2820 0003

(67)

ITEM 3

IL MINERALS
DIVISION OF AGRI BEEF CO.

May 15, 1989

Nevada Bureau of Mines and Geology
University of Nevada-Reno
Reno, NV 89557-0088

Attn: Becky Weimer

To Whom it may Concern:

IL Minerals, a Division of Agri Beef Company, would like to analyze select cuttings from the Richfield No. 1 Scott Government oil test hole. The hole was drilled in 1957 and was located in the southwest quarter of section 22,T.43N.,R.52E., Elko County, Nevada. Both surface and mineral rights of this area are owned by Agri Beef Co.

Due to the limited amount of cuttings sample remaining, we would prefer to analyze first for metals and associated trace elements. If enough sample remains after these tests, we would analyze for hydrocarbons. We are not interested in the tertiary sediments, and would like to analyze every 10' sample from 2350' to 3360' of this hole, which corresponds to the Paleozoic rocks encountered in drilling. Before analysis, each sample would be thoroughly examined, and all data logged.

Attached is a copy of the Chemex Labs, Inc. 1989 Analysis Schedule. We would have the cuttings analyzed for gold, using Chemex procedure #101 (page 3), and their associated element package, procedure ICP-32 (page 5).

Also attached is a signed Sampling Agreement. As soon as approval is given, we will deliver the security deposit. Since the examination and logging will take approximately 2-4 weeks, we would like to get the samples as soon as convenient.

If you need additional information, please call me at 208-338-2500 or 702-756-6524.

Sincerely,

Tyler L. Shepherd (dh)

Tyler L. Shepherd
Vice President

TLS/dh
Enc.

UNIVERSITY OF NEVADA-RENO

Nevada Bureau of Mines and Geology
University of Nevada-Reno
Reno, Nevada 89557-0088
(702) 784-6691

SAMPLING AGREEMENT

All of the Preliminary Sampling Rules for sampling core or cuttings from the Nevada Bureau of Mines & Geology Sample Library File have been met; therefore, the Nevada Bureau of Mines & Geology agrees to allow

Tyler L. Shepherd
Name of person in charge of sampling

Carmen F. Fimiani
Supervisor's name

IL Minerals - A division of Agri Beef
Company name

P.O. Box 6640 1555 Shoreline Dr. Boise, Id 83702
Business address

208-338-2500
Telephone number

to sample ✓(cuttings)/___(core) from the following oil, gas, geothermal, or water well or mineral test hole:

Well/mineral test operator

Richfield No. 1 Scott Government
Well/hole name

SW¼ sec. 22, T. 43 N., R. 52 E. Elko County
Location (S,T.R) and county

Project code number

The following interval(s) will be sampled at the rate of 15 grams per 10 feet. The interval(s) to be sampled are as follows:

2350'
60
70
80
90
2400
10
20
30
40
50
60

2480
90
2500
10
20
thru
3360'

102 samples

(page 2 of Nevada Bureau of Mines & Geology SAMPLING AGREEMENT)

Tests run on this/these sample(s) will consist of the following: _____

Chemex procedure 101 (Au - ≤1ppb), Chemex procedure ICP32 (32 associated elements - see attached schedule).

A monetary deposit of $_____ is required to ensure that the results of this project will be turned in in a timely manner. This deposit will be returned after all of the test(s) results have been turned into the Nevada Bureau of Mines & Geology.

The tests will be conducted by Chemex Labs, Inc., (Laboratory(ies)) and will be run on July 1989. (Date)

Copies of all data and chemical, paleontologic, petrophysical, and petrographic interpretations and reports must be supplied to the Nevada Bureau of Mines & Geology as soon as the tests are run, but no later than January 1990. (6 months after sampling date)

The Nevada Bureau of Mines & Geology agrees to hold these results confidential until June 1991. (No later than 18 months after sampling)

Tyler L. Shepherd (Name of sampler) agrees to return all unused portion(s) of the core or cuttings taken for sampling within 6 months of sampling with appropriate labeling of what separations or tests may have been performed.

May 14, 1989
Date

Agreed to by Tyler L Shepherd 5-1-89
Name of sampler

Agreed to by Becky A. Peirson 23 May 89
NBMG personnel

Chemex Labs, Inc.

Registered assayers • Geochemists
Analytical chemists

1989 FEE SCHEDULE USA

NEW IN 1989

The many requests for better and faster services have encouraged us to expand our analytical facilities in Rouyn, Quebec (fast turn-around fire assay), Toronto, Ontario (fast turn-around fire assay and complete neutron activation analysis facilities) and in Reno, Nevada (expanded precious metal facilities). In addition to this, increased activity in Idaho and Alaska by our clients in the exploration and mining industry motivated us to open new branch offices in Boise and Anchorage.

This means that it will be even easier in 1989 to submit your samples to Chemex, especially if you take advantage of our now famous sample pick-up services. At the same time our ever increasing analytical facilities will continue to provide you with excellent turn-around time irrespective of location or sample volume.

We have again expanded the number of multi-element packages to provide you with even more economical choices for geochemical exploration programs. Improvements in productivity and efficiency enable us to hold the line on 1989 price increases. Most prices are identical to those of 1988 and significant extra savings can be found in our new multi-element packages.

