JAD Consulting S.A. (Tentative)
Cachiyuyo 98, Copiapo, CHILE (Tel: 22 58 40)
1408 Seventh Avenue, New Westminster, B. C.
V3M 2K3, CANADA (Tel/Fax: (604) 525-8403)

Mr. Gary Pierce, C.E.O., President
CSI AG
3792 Berry Dr., Studio City, California, 91604
Tel: (818) 508-1383 Fax: (818) 508-1530

Dear Mr. Pierce:

Our group has learned of your mining involvement in Chile through Mr. Hal Gardner. We have had the pleasure of dealing with Hal through his involvement with one of our clients, an Alberta, Canada company. In the course of examining two of Hal's properties in the area southeast of the Piedra Parada Salar, we crossed over the *Piedra Amarilla* property and examined some of the trenching with Hal.

To give you some background, our group consists of three principals, with a brief personal description as follows:

Alex Burton, P.Eng., P.Geo. - Senior mining explorationist and mine manager, with over 40 years combined experience all over the world; graduate of the University of British Columbia; registered as a Professional Engineer and as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia.

Doug Symonds, P.Geo. - Graduate of the University of British Columbia in Geology (1972); registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia; 25 years experience in mining exploration in Canada and abroad.

Juan Jose Cabuto Vidrio, Mining Engineer - Mining Engineer from Tiajuana, Mexico; fluent Spanish and English; registered with the American Association of Mining Engineers (AIME).

The three of us have become so excited about the mining opportunities that we have seen since arriving in Chile that we have decided to form a Chilean consulting company. We feel that this is the only efficient way to serve our clients with properties in Chile. We will be able to offer the most modern and well-maintained exploration equipment, realistic property budgets, timely data for news release-promotional purposes and technical reports which fulfill the requirements of North American regulatory bodies (in Spanish and in English).

Our preliminary pass over the *Piedra Amarilla* property indicates that this property does exhibit the classic signature of an epithermal deposit and is certainly worthy of an exploration program. The surface of the property is covered by a thin film of talus from exposures of upslope unaltered outcrop which tends to mask the less erosional resistant altered rocks of the epithermal zone. The epithermal altered zone consists of rocks which have been turned to various mineral clays by the hot extremely acid solutions. Typically epithermal zones consist of a footwall or most intensely altered zone of kaolinite plus or minus of other alteration products. This zone is typically suceeded outward by less altered zones such as illite type clays and in the next zone out the quartz, sericite, pyrite which is surrounded by the most outer zone of propylitic alteration next to the fresh rock. These zones of alteration are mappable and are used to outline areas of greater precious metals deposition which is usually found in the most intensely altered location. In addition there is a great variation in the vertical changes in the composition of the mineralogical compositions which can also be mapped and is used to help define the position in the system where the greatest amount of gold is found.

On the *Piedra Amarilla* there is a strong wide zone of epithermal alteration consisting of kaolin type clays which are infilled with several ages and types of silica, as well as dumortiorite, sulphur, black calcite, minor sulphides, and probably other minerals. In the short time available for the examination no further identification of minerals could be made. A narrow aplite dyke was seen cutting the altered rocks. This kind of dyke usually comes in as a first opener along the source fault.

The *Piedra Amarilla* property certainly has a yellow coloration due to the sulphur content to match its name. It is indeed an excellent exploration bet and should be explored for the possibility of a large tonnage deposit which has

potential for low grade open pit operation as well as a good chance for higher grade gold values.

We will be carrying out a preliminary program of field work in the immediate area for our Alberta, Canada client, starting tomorrow. There is still a short window of time available for exploration on the *Piedra Amarilla* property before the Chilean winter brings snow to this high altitude (4500 meter) property.

If you should require any further information about our services, please do not hesitate to contact me. We will be in El Salvador, Chile from April 3 to 7, so that you may leave a message or fax at Hal Gardner's place in Copiapo (Tel-Fax: 22 58 40).

Yours truly,

Doug Symonds

Doug Symonds, P.Geo.
Consulting Geologist
JAD Consulting S.A. (Tentative)

STATEMENT (2 Pages)

Copiapo, Chile
April 7, 1997.

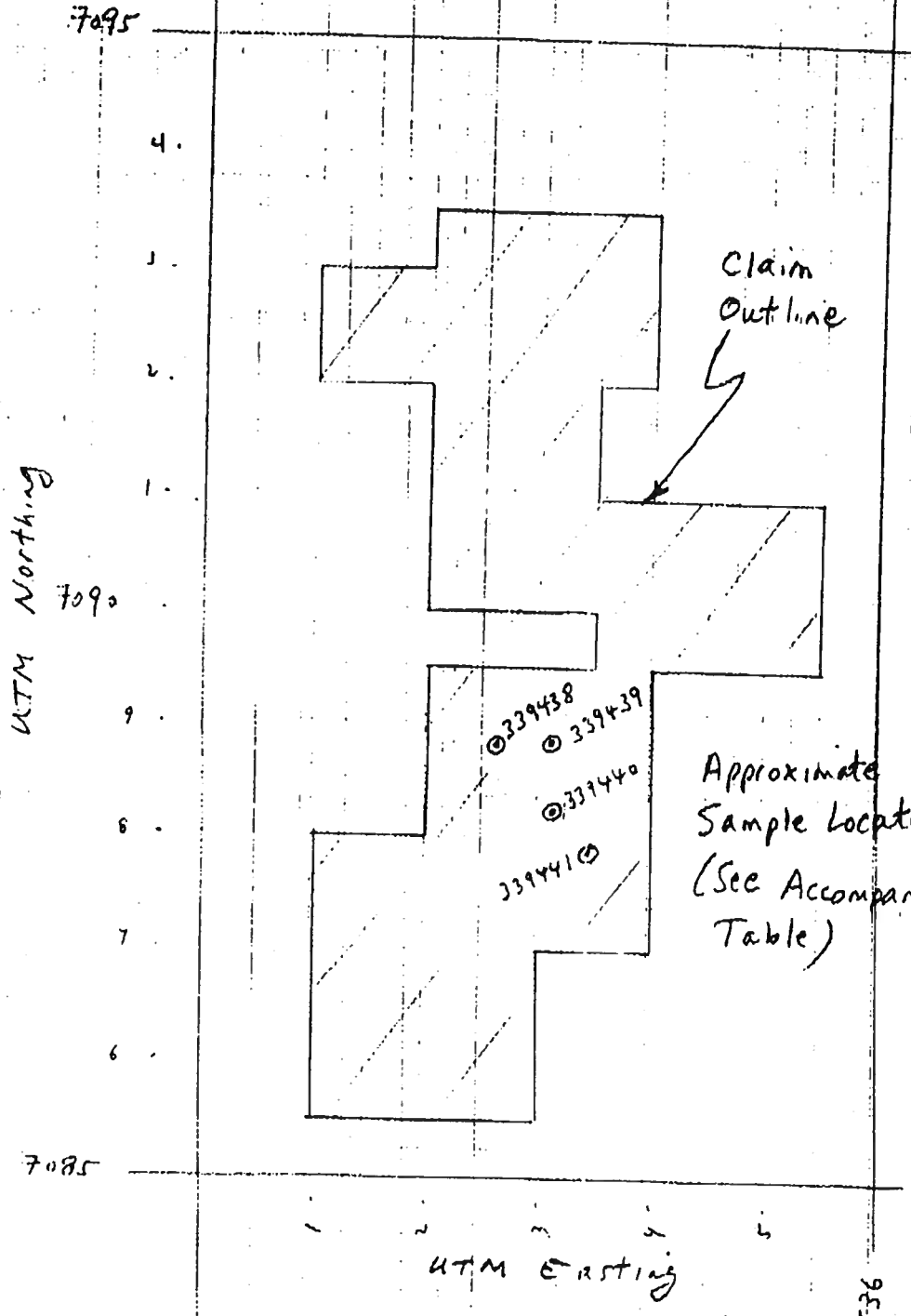
On April 6, 1997, I visited the *Piedra Amarilla* mining property owned by *CSI AG* of 3792 Berry Dr., Studio City, California, USA, 91604. The purpose of this visit was to obtain samples from trenches which had been dug previously under the supervision of Mr. Hal Gardner, a representative of the company. These trenches are in a highly altered area, exhibiting many of the signature characteristics of epithermal systems (aplite dyke material, black calcite breccia, intense clay alteration). Four samples were taken under my direct supervision from four different trenches in a localized area on the property as follows:

Sample Number	***Sample Type***	***UTM Easting***	***UTM Northing***
339438	composite of material from several locations within shallow sloughed (about 1 meter depth) trench; sample taken with small shovel; sample weight about 10 kg.	532570	7088211
339439	(as above)	533086	7088449
339440	(as above)	533490	7087979
339441	(as above)	533114	7088253

These samples will be split into two fractions by a local (Copiapo) laboratory. One fraction will be used for leach testing in Copiapo, Chile and in Tucson, Arizona, USA and the other, smaller fraction will be shipped to *Chemex Laboratories* in North Vancouver, British Columbia, Canada for analysis using standard and modified fire assay techniques as mutually agreed between myself, Mr. Gardner and *Chemex Laboratories*.

