MID-CONTINENT
TESTING LABORATORIES, INC.
HIGH TECHNOLOGY OIL ANALYSIS
AND ENVIRONMENTAL TESTING

2100 S. 7th, Suite 211 • P.O. Box 3388 • Rapid City, SD 57709
(605) 348-0111

SAMPLE NAME: SW-4
DESCRITPION:
SAMPLE DATE: 08/19/91
SAMPLE TIME:
SAMPLED BY:

MYRON ANDERSEN
BROHM MINING CORP.
P.O. BOX 485
DEADWOOD, SD 57732

ACCOUNT NUMBER: W1000
LAB NUMBER: 19910821116
DATE RECEIVED: 08/20/91
TIME RECEIVED: 04:30 PM
REPORT DATE: 08/22/91

PHYSICAL PROPERTIES	VALUE
Conductivity, umhos/cm	562.
Hardness	.
PH	7.86
Solids, Dissolved, mg/l	374.
Solids, Suspended, mg/l	<10.0
Turbidity, NTU	.

INORGANIC & NONMETALLIC	VALUE
Alkalinity	.
Bicarbonate	122.
Carbonate, mg/l	0.0
Chloride, mg/l	9.0
Cyanide, Total, mg/l	<.010
Cyanide, WAD, mg/l	.
Cyanide, Free, mg/l	.
Flouride, mg/l	.
Nitrogen, Ammonia, mg/l	.
Nitrogen, Nitrate, mg/l	<.050
Nitrogen, Nitrite, mg/l	.
Sulfate, mg/l	166.

METALS mg/l	DISSOLVED	TOTAL
Aluminum	.	.
Antimony	.	.
Arsenic	<.001	<.001
Barium	.	.
Beryllium	.	.
Boron	.	.
Cadmium	.002	.002
Calcium	61.2	.
Chromium	.	.
Cobalt	.	.
Copper	.004	.004
Gold	<.001	<.001
Iron	.	.
Lead	.	.
Lithium	.	.
Magnesium	21.2	.
Manganese	.	.
Mercury	.	.
Molybdenum	.	.
Nickel	.	.
Potassium	2.50	.
Selenium	<.005	<.005
Silicon	.	.
Silver	.	.
Sodium	5.33	.
Strontium	.	.
Vanadium	.	.
Zinc	<.050	.060

APPROVED BY: Mary McPayne

DATE: 08-22-91

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Flouride, mg/l	.
Nitrogen, Ammonia, mg/l	.
Nitrogen, Nitrate, mg/l	<.050
Nitrogen, Nitrite, mg/l	.
Sulfate, mg/l	166.

METALS mg/l	DISSOLVED	TOTAL
Aluminum	.	.
Antimony	.	.
Arsenic	<.001	<.001
Barium	.	.
Beryllium	.	.
Boron	.	.
Cadmium	.002	.002
Calcium	61.2	.
Chromium	.	.
Cobalt	.	.
Copper	.004	.004
Gold	<.001	<.001
Iron	.	.
Lead	.	.
Lithium	.	.
Magnesium	21.2	.
Manganese	.	.
Mercury	.	.
Molybdenum	.	.
Nickel	.	.
Potassium	2.50	.
Selenium	<.005	<.005
Silicon	.	.
Silver	.	.
Sodium	5.33	.
Strontium	.	.
Vanadium	.	.
Zinc	<.050	.060

APPROVED BY: [signature]

DATE: 08-22-91

SURFACE WATER SAMPLING FORM

FIELD MEASUREMENTS

Date 1 / 17 / ~~8~~ 91

Time _____

Sampler mt
(Initials)

Sampling Station Number..... SW-4

Temperature (degrees C)..... _____

pH..... _____

Conductivity (umhos/cm)..... _____

Flow (gpm)..... DRY ~~FROZEN~~ FROZEN

Water Sample (Yes/No)..... _____

Filtered Metals (Yes/No)..... _____

Number/Type Bottles..... _____

Comments..... _____

SURFACE WATER STREAM GAUGING - FIELD FORM

Date: 4-22-91

Sampler: mt

Station No.. SW-4

Gauge Height: _____

Meter Used: Pygmy

Stream Width: 1'

Total Flow: •

Interval	Midpoint	Width	Depth	Area (sft)	Velocity (fps)	Qcfs
0-.25	.125	.25	.35	.0875	.6	.0525
.25-.5	.350	.25	.35	.0875	.4	.035
.5-.75	.675	.25	.3	.075	.6	.045
.75-1	.875	.25	.2	.05	.2	.01
						.1425
					TOTAL	63.95

