OCT 2000

October 27, 2000

HDR

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.
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)

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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:

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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:

$$= 671 + 1.296\ (1047.25/7.75)$$
$$= 846 \text{ mg/kg TPH}$$

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.

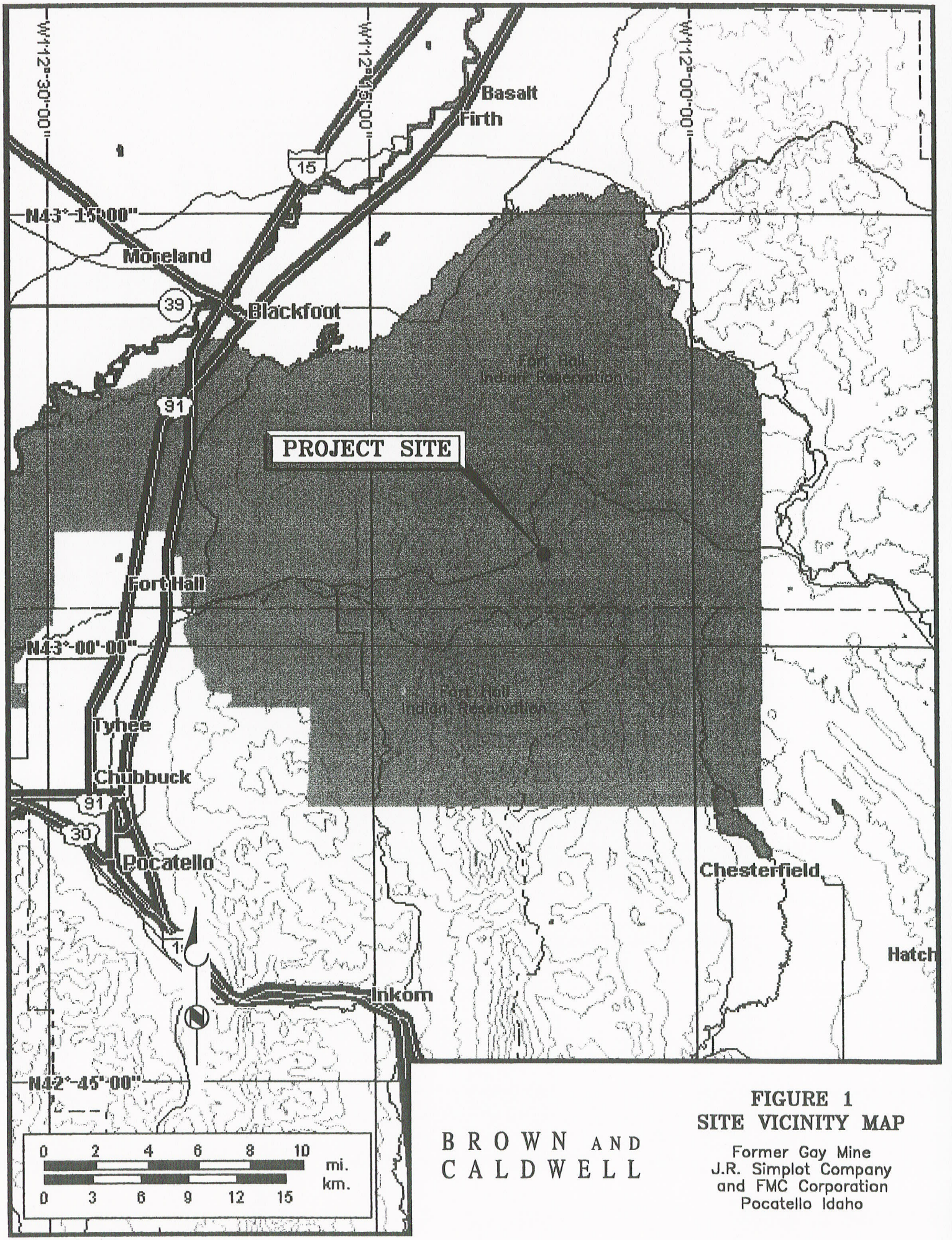
Brown and Caldwell. 1996. *Gay Mine Landfarming Annual Report, 1995.* April 1996.

