CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

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D. R. Hill, Chief, Development Section, Leasing and Development Branch, Mining Division, GJ

March 15, 1955

J. F. Brown, Mining Engineer, Leasing and Development Branch, Mining Division, GJ

CERTIFICATION OF THE ORPHAN LODE CLAIM, ARIZONA DISTRICT, COCONINO COUNTY, ARIZONA. (APPLICATION NO. 705) SLEB

Symbol: MD:JFB

Abstract

The Orphan Lode claim, a single patented mining claim, is located in surveyed section 14, T. 31 N., R. 2 E., G&SR B&M, Arizona District, Coconino County, Arizona.

The claim is situated on the south rim of the Grand Canyon near Maricopa Point. At the time of examination of the claim, the Golden Crown Mining Company was preparing for construction of an aerial tram from the rim of the canyon to the mine.

Mining operations will begin when the tram is completed.

It is recommended that the Orphan Lode claim be certified to receive bonus payments on 10,000 pounds of U_3O_8.

It is further recommended that certification of the claim be delayed until ore has been shipped to a mill and accepted by the mill.

Introduction

An application for certification of the Orphan Lode claim was received from Arthur R. Still, Mining Geologist and Authorized Representative, Golden Crown Mining Company, P. O. Box 1512, Prescott, Arizona.

The property was examined on March 5, 1955. No representative of the Golden Crown Mining Company was present. However, the writer discussed the matter of certification of the claim with Mr. Still in Williams, Arizona, prior to the examination and obtained maps and conveyances on the property. Due to climatic conditions at the Grand Canyon, it was not possible to get down to the mine. Only the accessible part of the claim surface was checked.

Status of the Land

The Orphan Lode claim is located in surveyed section 14, T. 31 N., R. 2 E., G&SR B&M, Arizona Mining District, Grand Canyon Locality, Coconino County, Arizona.

The claim is a patented mining claim in the Grand Canyon National Park.

D. L. Hogan and J. C. Babbitt received a Patent Deed (Mineral Certificate 660) on March 23, 1906.

A copy of the plat of mineral survey 2004 of the Orphan Lode claim is submitted with this report.

None of original corners could be located. A pipe in a cement water trough presently marks corner number 2.

In mineral survey 2004, the claim was tied to section corner between sections 14, 15, 22, and 23, T. 31 N., R. 2 E., G&SR B&M.

Ownership

The Orphan Lode claim is a single patented mining claim located by Henry Ward and D. L. Hogan on February 8, 1893, and patented by D. L. Hogan and J. C. Babbitt on March 23, 1906.

Following is a record of location as found in the public record of Coconino County, Arizona:

Claim	Loc. Date	Book	Page	Rec. Date
Orphan	2-8-1893	1 Mines	237	4-4-1893

Following is a list of conveyances as found in the public record of Coconino County, Arizona:

Instrument	Grantor	Grantee	Date Made	Bk.	Pg.	Rec. Date
1. Patent Deed	U. S.	D.L. Hogan J.C. Babbitt	3/23/06	32	278	4/11/06
2. Q.C.D.	J.C. Babbitt	D.L. Hogan	4/18/12	41	5	5/3/12
3. Agreement Sale of Real Estate	D.L.Hogan	B.Madeleine Jacobs	8/1/46	4	459	8/5/46
4. Q.C.D.	D.L.Hogan	E.J.Hogan T.H.Hogan L.MacDunnan	12/20/50	23	201	12/23/50
5. Agreement Sale of Real Est.	B.Madeleine Jacobs	J.Barrington E.Barrington	6/1/51	37	448 454	11/28/52
6. Lease&Option	"	Golden Crown Mining Co	9/29/53	46	495 499	9/29/53
7.Assn.Real Property	J.Barrington D.Barrington	W.R.Grant	3/8/54	52	58 61	5/26/54
8.Agreement	Golden Crown Co.	"	Unrecorded			
9.Sup.to Agreement	"	"	3/23/54	Unrecorded		

In item 2, J. C. Babbitt quitclaimed his interest in Orphan claim to D. L. Hogan.

In item 3, D. L. Hogan sold the claim to Berthan Madeleine Jacobs, a single person, for $55,000 payable in monthly installments of $200 and $300 per month till paid. A Warranty Deed(not recorded) was placed in escrow in the Valley Nation Bank at Phoenix, Arizona.

In item 4, D. L. Hogan quitclaimed the Orphan Lode claim to his three children subject to the agreement in item 3.

In item 5, Bertha Madeleine Jacobs sold the claim with mineral rights except building stone reserved to seller. Claim was sold for $125,000 and seller had surface rights for mining not detrimental to buyer. In the event of sale of mineral rights, buyer was to have first priority.

In item 6, the Golden Crown Mining Company leased the mineral rights at 10% royalty with an option to purchase said rights for $20,000.

In item 7, David and James Barrington assigned surface rights to William R. Grant for $116,000.

In item 8, due to a dispute between the Golden Crown Mining Company and William R. Grant over the provision in item 5 that the buyer have first priority on sale of mineral rights, the Golden Crown Mining Company and Mr. Grant agreed that:

1. Upon complete performance of lease and option by Golden Crown Mining Company, ownership of mineral rights shall be in parties of second part, subject only to perpetual mining rights of Golden Crown Mining Company.

2. Lessee shall have immediate possession of last 100 feet of surface of Orphan claim.

In item 9, the Golden Crown Mining Company agrees to conform to certain surface requirements of grantee.

There were no adjacent claims.

The property can be reached by traveling east from Williams, Arizona, on U. S. Highway 66 for three miles; thence, north on State Highway 64 for 59 miles to Grand Canyon Recreation Center on South Rim; thence, west along West Rim Drive to Kachina Lodge on claim site.

Production

The property is not currently operating.

Preparations are being made to install a three-tower tram from the rim to the mine, a difference of 1,100 feet in elevation. Construction of the tram should start this month (March 1955). Estimated cost is $65,000. A 380 foot access road will also be built from the southeast part of the claim to the West Rim Drive.

Mining is expected to begin as soon as the tram is constructed.

Mr. R. D. Miller, a geologist of the Phoenix Sub-Office, Atomic Energy Commission examined the property and in a supplement to report A-P-52, dated February 17, 1954, gave the following estimate of ore reserves:

Indicated ore: 500 tons @ 0.33% U_3O_8
Inferred ore : 2,000 tons @ 0.20% U_3O_8
(Inferred ore includes indicated ore)

Mr. Miller further recommended that if work was not undertaken by operator, mapping should be done to prepare recommendations for exploration work by Government contract.

The Finance Division reports that there is no record of production during the critical period.

If certified, the property is eligible to receive bonus payments on 10,000 pounds of U_3O_8.

Ore Reserve Data

Formation - Coconino Sandstone
*Metallurgical Type - Torbernite
Availability: Mining - B *Metallurgy - A Access - C
Discovery: Source - Private Method - Surface Prospect.
Delineation or Development: Source - Private Method - Mining
Average Drilling Depth - 1,100-1.150 feet
Ore Reserves:

	Tons	Thickness	Percent U_3O_8	Percent V_2O_5	Percent $CaCO_3$
Indicated	500	7 feet	0.33	—	—
Inferred	1500	—	0.16	—	—
Total	2000	10 feet	0.20	—	—
Potential					

*Amenability Test - # AEC 279-1 9/28/54

Recommendations

It is recommended that the Orphan Lode claim be certified to receive bonus payments on 10,000 pounds of U_3O_8, but that certification be withheld until ore is accepted by a buying station or mill.

The property is recommended for certification because:

1. It is a new source of uranium production
2. It is a mining property on which the applicant holds valid mining rights.

cc: Salt Lake Exploration Branch ✓
Ira M. Gay
P. O. Box 487
Grants, New Mexico

C-231

Don R. Hill, Chief, Development Section
Mining Division, GJ

May 8, 1956

Albert S. J. Taylor, Mining Engineer
Mining Division, GJ

ADDENDUM TO CERTIFICATION OF THE ORPHAN LODE CLAIM, ARIZONA DISTRICT, COCONINO COUNTY, ARIZONA (APPLICATION NO. 705)

Symbol: MD:ASJT

In the report on Application No. 705, written by J. F. Brown, Mining Engineer, Mining Division, GJ, dated March 15, 1955, it was recommended that certification be delayed until ore was shipped and accepted by a mill or buying station.

The applicant was notified in a letter dated May 13, 1955, that application No. 705 was being placed in the inactive file until this office was notified of ore being sold from the property.

On April 27, 1956, this office received a letter notifying us that a shipment of ore had been made to the Tuba City buying station. The assay on this 20.89 ton lot has been obtained by the writer from Lucius Pitkin, Inc., and the grade was 0.53% U_3O_8. This apparently qualifies the property for certification.

The applicant also submitted a new application, which is being treated as a duplicate of No. 705. The new application also contained an abstract of the public record of Coconino County, Arizona, pertaining to the property. This abstract shows some expired or cancelled leases and some quitclaim deeds made to amend land description in other quitclaim deeds not mentioned in Mr. Brown's report of March 15, 1955. Otherwise the abstract supports Mr. Brown's report and is filed in the folder.

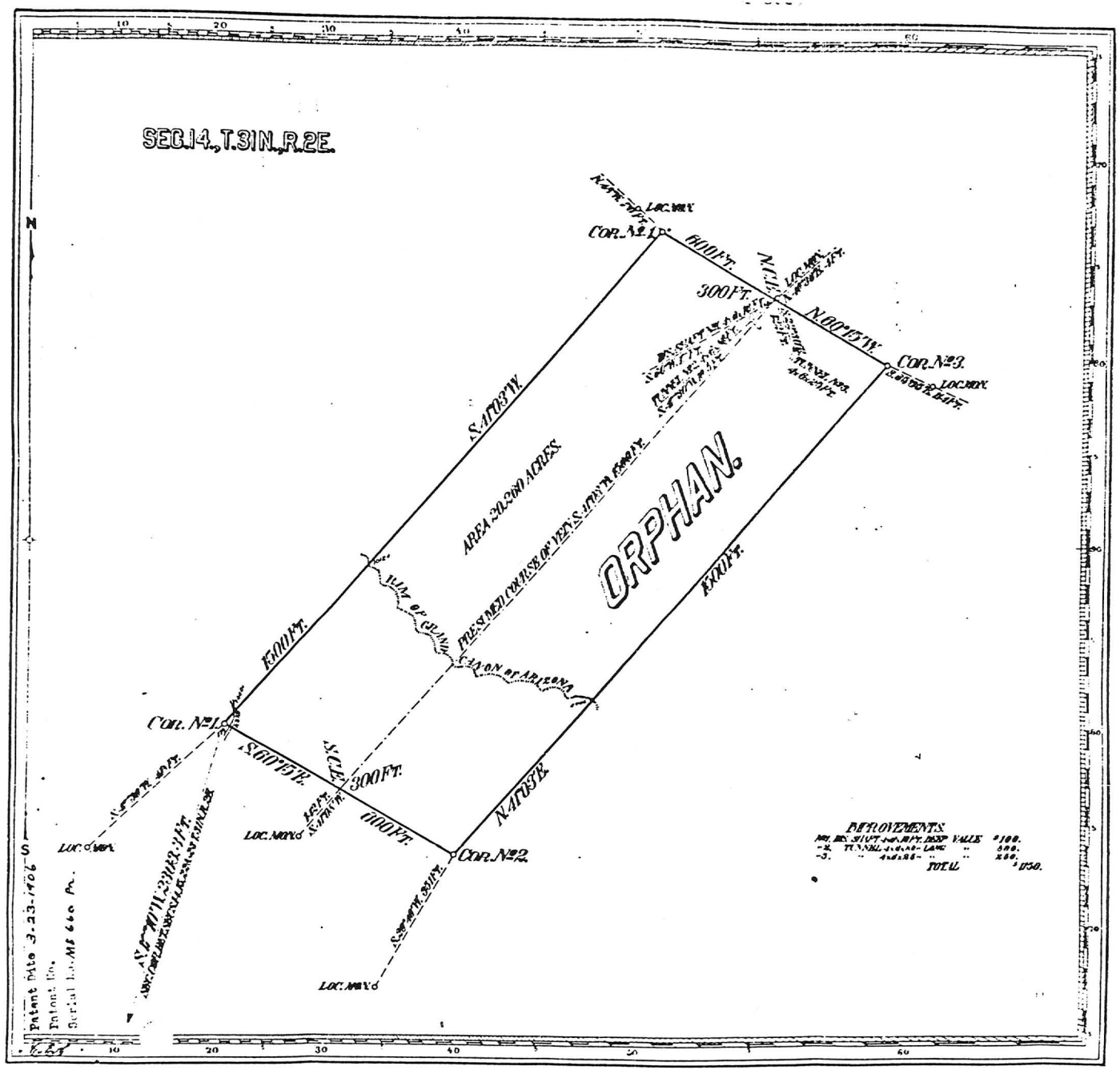
Since the Salt Lake Exploration Branch activities report for March 1956, mentions recent activities and ore reserve developments on the property, and the property has been examined on March 5, 1955, and visited in August, 1955 and February, 1956 by engineers of the Mining Division, it seems reasonable to assume that the shipment reported actually came from the Orphan claim without another visit to verify the source of the shipment. The property will be paid a routine visit as soon as production gets into full swing anyway. Therefore, it is recommended that the property be certified to receive bonus payments on 10,000 pounds of U_3O_8.

cc: SLEB
I.M.Gay

MD M D MD

Taylor:bem Sonntag Toole

5/8/56



Claim Located Feb. 8th., 1903.

Mineral Survey No 2004

Lot No

Prescott Land District

PLAT

OF THE CLAIM OF

D.L. HOGAN & C.J. BABBITT.

KNOWN AS THE

ORPHAN

IN GRAND CANON MINING DISTRICT,
COCONINO COUNTY, ARIZONA
Containing an Area of 20.200 Acres.
Scale of 200 Feet to the inch.
Mean Variation 15°08'30"E.
SURVEYED Jan. 18-20 1905 BY
Jno. F. Hesse
U.S. Deputy Mineral Surveyor.

The Original Field Notes of the Survey of the Mining Claim of
D.L. Hogan & C.J. Babbitt
known as the
ORPHAN

from which this plat has been made under my direction, have been examined and approved, and are on file in this office; and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

I further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claim by claimants or their grantors, and that said improvements consist of (see table)

that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

U.S. Surveyor General's Office. Frank A. Ingalls
Phoenix, Arizona. U.S. Surveyor General for
April 21st., 190 Arizona.
(1905)

Orphan sections minerals present

- Calcite $CaCO_3$
- ✓ Dolomite $(CaMg)CO_3$
- Kaolinite $Al_2Si_2O_5(OH)_4$
- Barite ✓ $BaSO_4$
- Goethite/lim $FeO(OH)$
- Hematite Fe_2O_3
- Uraninite UO_2
- Malachite $Cu_2CO_3(OH)_2$
- Chlorite $(Mg,Fe)_3(Si,Al)_4O_{10}(OH)_2$
- Chalcedony SiO_2
- Siderite ✓ $FeCO_3$
- Gypsum $CaSO_4 \cdot H_2O$
- Zippeite $K_4(UO_2)_6(SO_4)_3(OH)_{10} \cdot 4(H_2O)$
- Anhydrite $CaSO_4$

Limonite $FeO(OH) \cdot nH_2O$

- Pyrite FeS_2
- ✓ Sphalerite ZnS
- Marcasite FeS_2
- Galena PbS
- Arsenopyrite $FeAsS$
- Bravoite $(Fe,Ni)S_2$
- Chalcocite Cu_2S
- Digenite Cu_9S_5
- Covellite CuS
- Chalcopyrite $CuFeS_2$
- Bornite Cu_5FeS_4
- Gersdorffite $NiAsS$
  - Co Gersdorffite
- Djurleite $Cu_{1.5}S$
- Zn-Tennantite $Cu_{10}As_4S_{13}$
- Enargite Cu_3AsS_4
- Siegenite $(Ni,Co)_3S_4$
- Rammelsbergite $NiAs_2$
- Niccolite $NiAs$
- Para Rammed $NiAs_2$ 8
- Fe-rich siegenite
- cobaltian py
- NiCuCoZnAsS w/ Ramm
- Linnaeite $CoCo_2S_4$
- Villimaninite $(Cu,Ni,Fe,Co)S_2$
- Mucumdonite

