SAND:

% SILT: % CLAY:

# PLANT TISSUE ANALYSIS REPORT

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July 15, 1999 59374 DATE: Report:

BROWN & CALDWELL - B TADD GIESBRECHT **GAY MINE** LF-C-D CLIENT: GROWER: SAMPLED FELD

CROP:

### AGRI-CHECK, INC

\* 541.922.4894 323 Sixth St. - P.O. Box 1350 Agricultural Testing Laboratory Umatilla, OR 97882 800.537.1129



### **SOIL ANALYSIS REPORT**

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	Lab	o N	l I

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TOTAL BROADCAST FERTILITY NEEDS:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

13

TOTALS: 182

(IELD GOAL/ACRE: PREVIOUS CROP: ACRES: LBS PER ACRE N LBS PER ACRE P205 LBS PER ACRE K20 LBS PER ACRE ACTUAL S LBS PER ACRE ACTUAL B LBS PER ACRE ACTUAL Z NITROGEN: PHOSPHORUS: POTASSIUM:

SULFUR: BORON:

GYPSUM REQUIREMENT: LIME REQUIREMENT:

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES

**SOIL TEXTURE ANALYSIS:** 

TOTAL INCHES:

CLASS:

% SILT: % CLAY: % SAND:

COMMENTS:

OTHERS:

# **PLANT TISSUE ANALYSIS REPORT**

Moisture	%	1 1 1 1 1
Na	mdd	1 1 1
Chloride	mdd	1 1 1
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3	mdd	1
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Mg	8	1
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July 15, 1999 DATE:

BROWN & CALDWELL - B GAY MINE TADD GIESBRECHT LF-C-S GROWER: SAMPLED: REPORT: CLIENT: FIELD: CROP:

### U Z AGRI-CHECK,

Agricultural Testing Laboratory 323 Sixth St. - P.O. Box 1350 OR 97882 Umatilla, \* 541.922.4894

800-537-1129



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			ច	mdd	1		
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		rure	Avail.	% Inches	1		
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			×	mdd	† T	46 364	
			<u>a</u>	mdd	1	46	
			O. <b>M</b> .	%	1		
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			苖		1	1 8.2	
	SOIL ANALYSIS REPORT		Depth	Foot	1	1	
			Lab	No.	1 1	203	

2 TOTALS: 111

### **TOTAL BROADCAST FERTILITY NEEDS:**

ACRES: LBS PER ACRE N
LBS PER ACRE P205
LBS PER ACRE K20
LBS PER ACRE ACTUAL S
LBS PER ACRE ACTUAL B
LBS PER ACRE ACTUAL B HOSPHORUS: POTASSIUM: SULFUR: NITROGEN: OTHERS: BORON: ZINC:

COMMENTS:

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES GYPSUM REQUIREMENT:

LIME REQUIREMENT:

YIELD GOAL/ACRE: PREVIOUS CROP:

% SAND: % SILT: CLASS:

% CLAY:

**SOIL TEXTURE ANALYSIS:** 

TOTAL INCHES:

## **PLANT TISSUE ANALYSIS REPORT**

Moisture £ Chloride mdd -ಶ ပ္ပ N ррт Nitrate Total DESCRIPTION: Lab Š.

NOTE: East of Cascades Bicarb P & K extraction/SMP=1/4 SMP Buffer pH; West of Cascades Weak Bray P and Acetate K extractions. Fertility recommendations may change after application of gypsum or lime.

Reno • Las Vegas Phoenix • Irvine

### Southern California Division

3189 Airway Ave., Bldg. C • Costa Mesa, CA 92626 (714) 437-5200 • Fax: (714) 556-5625

NEL ORDER ID: P9908099

1-800-320-6595

CLIENT:

Brown & Caldwell

380 E. Parkcenter #240

Boise, ID 83706

ATTN:

Mike Murray

PROJECT NAME: Gay Mine PROJECT #: 07250.016

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were received by NEL in good condition, under chain of custody on 8/31/99.

Samples were analyzed as received.

Where applicable we have included the following quality control data:

Method blank - used to demonstrate absence of contamination or interferences in the analytical process. Laboratory Control Spike (LCS) - used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix.

Surrogates - compounds added to each sample to ensure that the method requirements are met for each individual sample.

Should you have any questions or comments, please feel free to contact our Client Services department at (602) 437-0099.

### Some results have been flagged as follows:

Di - Results reported from analysis at a higher dilution.

### Some QA results have been flagged as follows:

 Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.

Greg Anderson Laboratory Manager

**CERTIFICATIONS:** 

Reno Las Vegas S. California
Arizona AZ0520 AZ0518 AZ0605
California 1707 2002 2264
US Army Corps Certified Certified of Engineers

9-16-9 Date

RenoLas VegasS. CaliforniIdahoCertifiedCertifiedMontanaCertifiedCertifiedNevadaNV033NV052CA084

10228

L.A.C.S.D.

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

LF-1 COMP

DATE SAMPLED: 8/26/99

NEL SAMPLE ID: P9908099-01

TEST:

TRPH

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

10.

RESULT **PARAMETER** 

130

LIMIT

<u>D. F.</u>

**METHOD** EPA 418.1M **UNITS** mg/Kg ANALYZED

9/7/99

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016

CLIENT ID:

LF-2 COMP

DATE SAMPLED: 8/26/99

NEL SAMPLE ID: P9908099-02

ΓEST:

Inorganic Non-Metals

MATRIX:

Solid

REPORTING

 PARAMETER
 RESULT
 LIMIT
 D. F.
 METHOD
 UNITS
 ANALYZED

 TRPH
 190
 10.
 1
 EPA 418.1M
 mg/Kg
 9/7/99

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

LF-DUP

DATE SAMPLED: 8/26/99

NEL SAMPLE ID: P9908099-03

**TEST:** 

ΓRPH

**Inorganic Non-Metals** 

MATRIX:

**PARAMETER** 

Solid

REPORTING

RESULT

410

<u>D. F.</u>

**METHOD** EPA 418.1M UNITS mg/Kg **ANALYZED** 9/7/99

LIMIT 1 10.

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

LF-S

DATE SAMPLED: 8/26/99

NEL SAMPLE ID: P9908099-04

TEST:

ГRРН

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

10.

**PARAMETER** 

RESULT

140

<u>D. F.</u> LIMIT

1

**METHOD** EPA 418.1M UNITS mg/Kg ANALYZED

9/7/99

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

**PARAMETER** 

Gay Mine 07250.016 CLIENT ID:

**Method Blank** 

DATE SAMPLED: NA

NEL SAMPLE ID: 090799-TRPH-BLK

ΓEST:

ΓRPH

**Non-Metals** 

REPORTING

RESULT ND

LIMIT 10

D. F.

**METHOD** EPA 418.1M

mg/Kg mg/Kg

9/7/99

D.F. - Dilution Factor

ND - Not Detected

DATE: September 01, 1999
REPORT: S 254
CLIENT: BROWN & CALDWELL - B
GROWER: GAY MINE
SAMPLED: TADD GIESBRECHT
FIELD: LF - 1 COMP.

### AGRICHECK, INC

Agricultural Testing Laboratory 323 Sixth St. - P.O. Box 1350 Umatilla, OR 97882 800.537.1129 \* 541.922.4894 

### **SOIL ANALYSIS REPORT**

CROP:

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GEN	NO3 NH4	#/ <b>∀</b>	ı	14
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	표		1	1 7.5
	خ		l I	
	Dept	Foot	1 1 1	
				15
	Lal	No.	ŀ	6315

D md

TOTAL INCHES:	
14	
TOTALS: 190	

### TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N YIELD GOAL/ACRE:
PHOSPHORUS: LBS PER ACRE P205
POTASSIUM: LBS PER ACRE K20
SULFUR: LBS PER ACRE ACTUAL S
BORON: LBS PER ACRE ACTUAL B
ZINC: LBS PER ACRE ACTUAL Zn
COMMENTS:
COMMENTS:

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES

CLASS: % SAND: % SILT: % CLAY:

**SOIL TEXTURE ANALYSIS:** 

# PLANT TISSUE ANALYSIS REPORT

Moisture	%	i i i
		1
		l I
S S	mdd	l I
Chloride	mdd	! ! ! !
ъ Б	mdd	1 1
ភ		
Ā	mdd	1
B Zn	mdd	, ; !
<b>B</b>	Шdd	1 1
₽	%	! !
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		i I
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**September 01, 1999** DATE: Report:

**BROWN & CALDWELL - B** TADD GIESBRECHT LF - 2 COMP. **GAY MINE** GROWER: SAMPLED: CLIENT: FIELD:

### AGRI-CHECK, INC

323 Sixth St. - P.O. Box 1350 Agricultural Testing Laboratory Umatilla, OR 97882



SOIL ANALYSIS REPORT

CROP:

			ļ	
	ច	mdd	i I	
	TKN	%	1 1	
URE		Inches	i i	
MOIS	Total Avail.	%	i	
	SMP	Sat. % Buf.pH	1	
	Base	Sat. %	1	
	Total	Bases	) 	
	Ra	meq	l l	
	CEC	med	1	
	Fe	mdd mdd i	 	
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	Σ	mdd	1 1	
	Zu	mdd	l l	25.5
	Ω	mdd mdd	i   	50.5 1.4 25.5
	တ	mdd	1	50.5
GEN	NO3 NH4	#/ <b>A</b>	1	12
NITROGEN	N03	#/ <b>A</b>	1 1	118 12
	Mg	med	l L	
	Sa	meq	i I	
	¥	mdd	1 1	66 451
	۵	bew mdd mdd	1 I	99
	≅	%	l I	
	S.Salt	w soyum	 	
	품	Ĺ	1	0.8
	Depth	Foot	1 1 1	6316 1 8.0
	de de	Š.	1	6316

TOTAL INCHES: 12 TOTALS: 118

## **TOTAL BROADCAST FERTILITY NEEDS**:

GYPSUM REQUIREMENT: LIME REQUIREMENT: YIELD GOAL/ACRE: PREVIOUS CROP: ACRES: LBS PER ACRE N
LBS PER ACRE P205
LBS PER ACRE K20
LBS PER ACRE ACTUAL S
LBS PER ACRE ACTUAL B
LBS PER ACRE ACTUAL B COMMENTS: PHOSPHORUS: POTASSIUM: NITROGEN: OTHERS: SULFUR: BORON: ZINC:

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:

% SILT: % CLAY:

# PLANT TISSUE ANALYSIS REPORT

		1
Sa Sa	mdd	i i
	_	1
Chloride	шdd	1
ъ Р	mdd	1 1
ಪ	шdd	i !
Z Z	mdd	! !
Zu	mdd	1
മ	mdd	i 1
₽	%	1 1 1
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rate	N ppm	1
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ū	קר מקר	
4	g 2	

Moisture %

**BROWN & CALDWELL - B September 01, 1999** TADD GIESBRECHT **GAY MINE** SAMPLED GROWER: REPORT CLIENT

LF - DUP

FIELD:

CROP:

### AGRI-CHECK, INC

323 Sixth St. - P.O. Box 1350 Agricultural Testing Laboratory Umatilla, OR 97882

800.537.1129 \* 541.922.4894



# SOIL ANALYSIS REPORT

		_	1	
	ਹ	mdd		
	T K	%	1	
JR.			1	
MOIST	Total Avail.	- %	1	
	MP	Jf.pH	 	
	ase S	Sat. % Buf.pH	l I	
	Total B	Bases S	1 1 1 1 1 1 1	
		med	I	
		med	I I	
	Fe	mdd	1	
		mdd	1	
	Mn	mdd	I I	
	Zu	mdd		31.1
	œ	mdd	; ; ;	50.0 2.5 31.1
	တ			50.0
OGEN	NO3 NH4	#/ <b>A</b>	! 	150 16
X T X	NO3	<b>∀/#</b>	 	150
	₩	med	i i	
	ပ္ပ	med	1	
	×	ppm	1	130 772
	Р Ж	mdd	1	130
	≅	%	! !	
	S.Salt O. M.	mmhos	1	
	표		I I I	1 7.9
	Depth	Foot	! !	-
	Lab	Š.		6317

TOTALS: 150

### **TOTAL BROADCAST FERTILITY NEEDS**:

GYPSUM REQUIREMENT: LIME REQUIREMENT: (IELD GOAL/ACRE: PREVIOUS CROP: LBS PER ACRE K20 LBS PER ACRE ACTUAL S LBS PER ACRE ACTUAL B LBS PER ACRE ACTUAL Zn LBS PER ACRE N LBS PER ACRE P205 HOSPHORUS: POTASSIUM: SULFUR: VITROGEN: OTHERS: BORON:

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES

SOIL TEXTURE ANALYSIS:

\*\*\*\*\*\*\*\*\*\*

TOTAL INCHES:

CLASS:

% SAND: % SILT:

% CLAY:

COMMENTS:

PLANT TISSUE ANALYSIS REPORT

DESCRIPTION:

Nitrate Total

N ppm

Chloride шdd

ಪ

NOTE: East of Cascades Bicarb P & K extraction/SMP=1/4 SMP Buffer pH; West of Cascades Weak Bray P and Acetate K extractions. Fertility recommendations may change after application of gypsum or lime.

**BROWN & CALDWELL - B September 01, 1999** TADD GIESBRECHT LF - S **GAY MINE** GROWER: SAMPLED: REPORT: CLIENT: DATE: FIELD

### AGRI-CHECK, INC

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# **SOIL ANALYSIS REPORT**

CROP

	ប	mdd	1	
			1	
	¥	%	1	
TURE	Avail.	% Inches	1 1 1	
WOIS	Total	%	1	
	SMP	Buf.pH	1 1 1 1 1	
	Base	Sat. %	1	
	Total	Bases Sat. % Buf.pH	1	
		med		
	CEC	med	1	
	Fe.	шdd шdd	i I	
	ე C	mdd	1	
	Δ	mdd	1 1 1	
	Zn	mdd	1 1 1 1	17.9
	<u> </u>	mdd		1.3
	S	mdd	 	46.6 1.3 17.9
GEN	NO3 NH4	#/ <b>A</b>	1	14
NITRO	NO3	<b>4/</b> #	1 1	143
	Mg	med	1	
	ă	med	1 1	
	¥	mdd	1	54 405
	٩ ٢		1	54
	≅	%	i I	
	S.Salt O. M. P	mmhos	1 1 1	
	표		l I	8.1
	Depth	Foot	1 1 .	1
	Lab		1	6318

TOTALS: 143

MELD GOAL/ACRE: PREVIOUS CROP: PHOSPHORUS: NITROGEN:

**TOTAL BROADCAST FERTILITY NEEDS:** 

LBS PER ACRE N
LBS PER ACRE P205
LBS PER ACRE K20
LBS PER ACRE ACTUAL S
LBS PER ACRE ACTUAL B
LBS PER ACRE ACTUAL B POTASSIUM: SULFUR:

**GYPSUM REQUIREMENT:** LIME REQUIREMENT:

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES

SOIL TEXTURE ANALYSIS:

TOTAL INCHES:

% SAND:

CLASS:

% SILT: % CLAY:

COMMENTS:

OTHERS:

BORON:

PLANT TISSUE ANALYSIS REPORT

DESCRIPTION:

Lab

ਨੁ 8 N ppm Nitrate % **Z** 

Moisture

g

Chloride шдд NOTE: East of Cascades Bicarb P & K extraction/SMP=1/4 SMP Buffer pH; West of Cascades Weak Bray P and Acetate K extractions. Fertility recommendations may change after application of gypsum or lime.

**September 22, 1999** S 594 REPORT

BROWN & CALDWELL - B CLIENT

TADD GIESBRECHT / MIKE MURRAY **GAY MINE** LF . REP SAMPLED: FIELD: GROWER CROP:

### AGRI-CHECK, INC

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SOIL ANALYSIS REPORT		
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		<u>5</u>	mdd	1	
		TKN	%	 	
	JRE			1 1 1	
	MOIST	Total Avail.	- %	 	
		SMP	Buf.pH	l I	
		Base	at.%	1	
			Bases	1	
		s e	med	l	
		CEC	med	1 1	
		Fe	ррт	; 1	
		చె	mdd	 	
		Ā	шдд	l I	
		Zu	mdd	l I	23.6
		ω	bew udd udd udd udd i	1	60.1 2.1 23.6
	VITROGEN	တ	mdd	ŀ	60.1
		NO3 NH4	#/ <b>A</b>	1	23
	NITRO	NO3	#/ <b>A</b>	i i	204
			med	1 1 1 1 1 1 1	
		င္မ	med	í I	_
		×	ppm	1	97 649
		۵.	bbm mdd mdd	l i	97
		⊠	%	1	
		S.Salt	wmhos %	1 1 1	
		H		1	7.7
		Depth	Foot	I I	1 7.7
1			ON	1	7850

23 **TOTALS: 204** 

### TOTAL BROADCAST FERTILITY NEEDS:

YIELD GOAL/ACRE: PREVIOUS CROP: LBS PER ACRE N LBS PER ACRE P205 LBS PER ACRE K20 LBS PER ACRE ACTUAL S LBS PER ACRE ACTUAL B LBS PER ACRE ACTUAL Zn PHOSPHORUS: POTASSIUM: SULFUR: OTHERS: BORON:

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES **GYPSUM REQUIREMENT:** LIME REQUIREMENT:

**SOIL TEXTURE ANALYSIS:** 

TOTAL INCHES:

% SAND: CLASS:

% SILT: % CLAY:

COMMENTS

# **PLANT TISSUE ANALYSIS REPORT**

foisture	6	0	1 1 1
ž			J I
			l 1 1
Sa	-		! !
Chloride		mdd.	1 1
		mdd	I I
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Zu			 
ω		Edd	1 1
ξ	1 2	<b>,</b> e	1
		<b>%</b>	1
Z Ca			1
×	3	%	1
<u>α</u>	à	<b>%</b>	1
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Nitrate		M ppm	 
Total		% Z	1
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**September 22, 1999** REPORT DATE:

BROWN & CALDWELL - B **GAY MINE** GROWER CLIENT:

TADD GIESBRECHT / MIKE MURRAY LF - SPLIT SAMPLED CROP: FIELD:

### AGRI-CHECK,

\* 541.999.4894 323 Sixth St. - P.O. Box 1350 **Agricultural Testing Laboratory** Umatilla, OR 97882 800.537.1129