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.*

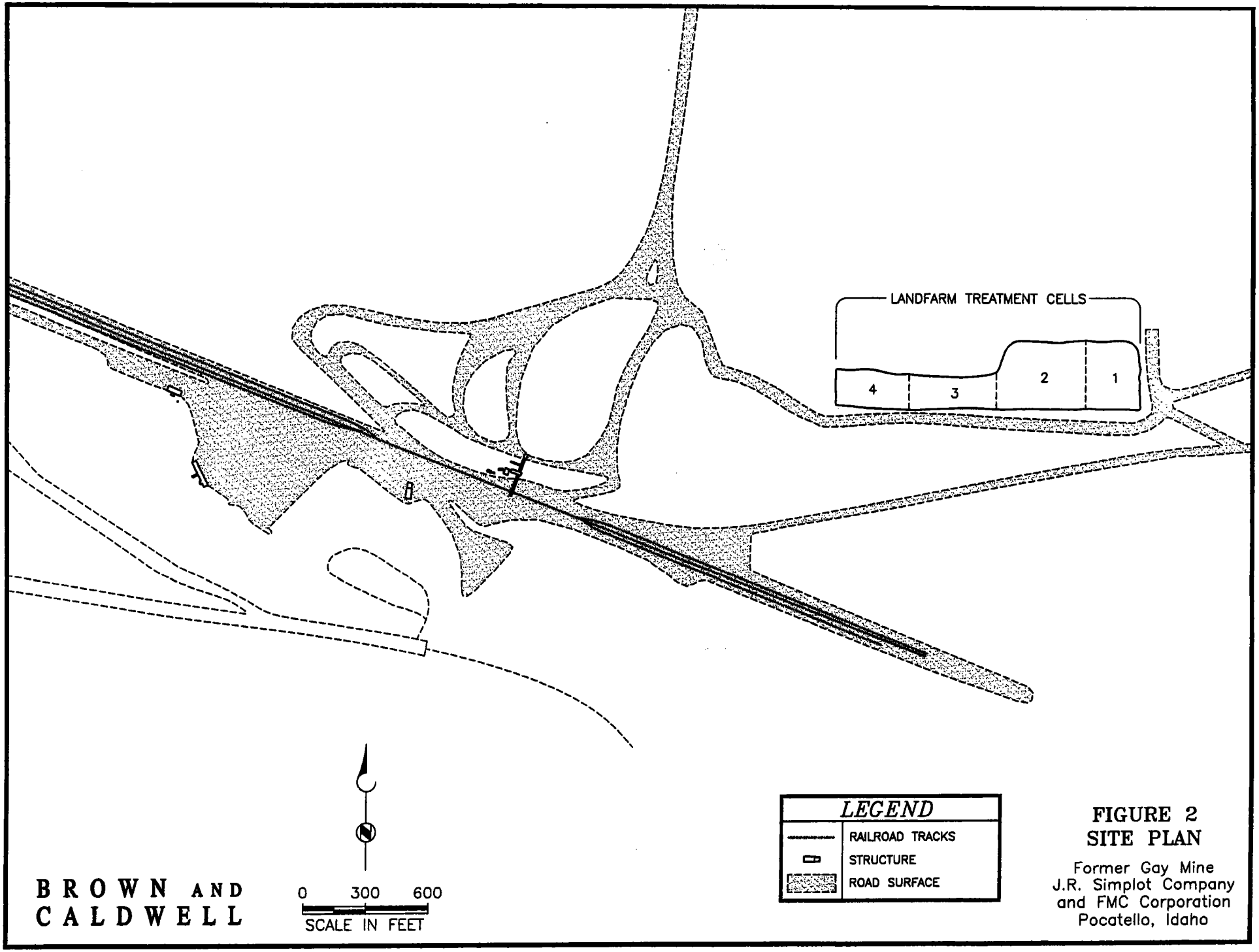


BROWN AND CALDWELL

FIGURE 1
SITE VICINITY MAP

Former Gay Mine
J.R. Simplot Company
and FMC Corporation
Pocatello Idaho

:\BC\07250\016\F1-11-99 02.29.00 Finaline



BROWN AND CALDWELL

FIGURE 2
SITE PLAN

Former Gay Mine
J.R. Simplot Company
and FMC Corporation
Pocatello, Idaho

: \BC\07250\016\F2-11-99 02.29.00 Fineline

Table 1. Performance Monitoring Results

			mg/kg		mg/kg			
Sample ID	Description	Sampling Date	TPH	pH	Phosphorus	Nitrate-N	Ammonia-N	Inorganic-N
LF-C-1	Composite Cell 1	9/20/95	13,000	8.3	15	2	1.5	3.5
		7/2/96	1000	8.0	20	13	13	26
		8/13/96	660	8.0	19	22	4	26
		9/12/96	3800	8.1	16	44	3	47
		10/8/96	3400	8.3	34	2.5	3.3	6
		5/28/97	3800	7.5	23	5	6	11
		7/31/97	-[1]	7.7	15	66	5	71
		8/26/97	3300	-	-	-	-	-
		11/10/97	2620	7.8	12	41.5	3.5	45
		7/16/98	5500	8.0	27	8.5	5.8	14
		8/13/98	2287	-	-	-	-	-
		9/3/98	6500	8.0	16	4	3.5	7.5
		10/1/98	730	7.7	84	90	11	101
		11/2/98	2600	-	-	-	-	-
		7/12/99	**2800**	**7.7**	**108**	**60**	**5**	**65**
		8/26/99	**130**	**7.5**	**68**	**48**	**4**	**52**
		9/17/99	**400**	**8.0**	**112**	**41**	**6**	**47**
LF-C-2	Composite Cell 2	9/20/95	11,000	8.2	16	7	1.8	8.8
		7/2/96	4000	8.0	18	29	7.3	36
		8/13/96	1500	8.1	18	14	4.5	19
		9/12/96	4400	8.3	14	8	3.8	12
		10/8/96	4400	8.4	38	6	3.3	9
		5/28/97	1300	8.7	19	8.5	6.5	15
		7/31/97	-[1]	7.8	19	58	4	62
		8/26/97	2200	-	-	-	-	-
		11/10/97	1050	8.3	16	43.5	3.3	47
		7/16/98	3000	8.2	15	6.8	3.5	10
		8/13/98	3411	-	-	-	-	-
		9/3/98	900	8.2	17	5.3	3	8.3
		10/1/98	880	8.0	47	77	21	98
		11/2/98	3000	-	-	-	-	-
		7/12/99	**2400**	**8.1**	**42**	**23**	**2.3**	**25**
		8/26/99	**190**	**8.0**	**66**	**59**	**3**	**62**
		9/17/99	**350**	**8.0**	**101**	**51**	**6.5**	**58**
LF-C-D	Duplicate at Cell 1	**7/12/99**	**150**	**8.0**	**58**	**45.5**	**3.3**	**49**
		8/26/99	**410**	**7.9**	**130**	**38**	**4**	**42**
		9/17/99	**500**	**7.7**	**97**	**51**	**6**	**57**
LF-C-S	Split of LF-C-1	**7/12/99**	**1800**	**8.2**	**46**	**27.8**	**2.5**	**30**
		8/26/99	**140**	**8.1**	**54**	**36**	**3**	**39**
		9/17/99	**1400**	**7.9**	**120**	**77**	**7**	**84**

Table 1. Performance Monitoring Results (continued)

			mg/kg		mg/kg			
Sample ID	Description	Sampling Date	TPH	pH	Phosphorus	Nitrate-N	Ammonia-N	Inorganic-N
LF-C-3	Composite Cell 3	9/20/95	11,000	8.6	16	4	1.8	5.8
		7/2/96	790	8.2	16	18	14	32
		8/13/96	390	8.3	15	18	7.3	25
		9/12/96	1300	8.3	15	35	3.5	38
		10/8/96	960	8.4	44	16	3	19
		5/28/97	140	8.6	13	12	4.3	16.3
		7/31/97	-[1]	7.9	16	63	5	68
		8/26/97	780	-	-	-	-	-
		11/10/97	-[1]	8.5	11	41	2.5	44
		7/16/98	280	8.6	10	8.5	3.0	12

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

Table 2. Environmental Impact Monitoring Results for October 1999							
		µg/kg				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	9.9	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[1]	
Parameter	
Number of Samples Collected	60
Minimum	5 mg/kg
Maximum	4800 mg/kg TPH
Average	671 mg/kg TPH
Standard Deviation	1047 mg/kg TPH

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

Table 4. Matrix of Chemicals of Concern For Various Petroleum Products

CHEMICAL	PRODUCT							
	Gasoline	Diesel	Fuel Oil No. 2	Fuel Oil No. 4	Kerosene	JP-4	JP-5	Used Oil
Benzene	X	X	X	--	X	X	--	X
Toluene	X	X	X	--	X	X	--	X
Ethylbenzene	X	X	X	--	X	X	--	X
Xylenes (mixed)	X	X	X	--	X	X	--	X
Ethylene Dibromide (EDB)	X[1]	--	--	--	--	--	--	--
1,2 Dichloroethane (EDC)	X[1]	--	--	--	--	--	--	--
Methyl Tert-Butyl Ether (MTBE)	X	--	--	--	--	--	--	--
PAHs . . .								
Acenapthene	--	X	X	X	X	--	X	X
Anthracene	--	X	X	X	X	--	X	X
Benzo(a)pyrene	--	X	X	X	X	--	X	X
Benzo(a)fluoranthene	--	X	X	X	X	--	X	X
Benzo(k)flouranthene	--	X	X	X	X	--	X	X
Benzo(g,h,i)perylene	--	X	X	X	X	--	X	X
Chrysene	--	X	X	X	X	--	X	X
Fluorene	--	X	X	X	X	--	X	X
Fluoranthene	--	X	X	X	X	--	X	X
Naphthalene	X	X	X	X	X	X	X	X
Phenanthrene	--	X	X	X	X	--	X	X
Pyrene	--	X	X	X	X	--	X	X
Chlorinated Solvents	--	--	--	--	--	--	--	X

[1]: Leaded Regular Only

X: Chemical of Concern

Reference: Risk Based Corrective Action Guidance Document for Petroleum Releases, August 1996

Table 5. Comparison Between Sample Results and Tier 0 Values		
Chemical Constituent	Sample Concentration[1] (mg/kg Soil)	Tier 0[2] RBSLs (mg/kg)
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

[1]8 composite samples from all 4 treatment cells were collected from the Gay Mine in October 1999. All values shown are the laboratory reporting limits/
[2]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

NEL LABORATORIES
Reno • Las Vegas
Phoenix • Irvine

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

CLIENT: Brown & Caldwell
380 E. Parkcenter Ste. 240
Boise, ID 83706
ATTN: Mike Murray

PROJECT NAME: Gay Mine
PROJECT #: 07250.016

NEL ORDER ID: P9907044

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:

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

Some QA results have been flagged as follows:

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

Jl - 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.

Eileen M Ferguson

Eileen M. Ferguson
Laboratory Manager

7/22/99
Date

CERTIFICATIONS:

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

	Reno	Las Vegas	S. California
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
L.A.C.S.D.			10228

NEL LABORATORIES

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

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

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: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

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

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **LF-C-S**
DATE SAMPLED: 7/12/99
NEL SAMPLE ID: P9907044-04

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	1800	100.	5	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: **Method Blank**
DATE SAMPLED: NA
NEL SAMPLE ID: 990720TRPHS-BLK

TEST: **Non-Metals**

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	ND	20	1	418.1AZ	mg/kg	7/20/99

D.F. - Dilution Factor

ND - Not Detected

NEL LABORATORIES

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: **Volatile Organic Compounds by EPA 8260B, Dec. 1996**
MATRIX: Solid
DILUTION: 1

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
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

NEL LABORATORIES

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

MATRIX: Solid
DILUTION: 1

ANALYST: JPR - Reno Division
EXTRACTED: 7/16/99
ANALYZED: 7/21/99

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	82	30 - 115
Nitrobenzene-d5	72	23 - 120
p-Terphenyl-d14	114	18 - 137

ND - Not Detected

CLIENT:	Brown & Caldwell	CLIENT ID:	**Method Blank**
PROJECT ID:	Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	071699-E1-BLK
TEST:	**Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996**		
MATRIX:	Solid	ANALYST:	JPR - Reno Division
		EXTRACTED:	7/16/99
		ANALYZED:	7/21/99

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	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:	Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	990716SBTEX-BLK

TEST: **Volatile Organic Compounds by EPA 8260B, Dec. 1996**

MATRIX:	Solid	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
PROJECT #: 07250.016
TEST: **Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996**
MATRIX: Solid

PARAMETER	NEL Sample ID	Spike Amount	Spike Result	Percent Recovery		Acceptable 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	J1	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

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016
TEST: **Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996**
MATRIX: Solid

PARAMETER	NEL Sample ID	Spike Amount	Spike Result	Percent Recovery	Acceptable Range	RPD
Naphthalene	P9907044-03-MS	80	67	84	21 - 133	
Naphthalene	P9907044-03-MSD	80	69.6	87	21 - 133	3.8
Phenanthrene	071699-E1-LCS	80	67.7	85	54 - 120	
Phenanthrene	P9907044-03-MS	80	80.4	101	54 - 120	
Phenanthrene	P9907044-03-MSD	80	84.9	106	54 - 120	5.4
Pyrene	071699-E1-LCS	80	61.5	77	52 - 115	
Pyrene	P9907044-03-MS	80	52.3	65	52 - 115	
Pyrene	P9907044-03-MSD	80	48.1	60	52 - 115	8.4