September 5, 1995

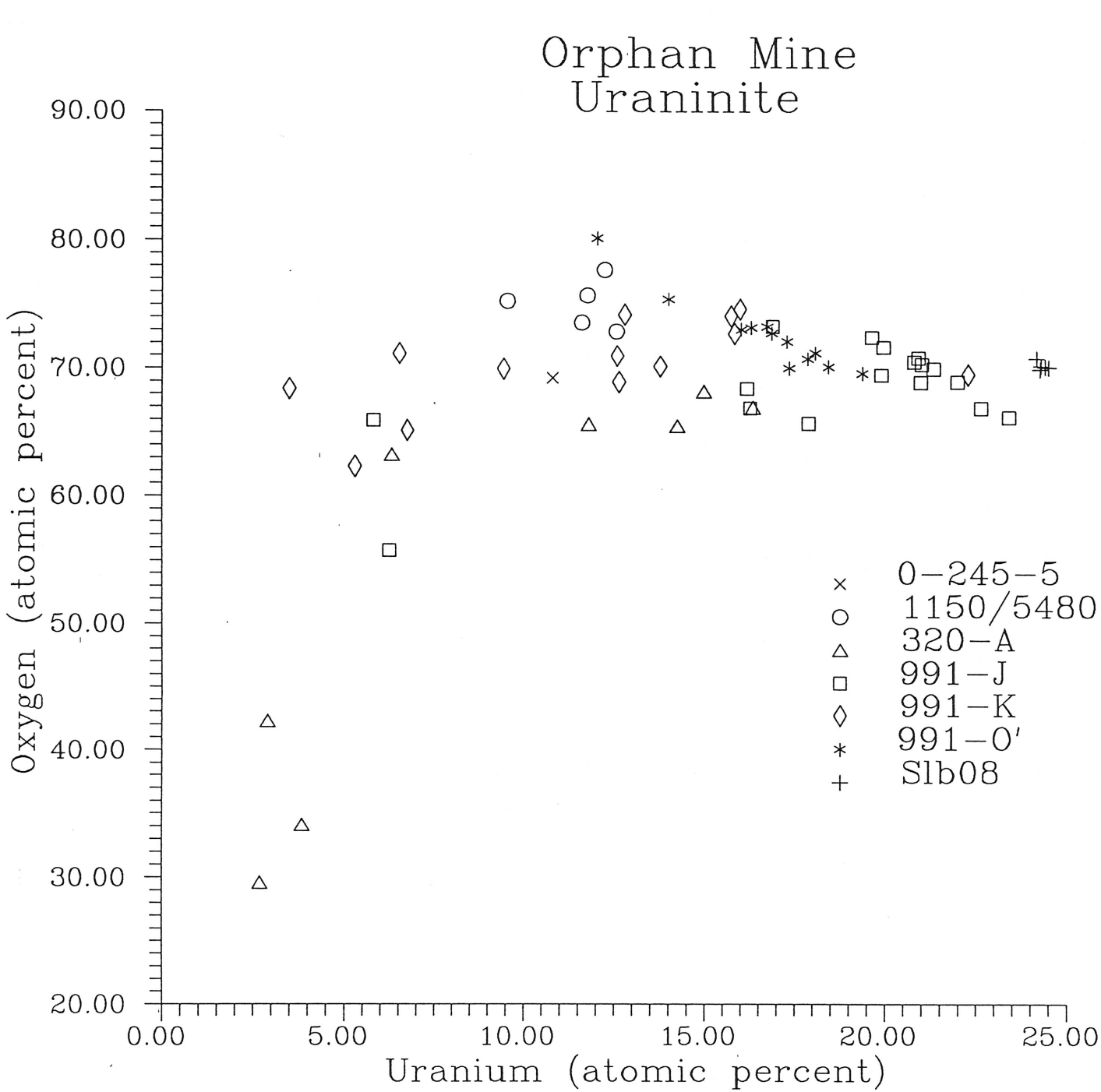
Bill--

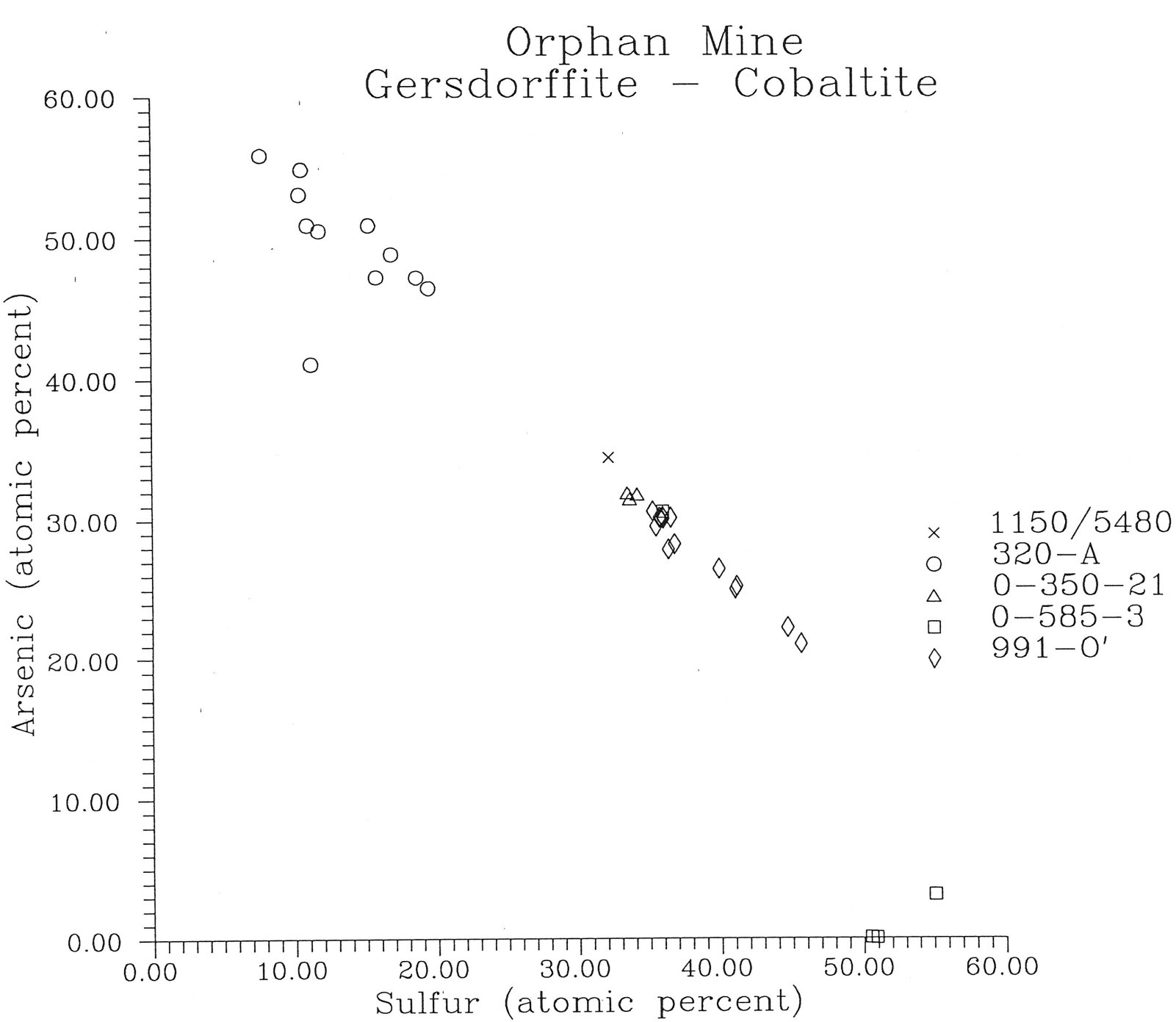
I don't know whether these will reach you before Karen gets there this weekend -- I guess we'll see just how good Colorado mail delivery is. These are a few more plots that Karen requested before she left town. I hope they help.

In the database, there are a lot of places where the mineral id needs some work. I have cleaned up some areas, but have not gone through all. Just noticed this morning some "galenas" that have no Pb! And of course the Cu sulfides are a particular problem.

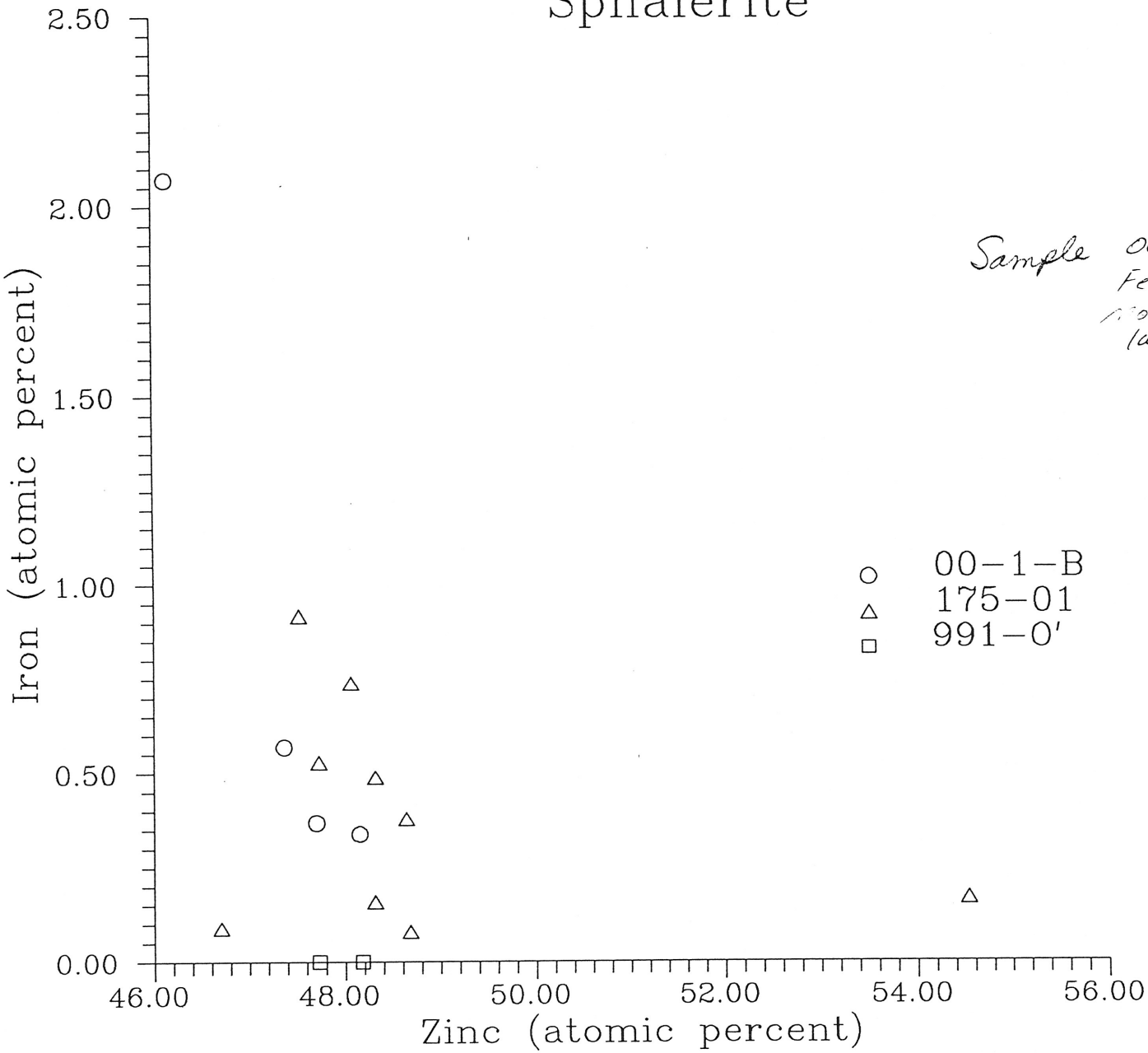
Good luck!

Regina


Orphan Mine
Uraninite
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
Oxygen (atomic percent)
0.00
5.00
10.00
15.00
20.00
25.00
Uranium (atomic percent)
0-245-5
1150/5480
320-A
991-J
991-K
991-O'
Slb08

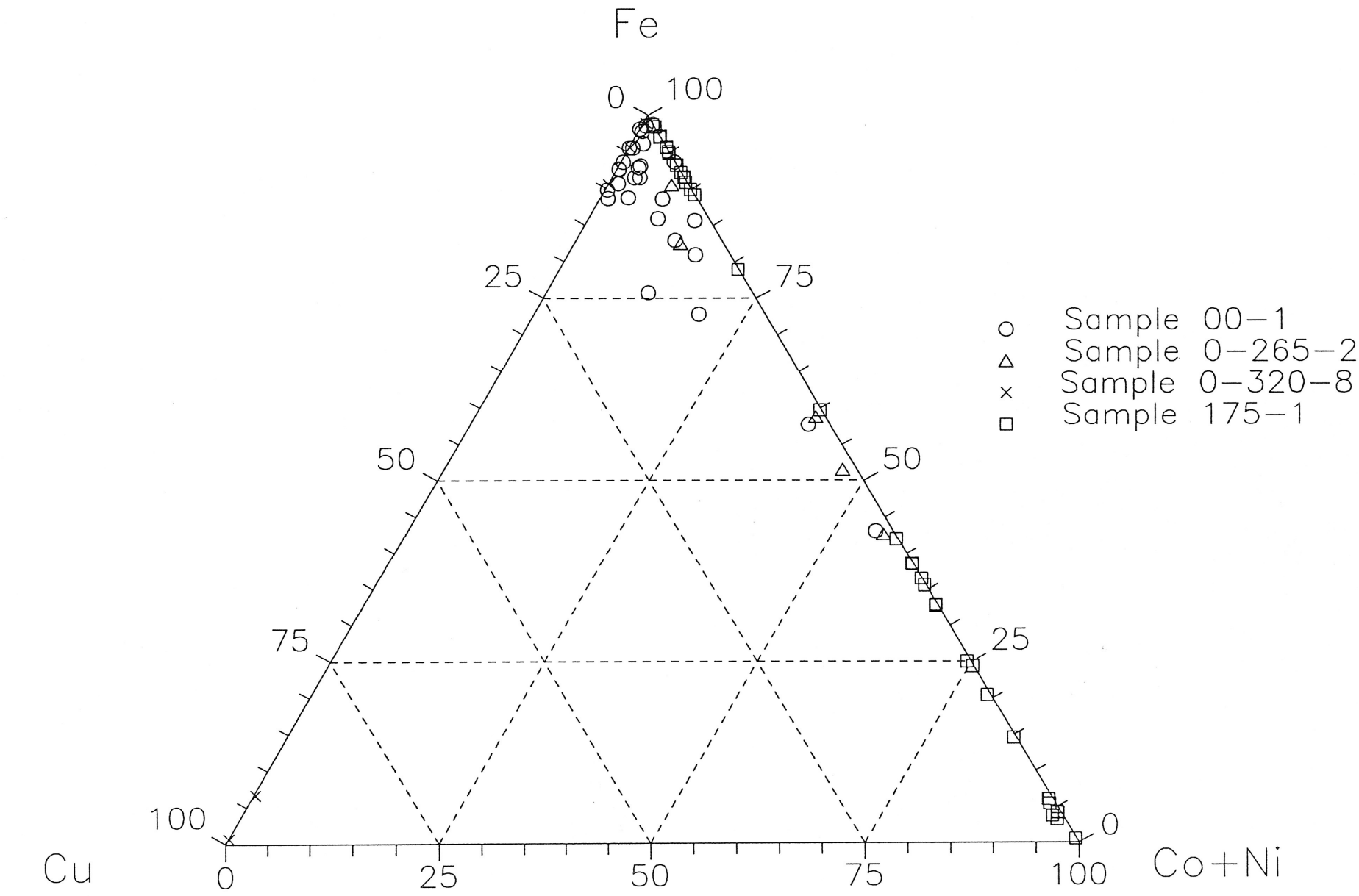

Orphan Mine
Gersdorffite – Cobaltite
Arsenic (atomic percent)
Sulfur (atomic percent)
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
1150/5480
320–A
0–350–21
0–585–3
991–0'

Orphan Mine
Sphalerite



Sample 00-1-B05
Fe = 29.16 Zn = 5.13
not on here, but
labelled as sphalerite
in database