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	REPORT
	SIS REPORT
	LYSIS REPORT
	ANALYSIS REPORT

		ច	mdd	i	
				I I	
		TKN	%	1	
	ш	ä.	sət	1	
	TUR	Ä	nc L	 	
	MOIS	Total Avail.	%	1 1 1 1 1	
		MP	Bases Sat. % Buf.pH	1 1	
		e,	Ø %	1	
		Bas	Sat	i	
		Total	Bases	1	
				i i	
		Ž	med	i I	
		ပ္ထ	bew u	i	
		O	E	1	
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		ច	mdd	1	
		Ξ	mdd	1	
		Zu	шdd	1 i i	22.7
			ш	i 1	57.9 2.1 22.7
		S	mdd mdd	1 1	60
			рри	1	
	NITROGEN	NH4	#/# #/#	] 	56
	TRO	ဗ	⋖	1	306
	Z	ž	#	1 1	30
		Jg G	beu t	I	
		,a	neq r	i	
		¥	pm r		866
_		۵	mmhos % ppm meq	!	120 866
ב כי		Σ	%	I I	
Į		0 #	sot	1	
<u>ה</u>		S.Sa	mm	1	
<i>n</i> 		Ha		1	7.9
		_		1	7.9
1		Depth	Foot	l ∤ i	-
SUIL AINALYSIS KEPUK		] qı	No.	j I	7851 1
Ŋ		ت	ž	1	78

TOTAL INCHES: 26 TOTALS: 306

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### **TOTAL BROADCAST FERTILITY NEEDS**:

YIELD GOAL/ACRE:

PREVIOUS CROP:

LBS PER ACRE N
LBS PER ACRE P205
LBS PER ACRE K20
LBS PER ACRE ACTUAL S
LBS PER ACRE ACTUAL B
LBS PER ACRE ACTUAL B PHOSPHORUS: POTASSIUM: NITROGEN: SULFUR: OTHERS: BORON: ZINC:

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES GYPSUM REQUIREMENT: LIME REQUIREMENT:

SOIL TEXTURE ANALYSIS:

CLASS:

% SILT: % CLAY: % SAND:

COMMENTS:

# **PLANT TISSUE ANALYSIS REPORT**

de	_	1
Chloride	mdd	
		1 1
ъ.	<u>d</u>	ı
ភ	шdd	1
Ę	mdd	,
_	E	1
Zu	mdd	1
8	mdd	1
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₩	^	1
S	%	1
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×	%	1
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litrat	N ppm	i
		1
Total	% Z	1
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	NOIT	
FIELD:	DESCRIPTION	
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Moisture %

mdd

2

**BROWN & CALDWELL - B September 22, 1999** REPORT: CLIENT DATE:

TADD GIESBRECHT / MIKE MURRAY LF - 1 COMP. **GAY MINE** SAMPLED GROWER FIELD:

### AGRI-CHECK, INC

800.537.1129 \* 541.922.4894 Agricultural Testing Laboratory 323 Sixth St. - P.O. Box 1350 OR 97882 Umatilla,



# **SOIL ANALYSIS REPORT**

CROP:

			1	
	ច	ppm	1	
	TKN	%	1 1 1	
TURE	Total Avail.	Inches	1	
MOIS	Total	%	1	
	SMP	3uf.pH		
	Base	Sat. % Buf.pH	1	
	Total	Bases	i i	
	Ra	med	! !	
		med	1	
	Fe	mdd	1	
	IJ	mdd	1	
		mdd	1 1	
	Zu	mdd	1	19.8
	œ	шдд	1	2.3
	S	mdd	' 	63.8 2.3 19.8
GEN	NO3 NH4	#/ <b>A</b>	1 1 1	164 24
NITRO	N03	#/ <b>#</b>	1 1 1	164
	Mg	med	1 1	
	ပ္မ	med	1	
	¥	bbm mdd	ŀ	710
	凸	ppm	l i	112 710
	≅	%	i I	
	S.Salt O. M.	mmhos	1 1	
	Ħ		1	8.0
	Depth	Foot	1 1	1
	Lab	No.	1	7852

24 TOTALS: 164

## TOTAL BROADCAST FERTILITY NEEDS:

YIELD GOAL/ACRE: PREVIOUS CROP:

ACRES:

LBS PER ACRE N LBS PER ACRE P205 LBS PER ACRE K20 LBS PER ACRE ACTUAL S LBS PER ACRE ACTUAL B LBS PER ACRE ACTUAL Zn NITROGEN: PHOSPHORUS: POTASSIUM: SULFUR: OTHERS: BORON:

**GYPSUM REQUIREMENT:** LIME REQUIREMENT:

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES

SOIL TEXTURE ANALYSIS:

TOTAL INCHES:

CLASS:

% SAND:

% SILT: % CLAY:

COMMENTS

# PLANT TISSUE ANALYSIS REPORT

Moisture	%	1 1 1 1 1 1
Na	mdd	1 1
Chloride	mdd	1 1
æ	mdd	1 F
ಪ	mdd	i i
Ę	mdd	ı
Į,	шдд	ı
· ·	mdd	1
		1
Mg	%	1
င္မ	%	 
¥	%	1
۵.	%	1
w	%	1
a)	_	1
Nitrate	N ppm	i i
otal	%	ı
F	Z	1 1 1 1 1 1
		1 1 1 1 1
FIELD:	DESCRIPTION:	
Lab	Š.	1

**BROWN & CALDWELL - B September 22, 1999** DATE: Report: CLIENT

TADD GIESBRECHT / MIKE MURRAY LF - 2 COMP. **GAY MINE** SAMPLED GROWER FIELD: CROP:

### AGRICHMOK, INC

Agricultural Testing Laboratory 323 Sixth St. - P.O. Box 1350 Umatilla, OR 97882

800.537.1129 \* 541.922.4894



# **SOIL ANALYSIS REPORT**

	ច	mdd	1	
	TKN	%	1	
rure	Avail.	PH % Inches %	1 1 .	
MOIS	Total	%	! !	
	SMP	ppm ppm meq meq Bases Sat. % Buf.pH %	1 1	
	Base	Sat. %	i I I	
	Total	Bases	 	
	Na	med	1	
	CEC	med	1	
	æ	mdd	I I	
	25	шdс	1	
	Mn Mn	mdc	1	
		mdd	1	20.3
	ш	mdd	l I	2.0
	S	mdd	1 1 1 1 1 1	58.9 2.0 20.3
<b>UITROGEN</b>	NH4	#/ <b>#</b>	1 1 1	56
NITRO	NO3	<b>∀</b> /#	1	204
	Mg		1	
	ပ္မ	med	ŀ	
	¥	ррт	F F F F F F F F F F F F F F F F F F F	101 851
	۵	bbm mdd mdd	l l	101
	Θ.	%	1	
	S.Salt O.M.	mmhos	 	
	된		1 1	8.0
	Depth	Foot	1 1 1	1 8.0
	Lab		1	7853

TOTALS: 204

### **TOTAL BROADCAST FERTILITY NEEDS**

GYPSUM REQUIREMENT: LIME REQUIREMENT: /IELD GOAL/ACRE: PREVIOUS CROP: ACRES: LBS PER ACRE N
LBS PER ACRE P205
LBS PER ACRE K20
LBS PER ACRE ACTUAL S
LBS PER ACRE ACTUAL B
LBS PER ACRE ACTUAL B PHOSPHORUS: POTASSIUM: NITROGEN: SULFUR: OTHERS: BORON:

COMMENTS

SOIL TEXTURE ANALYSIS:

TOTAL INCHES:

CLASS:

% SAND

% SILT: % CLAY:

TONS PER ACRE 6-INCHES TONS PER ACRE 6-INCHES

# PLANT TISSUE ANALYSIS REPORT

### APPENDIX B CLOSURE SAMPLING LABORATORY REPORTS

CLIENT:

Brown & Caldwell

380 E. Parkcenter #240

Boise, ID 83706

ATTN:

Mike Murray

PROJECT NAME: Simplot Gay Mine

PROJECT #:

07250.016

**NEL ORDER ID: B9910002** 

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 10/21/99.

Samples were analyzed as received.

Where applicable we have included the following quality control data:

Method blank - used to demonstrate absence of contamination or interferences in the analytical process.

Laboratory Control Spike (LCS) - used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix.

Surrogates - compounds added to each sample to ensure that the method requirements are met for each individual sample.

Should you have any questions or comments, please feel free to contact our Client Services department at (208) 378-7790.

Some bromoflourobenzene surrogate recoveries were less than NEL lower acceptance limits established for EPA Method 8021B. This phenomenon is due to heavy hydrocarbon matrix components as confirmed by repeated 8021B analysis and TRPH analysis.

Some surrogate results have been flagged as follows:

Sf - This surrogate was outside acceptance limits.

Mindi Brown

of Engineers

**Boise Division Manager** 

CERTIFICATIONS:

RenoLas VegasS. CaliforniaArizonaAZ0520AZ0518AZ0605California170720022264US Army CorpsCertifiedCertified

Idaho Montana Nevada

L.A.C.S.D.

Reno Certified Certified NV033

Las Vegas S. California
Certified
Certified

NV052

CA084 10228

CLIENT:

Brown & Caldwell

PROJECT ID:

**PARAMETER** Nitrate, as N TRPH

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-1-S

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-01

ΓEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING						
	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
	9.4	5.	1	EPA 300.0	mg/kg-N	10/27/99
	3200	250.	25	EPA 418.1M	mg/Kg	10/28/99

### QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102899-TRPH-BLK	ND	< 10. mg/Kg	NA
LCS, 102899-TRPH-LCS	98 %	70 - 130	NA
MS, 102899-TRPH-MS	125 %	70 - 130	B9910002-11
MSD. 102899-TRPH-MSD	127 %	70 - 130	B9910002-11

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Simplot Gay Mine

07250.016

CLIENT ID: DATE SAMPLED: 10/19/99

PIT-1-2

NEL SAMPLE ID: B9910002-02

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING						
PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	_UNITS	<b>ANALYZED</b>
Nitrate, as N	9.9	5.	1	EPA 300.0	mg/kg-N	10/27/99
TRPH	20	10.	1	EPA 418.1M	mg/Kg	10/28/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102899-TRPH-BLK	ND	< 10. mg/Kg	NA
LCS, 102899-TRPH-LCS	98 %	70 - 130	NA
MS, 102899-TRPH-MS	125 %	70 - 130	B9910002-11
MSD. 102899-TRPH-MSD	127 %	70 - 130	B9910002-11

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-1-5

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-03

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING						
PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
Nitrate, as N	5.2	5.	1	EPA 300.0	mg/kg-N	10/27/99
TRPH	12	10.	1	EPA 418.1M	mg/Kg	10/28/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102899-TRPH-BLK	ND	< 10. mg/Kg	NA
LCS, 102899-TRPH-LCS	98 %	70 - 130	NA
MS, 102899-TRPH-MS	125 %	70 - 130	B9910002-11
MSD, 102899-TRPH-MSD	127 %	70 - 130	B9910002-11

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Simplot Gay Mine

07250.016

CLIENT ID:

PIT-1-9

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-04

TEST:

**Inorganic Non-Metals** 

MATRIX:

PARAMETER Vitrate, as N TRPH

Solid

	REPORTING				
RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
ND	5.	1	EPA 300.0	mg/kg-N	10/27/99
12	10.	1	EPA 418.1M	mg/Kg	10/28/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102899-TRPH-BLK	ND	< 10. mg/Kg	NA
LCS, 102899-TRPH-LCS	98 %	70 - 130	NA
MS, 102899-TRPH-MS	125 %	70 - 130	B9910002-11
MSD, 102899-TRPH-MSD	127 %	70 - 130	B9910002-11

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-2-S

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-05

TEST:

**Inorganic Non-Metals** 

MATRIX:

**PARAMETER** Nitrate, as N TRPH

Solid

	REPORTING				
RESULT _	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
30	5.	1	EPA 300.0	mg/kg-N	10/27/99
2300	250.	25	EPA 418.1M	mg/Kg	10/28/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number	
Blank, 102899-TRPH-BLK	ND	< 10. mg/Kg	NA	
LCS, 102899-TRPH-LCS	98 %	70 - 130	NA	
MS, 102899-TRPH-MS	125 %	70 - 130	B9910002-11	
MSD. 102899-TRPH-MSD	127 %	70 - 130	B9910002-11	

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-2-2

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-06

TEST:

**Inorganic Non-Metals** 

MATRIX:

**PARAMETER** 

Vitrate, as N

TRPH

Solid

]	REPORTING				
RESULT _	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
ND	5.	1	EPA 300.0	mg/kg-N	10/27/99
2800	250.	25	EPA 418.1M	mg/Kg	10/28/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102899-TRPH-BLK	ND	< 10. mg/Kg	NA
LCS, 102899-TRPH-LCS	98 %	70 - 130	NA
MS, 102899-TRPH-MS	125 %	70 - 130	B9910002-11
MSD, 102899-TRPH-MSD	127 %	70 - 130	B9910002-11

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-2-5

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-07

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING						
PARAMETER	<u>RESULT</u>	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
Nitrate, as N	5.2	5.	1	EPA 300.0	mg/kg-N	10/27/99
TRPH	410	10.	1	EPA 418.1M	mg/Kg	10/28/99

'QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number	
Blank, 102899-TRPH-BLK	ND	< 10. mg/Kg	NA	
LCS, 102899-TRPH-LCS	98 %	70 - 130	NA	
MS, 102899-TRPH-MS	125 %	70 - 130	B9910002-11	
MSD, 102899-TRPH-MSD	127 %	70 - 130	B9910002-11	

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-2-7

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-08

EST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING						
PARAMETER	<u>RESULT</u>	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
Vitrate, as N	ND	5.	1	EPA 300.0	mg/kg-N	10/27/99
TRPH	16	10.	1	EPA 418.1M	mg/Kg	10/28/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102899-TRPH-BLK	ND	< 10. mg/Kg	NA
LCS, 102899-TRPH-LCS	98 %	70 - 130	NA
MS, 102899-TRPH-MS	125 %	70 - 130	B9910002-11
MSD, 102899-TRPH-MSD	127 %	70 - 130	B9910002-11

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-3-S

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-09

ΓEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
Nitrate, as N	20	5.	1	EPA 300.0	mg/kg-N	10/27/99
TRPH	64	10.	1	EPA 418.1M	mg/Kg	10/28/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102899-TRPH-BLK	ND	< 10. mg/Kg	NA
LCS, 102899-TRPH-LCS	98 %	70 - 130	NA
MS, 102899-TRPH-MS	125 %	70 - 130	B9910002-11
MSD 102899-TRPH-MSD	127 %	70 - 130	B9910002-11

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-3-2

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-10

ΓEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING						
PARAMETER	RESULT _	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
Nitrate, as N	ND	5.	1	EPA 300.0	mg/kg-N	10/27/99
TRPH	21	10.	1	EPA 418.1M	mg/Kg	10/28/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102899-TRPH-BLK	ND	< 10. mg/Kg	NA
LCS, 102899-TRPH-LCS	98 %	70 - 130	NA
MS, 102899-TRPH-MS	125 %	70 - 130	B9910002-11
MSD, 102899-TRPH-MSD	127 %	70 - 130	B9910002-11

D.F. - Dilution Factor

ND - Not Detected

LIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Simplot Gay Mine

07250.016

CLIENT ID:

PIT-3-5

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-11

EST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING						
ARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
Vitrate, as N	ND	5.	1	EPA 300.0	mg/kg-N	10/27/99
TRPH	23	10.	1	EPA 418.1M	mg/Kg	10/28/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102899-TRPH-BLK	ND	< 10. mg/Kg	NA
LCS, 102899-TRPH-LCS	98 %	70 - 130	NA
MS, 102899-TRPH-MS	125 %	70 - 130	B9910002-11
MSD, 102899-TRPH-MSD	127 %	70 - 130	B9910002-11

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

**Method Blank** 

DATE SAMPLED: NA

NEL SAMPLE ID: 102799-2SNO3-BLK

TEST:

**Non-Metals** 

REPORTING

LIMIT **METHOD** UNITS **PARAMETER** RESULT Vitrate, as N ND EPA 300.0 mg/kg-N 10/27/99

D.F. - Dilution Factor

√D - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

Method Blank

DATE SAMPLED: NA

NEL SAMPLE ID: 102899-TRPH-BLK

ΓEST:

Non-Metals

REPORTING

RESULT

ND

LIMIT

**METHOD** 

UNITS

**ANALYZED** 

**TRPH** 

10

EPA 418.1M

mg/Kg

10/28/99

D.F. - Dilution Factor

ND - Not Detected

**PARAMETER** 

CLIENT: PROJECT ID:

Brown & Caldwell Simplot Gay Mine

PROJECT #:

07250.016

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

		<b>Spike</b>	<b>Spike</b>	Percent	<b>Acceptable</b>	
PARAMETER	NEL Sample ID	Amount	Result	Recovery	Range	RPD
TRPH	102899-TRPH-LCS	40	39	98	70 - 130	
TRPH	B9910002-11-MS	40	73	125	70 - 130	
TRPH	B9910002-11-MSD	40	74	127	70 - 130	2.