Bruce W. Brown
President

Professional and technical staff – Reno office, 1988

■ SAMPLE PACKAGING AND SHIPPING INSTRUCTIONS

To expedite sample processing and therefore delivery of results, we suggest that you clearly mark sample bags containing soil or rock samples using waterproof ink. The use of assay tags inside sample bags is strongly encouraged. Fill out and enclose white and yellow copies of the sample submittal and analytical requisition form with each sample shipment. Retain the pink copy as a field record. Include your return address, billing instructions and the type of analyses required on the enclosed samples.

Clearly mark all international sample shipments as "GEOLOGICAL MATERIALS – NO COMMERCIAL VALUE." Preaddressed shipping labels are available at no cost on request. We offer advice on shipping samples to our lab by surface carrier, air cargo courier and air cargo.

FREE SAMPLE PICK-UP SERVICES

Chemex provides FREE sample pick-up services within a 125 mile radius from any of our analytical and/or sample preparation laboratories (see back of cover for current addresses) for batches of 400 or more samples. We maintain a fleet of one to three ton trucks which are suitably equipped to handle the terrain in each of our sample reception areas.

All prices quoted in US dollars.
Prices in effect as of April 1, 1989 and subject to change without notice.

■ GOLD AND OTHER PRECIOUS METALS

TRACE LEVEL ANALYSIS

Maximum value reported for all elements except silver is 10,000 ppb.

Procedure code	Element(s)	Sample weight	Method	Detection limit	Price per sample
100	Gold	10 grams	Fire assay, A.A. finish	5 ppb	$ 5.50
983	Gold	30 grams	Fire assay, A.A. finish	5 ppb	7.00
101	Gold	10 grams	Fire assay, N.A.A.finish	1 ppb	6.00
6	Silver		Upper limit 100 ppm	0.2 ppm	2.25
G-15	Platinum	30 grams	Fire assay, ICP-AFS	5 ppb	12.00
	Palladium			2 ppb	
	Gold			2 ppb	
472	Rhodium	10 grams	Fire assay, A.A. finish	5 ppb	7.50

ORE-GRADE ANALYSIS

If metric units (g/tonne) are preferred, please use the codes in parentheses.

398 (399)	Gold	1/2 A.T.	Fire assay, A.A. finish	0.002 oz/t	$ 7.00
998 (999)	Gold	1 A.T.	Fire assay, A.A. finish	0.001 oz/t	8.00
996 (997)	Gold	1 A.T.	Fire assay, grav. finish	0.002 oz/t	8.50
	Silver	Added to any fire assay gold determination			2.50
	Silver	Without gold determination			7.00

COARSE GOLD SAMPLES (SPECIAL PROCEDURES) NEW

1296 (1297)	Gold	2 A.T.	Fire assay, grav. finish	0.001 oz/t	$12.00
1596 (1597)	Gold	5 A.T.	Fire assay, grav. finish	0.001 oz/t	20.00
880 (881)	Gold	For samples which exhibit a significant coarse gold effect. The +150 mesh fraction of the sample is analysed as well as a representative 1 A.T. split of the -150 mesh fraction. The results of both fire assay procedures are reported, as well as the weighted average.			17.00

CYANIDATION PROCEDURES NEW

544	Gold	10 grams	Cyanide leach, A.A. finish	0.003 oz/t	$ 4.00
830	Gold	30 grams	Cyanide leach, A.A. finish	0.002 oz/t	5.50
437	Gold	500 grams	Cyanide leach, A.A. finish	0.001 oz/t	21.00

PLATINUM, PALLADIUM AND RHODIUM ASSAYS

414 (415)	Platinum	1/2 A.T.	Fire assay, A.A. finish	0.003 oz/t	$17.00
420 (421)	Palladium	1/2 A.T.	Fire assay, A.A. finish	0.001 oz/t	17.00
	Pt + Pd	1/2 A.T.	Fire assay, A.A. finish		25.50
1916 (1912)	Rhodium	1/2 A.T.	Fire assay, A.A. finish	0.001 oz/t	17.00

NEW IN 1

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■ MULTI-ELEMENT PACKAGES

TRACE-4

Price per sample $ 8.75

Gold related trace element package. Uses optimized digestion and analysis procedures for **each** element.

Ag	0.2 ppm	As	1 ppm	Hg	10 ppb	Sb	0.2 ppm

TRACE-7

Price per sample $ 8.75

Gold related trace element package. Includes important base metals using optimized digestion and analysis procedures for **each** element .

Ag	0.2 ppm	As	1 ppm	Cu	1 ppm	Mo	1 ppm
Pb	2 ppm	Sb	0.2 ppm	Zn	1 ppm		

TRACE-9 NEW

Price per sample $ 4.25

Complete base metal package.

Ag	0.5 ppm	Co	1 ppm	Cu	1 ppm	Fe	0.01 %
Mn	5 ppm	Mo	1 ppm	Ni	1 ppm	Pb	5 ppm
Zn	2 ppm						

TRACE-10 NEW

Price per sample $ 6.00

Arsenic plus complete base metal package.

As	1 ppm	Ag	0.5 ppm	Co	1 ppm	Cu	1 ppm
Fe	0.01 %	Mn	5 ppm	Mo	1 ppm	Ni	1 ppm
Pb	5 ppm	Zn	2 ppm				

TRACE-11

Price per sample $13.50

Extended gold related trace element package. Uses optimized digestion and analysis procedures for **each** element.