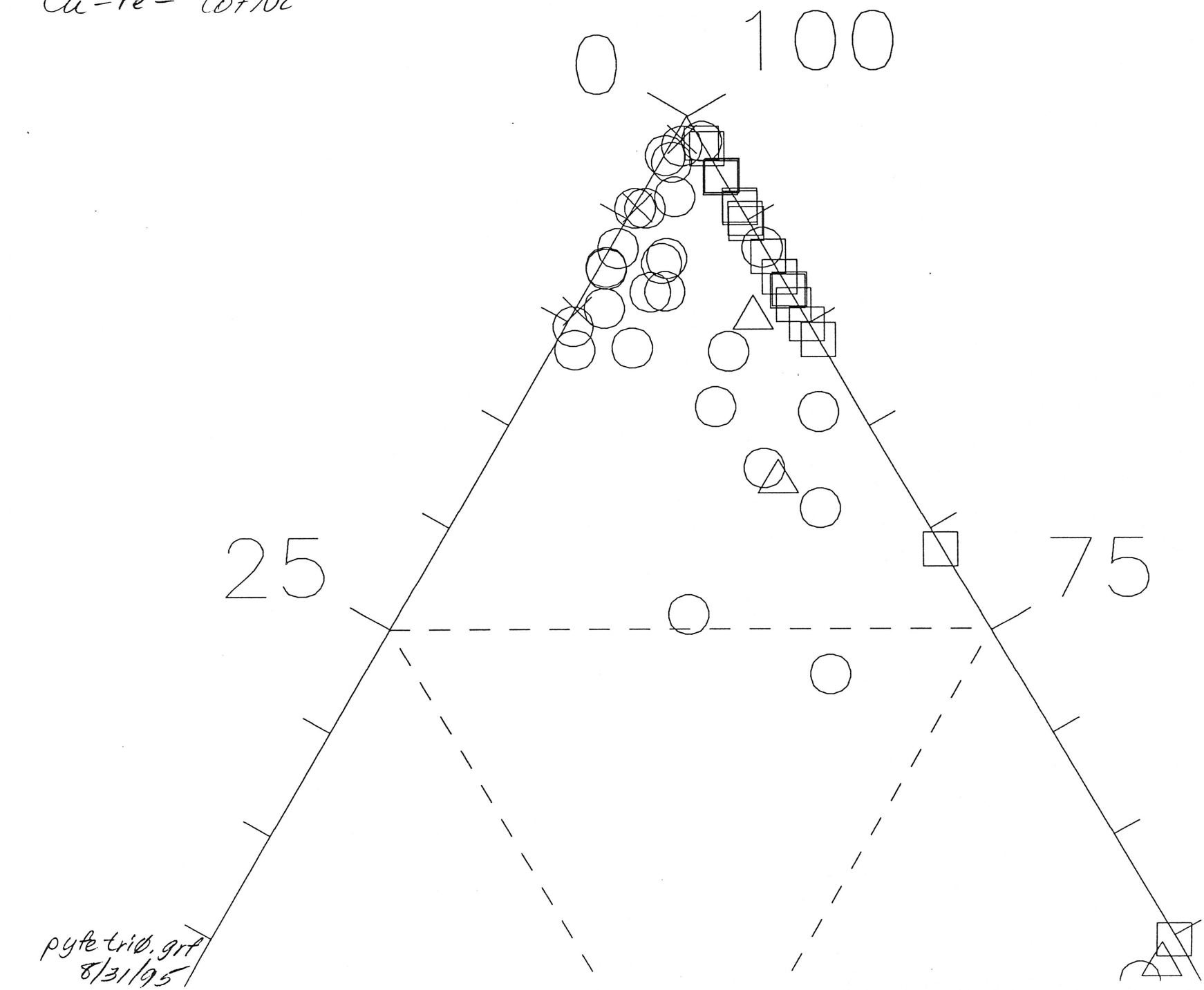
Orphan Mine Pyrites



pyfetri0.grf
8/21/95

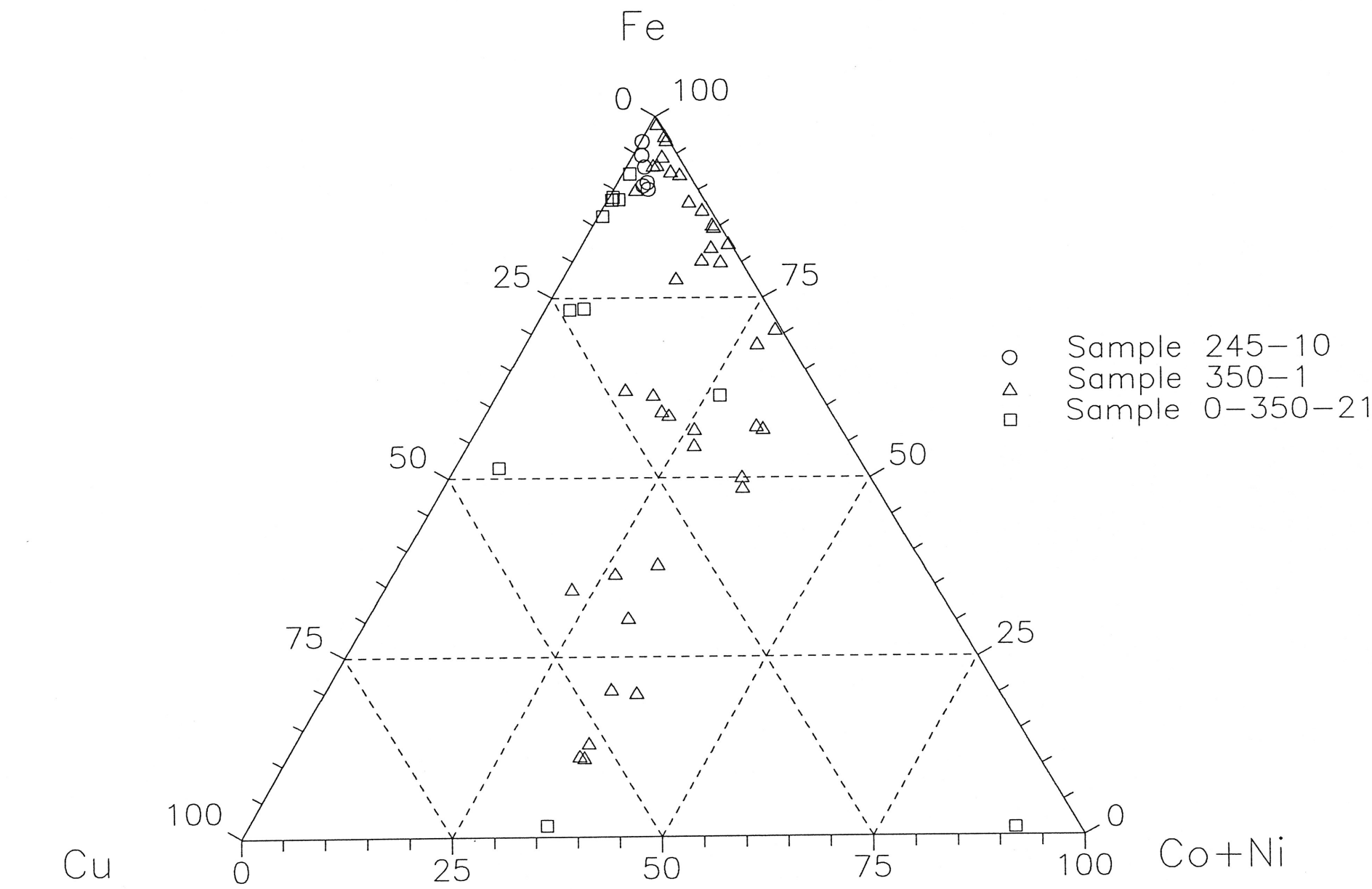
Pyrites

Cu – Fe – Co+Ni



pyfetri0.grf
8/31/95

Orphan Mine Pyrites



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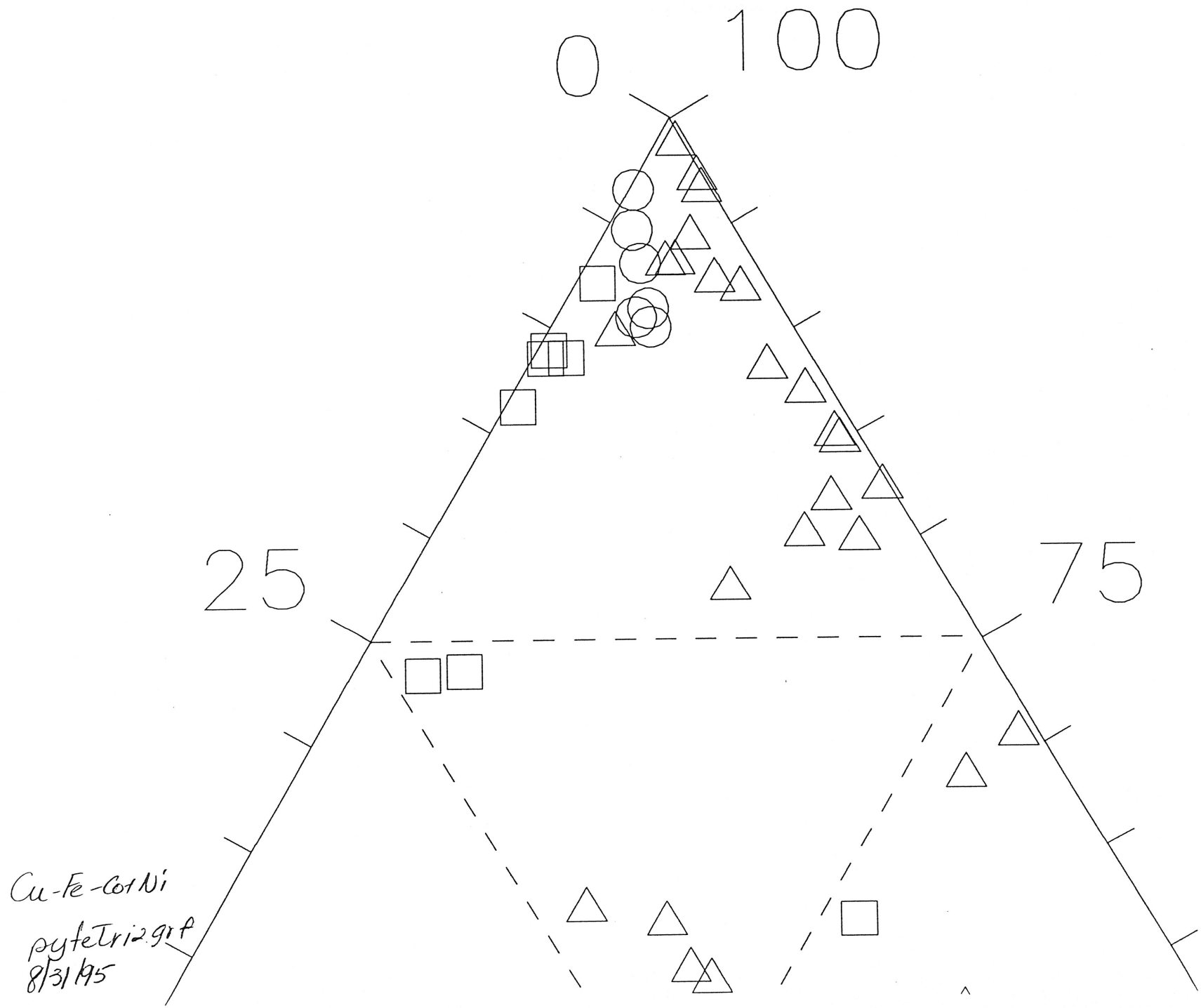
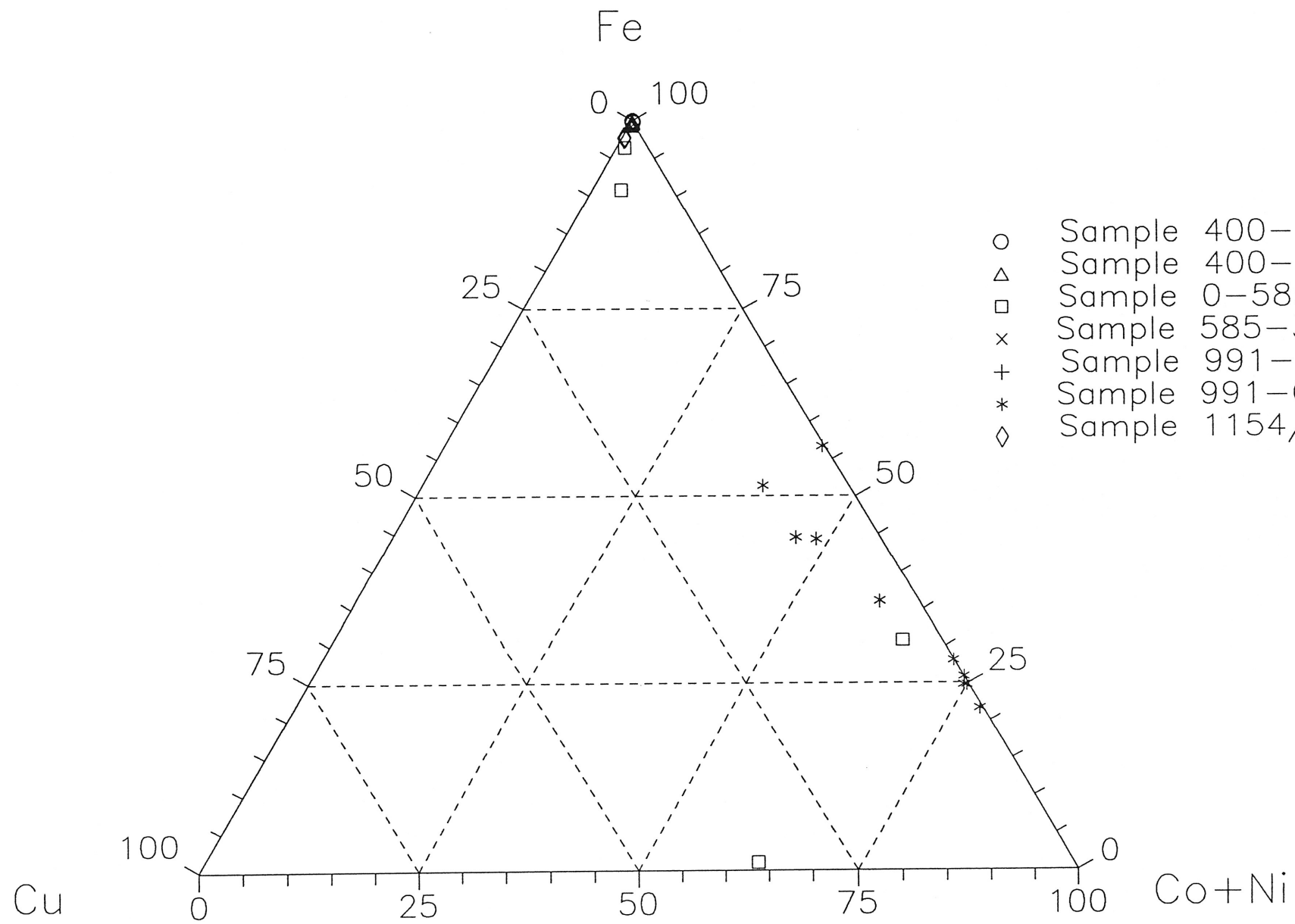
8/31/95


0
100
25
75
Cu-Fe-Co+Ni
pyfeTri2.grf
8/31/95

Orphan Mine Pyrites



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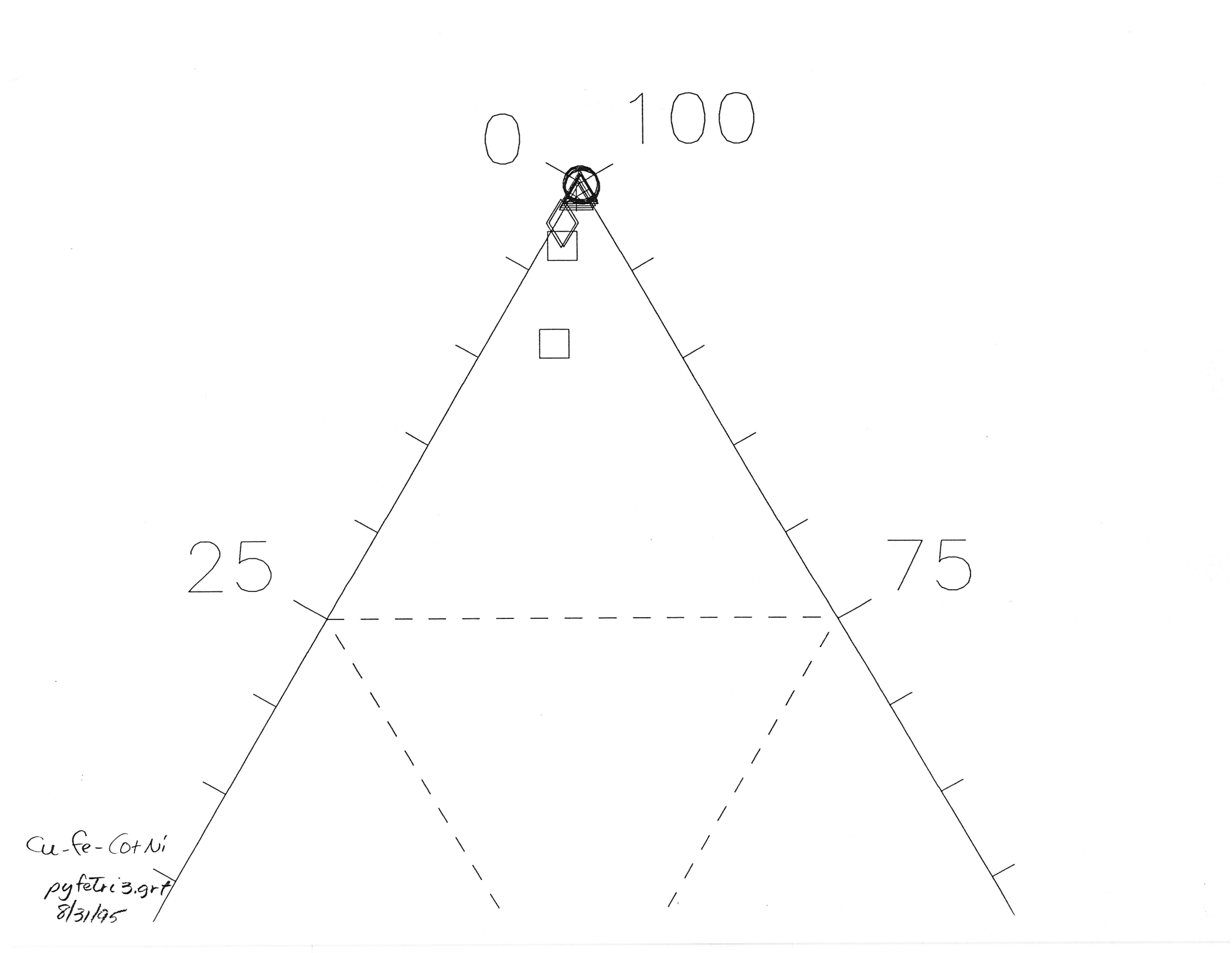
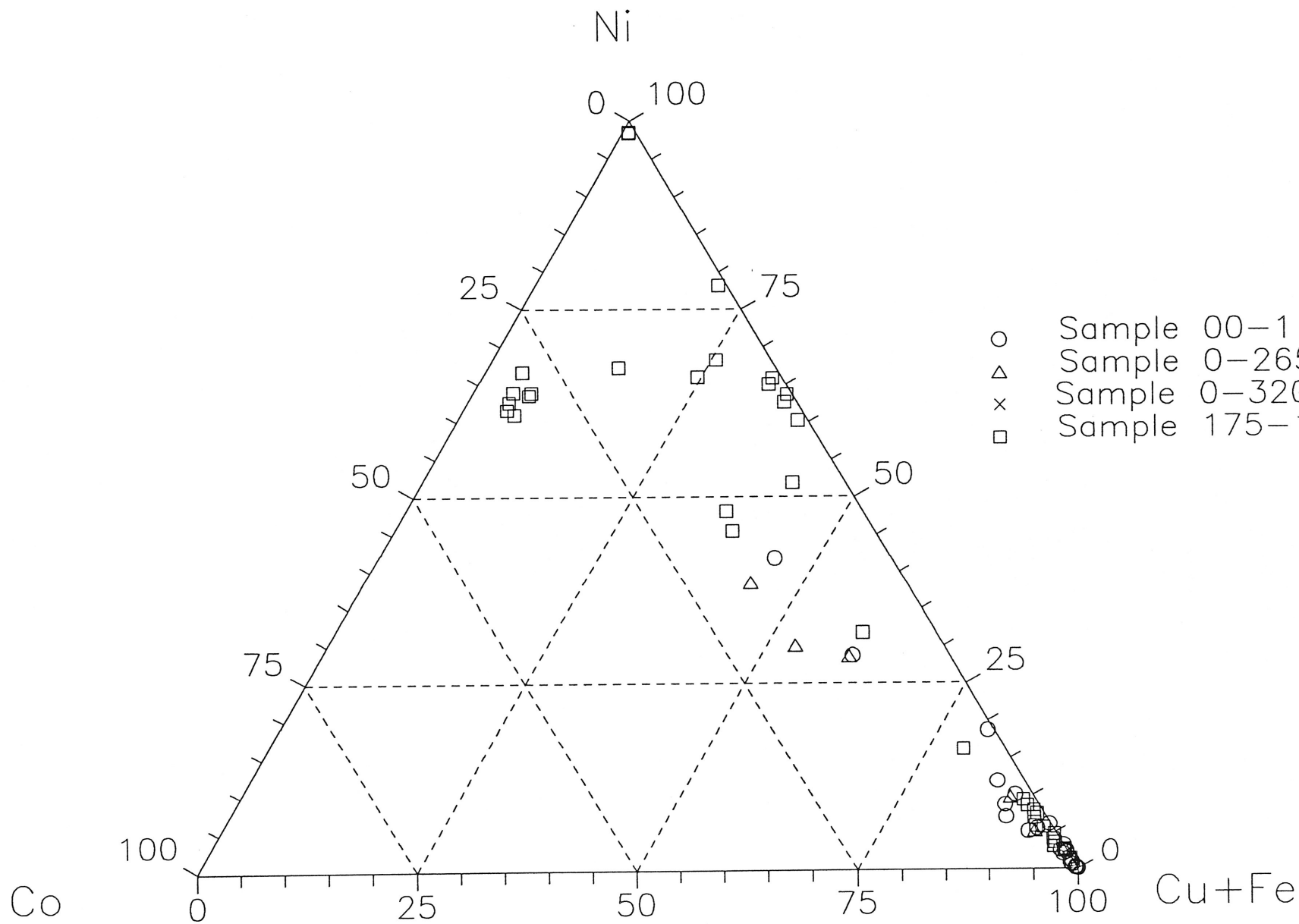