CLIENT:

PROJECT #:

Brown & Caldwell

PROJECT ID:

Simplot Gay Mine

07250.016

CLIENT ID:

PIT-1-S

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-01

TEST:

TPH as Gasoline & BTEX/MTBE

METHOD:

EPA 8015B/8021B

MATRIX: **DILUTION:** 1

Solid

ANALYST:

LRB - Division

EXTRACTED:

10/25/99

ANALYZED:

10/25/99

	70 14	Reporting		
PARAMETER	Result	Limit		
3enzene	ND	0.005 mg/Kg		
Γoluene	ND	0.005 mg/Kg		
Ethylbenzene	ND	0.005 mg/Kg		
Total Xylenes	ND ND	0.015 mg/Kg		

**QUALITY CONTROL DATA:** 

Surrogate	% Recovery		Acceptable Range
3romofluorobenzene	65	Sf	70 - 130 %

### ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-1-2

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-02

**TEST:** METHOD:

DILUTION:

TPH as Gasoline & BTEX/MTBE

EPA 8015B/8021B MATRIX:

Solid

1

ANALYST:

LRB - Division

EXTRACTED:

10/25/99

ANALYZED:

10/25/99

PARAMETER	Result	Reporting Limit
Benzene	ND	0.005 mg/Kg
Toluene	ND	0.005 mg/Kg
Ethylbenzene	ND	0.005 mg/Kg
Total Xylenes	ND	0.015 mg/Kg

QUALITY CONTROL DATA:

Bromofluorobenzene

Surrogate

% Recovery

Acceptable Range

75

130 % 70 -

### ND - Not Detected

CLIENT: \_'ROJECT ID: Brown & Caldwell Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-1-5

**DATE SAMPLED: 10/19/99** 

NEL SAMPLE ID: B9910002-03

**TEST:** 

DILUTION:

TPH as Gasoline & BTEX/MTBE

METHOD: MATRIX:

EPA 8015B/8021B

Solid

1

ANALYST:

LRB - Division

EXTRACTED:

10/25/99

ANALYZED:

10/25/99

		Reporting
PARAMETER	Result	Limit
Benzene	ND	0.005 mg/Kg
Coluene	ND	0.005 mg/Kg
Ethylbenzene	ND	0.005 mg/Kg
Total Xylenes	ND	0.015 mg/Kg

**QUALITY CONTROL DATA:** 

Surrogate **3romofluorobenzene**  % Recovery 93

Acceptable Range

70 - 130 %

ND - Not Detected

CLIENT: PROJECT ID:

Brown & Caldwell Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-1-9

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-04

ΓEST:

DILUTION:

TPH as Gasoline & BTEX/MTBE

METHOD: MATRIX:

EPA 8015B/8021B Solid ANALYST:

LRB - Division

EXTRACTED:

10/25/99

ANALYZED:

10/25/99

PARAMETER	Result	Reporting Limit
Benzene	ND	0.005 mg/Kg
Toluene	ND	0.005 mg/Kg
Ethylbenzene	ND	0.005 mg/Kg
Total Xylenes	ND	0.015 mg/Kg

QUALITY CONTROL DATA:

Bromofluorobenzene

Surrogate

% Recovery

Acceptable Range

70

70 - 130 %

ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-2-S

**DATE SAMPLED: 10/19/99** 

NEL SAMPLE ID: B9910002-05

TEST:

**DILUTION:** 

TPH as Gasoline & BTEX/MTBE

METHOD: MATRIX:

EPA 8015B/8021B

Solid

ANALYST:

LRB - Division

**EXTRACTED:** 

10/25/99

ANALYZED:

10/25/99

DAD AMETED	Doorle	Reporting	
PARAMETER	Result	<u>Limit</u>	
3enzene	ND	0.005 mg/Kg	
<b>Foluene</b>	ND	0.005 mg/Kg	
Ethylbenzene	ND	0.005 mg/Kg	
Total Xylenes	ND	0.015 mg/Kg	

QUALITY CONTROL DATA:

Surrogate **3romofluorobenzene**  % Recovery 65

Sf

Acceptable Range

70 - 130 %

ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-2-2

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-06

**TEST:** METHOD:

MATRIX:

DILUTION:

TPH as Gasoline & BTEX/MTBE

EPA 8015B/8021B

Solid

ANALYST:

LRB - Division

EXTRACTED:

10/25/99

ANALYZED:

10/25/99

		Reporting	
PARAMETER	Result	<u>Limit</u>	
Benzene	ND	0.005 mg/Kg	
Γoluene	ND	0.005 mg/Kg	
Ethylbenzene	ND	0.005 mg/Kg	
Total Xylenes	ND	0.015 mg/Kg	

QUALITY CONTROL DATA:

% Recovery Surrogate Acceptable Range Bromofluorobenzene 55 Sf 70 -130 %

#### ND - Not Detected

LIENT: PROJECT ID: Brown & Caldwell Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-2-5

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-07

TEST: METHOD:

DILUTION:

TPH as Gasoline & BTEX/MTBE

MATRIX: Solid

1

EPA 8015B/8021B

ANALYST:

LRB - Division

EXTRACTED:

10/25/99

ANALYZED:

10/25/99

PARAMETER	Result	Reporting Limit	
Benzene	ND	0.005 mg/Kg	
Coluene	ND	0.005 mg/Kg	
Ethylbenzene	ND	0.005 mg/Kg	
Total Xylenes	ND	0.015 mg/Kg	

**QUALITY CONTROL DATA:** 

**3romofluorobenzene** 

Surrogate

% Recovery 70

Acceptable Range

70 - 130 %

ND - Not Detected

CLIENT:

Brown & Caldwell

'ROJECT ID: PROJECT #:

TEST:

Simplot Gay Mine 07250.016

CLIENT ID:

PIT-2-7

DATE SAMPLED: 10/19/99 NEL SAMPLE ID: B9910002-08

TPH as Gasoline & BTEX/MTBE

METHOD: EPA 8
MATRIX: Solid

**DILUTION:** 

EPA 8015B/8021B

ANALYST:

LRB - Division

EXTRACTED:

10/25/99

ANALYZED:

10/25/99

PARAMETER	Result	Reporting Limit	
Benzene	ND	0.005 mg/Kg	
Coluene	ND	0.005 mg/Kg	
Ethylbenzene	ND	0.005 mg/Kg	
Total Xylenes	ND	0.015 mg/Kg	

**QUALITY CONTROL DATA:** 

Surrogate% RecoveryAcceptable Range3romofluorobenzene9570 - 130 %

#### ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-3-S

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-09

TEST:

TPH as Gasoline & BTEX/MTBE

METHOD: MATRIX:

DILUTION:

EPA 8015B/8021B

Solid 1

ANALYST:

LRB - Division

**EXTRACTED:** 

10/25/99

ANALYZED:

10/25/99

		Reporting	
PARAMETER	Result	Limit	
Benzene	ND	0.005 mg/Kg	
Toluene	ND	0.005 mg/Kg	
Ethylbenzene	ND	0.005 mg/Kg	
Total Xylenes	ND	0.015 mg/Kg	

QUALITY CONTROL DATA:

Surrogate Bromofluorobenzene % Recovery 78

Acceptable Range

70 -130 %

#### ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell

Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-3-2

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-10

ΓEST:

TPH as Gasoline & BTEX/MTBE

METHOD: MATRIX:

EPA 8015B/8021B

ANALYST:

LRB - Division

Solid

EXTRACTED:

10/25/99

DILUTION: 1 ANALYZED:

10/25/99

		Reporting Limit	
PARAMETER	Result		
Benzene	ND ·	0.005 mg/Kg	
<b>Foluene</b>	ND	0.005 mg/Kg	
Ethylbenzene	ND	0.005 mg/Kg	
Total Xylenes	ND	0.015 mg/Kg	

QUALITY CONTROL DATA:

Surrogate Bromofluorobenzene % Recovery 75

Acceptable Range

70 - 130 %

ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell Simplot Gay Mine

PROJECT #:

07250.016

CLIENT ID:

PIT-3-5

DATE SAMPLED: 10/19/99

NEL SAMPLE ID: B9910002-11

TEST:

TPH as Gasoline & BTEX/MTBE

METHOD: MATRIX:

EPA 8015B/8021B

Solid

ANALYST:

LRB - Division

EXTRACTED:

10/25/99

DILUTION:

1

ANALYZED: 10/25/99

PARAMETER	Result	Reporting Limit	
Benzene	ND	0.005 mg/Kg	
Toluene	ND	0.005 mg/Kg	
Ethylbenzene	ND	0.005 mg/Kg	
Total Xylenes	ND	0.015 mg/Kg	

QUALITY CONTROL DATA:

Surrogate Bromofluorobenzene % Recovery 70

Acceptable Range

70 - 130 %

#### ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell

Simplot Gay Mine

PROJECT #:

07250.016

Solid

CLIENT ID:

**Method Blank** 

DATE SAMPLED: NA

NEL SAMPLE ID: 102599-BTEXS-BLK

TEST:

TPH as Gasoline & BTEX/MTBE

METHOD: MATRIX: EPA 8015B/8021B

ANALYST:

LRB - So. Cal Division

EXTRACTED:

ANALYZED:

10/25/99 10/25/99

		Reporting
PARAMETER	Result	<u>Limit</u>
Benzene	ND	0.005 mg/Kg
Toluene	ND	0.005 mg/Kg
Ethylbenzene	ND	0.005 mg/Kg
Total Xylenes	ND	0.015 mg/Kg

QUALITY CONTROL DATA:

Surrogate Bromofluorobenzene % Recovery 88

Acceptable Range

70 - 130

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Simplot Gay Mine

PROJECT #:

07250.016

TEST:

TPH as Gasoline & BTEX/MTBE

MATRIX:

Solid

		Spike	Spike	Percent	<b>Acceptable</b>	
PARAMETER	NEL Sample ID	<b>Amount</b>	Result	Recovery	Range	<u>RPD</u>
Benzene	102599-BTEXS-LCS	0.05	0.05	100	80 - 120	
Benzene	B9910002-10-MS	0.05	0.056	112	70 - 130	
Benzene	B9910002-10-MSD	0.05	0.05	100	70 - 130	11.3
Toluene	102599-BTEXS-LCS	0.05	0.048	96	80 - 120	
Toluene	B9910002-10-MS	0.05	0.046	92	70 - 130	
Toluene	B9910002-10-MSD	0.05	0.04	80	70 - 130	14.
Ethylbenzene	102599-BTEXS-LCS	0.05	0.05	100	80 - 120	
Ethylbenzene	B9910002-10-MS	0.05	0.046	92	70 - 130	
Ethylbenzene	B9910002-10-MSD	0.05	0.038	76	70 - 130	19.
Total Xylenes	102599-BTEXS-LCS	0.15	0.147	98	80 - 120	
Total Xylenes	B9910002-10-MS	0.15	0.139	93	70 - 130	
Total Xylenes	B9910002-10-MSD	0.15	0.111	74	70 - 130	22.4

CHAIN OF CUSTODY

NEL Work Order: Drill

07250.016

Project Number:

MINE TINE

のなべ

SIMPLOT

Project Name:

Purchase Order Number

01250.01b

Phoenix · So. California Reno · Las Vegas

Phoenix Division • 3021 S. 35th St., Bldg. B, Suite 6 • Phoenix, AZ 85034 (602) 437-0099 • Fax: (602) 437-2225 • 1-888-238-2514

TOOKEN CHOOL COntainer player woon incline container indicance mere Not Preserved JARS . Ice Only Other Remarks ותיות פ 1 contesinen 4-0% 7 505 A. HCI B. HNO3 C. H.SO2 D. NaOH N Sampled By: Box #2 SD - Solid AQ - Aqueous A - Air DW - Drinking Water WW - Waste Water OL - Oil/Organic Liquid N. ELVELIN MAS × X × × メ ¥ × × × × DOW ¥ \* × × × \* ኦ У ナ May Analysis Box #1 × ナ × ፠ ¥ × × 2 20 0 Preservative (Box #2) Ģ J 5 J J J 5 ত J 25 (f# xoB) xintsM Ş <u>3</u> S 25 3 S <u>2</u> S Ч ړ<sub>ې</sub> 4 ħ И 4 ç, # of Containers N d 4 d B か Fax Number: (208) 344-0825 Other dentification Expected Due Date: MURRAY 1-day 3 MIKE Customer Sample Identification remp. श्रद good 2-day Attention: Condition when received のもとがある PARK CENTER, Y'N None 83106 X 5-day 7 336-1340 PIT-2-2 PLT-2-5 N V SAME PLT-2-7 PLT-3-8 PIT-3-2 3:00, 10/19/99 10.7-3-5 PITTI PLT-1-PIT-2 ア・オート PLT-1 Company: BADWN AND Requested Turnaround: Custody Seal intact?( 5 Address: 360 E. Phone Number: 2:20, 10/19/99 2:20,10119199 1:55, 10/19/99 1:50, 10/19/99 2:35, 10/19/99 2,30,10/19/99 B0158 1:35, 10/19/99 2:00 10/19/99 2:35,10/19/29 2:30, 10/19/99 Time/Date Sampled Billing Address:

Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
BELAN LIBUIN	سنبدكالعسكا	9:45 am/ 10/21/99	N. BOW	( MM B	16-21-99/1:50an
2 SWS			B. SULYUS	Leganos P	10/29/90 99/20nm
б					

The liability of NEL Laboratories inc. is limited strictly to the price of sample analysis for those samples received in good condition by NEL. NEL is not responsible for loss, damage, resampling costs and/or qualified data related to samples not received in good conditions, signature also constitutes acceptance of all NEL Standard Terms and Conditions. Signature also constitutes a purchase order for NEL to perform work and constitutes acceptance of all NEL Standard List Prices for all services ordered here on, except those specified otherwise via an NEL Quotation for Testing Services in effect at the time of sample receipt. NEL turnaround times are measured in regular working days. Samples received at the laboratory of the requested furnaround time will be confirmed via Sample Confirmation transmitted to the fax number provided above.

LIENT: \_'ROJECT ID: Brown & Caldwell

PROJECT #:

Gay Mine 07250.016 CLIENT ID:

GM-1

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-01

EST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
RPH	34	10.	1	EPA 418.1M	mg/Kg	10/21/99

#### QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
3lank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

GM-2

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-02

ΓEST:

Inorganic Non-Metals

MATRIX:

Solid

REPORTING

ALE OKILIO						
<u>PARAMETER</u>	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	_UNITS_	<b>ANALYZED</b>
ГРРН	180	10.	1	EPA 418.1M	mg/Kg	10/21/99
TRPH	380	12.5	1.25	EPA 418.1M OR	mg/Kg	10/25/99

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

\_'ROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

GM-3

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-03

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

**PARAMETER** RESULT LIMIT <u>D. F.</u> **METHOD UNITS** ANALYZED **TRPH** 10. mg/Kg 47 1 EPA 418.1M 10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number	
3lank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA	
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA	
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20	
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20	

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

**GM-4** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-04

TEST:

ГRРН

**Inorganic Non-Metals** 

MATRIX:

**PARAMETER** 

Solid

REPORTING

RESULT LIMIT <u>D. F.</u> **METHOD** UNITS ANALYZED mg/Kg 21 10. 1 EPA 418.1M 10/21/99

#### QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

**GM-5** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-05

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
ГРРН	39	10.	1	EPA 418.1M	mg/Kg	10/21/99
TRPH	120	12.5	1.25	EPA 418.1M OR	mg/Kg	10/25/99

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

**GM-6** 

DATE SAMPLED: 10/12/99 NEL SAMPLE ID: B9910001-06

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	<u>UNITS</u>	<b>ANALYZED</b>
[RPH	28	10.	1	EPA 418.1M	mg/Kg	10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

**GM-7** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-07

**FEST:** 

**Inorganic Non-Metals** 

MATRIX:

**PARAMETER** 

Solid

REPORTING

RESULT LIMIT

<u>D. F.</u>

**METHOD** 

UNITS

ANALYZED

**FRPH** 

12 10.

1

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number	
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA	
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA	
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20	
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20	

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

.'ROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-8** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-08

EST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	360	12.5	1.25	EPA 418.1M OR	mg/Kg	10/25/99
ſŖРН	210	10.	1	EPA 418.1M	mg/Kg	10/21/99

#### QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-9** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-09

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
ГРРН	ND	10.	1	EPA 418.1M	mg/Kg	10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

LIENT:

Brown & Caldwell

.'ROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

GM-10

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-10

EST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
:RPH	93	12.5	1.25	EPA 418.1M OR	mg/Kg	10/25/99
TRPH	34	10.	1	EPA 418.1M	mg/Kg	10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number	
Blank, 102199-TRPH1-BLK	ND .	< 10. mg/Kg	NA	
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA	
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20	
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20	

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-11** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-11

ΓEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
ГКРН	240	12.5	1.25	EPA 418.1M OR	mg/Kg	10/25/99
ГКРН	90	10.	1	EPA 418.1M	mg/Kg	10/21/99

# QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

GM-12

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-12

EST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
RPH	16	10.	1	EPA 418.1M	mg/Kg	10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result		Sample Number	
3lank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA	
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA	
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20	
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20	

D.F. - Dilution Factor

ND - Not Detected

LIENT:

Brown & Caldwell

. ROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

GM-13

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-13

EST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

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PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<u>ANALYZED</u>	
.TRPH	22	10.	1	EPA 418.1M	mg/Kg	10/21/99	

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016

CLIENT ID: DATE SAMPLED: 10/12/99

**GM-14** 

NEL SAMPLE ID: B9910001-14

CEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
ГRPH	110	12.5	1.25	EPA 418.1M OR	mg/Kg	10/25/99
TRPH	68	10.	1	EPA 418.1M	mg/Kg	10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell

PROJECT #:

Gay Mine 07250.016 CLIENT ID:

**GM-15** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-15

EST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
TRPH	45	10.	1	EPA 418.1M	mg/Kg	10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	. 70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-16** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-16

UNITS

mg/Kg

ANALYZED

10/21/99

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

**RESULT** <u>D. F.</u> LIMIT **METHOD** 150 10. 1 EPA 418.1M

**PARAMETER** 

TRPH

D.F. - Dilution Factor

Blank, 102199-TRPH1-BLK

LCS, 102199-TRPH1-LCS

MS, 102199-TRPH1-MS

MSD, 102199-TRPH1-MSD

QUALITY CONTROL DATA (For TRPH Analysis):

ND - Not Detected

Sample ID

This report shall not be reproduced except in full, without the written approval of the laboratory.

Result

108 %

127 %

125 %

ND

Acceptable Range

- 130

- 130

- 130

70

70

70

10. mg/Kg

Sample Number

NA

NA

B9910001-20

B9910001-20

CLIENT: PROJECT ID: Brown & Caldwell

PROJECT #:

Gay Mine 07250.016 CLIENT ID:

**GM-17** 

DATE SAMPLED: 10/12/99 NEL SAMPLE ID: B9910001-17

· FEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
ГКРН	100	12.5	1.25	EPA 418.1M OR	mg/Kg	10/25/99
TRPH	41	10.	1	EPA 418.1M	mg/Kg	10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

07250.016

CLIENT ID: Gay Mine

**GM-18** DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-18

ΓEST:

**TRPH** 

**Inorganic Non-Metals** 

MATRIX:

PARAMETER

Solid

REPORTING

RESULT **METHOD** LIMIT <u>D. F.</u> **UNITS** ANALYZED 10. 1 mg/Kg 30 EPA 418.1M 10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-19** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-19

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

LIMIT

**METHOD D. F.** 

UNITS

**ANALYZED** 

**PARAMETER** TRPH

RESULT 10. 240

1

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID: DATE SAMPLED: 10/12/99

GM-20

NEL SAMPLE ID: B9910001-20

ΓEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

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PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>
ГКРН	61	12.5	1.25	EPA 418.1M OR	mg/Kg	10/25/99
TRPH	57	10.	1	EPA 418.1M	mg/Kg	10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH1-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH1-LCS	108 %	70 - 130	NA
MS, 102199-TRPH1-MS	127 %	70 - 130	B9910001-20
MSD, 102199-TRPH1-MSD	125 %	70 - 130	B9910001-20

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

GM-21

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-21

<u>D. F.</u>

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT

**METHOD** 

**UNITS** 

**ANALYZED** 

**PARAMETER** TRPH

180

10.