Doug Symonds, P.Geo.
JAD CONSULTING S.A. (Tentative)
501 - 9847 Manchester Dr.
Burnaby, B.C., Canada, V3N 4P4
Tel: (604) 444-5729 Fax: (604) 444-5731
Copiapo Tel: 22 58 40

CSI AG
PIEDRA AMARILLA PROPERTY
DISTRICT III CHILE



Sketch Map - Sample Locations
April 7, 1997

(604) 444-5729
(604) 444-5731

Doug Symonds, P.Geo.
501 - 9847 Manchester Dr
Burnaby, B.C. Canada

Laboratorio Químico Metalúrgico, Minería y Otros
GUBIER MARAMBIO HUANCHICAY
RUT. 5.108.779-8
Casa Matriz : Panamericana Sur 261 - Fax (052) 213654
Fono 211726 - Copiapó
Sucursal : Planta Potrero Seco - Tierra Amarilla

INFORME DE ANALISIS QUIMICO

Nº 005156

Nombre SR. HAROLD GARDNER WOOD
Muestra MINERAL
Clase RECONOCIMIENTO
Fecha Recepción 22-03-97

Emisión 26-02-97

MUESTRA		Leyes AU Gr. / Tn.	Leyes AG Gr. / Tn.	Leyes Cu T. %	Leyes Cu Sol. %	Leyes Cu Insol. %
M - 131	- 100 #	0,15	6.-	-	-	-
M - 161	"	0,18	4.-	-	-	-
M - 161 N	"	0,31	4.-	-	-	-
M - 161 Pepa	"	0,16	6.-	-	-	-
M - 161 Port	"	0,28	4.-	-	-	-

Observaciones: La determinación de oro se verifica por fusión. El botón de oro se observa al microscopio.

Laboratorio Químico Metalúrgico
Ing. Dpl. Gubier Marambio H.
PANAMERICANA SUR 261
COPIAPO
Firma Autorizada

IMP. BARAHONA MAIPU 631 FONO FAX 213047 COPIAPO

Karl F. Meyers
Mineral Consultant
P.O. Box 60261
Las Vegas, Nv. 89160

December 16, 1995

Mr. Gary Pierce
3792 Berry Drive
Studio City, Ca. 91604

Dear Mr. Pierce:

My associate, Mr. Bernard G. Long, P.E., has, in his letter of December 15, 1995, adequately addressed the status of the mineral reserves located in the "CHILE SULFUR PROJECT" and the "PIEDRA AMARILLA PROJECT" previously reported by Parsons (1988) and C.S.I.-Minexco, (1990).

The addition of titanium values to the reserve calculations greatly enhances the opportunity for economic success of the project. Two percent titanium, when processed into sponge, adds a gross value to the ores of more than $100 per ton at current prices.

Titanium oxide (Rutile) having a specific gravity of 4.6 allows for gravity concentration, if desired. Other titanium recovery methods employ digestion with sulfuric acid which may be produced locally.

The sulfur may be removed by leaching with hydrogen sulfide and ammonia; may be vaporized under vacuum or concentrated by flotation.

Laboratory tests are in order, using the latest technologies, to determine the most economic large scale methods of recovering the titanium and sulfur values from the subject ores.

The gold and silver values given in the report appear to be minimal.

Using the average calculated values per ton given for the deposit:

TiO2	Ti	Sulfur	Gold	Silver
2.7%	1.62%	18.72%	0.32g	6.78g

and assuming recoveries of 90% and using November 1995, E & M J prices of:

	TiSponge		%Rec		%Ti	#/%		
	$4.00/#	x	0.90	x	1.62	x 20	=	$116.64
Sulfur @ $60.00/ton								
	$0.03/#	x	0.90	x	18.72	x 20	=	$ 10.11
Gold	$385.10/oz	x	0.90	x	oz/31.1g	x 0.32g	=	$ 3.57
						Total per ton		$130.32

Given the total inferred ore reserves of 173,800,000 tons @ $130.32 gross recoverable values results in an estimated recoverable value of $22,650,000,000.

As postulated by Mr. Long, more definitive work on the deposit could well increase the gross value above by quantifying and increasing the known values. Both Mr. Long and myself are pleased to be of technical assistance to you in the evaluation of this project and will be happy to assist you further in this endeavor.

Sincerely yours,

Karl F Meyers

Karl F. Meyers

Karl F. Meyers
Mineral Consultant
"World Wide Mineral & Mining Consulting"

Present:	Consultant to I.S.N. on C.S.I. Ag. Chile, PIEDRA AMARILLA PROPERTIES.
1994 - 1995	Designed, engineered and built state of the art, 40 ton per hour, sand and gravel plant, with placer gold recovery system, Yuma County, Arizona.
1992 - 1994	Mineral Consultant, Las Vegas, Nevada.
1991 - 1992	Designed, engineered, and completed construction of the metallurgical pilot plant at Henderson, Nevada for the Carl Semon Pilot Plant Group.
1989 - 1990	Mineral consultant in Las Vegas and Caliente, Nevada, Filed for and received as copatentor, Siphon Gravity Classifier and Clarifier, U.S. Pat. No. 4,961,842 issued October 9, 1990. Conducted pilot plant test work and analysis of mineral potential of Kerr McGee and other holdings at Pioche, Nevada; at the Caselton mill tailings, and the Atlanta mill tailings, in Lincoln County, and at the Potosi Mine in Clark County.
1984 - 1988	Conducted pilot plant test work at Cerro del Oro mill site in New Mexico. Developed holistic humate based fertilizer for agricultural and garden use. Developed the Cyclo-Tewel, a method of pumping dry solids with low pressure air.
1982 - 1983	Was project manager responsible for all phases of the operation at silver mine in Sonora, Mexico for Pena Blanca Mining Co. (Murchison) of Dallas, Texas. Engineered open pit mine and installation and operation of flotation and gravity circuit mill.
1979 - 1981	Operated general uranium business managing properties in New Mexico, Wyoming, Utah, and Nevada until uranium mining became unprofitable. Resigned position as Director of Bank Securities, Inc..
1978	President and Chairman of the Board, Uranium King Corporation; Director, Cia Minera Sahuaripa, Mexico; Director, Bank Securities, Inc.; President, Navajo Nuclear Corporation.
1977	Formed A&M Mining and Milling, a new Mexico Partnership; founded Navajo Nuclear Corporation and Navajo Nuclear Limited Partnership.
1976	Elected to Board of Directors of Bank Securities, Inc. of Mexico.
1975	Gold mine operator, Imperial County, California.
1974	Built and operated 40 ton per hour heavy gold separation plant, Imperial County, CA..
1972 - 1973	General mining business and corporate management, plus partnership in exporting mining machinery to Mexico through Nogales, Arizona.
1971	Built 100 ton per day flotation plant in Sonora and operated Mexican silver mine in Sonora for Cia Minera Sahuaripa; shipped silver concentrates to Chihuahua smelter.
1969 - 1970	General Partner, Summit Limited; partnership operating uranium mines and properties in Wyoming, New Mexico and Utah.

1968 General Partner, Summit Partners; operating uranium properties in Wyoming, New Mexico and Utah; made original uranium discovery in Rio Puerco area, New Mexico, extending the Grants Mineral Belt to the east of Mt. Taylor; became President of Uranium King Corporation; formed Summit Nuclear Corporation to hold Mexican silver mine and Apex Mine in Nevada; purchased Apex Uranium mine in Nevada.

1966 - 1967 General uranium property acquisition and development in Wyoming, New Mexico and Utah.

1965 - 1966 Engineer on project to open and develop Dios Padre Silver Mine at La Trinidad, Sonora, Mexico.

1960 - 1964 Built and operated plants to make protein supplement from turkey feathers in Swink, Colorado and Ogden, Utah; owned and operated a Wyoming guide and outfitters business, Wind River Ranch, Inc., Dubois, Wyoming; discovered Jennings-Meyers uranium ore body, East Gas Hills area, Wyoming; operated uranium service business in Wyoming.

1957 - 1959 Became President of Shirley Basin Development Corporation; uranium property operator and engineer of open-pit and under-ground uranium mining, Gas Hills and Shirley Basin, Wyoming, and Lisbon Valley, Utah; oil property surveyor, Farmington, New Mexico.

1956 Served as field engineer and assisted in exploring and developing many major uranium ore bodies in Ambrosia Lake area, New Mexico.

1955 Discovered first uranium ore body in Shirley Basin, Wyoming; operated contract drilling services in Wyoming and Nevada.

1952 - 1954 Graduate student, staff member and research plant supervisor, Texas A&M University, College Station, Texas.

1949 - 1951 Student, Texas A&M University; degrees: BS - Agriculture; BS - Military Science; BS - Preparatory Medicine; graduate work in Biometry and Biochemistry; distinguished student, distinguished military student, ROTC, Cadet Company Commander, Student Senator, Alpha Zeta.

1948 Student, West Texas State College, Canyon, Texas; varsity football; Moderator, Texas Presbyterian Youth Synod.

1946 - 1947 U.S. Army, 11th Airborne Division; football team; All Service Football Team, 1947; Army of Occupation of Japan.

1944 - 1945 Student, West Texas State College, Canyon, Texas; varsity football; Red Cross Water Safety Instructor, Waterfront Director, Boy Scout Camps.