0
100
25
75
Cu-fe-Co+Ni
pyfetri3.grf
8/31/95

Orphan Mine Pyrites



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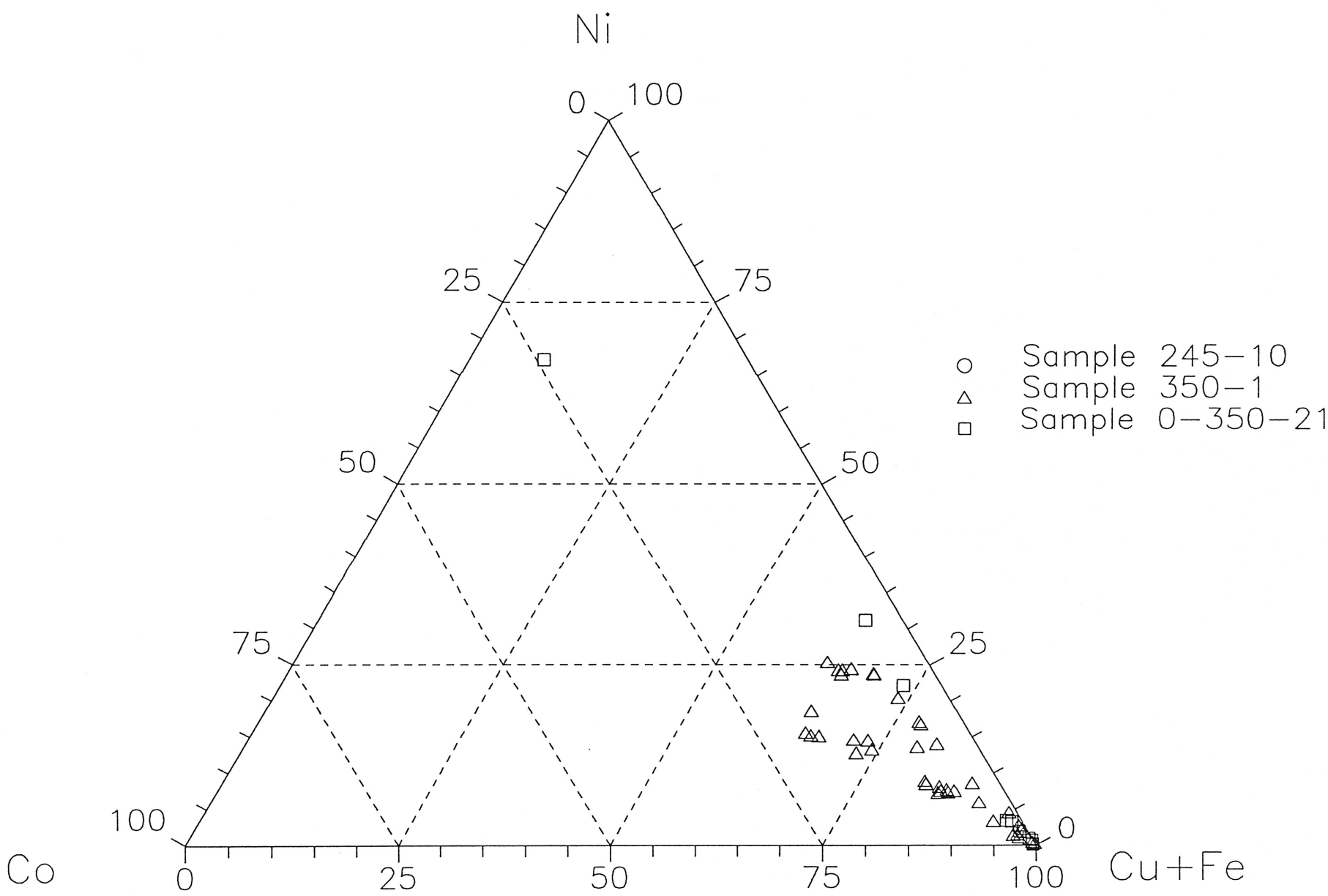
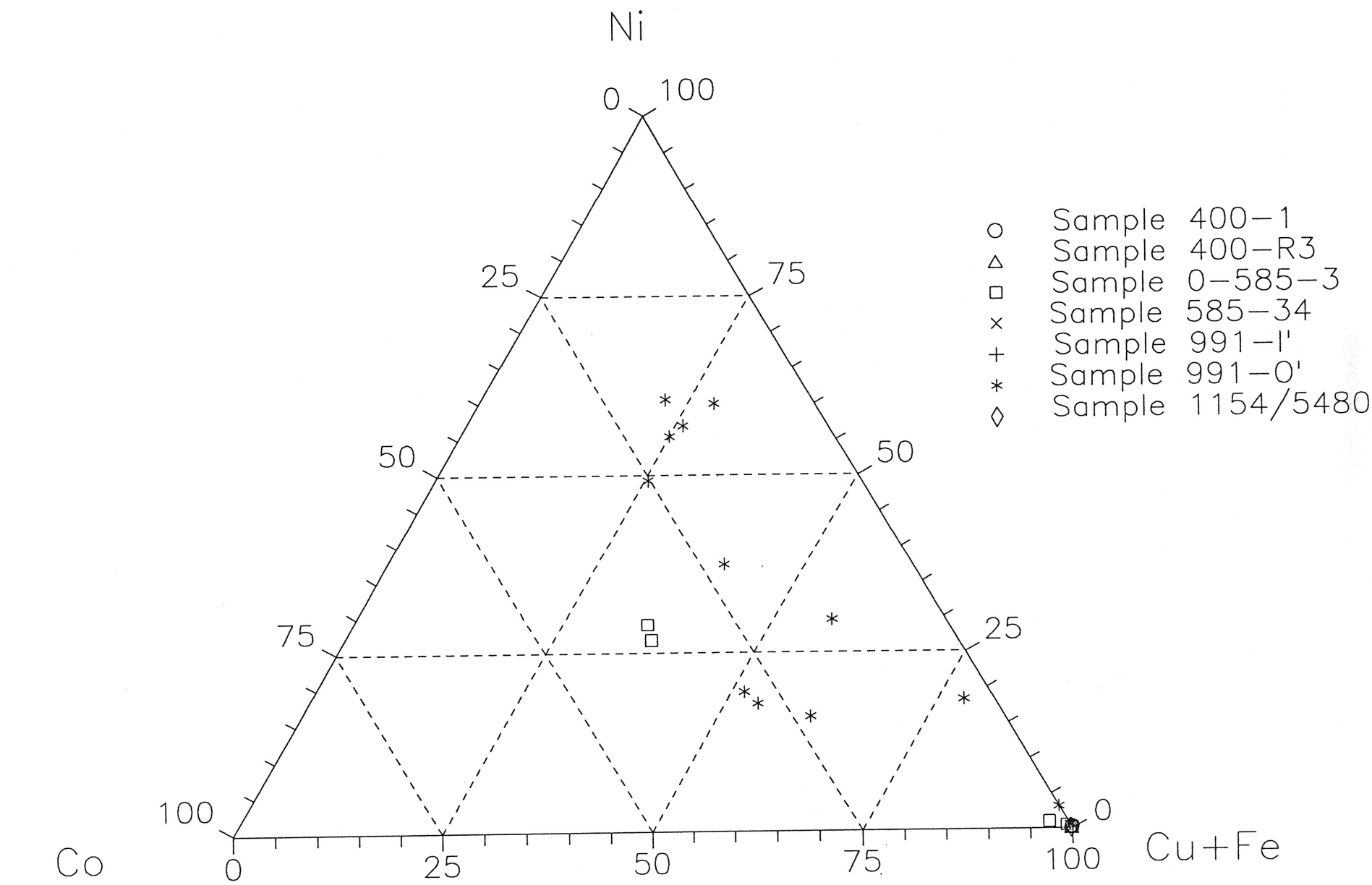
8/31/95

Orphan Mine Pyrites



pyritri2.gof
8/31/95

Orphan Mine Pyrites



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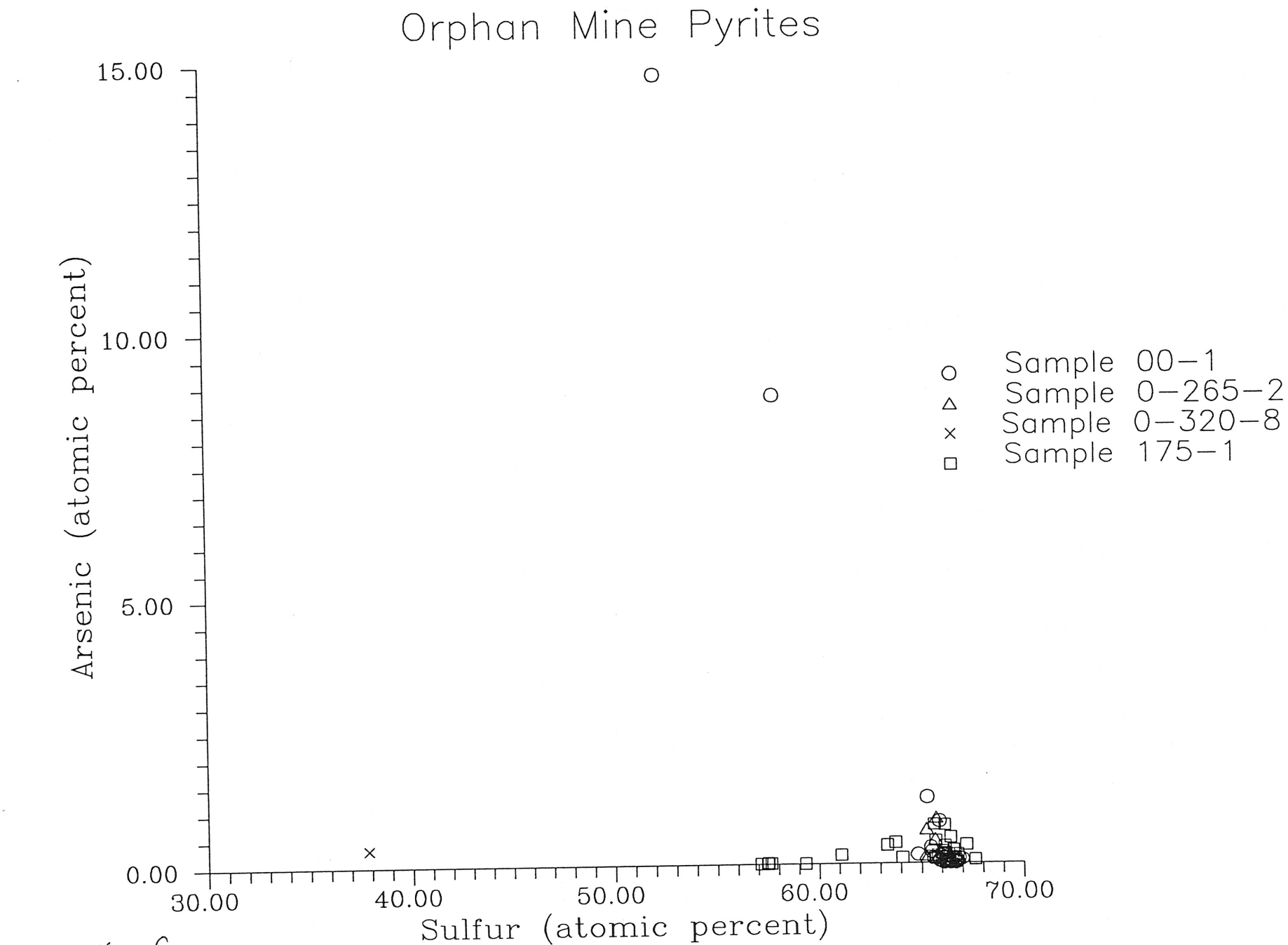
8/31/95



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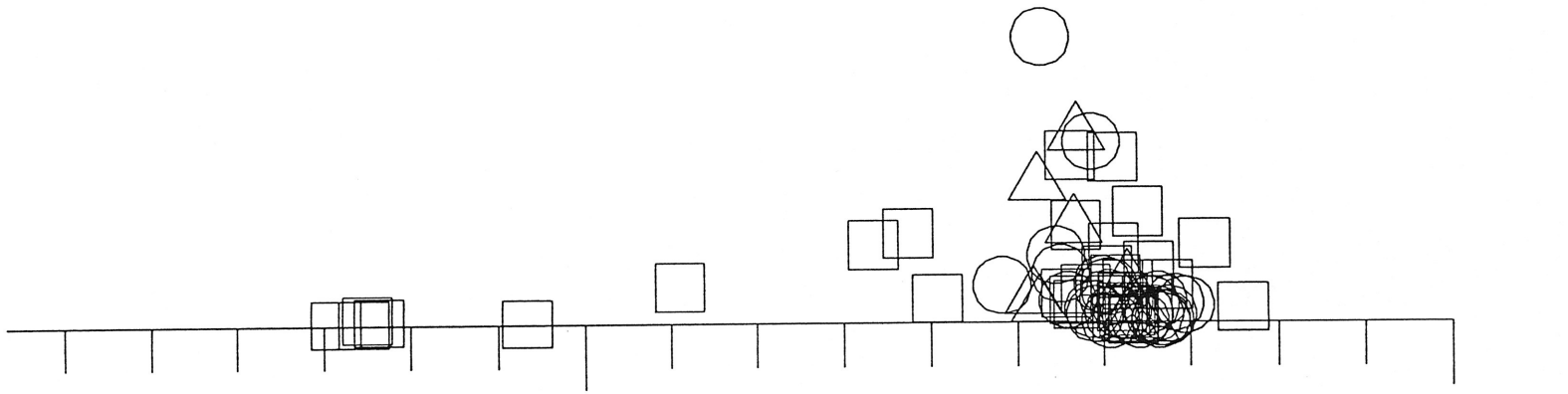
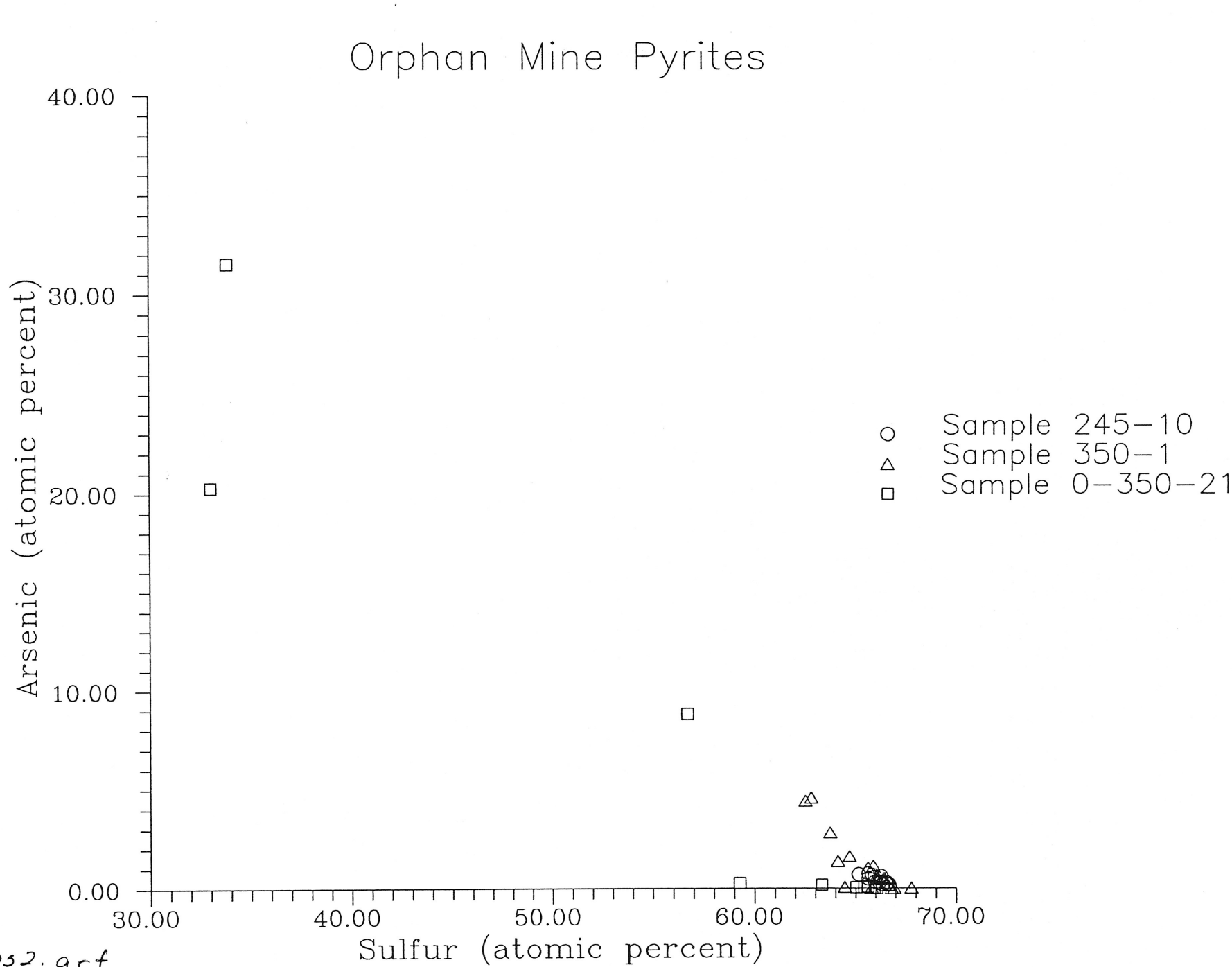
8/31/95



percent)

pysa30.grf As-S
8/31/95



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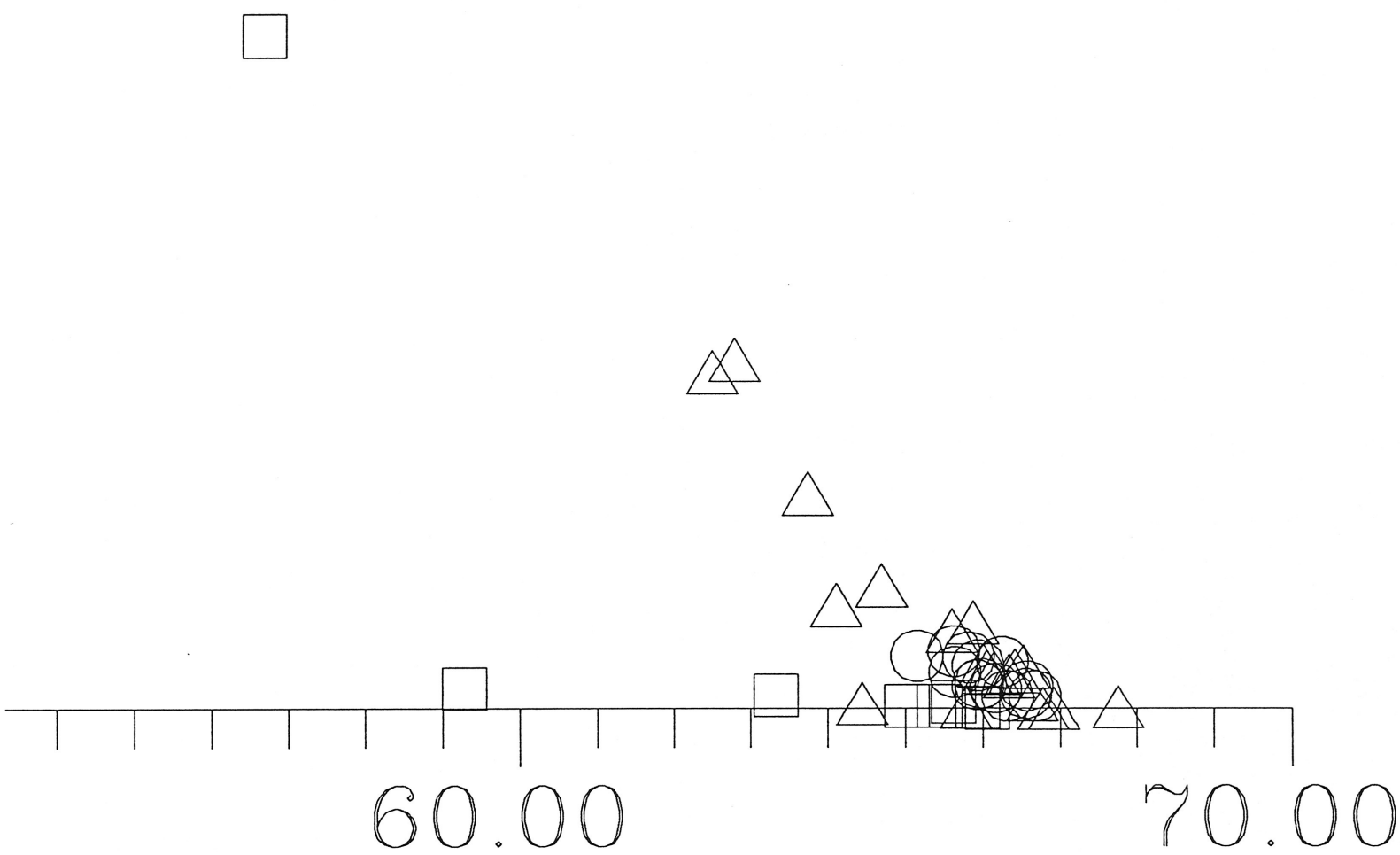
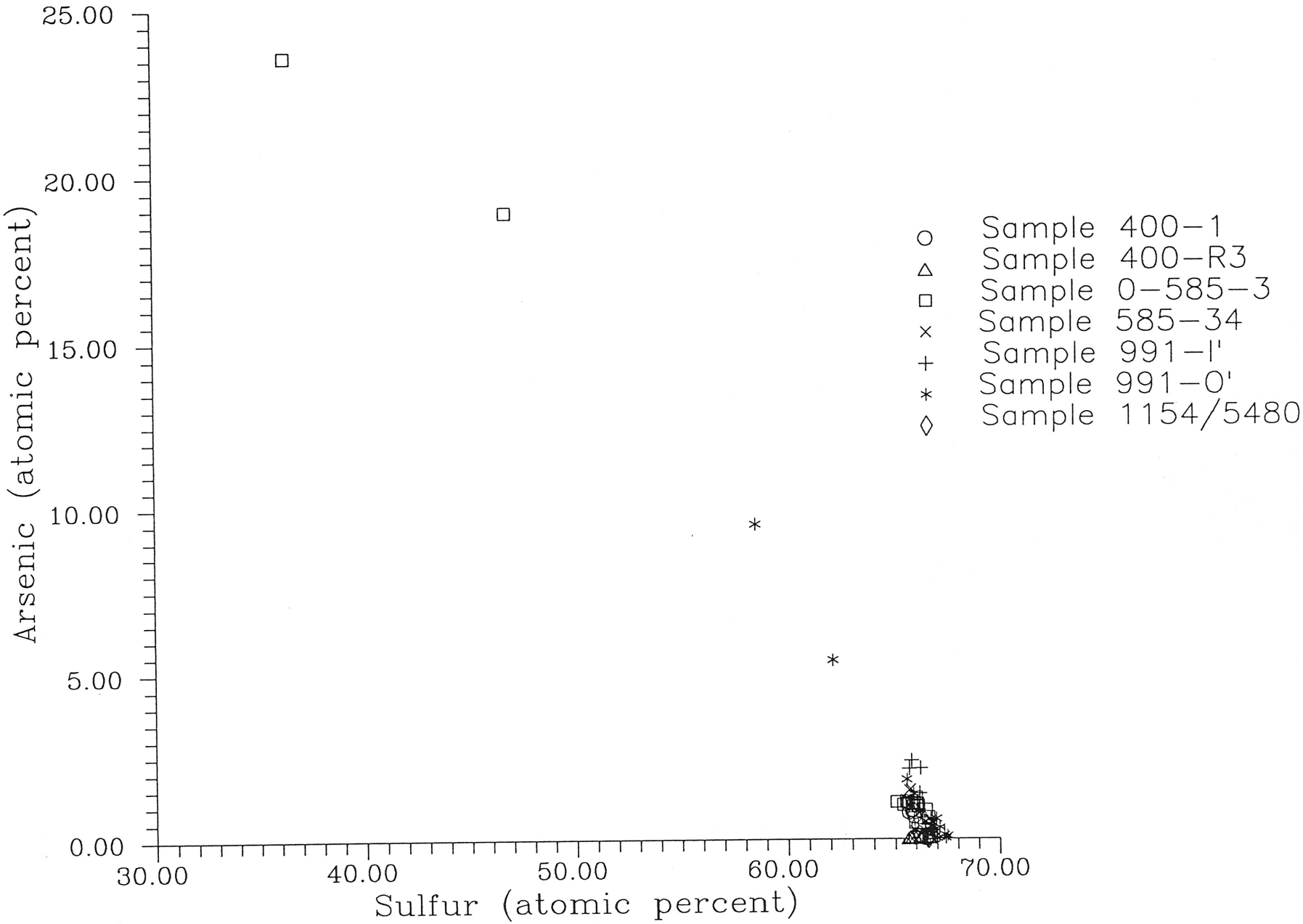