Comments: _____

SURFACE WATER SAMPLING FORM

FIELD MEASUREMENTS

Date 4 / 23 /8 91

Time _____

Sampler mt
(Initials)

Sampling Station Number..... SW-4

Temperature (degrees C)..... 7

pH..... 8.7

Conductivity (umhos/cm)..... 170

Flow (gpm)..... _____

Water Sample (Yes/No)..... _____

Filtered Metals (Yes/No)..... _____

Number/Type Bottles..... _____

Comments..... _____

SURFACE WATER STREAM GAUGING - FIELD FORM

DATE:	5/29/91	METER USED:	Pygmy
SAMPLER:	MT - JC	STREAM WIDTH:	2.5
STATION NO:	SW - 4	TOTAL FLOW:	1.05
GAUGE HEIGHT:		WATER SAMPLE (Yes/No):	
TEMPERATURE (degrees C):	12	FILTERED METALS (Yes/No):	
pH:	8.4	NUMBER/TYPE BOTTLES:	CN min Diss Met 7.4
CONDUCTIVITY (umhos/cm):	220	FLOW (gpm):	471.24

Interval	Midpoint	Width	Depth	Area (sft)	Velocity (fps)	Qcfs
0 - .5	.25	.5	.3	.15	1.8	.27
.5 - 1	.75	.5	.4	.2	.9	.18
1 - 1.5	1.25	.5	.4	.2	.7	.14
1.5 - 2	1.75	.5	.4	.2	2	.4
2 - 2.5	2.25	.5	.4	.2	.3	.06
					TOTAL	1.05

COMMENTS:

SURFACE WATER STREAM GAUGING - FIELD FORM

DATE:	8-19-91	METER USED:	[illegible]
SAMPLER:	[illegible] JC	STREAM WIDTH:	
STATION NO:	SW-4	TOTAL FLOW:	
GAUGE HEIGHT:		WATER SAMPLE (Yes/No):	
TEMPERATURE (degrees C):	16	FILTERED METALS (Yes/No):	
pH:	8.6	NUMBER/TYPE BOTTLES:	
CONDUCTIVITY (umhos/cm):	420	FLOW (gpm):	1

Interval	Midpoint	Width	Depth	Area (sft)	Velocity (fps)	Qcfs
					TOTAL	1

COMMENTS: Visual estimate 1 gpm

SURFACE WATER STREAM GAUGING - FIELD FORM

DATE:	4-14-92	METER USED:	
SAMPLER:	SM	STREAM WIDTH:	
STATION NO:	SW-4	TOTAL FLOW:	
GAUGE HEIGHT:		WATER SAMPLE (Yes/No):	YES
TEMPERATURE (degrees C):	6.5	FILTERED METALS (Yes/No):	YES
pH:	8.7	NUMBER/TYPE BOTTLES:	1CN, 1NUT, 1MIN, 2MET
CONDUCTIVITY (umhos/cm):	380	FLOW (gpm):	1/3

Interval	Midpoint	Width	Depth	Area (sft)	Velocity (fps)	Qcfs
					TOTAL	

COMMENTS:

R:22

500ml /25

SURFACE WATER STREAM GAUGING - FIELD FORM

DATE:	5-19-92	METER USED:	600 ml beaker
SAMPLER:	SM	STREAM WIDTH:	1"
STATION NO:	SW-4	TOTAL FLOW:	—
GAUGE HEIGHT:	—	WATER SAMPLE (Yes/No):	YES
TEMPERATURE (degrees C):	14.9 1:15	FILTERED METALS (Yes/No):	YES
pH:	7.7	NUMBER/TYPE BOTTLES:	1 qn, 1 not, 1 mlw, 2 mal
CONDUCTIVITY (umhos/cm):	550	FLOW (gpm):	2.2

Interval	Midpoint	Width	Depth	Area (sf)	Velocity (fps)	Qcfs
					TOTAL	

COMMENTS: 600 ml / 4.27 sec

SURFACE WATER STREAM GAUGING - FIELD FORM

DATE:	SW-4 9-27-92	METER USED:	
11:15 SAMPLER:	SM	STREAM WIDTH:	
STATION NO:	SW-4	TOTAL FLOW:	
GAUGE HEIGHT:		WATER SAMPLE (Yes/No):	Y
TEMPERATURE (degrees C):	9.	FILTERED METALS (Yes/No):	Y
pH:	7.4	NUMBER/TYPE BOTTLES:	5
CONDUCTIVITY (umhos/cm):	90.	FLOW (gpm):	2