Ag	0.2 ppm	As	1 ppm	Bi	0.1 ppm	Cd	0.1 ppm
Cu	1 ppm	Hg	10 ppb	Mo	1 ppm	Pb	2 ppm
Sb	0.2 ppm	Se	0.2 ppm	Zn	1 ppm		

ICP-6 NEW

Price per sample $ 9.50

Common digestion/ extraction gold related elements. A single strong digestion is used to extract more than 95 percent of the elements of interest for most sample types. An organic extraction is used to obtain superior sensitivity. A single digestion procedure is always a compromise between the cost of analysis and the degree of extraction for any particular element. We do offer packages which utilize optimized digestion and analysis schemes for each element (see TRACE-4 through TRACE-11).

Ag	0.1 ppm	As	1 ppm	Bi	1 ppm	Hg	0.1 ppm
Sb	0.2 ppm	Se	0.5 ppm				

NAA-14 NEW

Price per sample $12.00

GOLD plus trace elements by direct NAA. This package is suitable for samples with a high organic content such as humus, moss mat and vegetation samples. The sensitivity for gold and many of the other elements will decrease with increasing metal concentrations.

Au	2 ppb	As	1 ppm	Ba	50 ppm	Br	1 ppm
Ce	10 ppm	Cs	2 ppm	La	2 ppm	Rb	10 ppm
Sb	1 ppm	Sc	1 ppm	Ta	2 ppm	Th	1 ppm
U	1 ppm	W	2 ppm				

You can combine any of these packages with our wide choice of gold analysis options on page 3. As always we will be happy to quote on your special multi-element package requirement if any of the packages on these pages do not meet your needs.

■ SAM

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■ MULTI-ELEMENT PACKAGES

ROCK-20 NEW

Price per sample $ 7.25

Rock identification package. Samples are digested using a perchloric-nitric-hydrofluoric acid mixture. With the exception of silica, all major elements are reported (as oxides), as well as important trace elements for rock type identification. It should be noted that this acid digestion is still not 100 percent complete for all mineral types. If you do require the highest possible accuracy for quantitative rock analysis, please see ROCK-12, classical whole rock analysis, on page 9.

Al_2O_3	0.01 %	Ba	10 ppm	CaO	0.01 %	Co	1 ppm
Cr	1 ppm	Cu	1 ppm	Fe_2O_3	0.01 %	K_2O	0.01 %
La	20 ppm	MgO	0.01 %	Mn	5 ppm	Mo	1 ppm
Na_2O	0.01 %	Ni	1 ppm	P	10 ppm	Pb	5 ppm
Sr	1 ppm	TiO_2	0.01 %	V	1 ppm	Zn	2 ppm

ICP-32

Price per sample $ 5.50

32 element soil and stream sediment analysis package. This package uses a nitric-aqua regia digestion which will not be effective for acid resistive minerals. Combined with proper sampling procedures this technique can be used for large scale reconnaissance projects. If used as a general exploration tool, the incomplete digestion of many of the elements (especially those marked with an asterisk) should be considered.

Ag	0.2 ppm	*Al	0.01 %	As	5 ppm	*Ba	10 ppm
*Be	0.5 ppm	Bi	2 ppm	*Ca	0.01 %	Cd	0.5 ppm
Co	1 ppm	*Cr	1 ppm	Cu	1 ppm	Fe	0.01 %
*Ga	10 ppm	Hg	1 ppm	*K	0.01 %	*La	10 ppm
*Mg	0.01 %	Mn	5 ppm	Mo	1 ppm	*Na	0.01 %
Ni	1 ppm	P	10 ppm	Pb	2 ppm	Sb	5 ppm
*Sc	1 ppm	*Sr	1 ppm	*Ti	0.01 %	*Tl	10 ppm
U	10 ppm	V	1 ppm	*W	10 ppm	Zn	2 ppm

ICP-24

Price per sample $ 8.75

24 element total digestion package. A perchloric-nitric-hydrofluoric acid mixture is used to ensure total digestion of the sample. Volatile elements (such as As and Sb) suffer variable losses in this procedure, and hence are not reported.

Ag	0.5 ppm	Al	0.01 %	Ba	10 ppm	Be	0.5 ppm
Bi	2 ppm	Ca	0.01 %	Cd	0.5 ppm	Co	1 ppm
Cr	1 ppm	Cu	1 ppm	Fe	0.01 %	K	0.01 %
Mg	0.01 %	Mn	5 ppm	Mo	1 ppm	Na	0.01 %
Ni	1 ppm	P	10 ppm	Pb	2 ppm	Sr	1 ppm
Ti	0.01 %	V	1 ppm	W	10 ppm	Zn	2 ppm

RE-10

Price per sample $ 30.00

Basic rare earth package by NAA. Trace level rare earth package suitable for samples with uranium contents of less than 100 ppm and total rare earth content of less than one percent. Detection limits are matrix dependent.

Ce	2 ppm	Eu	0.5 ppm	La	1 ppm	Lu	0.1 ppm
Nd	5 ppm	Sm	0.1 ppm	Tb	0.1 ppm	Th	1 ppm
U	1 ppm	Yb	0.1 ppm				

RE-16

Price per sample $ 45.00

Extended rare earth package by NAA. Extended trace level rare earth package with the same restrictions as RE-10.