percent)

pysas2.grf As-S
8/31/95

Orphan Mine Pyrites



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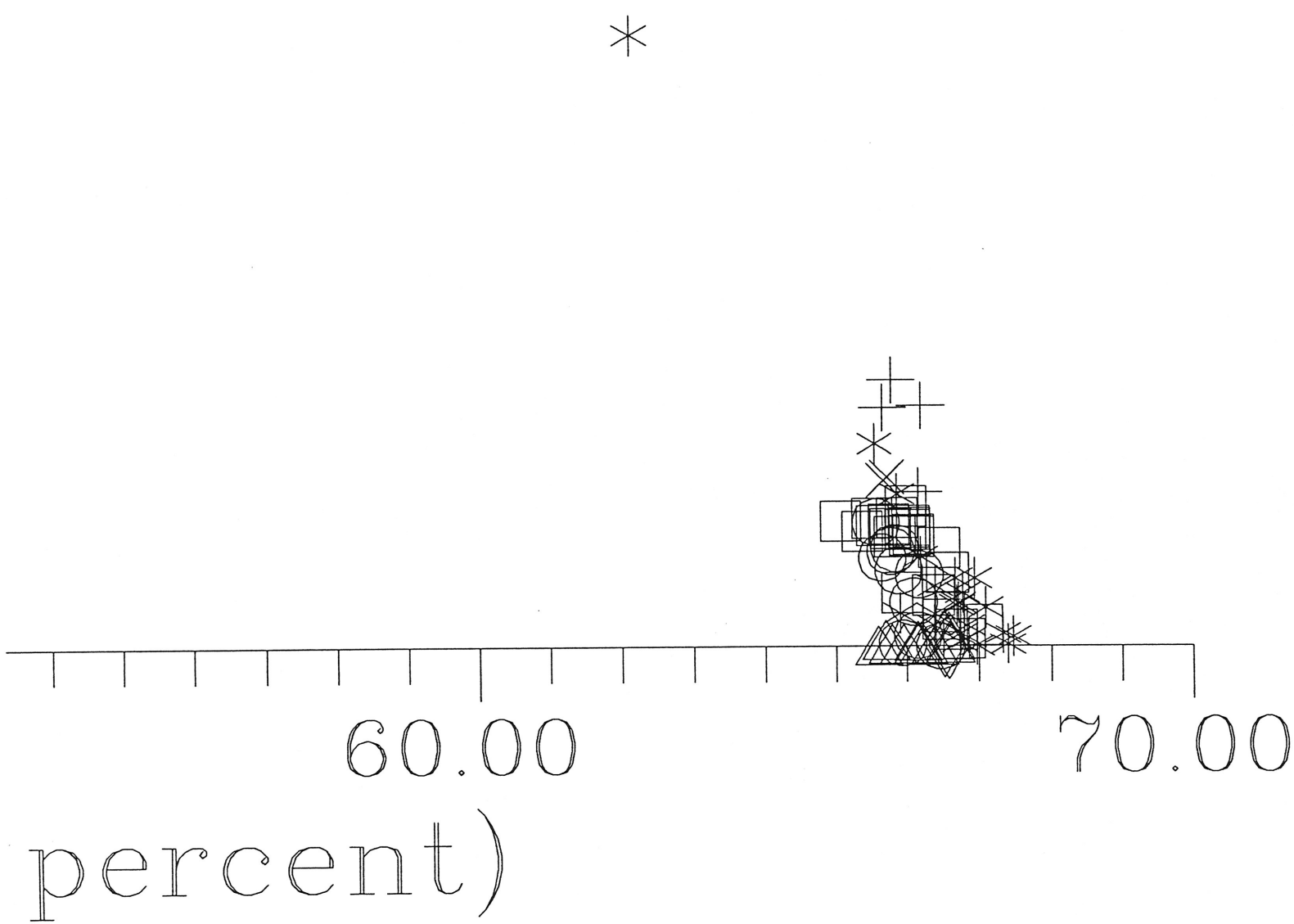
8/31/92



percent)

pysas3.grf As-S
8/31/95

Oct 4, 1985

Bill,

The data we have on production other than wireline from the Orphan Sale comes from two sources, a hand written sheet and a report by Wm. McDougald. Copies of both are attached. The source of the documents is discribed in the attached EFN intercompany memo from Bob Steele to Merid Vinsealett. This EFN memo is for your information only.

Hope this information helps

Jim

EVALUATION OF RESERVES

at the

ORPHAN MINE, (ARIZONA)

for the

COTTER CORPORATION

as of

JANUARY 31, 1968

by:

Wm. Dean McDougald
Consulting Geologist,
Mining

ASSIGNMENT: Your corporation assigned me the job of assessing the known mineralization at the Orphan Mine, Arizona, with special emphasis to be placed on the Large Inner-B-Zone, Low grade reserves.

CONCLUSIONS:

a) Large - Low Grade - Inner-B-Zone: Massive body has an inferred potential tonnage of 521,318 tons of 0.123% mineralization, with dilution, or 1,307,042 pounds of Uranium Oxide. If your corporation decides on further development of this Large Low Grade deposit, additional core drilling, long holes and development work will be needed within the large mass; especially, within the upper levels; however, this additional development work may increase the grade and tonnage. You are presently equipped to do this additional work.

b) Higher Grade Ore Reserves: To be shipped to the Canyon City, Colorado Mill consist of 11,656 tons of 0.286% grade or 66,672 pounds from Company Annular Rings, and 13,156 tons of 0.486% grade, or 128,347 pounds from the Known Annular Rings of Pipe, on U. S. Gov't., Adjoining Park Ground; thus, a composite tonnage estimate of 24,912 tons of 0.391 U 308, or 194,990 pounds of U 308. There is also an additional 21,183 tons of 0.284 of indicated-possible-higher grade mineralization that can be added to the shipments on a (High Grade Mining Program); this would add 120,319 pounds to a high grade program. There are also additional worthwhile tonnages found within the Inner B - Zone that could be removed, economically, on a (Strictly High Grade Program). Large blocks of known mineralization formerly included in just plain "shipping ore" estimates are included in the Large Low Grade estimate, outlined above.

RECOMMENDATIONS: I can only highly recommend that you study the economics of a possible Large Low Grade, Upgrading Project. From all indications up to 1½ million pounds of U 308 might be derived from the Large Inner-B-Zone; plus, possibly some from above the 140 level, and the poorly developed rim exposure, along the Coconino sandstone-Hermit

shale contact zone. The higher grade materials could still go to Canyon City, until Upgrading Plant Operations; but, after that time, you may want to save some $8 plus per ton shipping charges by a combined blending program.

I am not well versed in Upgrading Plant costs; however, from mine indications and talking to the mine staff - I am sure that mining costs would be low on the large low grade tonnage removal.

From all indications (from my brief study) you will realize way-way more profit by developing a low grade (large extraction project) from the Orphan Mine's remaining life, or production. We all realize that we can't mine and ship, some distance, 0.10 to 0.15 mineralization. This leaves little choice on the lower grade materials; of a great quantity, in this case.

A price revision on Yellowcake towards the $12 to $15 per pound bracket would make this Low Grade Upgrading Project look most attractive. This is probably coming quicker than formerly advocated.

INTRODUCTION: I spent most of the week of January 15, 1968 in the Orphan Mine workings, checking faces with a Russian Head Scanner, taking chip samples and working at the office with mine office maps and records. The chip samples were bucked down and ran on the Mine Scaler; pulps are held in Moab.

I was assisted in the mine and record examinations by Mr. Erik Bruner, Company Geologist and the Mine Surveyor, Larry
Their courtesy and help was deeply appreciated. I was overwhelmed by their honesty and sincerity.

The bulk of materials, gathered, assembled, and brought back to Moab are Orphan Mine office: figures, values, illustrations and outlines. Without the use of this material, I would have been in someone's mine, off and on, for about six months. The materials are exceptionally good.

GEOLOGICALLY: The Orphan Deposit is one of the most interesting of the known U. S. Uranium producers. I spent four hours, one evening, just reading and abstracting reports formerly submitted on the deposit by H. F. Ditchburn, Toronto, Canada, 1959; Max Koffard formerly at the Orphan, 1959; Tom Gillingham, Pennsylvania, 1963; Howard G. Schoenike, Houston, Texas, 1963; G. R. Griswold, Albuquerque, New Mexico, 1967; and, Erik Bruner's 1967 talk outline. This of course does not include government agencies reports and others. A lot has been written on this deposit, in the way of consultants' reports.

Basically, the consensus of opinion is that the Orphan pipe is not closely associated with any major faulting. The pipe is known to extend through parts of Coconino sandstone, Hermit shale, Supai formation and may bottom in the Redwall limestone. (See generalized columnar section). The pipe varies from a 370 foot diameter in the Supai to a 150 foot diameter, higher up, in Hermit shale. (Most of production has came from Supai fm.)

Higher grade, or Annular Rings, is found mainly in or near outside pipe contact zone; large massive, less restrictive conduit mineralization is found within pipe proper; this makes up the proposed large low grade tonnage materials.

There are no known evidence of volcanic gaseous, or foreign volcanic fragments - dispersion in this pipe.

Zoning, both vertical and lateral, are pronounced; this zoning has strongly suggested to most examiners, a hydrothermal origin.

The minerals, association and the cementation suggest that considerable calcium and magnesium carbonates have possibly moved up from the underlying Redwall limestone; however, a leaching and downward solution movement from the overlying Kaibab would give you same results? In that this is a collapsed structure, I favor downward movement of carbonates and mineralizing solutions.

PAST HISTORY AND PRODUCTION: Of a rather interesting nature since Orphan Lode was staked in 1893 by Messrs. Henry Ward and Daniel Hogan as a copper prospect. Hogan, being in good grace with President Ted Roosevelt as a former Rough Rider, was given a patent in 1906 by Roosevelt.

High radioactivity was noted by H. C. Granger of the USGS in 1951; claim was leased by Golden Crown Company in 1953, on an option to purchase, and in 1957 - Western Gold and Uranium Corporation acquired the remaining interest. The Cotter Corporation acquired the property in 1967 from Western Equities interests, et al.

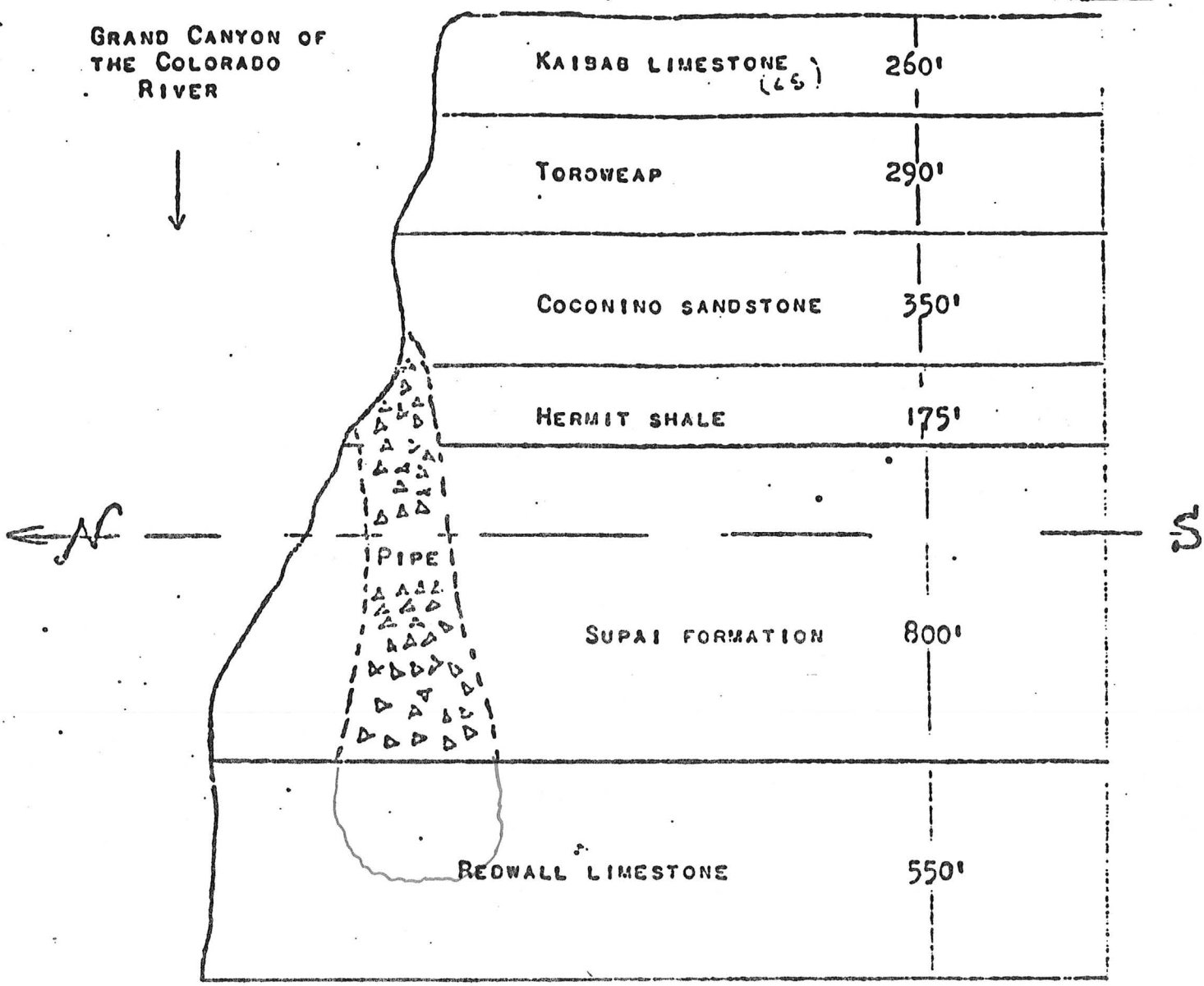
A special U. S. Congressional Bill had to be passed to enable operators to mine ore within pipe defines in the adjoining U. S. Government Park Land; this took lobbying for some three years and was obtained, or passed in May 1962. (PL 87-457, S-383). This is a long term agreement with royalty scale from 5% to 10% in ores sold to U. S. Government (A.E.C.), based on mine values; but, deductions for shipping and milling costs are allowed operator in ores sold to private industry before royalty payments are computed.

Production of uranium ores commenced in 1956 by Tramway, over rim edge; and by vertical (1500 feet) service shaft in 1959

Year	Drytons	% U_3O_8	Pounds	% Cu	Oz. Ag	
1956	1,666	.451	15,040	NR	NR	
1957	7,516	.999	150,244	NR	NR	
1958	12,228	1.188	290,537	NR	NR	
1959	28,125	.520	292,500	NR	NR	
1960	80,568	.320	515,635	NR	NR	
1961	75,336	.280	421,881	NR	NR	
1962	10,657	.434	92,450	1.41	NR	1st Recov
1963	51,254	.554	567,633	1.22	9,821	
1964	65,004	.461	599,809	1.28	29,557	
1965	82,488	.422	696,706	1.18	31,830	
1966	24,969	.397	198,023	1.01	9,992	
1967	5,610	.319	35,719	I did not obtain these		
Jan-1968	~~2,000~~	(Est.) ~~.300~~	Estimated ~~12,000~~	values on Cu and Ag.		
~~1968~~	~~48,180~~	~~.37~~	~~456,723~~	~~.51~~	~~.93~~	
TOTALS	447,421	.43	3,888,177		81,200	
AVERAGES		0.434%		1.209%	.36 oz.	

The present production comes from development work. This is one thing that has not "kept pace" at the Orphan - <u>that is development work</u>. There have been too many allocations, business mergers, and downright pessimistic evaluation work by consultants and actions taken by corporate management that led to a mine of possible great future potential without proper development work to maintain a healthy reserve picture.

It is not my intent to pretend to be in a position to condemn past actions that led to a poorly maintained development status; but, I do feel, strongly, that outright pessimism and other actions taken - not based on the Orphan Mine's potential, led to this status. The past three years have not been "good" development years, I am informed.



GENERALIZED CROSS SECTION THROUGH THE ORPHAN MINE, ARIZONA, AREA-. LOOKING EAST TOWARDS THE BRIGHT ANGEL LODGE.

SCALE: APPROXIMATE 1 " = 400 FEET. 1-17-68 REPORT BY MC DOUGA

MEMORANDUM

DATE: MARCH 26, 1981

TO: M. D. VINCELETTE,
VICE PRESIDENT, OPERATIONS

FROM: R. M. STEELE,
SENIOR MINE ENGINEER

SUBJECT: MEETING WITH OWNERS OF ORPHAN MINING CLAIM,
COCONINO COUNTY, ARIZONA

On Monday, March 23, 1981, I met with Elling Halvorson, owner of the Orphan, at his office in Redmond, Washington. In late February, Mr. Halvorson and a partner, John R. Seibold, bought the Orphan claim, along with some land just outside the Grand Canyon Park for $800,000 from Cotter Corp. of Denver, Colorado.

The objective of my visit was to meet Mr. Halvorson, review the property files and set up a visit to the property. Attached to this memo is a set of notes collected and a list of maps.

The Orphan deposit is the model used by both Western Nuclear and EFN in their exploration work that led to the Hack Canyon project. It has been the opinion of the EFN staff that a visit to the property would be very desirable to provide insight into ore chartaristics, rock mechanics and time tested mining methods.

The title of Orphan Mine stems from a singled patent claim, granted before the Grand Canyon Park was established. The claim was located on copper minieralization in a fault zone

about 500 feet below the Canyon rim. No significant mining was done on the claim until the early 1950's when uranium was noted. A small tram was first used to lift ore to the rim from an adit. In the late 1950's, a 1500 ft vertical shaft was sunk on the rim and a 1000 ft haulage drift driven to the ore. In 1962, agreement was reached with the Park and the operator was allowed to mine ore extentions that passed outside the claim boundary. In return, all the property rights were to go to the Park in 25 years or by 1987. In 1968, the property was bought by Cotter Corp. for $800,000. By mid-1969, the mining ended. During the 15 years of operation, it produced 4.5 million pounds of uranium with an average grade over .30% U_3O_8.