Interval	Midpoint	Width	Depth	Area (sft)	Velocity (fps)	Qcfs
					TOTAL	2 GPM

COMMENTS: 600 ml / 19.5 sec. × 60 1846 ml/min

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2100 S. 7th, Suite 211 • P.O. Box 3388 • Rapid City, SD 57709
(605) 348-0111

SAMPLE NAME: SW-4
DESCRITPION:
SAMPLE DATE: 04/14/92
SAMPLE TIME:
SAMPLED BY:

MYRON ANDERSEN
BROHM MINING CORP.
P.O. BOX 485
DEADWOOD, SD 57732

ACCOUNT NUMBER: W1000
LAB NUMBER: 19920415112
DATE RECEIVED: 04/14/92
TIME RECEIVED: 05:30 PM
REPORT DATE: 04/16/92

PHYSICAL PROPERTIES	VALUE
Conductivity, umhos/cm	526.
Hardness	.
PH	7.58
Solids, Dissolved, mg/l	262.
Solids, Suspended, mg/l	<10.0
Turbidity, NTU	.

INORGANIC & NONMETALLIC	VALUE
Alkalinity	.
Bicarbonate	87.8
Carbonate, mg/l	0.0
Chloride, mg/l	10.0
Cyanide, Total, mg/l	<.020
Cyanide, WAD, mg/l	.
Cyanide, Free, mg/l	.
Fluoride, mg/l	.
Nitrogen, Ammonia, mg/l	.
Nitrogen, Nitrate, mg/l	.773
Nitrogen, Nitrite, mg/l	.
Sulfate, mg/l	181.

METALS mg/l	DISSOLVED	TOTAL
Aluminum	.	.
Antimony	.	.
Arsenic	<.001	<.001
Barium	.	.
Beryllium	.	.
Boron	.	.
Cadmium	<.001	<.001
Calcium	70.5	.
Chromium	.	.
Cobalt	.	.
Copper	.002	.004
Gold	<.001	<.001
Iron	.	.
Lead	.	.
Lithium	.	.
Magnesium	17.7	.
Manganese	.	.
Mercury	.	.
Molybdenum	.	.
Nickel	.	.
Potassium	3.18	.
Selenium	<.005	<.005
Silicon	.	.
Silver	.	.
Sodium	5.34	.
Strontium	.	.
Vanadium	.	.
Zinc	<.050	.076

APPROVED BY: [signature]

DATE: 04-16-92

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Cyanide, Total, mg/l	<.020
Cyanide, WAD, mg/l	.
Cyanide, Free, mg/l	.
Fluoride, mg/l	.
Nitrogen, Ammonia, mg/l	.
Nitrogen, Nitrate, mg/l	.773
Nitrogen, Nitrite, mg/l	.
Sulfate, mg/l	181.

METALS mg/l	DISSOLVED	TOTAL
Aluminum	.	.
Antimony	.	.
Arsenic	<.001	<.001
Barium	.	.
Beryllium	.	.
Boron	.	.
Cadmium	<.001	<.001
Calcium	70.5	.
Chromium	.	.
Cobalt	.	.
Copper	.002	.004
Gold	<.001	<.001
Iron	.	.
Lead	.	.
Lithium	.	.
Magnesium	17.7	.
Manganese	.	.
Mercury	.	.
Molybdenum	.	.
Nickel	.	.
Potassium	3.18	.
Selenium	<.005	<.005
Silicon	.	.
Silver	.	.
Sodium	5.34	.
Strontium	.	.
Vanadium	.	.
Zinc	<.050	.076

APPROVED BY: [signature]

DATE: 04-16-92

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P.O. BOX 485
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ACCOUNT NUMBER: W1000
LAB NUMBER: 19920520113
DATE RECEIVED: 05/20/92
TIME RECEIVED: 07:15 AM
REPORT DATE: 05/22/92

PHYSICAL PROPERTIES	VALUE
Conductivity, umhos/cm	677.
Hardness	.
PH	6.85
Solids, Dissolved, mg/l	463.
Solids, Suspended, mg/l	5.0
Turbidity, NTU	.

INORGANIC & NONMETALLIC	VALUE
Alkalinity	.
Bicarbonate	83.0
Carbonate, mg/l	0.0
Chloride, mg/l	8.50
Cyanide, Total, mg/l	<.010
Cyanide, WAD, mg/l	.
Cyanide, Free, mg/l	.
Fluoride, mg/l	.
Nitrogen, Ammonia, mg/l	.
Nitrogen, Nitrate, mg/l	1.01
Nitrogen, Nitrite, mg/l	.
Sulfate, mg/l	262.