Ce	2 ppm	Dy	1 ppm	Er	20 ppm	Eu	0.5 ppm
Gd	50 ppm	Ho	1 ppm	La	1 ppm	Lu	0.1 ppm
Nd	5 ppm	Pr	5 ppm	Sm	0.1 ppm	Tb	0.1 ppm
Th	1 ppm	Tm	1 ppm	U	1 ppm	Yb	0.1 ppm

ROCK-12

Price per sample $ 16.00

Classical whole rock analysis. For package details see page 9.

■ TRACE LEVEL GEOCHEMISTRY

The methods specified below are designed to give you the best possible detection limits for individual elements. MULTI-ELEMENT PACKAGES are available using a variety of analytical techniques; see pages 4 and 5.

Digestion/method charges: A digestion (or analytical procedure) charge will be applied only once, no matter how many elements are requested for that particular digestion code.

Code	Description	Price
AQ	Nitric-aqua regia digestion	1.25
HF	Perchloric-nitric-hydrofluoric digestion	2.00
EXT	Special digestion with an organic extraction	2.00
NAA	Neutron activation encapsulation and irradiation charge	6.00
XRF	X-ray analysis pellet preparation charge	4.00
N/C	Digestion or fusion included in price	NO CHARGE

Procedure code		Element	Detection limit	Upper limit	Method charge code	Add-on price
22	Sb	Antimony	0.2 ppm	0.1 %	EXT	1.75
13	As	Arsenic	1 ppm	1 %	N/C	3.50
25	Ba	Barium	10 ppm	1 %	HF	1.75
34	Be	Beryllium	0.1 ppm	0.1 %	HF	1.75
23	Bi	Bismuth	0.1 ppm	0.1 %	EXT	1.75
40	B	Boron	10 ppm	1 %	N/C	6.50
154	Br	Bromine	1 ppm	1 %	NAA	1.75
7	Cd	Cadmium	0.1 ppm	0.02 %	AQ	1.00
	Ca	Calcium	– see ROCK-20 page 5 –			
135	Ce	Cerium	2 ppm	1 %	NAA	4.00
158	Cs	Cesium	2 ppm	1 %	NAA	1.75
155	Cl	Chlorine	100 ppm	1 %	N/C	9.50
12	Cr	Chromium	2 ppm	1 %	HF	1.75
9	Co	Cobalt	1 ppm	1 %	AQ	1.00
2	Cu	Copper	1 ppm	1 %	AQ	1.00
	Dy	Dysprosium	– see RE-16 page 5 –			
	Er	Erbium	– see RE-16 page 5 –			
137	Eu	Europium	0.5 ppm	0.01 %	NAA	4.00
21	F	Fluorine	20 ppm	1 %	N/C	3.75
31	Ga	Gallium	1 ppm	0.1 %	N/C	4.00
41	Ge	Germanium	5 ppm	0.1 %	N/C	4.00
	Au	Gold	– see options on page 3 –			
107	Hf	Hafnium	2 ppm	1 %	NAA	1.75
	Ho	Holmium	– see RE-16 page 5 –			
543	In	Indium	1 ppm	0.1 %	AQ	2.50
188	I	Iodine	20 ppm	1 %	N/C	9.50
10	Fe	Iron	0.05 %	20 %	AQ	1.00
110	La	Lanthanum	1 ppm	1 %	NAA	4.00
4	Pb	Lead	1 ppm	1 %	AQ	1.00

Procedure code		Element	Detection limit	Upper limit	Method charge code	Add-on price
27	Li	Lithium	1 ppm	0.1 %	HF	1.75
35		LOI @550°C	0.1 %	100 %	N/C	4.00
136	Lu	Lutetium	0.1 ppm	0.05 %	NAA	4.00
	Mg	Magnesium	– see ROCK-20 page 5 –			
11	Mn	Manganese	5 ppm	1 %	AQ	1.00
20	Hg	Mercury	10 ppb	0.01 %	N/C	3.50
3	Mo	Molybdenum	1 ppm	0.1 %	AQ	1.00
128	Nd	Neodymium	5 ppm	0.1 %	NAA	4.00
8	Ni	Nickel	1 ppm	1 %	AQ	1.00
191	Nb	Niobium	5 ppm	1 %	XRF	3.25
	Pd	Palladium	– see G-15 page 3 –			
15	P	Phosphorus	5 ppm	1 %	N/C	3.25
	Pt	Platinum	– see G-15 page 3 –			
	K	Potassium	– see ROCK-20 page 5 –			
	Pr	Praseodymium	– see RE-16 page 5 –			
376	Re	Rhenium	1 ppm	1 %	NAA	4.00
30	Rb	Rubidium	1 ppm	1 %	HF	1.75
134	Sm	Samarium	0.1 ppm	0.05 %	NAA	4.00
103	Sc	Scandium	1 ppm	1 %	NAA	1.75
16	Se	Selenium	0.2 ppm	0.01 %	EXT	2.00
6	Ag	Silver	0.2 ppm	0.01 %	AQ	1.00
	Na	Sodium	– see ROCK-20 page 5 –			
32	Sr	Strontium	1 ppm	1 %	HF	1.75
380	S	Sulfur	0.001 %	100 %	N/C	6.75
151	Ta	Tantalum	2 ppm	1 %	NAA	1.75
24	Te	Tellurium	0.05 ppm	0.1 %	N/C	5.00
141	Tb	Terbium	0.1 ppm	0.01 %	NAA	4.00
39	Tl	Thallium	0.1 ppm	0.1 %	N/C	4.00
150	Th	Thorium	1 ppm	1 %	NAA	1.75
	Tm	Thulium	– see RE-16 page 5 –			
19	Sn	Tin	2 ppm	0.1 %	N/C	3.75
42	Ti	Titanium	0.01 %	1 %	N/C	8.50
18	W	Tungsten	2 ppm	0.1 %	N/C	3.75
152	U	Uranium	0.2 ppm	1 %	N/C	3.25
33	V	Vanadium	5 ppm	1 %	HF	1.75
138	Yb	Ytterbium	0.1 ppm	0.1 %	NAA	4.00
801	Y	Yttrium	5 ppm	1 %	XRF	3.25
5	Zn	Zinc	1 ppm	1 %	AQ	1.00
914	Zr	Zirconium	5 ppm	1 %	XRF	3.25