1940 - 1944 Student, West Texas High School, Canyon, Texas; football, basketball; FFA, National Honor Society.

1934 - 1939 Student, Borger, Texas and Canyon, Texas.

Professional Organizations:

Society for Mining, Metallurgy and Explorations, Inc., Association of Waste Water Operators, Who's Who World Wide.

Clients Include:

Kerr McGee, Exxon, Gulf, Arco, Asarco, Sahuaripa, Cyprus, Duval, Valueline, Wencor, Amnuc, Unity and others.**(Consultant to I.S.N. on C.S.I. Ag.)**

1928 Born February 14 to Edward H. and Edith F. Meyers in Borger, Texas.

GOLD RESERVES ESTIMATED VALUES: CONTINUED.

At 2012 Gold Prices.

Total estimated gold reserves in PIEDRA AMARILLA PROPERTIES:

Equals: 115,920,000 metric tons(m/t) of Gold;

Averaging in grams: per ton 4.5(g/t).

115,920,000 m/t.

x 4.5 g/t.

521,640,000 grams of gold in property.

521,640,000 grams (measured area of property.)

divided by: 31.103 grams per Troy Ounce.

16,771,372 Estimated Troy ounces.

16,771,372 Troy/oz. in gold reserves.

x $1,700.00 oz. average, price per troy ounce.

$28,511,332,000.00. An estimated gold reserves,

========== in PIEDRA AMARILLA Property's.

Long Engineering MINING & RECLAMATION

December 15, 1995

Mr. Gary Pierce
3792 Berry Drive
Studio City, CA 91604

Dear Mr. Pierce:

Mr. Karl Meyers presented me with an updated report by Parsons, entitled "PIEDRA AMARILLA PROJECT, TITANIUM AND BYPRODUCTS STUDY", completed for C.M.I. - Minexco. This was a follow up prefeasibility study of the "CHILE SULFUR PROJECT", also completed by Parsons on November 15, 1988.

The Sulfur study indicates a very large Chilean sulfur deposit, easily minable by surface methods with high recovery using conventional milling and metallurgical processes. Gold and silver were considered byproduct. Once the prefeasibility was complete, the metallurgist learned the deposit contained Rutile, a Titanium Oxide, and other Titanium compounds which are much more valuable than Sulfur.

The deposit is located in Northern Chile, east of El Salvador, in the Andes Mountains, near the Argentina border, and at an average elevation of 4500 meters. Vehicle Access is on unimproved 4WD roads. The climate and elevation are well suited for year around mining.

I spent a considerable length of time reviewing the "Titanium and Byproducts Study" and found the report to be quite thorough, even though the Titanium reserves, 174 million tons, were classified as "Inferred". Areal photos along with ground measurements, surface sampling, and trenching was extensive over large areas of the property. The property is large, 3800 hectares which is well over 9,000 acres. Sufficient bulk samples were taken to give uniform results and good metallurgical results.

Rutile was the chief Titanium mineral, and one of the easiest to extract metallurgically. Gold quantities were reported to be .26 grams and .33 grams per ton. These are low grade reserves, and are only recoverable as a Titanium/Sulfur byproduct. Sulfur then becomes a secondary product as does Silica. In total, the aggregate minerals in these surface minable deposits are definitely economical and are of sufficient volume to classify the deposit as "World Class".

The Parson report is well documented and reflects excellent field work and elaborate laboratory testing and analysis, typical of Parson' work that I have reviewed in the past. It is obvious, however, that this is a prefeasibility study, and much more work is required, particularly in deep drilling, to define the measured reserves. Typical of much of Parson's work, ore reserves, as reported are usually conservative, leaving a likely possibility of there

313 Vallarte Drive Henderson, NV 89014 702 898 0390

being considerable more, most likely in depth.

I would recommend, without further contemplation that the owners, or others interested parties follow up with a full blown feasibility study, bringing into focus, current market demand and delivered prices of Titanium pigment, followed by an up dated capital and operating cost estimate. A major drilling campaign has to be considered as the next step in proving the reserves and expanding the metallurgy to the deep ore grades. Reverse circulation drilling combined with a number of twinned core holes on a well defined geologic spacing should commence once the marketing studies and cost are brought up to date.

Additional spot drilling is often required once the ore zones, faults, fractures and offsets are determined from the preliminary drilling . This additional drilling, more often than not, will increase the reserves. It will provide a better understanding of the various features of the ore body, including structure and grade, and will permit reclassification from "Inferred to Indicated and Measured reserves, which is necessary to finalize a "bankable feasibility study".

Lastly, it is very important that the final metallurgical process be given close scrutiny by a second party. In many cases, the successful outcome of a world class ore deposit is dependent upon the correct application of extractive metallurgical processes.

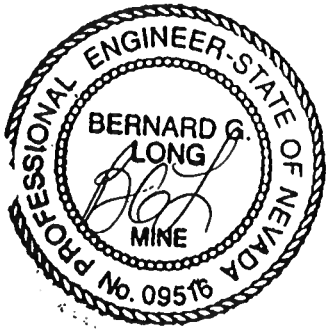
If I can be of any further assistance in evaluating the merits of this project, I can arrange to be at your disposal.

Sincerely yours,

LONG ENGINEERING

B. G. Long P.E.
President

copy: Karl Meyers



BERNARD G. "BUD" LONG P.E.
Mining Engineering 35 Years

QUALIFICATIONS

Graduate Mining Engineer - B.S. South Dakota School of Mines & Technology

Registered Professional Engineer - Nevada #09516 - Texas #39734

Registered Geologist - California #1769

CAREER DEVELOPMENT

Executive Computer Simulation - IBM
Project Financial Analysis - Pennsylvania State U.
Management by Objectives - California Institute of Technology
Time Management - California Institute of Technology
The Art of Negotiation - California State (Pamona)
Business Financial Analysis - Texas A & M
Executive Television Performance - University of Houston (TX)
Government and Business - Shell Oil Co.
Economic Evaluation of Mineral Properties - Stermole, Golden Co.
Organizational Development - Shell, Exxon, Tenneco & Alcoa Study Group

PUBLICATIONS

"New Engineers in the Work Place" Mining Engineering January, 1977

PROFESSIONAL EXPERIENCE

President Long Engineering Co.

• Consulting engineering for Gold & Silver, Talc, Gypsum, Limestone and Coal.

• Grassroots projects, claim surveying, exploratory drilling; project feasibility studies, process improvements, mineral property leasing and sales, organizational development, environmental engineering.

Vice President of Operations, Kaiser Coal Corp.

• Management authority of 700 plus employees engaged in the production of 4 million tons per year of metallurgical and steam coal. They included regional vice presidents, engineers, geologists, accountants, environmental, mining, processing, maintenance and clerical staff.

• Directed capital and operating expenditures of $100 million per year.

• Implemented mining and processing equipment and facilities improvements including surface mining drag-lines, cast blasting techniques, underground long-wall mining methods, process gravity separators and 'hydro-cyclones'.

• Negotiated leases of the company's precious metal properties.

Vice President Mining Coastal States Energy Co., Shell Oil Co.

• Started a multi-million dollar grass roots coal mining division designed to have five major mines in production within 10 years and producing at a rate of 30 million tons per year.

• Interviewed hundreds of engineers and eventually hired 37 top rated experienced engineers and geologists at a time when there was an acute shortage.

• Acquired a profitable on going 4 million ton per year coal company in Ohio, and constructed at this facility a new coal wash plant silo storage facility, unit train load out facility and a barge loading facility.

• Developed feasibility studies with complete mine plans for 5 large surface coal mines to produce up to 8 million tons per mine annually.

Director of Western Operations, Pfizer Inc.

• Directed the operations, engineering, and exploration functions of a network of production facilities for limestone, lime, talcs and clays.

• Directly supervised 15 mine managers, engineers, geologists employee relations and accountants; who in turn directed the activities, training performance evaluations and promotions of 350 others.

• Directed a Product and Process Improvement Program wherein each salaried employee selected from one to five projects annually that would, when completed result in major cost savings, or a new or improved product. This ongoing program resulted in timely replacement of surface and underground mining equipment, state of the art processing machinery, and numerous new profitable product lines, particularly in micron size talc products for use in paint and ceramics.

Mine Manager Fiberboard Paper Products Co.

• Responsible for the engineering, operations, and maintenance of a 200,000 ton per year surface gypsum mine and washing facility, employing 35 salaried and operating personnel.

• Redesigned and rebuilt the wash plant to include more efficient dewatering and drying equipment, namely DSM screens & 'hydro-cyclones'.

• Developed a dossier ripper and scrapper mining method that for many years reduced mining costs and produced less fines in the ore resulting in higher product recoveries in the wash plant.

Mine Engineer to Mine Superintendent, U.S. Gypsum Co.

• Managed a 100,000 ton per year underground gypsum mine using conventional coal mining methods and equipment.

• Was one of the first underground mines to convert to Diesel powered haulage equipment and Ammonium Nitrate Fuel Oil explosives in horizontal bore holes 1 1/2" in diameter.

• Developed a roof control, method using hi-tensile steel bolts that allowed splitting of the roof rock for increased mining height and longer mine life.

Plant Operator, Homestake Mining Company

• Relief operator in a 6500 ton per year gold cyanide leach plant during summers and after school hours.