The files that I reviewed consisted of about 2 ft of legal size text and 33 map tubes. Most of the data was obsolete. Most of the maps were prints that could be copied only at great effort and expense. Two sets of liner master did exist and prints were made of both. One set is part of a 1978 ore reserve estimate showing most of the last drilling. The other set is a series of assay maps showing the grade of most ore development.

A copy of the notes collected is attached. The maps, because of their bulk, are not attached, but an index is. Two sets of these maps were made, one for the Denver office and one for the project office.

A tentative visit to the site was set for April 23 and 24. Mr. Halvorson will likely want one of his employees to be part of the group. Anyone planning to be part of the group should read all of the attachments and review the maps. A memo dated October 23, 1978, by E. B. Bruner, discusses the mine condition in some detail. A set of 8 X 11 inch level maps that were

not part of the memo, but were likely related, notes some of the danger points graphically.

It is evident that the high price of uranium caused Cotter to reevaluate the property in the late 1970's.

Cotter, in an April 23, 1979 memo regarding the Orphan Mine Feasibility Study by M. C. Anderson and G. A. Williams, estimated a cost of $32.75/# for 500,000 pounds over a five-year period. It is likely that this cost is low, but could be done below $40.00/# in the early 1980's. They expected to mine the low grade remnants left by earlier mining that would have an average grade of .116% U_3O_8 after dilution. They would process the ore underground with a heap leach method, similar to the WN Spook Upgrade. The one problem with the Cotter plan was the lack of schedule or cost allowance for permits. Their leach plant would require an NRC permit. That would be both time consuming and expensive inside a national park.

Under the current market and Cotter's estimate of cost, the Orphan does not appear to be of interest to EFN. With the title ending in 1987, it is likely that there will never be further mining at the site. However, a final economic memo should be written after the property is visited.

The property does provide an example, similar to Hack No. 1 and No. 2, that cannot be seen anywhere else in the world. A few thousand dollars spent having some of the operation and exploration staff view the workings is likely to save EFN ten to a hundred times that.

RMS/jf

cc RBS, I.W.M, PVC, PDH

Memo to M. D. Vincelette from R. M. Steele, Re: Orphan Mine, Coconino County, Arizona, dated 3/26/81

Encl. Collection of Notes:

1. "Hogan's Orphan Mine," article in December, 1978, True West Magazine.

2. Memo--Orphan Mine Examination by E.W. Bruner, October 23, 1978, with set of 8 X 11" level maps with notes.

3. Memo--Orphan Mine Feasibility Study by M. C. Anderson and G. A. Williams, April 23, 1979.

4. Memo--Orphan Mine, by E. W. Bruner and W. B. Tobey, April 23, 1979.

5. Letter from Harrison-Western to Cotter, ...rehability and exploration..., January 15, 1979.

6. Letter from Thyssen Mining Construction, Orphan ..., January 15, 1979.

7. Letter from Cotter asking for rehabilitation bids, December 27, 1978.

8. Memo--orphan Mine Remnant Uranium Reserve Estimate, by E. W. Bruner, September 21, 1978.

9. Summary of 1968 and 1969 Production.

10. Clipping--Christian Science Monitor, June 25, 1969.

11. Report on Orphan Mine Reserves by Colorado School of Mines Research Foundation, February 17, 1969 (No plates found).

12. Report--Evaluation of Reserves...as of January 31, 1978, by William Dean McDougald. (with 8 X 10 illustration).

13. Set of level maps, 8 X 11', Scale 1"= 67 feet.

14. List Maps--copy each Denver office and project office.

Memo to M. D. Vincelette from R. M. Steele, Re: Orphan Mine, Coconino County, Arizona, dated 3/26/81

List of Maps:

1. Generalized Section, looking S.E., Scale 1"=100'.

2. Section, looking East, Scale 1"=50', with notes on geology.

3. Section and Plan 550 East D.D. Station, Scale 1"-20' (details of lowest level in mine).

4. Plates to September 21, 1978 Reserve Estimate.

   a. Adit level (5910' elevation).
   b. 100' level.
   c. 140' level.
   d. 175' level.
   e. 190' level.
   f. 225' level.
   g. 245' level.
   h. 265' level.
   i. 285'-290' level.
   j. 310'-320' level.
   k. 335'-365' level.
   l. 375'-400' level (haulage and shaft station).

5. Assay maps of development in ore, all 1"=20' scale, generally undated.

   a. 140' level (base of Hermit Sh.)
   b. 175' level (scale 1"=10' drill map).
   c. 190' level.
   d. 285' level.
   e. 290' level
   f. 310' and 320' level.
   g. 320' level.
   h. 335' level
   i. 350' and 365' level.
   j. 375' level.
   k. 400' level (haulage and shaft station).
   l. 420' level.
   m. 430' level.
   n. 525' level.
   o. 550' level.
   p. 585' level (lowest workings).

TO Malcolm Cadenhead

ORPHAN MINE - PRODUCTION WORKSHEET (AS RECEIVED AT THE MILL) (SINCE ACQUISITION)

MONTH RC'D.	LOT NO.'S.	WET TONS	DRY TONS	% U_3O_8	# U_3O_8	% Cu	# Cu	OZ./TON Ag	OZ. Ag.
1967									
NOV.	1 - 4B	1659.02	1590.58	.382	12157.69	1.323	42099.72	.802	1275.98
DEC.	5A - 7C	2078.10	1964.32	.342	13433.31	1.584	62239.98	.535	1050.63
TOTAL 1967		3737.12	3554.90	.360	25586.00	1.468	104339.90	.654	2326.61
1968									
JAN.	8A - 12C	2912.99	2732.09	.369	20207.43	1.167	63905.17	.538	1472.47
FEB.	12C - 16C	2641.74	2500.02	.530	26488.16	.921	46043.80	.509	1273.43
MAR.	16D - 20E	3954.35	3776.22	.310	23439.47	.807	60910.47	.345	1301.55
APRIL	21A - 25A	4752.37	4572.67	.252	32186.89	.936	85576.47	.342	1562.83
MAY	25B - 29D	4424.86	4217.27	.475	40071.84	1.230	103743.99	.531	2238.13
YEAR TO DATE		18686.21	17804.27	.400	142393.76	1.011	360179.90	.441	7848.82
TOTAL TO DATE		22423.33	21359.17	.393	167979.76	1.057	464519.80	.476	10175.44
JUNE	30A - 33C	3814.79	3645.70	.366	26710.60	.829	60433.69	.379	1382.35
1968 TO DATE		22501.00	21449.97	.394	169104.36	.980	420613.59	.430	9231.83
TOTAL TO DATE		26238.12	25004.87	.389	194690.36	1.050	524953.49	.462	11558.44
JULY	34A - 38D	4870.91	4624.39	.368	34050.53	.533	49293.00	.394	1819.93
AUG.	39A - 42E	4350.33	4110.66	.311	25599.23	.447	36723.92	.346	1422.58
SEPT.	43A - 46E	3860.13	3665.41	.323	23691.25	.632	46348.77	.424	1554.03
1968 TO DATE		35582.37	33850.42	.373	252445.37	.817	552980.28	.414	14028.37
TOTAL TO DATE		39319.49	37405.32	.372	278031.37	.979	657320.18	.437	16354.98
OCT.	47A - 51C	5077.33	4782.61	.337	32207.97	.607	58068.19	.399	1910.21
NOV.	52A - 55D	3284.05	3098.53	.385	23865.35	.650	40254.97	.362	1122.16
DEC.	56A - 60A	3505.68	3292.57	.394	25977.47	.539	35467.05	.314	1034.94
YEAR - 1968		47447.43	45024.13	.371	334466.16	.763	686770.41	.402	18095.68
TOTAL TO DATE		51186.55	48579.03	.371	360052.16	.814	711110.37	.420	20422.29
1st ½ 1969			9899	.35	69,591				
2nd ½ 1969			4019	.37	29,445				
			62,497		459,088				

July 8, 1994

Geochemical analyses of Orphan Mine Samples

Field ID	Lab No.	Latitude	Longitude	Job number	Fm. Code	Ag ppm AA	Ag ppm ICP	Al % ICP	Al2O3 % XRF	As ppm AA	As ppm ICP	Au ppm AA
991-0-2	D-375925	36.074444	112.154167	UM25	4.0	—	52.	1.1	(H) 2.13	—	220.	NO.05
991-0-3A	D-375946	36.074444	112.154167	UM26	4.0	—	15.	0.51	-H-	—	6300.	NO.05
991-0-3B	D-375940	36.074444	112.154167	UM25	4.0	—	<2.0	5.8	10.8	—	28.	NO.05
991-00-1	D-375931	36.074444	112.154167	UM25	4.0	—	3.0	1.3	(H) 2.27	—	740.	NO.05
991-175-1	D-375927	36.074444	112.154167	UM25	3.0	—	3.0	0.86	1.49	—	84.	NO.05
991-190-1	D-375947	36.074444	112.154167	UM26	3.0	—	19.	0.04	-H-	—	1900.	NO.05
991-225-4	D-375935	36.074444	112.154167	UM25	3.0	—	150.	0.80	-H-	—	160.	NO.05
991-245-10	D-375920	36.074444	112.154167	UM25	3.0	—	5.0	0.40	-H-	—	3700.	NO.05
991-245-11	D-375941	36.074444	112.154167	UM25	3.0	—	4.0	1.00	1.75	—	210.	NO.05
991-245-11C	D-375916	36.074444	112.154167	UM25	3.0	—	<2.0	1.6	2.66	—	<10.	NO.05
991-245-2	D-375857	36.074444	112.154167	UM20	3.0	—	110.	0.84	-H-	—	9700.	NO.05
991-245-4A	D-375912	36.074444	112.154167	UM25	3.0	—	59.	1.00	-H-	—	790.	NO.05
991-245-4B	D-375907	36.074444	112.154167	UM25	3.0	—	39.	1.2	-H-	—	750.	NO.05
991-245-5	D-375923	36.074444	112.154167	UM25	3.0	—	59.	8.5	-H-	—	8800.	NO.05
991-245-9	D-375859	36.074444	112.154167	UM20	3.0	—	<2.0	0.96	1.54	—	150.	NO.05
991-265-1	D-375919	36.074444	112.154167	UM25	3.0	—	110.	1.3	-H-	—	2600.	NO.05
991-265-1R	D-375921	36.074444	112.154167	UM25	3.0	—	82.	1.8	-H-	—	1900.	NO.05
991-265-2	D-375936	36.074444	112.154167	UM25	3.0	—	6.0	0.37	-H-	—	3100.	NO.05
991-320-1	D-375928	36.074444	112.154167	UM25	3.0	—	<2.0	2.0	3.34	—	11.	NO.05
991-320-2	D-375939	36.074444	112.154167	UM25	3.0	—	<2.0	2.6	4.58	—	110.	NO.05
991-320-4	D-375905	36.074444	112.154167	UM25	3.0	—	5.0	0.75	1.33	—	500.	NO.05
991-320-6	D-375932	36.074444	112.154167	UM25	3.0	—	3.0	0.74	1.30	—	46.	NO.05
991-320-7	D-375913	36.074444	112.154167	UM25	3.0	—	<2.0	0.86	1.67	—	62.	NO.05
991-320-8	D-375906	36.074444	112.154167	UM25	3.0	—	280.	0.73	-H-	—	470.	NO.05
991-320-8R	D-375942	36.074444	112.154167	UM25	3.0	—	260.	0.70	-H-	—	460.	NO.05
991-350-1	D-375908	36.074444	112.154167	UM25	3.0	—	25.	1.1	-H-	—	960.	NO.05
991-350-2	D-375943	36.074444	112.154167	UM25	3.0	—	<2.0	5.1	8.31	—	220.	NO.05
991-350-21	D-375922	36.074444	112.154167	UM25	3.0	—	110.	1.1	-H-	—	25000.	NO.05
991-350-365	D-375915	36.074444	112.154167	UM25	3.0	—	<2.0	1.1	1.89	—	120.	NO.05
991-365-1	D-375911	36.074444	112.154167	UM25	3.0	—	14.	4.3	-H-	—	6600.	NO.05

July 8, 1994

Orphan Mine Samples

Field ID	Lab No.	Latitude	Longitude	Job number	Fm. Code	Ag ppm AA	Ag ppm ICP	Al % ICP	Al2O3 % XRF	As ppm AA	As ppm ICP	Au ppm AA
991-365-3	D-375910	36.074444	112.154167	UM25	3.0	—	21.	0.92	-H-	—	11000.	NO.05
991-365-910	D-375937	36.074444	112.154167	UM25	3.0	—	23.	3.3	6.46	—	1100.	NO.05
991-365-X	D-375930	36.074444	112.154167	UM25	3.0	—	7.0	1.1	1.87	—	490.	NO.05
991-365-XR	D-375933	36.074444	112.154167	UM25	3.0	—	8.0	1.1	1.96	—	540.	NO.05
991-365-Y	D-375926	36.074444	112.154167	UM25	3.0	—	4.0	0.88	1.71	—	680.	NO.05
991-375-D-1	D-375917	36.074444	112.154167	UM25	3.0	—	<2.0	2.5	4.20	—	<10.	NO.05
991-400-1	D-375948	36.074444	112.154167	UM26	2.8	—	5.0	0.33	-H-	—	3100.	NO.05
991-400-1R	D-375945	36.074444	112.154167	UM26	2.8	—	4.0	0.39	-H-	—	1900.	NO.05
991-400-30	D-375918	36.074444	112.154167	UM25	2.8	—	3.0	0.80	1.67	—	1600.	NO.05
991-400-R1	D-375924	36.074444	112.154167	UM25	2.8	—	220.	1.00	-H-	—	5700.	NO.05
991-400-R3	D-375934	36.074444	112.154167	UM25	2.8	—	13.	1.1	-H-	—	990.	NO.05
991-400-R4	D-375909	36.074444	112.154167	UM25	2.8	—	92.	2.2	-H-	—	24000.	0.05
991-525-33	D-375929	36.074444	112.154167	UM25	2.8	—	22.	0.51	-H-	—	4400.	NO.05
991-585-32	D-375944	36.074444	112.154167	UM25	2.8	—	4.0	1.3	6.46	—	1500.	NO.05
991-585-33A	D-375914	36.074444	112.154167	UM25	2.8	—	<2.0	2.9	5.26	—	190.	NO.05
991-585-33B	D-375858	36.074444	112.154167	UM20	2.8	—	20.	0.64	1.26	—	2200.	NO.05
991-585-34	D-375938	36.074444	112.154167	UM25	2.8	—	41.	0.30	-H-	—	19000.	0.05
991-B-C85	D-272109	36.079167	112.155556	RZ03	3.0	—	6.0	0.62	(H) 1.29	—	2900.	<0.10
991-D-C85	D-272117	36.079167	112.155556	RZ03	3.0	—	34.	1.1	1.97	—	30.	<0.10
991-E-C85	D-272121	36.079167	112.155556	RZ03	3.0	—	40.	5.5	10.5	—	<10.	<0.10
991-F-C85	D-272115	36.079167	112.155556	RZ03	3.0	—	58.	0.98	(H) 1.75	—	740.	<0.10
991-G-C85	D-272100	36.079167	112.155556	RZ03	3.0	—	73.	0.97	(H) 1.81	—	12000.	<0.10
991-H-C85	D-272122	36.079167	112.155556	RZ03	2.8	—	74.	1.5	2.79	—	<10.	<0.10
991-I-C85	D-272119	36.079167	112.155556	RZ03	2.8	—	180.	0.84	(H) 1.73	—	420.	<0.10
991-J-C85	D-272114	36.079167	112.155556	RZ03	3.0	—	2.0	1.00	1.82	—	230.	0.40
991-K-C85	D-272111	36.079167	112.155556	RZ03	3.0	—	9.0	0.92	(H) 1.60	—	1200.	—
991-R-C87	D-283238	36.079167	112.155556	SJ42	3.0	—	<4.0	1.00	2.20	—	1200.	—
991-S-C87	D-283240	36.079167	112.155556	SJ42	3.0	—	7.0	0.61	(H) 1.36	—	3700.	—
991-T-C87	D-283241	36.079167	112.155556	SJ42	4.0	—	<4.0	4.1	(H) 8.07	—	900.	—
991-U-C87	D-283242	36.079167	112.155556	SJ42	4.0	—	7.0	0.48	(H) 1.23	—	3700.	—

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Orphan Mine Samples

Field ID	Lab No.	Latitude	Longitude	Job number	Fm. Code	Ag ppm AA	Ag ppm ICP	Al % ICP	Al2O3 % XRF	As ppm AA	As ppm ICP	Au ppm AA
991-W-C87	D-283237	36.079167	112.155556	SJ42	4.0	—	13.	0.56	(H) 1.31	—	3800.	—

July 8, 1994

Orphan Mine Samples

Field ID	Au ppm ICP	B ppm ICP	Ba ppm ICP	Ba ppm NA	Be ppm ICP	Bi ppm ICP	C % (Crbnt)	C % (Orgnc)	C % (Total)	Ca % ICP	CaO % XRF	Cd ppm ICP
991-0-2	<8.0	—	85.	<40.	<1.00	<10.	0.560	<0.010	0.260	0.26	(H) 0.37	<2.0
991-0-3A	<8.0	—	63.	-H-	<1.00	<10.	1.13	<0.010	1.01	3.9	-H-	2.0
991-0-3B	<8.0	—	380.	310.	4.0	<10.	0.330	0.050	0.380	0.73	0.94	<2.0
991-00-1	<8.0	—	47.	<400.	1.00	<10.	4.87	<0.010	4.79	16.	(H) 22.2	3.0
991-175-1	<8.0	—	100.	<160.	<1.00	<10.	4.51	<0.010	4.50	16.	20.6	110.
991-190-1	<8.0	—	72.	470000.	<1.00	<10.	0.520	0.010	0.530	1.7	-H-	44.
991-225-4	<8.0	—	110.	120.	<1.00	<10.	2.96	0.170	3.13	6.4	-H-	<2.0
991-245-10	<8.0	—	17.	2500.	<1.00	<10.	<0.010	<0.050	<0.050	0.007	-H-	<2.0
991-245-11	<8.0	—	96.	<270.	<1.00	<10.	4.21	0.360	4.57	15.	20.2	<2.0
991-245-11C	<8.0	—	160.	220.	<1.00	<10.	5.44	<0.010	4.73	12.	15.7	<2.0
991-245-2	<8.0	—	91.	<170.	<1.00	<10.	1.99	0.190	2.18	6.4	-H-	5.0
991-245-4A	<8.0	—	97.	-H-	2.0	<10.	4.53	<0.010	3.96	11.	-H-	<2.0
991-245-4B	<8.0	—	120.	-H-	2.0	<10.	3.56	<0.010	3.43	10.	-H-	<2.0
991-245-5	<8.0	—	440.	<1.3	4.0	<10.	0.060	0.040	0.100	0.11	-H-	5.0
991-245-9	<8.0	—	110.	<120.	<1.00	<10.	4.57	0.170	4.74	16.	21.3	<2.0
991-265-1	<8.0	—	12.	780.	<1.00	<10.	1.12	<0.010	1.03	0.71	-H-	18.
991-265-1R	<8.0	—	20.	440.	1.00	<10.	1.42	<0.010	1.30	1.3	-H-	9.0
991-265-2	<8.0	—	9.0	170.	<1.00	<10.	<0.010	<0.050	<0.050	0.01	-H-	2.0
991-320-1	<8.0	—	150.	140.	<1.00	<10.	6.18	<0.010	6.16	13.	17.8	<2.0
991-320-2	<8.0	—	120.	-H-	2.0	<10.	8.87	<0.010	8.68	16.	21.2	<2.0
991-320-4	<8.0	—	71.	<80.	<1.00	<10.	3.71	<0.010	3.43	13.	17.2	<2.0
991-320-6	<8.0	—	70.	-H-	<1.00	<10.	3.66	<0.010	3.63	13.	16.7	<2.0
991-320-7	<8.0	—	410.	360.	<1.00	<10.	0.060	<0.050	<0.050	0.21	0.24	<2.0
991-320-8	<8.0	—	55.	1800.	<1.00	<10.	1.90	0.140	2.04	6.6	-H-	<2.0
991-320-8R	<8.0	—	55.	-H-	<1.00	<10.	1.91	0.050	1.96	6.4	-H-	<2.0
991-350-1	<8.0	—	97.	-H-	1.00	<10.	4.59	<0.010	4.36	9.2	-H-	8.0
991-350-2	<8.0	—	160.	-H-	2.0	<10.	3.58	<0.010	3.11	6.6	8.91	<2.0
991-350-21	<8.0	—	69.	<300.	<1.00	<10.	0.370	<0.010	0.340	0.56	-H-	46.
991-350-365	<8.0	—	140.	110.	<1.00	<10.	9.61	<0.010	9.06	15.	21.2	<2.0
991-365-1	<8.0	—	170.	<60.	2.0	<10.	0.060	0.120	0.180	0.44	-H-	16.