ND - Not Detected

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016
TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	NEL Sample ID	Spike Amount	Spike Result	Percent Recovery	Acceptable 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	

ND - Not Detected

7-97

NAME	BROWN AND CALDWELL
ATTENTION	MIKE MURRAY
ADDRESS	380 E. PARK CENTER #248
CITY	BOISE
STATE	ID
ZIP CODE	83706
PHONE #	336-1340
FAX #	344-0825
SAMPLER (S)	TADD GIESBRECHT
PROJECT OR SITE	GAY MINE
P.N. / P.O. NUMBER	07250.016

NEL 30215. 35th St. B-6 Phoenix, AZ 85034

ALCHEM LABORATORIES

Alchem Laboratories, Inc.
104 West 31st Street
Boise, Idaho 83714
Phone (208) 336-1172

Chain of Custody Form

LAB NUMBER	DATE	TIME	SAMPLE IDENTIFICATION	MATRIX: WATER	MATRIX: SOIL	MATRIX: OTHER	TESTS (CIRCLE METHOD): TPH - 8015 MOD	TPH - 418.1	BTEX (602 / 8020) (+N +M)	CL. SOLVENTS (601 / 8010)	VOC's (601-602 / 8021)	GC-MS VOC's (624 / 8260)	PAH's (8270 / 8310)	PHENOLS (604 / 8040 / 8270)	PESTICIDES (608 / 8081 / 8270)	PCB's (608 / 8081)	SEMI-VOLATILES (625 / 8270)	TCLP-(DESIGNATE	8 RCRA METALS	RBCA - NO LEAD GAS BTEX+N+M (8020)	RBCA - LEADED GAS BTEX+N+M (8020), EDB (8011) EDC (8010)	RBCA - FUEL OILS BTEX (8020), PAH (8270)	RBCA - MOTOR OILS BTEX (8020), PAH (8270) CL. SOLVENTS (8010)	[illegible]	[illegible]	NW TPH 418 MODIFIED				NUMBER OF CONTAINERS
01	7/12/99	10:19	LF-C-1		X				X				X														X				1
02	"	11:55	LF-C-2		X																						X				1
03	"	—	LF-C-D		X																						X				1
04	"	—	LF-C-S		X																						X				1

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)
From Fed Ex	7-14-99	10:35 am	M. Solar NEL

Relinquished By (Signature)	Date/Time	Received for Laboratory By (Signature)	Date/Time	
Tadd Giesbrecht	7/13/99 2:00	TO Fed Ex ~~NEL~~ M. Solar	7/14/99 10:35	Received With Seal Intact? ☐ Yes ☑ No Label Tag, COC Agree? ☑ Yes ☐ No

ORIGINAL

DATE: July 15, 1999
REPORT: S 9374
CLIENT: BROWN & CALDWELL - B
GROWER: GAY MINE
SAMPLED: TADD GIESBRECHT
FIELD: LF-C-1
CROP:

AGRI-CHECK, INC.
Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat.%	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
504	1	7.7			108	936			240	20	50.1	2.4	21.6												
									60	5															

TOTALS: 240 20

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N
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
OTHERS:
COMMENTS:

YIELD GOAL/ACRE:
ACRES:
PREVIOUS CROP:

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

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:
% SILT:
% CLAY:

PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

DATE: July 15, 1999
REPORT: S9374
CLIENT: BROWN & CALDWELL - B
GROWER: GAY MINE
SAMPLED: TADD GIESBRECHT
FIELD: LF-C-2
CROP:

AGRI-CHECK, INC.
Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat. %	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
505	1	8.1			42	298			90	11	27.9	1.2	16.6												
									22.5	33															

TOTALS: 90 11

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N
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
OTHERS:
COMMENTS:

YIELD GOAL/ACRE:
ACRES:
PREVIOUS CROP:

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

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:
% SILT:
% CLAY:

PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

DATE: July 15, 1999
REPORT: S9374
CLIENT: BROWN & CALDWELL - B
GROWER: GAY MINE
SAMPLED: TADD GIESBRECHT
FIELD: LF-C-D
CROP:

AGRI-CHECK, INC.
Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

AGRI CHECK

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat. %	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
506	1	8.0			58	444			182	13	34.9	1.7	24.5												

(455)

35

TOTALS: 182 13

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N
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
OTHERS:
COMMENTS:

YIELD GOAL/ACRE:
ACRES:
PREVIOUS CROP:

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

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:
% SILT:
% CLAY:

PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

DATE: July 15, 1999
REPORT: S9374
CLIENT: BROWN & CALDWELL - B
GROWER: GAY MINE
SAMPLED: TADD GIESBRECHT
FIELD: LF-C-S
CROP:

AGRI-CHECK, INC.
Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat. %	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
507	1	8.2			46	364			111	10	30.3	1.3	17.8												

278 25

TOTALS: 111 10

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N
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
OTHERS:
COMMENTS:

YIELD GOAL/ACRE:
ACRES:
PREVIOUS CROP:

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

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:
% SILT:
% CLAY:

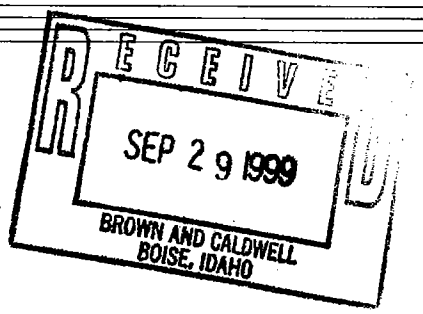
PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

NEL LABORATORIES
Reno • Las Vegas
Phoenix • Irvine

Southern California Division
3189 Airway Ave., Bldg. C • Costa Mesa, CA 92626
(714) 437-5200 • Fax: (714) 556-5625
1-800-320-6595



CLIENT: Brown & Caldwell
380 E. Parkcenter #240
Boise, ID 83706
ATTN: Mike Murray

PROJECT NAME: Gay Mine
PROJECT #: 07250.016

NEL ORDER ID: P9908099

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:

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

Greg Anderson
Laboratory Manager

9-16-99
Date

CERTIFICATIONS:

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

	Reno	Las Vegas	S. Californi
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
L.A.C.S.D.			10228

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **LF-1 COMP**
DATE SAMPLED: 8/26/99
NEL SAMPLE ID: P9908099-01

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	130	10.	1	EPA 418.1M	mg/Kg	9/7/99

D.F. - Dilution Factor
ND - Not Detected

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **LF-2 COMP**
DATE SAMPLED: 8/26/99
NEL SAMPLE ID: P9908099-02

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING 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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**LF-DUP**
PROJECT ID:	Gay Mine	DATE SAMPLED:	8/26/99
PROJECT #:	07250.016	NEL SAMPLE ID:	P9908099-03
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	410	10.	1	EPA 418.1M	mg/Kg	9/7/99

D.F. - Dilution Factor

ND - Not Detected

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **LF-S**
DATE SAMPLED: 8/26/99
NEL SAMPLE ID: P9908099-04

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	140	10.	1	EPA 418.1M	mg/Kg	9/7/99

D.F. - Dilution Factor
ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**Method Blank**
PROJECT ID:	Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	090799-TRPH-BLK
TEST:	**Non-Metals**		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	mg/Kg	ANALYZED
TRPH	ND	10	1	EPA 418.1M	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.
CROP:

AGRI-CHECK, INC.
Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat.%	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
6315	1	7.5			68	460			190	14	56.5	1.6	21.2												

TOTALS: 190 14

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N
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
OTHERS:
COMMENTS:

YIELD GOAL/ACRE:
ACRES:
PREVIOUS CROP:

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

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:
% SILT:
% CLAY:

PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

DATE: September 01, 1999
REPORT: S 254
CLIENT: BROWN & CALDWELL - B
GROWER: GAY MINE
SAMPLED: TADD GIESBRECHT
FIELD: LF - 2 COMP.
CROP:

AGRI-CHECK, INC.
Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat. %	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
6316	1	8.0			66	451			118	12	50.5	1.4	25.5												

TOTALS: 118 12

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N
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
OTHERS:
COMMENTS:

YIELD GOAL/ACRE:
ACRES:
PREVIOUS CROP:

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

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:
% SILT:
% CLAY:

PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

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

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Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat. %	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
6317	1	7.9			130	772			150	16	50.0	2.5	31.1												