FOR PERCENT LEVEL ANALYSIS PLEASE CONSULT OUR ASSAY SCHEDULE ON PAGE 9.

■ METALLURGICAL SAMPLES, MINERAL CONCENTRATES AND INDUSTRIAL PRODUCTS

Chemex maintains separate laboratory facilities for the testing of mineral concentrates. This type of analysis features the highest possible precision and accuracy combined with the shortest possible turnaround time.

Procedure code		Element	Price
401 - oz/t	Au	Gold	$ 24.00
402 - g/tonne	Au	Gold	24.00
388 - oz/t	Ag	Silver	24.00
389 - g/tonne	Ag	Silver	24.00
468 - %	Sb	Antimony	32.00
467 - %	As	Arsenic	32.00
436 - %	Bi	Bismuth	30.00
465 - %	Cd	Cadmium	27.00
426 - %	CaO	Calcium (as oxide)	27.00
488 - %	Cl	Chlorine	48.00
435 - %	Co	Cobalt	27.00
303 - %	Cu	Copper	20.00
438 - %	F	Fluorine	34.00
333 - %	Fe	Iron	34.00

Procedure code		Element	Price
314 - %	Pb	Lead	$ 20.00
455 - %	MnO	Manganese (as oxide)	32.00
416 - ppm	Hg	Mercury	34.00
310 - %	Mo	Molybdenum	20.00
434 - %	Ni	Nickel	27.00
425 - %	P_2O_5	Phosphorus (as oxide)	34.00
876 - ppm	Re	Rhenium (in MoS_2)	32.00
890 - ppm	Se	Selenium	32.00
345 - %	SiO_2	Silica	36.00
424 - %	S	Sulfur	34.00
920 - %	Ta	Tantalum	32.00
341 - %	WO_3	Tungsten (as oxide)	32.00
336 - %	U_3O_8	Uranium (as oxide)	38.00
318 - %	Zn	Zinc	20.00

■ COAL ANALYSIS

The Coal Division provides a comprehensive analytical service with modern facilities equipped for sample preparation and the analysis of thermal and metallurgical coal samples. Analysis of exploration samples, commercial shipments of coal and specialized fuel-related materials such as coke, petroleum coke, oil shale and biomass are performed to ASTM, ISO and BS standard methods ensuring uniformity of results.

	Price per sample
Air drying (LOA) plus prep	
-up to 2 kg	$ 17.00
-over 2 kg	30.00/hr
Arsenic	26.00
Ash content (A)	10.00
*Ash fusibility (AFT)	
-reducing or oxidizing atm.	42.00
-both on same sample	65.00
*Ash - 10 element analysis	85.00
Carbon and hydrogen	50.00
Calorific value (CV) Gross	
(BTU/lb or cal/g)	17.00
Chlorine	19.00
Free swelling index (FSI)	
- coke button	10.00

	Price per sample
Fluorine	26.00
*Grindability (Hardgrove)	42.00
Mercury	26.00
Proximate analysis	
(SP, RM, A, VM, FC)	38.00
Residual moisture (RM)	5.00
Sulfur, total (Eschka)	17.00
Sulfur forms	30.00
Ultimate analysis (moisture,	
ash, S, C, H, N, O)	85.00
Volatile matter (VM)	
- agglomerating	8.00
- sparking	12.00

*Subject to special sample preparation charges of $ 8.00.
MANY OTHER CHEMICAL AND PHYSICAL TESTS ARE AVAILABLE.
ASK FOR OUR COAL ANALYSIS BROCHURE.

■ ORE-GRADE ASSAYS

High precision analytical procedures are used to determine chemical and physical parameters in ore and ore-grade materials. All assays are supervised and certified by government registered assayers.

Gold, Platinum, Palladium, Rhodium and Silver see Page 3.