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Orphan Mine Samples

Field ID	Au ppm ICP	B ppm ICP	Ba ppm ICP	Ba ppm NA	Be ppm ICP	Bi ppm ICP	C % (Crbnt)	C % (Orgnc)	C % (Total)	Ca % ICP	CaO % XRF	Cd ppm ICP
991-365-3	<8.0	—	83.	<700.	<1.00	<10.	0.980	<0.010	0.730	0.11	-H-	72.
991-365-910	<8.0	—	290.	270.	<1.00	<10.	<0.010	<0.050	<0.050	0.06	0.08	<2.0
991-365-X	<8.0	—	1500.	1500.	<1.00	<10.	2.26	<0.010	2.05	7.9	10.7	<2.0
991-365-XR	<8.0	—	920.	1600.	<1.00	<10.	1.76	<0.010	1.58	6.5	8.49	2.0
991-365-Y	<8.0	—	210.	6800.	<1.00	<10.	1.43	<0.010	1.22	5.3	6.89	<2.0
991-375-D-1	<8.0	—	210.	180.	1.00	<10.	7.31	<0.010	6.62	12.	16.4	<2.0
991-400-1	<8.0	—	19.	180.	<1.00	<10.	5.87	0.260	6.13	9.8	-H-	<2.0
991-400-1R	<8.0	—	70.	84.	<1.00	<10.	7.95	0.280	8.23	14.	-H-	<2.0
991-400-30	<8.0	—	21.	5700.	<1.00	<10.	0.460	<0.010	0.370	0.74	0.95	<2.0
991-400-R1	<8.0	—	55.	<260.	<1.00	<10.	0.160	0.020	0.180	0.25	-H-	52.
991-400-R3	<8.0	—	10.	220.	<1.00	<10.	0.200	0.070	0.270	0.93	-H-	<2.0
991-400-R4	<8.0	—	120.	<6000.	1.00	<10.	0.140	0.040	0.180	0.10	-H-	10.
991-525-33	<8.0	—	79.	-H-	<1.00	<10.	0.390	<0.010	0.380	1.4	-H-	39.
991-585-32	<8.0	—	190.	-H-	<1.00	<10.	<0.010	0.060	0.060	0.07	0.08	54.
991-585-33A	<8.0	—	260.	210.	2.0	<10.	<0.010	<0.050	<0.050	0.07	0.07	<2.0
991-585-33B	<8.0	—	100.	-H-	<1.00	<10.	<0.010	<0.050	<0.050	0.03	0.03	17.
991-585-34	<8.0	—	15.	-H-	<1.00	<10.	<0.010	<0.050	<0.050	0.04	-H-	2.0
991-B-C85	<8.0	—	550.	6300.	<1.00	<10.	<0.010	0.170	0.170	0.03	(H) 0.06	<2.0
991-D-C85	<8.0	—	140.	150.	<1.00	<10.	4.42	0.070	4.49	10.	13.3	<2.0
991-E-C85	<8.0	—	340.	390.	<1.00	<10.	0.530	0.100	0.630	2.2	2.96	<2.0
991-F-C85	<8.0	—	1200.	6900.	<1.00	<10.	4.69	0.110	4.80	12.	(H) 15.7	<2.0
991-G-C85	<8.0	—	1300.	2400.	<1.00	<10.	3.69	0.180	3.87	6.0	(H) 7.75	120.
991-H-C85	<8.0	—	330.	370.	<1.00	<10.	2.47	0.090	2.56	9.0	12.3	<2.0
991-I-C85	<8.0	—	96.	250.	<1.00	<10.	3.24	0.090	3.33	6.4	(H) 8.69	<2.0
991-J-C85	<8.0	—	5700.	4700.	<1.00	<10.	5.79	<0.010	5.62	15.	18.8	<2.0
991-K-C85	<8.0	—	140.	660.	<1.00	<10.	1.29	3.70	4.99	12.	(H) 15.4	<2.0
991-R-C87	<20.	—	220.	11000.	<2.0	<20.	<0.010	<0.010	<0.010	0.03	<0.02	5.0
991-S-C87	<20.	—	140.	2300.	<2.0	<20.	<0.010	0.010	0.010	0.03	<0.02	<4.0
991-T-C87	<20.	—	110.	2200.	<2.0	<20.	1.27	0.130	1.40	4.9	(H) 6.59	14.
991-U-C87	<20.	—	190.	4600.	<2.0	<20.	<0.010	<0.010	<0.010	0.02	<0.02	<4.0

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Orphan Mine Samples

Field ID	Au ppm ICP	B ppm ICP	Ba ppm ICP	Ba ppm NA	Be ppm ICP	Bi ppm ICP	C % (Crbnt)	C % (Orgnc)	C % (Total)	Ca % ICP	CaO % XRF	Cd ppm ICP
991-W-C87	<20.	——	180.	6200.	<2.0	<20.	<0.010	<0.010	<0.010	0.03	<0.02	<4.0

July 8, 1994

Orphan Mine Samples

Field ID	Ce ppm ICP	Ce ppm NA	Cl %	Co ppm ICP	Co ppm NA	Cr ppm ICP	Cr ppm NA	Cs ppm AA	Cs ppm NA	Cu % XRF	Cu ppm ICP	CuO % XRF
991-0-2	7.0	<8.0	<0.01	43.	35.	58.	51.	—	0.88	—	37000.	—
991-0-3A	5.0	-H-	-H-	1500.	1200.	2.0	<24.	—	<1.6	—	8100.	—
991-0-3B	46.	43.	<0.01	92.	78.	66.	72.	—	10.	—	330.	—
991-00-1	14.	<12.	0.03	200.	160.	31.	35.	—	1.9	—	610.	—
991-175-1	6.0	6.9	<0.01	280.	220.	45.	39.	—	0.68	—	100.	—
991-190-1	<4.0	-H-	-H-	150.	130.	<1.00	<10.	—	<0.40	—	24000.	—
991-225-4	6.0	5.4	0.01	16.	13.	33.	31.	—	0.56	—	200000.	—
991-245-10	<4.0	<4.0	-H-	91.	73.	73.	70.	—	0.70	—	460.	—
991-245-11	8.0	<11.	<0.01	820.	620.	74.	70.	—	0.92	—	3100.	—
991-245-11C	9.0	11.	0.01	3.0	2.3	35.	32.	—	1.9	—	35.	—
991-245-2	4.0	<0.26	<0.01	100.	82.	70.	71.	—	1.3	—	63000.	—
991-245-4A	51.	-H-	<0.01	71.	61.	65.	54.	—	1.3	—	82000.	—
991-245-4B	28.	-H-	<0.01	150.	130.	62.	55.	—	1.2	—	54000.	—
991-245-5	60.	<90.	0.01	16.	13.	430.	490.	—	5.7	—	36000.	—
991-245-9	7.0	<8.0	<0.01	30.	23.	62.	53.	—	0.76	—	600.	—
991-265-1	5.0	<9.0	-H-	220.	180.	57.	60.	—	2.2	—	160000.	—
991-265-1R	8.0	<12.	0.01	160.	140.	75.	83.	—	3.4	—	120000.	—
991-265-2	<4.0	<3.0	-H-	76.	61.	10.	23.	—	<0.60	—	140.	—
991-320-1	17.	17.	0.01	14.	11.	54.	51.	—	1.8	—	15.	—
991-320-2	23.	<23.	0.02	28.	25.	100.	98.	—	6.2	—	17.	—
991-320-4	6.0	7.5	<0.01	240.	200.	33.	42.	—	0.77	—	3400.	—
991-320-6	<4.0	<5.0	<0.01	6.0	4.4	65.	73.	—	0.68	—	5100.	—
991-320-7	5.0	<5.0	<0.01	55.	44.	47.	46.	—	0.67	—	3500.	—
991-320-8	<4.0	36.	-H-	140.	110.	44.	39.	—	0.60	—	220000.	—
991-320-8R	<4.0	-H-	<0.01	140.	110.	42.	46.	—	0.63	—	200000.	—
991-350-1	7.0	-H-	0.01	680.	540.	22.	26.	—	0.83	—	12000.	—
991-350-2	49.	50.	<0.01	44.	35.	270.	240.	—	11.	—	84.	—
991-350-21	6.0	<17.	-H-	7500.	5600.	27.	37.	—	<4.0	—	260000.	—
991-350-365	<4.0	7.4	0.01	52.	48.	48.	48.	—	1.2	—	95.	—
991-365-1	33.	<30.	<0.01	1100.	870.	86.	86.	—	7.2	—	9600.	—

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Orphan Mine Samples

Field ID	Ce ppm ICP	Ce ppm NA	Cl %	Co ppm ICP	Co ppm NA	Cr ppm ICP	Cr ppm NA	Cs ppm AA	Cs ppm NA	Cu % XRF	Cu ppm ICP	CuO % XRF
991-365-3	7.0	-H-	<0.01	710.	540.	26.	28.	—	1.6	—	27000.	—
991-365-910	14.	22.	<0.01	610.	520.	63.	81.	—	3.5	—	390.	—
991-365-X	5.0	5.8	<0.01	130.	99.	20.	33.	—	0.86	—	290.	—
991-365-XR	<4.0	5.3	<0.01	140.	110.	21.	23.	—	0.77	—	320.	—
991-365-Y	5.0	<0.80	<0.01	170.	130.	22.	26.	—	0.75	—	250.	—
991-375-D-1	20.	21.	0.02	9.0	5.9	24.	24.	—	3.3	—	6.0	—
991-400-1	<4.0	7.1	-H-	97.	91.	89.	84.	—	0.68	—	190.	—
991-400-1R	<4.0	6.8	-H-	85.	72.	110.	92.	—	0.74	—	150.	—
991-400-30	<4.0	4.8	-H-	79.	61.	2.0	13.	—	0.64	—	300.	—
991-400-R1	<4.0	<8.0	<0.01	1400.	1100.	53.	55.	—	<1.6	—	4500.	—
991-400-R3	4.0	8.7	-H-	150.	130.	21.	34.	—	1.1	—	370.	—
991-400-R4	16.	<7.0	<0.01	8700.	7100.	65.	71.	—	2.5	—	2700.	—
991-525-33	<4.0	<7.0	<0.01	960.	740.	4.0	<8.0	—	<0.80	—	4000.	—
991-585-32	6.0	<11.	<0.01	62.	42.	8.0	7.0	—	1.3	—	2800.	—
991-585-33A	12.	12.	<0.01	45.	37.	19.	22.	—	4.1	—	190.	—
991-585-33B	5.0	<1.7	<0.01	560.	420.	3.0	6.2	—	<1.00	—	3500.	—
991-585-34	<4.0	<5.0	-H-	1700.	1500.	<1.00	<11.	—	<1.2	—	18000.	—
991-B-C85	<4.0	<1.2	—	82.	76.	65.	56.	—	0.99	—	480.	—
991-D-C85	6.0	<7.1	—	6.0	3.7	30.	19.	—	0.49	—	41000.	—
991-E-C85	35.	40.	—	2.0	1.5	21.	17.	—	0.93	—	1100.	—
991-F-C85	8.0	<45.	—	15.	12.	16.	<9.1	—	0.58	—	89000.	—
991-G-C85	7.0	<4.2	—	1000.	910.	12.	8.9	—	—	—	110000.	—
991-H-C85	16.	20.	—	2.0	0.58	3.0	5.2	—	0.83	—	180.	—
991-I-C85	4.0	<11.	—	28.	390.	27.	3.4	—	0.28	—	220000.	—
991-J-C85	5.0	<58.	—	18.	12.	12.	<4.6	—	0.54	—	7400.	—
991-K-C85	12.	<140.	—	99.	81.	14.	<1.6	—	0.63	—	20000.	—
991-R-C87	<8.0	<4.7	—	53.	47.	21.	33.	—	0.48	—	170.	—
991-S-C87	<8.0	<2.3	—	22.	16.	35.	23.	—	0.37	—	110.	—
991-T-C87	40.	<17.	—	100.	87.	67.	58.	—	7.9	—	1300.	—
991-U-C87	<8.0	<0.98	—	48.	38.	30.	28.	—	1.1	—	55.	—

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Orphan Mine Samples

Field ID	Ce ppm ICP	Ce ppm NA	Cl %	Co ppm ICP	Co ppm NA	Cr ppm ICP	Cr ppm NA	Cs ppm AA	Cs ppm NA	Cu % XRF	Cu ppm ICP	CuO % XRF
991-W-C87	<8.0	—	—	50.	40.	28.	20.	—	0.39	—	250.	—

July 8, 1994

Orphan Mine Samples

Field ID	Dy ppm ICP	Dy ppm NA	Er ppm ICP	Eu ppm ICP	Eu ppm NA	F %	Fe % ICP	Fe % NA	FeTO3 % XRF	Ga ppm ICP	Gd ppm ICP	Gd ppm NA
991-0-2	—	—	—	<2.0	0.30	0.010	0.09	0.120	(H) 0.12	<4.0	—	—
991-0-3A	—	—	—	<2.0	0.43	<0.010	7.4	6.97	-H-	<4.0	—	—
991-0-3B	—	—	—	<2.0	0.55	0.080	0.89	0.903	1.23	13.	—	—
991-00-1	—	—	—	<2.0	0.64	0.010	2.8	2.58	(H) 3.94	<4.0	—	—
991-175-1	—	—	—	<2.0	0.22	0.010	0.29	0.290	0.35	<4.0	—	—
991-190-1	—	—	—	<2.0	0.42	<0.010	1.7	1.56	-H-	<4.0	—	—
991-225-4	—	—	—	<2.0	0.25	<0.010	0.50	0.480	-H-	<4.0	—	—
991-245-10	—	—	—	<2.0	0.21	<0.010	25.	24.5	-H-	<4.0	—	—
991-245-11	—	—	—	<2.0	0.29	0.010	0.30	0.290	0.36	<4.0	—	—
991-245-11C	—	—	—	<2.0	0.29	0.020	0.60	0.650	0.80	<4.0	—	—
991-245-2	—	—	—	<2.0	0.21	0.020	3.9	3.80	-H-	<4.0	—	—
991-245-4A	—	—	—	2.0	3.5	0.020	0.42	0.470	-H-	<4.0	—	—
991-245-4B	—	—	—	<2.0	1.7	0.020	0.52	0.520	-H-	<4.0	—	—
991-245-5	—	—	—	2.0	2.9	0.070	0.62	0.720	-H-	12.	—	—
991-245-9	—	—	—	<2.0	0.23	<0.010	0.19	0.210	0.21	<4.0	—	—
991-265-1	—	—	—	<2.0	0.32	0.020	11.	10.0	-H-	<4.0	—	—
991-265-1R	—	—	—	<2.0	0.40	0.030	9.1	8.56	-H-	<4.0	—	—
991-265-2	—	—	—	<2.0	0.15	<0.010	24.	24.5	-H-	<4.0	—	—
991-320-1	—	—	—	<2.0	0.54	0.020	0.73	0.767	0.99	<4.0	—	—
991-320-2	—	—	—	<2.0	0.85	0.050	0.96	1.04	1.29	8.0	—	—
991-320-4	—	—	—	<2.0	0.19	<0.010	0.10	0.130	0.10	<4.0	—	—
991-320-6	—	—	—	<2.0	0.21	0.010	0.10	0.110	0.09	<4.0	—	—
991-320-7	—	—	—	<2.0	0.24	0.010	0.05	0.078	0.05	<4.0	—	—
991-320-8	—	—	—	<2.0	0.15	<0.010	0.10	0.110	-H-	<4.0	—	—
991-320-8R	—	—	—	<2.0	<0.18	0.010	0.09	0.120	-H-	<4.0	—	—
991-350-1	—	—	—	<2.0	0.78	0.010	4.0	4.05	-H-	<4.0	—	—
991-350-2	—	—	—	<2.0	1.1	0.060	0.99	0.950	1.31	11.	—	—
991-350-21	—	—	—	<2.0	0.50	0.010	0.44	0.500	-H-	<4.0	—	—
991-350-365	—	—	—	<2.0	0.25	0.020	1.5	1.61	2.09	<4.0	—	—
991-365-1	—	—	—	<2.0	0.52	0.040	0.80	0.830	-H-	<4.0	—	—

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Orphan Mine Samples

Field ID	Dy ppm ICP	Dy ppm NA	Er ppm ICP	Eu ppm ICP	Eu ppm NA	F %	Fe % ICP	Fe % NA	FeTO3 % XRF	Ga ppm ICP	Gd ppm ICP	Gd ppm NA
991-365-3	—	—	—	<2.0	0.27	<0.010	3.9	3.54	–H–	<4.0	—	—
991-365-910	—	—	—	<2.0	0.49	0.020	1.2	1.41	1.72	<4.0	—	—
991-365-X	—	—	—	<2.0	0.15	<0.010	0.24	0.270	0.31	<4.0	—	—
991-365-XR	—	—	—	<2.0	<0.40	<0.010	0.26	0.270	0.32	<4.0	—	—
991-365-Y	—	—	—	<2.0	0.17	<0.010	0.51	0.460	0.68	<4.0	—	—
991-375-D-1	—	—	—	<2.0	0.47	0.050	0.63	0.639	0.85	5.0	—	—
991-400-1	—	—	—	<2.0	0.38	0.010	17.	16.1	–H–	<4.0	—	—
991-400-1R	—	—	—	<2.0	0.42	0.020	9.8	9.73	–H–	<4.0	—	—
991-400-30	—	—	—	<2.0	0.15	0.010	14.	12.3	19.8	<4.0	—	—
991-400-R1	—	—	—	<2.0	0.47	0.010	1.6	1.44	–H–	<4.0	—	—
991-400-R3	—	—	—	<2.0	<0.26	<0.010	23.	23.0	–H–	<4.0	—	—
991-400-R4	—	—	—	<2.0	<2.5	0.020	0.66	0.760	–H–	<4.0	—	—
991-525-33	—	—	—	<2.0	0.47	<0.010	0.09	0.130	–H–	<4.0	—	—
991-585-32	—	—	—	<2.0	<0.70	0.010	0.12	0.140	1.72	<4.0	—	—
991-585-33A	—	—	—	<2.0	0.18	0.030	0.27	0.290	0.34	6.0	—	—
991-585-33B	—	—	—	<2.0	0.47	<0.010	0.09	0.110	0.08	<4.0	—	—
991-585-34	—	—	—	<2.0	0.29	<0.010	24.	24.1	–H–	<4.0	—	—
991-B-C85	—	—	—	<2.0	0.20	<0.010	29.	27.0	(H) 37.1	<4.0	—	—
991-D-C85	—	—	—	<2.0	0.25	0.010	0.40	0.361	0.50	<4.0	—	—
991-E-C85	—	—	—	<2.0	0.75	0.020	0.23	0.226	0.28	11.	—	—
991-F-C85	—	—	—	<2.0	0.32	0.020	0.98	0.906	(H) 1.28	7.0	—	—
991-G-C85	—	—	—	<2.0	0.15	0.010	1.1	1.12	(H) 1.49	<4.0	—	—
991-H-C85	—	—	—	<2.0	0.52	0.020	0.17	0.172	0.20	<4.0	—	—
991-I-C85	—	—	—	<2.0	0.59	0.010	1.5	1.54	(H) 2.27	<4.0	—	—
991-J-C85	—	—	—	<2.0	0.34	0.020	0.30	0.261	0.45	6.0	—	—
991-K-C85	—	—	—	<2.0	0.64	0.020	2.8	2.70	(H) 3.96	14.	—	—
991-R-C87	—	—	—	<4.0	0.13	<0.010	6.8	6.62	8.87	<8.0	—	—
991-S-C87	—	—	—	<4.0	0.18	<0.010	27.	23.6	(H) 36.8	<8.0	—	—
991-T-C87	—	—	—	<4.0	0.96	0.030	4.5	4.46	(H) 6.31	12.	—	—
991-U-C87	—	—	—	<4.0	0.14	<0.010	26.	24.5	(H) 36.7	<8.0	—	—