TOTALS: 150 16

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN:	LBS PER ACRE N	YIELD GOAL/ACRE:	
PHOSPHORUS:	LBS PER ACRE P205	ACRES:	
POTASSIUM:	LBS PER ACRE K20	PREVIOUS CROP:	
SULFUR:	LBS PER ACRE ACTUAL S		
BORON:	LBS PER ACRE ACTUAL B	GYPSUM REQUIREMENT:	TONS PER ACRE 6-INCHES
ZINC:	LBS PER ACRE ACTUAL Zn	LIME REQUIREMENT:	TONS PER ACRE 6-INCHES
OTHERS:			

COMMENTS:

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:
% SILT:
% CLAY:

PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

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

AGRI-CHECK, INC.
Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat. %	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
6318	1	8.1			54	405			143	14	46.6	1.3	17.9												

TOTALS: 143 14

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N
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
OTHERS:
COMMENTS:

YIELD GOAL/ACRE:
ACRES:
PREVIOUS CROP:
GYPSUM REQUIREMENT: TONS PER ACRE 6-INCHES
LIME REQUIREMENT: TONS PER ACRE 6-INCHES

SOIL TEXTURE ANALYSIS:

CLASS:
% SAND:
% SILT:
% CLAY:

PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

DATE: September 22, 1999
REPORT: S 594
CLIENT: BROWN & CALDWELL - B
GROWER: GAY MINE
SAMPLED: TADD GIESBRECHT / MIKE MURRAY
FIELD: LF - REP
CROP:

AGRI-CHECK, INC.
Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat.%	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
7850	1	7.7			97	649			204	23	60.1	2.1	23.6												

TOTALS: 204 23

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N
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
OTHERS:
COMMENTS:

YIELD GOAL/ACRE:
ACRES:
PREVIOUS CROP:

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

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:
% SILT:
% CLAY:

PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

DATE: September 22, 1999
REPORT: S 594
CLIENT: BROWN & CALDWELL - B
GROWER: GAY MINE
SAMPLED: TADD GIESBRECHT / MIKE MURRAY
FIELD: LF - SPLIT
CROP:

AGRI-CHECK, INC.
Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat. %	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
7851	1	7.9			120	866			306	26	57.9	2.1	22.7												

TOTALS: 306 26

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N
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
OTHERS:
COMMENTS:

YIELD GOAL/ACRE:
ACRES:
PREVIOUS CROP:

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

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:
% SILT:
% CLAY:

PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

DATE: September 22, 1999
REPORT: S 594
CLIENT: BROWN & CALDWELL - B
GROWER: GAY MINE
SAMPLED: TADD GIESBRECHT / MIKE MURRAY
FIELD: LF - 1 COMP.
CROP:

AGRI-CHECK, INC.
Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat. %	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
7852	1	8.0			112	710			164	24	63.8	2.3	19.8												

TOTALS: 164 24

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N
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
OTHERS:
COMMENTS:

YIELD GOAL/ACRE:
ACRES:
PREVIOUS CROP:

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

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:
% SILT:
% CLAY:

PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

DATE: September 22, 1999
REPORT: S 594
CLIENT: BROWN & CALDWELL - B
GROWER: GAY MINE
SAMPLED: TADD GIESBRECHT / MIKE MURRAY
FIELD: LF - 2 COMP.
CROP:

AGRI-CHECK, INC.
Agricultural Testing Laboratory
323 Sixth St. - P.O. Box 1350
Umatilla, OR 97882
800-537-1129 * 541-922-4894

SOIL ANALYSIS REPORT

Lab No.	Depth Foot	pH	S.Salt mmhos	O. M. %	P ppm	K ppm	Ca meq	Mg meq	NITROGEN NO3 #/A	NITROGEN NH4 #/A	S ppm	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	CEC meq	Na meq	Total Bases	Base Sat. %	SMP Buf.pH	MOISTURE Total %	MOISTURE Avail. Inches	TKN %	Cl ppm
7853	1	8.0			101	851			204	26	58.9	2.0	20.3												

TOTALS: 204 26

TOTAL INCHES:

TOTAL BROADCAST FERTILITY NEEDS:

NITROGEN: LBS PER ACRE N
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
OTHERS:
COMMENTS:

YIELD GOAL/ACRE:
ACRES:
PREVIOUS CROP:

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

SOIL TEXTURE ANALYSIS:

CLASS:

% SAND:
% SILT:
% CLAY:

PLANT TISSUE ANALYSIS REPORT

Lab No.	FIELD: DESCRIPTION:	Total N %	Nitrate N ppm	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm	Chloride ppm	Na ppm	Moisture %

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.

APPENDIX B

CLOSURE SAMPLING LABORATORY REPORTS

NEL LABORATORIES
Reno • Las Vegas • Boise
Phoenix • So. California

Boise Division
4800 Fairview Ave., Suite B • Boise, Idaho 83706
208-378-7790 • Fax: 208-378-7795

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
Boise Division Manager

11-2-99
Date

CERTIFICATIONS:

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

	Reno	Las Vegas	S. California
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
L.A.C.S.D.			10228

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Simplot Gay Mine
PROJECT #: 07250.016

CLIENT ID: **PIT-1-S**
DATE SAMPLED: 10/19/99
NEL SAMPLE ID: B9910002-01

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
Nitrate, as N	9.4	5.	1	EPA 300.0	mg/kg-N	10/27/99
TRPH	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Simplot Gay Mine
PROJECT #: 07250.016

CLIENT ID: **PIT-1-2**
DATE SAMPLED: 10/19/99
NEL SAMPLE ID: B9910002-02

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

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

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Simplot Gay Mine
PROJECT #: 07250.016

CLIENT ID: **PIT-1-9**
DATE SAMPLED: 10/19/99
NEL SAMPLE ID: B9910002-04

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
Nitrate, as N	ND	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

NEL LABORATORIES

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: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
Nitrate, as N	30	5.	1	EPA 300.0	mg/kg-N	10/27/99
TRPH	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-2-2**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-06
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
Nitrate, as N	ND	5.	1	EPA 300.0	mg/kg-N	10/27/99
TRPH	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

NEL LABORATORIES

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

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	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

NEL LABORATORIES

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

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
Nitrate, 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

NEL LABORATORIES

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

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

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

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Simplot Gay Mine
PROJECT #: 07250.016

CLIENT ID: **PIT-3-5**
DATE SAMPLED: 10/19/99
NEL SAMPLE ID: B9910002-11

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
Nitrate, 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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**Method Blank**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	102799-2SNO3-BLK
TEST:	**Non-Metals**		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
Nitrate, as N	ND	5	1	EPA 300.0	mg/kg-N	10/27/99

D.F. - Dilution Factor

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**Method Blank**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	102899-TRPH-BLK
TEST:	**Non-Metals**		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	ND	10	1	EPA 418.1M	mg/Kg	10/28/99

D.F. - Dilution Factor

ND - Not Detected

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Simplot Gay Mine
PROJECT #: 07250.016
TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	NEL Sample ID	Spike Amount	Spike Result	Percent Recovery	Acceptable 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.

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-1-S**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-01
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - Division
MATRIX:	Solid	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	% Recovery		Acceptable Range
Bromofluorobenzene	65	Sf	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-1-2**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-02
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - Division
MATRIX:	Solid	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	% Recovery	Acceptable Range
Bromofluorobenzene	75	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-1-5**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-03
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - Division
MATRIX:	Solid	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	% Recovery	Acceptable Range
Bromofluorobenzene	93	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-1-9**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-04
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - Division
MATRIX:	Solid	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	% Recovery	Acceptable Range
Bromofluorobenzene	70	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-2-S**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-05
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - Division
MATRIX:	Solid	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	% Recovery		Acceptable Range
Bromofluorobenzene	65	Sf	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-2-2**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-06
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - Division
MATRIX:	Solid	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	% Recovery		Acceptable Range
Bromofluorobenzene	55	Sf	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-2-5**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-07
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - Division
MATRIX:	Solid	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	% Recovery	Acceptable Range
Bromofluorobenzene	70	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-2-7**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-08
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - Division
MATRIX:	Solid	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	% Recovery	Acceptable Range
Bromofluorobenzene	95	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-3-S**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-09
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - Division
MATRIX:	Solid	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	% Recovery	Acceptable Range
Bromofluorobenzene	78	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-3-2**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-10
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - Division
MATRIX:	Solid	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	% Recovery	Acceptable Range
Bromofluorobenzene	75	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**PIT-3-5**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	10/19/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910002-11
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - Division
MATRIX:	Solid	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	% Recovery	Acceptable Range
Bromofluorobenzene	70	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**Method Blank**
PROJECT ID:	Simplot Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	102599-BTEXS-BLK
TEST:	**TPH as Gasoline & BTEX/MTBE**		
METHOD:	EPA 8015B/8021B	ANALYST:	LRB - So. Cal Division
MATRIX:	Solid	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:

Surrogate	% Recovery	Acceptable Range
Bromofluorobenzene	88	70 - 130

ND - Not Detected

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Simplot Gay Mine
PROJECT #: 07250.016
TEST: **TPH as Gasoline & BTEX/MTBE**
MATRIX: Solid

PARAMETER	NEL Sample ID	Spike Amount	Spike Result	Percent Recovery	Acceptable Range	RPD
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

ND - Not Detected

3/3

NEL LABORATORIES

Reno • Las Vegas
Phoenix • So. California

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

CHAIN OF CUSTODY

NEL Work Order: BPMWC2

Project Name: SIMPLOT GAY MINE	Project Number: 07250.016
Purchase Order Number: 07250.016	Sampled By: BRIAN LIQUIN

Company: BROWN AND CALDWELL Attention: MIKE MURRAY
Address: 380 E. PARK CENTER, STE. 240 BOISE, ID 83706
Phone Number: (208) 336-1340 Fax Number: (208) 344-0825
Billing Address: [SAME] Expected Due Date:

Requested Turnaround: X 5-day ____ 2-day ____ 1-day ____ Other

Time/Date Sampled	Customer Sample Identification	N.E.L. Identification	# of Containers	Matrix (Box #1)	Preservative (Box #2)	Analysis: TPH 418.1 MOD (NW)	Analysis: NITRATE-N	Analysis: BTEX 8021	Remarks
1:35, 10/19/99	PIT-1-S	BPM10002-01	2	SD	G	X	X	X	2 4-OZ. JARS
2:00, 10/19/99	PIT-1-2	-02	2	SD	G	X	X	X	
1:55, 10/19/99	PIT-1-5	-03	2	SD	G	X	X	X	
1:50, 10/19/99	PIT-1-9	-04	2	SD	G	X	X	X	1 container broken upon receipt
2:20, 10/19/99	PIT-2-S	-05	2	SD	G	X	X	X	
2:35, 10/19/99	PIT-2-2	-06	2	SD	G	X	X	X	1 container broken upon receipt
2:30, 10/19/99	PIT-2-5	-07	2	SD	G	X	X	X	1 container broken upon receipt
2:20, 10/19/99	PIT-2-7	-08	2	SD	G	X	X	X	
2:30, 10/19/99	PIT-3-S	-09	2	SD	G	X	X	X	
2:35, 10/19/99	PIT-3-2	-10	2	SD	G	X	X	X	
3:00, 10/19/99	PIT-3-5		2	SD	G	X	X	X	

Custody Seal intact? (Y) N None Temp. 9.8°C
Condition when received good

Box #1: DW - Drinking Water; WW - Waste Water; OL - Oil/Organic Liquid; SD - Solid; AQ - Aqueous; A - Air

Box #2: A. HCl; B. HNO_3; C. H_2SO_4; D. NaOH; E. Ice Only; F. Other ____; G. Not Preserved

Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
1 BRIAN LIQUIN	Brian Liquin	9:45 am / 10/21/99	M. BROWN	M. Brown	10-21-99 / 1:50pm
2 UPS			B. SOLYS	B. Solys	10/22/99 9:00am
3					

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-1**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-01
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-2**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-02
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER		RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH		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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-3**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-03
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	47	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-4**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-04

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	21	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-5**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-05
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-6**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-06

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: GM-7
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-07

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-8**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-08
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-9**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-09
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-10**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-10

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-11**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-11
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	240	12.5	1.25	EPA 418.1M OR	mg/Kg	10/25/99
TRPH	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-12**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-12
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	16	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-13**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-13
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-14**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-14

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-15**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-15
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-16**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-16

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	150	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-17**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-17
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-18**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-18
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	30	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-19**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-19

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	240	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-20**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-20

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-21**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-21

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	180	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-22**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-22

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	40	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-23**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-23

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-24**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-24

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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-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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-25**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-25

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	46	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-26**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-26

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	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

D.F. - Dilution Factor
ND - Not Detected

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-27**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-27

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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-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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

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

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-29**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-29
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	77	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-30**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-30
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	38	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-31**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-31

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	110	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-32**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-32

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-33**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-33

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	130	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-34**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-34

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	240	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-35**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-35

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	270	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-36**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-36

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-37**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-37

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-38**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-38

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	410	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-39**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-39
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-40**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-40

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-41**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-41
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-42**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-42
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	480	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-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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-43**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-43

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	440	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-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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-44**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-44

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-45**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-45
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	170	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-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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-46**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-46

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-47**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-47
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	100	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-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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-48**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-48
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-49**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-49
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	380	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-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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-50**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-50

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	220	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-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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-51**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-51

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-52**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-52
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**GM-53**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/12/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-53
TEST:	**Inorganic Non-Metals**		
MATRIX:	Solid		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-54**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-54

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-55**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-55

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-56**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-56

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	1400	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-57**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-57

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-58**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-58

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-59**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-59

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016

CLIENT ID: **GM-60**
DATE SAMPLED: 10/12/99
NEL SAMPLE ID: B9910001-60

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	1300	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

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**Method Blank**
PROJECT ID:	Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	102199-TRPH1-BLK
TEST:	**Non-Metals**		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	ND	10	1	EPA 418.1M	mg/Kg	10/21/99

D.F. - Dilution Factor

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**Method Blank**
PROJECT ID:	Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	102199-TRPH2-BLK
TEST:	**Non-Metals**		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	ND	10	1	EPA 418.1M	mg/Kg	10/21/99

D.F. - Dilution Factor

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**Method Blank**
PROJECT ID:	Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	102199-TRPH3-BLK
TEST:	**Non-Metals**		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	ND	10	1	EPA 418.1M	mg/Kg	10/21/99

D.F. - Dilution Factor

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**Method Blank**
PROJECT ID:	Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	102599-418.1-BLK
TEST:	**Non-Metals**		

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
TRPH	ND	10	1	EPA 418.1M OR	mg/Kg	10/25/99

D.F. - Dilution Factor

ND - Not Detected

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016
TEST: **Inorganic Non-Metals**
MATRIX: Solid

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

ND - Not Detected

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016
TEST: **Inorganic Non-Metals**
MATRIX: Solid

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

ND - Not Detected

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016
TEST: **Inorganic Non-Metals**
MATRIX: Solid

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

ND - Not Detected

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016
TEST: **Inorganic Non-Metals**
MATRIX: Solid

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

ND - Not Detected

NEL LABORATORIES

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CHAIN OF CUSTODY

NEL Work Order: B9910001
1 of 7

Company: BROWN & CALDWELL
Attention: Mike Murray
Address:
Phone Number: Fax Number:
Billing Address: Expected Due Date:

Project Name: Gay Mine
Project Number: 07520.016
Purchase Order Number:
Sampled By: TG / BL

Requested Turnaround: X 5-day ___ 2-day ___ 1-day ___ Other

Time/Date Sampled	Customer Sample Identification	N.E.L. Identification	# of Containers	Matrix (Box #1)	Preservative (Box #2)	Analysis: 418.1 MODIFIED	Analysis: 418.1 OR	Remarks
10/12/99 10:50	GM-1	01	1	SO	G	X		
10:57	GM-2	02				X	X	
11:04	GM-3	03				X		
11:10	GM-4	04				X		
11:14	GM-5	05				X	X	
11:21	GM-6	06				X		
11:25	GM-7	07				X		
11:30	GM-8	08				X	X	
11:34	GM-9	09				X		
11:39	GM-10	10				X	X	

Custody Seal intact? Y N None Temp. _____
Condition when received good

Box #1		
	DW - Drinking Water	SD - Solid
	WW - Waste Water	AQ - Aqueous
	OL - Oil/Organic Liquid	A - Air

Box #2		
	A. HCl	E. Ice Only
	B. HNO_3	F. Other_____
	C. H_2SO_4	G. Not Preserved
	D. NaOH	

	Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
1	Todd Giesbrecht	Todd Giesbrecht		M. Brown	M. Brown	10-15-99/10.10A
2	M. Brown	M. Brown	10-15-99/15:30	To UPS		
3	FedEx UPS			Lance Bell	Lance Bell	10-16-99/10:00

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CHAIN OF CUSTODY

NEL Work Order: B4910001
2087

Company: BROWN + CALDWELL
Attention: MIKE MURRAY
Address:
Phone Number: Fax Number:
Billing Address: Expected Due Date:

Project Name: GAY MINE
Project Number: 075520.016
Purchase Order Number:
Sampled By: TG/BL