Procedure code		Element	Price
366 %	Al_2O_3	Aluminum (as oxide)	$ 8.50
347 %	Sb	Antimony	8.00
330 %	As	Arsenic	8.00
352 %	Ba	Barium	8.00
364 %	Be	Beryllium	9.00
349 %	Bi	Bismuth	7.50
871 %	B	Boron	15.00
441	g/cc	Bulk density	6.75
320 %	Cd	Cadmium	6.75
355 %	CaO	Calcium (as oxide)	6.75
367 %	C	Carbon	6.75
368 %	CO_2	Carbon dioxide	8.50
369 %	Ce	Cerium	20.00
1155 %	Cl	Chlorine	12.00
305 %	Cr_2O_3	Chromium (as oxide)	8.50
323 %	Co	Cobalt	6.75
301 %	Cu	Copper	5.00
302 %	Cu	Copper - nonsulfide	7.00
346 %	F	Fluorine	8.50
370 %	Ga	Gallium	17.00
872 %	Ge	Germanium	17.00
325 %	Fe	Iron (total)	8.50
327 %	Fe	Iron (acid soluble)	6.75
451 %	FeO	Iron (ferrous)	6.75
372 %	La	Lanthanum	20.00
312 %	Pb	Lead	5.00
313 %	Pb	Lead - nonsulfide	7.00
356 %	Li	Lithium	8.50
442 %	LOI	Loss on ignition	5.00
357 %	MgO	Magnesium (as oxide)	7.50
328 %	MnO	Manganese (as oxide)	8.00

Procedure code		Element	Price
344 %	Hg	Mercury	$ 8.50
443 %	H_2O-	Moisture	6.00
306 %	Mo	Molybdenum	5.00
373 %	Nd	Neodymium	20.00
321 %	Ni	Nickel	6.75
374 %	Nb	Niobium	20.00
338 %	P_2O_5	Phosphorus (as oxide)	8.50
358 %	K_2O	Potassium (as oxide)	8.50
359 %	Rb	Rubidium	8.00
365 %	Se	Selenium	8.00
377 %	SiO_2	Silica (insoluble)	6.75
378 %	SiO2	Silica (fusion)	9.00
360 %	Na_2O	Sodium (as oxide)	8.50
444		Specific gravity	6.00
362 %	Sr	Strontium	8.50
379 %	S	Sulfur (gravimetric)	8.50
380 %	S	Sulfur (induction)	6.75
93 %	S	Sulfur (elemental)	15.00
381 %	Ta	Tantalum	8.00
350 %	Te	Tellurium	17.00
332 %	ThO_2	Thorium (as oxide)	9.50
343 %	Sn	Tin	6.75
382 %	TiO_2	Titanium (as oxide)	9.50
340 %	WO_3	Tungsten (as oxide)	8.00
335 %	U_3O_8	Uranium (as oxide)	9.50
363 %	V	Vanadium	8.50
873 %	Y	Yttrium	20.00
316 %	Zn	Zinc	5.00
317 %	Zn	Zinc - nonsulfide	7.00
874 %	Zr	Zirconium	20.00

A-3 BASE METAL PACKAGE

NEW

Price per sample $ 11.50

Copper, Lead and Zinc assay on the same sample.

ROCK-12

Price per sample $ 16.00

Classical whole rock analysis. Samples are fused with lithium metaborate prior to being dissolved in acids and analyzed by ICP-AES. Loss on Ignition (LOI) is included in the package price.

Element	Limit	Element	Limit
SiO_2	0.01 %	K_2O	0.01 %
Al_2O_3	0.01 %	TiO_2	0.01 %
Fe_2O_3	0.01 %	P_2O_5	0.01 %
MgO	0.01 %	MnO	0.01 %
CaO	0.01 %	BaO	0.01 %
Na_2O	0.01 %	LOI	0.01 %

The following parameters can be added to this package: H2O- (Moisture) to 0.01 % $ 6.00

H_2O- (Moisture) and H_2O+ (Water of Crystallization) to 0.01 % 12.00

Other parameters such as FeO, C, CO_2 and S, see assay schedule above.

■ ENVIRONMENTAL ANALYSIS

The Environmental Division measures concentrations of contaminating substances in water, air, soil, vegetation and animal tissue for clients in a wide range of disciplines including mining, energy, oceanography, transportation, health and government. Analytical methods adhere to those published by APHA-AWWA-WPCF, ASTM, EPA and Environment Canada, and primary reference materials circulated by domestic and international agencies are analyzed along with batches of samples. A list of parameters commonly used within the mining industry is given below. A more detailed brochure and price list for ENVIRONMENTAL ANALYTICAL SERVICES are available on request.

MULTIELEMENT ICP ANALYSIS FOR ENVIRONMENTAL WATER SAMPLES

PACKAGE G-48 **Price/sample $ 25.00**

Elements	detection limits
Ag, Be, Cd	1 ppb
Co, Cu, Mn, Mo, Ni, Sr, V, Zn	2 ppb
Bi, Pb	4 ppb
Ba, Cr, P, W	20 ppb
Al, Ca, Fe, K, Na, Mg, Ti	0.2 ppm

Note: Different detection limits and other elements are available on request. We reserve the right to select the most appropriate digestion and extraction procedure unless a particular method is specified by the client when the samples are submitted. For solids detection limits see MULTIELEMENT section.

ACID/BASE ACCOUNTING

PACKAGE G-2 **Price/sample $ 55.00**

Includes the following parameters :
Sulfur
Maximum potential acidity
Neutralization potential
Paste pH

Price does not include any sample preparation charges (if required).
Forms of sulfur available by quotation.