1 EPA 418.1M mġ/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-22** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-22

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT <u>D. F.</u>

**METHOD** 1

**UNITS** 

ANALYZED

PARAMETER

ΓRPH

40

10.

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

₽ROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

GM-23

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-23

(EST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
ГРРН	110	12.5	1.25	EPA 418.1M OR	mg/Kg	10/25/99
TRPH	50	10.	1	EPA 418.1M	mg/Kg	10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

GM-24

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-24

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT

**D. F.** 

**METHOD** 

**UNITS** 

**ANALYZED** 

**PARAMETER** TRPH

34 10.

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-25** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-25

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

LIMIT

<u>D. F.</u>

**METHOD** 

UNITS

ANALYZED

**PARAMETER** TRPH

RESULT

46 10.

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-26** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-26

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	ANALYZED
TRPH	2000	250.	25	EPA 418.1M	mg/Kg	10/21/99
TRPH	2300	312.5	31.25	EPA 418.1M OR	mg/Kg	10/25/99

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-27** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-27

ΓEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING RESULT

LIMIT

**METHOD** <u>D. F.</u>

UNITS

ANALYZED

**PARAMETER TRPH** 

41 10.

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

GM-28

DATE SAMPLED: 10/12/99 NEL SAMPLE ID: B9910001-28

TEST:

**FRPH** 

**Inorganic Non-Metals** 

MATRIX:

**PARAMETER** 

Solid

REPORTING

RESULT LIMIT <u>D. F.</u> **METHOD** UNITS ANALYZED 120 10. 1 EPA 418.1M mg/Kg 10/21/99

#### QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

PARAMETER

Gay Mine 07250.016 CLIENT ID:

**GM-29** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-29

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

**RESULT** LIMIT

<u>D. F.</u> **METHOD**  UNITS

ANALYZED

**TRPH** 

77 10.

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

₽ROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

GM-30

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-30

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

10.

LIMIT

**D. F.** 

**METHOD** 

UNITS

**ANALYZED** 

PARAMETER (RPH

RESULT 38

1

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

**PARAMETER** 

Gay Mine

07250.016

CLIENT ID:

**GM-31** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-31

**TEST:** 

TRPH

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

<u>D. F.</u> RESULT LIMIT **METHOD UNITS** ANALYZED 10. 110 1 EPA 418.1M mg/Kg 10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

₽ROJECT ID: PROJECT #:

07250.016

Gay Mine

CLIENT ID:

GM-32

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-32

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

i i	A*					
ARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<u>ANALYZED</u>
RPH	43	10.	1	EPA 418.1M	mg/Kg	10/21/99

#### QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

07250.016

Gay Mine

CLIENT ID:

**GM-33** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-33

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

LIMIT RESULT

<u>D. F.</u>

**METHOD** 

UNITS

ANALYZED

**PARAMETER** TRPH

130

10.

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-34** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-34

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT

<u>D. F.</u> **METHOD** 

TRPH

PARAMETER

10. 240

1 EPA 418.1M mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-35** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-35

ΓEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT

**D. F.** 

METHOD

**ANALYZED** 

**PARAMETER** ГRРН

270

10.

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-36** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-36

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

LIMIT RESULT

**D. F.** 

**METHOD** 

UNITS

ANALYZED

**PARAMETER** TRPH

1200

250.

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

**GM-37** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-37

ΓEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

PARAMETER	RESULT	LIMIT	<u>D. F.</u>	<b>METHOD</b>	UNITS	<b>ANALYZED</b>	
ГРРН	510	10.	1	EPA 418.1M	mg/Kg	10/21/99	

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

GM-38

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-38

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT <u>D. F.</u> **METHOD** UNITS **ANALYZED** PARAMETER 410 10. EPA 418.1M mg/Kg 10/21/99 ΓRPH

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

LIENT:

Brown & Caldwell

'ROJECT ID: PROJECT #:

Gay Mine 07250.016

CLIENT ID:

GM-39

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-39

EST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT

<u>D. F.</u>

**METHOD** 

UNITS

**ANALYZED** 

PARAMETER RPH

3200

250.

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-40** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-40

ΓEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT

<u>**D. F.**</u> METHOD UNITS

**ANALYZED** 

**PARAMETER TRPH** 

890

250.

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH2-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH2-LCS	108 %	70 - 130	NA
MS, 102199-TRPH2-MS	275 %	70 - 130	B9910001-40
MSD, 102199-TRPH2-MSD	125 %	70 - 130	B9910001-40

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

GM-41

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-41

**FEST:** 

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT

<u>D. F.</u>

**METHOD** 

UNITS

ANALYZED

**PARAMETER**  $\Gamma$ RPH

1700

250.

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

GM-42

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-42

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

LIMIT

<u>D. F.</u> METHOD **UNITS** 

ANALYZED

PARAMETER ΓRPH

RESULT

480 10.

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD. 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

**PARAMETER** 

Gay Mine

07250.016

CLIENT ID:

GM-43

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-43

ΓEST:

ГRРН

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT

440

10.

<u>D. F.</u> **METHOD** EPA 418.1M UNITS mg/Kg

**ANALYZED** 10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID:

Gay Mine

07250.016 PROJECT #:

CLIENT ID:

**GM-44** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-44

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

LIMIT

**D. F.** 

**METHOD** 

**UNITS** 

ANALYZED

PARAMETER TRPH

RESULT 2300

250.

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD. 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-45** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-45

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT

LIMIT

<u>D. F.</u>

**METHOD** 

UNITS

ANALYZED

**PARAMETER** ΓRPH

170

10.

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-46** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-46

**TEST:** 

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

LIMIT

**D. F. METHOD**  UNITS

**ANALYZED** 

**PARAMETER** ГRРН

RESULT 1500 250.

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

GM-47

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-47

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT

LIMIT

<u>D. F.</u>

**METHOD** 

**UNITS** 

**ANALYZED** 

**PARAMETER**  $\Gamma$ RPH

100

10.

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-48** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-48

TEST:

TRPH

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT

LIMIT

D. F.

**METHOD** 

UNITS

**ANALYZED** 

**PARAMETER** 

1100

250.

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-49** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-49

EST:

**TRPH** 

**Inorganic Non-Metals** 

MATRIX:

**PARAMETER** 

Solid

REPORTING

RESULT LIMIT **UNITS** <u>D. F.</u> **METHOD ANALYZED** 380 10. EPA 418.1M mg/Kg 10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-50** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-50

ΓEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT

LIMIT

<u>D. F.</u>

**METHOD** 

UNITS

**ANALYZED** 

**PARAMETER TRPH** 

220

10.

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-51** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-51

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

LIMIT <u>D. F.</u>

METHOD

UNITS

ANALYZED

PARAMETER **TRPH** 

REPORTING RESULT 2100 250.

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-52** 

NEL SAMPLE ID: B9910001-52

DATE SAMPLED: 10/12/99

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT

<u>D. F.</u> **METHOD**  **UNITS** 

ANALYZED

**PARAMETER** TRPH

1200

250.

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-53** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-53

**TEST:** 

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT

**D. F.** 

**METHOD** 

**UNITS** 

ANALYZED

**PARAMETER TRPH** 

4600

250.

25

EPA 418.1M

mg/Kg

10/21/99

'QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-54** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-54

**TEST:** 

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

LIMIT RESULT

**D. F.** 

**METHOD** 

**UNITS** 

**ANALYZED** 

**PARAMETER TRPH** 

940

250.

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

**PARAMETER** 

Gay Mine

07250.016

CLIENT ID:

**GM-55** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-55

TEST:

TRPH

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT

2100

LIMIT 250.

<u>D. F.</u> 25

**METHOD** EPA 418.1M UNITS

**ANALYZED** 

mg/Kg 10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016 CLIENT ID:

**GM-56** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-56

TEST:

TRPH

**Inorganic Non-Metals** 

MATRIX:

**PARAMETER** 

Solid

REPORTING

250.

RESULT LIMIT

1400

**D. F.** 25

**METHOD** EPA 418.1M UNITS

**ANALYZED** 

10/21/99 mg/Kg

'QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-57** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-57

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

250.

RESULT

LIMIT **D. F.** 

**METHOD** 

UNITS

ANALYZED

**PARAMETER TRPH** 

940

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**GM-58** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-58

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING

RESULT LIMIT

<u>D. F.</u>

**METHOD** 

**UNITS** 

**ANALYZED** 

**PARAMETER** 

TRPH

4800

250.

25

EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

**D. F.** 

GM-59

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-59

TEST:

**Inorganic Non-Metals** 

MATRIX:

Solid

REPORTING RESULT

LIMIT

**METHOD** 

UNITS

**ANALYZED** 

**PARAMETER** TRPH

1500

250. 25 EPA 418.1M

mg/Kg

10/21/99

QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

**PARAMETER** 

Gay Mine

07250.016

CLIENT ID:

**GM-60** 

DATE SAMPLED: 10/12/99

NEL SAMPLE ID: B9910001-60

TEST:

**Inorganic Non-Metals** 

MATRIX:

TRPH

Solid

REPORTING

RESULT LIMIT

1300

250.

<u>D. F.</u> 25

**METHOD** EPA 418.1M UNITS

ANALYZED

mg/Kg 10/21/99

#### QUALITY CONTROL DATA (For TRPH Analysis):

Sample ID	Result	Acceptable Range	Sample Number
Blank, 102199-TRPH3-BLK	ND	< 10. mg/Kg	NA
LCS, 102199-TRPH3-LCS	115 %	70 - 130	NA
MS, 102199-TRPH3-MS	750 %	70 - 130	B9910001-60
MSD, 102199-TRPH3-MSD	750 %	70 - 130	B9910001-60

D.F. - Dilution Factor

ND - Not Detected

CLIENT: PROJECT ID:

Brown & Caldwell

PROJECT #:

Gay Mine 07250.016 CLIENT ID:

Method Blank

DATE SAMPLED: NA

NEL SAMPLE ID: 102199-TRPH1-BLK

ΓEST:

Non-Metals

REPORTING

**PARAMETER** RESULT **TRPH** ND

LIMIT 10

D. F.

**METHOD** EPA 418.1M UNITS mg/Kg

ANALYZED 10/21/99

D.F. - Dilution Factor

√D - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

Method Blank

DATE SAMPLED: NA

NEL SAMPLE ID: 102199-TRPH2-BLK

TEST:

Non-Metals

REPORTING

**PARAMETER** RESULT LIMIT D. F. **METHOD** UNITS ANALYZED ΓRPH ND 10 mg/Kg 10/21/99 EPA 418.1M

D.F. - Dilution Factor

ND - Not Detected

LIENT: . ROJECT ID: Brown & Caldwell

Gay Mine

PROJECT #:

07250.016

CLIENT ID:

Method Blank

DATE SAMPLED: NA

NEL SAMPLE ID: 102199-TRPH3-BLK

EST:

Non-Metals

REPORTING

**PARAMETER** RESULT LIMIT **METHOD** UNITS **ANALYZED** RPH ND 10 10/21/99 EPA 418.1M mg/Kg

D.F. - Dilution Factor

√D - Not Detected

LIENT: \_'ROJECT ID: Brown & Caldwell

PROJECT #:

Gay Mine 07250.016 CLIENT ID:

**Method Blank** 

DATE SAMPLED: NA

NEL SAMPLE ID: 102599-418.1-BLK

EST:

**Non-Metals** 

REPORTING

**PARAMETER** RESULT LIMIT D. F. **METHOD** UNITS **ANALYZED** RPH 10 ND EPA 418.1M OR mg/Kg 10/25/99

D.F. - Dilution Factor

√D - Not Detected

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016

PROJECT #: TEST:

Inorganic Non-Metals

\_MATRIX:

PARAMETER	NEL Sample ID	Spike Amount	Spike Result	Percent Recovery	Acceptable Range	<u>RPD</u>
TRPH	102199-TRPH1-LCS	40	43	108	70 - 130	
ГКРН	B9910001-20-MS	40	108	127	70 - 130	
ГРРН	B9910001-20-MSD	40	107	125	70 - 130	2.

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016

TEST:

**Inorganic Non-Metals** 

MATRIX:

		<b>Spike</b>	Spike	Percent	Acceptable	
PARAMETER PARAMETER	NEL Sample ID	<b>Amount</b>	Result	Recovery	Range	<u>RPD</u>
TRPH	102199-TRPH2-LCS	40	43	108	70 - 130	
TRPH	B9910001-40-MS	40	1000	275 C	70 - 130	
ГКРН	B9910001-40-MSD	40	940	125	70 - 130	75.

CLIENT: PROJECT ID: Brown & Caldwell

PROJECT #:

Gay Mine 07250.016

PROJECT #:

Inorganic Non-Metals

MATRIX:

•		Spike	Spike	Percent	Acceptable	
PARAMETER	NEL Sample ID	Amount	Result	Recovery	Range	<u>RPD</u>
ТРРН	102199-TRPH3-LCS	40	46	115	70 - 130	
TRPH	B9910001-60-MS	40	1600	750 C	70 - 130	
ГРРН	B9910001-60-MSD	40	1600	750 C	70 - 130	0.

# NEL LABORATORIES Brown & Caldwell

CLIENT: PROJECT ID:

PROJECT #:

Gay Mine 07250.016

TEST:

**Inorganic Non-Metals** 

MATRIX:

		<b>Spike</b>	Spike	Percent	Acceptable	
PARAMETER	NEL Sample ID	Amount	Result	Recovery	Range	RPD
TRPH	102599-418.1-LCS	40	7.5	19 J	80 - 120	
TRPH	B9910001-05-MS	50	160	80	70 - 130	
ГКРН	B9910001-05-MSD	50	180	120	70 - 130	40.

1000 1000 1000	0.016	1								Remarks											E. Ice Only	G. Not Preserved	
NEL Work Order: 399100	070	76																			Box #2 A HCI	C. H.SO <sub>4</sub> D. NaOH	
NEL Work	Project Number:	Sampled By:					1														SD - Solid AQ - Aqueous	ē	
STODY	MAR			, sian		(S).	Fai	24	[8] [3]	_	×	X	. ×	×	X X	×	*	× ×	` `X	- - - x	Box #1 DW - Drinking Water	OL - Oil/Organic Liquid	
CHAIN OF CUSTODY	Project Name:	Purchase Order Number:			Alfalysis	(2		(L# X	istnoC coB) x vitsvne	intsM	1 50 6									AA	B		
	la la	1		NOV	_		Expected Due Date:		1-day Other	N.E.L.	0 (	40	52	400	05	0	0.3	08	50	0		•	
NEL LABORATORIES Reno · Las Vegas	Phoenix • So. California	So. Cal. Division • 3189 Airway Ave., Bldg. C • Costa Mesa, CA 92626	CALOWELL	With WW		Fax Number:	Ш		5-day 2-day 1-	Customer Sample Identification		2		į						0	None Temp.	Condition when received good	
		Division • 3189 Airway Av		-					X		(9	10:57 GM-2	8-49 ho	4-M2 0		1 Gm.6	5 GM-7	5 6m-8		1 GM-10	Custody Seal intact? Y N None	Condition wh	
		So. Cal. Div	K	Company:	Address:	Phone Number:	Billing Address:		Requested Turnaround:	Time/Date Sampled	642101	0/	ho://	11.10	P\$:11	12:11	11:25	11:30	hs:11	V 11:37	Custody S		

The liability of NEL Laboratories Inc. is limited strictly to the price of sample analysis for those samples received in good condition by NEL. NEL is not responsible for loss, damage, resampling costs and/or qualified data related to samples not received in good condition. Including adequate sample volume and number of containers. Customer signature of this CoC constitutes a purchase order for NEL to perform work and constitutes acceptance of all NEL Standard Terms and Conditions. Signature also constitutes acceptance of all NeL volumes are measured in regular working days. Samples received at the time of sample receipt. NEL turnaround times are measured in regular working days. Samples received the requested turnaround time will be confirmed via Sample Confirmation transmitted to the fax number provided above.

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#### E. Ice Only F. Other G. Not Preserved 1R20.010 Remarks 7 80 7 A. HCI C. H. NO3 D. NaOH M Sampled By: 75 Box #2 Project Number: SD - Sotid AQ - Aqueous A - Air ASTAGUL DW - Drinking Water WW - Waste Water OL - Oil/Organic Liquid メ Analysis Box #1 Z × R Z 小 Purchase Order Number Preservative (Box #S) ${\cal P}$ Project Name: (f# xoB) xintsM # of Containers Other dentification Expected Due Date: لجرِ ď <u>y</u>0 HY MURKEY So. Cal. Division • 3189 Airway Ave., Bldg. C • Costa Mesa, CA 92626 1-day Phoenix · So. California Reno · Las Vegas (714) 437-5200 • Fax: (714) 556-5625 • 1-800-320-6595 Customer Sample Identification Temp. Condition when received good Fax Number 2-day Custody Seal intact? Y N None 6-M-13 ローるら カーなり ニーダウ 81 - 2.J SN-20 GW-19 Requested Turnaround: X 5-day 1-mg GN1-16 アーそり 12:45 12352 Time/Date アジジタ 7:3 12:28 12:24 12:40 Sampled シャジ 12:19 21:7 Phone Number Billing Address Address:

NEL Work Order: BYY CO

CHAIN OF CUSTODY

**NEL LABORATORIES** 

The liability of NEL Laboratories Inc. is limited strictly to the price of sample analysis for those samples received in good condition by NEL. NEL is not responsible for loss, damage, resampling costs and/or qualified data related to samples not received in good condition, including adequate sample volume and number of containers. Customer signature of this CoC constitutes a purchase order for NEL to perform work and constitutes acceptance of all NEL Standard List Prices for all services ordered here on, except those specified otherwise via an NEL Quotation for Testing Services in effect at the time of sample receipt. NEL turnaround times are measured in regular working days. Samples received at the laboratory after 16:30 will be considered received on the next working day. Commitment of laboratory to the requested turnaround time will be confirmation transmitted to the fax number provided above. 202 4700m

**₹**01:01

D-12-99

Date/Time

(Signature)

(Print)

Received by

Date/Time

(Signature)

Sest rech

C C C

Relinquished by (Print)

M. BOW

M. Brown

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#### NEL Work Order: 6-191000 010.02510 Remarks KI Project Number: Sampled By: MME CHAIN OF CUSTODY Analysis X X ノセゾ Purchase Order Number b Project Name: (Box #S) Preservative (f# xoB) xintsM # of Containers N.E.L. Identification Other Expected Due Date: 5 7 4 **NEL LABORATORIES** So. Cal. Division • 3189 Airway Ave., Bldg. C • Costa Mesa, CA 92626 (714) 437-5200 • Fax: (714) 556-5625 • 1-800-320-6595 MARKENTION: MURRAL 1-day Phoenix • So. California Reno · Las Vegas Customer Sample Identification Fax Number 2-day 8x-15 Gm-22 アナースか アン・シウ 5-W5 ターとり Requested Turnaround: X 5-day R20M/ 10/12/19 1:01 1.087 Time/Date 1111 113 Sampled 1:45 Phone Number: Billing Address: Address:

Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Print)	(Signature)	Date/Time
Todolerebrecht	1 - leady / Leader	-	MB	Brown	UM Br	10-15-99/10:10A
2 M P C	(A) PS/	10-1599/16:30		De (		
3000			1 TO 1	as is	1 John 12,13el	Sio.16-99-01
'		7			in the formal or and the forma	continued to a property of the continued of the

E. ice Only F. Other G. Not Preserved

A. HO B. HNO C. H. SO D. NaOH

Box #2

SD - Solid AQ - Aqueous A - Air

DW - Drinking Water WW - Waste Water OL - Oil/Organic Liquid

Box #1

Temp. good

Custody Seal intact? Y N None

GM-29 98130

87-20 GN-27

> 2:05 2:10 7:13

2:60

7:50

Condition when received

K × ×

9

The liability of NEL Laboratories inc. is limited strictly to the price of sample analysis for those samples received in good condition. NEL is not responsible for loss, damage, resampling costs and/or qualified data related to samples not received in good condition, including adequate sample volume and number of containers. Customer signature of this CoC constitutes a purchase order for NEL to perform work and constitutes acceptance of all NEL Standard List Prices for all services ordered here on, except those specified otherwise via an NEL Quotation for Testing Services in effect at the time of sample receipt. NEL turnaround times are measured in regular working days. Samples received at the requested turnaround time will be confirmed via Sample considered received on the next working day. Commitment of laboratory to the requested turnaround time will be confirmed via be considered received on the next working day. Commitment of laboratory to the requested turnaround time will be confirmed to the fax number provided above.