Requested Turnaround: X 5-day ___ 2-day ___ 1-day ___ Other

Time/Date Sampled	Customer Sample Identification	N.E.L. Identification	# of Containers	Matrix (Box #1)	Preservative (Box #2)	Analysis: 418.1 MODIFIED	Analysis: 418.1 M OR	Remarks
11:45	GM-11	11	1	SD	G	X	X	
12:16	GM-12	12				X		
12:19	GM-13	13				X		
12:24	GM-14	14				X	X	
12:28	GM-15	15				X		
12:35	GM-16	16				✓		
12:40	GM-17	17				X	X	
12:45	GM-18	18				✓		
12:52	GM-19	19				X		
12:58	GM-20	20				X	X	

Custody Seal intact? Y N None Temp. _____
Condition when received good

Box #1			
	DW - Drinking Water	SD - Solid	
	WW - Waste Water	AQ - Aqueous	
	OL - Oil/Organic Liquid	A - Air	

Box #2		
	A. HCl	E. Ice Only
	B. HNO_3	F. Other_____
	C. H_2SO_4	G. Not Preserved
	D. NaOH	

Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
1 Todd Giesbrecht	Todd Giesbrecht		M. Brown	M. Brown	10-15-99/10:10A
2 M. Brown	M. Brown	10-15-99/15:30	TO UPS		
3 UPS	UPS		Louise Bell	Louise Bell	10-16-99/10:00

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CHAIN OF CUSTODY

NEL Work Order: B9100C1

3 of 7

Project Name: GAY MINE

Project Number: 07520.016

Purchase Order Number:

Sampled By: TG/BL

Company: BROWN + CALDWELL

Attention: MIKE MURRAY

Address:

Phone Number: Fax Number:

Billing Address: Expected Due Date:

Requested Turnaround: X 5-day ___ 2-day ___ 1-day ___ Other

Time/Date Sampled	Customer Sample Identification	N.E.L. Identification	# of Containers	Matrix (Box #1)	Preservative (Box #2)	Analysis: 418.1 MODIFIED	Analysis: 418.1 OIL	Remarks
10/12/99 1:01	GM-21	21	1	SD	G	X		
1:08	GM-22	22				X		
1:13	GM-23	23				X	X	
1:17	GM-24	24				X		
1:45	GM-25	25				X		
1:50	GM-26	26				X	X	
2:60	GM-27	27				X		
2:05	GM-28	28				X		
2:10	GM-29	29				X		
2:13	GM-30	30				X		

Custody Seal intact? Y N None Temp. _____

Condition when received good

Box #1			
	DW - Drinking Water	SD - Solid	
	WW - Waste Water	AQ - Aqueous	
	OL - Oil/Organic Liquid	A - Air	

Box #2		
	A. HCl	E. Ice Only
	B. HNO_3	F. Other_____
	C. H_2SO_4	G. Not Preserved
	D. NaOH	

	Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
1	Todd Gresbrecht	Todd Gresbrecht		M. Brown	M. Brown	10-15-99/10:10A
2	M. Brown	M. Brown	10-15-99/15:30	FDS	UPS	
3	FDS	UPS	→	Lance Bell	Lance Bell	10-16-99/10:00

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CHAIN OF CUSTODY

NEL Work Order: B9910001

4 of 7

Project Name: GAY MINE

Project Number: 07520.016

Purchase Order Number:

Sampled By: TG/BL

Company: BROWN & CALDWELL

Attention: MIKE MURRAY

Address:

Phone Number: Fax Number:

Billing Address: Expected Due Date:

Requested Turnaround: X 5-day ___ 2-day ___ 1-day ___ Other

Time/Date Sampled	Customer Sample Identification	N.E.L. Identification	# of Containers	Matrix (Box #1)	Preservative (Box #2)	Analysis: 418.1 MODIFIED	Remarks
10/12/99 2:17	GM-31	31	1	SO	G	X	
2:25	GM-32	32	1	SO	G	X	
2:30	GM-33	33	1	SO	G	X	
2:35	GM-34	34	1	SO	G	X	
2:48	GM-35	35	1	SO	G	X	
2:51	GM-36	36	1	SO	G	X	
2:55	GM-37	37	1	SO	G	X	
3:01	GM-38	38	1	SO	G	X	
3:07	GM-39	39	1	SO	G	X	
3:12	GM-40	40	1	SO	G	X	

Custody Seal intact? Y N None Temp. _____

Condition when received good

Box #1: DW - Drinking Water; WW - Waste Water; OL - Oil/Organic Liquid; SD - Solid; AQ - Aqueous; A - Air

Box #2: A. HCl; B. HNO_3; C. H_2SO_4; D. NaOH; E. Ice Only; F. Other _____; G. Not Preserved

Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
1 Todd Grabeel			M. Brown		10-15-99/10:10A
2 M. Brown		10-15-99/15:30	to UPS		
3 FROM UPS			Lance Bell		10-16-99/1000

NEL LABORATORIES

Reno • Las Vegas
Phoenix • So. California

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

CHAIN OF CUSTODY

NEL Work Order: B991000 1
5 of 7

Company: BROWN AND CALDWELL
Attention: ~~MIKE~~ MIKE MURRAY
Address:
Phone Number: Fax Number:
Billing Address: Expected Due Date:

Project Name: GAY MINE
Project Number: 07520.016
Purchase Order Number:
Sampled By: TG/BL

Requested Turnaround: X 5-day ____ 2-day ____ 1-day ____ Other

Time/Date Sampled	Customer Sample Identification	N.E.L. Identification	# of Containers	Matrix (Box #1)	Preservative (Box #2)	Analysis: 418.1 Modified	Remarks
3:24 / 10/12/99	GM-41	41	1	SD	G	X	
3:29 /	GM-42	42				X	
3:35 /	GM-43	43				X	
3:40 /	GM-44	44				X	
3:56 /	GM-45	45				X	
4:04 /	GM-46	46				X	
4:00 /	GM-47	47				X	
4:06 /	GM-48	48				X	
4:10 /	GM-49	49				X	
4:14 /	GM-50	50				X	

Custody Seal intact? Y N None Temp. _____
Condition when received good

Box #1			
	DW - Drinking Water	SD - Solid	
	WW - Waste Water	AQ - Aqueous	
	OL - Oil/Organic Liquid	A - Air	

Box #2		
	A. HCl	E. Ice Only
	B. HNO_3	F. Other_____
	C. H_2SO_4	G. Not Preserved
	D. NaOH	

Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
1 Tadd Giesbrecht	Tadd Giesbrecht		M. Brown		10-15-99/10.10A
2 M. Brown		10-15-99/15:30	TO		
3 FEDEX UPS			Lance Bell	Lance Bell	10-16-99/10:00

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CHAIN OF CUSTODY

NEL Work Order: B4910001

6 of 7

Company: BROWN AND CALDWELL

Attention: MIKE MURRAY

Address:

Phone Number: Fax Number:

Billing Address: Expected Due Date:

Project Name: 07520.016

Project Number: Gay Mine

Purchase Order Number:

Sampled By: TG / BL

Requested Turnaround: X 5-day ___ 2-day ___ 1-day ___ Other

Time/Date Sampled	Customer Sample Identification	N.E.L. Identification	# of Containers	Matrix (Box #1)	Preservative (Box #2)	Analysis: HSL / MODIFIED	Remarks
4:19 / 10/12/99	GM-51	51	1	SD	G	X	
4:22 /	GM-52	52				X	
4:27 /	GM-53	53				X	
4:30 /	GM-54	54				X	
4:36 /	GM-55	55				X	
4:40 /	GM-56	56				X	
4:44 /	GM-57	57				X	
4:49 /	GM-58	58				X	
4:50 /	GM-59	59				X	
4:55 /	GM-60	60				X	

Custody Seal intact? Y N None Temp. _____

Condition when received good

Box #1: DW - Drinking Water; WW - Waste Water; OL - Oil/Organic Liquid; SD - Solid; AQ - Aqueous; A - Air

Box #2: A. HCl; B. HNO_3; C. H_2SO_4; D. NaOH; E. Ice Only; F. Other _____; G. Not Preserved

Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
1 Todd Giesbrecht	Todd Giesbrecht				
2 M. BROWN		10-15-99/15:30		M. Brown	10-15-99/16:10A
3 HOROM		→	Lance Bell	Lance Bell	10-16-99/1000

APPENDIX C

RISK BASED CORRECTIVE ACTION SOIL SAMPLE LABORATORY REPORTS

NEL LABORATORIES
Reno • Las Vegas • Boise
Phoenix • So. California

Boise Division
4800 Fairview Ave., Suite B • Boise, Idaho 83706
208-378-7790 • Fax: 208-378-7795

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:

C - Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.
J - This concentration should be considered an estimate due to laboratory control sample failure.