United States Airforce

• Honorable Discharge

(Present; Consultant to I.S.N. on C.S.I. Ag. Chile, PIEDRA AMARILLA PROPERTIES. 'Position to consult, review and confirm documentation'...)

William H. Boyce

BACKGROUND

- Product design/ development, prototype building, manufacturing and R&D for processes and systems, provided production support, sustaining engineering and training for new product start-up/ introduction, ES&H, FMSA
- Proven record of accomplishment in design for form, fit, functions and budget
- Interface with customers to establish needs, propose solutions
- Contract Engineer for defense and national laboratory (LLNL - DOE), industrial and consumer products
- Hard rock Gem mining of Granitic Pegmatite; Adit into Slope (vein)

SKILLS AND EXPERIENCE

* Plant Instrumentation and Process controls, Safety equipment; Calibration-Installation-Repairs for Titanium Metal refining,

* NIF FODI (Final Optics Damage Inspection) vacuum simulation chamber; E-O interface, Optical I/O with mounts for E-M manipulator to position and focus optics, vacuum and control systems operation/ data IF

* NIF PDS (Power Diagnostic System) vacuum system; calculations, system design and operation algorithms ; lab hardware and instrumentation deliverables; Functions include days plan, status, work orders, PO, Revisions/Redlines, ES&H, Specifications/ FMSA,

* Technical writing and publications for: Procedures; (Ops, ATP, CTP, ISO9000), Documentation, Specifications, Design/ System reviews; (SRR/PDR/CDR), Test Plans; (TRR, ORR) and Trade Studies

* NIF TSF Reference Towers; Primary Laser alignment tool, engineered new Flexure mounts to replace catalogue positioners for FO / Optics and redesign/ retrofit of TSF/CSF Towers kinematic mounts and survey Retroreflectors for global alignment

* Improved cost for U-AVLIS (Uranium - Atomic Vapor Laser isotope Separation) plant, for beam quality diagnostics and transport power efficiency with effective industrial system designs using water flow calorimetry and spectral resolved average power measurements for tuning laser system operating up to 5KW CW, at atmosphere and within vacuum. Supported plant LCW (Low Conductivity Water) system with specs and component compatibility for flow measurement/control, specifying control system bus (HI Fieldbus with migration to H2) for remote/distributed sensors

* Redesign for cost effective manufacture of U-AVLIS beam Diagnostic Packages; Minimize volumes, hardware and degrees of freedom, remove or limit "optical bench" type devices, redefine E-O components and interfaces, O-M ruggedness and alignments, emphasize commonality, modularity, kinematic mountings

* Solved, with minimal cost impact, the thermal management problem affecting surface figure for operation in vacuum of U-AVLIS adaptive optics/ mounts used for wavefront correction of high-power laser beams; conceived reflector shield with special diffuser surface and reflective coating tailored for spectral band

* Decreased labor requirements, improved Accuracy/ QC Traceability and performed System final ATP for Lockeed Starlab contract deliverable on common modular platform by designing/ developing an Integrated Autocollimation Alignment and Test System with Broadband/ Laser sources, ZYGO IF and CCTV to close feedback loop to build and test the Focal Plane Bench Optics module. A common optical channel input split into parallel multi-channel / spectral focal plane suite of output sensors; For manned space flight hardware requirements

William H. Boyce

* lowered costs for Optical Encoder by developing E-O/ O-M robot Assembly/ Test Station that increased production rate and precision of modular assembly's for; (A) Emitter/ Projection Optics (B) Incremental Encoder Disk/ Scan Mirror (C) Hybrid circuit on Flexible PC for Hughes FLIR Thermal Night Vision Scanner. An IR Common Module Scanner for military/ commercial applications
* Developed cost effective retrofit for the DETECTOR/ TEC ACTIVE COLD WALL module for Hughes IPD "PROBEYE" MIR thermal imaging inspection system.
* Developed Analog thermal control system to lower cost of media by replication and prototyped Linear Drive Scanner for credit card style Optical Data Storage Reader
* Class 100-1000 Clean Room experience for Aerospace/ Semiconductor Industry and DOE Laboratory

EMPLOYMENT HISTORY:

Current:
Lapidary service of Optical/Gem materials, Geology/Geophysics and mineralogy research

- Titanium Metals Corporation: Maintenance Dept; Process and control instrumentation Technician 2006-2017
- Mechanical Engineer IV: JOHNSON CONTROLS (MVP) Assigned to NIF-BIS/ NEL program LLNL - LSED 2002-2003
- Technical Writer: OJT Union City, CA (ISO Documentation & Assembly Procedures); assigned to KLA-TENCOR/APPLIED MATERIALS 1999-2001
- Mechanical Engineer: ON-SITE ENGINEERING; assigned to U.A.V.L.I.S. program LLNL-LSED 1998-1999
- Optical Manufacturing Engineer: A.T.R. San Jose, CA- Assigned to KLA-TENCOR 1997-1998
- Product Manufacturing Engineer; Consultant
- Applications & Field Engineer: RAMA Corp; San Jacinto, CA 1991-1994
- Project Staff Engineer: Coming O.C.A., Garden Grove, CA 1990
- Technical Staff Member: Talandic Research Corp; Irwindale, CA 1987-1989
- Project/ Design Engineer: Technical Staffing Associates; SD, CA
  Assigned to Hughes Aircraft Co/ Jaycor Scientific (UGT)/ Gamma Scientific (ATF) 1982-1987

SPECIAL PROFESSIONAL ACCOMPLISHMENTS:

- Superior Performance Award: Focal Plane Bench Optics (Talandic Research for S.D.I. "STARLAB" sub-contract to SAIC/ Lockheed)
- Preliminary Associates Patent Award: Hybrid Gradient Index Optics (Hughes IPD)
- NIF Performance Awards for: LB2 TSF/CSF Towers & PDS vacuum system (LLNL

EDUCATION:
Professional Studies, Pro-Engineer, 1998; Auto Cad, 1997
B.S. Program, Chemistry, San Diego State University

SHULTZ STEEL COMPANY
8321 FIRESTONE BOULEVARD
SOUTH GATE, CALIFORNIA 90280
FAX (213) 564-4108
TELEX 67-4674
TELEPHONE (213) 564-3281

35732

February 13, 1996

SUBJECT: Titanium Advisory - Current Market Conditions

To Our Valued Customers:

Shultz Steel wishes to advise you of the current situation prevalent in today's titanium industry. Back in 1980, the industry suffered extreme shortages of titanium, due to increased demand in the aerospace and military sectors. Many have cited the demise of military production as ample reason for the 1980 situation to "never happen again". We at Shultz Steel strongly disagree and ask you to consider the following changes in the marketplace since 1980:

1) Commercial demand for titanium, which was less than 5% of the market in 1980, will account for approximately 30% of the 1996 market.

2) RMI Co. no longer produces Sponge, leaving Timet and Oremet as the sole U.S. producers. Imports of Sponge from Russia are currently limited by a U.S. tariff of approximately 100%.

3) The new Timet plant, using the Vacuum Distillation Process (VDP), has 25% less capacity that the Kroll-Process plant, which has been mothballed.

4) Golf clubs will account for "4,000 tons" of usage in 1996, by the estimate of one titanium industry official. The same person stated that if market studies authorize the go-ahead for golf "irons" (today, only "drivers" are manufactured), the market could expand to 8,000 tons by 1998. When the 8,000 tons is added to aerospace projected increases, a large portion of the equivalent capacities of Timet, RMI and Oremet would be captured; and of course there are hundreds of other users in the military, marine, chemical and food processing, and recreation industries.

5) Medical usage of titanium, another market not significant in 1980, will increase by as much as 55% this year versus 1995 levels. A company official, who supplies products for this industry, says his company cannot keep up with the unexpected demand.

6) With the increasing use of composites in aircraft, many surrounding aluminum structures have been converted to titanium to avoid galvanic corrosion. Value engineering studies have resulted in many conversions from steel and aluminum to titanium, for airframers and engine manufacturers alike.

According to a high-ranking official in the titanium industry, today's situation is, to date, "much worse than 1980", when Ti-6AL-4V ingot prices soared to $20/lb. ($55 in today's dollars). The following reasons should be cited as why the situation today may escalate to exceed the problems of 1980:

1) Aircraft production rates are just beginning to increase, and already the price of Ti-6AL-4V ingot, which remained in the $4.00-$4.50/lb. level in 1994, and rose to $6.00/lb. in 1995, is now $7.50/lb. for 4th quarter 1996 delivery.

2) One of the largest titanium sources is already "95% booked" for 1996. Another source has "no supply" for 2nd quarter, "limited supply" for 3rd quarter (premium price), and "some supply" for 4th quarter (higher price).

3) None of the titanium companies will quote pricing beyond 1996.

4) We have already been quoted $7.78/lb. (plus a PIE formula) for 6-4 ingot from one company, for late 1996 delivery. Another company has told us that 1st quarter 1997 prices will be "over $8.00 a lb." and that we will "find out" on April 1st, when the price will be published.

5) One company has instituted, uniformly, melting surcharges, to be added to every ingot melted from here on out, regardless of current quoted or contracted prices. These surcharges are up to $1.00/lb, depending on alloy.

6) In discussions with two of our competitors, we learned that they cannot obtain titanium until "late this year". In one instance, the material will arrive to the forger well after the forging increments are due to the customer.