# NEL Work Order: 1849 | CC Project Number CHAIN OF CUSTODY Project Name **NEL LABORATORIES** Reno • Las Vegas Phoenix • So. California |||| %

MWE CTOLOID	Sampled By, TG/								Remarks											VICE CITY A LATER OF LOS CITY OF LATER
M. C.M. K.	Purchase Order Number:		•	Analysis		# xog	3) ə/ (L# X	ix (Bo	Matri	X / 10 05	50 G	× 3 0\$	χ	X 20 cs	x & & & & & & & & & & & & & & & & & & &	×	50 G X	メックの	So 6 Y	Box #1
	1	2	<b>*</b>			Expected Due Date:	ners	1-day Other	N.E.L. to the state of the stat	3)	33	33	34 (	35	36	4	38,	K	- Pr	
Constitution of the consti	So. Cal. Division • 3189 Airway Ave., Bldg. C • Costa Mesa, CA 92626	4cme2	M. Mantion: Much		Fax Number:			5-day 2-day	Customer Sample Identification	6-M-3/	Gm-32	GM-33	Gm-34	G-W-35	Gm-36	Gm-37	Gm-38	Gm-39	GM-40	H 22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	So. Cal. Division • 318	BROWN + CAGONG	Company:	Address:	Phone Number:	Billing Address:		Requested Turnaround:	Time/Date Sampled	M2/49 2:17	1 2:25	2:30	2:37	27:48	15%	2:52	3:01	3:07	3:12	Occident N. Charles (100 October 100 Octob

Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
Told Gradel	ex fachell works		M. Brown	UM BU	10-15-99/10:10A
	MACH	10-15-99/16:30	2	SAN	
500			181 02 18	XVac and	10.16.99-110a
	divide of the state of the stat	Nyt noithean boon is beytages selemes and	El NEl is not responsible fo	The state of the s	d to samples not received in good condition.

The liability of NEL Laboratories inc. is limited strictly to the price of sample analysis for those samples never the service of the services of the services

#### E. Ice Only F. Other G. Not Preserved Date/Time 7520.01b 6 Remarks BI A. HCI C. H. NO. D. NaOH M Box #2 (Signature) Project Number: Sampled By: SD - Solid AQ - Aqueous S. P. Park A - Air \* OFF WW - Waste Water OL - Oil/Organic Liquid Project Name, CAY MINE DW - Drinking Water (Print) R K 8 X Z X X × × Analysis Box #1 Received by Purchase Order Number S (Box #2) Preservative (Ratrix (Box #1) Date/Time # of Containers N.E.L. Identification Other Expected Due Date: 7 Q Z Phoenix Division • 3021 S. 35th St., Bldg. B, Suite 6 • Phoenix, AZ 85034 1-day Phoenix · So. California ACOMEL Reno · Las Vegas (602) 437-0099 • Fax: (602) 437-2225 • 1-888-238-2514 Altertion WE Customer Sample Identification Temp. (Signature) good Fax Number 2-day Condition when received Custody Seal intact? Y N None 6M-18 CK-HJ トカーwり GM-46 6M-49 GM-50 2M-45 , 5-day GM-43 SMYZ GM-4 AND Requested Turnaround: 🗶 Relinquished by (Print) ||:0||*|* Time/Date Sampled Phone Number Billing Address: 5.6 4:10 4.14 Address: 177 29 04: ho: 41,00 :35 4:06

NEL Work Order: (Control)

**CHAIN OF CUSTODY** 

NEL LABORATORIES

The liability of NEL Laboratories inc. is limited strictly to the price of sample analysis for those samples received in good condition, NEL. NEL is not responsible for loss, damage, resampling costs and/or qualified data related to samples not received in good condition. Signature also constitutes acceptance in constitutes acceptance or firs CoC constitutes acceptance or firs CoC constitutes acceptance or firs CoC constitutes acceptance or screen and number of containing the same surple received to a screen and acceptance or acceptance or acceptance provided aboves. Samples received at the lime of sample receipt. NEL turnaround times are measured in regular working days. Samples received at the laboratory after 16:30 will be considered received on the next working day. Commitment of laboratory to the requested turnaround time will be confirmed via Sample received on the next working day. Commitment of laboratory to the requested turnaround time will be confirmed to received on the next working day.

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	NEL LABORATORIES	IES	CHAIN OF CUSTODY	CUST	ODY	NEL Work	NEL Work Order: 829100	10001	
	Reno • Las Vegas							しょり	,
	Phoenix • So. California	<u>a</u>	Project Name:	5	520.0	Project Number	03, 7, red	Q	
So. Cal. Division • 31	So. Cal. Division • 3189 Airway Ave., Bldg. C • Costa Mesa, CA 92626	92626	Purchase Order Number:	ıber:		Sampled By:	TG /BL		
BROWN AN	AND CALDWELL								1
Sompany:	Attention	NURRAY							
Address.	l			Analysis					
hone Number:	Fax Number:		(2		1000 M	\ \ \ \			
3illing Address:	Exp	Expected Due Date:		\	F. 000		\		
			(l#×			\			
Requested Turnaround:	ind: X 5-day 2-day 1-day	ay Other	iistno( (o8) x vitsvre						
Time/Date Sampled	Customer Sample Identification	N.E.L. Identification	intsM					Bemarks	
4.19/10/12/40	GM-51	5	2 2 3 -		×				
41.22/		53			×				
1,22/	GM-53	53			×				,
4:30/.	GM - S4	27			R				
4.36/	GM-55	55			R				
104.7	6M-56	56			R				
/hhih	6M-57	45			R				
164:4	6M-58	58,		•	X				
1,05%	6m-59	59							
4.55/	GM-60	(2)	N N N						
Sustody Seal inta	Sustody Seal intact? Y N None Temp.	ł		Box #1	DW - Drinking Water WW - Waste Water	SD - Solid AQ - Aqueous	Box #2 A. HCI B. HNO,	E. Ice Only F. Other	
J	Condition when received good				OL - Oil/Organic Liquid	A - Air	C. H.SO.	G. Not Preserved	
Relinquished by (Print)	(Signature)	Dat	Date/Time	Received by	(Print)	(Signature)	iture)	Date/Time	

The liability of NEL Laboratories inc. is limited strictly to the price of sample analysis for those samples received in good condition by NEL. NEL is not responsible for loss, damage, resampling costs and/or qualified data related to samples not received in good conditions. On this coc constitutes a purchase order for NEL to perform work and constitutes acceptance of all NEL Standard Terms and Conditions. Signature also constitutes acceptance of all NEL standard List Prices for all services ordered here on, except those specified otherwise via an NEL Quotation for Testing Services in effect at the time of sample receipt. NEL turnaround times are measured in regular working days. Samples received at the laboratory after 16:30 will be considered received on the next working day. Commitment of laboratory to the requested turnaround time will be confirmed to the fax number provided above.

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#### APPENDIX C

# RISK BASED CORRECTIVE ACTION SOIL SAMPLE LABORATORY REPORTS

Reno • Las Vegas • Boise Phoenix . So. California

CLIENT:

Brown & Caldwell

380 E. Parkcenter #240

Boise, ID 83706

ATTN:

Mike Murray

PROJECT NAME: Gay Mine

PROJECT #:

07250.016

**NEL ORDER ID: B9910001** 

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 10/15/99.

Samples were analyzed as received.

Where applicable we have included the following quality control data:

Method blank - used to demonstrate absence of contamination or interferences in the analytical process. Laboratory Control Spike (LCS) - used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix. Surrogates - compounds added to each sample to ensure that the method requirements are met for each individual sample.

Should you have any questions or comments, please feel free to contact our Client Services department at (208) 378-7790.

#### Some QA results have been flagged as follows:

- Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.

- This concentration should be considered an estimate due to laboratory control sample failure.

Mindy Brown

of Engineers

**Boise Division Manager** 

**CERTIFICATIONS:** 

Las Vegas S. California Reno AZ0520 AZ0518 AZ0605 Arizona California 1707 2002 2264 US Army Corps Certified Certified

Montana Nevada L.A.C.S.D.

Idaho

Reno Las Vegas S. California Certified Certified Certified Certified

NV033 NV052 CA084 10228

CLIENT:

Brown & Caldwell

PROJECT ID: Gay Mine

PROJECT #:

07250.016

CLIENT ID:

LF-1-COMP1

DATE SAMPLED: 10/13/99

NEL SAMPLE ID: B9910001-62

METHOD: MATRIX:

**DILUTION:** 

TEST:

Volatile Organic Compounds by EPA 8260B, December 1996 EPA 8260B

EXTRACTED:

10/19/99

Solid

ANALYZED:

10/19/99

1

ANALYST:

MCR - Division

79 4 TO 4 N 400/00/00	Result	Reporting	D. D. A. B. COUNTY	Result	Reporting
PARAMETER	μg/kg	Limit	PARAMETER	μg/kg	Limit
Acetone	ND	50. μg/kg	cis-1,3-Dichloropropene	ND	5. μg/Kg
Benzene	ND	5. μg/kg	trans-1,3-Dichloropropene	ND	5. μg/Kg
Bromobenzene	ND	5. μg/Kg	Ethylbenzene	ND	5. μg/Kg
3romodichloromethane	ND	5. μg/Kg	Hexachlorobutadiene	ND	5. μg/Kg
Bromoform	ND	5. μg/Kg	2-Hexanone	ND	50. μg/Kg
Bromomethane	ND	5. μg/Kg	Iodomethane	ND	5. μg/Kg
?-Butanone	ND	50. μg/Kg	Isopropylbenzene	ND	5. μg/Kg
.1-Butylbenzene	ND	5. μg/Kg	p-Isopropyltoluene	ND	5. μg/Kg
sec-Butylbenzene	ND	5. μg/Kg	Methylene chloride (Dichloromethane)	ND	20. μg/Kg
ert-Butylbenzene	ND	5. μg/Kg	4-Methyl-2-pentanone	ND	50. μg/Kg
Carbon disulfide	ND	5. μg/Kg	MTBE	ND	5. μg/Kg
Carbon tetrachloride	ND	5. μg/Kg	Naphthalene	ND	5. μg/Kg
Chlorobenzene	ND	5. μg/Kg	n-Propylbenzene	ND	5. μg/Kg
Chloroethane	ND	5. μg/Kg	Styrene	ND	5. μg/Kg
Chloroform	ND	5. μg/Kg	1,1,1,2-Tetrachloroethane	ND	5. μg/Kg
Chloromethane	ND	5. μg/Kg	1,1,2,2-Tetrachloroethane	ND	5. μg/Kg
2-Chlorotoluene	ND	5. μg/Kg	Tetrachloroethene (PCE)	ND	5. μg/Kg
1-Chlorotoluene	ND	5. μg/Kg	Toluene	ND	5. μg/Kg
Dibromochloromethane	ND	5. μg/Kg	1,2,3-Trichlorobenzene	ND	5. μg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5. μg/Kg	1,2,4-Trichlorobenzene	ND	5. μg/Kg
1,2-Dibromoethane (EDB)	ND	5. μg/Kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5. μg/Kg
Dibromomethane	ND	5. μg/Kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5. μg/Kg
1,2-Dichlorobenzene (o-DCB)	ND	5. μg/Kg	Trichloroethene (TCE)	ND	5. μg/Kg
1,3-Dichlorobenzene (m-DCB)	ND	5. μg/Kg	Trichlorofluoromethane (Freon 11)	ND	5. μg/Kg
1,4-Dichlorobenzene (p-DCB)	ND	5. μg/Kg	Trichlorotrifluoroethane (Freon 113)	ND	5. μg/kg
Dichlorodifluoromethane (Freon 12)	ND	5. μg/Kg	1,2,3-Trichloropropane	ND	5. μg/Kg
1,1-Dichloroethane (1,1-DCA)	ND	5. μg/Kg	1,2,4-Trimethylbenzene	ND	5. μg/Kg
1,2-Dichloroethane (1,2-DCA)	ND	5. μg/Kg	1,3,5-Trimethylbenzene	ND	5. μg/Kg
1,1-Dichloroethene (1,1-DCE)	ND	5. μg/Kg	Vinyl chloride	ND	5. μg/Kg
cis-1,2-Dichloroethene	ND	5. μg/Kg	o-Xylene	ND	5. μg/Kg
rans-1,2-Dichloroethene	ND	5. μg/Kg	m,p-Xylene	ND	5. μg/Kg
1,2-Dichloropropane	ND	5. μg/Kg			
1,3-Dichloropropane	ND	5. μg/Kg			
2,2-Dichloropropane	ND	5. μg/Kg			
1,1-Dichloropropene	ND	5. μg/Kg		· · · · · · · · · · · · · · · · · · ·	

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	96	70 - 130 %
Dibromofluoromethane	119	70 - 130 %
Toluene-d8	101	70 - 130 %

CLIENT:

Brown & Caldwell

Gay Mine

PROJECT ID: PROJECT #:

07250.016

CLIENT ID:

LF-2-COMP1

DATE SAMPLED: 10/13/99

NEL SAMPLE ID: B9910001-66

10/13/99

ΓEST:

Volatile Organic Compounds by EPA 8260B, December 1996

METHOD:

EPA 8260B

EXTRACTED:

10/19/99

MATRIX: So

Solid

ANALYZED:

10/19/99

OILUTION: 1

ANALYST:

MCR - Division

PARAMETER	Result µg/kg	Reporting Limit	PARAMETER	Result µg/kg	Reporting Limit
Acetone	ND	50. μg/kg	cis-1,3-Dichloropropene	ND	5. μg/Kg
Benzene	ND	5. μg/kg	trans-1,3-Dichloropropene	ND	5. μg/Kg
Bromobenzene	ND	5. μg/Kg	Ethylbenzene	ND	5. μg/Kg
3romodichloromethane	ND	5. μg/Kg	Hexachlorobutadiene	ND	5. μg/Kg
Bromoform	ND	5. μg/Kg	2-Hexanone	ND	50. μg/Kg
Bromomethane	ND	5. μg/Kg	Iodomethane	ND	5. μg/Kg
2-Butanone	ND	50. μg/Kg	Isopropylbenzene	ND	5. μg/Kg
n-Butylbenzene	ND	5. μg/Kg	p-Isopropyltoluene	ND	5. μg/Kg
sec-Butylbenzene	ND	5. μg/Kg	Methylene chloride (Dichloromethane)	ND	20. μg/Kg
ert-Butylbenzene	ND	5. μg/Kg	4-Methyl-2-pentanone	ND	50. μg/Kg
Carbon disulfide	ND	5. μg/Kg	MTBE	ND	5. μg/Kg
Carbon tetrachloride	ND	5. μg/Kg	Naphthalene	ND	5. μg/Kg
Chlorobenzene	ND	5. μg/Kg	n-Propylbenzene	ND	5. μg/Kg
Chloroethane	ND	5. μg/Kg	Styrene	ND	5. μg/Kg
Chloroform	ND	5. μg/Kg	1,1,2-Tetrachloroethane	ND	5. μg/Kg
Chloromethane	ND	5. μg/Kg	1,1,2,2-Tetrachloroethane	ND	5. μg/Kg
2-Chlorotoluene	ND	5. μg/Kg	Tetrachloroethene (PCE)	ND	5. μg/Kg
1-Chlorotoluene	ND	5. μg/Kg	Toluene	ND	5. μg/Kg
Dibromochloromethane	ND	5. μg/Kg	1,2,3-Trichlorobenzene	ND	5. μg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5. μg/Kg	1,2,4-Trichlorobenzene	ND	5. μg/Kg
1,2-Dibromoethane (EDB)	ND	5. μg/Kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5. μg/Kg
Dibromomethane	ND	5. μg/Kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5. μg/Kg
1,2-Dichlorobenzene (o-DCB)	ND	5. μg/Kg	Trichloroethene (TCE)	ND	5. μg/Kg
1,3-Dichlorobenzene (m-DCB)	ND	5. μg/Kg	Trichlorofluoromethane (Freon 11)	ND	5. μg/Kg
1,4-Dichlorobenzene (p-DCB)	ND	5. μg/Kg	Trichlorotrifluoroethane (Freon 113)	ND	5. μg/kg
Dichlorodifluoromethane (Freon 12)	ND	5. μg/Kg	1,2,3-Trichloropropane	ND	5. μg/Kg
1,1-Dichloroethane (1,1-DCA)	ND	5. μg/Kg	1,2,4-Trimethylbenzene	ND	5. μg/Kg
1,2-Dichloroethane (1,2-DCA)	ND	5. μg/Kg	1,3,5-Trimethylbenzene	ND	5. μg/Kg
1,1-Dichloroethene (1,1-DCE)	ND	5. μg/Kg	Vinyl chloride	ND	5. μg/Kg
cis-1,2-Dichloroethene	ND	5. μg/Kg	o-Xylene	ND	5. μg/Kg
trans-1,2-Dichloroethene	ND	5. μg/Kg	m,p-Xylene	ND	5. μg/Kg
1,2-Dichloropropane	ND	5. μg/Kg			
1,3-Dichloropropane	ND	5. μg/Kg			
2,2-Dichloropropane	ND	5. μg/Kg	•		
1,1-Dichloropropene	ND	5. μg/Kg			