SWEP package NEW **Price/sample $ 85.00**
Special Waste Extraction Procedure (B.C. MOE).
Extraction for solid waste classification.

	Price/sample
Alkalinity	$ 9.00
Acidity	9.00
B.O.D. (5-day)	25.00
Boron	18.00
Carbon-total organic	19.00
-total inorganic	10.00
C.O.D. Chemical Oxygen Demand	25.00
Chloride	10.00
Coliform-total	22.00
-fecal	22.00
-total and fecal	22.00
Colour -true	8.00
Conductivity	8.00
Cyanide - free	21.00
- weak acid dissociable	30.00
- total	30.00
Dustfall	30.00
Fluoride	10.00
METAL CATIONS Preconcentrated by chelation/solvent extaction Cd, Cr, Co, Cu, Pb, Mn, Mo, Ni, Ag, Zn (to 1 ppb) dissolved or total	
1st element	10.00
Each additional element	5.00

	Price/sample
Nitrates-nitrites-NOX	$ 12.00
-NO_3	12.00
-NO_2	9.00
Nitrogen-Kjeldahl	17.00
Ammonia	12.00
Oil & grease	20.00
pH	4.00
Phenols - total	23.00
Phosphates - total	17.00
-ortho	14.00
Silica - reactive	10.00
Solids - total dissolved	10.00
- total suspended	10.00
+ volatile dissolved	4.00
+ volatile suspended	4.00
Sulphate	10.00
Sulphide	15.00
Surfactants (MBAS)	25.00
Tannin & Lignin	12.00
Turbidity	8.00
METAL CATIONS - Direct AA Analysis Cd, Cr, Co, Cu, Fe, Pb, Mn, Mo, Ni, Ag, Zn Al, Ba, Ca, Li, Mg, K, Na, Sr, V	
1st element	9.00
Each additional element	4.00

METAL CATIONS by specific analytical techniques

Antimony	17.00	Selenium	17.00
Arsenic	17.00	Tin	17.00
Mercury	20.00	Uranium	20.00

Highly contaminated samples will not be accepted for analysis without a suitable description of the source. Residual sample will be returned to the client for disposal.

SAMPLE PREPARATION

We emphasize the importance of properly preparing a sample for analysis. For most types of analytical determinations only a small fraction of the sample is utilized. The analytical result must be valid for the entire sample and not just for this sub-sample. In effect, a poorly prepared sample is not worth analyzing. Routine sample preparation procedures are listed below. Sample preparation procedures can be customized for any project. Please call for details.

ROCK AND DRILL SAMPLES

NOTE: Codes in parentheses refer to procedures for geochemical (trace level) samples rather than ore-grade material. Separate facilities are used to avoid contamination.

Procedure code	Description	Price per sample
208 (205)	Multiple stage crushing of up to 10 pounds of sample; riffle split and pulverize to approximately -150 mesh.	$ 3.25
248	Same as code 208, but using a ceramic (ZrO_2) pulverizer which eliminates Fe and Cr contamination.	3.75
207 (212)	For samples with suspected nugget or free gold effects. Procedure as per 208, then sieve pulp through a -150 mesh screen. Examine +150 mesh fraction for metallics. If present, save +150 mesh fraction; if not, +150 mesh fraction is hand pulverized and homogenized with original sample.	4.00
277	Crush and pulverize the entire sample (up to 10 pounds) to approximately -80 mesh, then take a representative split and pulverize to less than -150 mesh.	6.50
247	Pulverize -10 mesh material to less than -150 mesh.	2.00/lb
219	Drying charge. Applied to samples too wet to be crushed upon receipt.	0.35/lb
251	Overweight charge for procedures 208/205 and 207/212. (Over 10 pounds)	0.30/lb
271	Overweight charge for procedure 277. (Over 10 pounds)	0.60/lb

SOIL, HUMUS OR SEDIMENT SAMPLES

201	Dry, sieve through a -80 mesh screen.	$ 1.00
202	Dry, sieve through a -80 mesh screen and save the +80 mesh fraction.	1.25
203	Dry, sieve through a -35 mesh screen and pulverize to approximately -150 mesh.	2.25
217	Dry and pulverize entire sample (up to 200 grams) to approximately -150 mesh.	2.25
243	Same as code 203, but using a ceramic (ZrO_2) pulverizer which eliminates Fe and Cr contamination.	2.75

CONCENTRATES

235	Pan concentrates. Dry, ring pulverize entire sample to approximately -150 mesh.	$ 3.25
209	High grade concentrates. Dry, ring pulverize sample to approximately -150 mesh.	6.50

NOTE : The fee schedule for sample preparation procedures applies only to samples that are subsequently analyzed in our laboratories. Samples submitted for sample preparation only will be billed out at twice the list price and will not receive priority treatment.

SAMPLE AND REJECT STORAGE POLICY

Samples, including both pulps and coarse rejects, will be retained at customer's sole risk for a period of 90 days for pulps and 30 days for coarse reject. Samples will then be discarded unless picked up or, alternatively, placed in storage pursuant to written arrangements with Chemex. Chemex will take all reasonable care to protect samples during analysis and storage but shall incur no liability for loss or damage thereto from any cause whatsoever.