We would like to suggest that our customers consider the following recommendations:

1) Establish your 1997, and 1998, requirements as soon as possible, and place on order very promptly. Melting slots at the titanium mills are filling up quickly. Shultz Steel cannot guarantee 1996 delivery for any purchase orders placed after 3/1/96. And we have ample evidence that this situation is similar, or even worse, at other forging companies (see 6) above). Please consider that we cannot acquire ingot for 2nd quarter 1996, and soon, supplies for 3rd quarter 1996 will be exhausted as well.

2) Authorize your forger to get raw material on order, independent of the quotation and analysis cycle. Raw material prices are going up monthly, and in some instances weekly.

3) Consider in your requirements planning that realized leadtimes may be up to 50% greater than quoted, due to unanticipated delays by the mill producers.

4) Provide the framework to achieve raw material price protection through the utilization of formulas that separate material and labor cost.

Shultz Steel is currently the only forger that augments current supplies with Russian titanium. We are also keenly aware of the uncertainties in Russia and have contingencies, including existing orders with domestic mills, should this source of supply suddenly end.

The current situation with titanium also extends to other metals. The leadtime for Inconel 718 ingot is now (40) weeks, and the price has doubled in the last (18) months. We are facing less serious, but still significant, leadtime and price increases in the last year with Stainless (up 30%, billet leadtime, 26 - 30 weeks) and Alloyed Steels (up 15%, ingot leadtime, 12 - 16 weeks).

I hope that the foregoing will be useful information. Our intent is to provide the facts of the industry in order for you to make timely marketplace decisions.

If you have any questions, please don't hesitate to contact me directly.

Sincerely,

Chris Chance
Contracts Manager

cc/mp96-107

SHULTZ STEEL COMPANY
5321 FIRESTONE BOULEVARD
SOUTH GATE, CALIFORNIA 90280
FAX (213) 564-4105
TELEX 67-4674
TELEPHONE (213) 564-3281

September 5, 1996

TO: Our Valued Customers

SUBJECT: Titanium Industry Conditions Update

Enclosed for your review is the latest historical graph on titanium alloy 6Al-4V ingot, depicting leadtime, ingot price, as well as the prices for sponge and scrap (input material used to melt titanium ingots).

The per pound price of titanium (best price available) ingot is ~$7.50 in the fourth quarter 1996, ~$8.25 in the first quarter of 1997 and remains at ~$8.25 for the second quarter 1997. This latter price stability created speculation that titanium prices, after three years of steady growth, were beginning to plateau.

However, recent quotations from the mills for third quarter 1997 show another upturn, this time to ~$9.00/lb. The mills are citing the escalating costs of scrap and sponge as basis for this latest increase.

Using the three year timeperiod from the third quarter 1994 to the third quarter of 1997, the price of Ti 6-4 ingot has increased from $4.50/lb. to $9.00/lb., an increase of 100%.

We have been informed that the U.S. titanium industry expects to ship 58 million pounds of titanium mill products in 1996 (forgings, extrusions, billet, flat rolled products, tubular, rod and bar), exceeding the old record of 55 million pounds shipped in 1989. In 1994, total shipments amounted to only 34.5 million pounds, translating into an expected two-year increase of 68%. At 58 million pounds, the domestic industry is now very close to its melt capacity ceiling.

Quoted ingot leadtimes from TIMET have remained fairly consistent in the last six (6) months, hovering around 40 weeks. However, leadtimes at the other large mills, RMI and Oremet, have continued to grow significantly. RMI, for example, is now quoting 52-56 weeks for ingot delivery.

The increased use of titanium in commercial industries is now an established fact. On a recent survey of the Internet, the keyword "titanium" revealed over 2,000 articles, advertisements and requests from industrial producers of bicycles, mountain climbing, medical, dental, golf, nuclear waste, bridge and deck repair, water de-salinization, chemical processing, oil and gas exploration, pulp and paper, marine, naval, and power generation. We would expect rapid commercial growth to continue, with scrap prices increasing dramatically as a result of commercial industry's high percentage use of scrap in melting ingots.

Shultz Steel believes that availability of titanium mill products will only get worse in 1997. For example, we recently encountered a situation where a titanium distributor was offering Ti-10V-2Fe-3Al billet (market value ~$14/lb.) At "$22.93/lb.", plus "PIE" (price in effect) surcharges, which brought the price to over $24/lb. This price was apparently justified in light of current shortages of titanium alloys, notably 10-2-3.

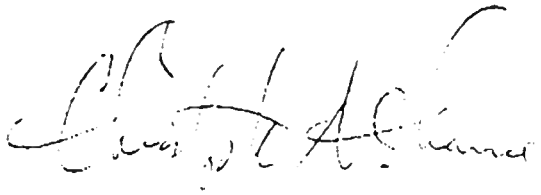
Much has been publicized about increasing aircraft build rates at Boeing Commercial. However, rate increases have also been confirmed for the Airbus A320 family, for the McDonnell Douglas C-17, and possibly for the F/A 18. Somewhat ignored in the publicity surrounding aircraft orders is the fact that engine producers will see rates double to triple that of the aircraft makers. And engines use a much higher percentage of titanium than used in the airframe.

Offshore titanium has continued to become more scarce. After the acquisition of IMI Titanium (U.K.) By TIMET, Cezus (France) has entered into a working agreement with TIMET, whereby the facility is to be re-named "TIMET Savoie SA". Russian titanium prices now equal those of the domestic market, and leadtimes have increased dramatically due to apparent shortages of sponge.

In summary, we believe the price of titanium will continue to rise in 1997 and availability will decrease, as the mill suppliers try to balance raw material price and availability with limited domestic melting capacity and market demand.

We hope that by providing this advisory, we are keeping our customer's periodically informed to current conditions, and that, in turn, you will be better enabled to make timely marketplace decisions.

If you have any further questions on this issue, please call me at your convenience.

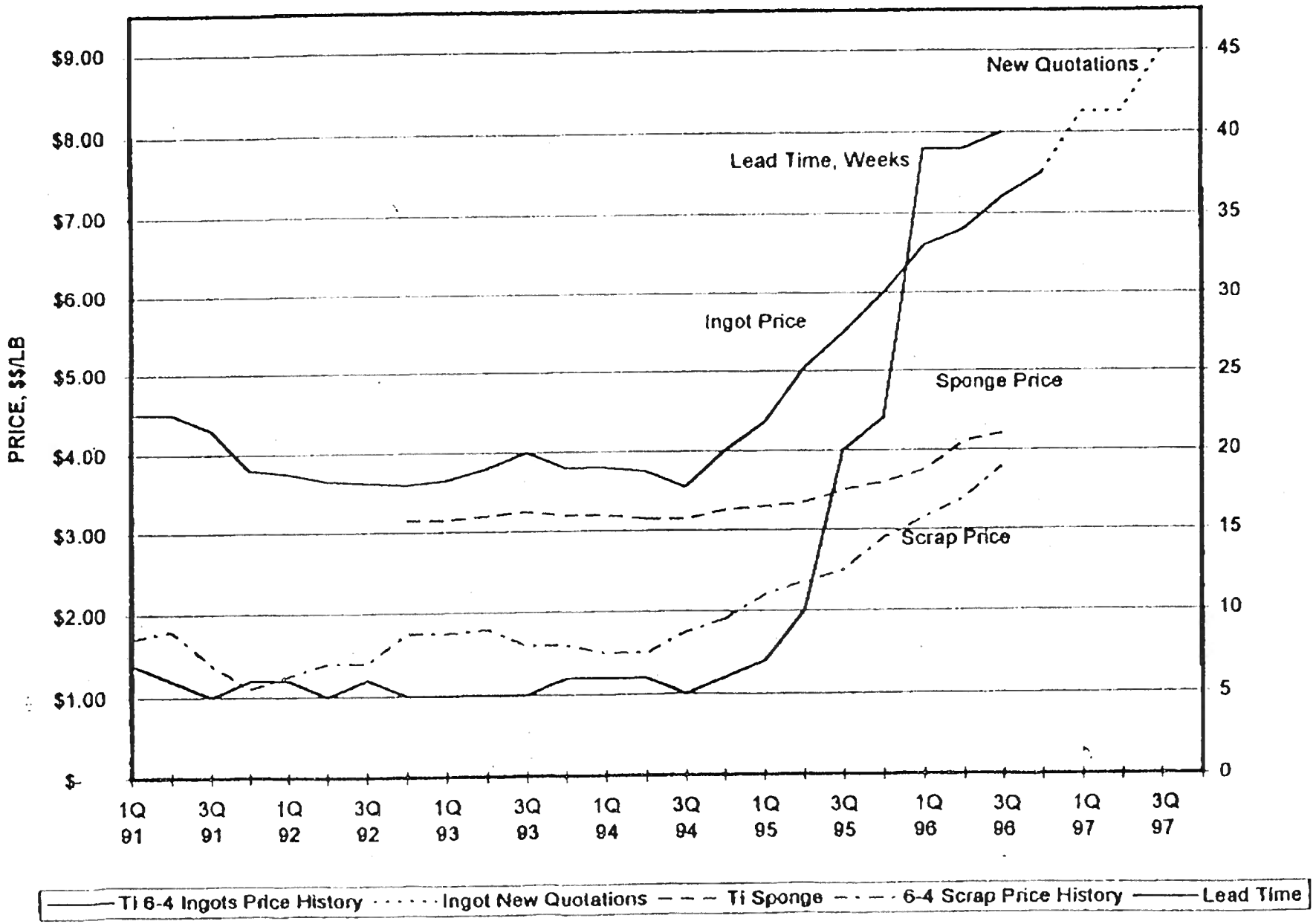


Chris Chance
Marketing and Contracts Manager

CC/mp96-586

TI SPONGE, 6-4 INGOT AND SCRAP PRICE, LEAD TIME HISTORY

(BEST AVAILABLE PRICING/LEAD TIME)



Shultz Steel Company

SECTION D – INTERMOUNTAIN METALS REPORT

INTERMOUNTAIN METALS INC.