Surrogate ·	% Recovery	Acceptable Range
4-Bromofluorobenzene	94	70 - 130 %
Dibromofluoromethane	125	70 - 130 %
Toluene-d8	97	70 - 130 %

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine

07250.016

CLIENT ID:

LF-3-COMP1

DATE SAMPLED: 10/13/99

NEL SAMPLE ID: B9910001-67

TEST:

Volatile Organic Compounds by EPA 8260B, December 1996

METHOD:

EPA 8260B

EXTRACTED:

10/19/99

Solid MATRIX: DILUTION: 1

ANALYZED:

10/19/99

ANALYST:

MCR - Division

PARAMETER	Result µg/kg	Reporting Limit	D A D A METED	Result	Reporting
			PARAMETER	μg/kg	Limit
Acetone	ND	50. μg/kg	cis-1,3-Dichloropropene	ND	5. μg/Kg
Benzene	ND	5. μg/kg	trans-1,3-Dichloropropene	ND	5. μg/Kg
Bromobenzene	ND	5. μg/Kg	Ethylbenzene	ND	5. μg/Kg
Bromodichloromethane	ND	5. μg/Kg	Hexachlorobutadiene	ND	5. μg/Kg
Bromoform	ND	5. μg/Kg	2-Hexanone	ND	50. μg/Kg
Bromomethane	ND	5. μg/Kg	Iodomethane	ND	5. μg/Kg
2-Butanone	ND	50. μg/Kg	Isopropylbenzene	ND	5. μg/Kg
n-Butylbenzene	ND	5. μg/Kg	p-Isopropyltoluene	ND	5. μg/Kg
sec-Butylbenzene	ND	5. μg/Kg	Methylene chloride (Dichloromethane)	ND	20. μg/Kg
tert-Butylbenzene	ND	5. μg/Kg	4-Methyl-2-pentanone	ND	50. μg/Kg
Carbon disulfide	ND	5. μg/Kg	MTBE	ND	5. μg/Kg
Carbon tetrachloride	ND	5. μg/Kg	Naphthalene	ND	5. μg/Kg
Chlorobenzene	ND	5. μg/Kg	n-Propylbenzene	ND	5. μg/Kg
Chloroethane	ND	5. μg/Kg	Styrene	ND	5. μg/Kg
Chloroform	ND	5. μg/Kg	1,1,1,2-Tetrachloroethane	ND	5. μg/Kg
Chloromethane	ND	5. μg/Kg	1,1,2,2-Tetrachloroethane	ND	5. μg/Kg
2-Chlorotoluene	ND	5. μg/Kg	Tetrachloroethene (PCE)	ND	5. μg/Kg
4-Chlorotoluene	ND ·	5. μg/Kg	Toluene	ND	5. μg/Kg
Dibromochloromethane	ND	5. μg/Kg	1,2,3-Trichlorobenzene	ND	5. μg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5. μg/Kg	1,2,4-Trichlorobenzene	ND	5. μg/Kg
1,2-Dibromoethane (EDB)	ND	5. μg/Kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5. μg/Kg
Dibromomethane	ND	5. μg/Kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5. μg/Kg
1,2-Dichlorobenzene (o-DCB)	ND	5. μg/Kg	Trichloroethene (TCE)	ND	5. μg/Kg
1,3-Dichlorobenzene (m-DCB)	ND	5. μg/Kg	Trichlorofluoromethane (Freon 11)	ND	5. μg/Kg
1,4-Dichlorobenzene (p-DCB)	ND	5. μg/Kg	Trichlorotrifluoroethane (Freon 113)	ND	5. μg/kg
Dichlorodifluoromethane (Freon 12)	ND	5. μg/Kg	1,2,3-Trichloropropane	ND	5. μg/Kg
1,1-Dichloroethane (1,1-DCA)	ND	5. μg/Kg	1,2,4-Trimethylbenzene	ND	5. μg/Kg
1,2-Dichloroethane (1,2-DCA)	ND	5. μg/Kg	1,3,5-Trimethylbenzene	ND	5. μg/Kg
1,1-Dichloroethene (1,1-DCE)	ND	5. μg/Kg	Vinyl chloride	ND	5. μg/Kg
cis-1,2-Dichloroethene	ND	5. μg/Kg	o-Xylene	ND	5. μg/Kg
trans-1,2-Dichloroethene	ND	5. μg/Kg	m,p-Xylene	ND	5. μg/Kg
1,2-Dichloropropane	ND	5. μg/Kg			1.00
1,3-Dichloropropane	ND	5. μg/Kg			
2,2-Dichloropropane	ND	5. μg/Kg			
1,1-Dichloropropene	ND	5. μg/Kg			
OLIALITY CONTROL DATA:				<del></del>	<del> </del>

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	100	70 - 130 %
Dibromofluoromethane	121	70 - 130 %
Toluene-d8	102	70 - 130 %

CLIENT:

Brown & Caldwell

Gay Mine PROJECT ID:

PROJECT #:

07250.016

CLIENT ID:

LF-4-COMP1

DATE SAMPLED: 10/13/99

NEL SAMPLE ID: B9910001-63

TEST:

Volatile Organic Compounds by EPA 8260B, December 1996

METHOD:

EPA 8260B

EXTRACTED:

10/19/99

MATRIX:

Solid

ANALYZED:

10/19/99

**DILUTION:** 1

ANALYST:

MCR - Division

PARAMETER	Result µg/kg	Reporting Limit	PARAMETER	Result µg/kg	Reporting Limit
Acetone	ND	50. μg/kg	cis-1,3-Dichloropropene	ND	5. μg/Kg
Benzene	ND	5. μg/kg	trans-1,3-Dichloropropene	ND	5. μg/Kg
Bromobenzene	ND	5. μg/Kg	Ethylbenzene	ND	5. μg/Kg
3romodichloromethane	ND	5. μg/Kg	Hexachlorobutadiene	ND .	5. μg/Kg
Bromoform	ND	5. μg/Kg	2-Hexanone	ND	50. μg/Kg
Bromomethane	ND	5. μg/Kg	Iodomethane	ND	5. μg/Kg
2-Butanone	ND	50. μg/Kg	Isopropylbenzene	ND	5. μg/Kg
1-Butylbenzene	ND	5. μg/Kg	p-Isopropyltoluene	ND	5. μg/Kg
sec-Butylbenzene	ND	5. μg/Kg	Methylene chloride (Dichloromethane)	ND	20. μg/Kg
ert-Butylbenzene	ND	5. μg/Kg	4-Methyl-2-pentanone	ND	50. μg/Kg
Carbon disulfide	ND	5. μg/Kg	MTBE	ND	5. μg/Kg
Carbon tetrachloride	ND	5. μg/Kg	Naphthalene	ND	5. μg/Kg
Chlorobenzene	ND	5. μg/Kg	n-Propylbenzene	ND	5. μg/Kg
Chloroethane	ND	5. μg/Kg	Styrene	ND	5. μg/Kg
Chloroform	ND	5. μg/Kg	1,1,1,2-Tetrachloroethane	ND	5. μg/Kg
Chloromethane	ND	5. μg/Kg	1,1,2,2-Tetrachloroethane	ND	5. μg/Kg
2-Chlorotoluene	ND	5. μg/Kg	Tetrachloroethene (PCE)	ND	5. μg/Kg
3-Chlorotoluene	ND	5. μg/Kg	Toluene	ND	5. μg/Kg
Dibromochloromethane	ND	5. μg/Kg	1,2,3-Trichlorobenzene	ND	5. μg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5. μg/Kg	1,2,4-Trichlorobenzene	ND	5. μg/Kg
1,2-Dibromoethane (EDB)	ND	5. μg/Kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5. μg/Kg
Dibromomethane	ND	5. μg/Kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5. μg/Kg
1,2-Dichlorobenzene (o-DCB)	ND	5. μg/Kg	Trichloroethene (TCE)	ND	5. μg/Kg
1,3-Dichlorobenzene (m-DCB)	ND	5. μg/Kg	Trichlorofluoromethane (Freon 11)	ND	5. μg/Kg
1,4-Dichlorobenzene (p-DCB)	ND	5. μg/Kg	Trichlorotrifluoroethane (Freon 113)	ND	5. μg/kg
Dichlorodifluoromethane (Freon 12)	ND	5. μg/Kg	1,2,3-Trichloropropane	ND	5. μg/Kg
1,1-Dichloroethane (1,1-DCA)	ND	5. μg/Kg	1,2,4-Trimethylbenzene	ND	5. μg/Kg
1,2-Dichloroethane (1,2-DCA)	ND	5. μg/Kg	1,3,5-Trimethylbenzene	ND	5. μg/Kg
1,1-Dichloroethene (1,1-DCE)	ND	5. μg/Kg	Vinyl chloride	ND	5. μg/Kg
cis-1,2-Dichloroethene	ND	5. μg/Kg	o-Xylene	ND	5. μg/Kg
rans-1,2-Dichloroethene	ND	5. μg/Kg	m,p-Xylene	ND	5. μg/Kg
1,2-Dichloropropane	ND	5. μg/Kg			
1,3-Dichloropropane	ND	5. μg/Kg			
2,2-Dichloropropane	ND	5. μg/Kg			
1,1-Dichloropropene	ND	5. μg/Kg			

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	96	70 - 130 %
Dibromofluoromethane	118	70 - 130 %
Toluene-d8	102	70 - 130 %

CLIENT:

PROJECT #:

Brown & Caldwell

PROJECT ID:

Gay Mine 07250.016 CLIENT ID:

**Method Blank** 

DATE SAMPLED: NA

NEL SAMPLE ID: 101999-8260-BLK

TEST:

Volatile Organic Compounds by EPA 8260B, December 1996

METHOD: MATRIX:

EPA 8260B

Solid

ANALYST:

MCR - Division

EXTRACTED:

10/19/99

ANALYZED:

10/19/99

PARAMETER	Result μg/Kg	Reporting Limit	PARAMETER	Result µg/Kg	Reporting Limit
Acetone	ND	50 μg/kg	cis-1,3-Dichloropropene	ND	5 μg/Kg
Benzene	ND	5 μg/kg	trans-1,3-Dichloropropene	ND	5 μg/Kg
Bromobenzene	ND	5 μg/Kg	Ethylbenzene	ND	5 μg/Kg
3romodichloromethane	ND	5 μg/Kg	Hexachlorobutadiene	ND	5 μg/Kg
Bromoform	ND	5 μg/Kg	2-Hexanone	ND	50 μg/Kg
Bromomethane	ND	5 μg/Kg	Iodomethane	ND	5 μg/Kg
!-Butanone	ND	50 μg/Kg	Isopropylbenzene	ND	5 μg/Kg
n-Butylbenzene	ND	5 μg/Kg	p-Isopropyltoluene	ND	5 μg/Kg
sec-Butylbenzene	ND	5 μg/Kg	Methylene chloride (Dichloromethane)	ND	20 μg/Kg
ert-Butylbenzene	ND	5 μg/Kg	4-Methyl-2-pentanone	ND	50 μg/Kg
Carbon disulfide	ND	5 μg/Kg	MTBE	ND	5 μg/Kg
Carbon tetrachloride	ND	5 μg/Kg	Naphthalene	ND	5 μg/Kg
Chlorobenzene	ND	5 μg/Kg	n-Propylbenzene	ND	5 μg/Kg
Chloroethane	ND	5 μg/Kg	Styrene	ND	5 μg/Kg
Chloroform	ND	5 μg/Kg	1,1,1,2-Tetrachloroethane	ND	5 μg/Kg
Chloromethane	ND	5 μg/Kg	1,1,2,2-Tetrachloroethane	ND	5 μg/Kg
l-Chlorotoluene	ND	5 μg/Kg	Tetrachloroethene (PCE)	ND	5 μg/Kg
-Chlorotoluene	ND	5 μg/Kg	Toluene	ND	5 μg/Kg
Dibromochloromethane	ND	5 μg/Kg	1,2,3-Trichlorobenzene	ND	5 μg/Kg
,2-Dibromo-3-chloropropane (DBCP)	ND	5 μg/Kg	1,2,4-Trichlorobenzene	ND	5 μg/Kg
,2-Dibromoethane (EDB)	ND	5 μg/Kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5 μg/Kg
Dibromomethane	ND	5 μg/Kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5 μg/Kg
1,2-Dichlorobenzene (o-DCB)	ND	5 μg/Kg	Trichloroethene (TCE)	ND	5 μg/Kg
,3-Dichlorobenzene (m-DCB)	ND	5 μg/Kg	Trichlorofluoromethane (Freon 11)	ND	5 μg/Kg
1,4-Dichlorobenzene (p-DCB)	ND	5 μg/Kg	Trichlorotrifluoroethane (Freon 113)	ND	5 μg/kg
Dichlorodifluoromethane (Freon 12)	ND	5 μg/Kg	1,2,3-Trichloropropane	ND	5 μg/Kg
,1-Dichloroethane (1,1-DCA)	ND	5 μg/Kg	1,2,4-Trimethylbenzene	ND	5 μg/Kg
.,2-Dichloroethane (1,2-DCA)	ND	5 μg/Kg	1,3,5-Trimethylbenzene	ND	5 μg/Kg
1,1-Dichloroethene (1,1-DCE)	ND	5 μg/Kg	Vinyl chloride	ND	5 μg/Kg
is-1,2-Dichloroethene	ND	5 μg/Kg	o-Xylene	ND	5 μg/Kg
rans-1,2-Dichloroethene	ND	5 μg/Kg	m,p-Xylene	ND	5 μg/Kg
1,2-Dichloropropane	ND	5 μg/Kg			
1,3-Dichloropropane	ND	5 μg/Kg			
2,2-Dichloropropane	ND	5 μg/Kg			
1,1-Dichloropropene	ND	5 μg/Kg	·		

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	98	70 - 130
Dibromofluoromethane	118	70 - 130
Toluene-d8	107	70 - 130

CLIENT: 'ROJECT ID: Brown & Caldwell

CLIENT ID: DATE SAMPLED: 10/13/99

LF-1-COMP1

PROJECT #:

Gay Mine 07250.016

NEL SAMPLE ID: B9910001-62

EST:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

METHOD:

**EPA 8270PAH** 

ANALYST:

LRB - Division

MATRIX:

Solid

1

EXTRACTED:

10/19/99

**DILUTION:** 

ANALYZED:

10/20/99

PARAMETER	Donald	Reporting
PARAVIETER -	Result	<u>Limit</u>
Acenaphthene	ND	500. μg/Kg
Acenaphthylene	ND	500. μg/Kg
Anthracene	ND	500. μg/Kg
Benzo (a) anthracene	ND	500. μg/Kg
Benzo (b&k) fluoranthene	ND	500. μg/Kg
Benzo (g,h,i) perylene	ND	500. μg/Kg
Benzo (a) pyrene	ND	500. μg/Kg
Chrysene	ND	500. μg/Kg
Dibenzo (a,h) anthracene	ND	500. μg/Kg
Fluoranthene	ND	500. μg/Kg
Pluorene	ND	500. μg/Kg
ndeno (1,2,3-c,d) pyrene	ND	500. μg/Kg
Naphthalene	ND	500. μg/Kg
Phenanthrene	ND	500. μg/Kg
yrene	ND	500. μg/Kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
?-Fluorobiphenyl	95	30 - 115 %
Nitrobenzene-d5	72	23 - 120 %
<sub>ອ</sub> -Terphenyl-d14	134	18 - 137 %

#### ND - Not Detected

CLIENT:

Brown & Caldwell

CLIENT ID:

LF-1-COMP2

PROJECT ID:

Gay Mine

DATE SAMPLED: 10/13/99

PROJECT #:

07250.016

NEL SAMPLE ID: B9910001-68

ΓEST:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

METHOD:

**EPA 8270PAH** 

ANALYST:

LRB - Division

MATRIX:

Solid

EXTRACTED:

10/19/99

DILUTION: 1 ANALYZED:

10/20/99

		Reporting	
PARAMETER	Result	Limit	
Acenaphthene	ND	500. μg/Kg	
Acenaphthylene	ND	500. μg/Kg	
Anthracene	ND	500. μg/Kg	
Benzo (a) anthracene	ND	500. μg/Kg	
3enzo (b&k) fluoranthene	ND	500. μg/Kg	
Benzo (g,h,i) perylene	ND	500. μg/Kg	
Benzo (a) pyrene	ND	500. μg/Kg	
Chrysene	ND	500. μg/Kg	
Dibenzo (a,h) anthracene	ND	500. μg/Kg	
Fluoranthene	ND	500. μg/Kg	
Fluorene	ND	500. μg/Kg	
Indeno (1,2,3-c,d) pyrene	ND	500. μg/Kg	
Naphthalene	ND	500. μg/Kg	
Phenanthrene	ND	500. μg/Kg	
Pyrene	ND	500. μg/Kg	

QUALITY CONTROL DATA:

Surrogate		% Recovery	Acceptable Range
2-Fluorobiphenyl		91	30 - 115 %
Nitrobenzene-d5	•	80	23 - 120 %
p-Terphenyl-d14		128	18 - 137 %

#### ND - Not Detected

CLIENT: 'ROJECT ID: Brown & Caldwell

CLIENT ID: DATE SAMPLED: 10/13/99

LF-2-COMP1

PROJECT #:

Gay Mine 07250.016

TEST:

NEL SAMPLE ID: B9910001-66

METHOD:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996 **EPA 8270PAH** 

ANALYST:

LRB - Division

MATRIX:

Solid

EXTRACTED:

10/19/99

**DILUTION:** 

 ILU	11011.	