USA

NEVADA - RENO
994 Glendale Avenue. Unit 7
Sparks. NV
USA 89431
Phone: (702)356-5395
FAX : (702)355-0179

NEVADA - ELKO
651 River Street
Elko. NV
USA 89801
Phone: (702)738-2054
FAX : (702)738-1728

ALASKA
5640 B Street
Anchorage. AK
USA 99518
Phone: (907)562-5601
FAX : (907)562-6502

MONTANA
103 North Parkmont. Industrial Park
Butte. MT
USA 59701
Phone: (406)494-3633
FAX : (406)494-3721

IDAHO
2723 South Cole Road
Boise. ID
USA 83709
Phone : (208)362-3435
FAX : (208)362-3358

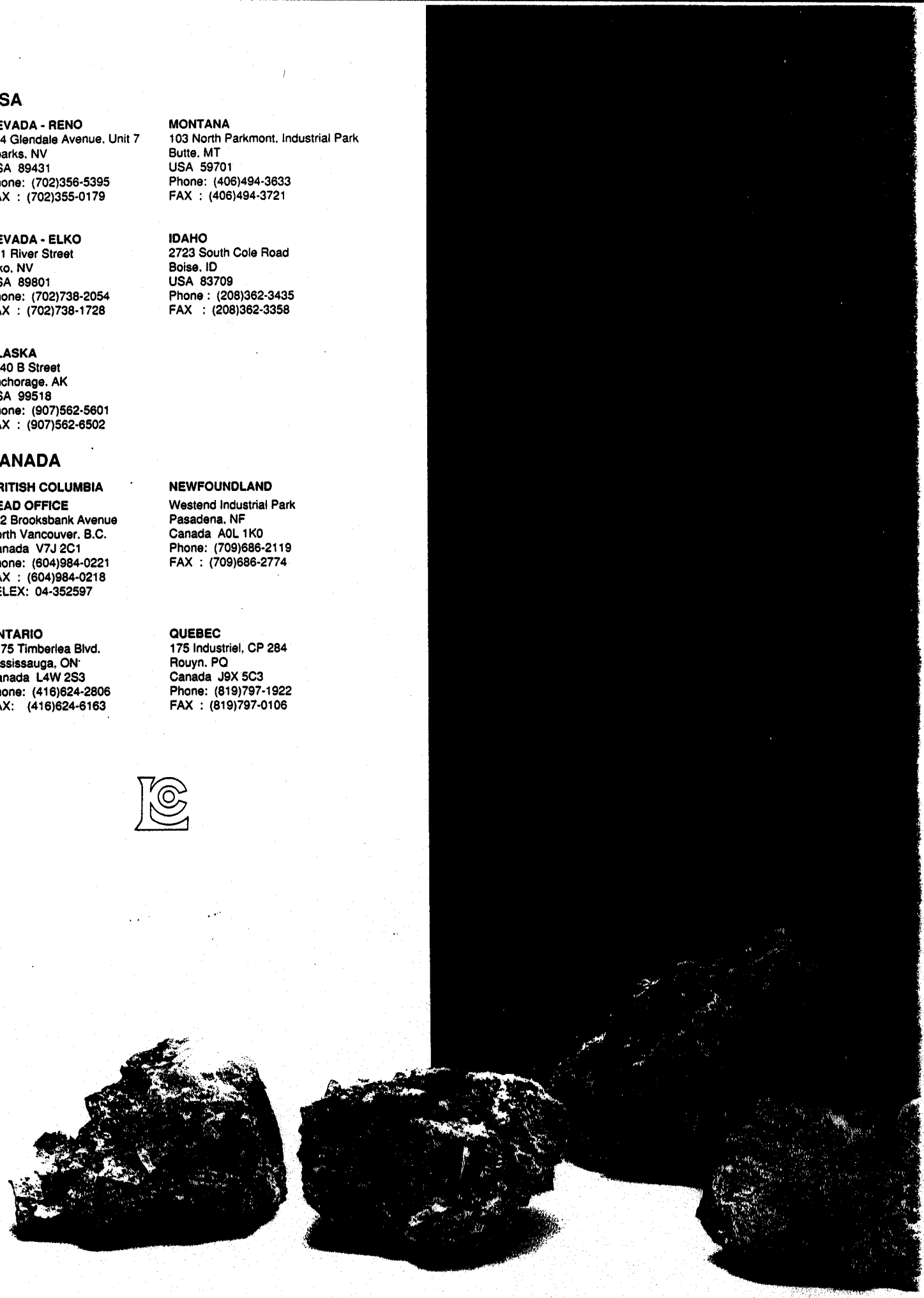
CANADA

BRITISH COLUMBIA
HEAD OFFICE
212 Brooksbank Avenue
North Vancouver. B.C.
Canada V7J 2C1
Phone: (604)984-0221
FAX : (604)984-0218
TELEX: 04-352597

NEWFOUNDLAND
Westend Industrial Park
Pasadena. NF
Canada A0L 1K0
Phone: (709)686-2119
FAX : (709)686-2774

ONTARIO
5175 Timberlea Blvd.
Mississauga, ON
Canada L4W 2S3
Phone: (416)624-2806
FAX: (416)624-6163

QUEBEC
175 Industriel, CP 284
Rouyn. PQ
Canada J9X 5C3
Phone: (819)797-1922
FAX : (819)797-0106



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