5221 SOUTH MAJOR STREET MURRAY, UTAH 84107

June 15, 1986

REVOVERY OF SULFUR FROM A CHILE ORE

SUBMITTED BY MR. LEE P. HEPFLER

MINERALS + EXPLORATION AND DEVELOPMENT, INC.

Reagent Schedule: Lbs. per Ton	Methyl Isobutyl carbinol	0.05
	kerosene	0.02
	Tri sodium pyrophosphate	0.04
Miscellaneous Data	Grind Flotation Ore	-35 mesh
	Flotation Slurry pH - 5.5	

EXPERIMENTAL RESULTS

Best Test No. 8
Sulfur Recovery

Products	Weight percent	Assay sulfur %	Units percent	Distribution percent
Concentrate and middlings	47.27	79.00	37.34	99.93
Tailings	52.73	0.05	0.026	0.07
	100.00		37.37	100.00

Calculated Head

Using a Bank with 8 Flotation Cells, the recovery should be much higher. In respect to the grade.

Respectfully submitted by
INTERMOUNTAIN METALS INC.

Gerhard Luell

Gerhard Luell

MINERALS EXPLORATION AND DEVELOPMENT, INC.

PROFESSIONAL EXPERIENCE IN ALL PHASES

310 Glen Manor Drive Telephone: (702) 322-8884 Reno, Nevada 89509

June 22, 1986

Marion C. Robinson
Hal Gardner
2112 17th Avenue
Yuma AZ 85364
3219 E. Lee St.
Tucson, AZ 85716

Dear Marion & Hal:

Enclosed you will find a report by Intermountain Metals,, Inc. of metallurgical work done on sulphur ores from the Volcano Mine and the Coiapa Mine, Copiapo, Chile. Gerhard Luell is one of the most outstanding chemists and metallurgists in the industry.

As an example of this man's knowledge, he solved the nose cone problems on our space shuttle.

As you can see in this preliminary report, flotation process will increase our sulphur percentage values very rapidly with one pass through the circuit. This is going to be very important because it will eliminate hauling waste rock a great distance. The area that has been picked out by us on our trip to Chile is most suitable for a good flotation process and final recovery into pure sulphur of 99.5%.

Much work has been done to date, but I do believe we do need further testing to prove all of this before we complete our milling process diagram flow sheet.

Any questions that need to be answered, please feel free to call me any time.

Sincerely,

Lee P. Hepfler

LPH:gh

SECTION E – JACOBS ASSAY REPORT

1435 SOUTH 10TH AVENUE
TUCSON ARIZONA 85713

Jacobs Assay Office
Registered Assayers

PHONE 622-0813

Tucson, Arizona, 2/10 1987

Sample Submitted by Mr. G. HALL BRIMSTONE MINING

Sample Marked	GOLD Ozs. per ton ore	GOLD Value per ton ore*	SILVER Ozs. per ton ore	COPPER ~~Per Cent~~ PPM Wet Assay	LEAD Per cent Wet Assay	Per Cent Wet Assay	S Per Cent Wet Assay	Per Cent Wet Assay
VOLCANO	0.008		0.05	60			62.10	
T-201 "A"	TRACE		0.05	20			42.60	
Cuyamos "B"	TRACE		0.05	40			43.40	
T-281 "A"	TRACE		0.10	60			51.30	
Rio Negro "B"	TRACE		0.10	20			54.10	
FIRE ASSAY								

Charges $ 90.00

Very respectfully,

SECTION F – CHEMEX LABS REPORT

CHEMEX

Labs Alberta (1984) Ltd.

FEBRUARY 18, 1986

010-0201-85-1483

SULPHUR PURITY ANALYSES

PARAMETER	SAMPLE E SAMPLE #1	SAMPLE E SAMPLE #2
SULPHUR	39.91 %	66.82 %
ASH	59.73 %	33.01 %
CARBON	0.36 %	0.17 %
MOISTURE	0.93 %	1.78 %
ACIDITY	0.39 % H_2SO_4	0.23 % H_2SO_4