ANALYZED:

10/20/99

PARAMETER	Result	Reporting Limit
Acenaphthene	ND	500. μg/Kg
Acenaphthylene	ND	500. μg/Kg
Anthracene	ND	500. μg/Kg
Benzo (a) anthracene	ND	500. μg/Kg
3enzo (b&k) fluoranthene	ND	500. μg/Kg
Benzo (g,h,i) perylene	ND	500. μg/Kg
Benzo (a) pyrene	ND	500. μg/Kg
Chrysene	ND	500. μg/Kg
Dibenzo (a,h) anthracene	ND	500. μg/Kg
Fluoranthene	ND	500. μg/Kg
Pluorene	ND	500. μg/Kg
ndeno (1,2,3-c,d) pyrene	ND	500. μg/Kg
Naphthalene	ND	500. μg/Kg
Phenanthrene	ND	500. μg/Kg
yrene	ND	500. μg/Kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
2-Fluorobiphenyl	95	30 - 115 %
Nitrobenzene-d5	75	23 - 120 %
p-Terphenyl-d14	137	18 - 137 %

#### ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell

CLIENT ID:

LF-2-COMP2

PROJECT #:

Gay Mine 07250.016

DATE SAMPLED: 10/13/99

NEL SAMPLE ID: B9910001-65

TEST:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

METHOD:

**EPA 8270PAH** 

ANALYST:

LRB - Division

MATRIX:

Solid

EXTRACTED:

10/19/99

DILUTION:

ANALYZED:

10/20/99

	D 1	Reporting
PARAMETER	Result	Limit
Acenaphthene	ND	500. μg/Kg
Acenaphthylene	ND	500. μg/Kg
Anthracene	ND	500. μg/Kg
Benzo (a) anthracene	ND	500. μg/Kg
3enzo (b&k) fluoranthene	ND	500. μg/Kg
Benzo (g,h,i) perylene	ND	500. μg/Kg
Benzo (a) pyrene	ND	500. μg/Kg
Chrysene	ND	500. μg/Kg
Dibenzo (a,h) anthracene	ND	500. μg/Kg
Fluoranthene	ND	500. μg/Kg
₹luorene	ND	500. μg/Kg
ndeno (1,2,3-c,d) pyrene	ND	500. μg/Kg
Naphthalene	ND	500. μg/Kg
Phenanthrene	ND	500. μg/Kg
yrene	ND	500. μg/Kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
2-Fluorobiphenyl	86	30 - 115 %
Nitrobenzene-d5	69	23 - 120 %
p-Terphenyl-d14	122	18 - 137 %

#### ND - Not Detected

LIENT:

Brown & Caldwell

CLIENT ID:

LF-3-COMP1

ROJECT ID: PROJECT #:

Gay Mine 07250.016 DATE SAMPLED: 10/13/99

NEL SAMPLE ID: B9910001-67

EST:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

LRB - Division

METHOD: MATRIX:

**EPA 8270PAH** 

ANALYST:

Solid

EXTRACTED:

10/19/99

ILUTION:	
----------	--

1

ANALYZED:

10/20/99

		Reporting
PARAMETER	Result	Limit
cenaphthene	ND	500. μg/Kg
cenaphthylene	ND	500. μg/Kg
Anthracene	ND .	500. μg/Kg
Penzo (a) anthracene	ND	500. μg/Kg
lenzo (b&k) fluoranthene	ND	500. μg/Kg
Benzo (g,h,i) perylene	ND	500. μg/Kg
Benzo (a) pyrene	ND	500. μg/Kg
Thrysene	ND	500. μg/Kg
Dibenzo (a,h) anthracene	ND	500. μg/Kg
Fluoranthene	ND	500. μg/Kg
luorene	ND	500. μg/Kg
ndeno (1,2,3-c,d) pyrene	ND	500. μg/Kg
Naphthalene	ND	500. μg/Kg
henanthrene	ND	500. μg/Kg
yrene	ND	500. μg/Kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
!-Fluorobiphenyl	84	30 - 115 %
Nitrobenzene-d5	65	23 - 120 %
o-Terphenyl-d14	122	18 - 137 %

#### ND - Not Detected

CLIENT:

Brown & Caldwell

CLIENT ID:

LF-3-COMP2

PROJECT ID: PROJECT #:

Gay Mine

DATE SAMPLED: 10/13/99

07250.016

NEL SAMPLE ID: B9910001-64

TEST:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

METHOD:

**EPA 8270PAH** 

ANALYST:

LRB - Division

MATRIX: Solid

EXTRACTED:

10/19/99

DILUTION: 1

ANALYZED:

10/20/99

		Reporting
PARAMETER	Result	Limit
Acenaphthene	ND	500. μg/Kg
Acenaphthylene	ND .	500. μg/Kg
Anthracene	ND	500. μg/Kg
Benzo (a) anthracene	ND	500. μg/Kg
Benzo (b&k) fluoranthene	ND	500. μg/Kg
Benzo (g,h,i) perylene	ND	500. μg/Kg
Benzo (a) pyrene	ND	500. μg/Kg
Chrysene	ND	500. μg/Kg
Dibenzo (a,h) anthracene	ND	500. μg/Kg
Fluoranthene	ND	500. μg/Kg
Fluorene	ND	500. μg/Kg
Indeno (1,2,3-c,d) pyrene	ND	500. μg/Kg
Naphthalene	ND	500. μg/Kg
Phenanthrene	ND	500. μg/Kg
Pyrene	ND	500. μg/Kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
2-Fluorobiphenyl	96	30 - 115 %
Nitrobenzene-d5	76	23 - 120 %
p-Terphenyl-d14	132	18 - 137 %

#### ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell

CLIENT ID:

LF-4-COMP1

PROJECT #:

Gay Mine

DATE SAMPLED: 10/13/99

07250.016

NEL SAMPLE ID: B9910001-63

TEST:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

METHOD:

**EPA 8270PAH** 

ANALYST:

LRB - Division

MATRIX:

Solid

EXTRACTED:

10/19/99

DILUTION: 1

ANALYZED:

10/20/99

D 1 D 1 D 5000000	<b></b>	Reporting
PARAMETER	Result	Limit
Acenaphthene	ND	500. μg/Kg
Acenaphthylene	ND	500. μg/Kg
Anthracene	ND	500. μg/Kg
3enzo (a) anthracene	ND	500. μg/Kg
3enzo (b&k) fluoranthene	ND	500. μg/Kg
Benzo (g,h,i) perylene	ND	500. μg/Kg
Benzo (a) pyrene	ND	500. μg/Kg
Chrysene	ND	500. μg/Kg
Dibenzo (a,h) anthracene	, ND	500. μg/Kg
Fluoranthene	ND	500. μg/Kg
₹luorene	ND	500. μg/Kg
ndeno (1,2,3-c,d) pyrene	ND	500. μg/Kg
Naphthalene	ND	500. μg/Kg
Phenanthrene	ND	500. μg/Kg
Pyrene	ND	500. μg/Kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
2-Fluorobiphenyl	76	30 - 115 %
Nitrobenzene-d5	59	23 - 120 %
p-Terphenyl-d14	116	18 - 137 %

#### ND - Not Detected

CLIENT:

Brown & Caldwell

CLIENT ID: DATE SAMPLED: 10/13/99

LF-4-COMP2

'ROJECT ID: PROJECT #:

Gay Mine 07250.016

NEL SAMPLE ID: B9910001-61

TEST: METHOD:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

MATRIX:

**EPA 8270PAH** 

ANALYST:

LRB - Division

DILUTION:

Solid

EXTRACTED:

10/19/99

ANALYZED:

10/20/99

		Reporting
PARAMETER	Result	Limit
Acenaphthene	ND	500. μg/Kg
Acenaphthylene	ND	500. μg/Kg
Anthracene	ND	500. μg/Kg
Benzo (a) anthracene	ND	500. μg/Kg
Benzo (b&k) fluoranthene	ND	500. μg/Kg
Benzo (g,h,i) perylene	ND	500. μg/Kg
Benzo (a) pyrene	ND	500. μg/Kg
Chrysene	ND	500. μg/Kg
Dibenzo (a,h) anthracene	ND	500. μg/Kg
Fluoranthene	ND	500. μg/Kg
iluorene	ND	500. μg/Kg
ndeno (1,2,3-c,d) pyrene	ND	500. μg/Kg
Naphthalene	ND	500. μg/Kg
henanthrene	ND	500. μg/Kg
Pyrene	ND	500. μg/Kg

#### **QUALITY CONTROL DATA:**

Surrogate	% Recovery	Acceptable Range
2-Fluorobiphenyl	80	30 - 115 %
Nitrobenzene-d5	67	23 - 120 %
p-Terphenyl-d14	87	18 - 137 %

#### ND - Not Detected

CLIENT:

Brown & Caldwell

CLIENT ID:

DUP

PROJECT ID: PROJECT #:

Gay Mine

DATE SAMPLED: 10/13/99

**TEST:** 

07250.016

NEL SAMPLE ID: B9910001-69

METHOD:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996 **EPA 8270PAH** 

ANALYST:

LRB - Division

MATRIX:

Solid

EXTRACTED:

10/19/99

DILUTION:

ANALYZED:

10/20/99

		Reporting
PARAMETER	Result	Limit
Acenaphthene	ND	500. μg/Kg
Acenaphthylene	ND	500. μg/Kg
Anthracene	ND	500. μg/Kg
Benzo (a) anthracene	ND	500. μg/Kg
3enzo (b&k) fluoranthene	ND	500. μg/Kg
Benzo (g,h,i) perylene	ND	500. μg/Kg
Benzo (a) pyrene	· ND	500. μg/Kg
Chrysene	ND	500. μg/Kg
Dibenzo (a,h) anthracene	ND	500. μg/Kg
Fluoranthene	ND	500. μg/Kg
Fluorene	ND	500. μg/Kg
'ndeno (1,2,3-c,d) pyrene	ND	500. μg/Kg
Naphthalene `	ND	500. μg/Kg
Phenanthrene	ND	500. μg/Kg
Pyrene	ND	500. μg/Kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
2-Fluorobiphenyl	97	30 - 115 %
Nitrobenzene-d5	79	23 - 120 %
p-Terphenyl-d14	134	18 - 137 %

#### ND - Not Detected

CLIENT: Brown & Caldwell PROJECT ID:

Gay Mine

CLIENT ID:

LF-1-COMP2

DATE SAMPLED: 10/13/99

NEL SAMPLE ID: B9910001-68

PROJECT #:

07250.016

TEST: METHOD:

Volatile Organic Compounds by EPA SW846 Method 8260B, Dec. 1996

EPA 8260B

ANALYST:

LRB - Division

Solid MATRIX:

EXTRACTED:

10/19/99

DILUTION: 1

ANALYZED:

10/19/99

PARAMETER	Result	Reporting Limit
Benzene	ND	2. μg/kg
Toluene	ND	2. μg/kg
Ethylbenzene	ND	2. μg/kg
m,p-xylene	ND	10. μg/kg
o-Xylene	ND	5. μg/kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	97	70 - 130 %
Toluene-d8	99	70 - 130 %

#### ND - Not Detected

CLIENT:

Brown & Caldwell

CLIENT ID:

LF-2-COMP2

PROJECT ID:

Gay Mine

DATE SAMPLED: 10/13/99

PROJECT #:

07250.016

NEL SAMPLE ID: B9910001-65

**FEST:** 

Volatile Organic Compounds by EPA SW846 Method 8260B, Dec. 1996

ANALYST:

METHOD: MATRIX:

EPA 8260B

EXTRACTED:

LRB - Division

Solid

10/19/99

DILUTION:

ANALYZED:

10/19/99

PARAMETER	Result	Reporting Limit
3enzene	ND	2. μg/kg
Γoluene	ND	2. μg/kg
Ethylbenzene	ND	2. μg/kg
n,p-xylene	ND	10. μg/kg
o-Xylene	ND	5. μg/kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
1-Bromofluorobenzene	102	70 - 130 %
Toluene-d8	99	70 - 130 %

#### ND - Not Detected

CLIENT:

Brown & Caldwell

CLIENT ID:

LF-3-COMP2

?ROJECT ID:

Gay Mine

DATE SAMPLED: 10/13/99

PROJECT #:

07250.016

NEL SAMPLE ID: B9910001-64

TEST:

Volatile Organic Compounds by EPA SW846 Method 8260B, Dec. 1996

METHOD:

**DILUTION:** 

EPA 8260B

ANALYST:

LRB - Division

MATRIX:

Solid

EXTRACTED:

10/19/99

1

ANALYZED:

10/19/99

PARAMETER	Result	Reporting Limit
Benzene	ND	2. μg/kg
Foluene	ND	2. μg/kg
Ethylbenzene	ND	2. μg/kg
n,p-xylene	ND	10. μg/kg
o-Xylene	ND	5. μg/kg

**QUALITY CONTROL DATA:** 

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	105	70 - 130 %
Toluene-d8	103	70 - 130 %

#### ND - Not Detected

CLIENT:

Brown & Caldwell

CLIENT ID:

LF-4-COMP2

PROJECT ID: PROJECT #:

Gay Mine

DATE SAMPLED: 10/13/99

07250.016

NEL SAMPLE ID: B9910001-61

TEST:

Volatile Organic Compounds by EPA SW846 Method 8260B, Dec. 1996

EPA 8260B

ANALYST:

LRB - Division

METHOD: MATRIX:

Solid

EXTRACTED:

10/19/99

DILUTION: 1

ANALYZED:

10/19/99

PARAMETER	Result	Reporting Limit
Benzene	ND	2. μg/kg
Γoluene	ND	2. μg/kg
Ethylbenzene	ND	2. μg/kg
n,p-xylene	ND	10. μg/kg
o-Xylene	ND	5. μg/kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	101	70 - 130 %
Toluene-d8	107	70 - 130 %

#### ND - Not Detected

CLIENT:

Brown & Caldwell

CLIENT ID:

DUP

PROJECT ID:

Gay Mine

DATE SAMPLED: 10/13/99

PROJECT #:

07250.016

NEL SAMPLE ID: B9910001-69

ΓEST:

Volatile Organic Compounds by EPA SW846 Method 8260B, Dec. 1996

ANALYST:

LRB - Division

METHOD:

**EPA 8260B** Solid

1

MATRIX:

EXTRACTED:

10/19/99

DILUTION:

ANALYZED:

10/19/99

PARAMETER	Result	Reporting Limit
Benzene	ND	2. μg/kg
Γoluene	ND	2. μg/kg
Ethylbenzene	ND	2. μg/kg
n,p-xylene	, ND	10. μg/kg
o-Xylene	ND	5. μg/kg

QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
1-Bromofluorobenzene	99	70 - 130 %
Toluene-d8	102	70 - 130 %

#### ND - Not Detected

CLIENT: PROJECT ID: Brown & Caldwell

Gay Mine

07250.016

Solid

CLIENT ID:

Method Blank

DATE SAMPLED: NA

NEL SAMPLE ID: 101999-8270PH-BLK

TEST:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

METHOD: MATRIX:

PROJECT #:

**EPA 8270PAH** 

ANALYST:

LRB - So. Cal Division

EXTRACTED:

10/19/99

ANALYZED:

10/20/99

PARAMETER	Result	Reporting Limit	
Acenaphthene	ND	500. μg/Kg	
Acenaphthylene	ND	500. μg/Kg	
Anthracene	ND	500. μg/Kg	
Benzo (a) anthracene	ND	500. μg/Kg	
Benzo (b&k) fluoranthene	ND	500. μg/Kg	
Benzo (g,h,i) perylene	ND	500. μg/Kg	
Benzo (a) pyrene	ND	500. μg/Kg	
Chrysene	ND	500. μg/Kg	
Dibenzo (a,h) anthracene	ND	500. μg/Kg	
Fluoranthene	ND	500. μg/Kg	
Fluorene	. ND	500. μg/Kg	
Indeno (1,2,3-c,d) pyrene	ND	500. μg/Kg	
Naphthalene	ND	500. μg/Kg	
Phenanthrene	ND	500. μg/Kg	
Pyrene	ND	500. μg/Kg	

#### **QUALITY CONTROL DATA:**

Surrogate	% Recovery	Acceptable Range		
2-Fluorobiphenyl	74	30 - 115		
Nitrobenzene-d5	70	23 - 120		
p-Terphenyl-d14	89	18 - 137		

#### ND - Not Detected

CLIENT:

Brown & Caldwell

?ROJECT ID: PROJECT #:

Gay Mine

07250.016

CEST:

Volatile Organic Compounds by EPA 8260B, December 1996

MATRIX:

		<b>Spike</b>	Spike	Percent	Acceptable	
PARAMETER	NEL Sample ID	<u>Amount</u>	Result	Recovery	Range	<u>RPD</u>
Benzene	101999-8260-LCS	50	53.55	107	76 - 127	
3enzene	B9910001-62-MS	50	42.74	85	76 - 127	
3enzene	B9910001-62-MSD	50	41.15	82	76 - 127	3.8
Chlorobenzene	101999-8260-LCS	50	52.31	105	75 - 130	
Chlorobenzene	B9910001-62-MS	50	37.97	76	75 - 130	
Chlorobenzene	B9910001-62-MSD	50	36.88	74	75 - 130	2.9
1,1-Dichloroethene (1,1-DCE)	101999-8260-LCS	50	49.02	98	61 - 145	
1,1-Dichloroethene (1,1-DCE)	B9910001-62-MS	50	42.99	86	61 - 145	
1,1-Dichloroethene (1,1-DCE)	B9910001-62-MSD	50	44.09	88	61 - 145	2.5
Toluene	101999-8260-LCS	50	54.46	109	76 - 125	
Γoluene	B9910001-62-MS	. 50	42.39	. 85	76 - 125	
Toluene	B9910001-62-MSD	50	41.42	83	76 - 125	2.3
Trichloroethene (TCE)	101999-8260-LCS	50	51.11	102	71 - 120	
Trichloroethene (TCE)	B9910001-62-MS	50	41.88	84	71 - 120	
Trichloroethene (TCE)	B9910001-62-MSD	50	39.86	80	71 - 120	4.9

# **NEL LABORATORIES**

CLIENT:

Brown & Caldwell

PROJECT ID: PROJECT #:

Gay Mine 07250.016

CEST:

Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996

AATRIX:

Solid

	,	<b>Spike</b>	Spike	Percent	Acceptable	
PARAMETER	NEL Sample ID	<b>Amount</b>	Result	Recovery	Range	RPD
1,2,4-Trichlorobenzene	101999-8270PH-LCS	50	39.9	80	38 - 107	
4.4-Dichlorobenzene (p-DCB)	101999-8270PH-LCS	50	36.3	73	28 - 104	
2,4-Dinitrotoluene (DNT)	101999-8270PH-LCS	50	39.4	79	28 - 89	
2-Chlorophenol	101999-8270PH-LCS	100	72.2	72	25 - 102	
1-Chloro-3-methyl phenol	101999-8270PH-LCS	100	81. <b>6</b>	82	26 - 103	
4-Nitrophenol	101999-8270PH-LCS	100	71.5	72	11 - 114	
Acenaphthene	101999-8270PH-LCS	50	39.2	78	31 - 137	
Acenaphthene	B9910001-61-MS	50	36.9	74	31 - 137	
Acenaphthene	B9910001-61-MSD	50	36.3	73	31 - 137	1.6
Pentachlorophenol	101999-8270PH-LCS	100	73.7	74	17 - 109	
Phenol	101999-8270PH-LCS	100	70	70	26 - 90	
Pyrene	101999-8270PH-LCS	50	43.8	88	35 - 142	
Pyrene	B9910001-61-MS	50	38.31	77	40 - 135	
Pyrene	B9910001-61-MSD	50	38	76	40 - 135	0.8
n-Nitroso-di-n-propylamine	101999-8270PH-LCS	50	40.3	81	41 - 126	

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The liability of NEL Laboratories inc. is limited strictly to the price of sample analysis for those samples received in good condition. NEL is not responsible for loss, damage, resampling costs and/or qualified data related to samples not received in good condition, including adequate sample volume and number of containers. Customer signature of this CoC constitutes a purchase order for NEL to perform work and constitutes acceptance of all NEL Standard Terms and Conditions. Signature also constitutes acceptance of all NEL Standard List Prices for all services ordered here on, except those specified otherwise via an NEL Quotation for Testing Services in effect at the time of sample receipt. NEL turnaround times are measured in regular working days. Samples received at the laboratory after 16:30 will be considered received on the next working day. Commitment of laboratory to the requested turnaround time will be confirmed via Sample Confirmation transmitted to the fax number provided above.