METALS mg/l	DISSOLVED	TOTAL
Aluminum	.	.
Antimony	.	.
Arsenic	.001	.002
Barium	.	.
Beryllium	.	.
Boron	.	.
Cadmium	<.001	<.001
Calcium	89.3	.
Chromium	.	.
Cobalt	.	.
Copper	.010	.014
Gold	<.001	<.001
Iron	.	.
Lead	.	.
Lithium	.	.
Magnesium	18.9	.
Manganese	.	.
Mercury	.	.
Molybdenum	.	.
Nickel	.	.
Potassium	3.62	.
Selenium	<.005	<.005
Silicon	.	.
Silver	.	.
Sodium	6.76	.
Strontium	.	.
Vanadium	.	.
Zinc	<.050	<.050

APPROVED BY: Dean Durand

DATE: 5/22/92

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Solids, Suspended, mg/l	5.0
Turbidity, NTU	.

INORGANIC & NONMETALLIC	VALUE
Alkalinity	.
Bicarbonate	83.0
Carbonate, mg/l	0.0
Chloride, mg/l	8.50
Cyanide, Total, mg/l	<.010
Cyanide, WAD, mg/l	.
Cyanide, Free, mg/l	.
Fluoride, mg/l	.
Nitrogen, Ammonia, mg/l	.
Nitrogen, Nitrate, mg/l	1.01
Nitrogen, Nitrite, mg/l	.
Sulfate, mg/l	262.

METALS mg/l	DISSOLVED	TOTAL
Aluminum	.	.
Antimony	.	.
Arsenic	.001	.002
Barium	.	.
Beryllium	.	.
Boron	.	.
Cadmium	<.001	<.001
Calcium	89.3	.
Chromium	.	.
Cobalt	.	.
Copper	.010	.014
Gold	<.001	<.001
Iron	.	.
Lead	.	.
Lithium	.	.
Magnesium	18.9	.
Manganese	.	.
Mercury	.	.
Molybdenum	.	.
Nickel	.	.
Potassium	3.62	.
Selenium	<.005	<.005
Silicon	.	.
Silver	.	.
Sodium	6.76	.
Strontium	.	.
Vanadium	.	.
Zinc	<.050	<.050

APPROVED BY: Dean Durand

DATE: 5/22/92

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2381 S. Plaza Dr. • P.O. Box 3388 • Rapid City, SD 57709
(605) 348-0111

SAMPLE NAME: SW-4
DESCRITPION:
SAMPLE DATE: 08/27/92
SAMPLE TIME:
SAMPLED BY:

MYRON ANDERSEN
BROHM MINING CORP.
P.O. BOX 485
DEADWOOD, SD 57732

ACCOUNT NUMBER: W1000
LAB NUMBER: 19920828109
DATE RECEIVED: 08/28/92
TIME RECEIVED: 08:00 AM
REPORT DATE: 08/31/92

PHYSICAL PROPERTIES	VALUE
Conductivity, umhos/cm	782.
Hardness	.
PH	7.40
Solids, Dissolved, mg/l	538.
Solids, Suspended, mg/l	<10.0
Turbidity, NTU	.

INORGANIC & NONMETALLIC	VALUE
Alkalinity	.
Bicarbonate	110.
Carbonate, mg/l	0.0
Chloride, mg/l	10.0
Cyanide, Total, mg/l	<.010
Cyanide, WAD, mg/l	.
Cyanide, Free, mg/l	.
Fluoride, mg/l	.
Nitrogen, Ammonia, mg/l	.
Nitrogen, Nitrate, mg/l	.147
Nitrogen, Nitrite, mg/l	.
Sulfate, mg/l	286.

QUALITY CONTROL	VALUE
Major Anion Sum, meq/L	8.05
Major Cation Sum, meq/L	7.59
Anion-Cation Balance, %	-2.92

METALS mg/l	DISSOLVED	TOTAL
Aluminum	.	.
Antimony	.	.
Arsenic	<.001	<.001
Barium	.	.
Beryllium	.	.
Boron	.	.
Cadmium	<.001	<.001
Calcium	105.	.
Chromium	.	.
Cobalt	.	.
Copper	.003	.004
Gold	<.001	<.001
Iron	.	.
Lead	.	.
Lithium	.	.
Magnesium	22.3	.
Manganese	.	.
Mercury	.	.
Molybdenum	.	.
Nickel	.	.
Potassium	3.94	.
Selenium	<.005	<.005
Silicon	.	.
Silver	.	.
Sodium	9.54	.
Strontium	.	.
Vanadium	.	.
Zinc	.063	.076

APPROVED BY: Alex M. Pagel

DATE: 08-31-92