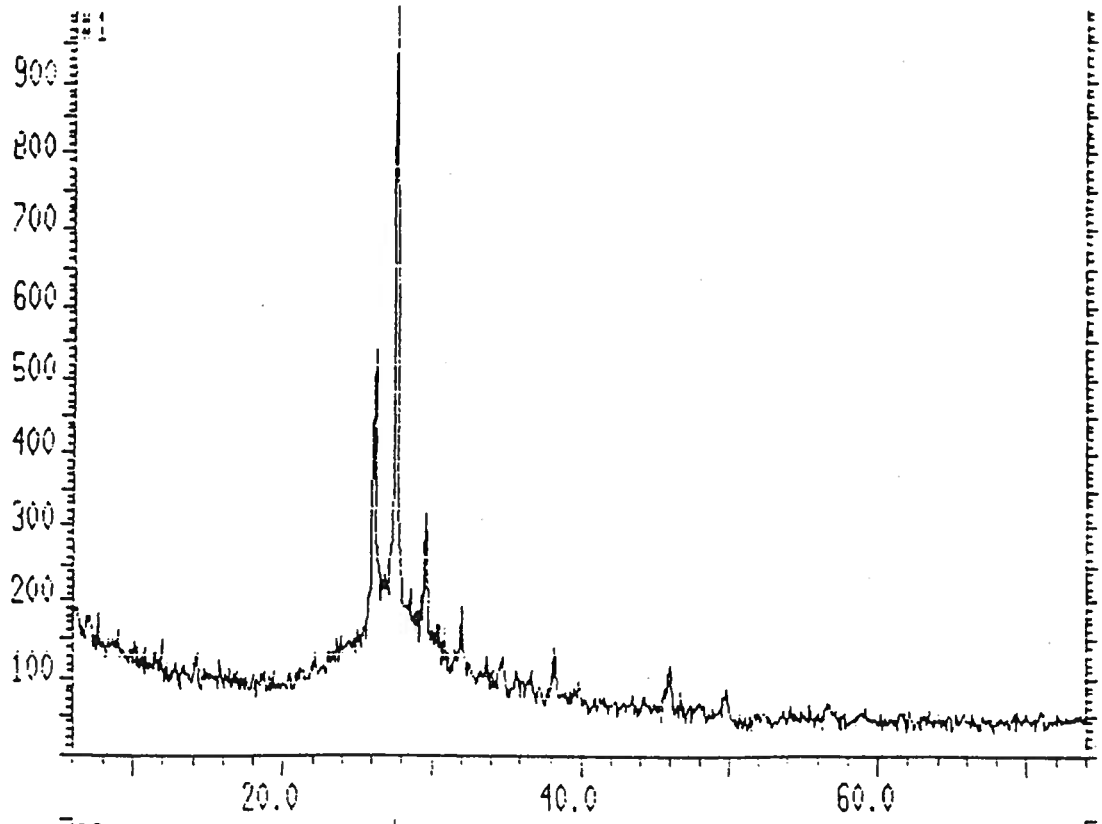
XRD ANALYSIS OF RESIDUES

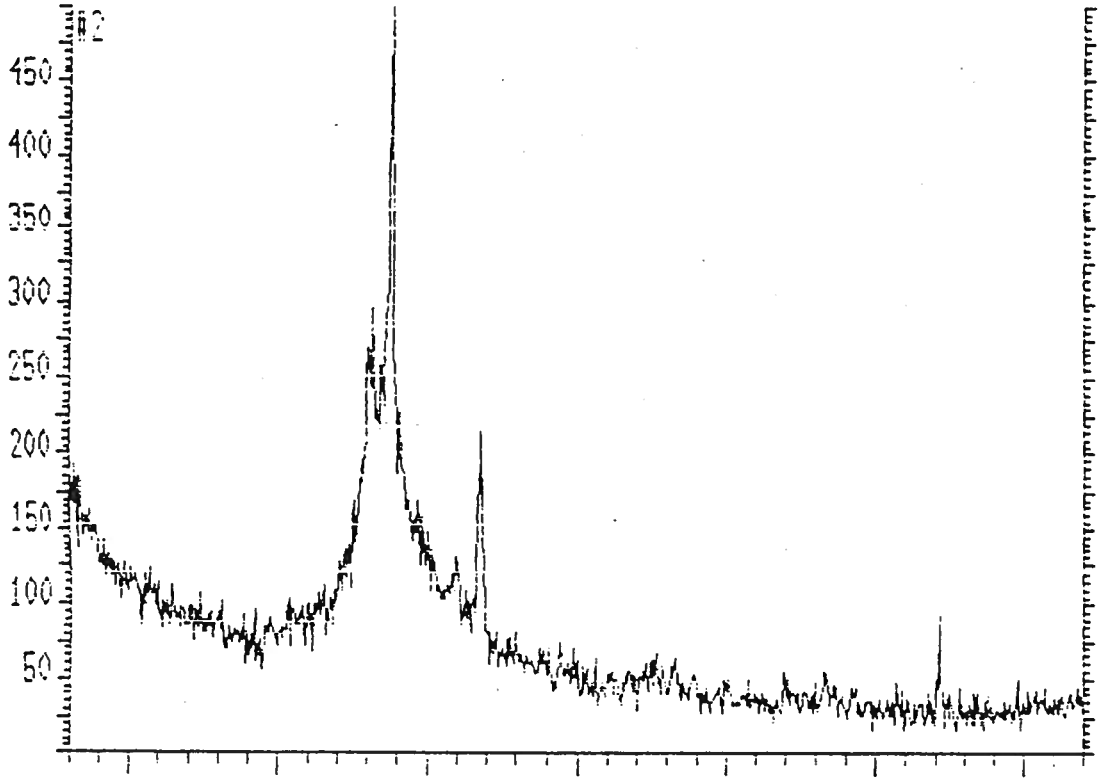
ELEMENT SCAN	SAMPLE #1	SAMPLE #2
Si	97 %	97 %
Al	1.5 %	1.6 %
Ti	0.6 %	0.8 %
Fe	0.4 %	-

BOTH SAMPLES CONSIST OF CRISTOBALITE (SiO_2) AND TRIDYMITE (SiO_2)

GARY SWABEY

CALGARY 2021 - 41 Avenue N.E., Calgary, Canada T2E 6P2 Tel.: (403) 291-3077 Telex: 038-25541
EDMONTON 8764 - 50 Avenue, Edmonton, Canada T6E 5K8 Tel.: (403) 465-9877
GRANDE PRAIRIE #105, 85[illegible] 112th Street, Grande Prairie, Canada T8V 5X4 Tel.: (403) 532-0227
HIGH LEVEL 10509 - [illegible]reet, High Level, Canada T0H 1Z0 Tel.: (403) 926-2448
ESTEVAN, SASK. Apex Anal[illegible]l Laboratories Ltd., 483 Devonian St., Estevan, Canada Tel: (306) 634-9112


900
800
700
600
500
400
300
200
100
20.0
40.0
60.0


#2
450
400
350
300
250
200
150
100
50

SECTION G – U NEVADA RENO REPORT

ROGERS RESEARCH & ANALYSIS COMPANY
2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

DECEMBER 18, 1989

CUSTOMERS IDENTIFICATION: M 7

ANTIMONY	TRACE	PALLADIUM	0.081 OZ/TON
ARSENIC	TRACE	PLATINUM	0.031 OZ/TON
BARIUM	.6 %	RHODIUM	TRACE
BISMUTH	TRACE	RUBIDIUM	.1 %
CHROMIUM	.2 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	8.13 OZ/TON
COPPER	.1 %	STRONTIUM	1.6 %
GOLD	1.12 OZ/TON	THORIUM	
IRON	2.9 %	TIN	.1 %
LEAD	.7 %	TITANIUM	1.0 %
MANGANESE	.2 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	TRACE	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.2 %
TELLURIUM	TRACE	ZIRCONIUM	TRACE

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY
2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

DECEMBER 18, 1989

CUSTOMERS IDENTIFICATION: M 5

ANTIMONY	TRACE	PALLADIUM	0.106 OZ/TON
ARSENIC	TRACE	PLATINUM	0.009 OZ/TON
BARIUM	.6 %	RHODIUM	TRACE
BISMUTH	TRACE	RUBIDIUM	.1 %
CHROMIUM	.3 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	8.21 OZ/TON
COPPER	.1 %	STRONTIUM	1.5 %
GOLD	0.712 OZ/TON	THORIUM	
IRON	1.4 %	TIN	TRACE
LEAD	.6 %	TITANIUM	1.1 %
MANGANESE	.1 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	TRACE	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.1 %
TELLURIUM	TRACE	ZIRCONIUM	TRACE

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

DECEMBER 16, 1989

CUSTOMERS IDENT.:#10 AZU.FRE CONC MANETICO

ANTIMONY		PALLADIUM	0.516 OZ/TON
ARSENIC	TRACE	PLATINUM	0.118 OZ/TON
BARIUM	.6 %	RHODIUM	0.003 OZ/TON
BISMUTH	TRACE	RUBIDIUM	TRACE
CHROMIUM	.3 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	26.35 OZ/TON
COPPER	.2 %	STRONTIUM	.4 %
GOLD	0.613 OZ/TON	THORIUM	
IRON	9.1 %	TIN	TRACE
LEAD	.4 %	TITANIUM	1.6 %
MANGANESE	.1 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	.1 %	VANADIUM	TRACE
OSMIUM	NOT DETECTED	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.2 %
TELLURIUM	TRACE	ZIRCONIUM	.1 %

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

DECEMBER 18, 1987

CUSTOMERS IDENTIFICATION: M 4

ANTIMONY	TRACE	PALLADIUM	0.812 OZ/TON
ARSENIC	TRACE	PLATINUM	0.061 OZ/TON
BARIUM	.6 %	RHODIUM	TRACE
BISMUTH	TRACE	RUBIDIUM	.1 %
CHROMIUM	.2 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	3.11 OZ/TON
COPPER	1.0 %	STRONTIUM	1.7 %
GOLD	0.511 OZ/TON	THORIUM	
IRON	1.1 %	TIN	.1 %
LEAD	.6 %	TITANIUM	1.2 %
MANGANESE	.4 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	TRACE	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.1 %
TELLURIUM	TRACE	ZIRCONIUM	.1 %

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

DECEMBER 18, 1989

CUSTOMERS IDENTIFICATION: M 1

ANTIMONY		PALLADIUM	0.102 OZ/TON
ARSENIC	TRACE	PLATINUM	0.010 OZ/TON
BARIUM	.8 %	RHODIUM	NOT DETECTED
BISMUTH	TRACE	RUBIDIUM	.1 %
CHROMIUM	.2 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	10.13 OZ/TON
COPPER	.1 %	STRONTIUM	3.7 %
GOLD	0.251 OZ/TON	THORIUM	
IRON	2.5 %	TIN	TRACE
LEAD	.9 %	TITANIUM	1.2 %
MANGANESE	.3 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	TRACE	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.2 %
TELLURIUM	TRACE	ZIRCONIUM	.1 %

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY
7340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84118 • Phone (801) 973-4637
CLAIR W. ROGERS, President

NOVEMBER 7, 1989

ANALYSES REPORT:

SAMPLE IDENTIFICATION:	GOLD O/T	SILVER O/T	TITANIUM %
SALAR GYPSUM	0.040	1 12	0.818
224 SUMMIT	0.258	20.32	1.03
221- '	0.154	3.13	1.12
SALA'	0.205	3.22	0.761
351-28.	0.142	22.18	0.912
161-2C	0.234	8.13	1.32
161-2E	0.213	7.02	1.04
161 PART	0.202	6.68	0.965
251 - N	0.168	3.41	1.06
CAZOLINA 21	0.092	5.62	1.31

CLAIR W. ROGERS M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

OCTOBER 24, 1989

CUSTOMERS IDENTIFICATION.

(Tatiana 31)
PA 31

GOLD	0.042 OZ/TON
SILVER	9.12 OZ/TON
TITANIUM	1.42

PA 131

GOLD	0.030 OZ/TON
SILVER	1.40 OZ/TON
TITANIUM	4.22 %

Clair W. Rogers

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

NOVEMBER 4, 1989

CUSTOMERS IDENTIFICATION: FLOT 68, NO 1 87.0

ANTIMONY		PALLADIUM	0.052 OZ/TON
ARSENIC	.1 %	PLATINUM	NOT DETECTED
BARIUM	.4 %	RHODIUM	NOT DETECTED
BISMUTH	TRACE	RUBIDIUM	.1 %
CHROMIUM	.2 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	21.32 OZ/TON
COPPER	TRACE	STRONTIUM	.2 %
GOLD	0.078 OZ/TON	THORIUM	
IRON	.2 %	TIN	TRACE
LEAD	TRACE	TITANIUM	1.2 %
MANGANESE	.2 %	TUNGSTEN	TRACE
MOLYBDENUM		URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	NOT DETECTED	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.2 %
TELLURIUM	TRACE	ZIRCONIUM	.2 %

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

NOVEMBER 4, 1989

CUSTOMERS IDENTIFICATION: FLOT 68, NO 3 LEY 18.2 %

ANTIMONY		PALLADIUM	0.073 OZ/TON
ARSENIC	.1 %	PLATINUM	0.012 OZ/TON
BARIUM	.5 %	RHODIUM	NOT DETECTED
BISMUTH	TRACE	RUBIDIUM	.1 %
CHROMIUM	.2 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	14.12 OZ/TON
COPPER	TRACE	STRONTIUM	.3 %
GOLD	0.085 OZ/TON	THORIUM	
IRON	.8 %	TIN	TRACE
LEAD	.2 %	TITANIUM	2.3 %
MANGANESE	.3 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	NOT DETECTED	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.2 %
TELLURIUM	TRACE	ZIRCONIUM	.1 %