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Box #2

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DW - Drinking Water WW - Waste Water OL - Oil/Organic Liquid

Box #1

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Custody Seal intact? Y N None

Condition when received good

# REVEGETATION PLAN LANDFARM SITE AT THE GAY MINE

June 7, 2000

#### **REVEGETATION PLAN**

### LANDFARM SITE AT THE GAY MINE

June 7, 2000

# Prepared for:

FMC Corporation P.O. Box 4111 Pocatello, Idaho 83205

and

J.R. Simplot Company P.O. Box 912 Pocatello, Idaho 83204

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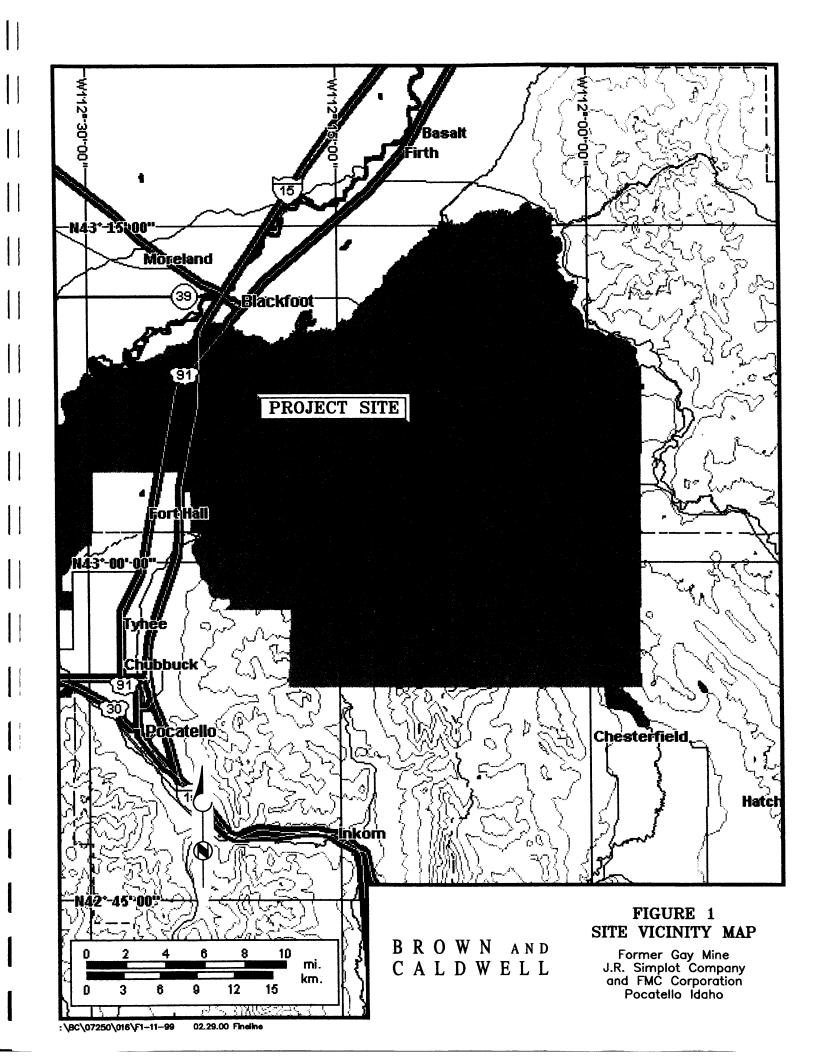
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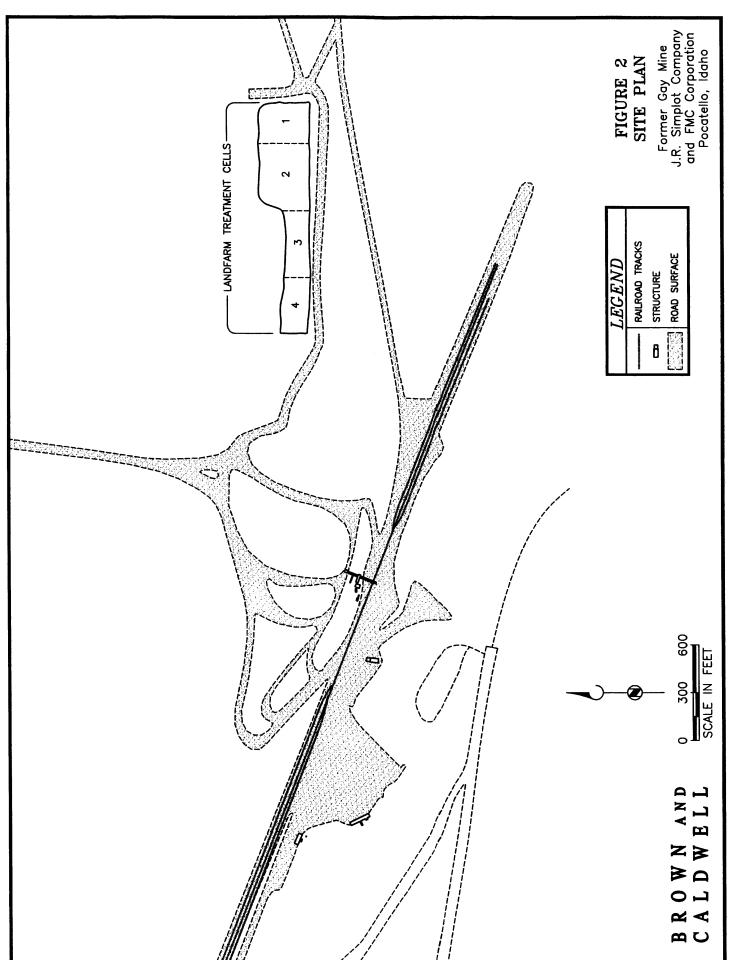
#### 2.0 BACKGROUND

FMC Corporation and the J.R. Simplot Company (Simplot) operated the Gay Mine, a phosphate ore mining operation located within the Fort Hall Reservation northeast of Pocatello, Idaho, on land leased from the Shoshone-Bannock Tribes (Figure 1). Operation of the mine begin in 1946 and ended in the fall of 1993. In preparation for returning the leased land to the Shoshone-Bannock Tribes, FMC and Simplot initiated field investigation activities in November of 1992 to assess potential environmental impacts associated with mine facilities. Procedures and findings of the investigation are summarized in the documents *Gay Mine Site Characterization Report*, February 1993 (Brown and Caldwell, 1993a) and *Gay Mine Phase II Site Characterization Report*, November 1993 (Brown and Caldwell, 1993b).

Based on the results of the Phase I and Phase II investigations, shallow soils (0-20 feet below ground surface) primarily in the former mine maintenance yard area were impacted by heavy petroleum hydrocarbons. Groundwater was not encountered during investigation activities. The maximum subsurface investigation depth was 350 feet below the ground surface (bgs).

Based on site investigation results and Tribal, FMC, and Simplots requirements, landfarming of petroleum contaminated soils following excavation was determined to be the most viable remediation option. Landfarming involves spreading petroleum-impacted soils over the land surface and managing the soil environment to enhance biodegradation of contaminants by native microorganisms. Field activities were conducted in accordance with *the Soil Bioremediation Work Plan* (Brown and Caldwell 1994). The Shoshone-Bannock Tribes of the Fort Hall Reservation approved this work plan in 1994.





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#### 2.2 Soil Landfarm Closure

To support closure of the landfarm site, 60 discrete soil samples were collected on October 12, 1999. Sample locations were randomly selected from the landfarm site that encompassed Treatment Cells 1 through 4. Details regarding sampling activities and analytical results are presented in the document, *Gay Mine Landfarming Closure Report* (Brown and Caldwell, 2000)

Based on the soil sampling results, the average TPH concentration for the landfarm site was 671 mg/kg. A condition of approval of the 1994 Soil Bioremediation Work Plan (Brown and Caldwell, 1994) by the Shoshone-Bannock Tribes was that the cleanup criteria of 1000 mg/kg be based on U.S. EPA's statistical criteria presented in the document, Method for Attainment of Cleanup Standards (EPA 230/02-89-042). Specifically, the upper 90 percent confidence interval of the mean must be less than cleanup criteria. The upper 90 percent confidence interval was calculated to be less than 1000 mg/kg TPH. Thus, the landfarm site meets the soil cleanup criteria.

At the recommendation of the Shoshone-Bannock Tribes, a Risk Based Corrective Action (RBCA) evaluation was conducted following Idaho guidelines. Soil samples were analyzed for chemicals of concern, which included volatile organic compounds (VOCs) and polyaromatic hydrocarbons (PAHs). Chemicals of concern were below Idaho's Tier 0 values. As stated in Idaho's guidance, Tier 0 values are very conservative so that, if achieved, there is high degree of certainty that little or no risk to current or potential future receptors remains at the site.

Based on soil sampling results for TPH and on the RBCA evaluation, it was recommended that the landfarm site be closed. Part of the first closure activities includes revegetation of the landfarm cells, which is presented below.

#### 3.0 RECLAMATION MEASURES

The post-mine reclamation goal will be to provide revegetated surfaces that will support uses similar to those of the pre-mine condition and uses consistent with recommendations stated in the Shoshone-Bannock Tribes, Comprehensive Land Use Plan.

Mined land reclamation will provide for prompt and contemporaneous mitigation of the disturbed surface soil associated with landfarming activities. If this reclamation plan is diligently implemented, vegetation, wildlife, surface waters, aquatic ecology, air, land use, and visual resources will be effectively mitigated.

Since wildlife habitat has been identified as an important post-mining land use, revegetation will rely on native grasses, shrubs, and forbs identified as dominants during mine baseline vegetation studies. Shrubs will be emphasized more than in the past reclamation efforts in order to provide for improved wildlife habitat.

#### 3.1 Tillage

Physical site preparation or tillage helps provide a more suitable environment for seed germination, root growth, weed control, soil erosion control, and moisture retention. Tillage will help achieve these goals by providing soil aeration, incorporating fertilizer, reducing compaction, and providing favorable seed-soil contact.

Primary tillage is a relatively deep and aggressive operation, which tends to leave a rough surface by cutting and shattering the soil surface. Ripping, discing, chisel, plowing, and stubble-mulch tilling are typical primary tillage operations. Ripping should take place during periods of relatively low soil moisture to permit shattering of hard soil layers. Harrowing is optional after ripping if there is little vegetative cover (i.e. annual weeds). Spring-tooth harrowing or discing may be required after the application of fertilizer, as a final step in secondary tillage and seedbed preparation.

Secondary tillage is a relatively shallow operation, which provides pulverization, firms the soil, closes air pockets, kills weeds, and helps conserve moisture. Disc Harrowing, roller harrowing and packing, and spring tooth harrowing are important secondary tillage operations.

#### 3.2 Seeding

Early reclamation (pre-1977) relied primarily on crested wheat grass, per Bureau of Indian Affairs (BIA) recommendations. Since 1977, reclamation at the Gay Mine, with the assistance of the United States Forest Service (USFS) and the Soil Conservation Service (SCS) (now the Natural Resource Conservation Service), has evolved through experimentation. Findings of this experimentation are summarized:

 Intensive tillage procedures such as ripping compacted soils to 1-3 feet, and discing or harrowing twice, have improved soil texture and substantially increased revegetation success.

- Seeding rates have averaged about 30 pounds per acre since the initiation of reclamation efforts at the Gay Mine (Gay Mine Operations Report, 1977-1985). Planted wheat grasses tend to dominate these newly planted sites and inhibit shrub and forbs establishments to some extent, especially in the first few years (Richardson, 1979).
- It is recommended that grasses be seeded in alternative rows or strips with shrubs and forbs during reclamation seeding (Richardson and Trussel, 1981).
- Fall seeding has been successful with the use of seed mixtures recommended by both the USFS and SCS (Richardson, 1979, 1981, and 1984). The primary species recommended by the USFS and SCS have included wheat grasses, alfalfa, yellow sweet clover, wild ryes, sagebrush, rabbit brush, and bitterbrush (Gay mine operations Reports, 1977-1985).
- Commercial availability of seed sources may require some modification of the proposed seed mixes. Native plant species are emphasized, but some introduced species, which have been adapted in southeast Idaho, are included in the seed mixes. Some introduced species will be used to meet specific goals; such as leguminous forage species seed should be inoculated to provide proper symbiotic bacteria, and treated with fungicides to prevent attack by soil microorganisms (Richardson, 1979). Seed sources will be certified whenever possible. Cool season grasses are favored over warm season grasses to take advantage of the winter and spring precipitation maximums in southeast Idaho.

Successful seeding has taken place in both the spring and fall seasons at Gay Mine (Richardson, 1979). Adequate soil moisture during the germination and seedling emergence stages of plant development has been identified as the most important factor in reclamation success. Fall seeding, as late in the season as the weather will allow, is preferable. Lower temperatures and higher soil moisture during the relatively high winter and spring precipitation season aid in the stratification of seeds and improve germination rates in the spring. Early plant establishment is encouraged because the seed is already in the ground and moisture is available by the time soil temperatures increase enough to initiate germination. Spring planting is sometimes feasible after snowmelt when soil moisture is still high, but difficulties are often encountered in the use of machinery during this season. Fall planting is the most practical approach for reclamation, except under unusual circumstances, such as a very dry fall season when spring planting could be a useful alternative (Richardson 1979).

Previous seeding at the Gay Mine has employed a range drill, a Brillion seeder-packer, and a cyclone spreader. Seeding depth and rate of seed spread were difficult to control with the range drill. The drill tended to concentrate seed at one depth or in rows. The Brillion seeder-packer is recommended for use whenever feasible because it allows the planting of shrubs and grasses in separate rows. This procedure, outlined by Richardson (1979 and 1981), greatly improves the competitive ability and survival of shrub seedlings.

A cyclone spreader can be used for direct seeding over a prepared seedbed and to apply fertilizer after seeding. Maintenance applications of fertilizer could be made in the spring if

necessary to replenish nutrients, especially nitrogen. This reduces leaching and other losses of nutrients, which occur when heavy applications of fertilizer are used in the first year.

#### 3.3 Fertilization

The use of fertilizer has been an important part of reclamation efforts at the Gay Mine since 1977, and has contributed to past success in revegetation (Richardson, 1979). Past rates of fertilizer application has varied from 60 - 100 pounds per acre available nitrogen as N, 60 - 75 pounds per acre available phosphorous as  $P_2O_5$  and the consistent use of 100 pounds per acre available potassium as  $K_2O$  (Gay Mine Operations Report 1977-1985). These are relatively low amounts of fertilizer compared to the rates normally prescribed for crop production (Buckman and Brady 1974). Southeast Idaho has relatively fertile soils to begin with, and most of the reclaimed areas will be mainly used for forage production, which removes only a small portion of the plants each year. In contrast, crop production removes or destroys the whole plant each year.

To help maintain nitrogen levels, nitrogen-fixing bacteria will be inoculated on the seeds of leguminous species. Relatively high potassium levels will also be used to help support the rapid growth and extensive taproot development of these legumes (p.c. Bland Richardson, USFS, 1985).

Fertilizer requirements will be calculated for the topsoil after nutrient sampling for nitrogen, available phosphorous, potassium, iron, organic matter, sulfur, boron, and pH. These analyses will determine the most useful and cost-effective fertilizer amendments to be applied after seeding.

#### 3.4 Mulching

Mulch can be defined as any non-living material placed or left on the soil surface for the purpose of protecting it from erosion or protecting plants from heat, cold, or drought. Mulches may also help infiltration and reduce evaporation.

There are also many problems associated with mulch including nutrient and waste immobilization, germination inhibition, and the attraction of unwanted organisms such as insects, weeds, fungi, and rodents. Nitrogen, phosphorous, and sulfur are especially susceptible to immobilization in soils when some mulches are used. Potential nitrogen deficiencies are possible due to the efficiency of microorganisms in attacking mulch and utilizing inorganic soil nitrogen. The microorganisms are much more efficient than the plants in utilizing nitrogen.

Since reclamation has been successful in the past without mulch, and given the potential problems listed above, the use of mulch is not recommended for the landfarm.

#### 3.5 Irrigation

Precipitation at the Gay Mine averages approximately 15 inches per year (Balmer and Noble 1979). A majority of this precipitation is received during the winter and spring seasons. The summer season is relatively dry. Planting in the fall, and utilizing the available soil moisture

accumulated during winter, encourages spring germination and growth. This is especially true with cool-season plant species adapted to southeast Idaho. Past reclamation has been successful at southeast Idaho phosphate mines without irrigation. Irrigation is not is recommended for the landfarming site.

#### 3.6 Fencing

Studies by Richardson (1979) at the Gay Mine reclamation site have documented the adverse effects of livestock grazing during the first two to three years of revegetation efforts. It is recommended that the landfarm area be fenced because grazing by cattle would be detrimental to revegetation efforts. The fence should be designed to exclude cattle, which utilize the area, but not impede deer, elk, and moose movements.

#### 3.7 Evaluation of Revegetation Success

Revegetation success can be evaluated in terms of adequate cover for soil protection, adequate productivity for forage, and acceptable species composition and diversity for forage, shelter, and ecological stability.

The final evaluation of revegetation success will take place prior to relinquishment and termination of the bonding period for the landfarm area. Interim evaluations of revegetation success will be made three years after initial seeding and possibly at other times. Interim tests will be compared to baseline vegetation conditions.

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