Mindy Brown
Boise Division Manager

10-26-99
Date

CERTIFICATIONS:

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

	Reno	Las Vegas	S. California
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
L.A.C.S.D.			10228

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	LF-1-COMP1
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-62
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
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			
1,3-Dichloropropane	ND	5. µg/Kg			
2,2-Dichloropropane	ND	5. µg/Kg			
1,1-Dichloropropene	ND	5. µg/Kg			

QUALITY CONTROL DATA:

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

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	LF-2-COMP1
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-66
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
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			
1,3-Dichloropropane	ND	5. µg/Kg			
2,2-Dichloropropane	ND	5. µg/Kg			
1,1-Dichloropropene	ND	5. µg/Kg			

QUALITY CONTROL DATA:

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

ND - Not Detected

CLIENT:	Brown & Caldwell	CLIENT ID:	LF-3-COMP1
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-67
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
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			
1,3-Dichloropropane	ND	5. µg/Kg			
2,2-Dichloropropane	ND	5. µg/Kg			
1,1-Dichloropropene	ND	5. µg/Kg			

QUALITY CONTROL DATA:

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

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	LF-4-COMP1
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	07250.016	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
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			
1,3-Dichloropropane	ND	5. µg/Kg			
2,2-Dichloropropane	ND	5. µg/Kg			
1,1-Dichloropropene	ND	5. µg/Kg			

QUALITY CONTROL DATA:

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

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**Method Blank**
PROJECT ID:	Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	101999-8260-BLK
TEST:	**Volatile Organic Compounds by EPA 8260B, December 1996**		
METHOD:	EPA 8260B	ANALYST:	MCR - Division
MATRIX:	Solid	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
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
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
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			
1,3-Dichloropropane	ND	5 µg/Kg			
2,2-Dichloropropane	ND	5 µg/Kg			
1,1-Dichloropropene	ND	5 µg/Kg			

QUALITY CONTROL DATA:

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

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**LF-1-COMP1**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-62
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

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	95	30 - 115 %
Nitrobenzene-d5	72	23 - 120 %
p-Terphenyl-d14	134	18 - 137 %

ND - Not Detected

NEL LABORATORIES

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
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

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	91	30 - 115 %
Nitrobenzene-d5	80	23 - 120 %
p-Terphenyl-d14	128	18 - 137 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**LF-2-COMP1**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-66
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

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	95	30 - 115 %
Nitrobenzene-d5	75	23 - 120 %
p-Terphenyl-d14	137	18 - 137 %

ND - Not Detected

NEL LABORATORIES

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
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

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	86	30 - 115 %
Nitrobenzene-d5	69	23 - 120 %
p-Terphenyl-d14	122	18 - 137 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**LF-3-COMP1**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-67
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

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	84	30 - 115 %
Nitrobenzene-d5	65	23 - 120 %
p-Terphenyl-d14	122	18 - 137 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**LF-3-COMP2**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	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

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	96	30 - 115 %
Nitrobenzene-d5	76	23 - 120 %
p-Terphenyl-d14	132	18 - 137 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**LF-4-COMP1**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	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

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	76	30 - 115 %
Nitrobenzene-d5	59	23 - 120 %
p-Terphenyl-d14	116	18 - 137 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**LF-4-COMP2**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-61
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

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	80	30 - 115 %
Nitrobenzene-d5	67	23 - 120 %
p-Terphenyl-d14	87	18 - 137 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**DUP**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-69
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

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	97	30 - 115 %
Nitrobenzene-d5	79	23 - 120 %
p-Terphenyl-d14	134	18 - 137 %

ND - Not Detected

NEL LABORATORIES

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

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

METHOD:	EPA 8260B	ANALYST:	LRB - Division
MATRIX:	Solid	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

NEL LABORATORIES

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
TEST:	**Volatile Organic Compounds by EPA SW846 Method 8260B, Dec. 1996**		
METHOD:	EPA 8260B	ANALYST:	LRB - Division
MATRIX:	Solid	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	102	70 - 130 %
Toluene-d8	99	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**LF-3-COMP2**
PROJECT 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:	EPA 8260B	ANALYST:	LRB - Division
MATRIX:	Solid	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	105	70 - 130 %
Toluene-d8	103	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**LF-4-COMP2**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-61
TEST:	**Volatile Organic Compounds by EPA SW846 Method 8260B, Dec. 1996**		
METHOD:	EPA 8260B	ANALYST:	LRB - Division
MATRIX:	Solid	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	101	70 - 130 %
Toluene-d8	107	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**DUP**
PROJECT ID:	Gay Mine	DATE SAMPLED:	10/13/99
PROJECT #:	07250.016	NEL SAMPLE ID:	B9910001-69
TEST:	**Volatile Organic Compounds by EPA SW846 Method 8260B, Dec. 1996**		
METHOD:	EPA 8260B	ANALYST:	LRB - Division
MATRIX:	Solid	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	99	70 - 130 %
Toluene-d8	102	70 - 130 %

ND - Not Detected

NEL LABORATORIES

CLIENT:	Brown & Caldwell	CLIENT ID:	**Method Blank**
PROJECT ID:	Gay Mine	DATE SAMPLED:	NA
PROJECT #:	07250.016	NEL SAMPLE ID:	101999-8270PH-BLK
TEST:	**Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996**		
METHOD:	EPA 8270PAH	ANALYST:	LRB - So. Cal Division
MATRIX:	Solid	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

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016
TEST: **Volatile Organic Compounds by EPA 8260B, December 1996**
MATRIX: Solid

PARAMETER	NEL Sample ID	Spike Amount	Spike Result	Percent Recovery	Acceptable Range	RPD
Benzene	101999-8260-LCS	50	53.55	107	76 - 127	
Benzene	B9910001-62-MS	50	42.74	85	76 - 127	
Benzene	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	
Toluene	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

ND - Not Detected

NEL LABORATORIES

CLIENT: Brown & Caldwell
PROJECT ID: Gay Mine
PROJECT #: 07250.016
TEST: **Polyaromatic Hydrocarbons (PAH's) by EPA 8270C, December 1996**
MATRIX: Solid

PARAMETER	NEL Sample ID	Spike Amount	Spike Result	Percent Recovery	Acceptable Range	RPD
1,2,4-Trichlorobenzene	101999-8270PH-LCS	50	39.9	80	38 - 107	
1,4-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	
4-Chloro-3-methyl phenol	101999-8270PH-LCS	100	81.6	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	

ND - Not Detected

NEL LABORATORIES

Reno • Las Vegas
Phoenix • So. California

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

CHAIN OF CUSTODY

NEL Work Order: 599100001

2 of 2

Project Name:

Project Number: 07520.016

Purchase Order Number:

Sampled By: TG / BL

Company: BROWN & CALDWELL

Attention: MIKE MURRAY

Address:

Phone Number:

Fax Number:

Billing Address:

Expected Due Date:

Requested Turnaround: X 5-day ___ 2-day ___ 1-day ___ Other

Time/Date Sampled	Customer Sample Identification	N.E.L. Identification	# of Containers	Matrix (Box #1)	Preservative (Box #2)	Analysis: PAH (EPA 8270-C)	Analysis: BTEX (8260-B)	Analysis: VOC (8260)	Remarks
10/13 9:03	LF-4-comp 2	61	1	SO	G	X	X		
11:00	LF-1-comp 1	62	1	SO		X		X	
9:00	LF-4-comp 1	63	1	SO		X		X	
9:36	LF-3-comp 2	64	1	SO		X	X		
10:04	LF-2-comp 2	65	1	SO		X	X		
10:03	LF-2-comp 1	66	1	SO		X		X	
9:30	LF-3-comp 1	67	1	SO		X		X	
11:00	LF-1-comp-2	68	1	SO		X	X		
	DUP	69	1	SO		X	X		
			~~1~~	~~SO~~		~~X~~	~~X~~		

Custody Seal intact? Y N None Temp. _____

Condition when received good

Box #1: DW - Drinking Water; WW - Waste Water; OL - Oil/Organic Liquid; SD - Solid; AQ - Aqueous; A - Air

Box #2: A. HCl; B. HNO_3; C. H_2SO_4; D. NaOH; E. Ice Only; F. Other_____; G. Not Preserved

	Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
1	Todd Giesbrecht	Todd Giesbrecht		M. Brown		10/15/99 10:10
2	FROM BPB			Lance Bell	Lance Bell	10-16-99 10:00
3						

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

Prepared By:

North Wind Environmental
P.O. Box 51174
Idaho Fall, Idaho 83405

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

TABLE OF CONTENTS

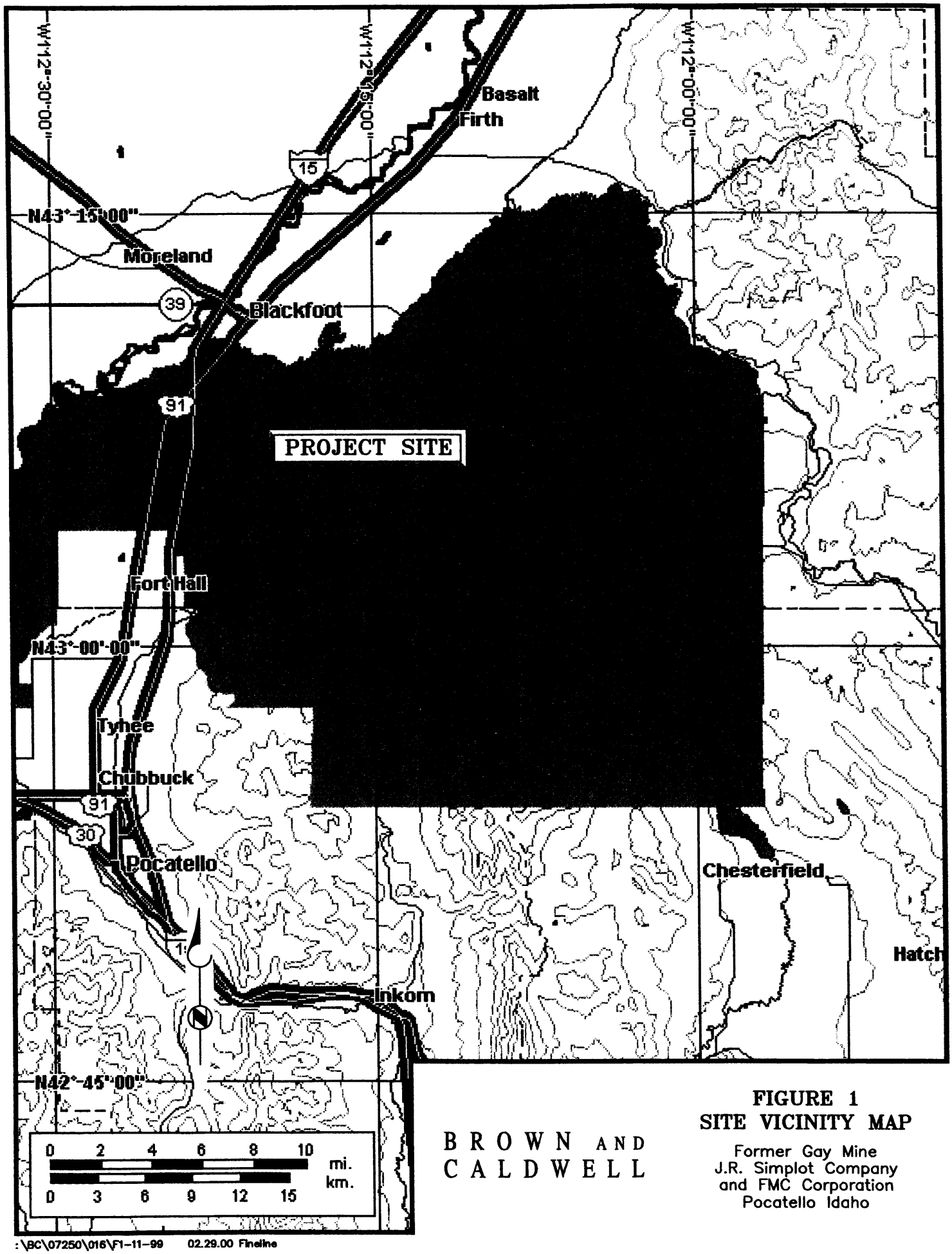
FIGURES

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.



:\BC\07250\016\F1-11-99 02.29.00 Fineline

BROWN AND CALDWELL

FIGURE 1
SITE VICINITY MAP

Former Gay Mine
J.R. Simplot Company
and FMC Corporation
Pocatello Idaho

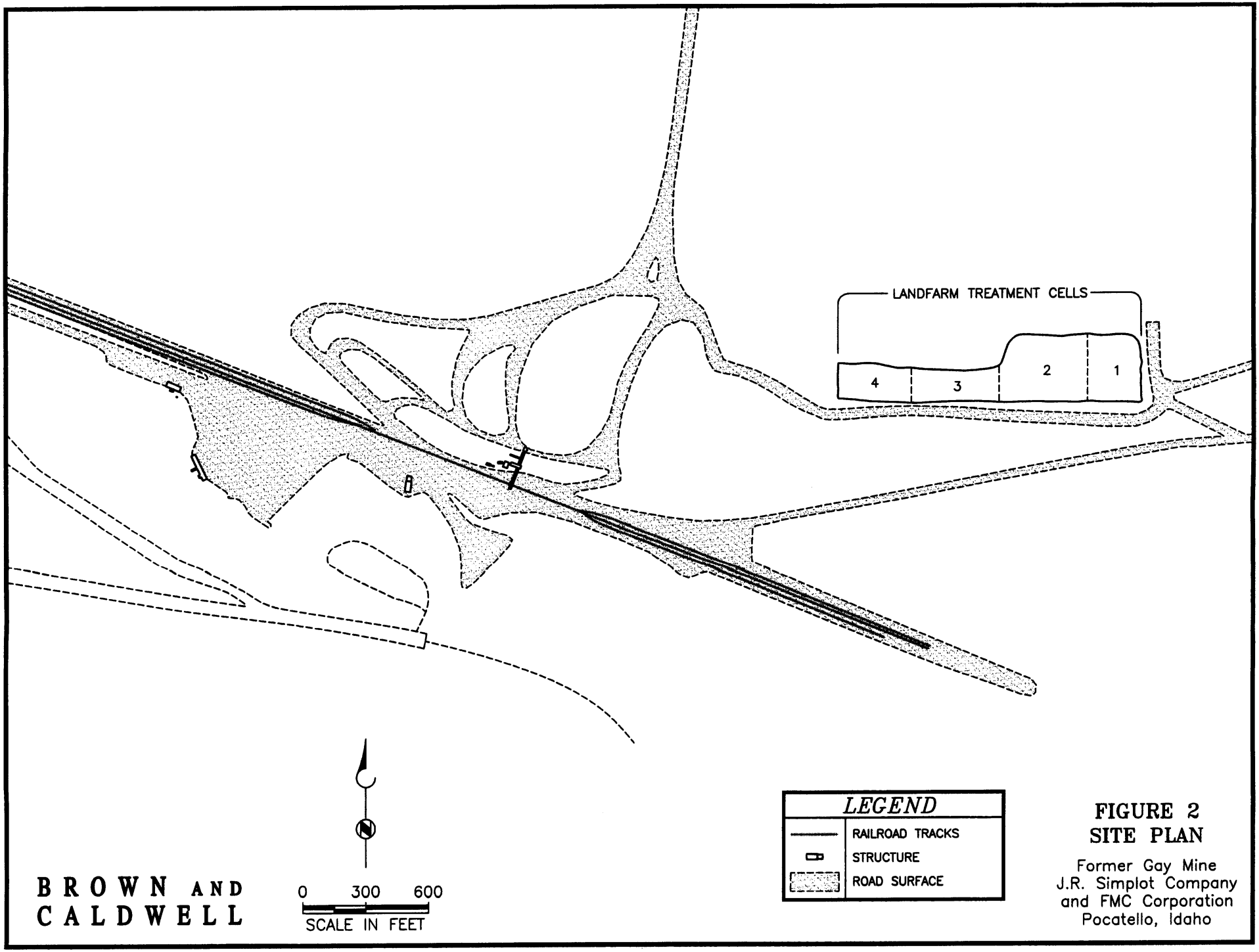


FIGURE 2
SITE PLAN

Former Gay Mine
J.R. Simplot Company
and FMC Corporation
Pocatello, Idaho

:\BC\07250\016\F2-11-99 02.29.00 Fineline

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.

4.0 REFERENCES

Balmer and Noble, 1979. *Water Resources of the Fort Hall Indian Reservation. Fort Hall, Idaho.* Private Consultants

Brown and Cadlwell, 2000, *Gay Mine Landfarming Closure Report*, June 5, 2000

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 1997*, March 1997

Brown and Caldwell, 1996, *Gay Mine, Landfarming Annual Report 1997*, April 1996

Brown and Caldwell, *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 Characterization Report*, November 1993

Shoshone-Bannock Tribes, *Comprehensive Land Use Plan.*

Richardson, B. 1979. *Summary Report and Recommendations for Simplot's Gay Mine, Pocatello, Idaho.* USDA Forest Service. September 1979.

Richardson, B. 1981. *Mine Spoil Reclamation in the Interior West*, USDA Intermountain Forest and Range Experiment Station, Ogden, Utah.

Richardson, B. and T.P. Trussell. 1981. *Species Diversity for Wildlife and a Consideration in revegetating Mined Areas.* USDA Intermountain Forest and Range Experiment Station, Logan, Utah.

Tisdale, S. and W.L. Nelson 1975. *Soil Fertility and Fertilizers.* MacMillan Publishing Co. New York