C W Rogers

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4837
CLAIR W. ROGERS, President

NOVEMBER 4, 1989

P 1599
CUSTOMERS IDENTIFICATION: FLOT 51 NO 2 LEY 56.4 %

ANTIMONY		PALLADIUM	0.009 OZ/TON
ARSENIC	.1 %	PLATINUM	0.005 OZ/TON
BARIUM	.4 %	RHODIUM	NOT DETECTED
BISMUTH	TRACE	RUBIDIUM	.1 %
CHROMIUM	.2 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	21.81 OZ/TON
COPPER	TRACE	STRONTIUM	.3 %
GOLD	0.109 OZ/TON	THORIUM	
IRON	.7 %	TIN	TRACE
LEAD	.1 %	TITANIUM	1.5 %
MANGANESE	.2 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	NOT DETECTED	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.2 %
TELLURIUM	TRACE	ZIRCONIUM	TRACE

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

NOVEMBER 4, 1989

CUSTOMERS IDENTIFICATION: P 1599 FLOT 51 R 2.8

ANTIMONY		PALLADIUM	0.082 OZ/TON
ARSENIC	TRACE	PLATINUM	0.003 OZ/TON
BARIUM	.6 %	RHODIUM	NOT DETECTED
BISMUTH	TRACE	RUBIDIUM	.2 %
CHROMIUM	.3 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	6.22 OZ/TON
COPPER	.1 %	STRONTIUM	.3 %
GOLD	0.191 OZ/TON	THORIUM	
IRON	1.9 %	TIN	.1 %
LEAD	.2 %	TITANIUM	2.8 %
MANGANESE	.3 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	NOT DETECTED	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.2 %
TELLURIUM	TRACE	ZIRCONIUM	.3 %

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

DECEMBER 10, 1989

CUSTOMERS IDENTIFICATION: M 3

ANTIMONY		PALLADIUM	0.561 OZ/TON
ARSENIC	TRACE	PLATINUM	0.012 OZ/TON
BARIUM	.7 %	RHODIUM	TRACE
BISMUTH	TRACE	RUBIDIUM	.1 %
CHROMIUM	.3 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	18.10 OZ/TON
COPPER	.1 %	STRONTIUM	3.5 %
GOLD	2.81 OZ/TON	THORIUM	
IRON	6.0 %	TIN	TRACE
LEAD	1.2 %	TITANIUM	1.0 %
MANGANESE	1.7 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	TRACE	YTTRIUM	
IRIDIUM	TRACE	ZINC	.3 %
TELLURIUM	TRACE	ZIRCONIUM	.1 %

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

NOVEMBER 4, 1989

CUSTOMERS IDENTIFICATION: FLOT 68, NO 2 65.0

ANTIMONY		PALLADIUM	0.041 OZ/TON
ARSENIC	.1 %	PLATINUM	NOT DETECTED
BARIUM	.5 %	RHODIUM	NOT DETECTED
BISMUTH	TRACE	RUBIDIUM	.2 %
CHROMIUM	.2 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	5.12 OZ/TON
COPPER	TRACE	STRONTIUM	.3 %
GOLD	0.086 OZ/TON	THORIUM	
IRON	.2 %	TIN	TRACE
LEAD	TRACE	TITANIUM	1.5 %
MANGANESE	.1 %	TUNGSTEN	TRACE
MOLYBDENUM		URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	NOT DETECTED	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	TRACE
TELLURIUM	TRACE	ZIRCONIUM	TRACE

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

NIMS

NOVEMBER 7, 1989

Azurite native pure

CUSTOMERS IDENTIFICATION: AZ-P.A. 221 161

ANTIMONY		PALLADIUM	TRACE
ARSENIC	TRACE	PLATINUM	NOT DETECTED
BARIUM	.2 %	RHODIUM	NOT DETECTED
BISMUTH	TRACE	RUBIDIUM	TRACE
CHROMIUM	TRACE	RUTHENIUM	NOT DETECTED
COBALT		SILVER	10.51 OZ/TON
COPPER	TRACE	STRONTIUM	.1 %
GOLD	0.015 OZ/TON	THORIUM	
IRON	.2 %	TIN	
LEAD	TRACE	TITANIUM	.3 %
MANGANESE	TRACE	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	NOT DETECTED	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.1 %
TELLURIUM	.1 %	ZIRCONIUM	TRACE

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4837
CLAIR W. ROGERS, President

SOCIEDAD COMERCIAL MINERA
MINEXCO LIMITADA

AUGUST 28, 1989

CUSTOMERS IDENTIFICATION: CABEZA AZUFRE

ANTIMONY		PALLADIUM	0.05 OZ/TON
ARSENIC	TRACE	PLATINUM	0.011 OZ/TON
BARIUM		RHODIUM	NOT DETECTED
BISMUTH	TRACE	RUBIDIUM	TRACE
CHROMIUM	.2 %	RUTHENIUM	NOT DETECTED
COBALT		SILVER	1.03 OZ/TON
COPPER	.1 %	STRONTIUM	.2 %
GOLD	0.198 OZ/TON	THORIUM	
IRON	.5 %	TIN	TRACE
LEAD	.1 %	TITANIUM	.6 %
MANGANESE	.1 %	TUNGSTEN	TRACE
MOLYBDENUM		URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	NOT DETECTED	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.2 %
TELLURIUM	.1 %	ZIRCONIUM	TRACE

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

DECEMBER 18, 1989

CUSTOMERS IDENTIFICATION: M 2

ANTIMONY		PALLADIUM	0.113 OZ/TON
ARSENIC	TRACE	PLATINUM	0.012 OZ/TON
BARIUM	.6 %	RHODIUM	NOT DETECTED
BISMUTH	TRACE	RUBIDIUM	.1 %
CHROMIUM	.3 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	11.51 OZ/TON
COPPER	TRACE	STRONTIUM	2.1 %
GOLD	0.081 OZ/TON	THORIUM	
IRON	1.0 %	TIN	TRACE
LEAD	1.2 %	TITANIUM	1.1 %
MANGANESE	.1 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	TRACE	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.1 %
TELLURIUM	TRACE	ZIRCONIUM	.1 %

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

DECEMBER 18, 1989

CUSTOMERS IDENTIFICATION: M 6

ANTIMONY	TRACE	PALLADIUM	0.101 OZ/TON
ARSENIC	TRACE	PLATINUM	0.007 OZ/TON
BARIUM	.7 %	RHODIUM	TRACE
BISMUTH	TRACE	RUBIDIUM	TRACE
CHROMIUM	.2 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	5.21 OZ/TON
COPPER	.1 %	STRONTIUM	2.4 %
GOLD	0.091 OZ/TON	THORIUM	
IRON	5.0 %	TIN	TRACE
LEAD	.7 %	TITANIUM	1.0 %
MANGANESE	.1 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	TRACE	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.1 %
TELLURIUM	TRACE	ZIRCONIUM	TRACE

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

DECEMBER 18, 1987

CUSTOMERS IDENTIFICATION: M 8

ANTIMONY	TRACE	PALLADIUM	0.211 OZ/TON
ARSENIC	.1 %	PLATINUM	0.061 OZ/TON
BARIUM	.5 %	RHODIUM	TRACE
BISMUTH	TRACE	RUBIDIUM	.1 %
CHROMIUM	.3 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	15.61 OZ/TON
COPPER	.2 %	STRONTIUM	2.3 %
GOLD	0.081 OZ/TON	THORIUM	
IRON	5.4 %	TIN	.1 %
LEAD	1.4 %	TITANIUM	1.1 %
MANGANESE	.7 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	.1 %	VANADIUM	TRACE
OSMIUM	0.001 OZ/TON	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.2 %
TELLURIUM	TRACE	ZIRCONIUM	TRACE

Clair W. Rogers M.S.

ROGERS RESEARCH & ANALYSIS COMPANY

2340 South Redwood Road (1700 W.) • Salt Lake City, Utah 84119 • Phone (801) 973-4637
CLAIR W. ROGERS, President

DECEMBER 18, 1989

CUSTOMERS IDENTIFICATION: M 9

ANTIMONY		PALLADIUM	0.083 OZ/TON
ARSENIC	TRACE	PLATINUM	0.010 OZ/TON
BARIUM	.5 %	RHODIUM	TRACE
BISMUTH	TRACE	RUBIDIUM	.1 %
CHROMIUM	.3 %	RUTHENIUM	NOT DETECTED
COBALT	TRACE	SILVER	2.12 OZ/TON
COPPER	.2 %	STRONTIUM	2.4 %
GOLD	0.030 OZ/TON	THORIUM	
IRON	4.6 %	TIN	TRACE
LEAD	1.4 %	TITANIUM	1.0 %
MANGANESE	.2 %	TUNGSTEN	TRACE
MOLYBDENUM	TRACE	URANIUM	
NICKEL	TRACE	VANADIUM	TRACE
OSMIUM	0.001 OZ/TON	YTTRIUM	
IRIDIUM	NOT DETECTED	ZINC	.2 %
TELLURIUM	TRACE	ZIRCONIUM	TRACE

Clair W. Rogers M.S.