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Orphan Mine Samples

Field ID	Dy ppm ICP	Dy ppm NA	Er ppm ICP	Eu ppm ICP	Eu ppm NA	F %	Fe % ICP	Fe % NA	FeTO3 % XRF	Ga ppm ICP	Gd ppm ICP	Gd ppm NA
991-W-C87	—	—	—	<4.0	0.16	<0.010	21.	19.4	(H) 29.3	<8.0	—	—

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Orphan Mine Samples

Field ID	Ge ppm ICP	Hf ppm NA	Hg ppm AA	Ho ppm ICP	In ppm AA	Ir ppb AA	K % ICP	K % NA	K2O % XRF	LOI 900C XRF	La ppm ICP	La ppm NA
991-0-2	—	3.6	0.42	<4.0	—	—	0.48	—	(H) 0.57	(H) 3.31	4.0	<7.0
991-0-3A	—	1.9	0.46	<4.0	—	—	0.32	—	-H-	-H-	3.0	<90.
991-0-3B	—	14.	0.10	<4.0	—	—	3.3	—	4.17	3.50	31.	26.
991-00-1	—	4.3	0.30	<4.0	—	—	0.58	—	(H) 0.62	(H) 14.3	9.0	<50.
991-175-1	—	2.7	0.22	<4.0	—	—	0.47	—	0.52	15.0	5.0	2.3
991-190-1	—	<0.70	1.6	<4.0	—	—	0.02	—	-H-	-H-	<2.0	<6.0
991-225-4	—	4.5	0.20	<4.0	—	—	0.54	—	-H-	-H-	4.0	3.4
991-245-10	—	1.9	0.08	<4.0	—	—	0.26	—	-H-	-H-	<2.0	<7.0
991-245-11	—	4.2	0.08	<4.0	—	—	0.50	—	0.52	15.8	5.0	<14.
991-245-11C	—	2.7	0.04	<4.0	—	—	0.93	—	1.03	16.9	7.0	5.7
991-245-2	—	3.7	0.30	<4.0	—	—	0.37	—	-H-	-H-	3.0	<10.
991-245-4A	—	5.2	0.16	<4.0	—	—	0.42	—	-H-	-H-	10.	<300.
991-245-4B	—	3.5	0.20	<4.0	—	—	0.51	—	-H-	-H-	6.0	<300.
991-245-5	—	25.	0.64	<4.0	—	—	2.8	—	-H-	-H-	26.	<80.
991-245-9	—	3.3	0.10	<4.0	—	—	0.50	—	0.52	16.7	4.0	<6.0
991-265-1	—	2.2	0.16	<4.0	—	—	0.60	—	-H-	-H-	3.0	<21.
991-265-1R	—	2.7	0.26	<4.0	—	—	0.85	—	-H-	-H-	6.0	<17.
991-265-2	—	0.90	N0.02	<4.0	—	—	0.21	—	-H-	-H-	<2.0	<5.0
991-320-1	—	4.3	0.04	<4.0	—	—	1.00	—	1.12	22.5	11.	11.
991-320-2	—	3.1	0.06	<4.0	—	—	1.4	—	1.47	32.2	20.	<30.
991-320-4	—	5.6	0.14	<4.0	—	—	0.35	—	0.38	13.3	4.0	3.9
991-320-6	—	4.7	0.04	<4.0	—	—	0.36	—	0.39	12.7	4.0	1.5
991-320-7	—	5.1	0.08	<4.0	—	—	0.37	—	0.45	0.70	3.0	<6.0
991-320-8	—	3.1	0.20	<4.0	—	—	0.28	—	-H-	-H-	3.0	<40.
991-320-8R	—	3.8	0.14	<4.0	—	—	0.27	—	-H-	-H-	3.0	<50.
991-350-1	—	5.1	0.70	<4.0	—	—	0.50	—	-H-	-H-	6.0	<130.
991-350-2	—	12.	0.24	<4.0	—	—	2.2	—	2.39	14.3	33.	<50.
991-350-21	—	6.5	1.2	<4.0	—	—	0.47	—	-H-	-H-	5.0	4.3
991-350-365	—	3.3	0.08	<4.0	—	—	0.41	—	0.45	31.0	3.0	3.3
991-365-1	—	8.9	0.80	<4.0	—	—	1.9	—	-H-	-H-	21.	<40.

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Orphan Mine Samples

Field ID	Ge ppm ICP	Hf ppm NA	Hg ppm AA	Ho ppm ICP	In ppm AA	Ir ppb AA	K % ICP	K % NA	K2O % XRF	LOI 900C XRF	La ppm ICP	La ppm NA
991-365-3	—	4.6	1.2	<4.0	—	—	0.38	—	-H-	-H-	4.0	<28.
991-365-910	—	14.	0.18	<4.0	—	—	1.3	—	1.73	3.67	9.0	11.
991-365-X	—	2.9	0.14	<4.0	—	—	0.37	—	0.42	8.34	4.0	3.2
991-365-XR	—	2.8	0.18	<4.0	—	—	0.38	—	0.43	6.65	4.0	2.4
991-365-Y	—	3.3	0.10	<4.0	—	—	0.34	—	0.42	4.45	4.0	<12.
991-375-D-1	—	3.0	0.08	<4.0	—	—	1.5	—	1.60	23.5	15.	14.
991-400-1	—	1.6	0.10	<4.0	—	—	0.20	—	-H-	-H-	3.0	3.8
991-400-1R	—	1.5	0.08	<4.0	—	—	0.24	—	-H-	-H-	4.0	4.9
991-400-30	—	3.8	0.34	<4.0	—	—	0.38	—	0.49	11.7	<2.0	2.5
991-400-R1	—	6.2	1.5	<4.0	—	—	0.34	—	-H-	-H-	4.0	<11.
991-400-R3	—	4.8	0.16	<4.0	—	—	0.40	—	-H-	-H-	3.0	4.8
991-400-R4	—	11.	4.5	<4.0	—	—	0.93	—	-H-	-H-	9.0	<50.
991-525-33	—	1.2	4.5	<4.0	—	—	0.35	—	-H-	-H-	2.0	<30.
991-585-32	—	7.9	0.20	<4.0	—	—	0.83	—	1.73	3.67	4.0	<70.
991-585-33A	—	12.	0.10	<4.0	—	—	1.8	—	2.16	1.23	9.0	8.1
991-585-33B	—	2.6	4.5	<4.0	—	—	0.43	—	0.49	0.72	2.0	<17.
991-585-34	—	<2.3	0.18	<4.0	—	—	0.20	—	-H-	-H-	<2.0	<10.
991-B-C85	—	1.8	0.60	<4.0	—	—	0.31	—	(H) 0.42	(H) 22.0	2.0	2.9
991-D-C85	—	4.5	0.40	<4.0	—	—	0.64	—	0.72	14.6	3.0	7.4
991-E-C85	—	4.6	0.60	<4.0	—	—	1.8	—	2.17	3.23	16.	17.
991-F-C85	—	2.6	0.40	<4.0	—	—	0.51	—	(H) 0.62	(H) 12.1	3.0	48.
991-G-C85	—	4.5	0.60	<4.0	—	<5.0	0.54	—	(H) 0.62	(H) 8.38	3.0	4.5
991-H-C85	—	2.5	0.40	<4.0	—	—	1.2	—	1.43	9.76	8.0	9.4
991-I-C85	—	2.2	N2.0	<4.0	—	—	0.49	—	(H) 0.60	(H) 4.29	<2.0	4.4
991-J-C85	—	3.7	0.06	<4.0	—	—	0.63	—	0.70	17.5	3.0	50.
991-K-C85	—	7.0	0.40	<4.0	—	<0.50	0.44	—	(H) 0.56	(H) 15.6	6.0	130.
991-R-C87	—	2.7	0.04	<8.0	—	—	0.30	—	0.43	7.62	<4.0	3.5
991-S-C87	—	1.6	0.40	<8.0	—	—	0.20	—	(H) 0.27	(H) 20.3	<4.0	1.8
991-T-C87	—	8.3	0.06	<8.0	—	—	1.3	—	(H) 1.86	(H) 8.63	27.	23.
991-U-C87	—	1.6	0.40	<8.0	—	—	0.20	—	(H) 0.31	(H) 20.7	<4.0	1.4

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Orphan Mine Samples

Field ID	Ge ppm ICP	Hf ppm NA	Hg ppm AA	Ho ppm ICP	In ppm AA	Ir ppb AA	K % ICP	K % NA	K2O % XRF	LOI 900C XRF	La ppm ICP	La ppm NA
991-W-C87	—	2.3	0.08	<8.0	—	—	0.20	—	(H) 0.34	(H) 17.2	<4.0	3.0

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Orphan Mine Samples

Field ID	Li ppm AA	Li ppm ICP	Lu ppm ICP	Lu ppm NA	Mg % ICP	MgO % XRF	Mn ppm ICP	Mn ppm NA	MnO % XRF	Mo ppm ICP	Na % ICP	Na % NA
991-0-2	—	3.0	—	0.064	0.05	(H) 0.14	14.	—	<0.02	19.	0.009	0.026
991-0-3A	—	3.0	—	<5.0	0.05	-H-	74.	—	-H-	130.	0.01	0.036
991-0-3B	—	20.	—	0.39	0.80	1.32	50.	—	<0.02	<2.0	0.06	0.079
991-00-1	—	6.0	—	<4.0	0.16	(H) 0.33	210.	—	<0.02	30.	0.02	0.037
991-175-1	—	4.0	—	<0.40	0.20	0.36	300.	—	0.02	16.	0.01	0.023
991-190-1	—	<2.0	—	<0.60	0.10	-H-	39.	—	-H-	1700.	<0.005	0.018
991-225-4	—	3.0	—	0.068	2.5	-H-	150.	—	-H-	47.	0.02	0.026
991-245-10	—	<2.0	—	<0.50	0.02	-H-	12.	—	-H-	190.	0.006	0.015
991-245-11	—	6.0	—	<0.90	0.21	0.38	180.	—	<0.02	27.	0.01	0.023
991-245-11C	—	5.0	—	0.091	2.8	4.21	230.	—	<0.02	2.0	0.03	0.05
991-245-2	—	3.0	—	<0.60	0.07	-H-	130.	—	-H-	52.	0.01	0.017
991-245-4A	—	27.	—	<18.	1.3	-H-	220.	—	-H-	26.	0.02	<0.40
991-245-4B	—	27.	—	<18.	1.1	-H-	170.	—	-H-	32.	0.02	<0.40
991-245-5	—	26.	—	<5.0	0.27	-H-	13.	—	-H-	470.	0.07	0.084
991-245-9	—	5.0	—	<0.25	0.21	0.37	180.	—	<0.02	13.	0.02	0.046
991-265-1	—	3.0	—	<1.1	0.42	-H-	44.	—	-H-	47.	0.008	0.027
991-265-1R	—	5.0	—	<0.90	0.68	-H-	81.	—	-H-	38.	0.01	0.038
991-265-2	—	<2.0	—	<0.30	0.02	-H-	10.	—	-H-	210.	<0.005	0.018
991-320-1	—	6.0	—	0.14	4.8	7.70	380.	—	0.04	2.0	0.03	0.04
991-320-2	—	12.	—	0.26	8.4	14.2	390.	—	0.04	6.0	0.04	0.059
991-320-4	—	5.0	—	<0.09	0.13	0.25	170.	—	<0.02	40.	0.01	0.026
991-320-6	—	4.0	—	0.091	0.09	0.20	130.	—	<0.02	5.0	0.006	0.021
991-320-7	—	3.0	—	0.079	0.05	0.11	11.	—	<0.02	<2.0	0.008	0.023
991-320-8	—	7.0	—	<0.30	0.05	-H-	52.	—	-H-	48.	0.007	0.025
991-320-8R	—	7.0	—	<3.0	0.05	-H-	55.	—	-H-	44.	0.005	0.022
991-350-1	—	8.0	—	<8.0	3.7	-H-	210.	—	-H-	52.	0.02	<0.04
991-350-2	—	24.	—	0.44	3.7	5.94	330.	—	0.03	11.	0.05	0.06
991-350-21	—	5.0	—	<0.12	0.32	-H-	23.	—	-H-	190.	0.01	0.045
991-350-365	—	6.0	—	0.12	8.0	13.5	1000.	—	0.12	59.	0.02	0.047
991-365-1	—	14.	—	<0.90	0.37	-H-	23.	—	-H-	510.	0.04	0.045

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Orphan Mine Samples

Field ID	Li ppm AA	Li ppm ICP	Lu ppm ICP	Lu ppm NA	Mg % ICP	MgO % XRF	Mn ppm ICP	Mn ppm NA	MnO % XRF	Mo ppm ICP	Na % ICP	Na % NA
991-365-3	—	5.0	—	<1.5	0.04	-H-	220.	—	-H-	53.	0.006	0.022
991-365-910	—	9.0	—	0.25	0.15	0.26	14.	—	<0.01	1000.	0.03	0.042
991-365-X	—	4.0	—	0.068	0.07	0.15	130.	—	<0.02	110.	0.008	0.022
991-365-XR	—	4.0	—	<0.28	0.07	0.15	110.	—	<0.02	110.	0.007	0.024
991-365-Y	—	4.0	—	<0.90	0.06	0.10	85.	—	0.02	13.	0.009	0.019
991-375-D-1	—	11.	—	0.18	5.9	9.88	350.	—	0.04	<2.0	0.05	0.057
991-400-1	—	<2.0	—	<0.11	5.2	-H-	620.	—	-H-	400.	0.02	0.03
991-400-1R	—	2.0	—	0.068	7.1	-H-	830.	—	-H-	400.	0.03	0.034
991-400-30	—	5.0	—	0.046	0.44	0.72	23.	—	<0.01	39.	0.008	0.022
991-400-R1	—	4.0	—	<0.70	0.05	-H-	45.	—	-H-	8800.	<0.005	0.019
991-400-R3	—	5.0	—	0.091	0.05	-H-	20.	—	-H-	180.	0.008	0.021
991-400-R4	—	11.	—	<2.2	0.12	-H-	40.	—	-H-	5800.	0.02	<0.26
991-525-33	—	3.0	—	<2.5	0.04	-H-	20.	—	-H-	1500.	0.006	0.024
991-585-32	—	3.0	—	0.25	0.08	0.26	8.0	—	<0.01	7.0	0.02	0.036
991-585-33A	—	7.0	—	0.17	0.18	0.31	13.	—	<0.02	2.0	0.03	0.062
991-585-33B	—	4.0	—	<2.2	0.03	<0.10	5.0	—	<0.02	1200.	0.01	0.048
991-585-34	—	<2.0	—	<0.60	0.02	-H-	24.	—	-H-	72.	<0.005	0.02
991-B-C85	—	2.0	—	0.071	0.03	(H) 0.10	21.	—	(H) 0.02	850.	0.01	0.0075
991-D-C85	—	5.0	—	—	3.4	5.34	210.	—	<0.02	4.0	0.03	0.015
991-E-C85	—	15.	—	0.31	0.16	0.30	330.	—	0.04	<2.0	2.2	2.3
991-F-C85	—	11.	—	—	2.9	(H) 4.51	170.	—	(H) 0.02	26.	0.05	0.03
991-G-C85	—	5.0	—	0.08	3.3	(H) 5.34	210.	—	(H) 0.02	89.	0.03	0.021
991-H-C85	—	5.0	—	0.09	0.15	0.30	480.	—	0.05	<2.0	0.18	0.18
991-I-C85	—	5.0	—	—	2.7	(H) 4.56	130.	—	<0.04	18.	0.02	0.022
991-J-C85	—	7.0	—	—	3.5	5.47	170.	—	<0.02	14.	0.03	0.05
991-K-C85	—	11.	—	—	3.3	(H) 5.35	170.	—	(H) 0.02	26.	0.03	—
991-R-C87	—	<4.0	—	0.045	0.04	<0.10	11.	—	<0.02	32.	0.02	0.01
991-S-C87	—	<4.0	—	0.08	0.03	<0.10	<8.0	—	<0.02	130.	0.02	0.008
991-T-C87	—	17.	—	0.44	1.5	(H) 2.42	190.	—	<0.02	95.	0.05	0.043
991-U-C87	—	<4.0	—	0.049	0.02	<0.10	<8.0	—	<0.02	39.	0.02	0.011

July 8, 1994

Orphan Mine Samples

Field ID	Li ppm AA	Li ppm ICP	Lu ppm ICP	Lu ppm NA	Mg % ICP	MgO % XRF	Mn ppm ICP	Mn ppm NA	MnO % XRF	Mo ppm ICP	Na % ICP	Na % NA
991-W-C87	—	<4.0	—	—	0.03	<0.10	<8.0	—	<0.02	36.	0.03	0.011

July 8, 1994

Orphan Mine Samples

Field ID	Na2O % XRF	Nb ppm AA	Nb ppm ICP	Nd ppm ICP	Nd ppm NA	Ni ppm ICP	Ni ppm NA	P % ICP	P2O5 % XRF	Pb ppm ICP	Pd ppb AA	Pr ppm ICP
991-0-2	(H) 0.38	—	<4.0	<4.0	<0.80	76.	63.	0.11	(H) 0.06	30.	—	—
991-0-3A	–H–	—	<4.0	5.0	–H–	2200.	1900.	0.02	–H–	320.	—	—
991-0-3B	<0.15	—	8.0	23.	16.	110.	120.	0.03	0.07	22.	—	—
991-00-1	<0.15	—	<4.0	5.0	–H–	520.	490.	0.01	<0.05	150.	—	—
991-175-1	0.35	—	<4.0	<4.0	–H–	2400.	1900.	0.007	<0.05	84.	—	—
991-190-1	–H–	—	4.0	<4.0	<100.	350.	290.	0.06	–H–	17000.	—	—
991-225-4	–H–	—	<4.0	<4.0	<10.	5.0	<27.	0.52	–H–	15.	—	—
991-245-10	–H–	—	<4.0	<4.0	<1.9	450.	440.	<0.005	–H–	150.	—	—
991-245-11	<0.15	—	<4.0	<4.0	–H–	130.	120.	0.02	<0.05	34.	—	—
991-245-11C	<0.15	—	<4.0	<4.0	<2.0	6.0	<25.	0.008	<0.05	12.	—	—
991-245-2	–H–	—	10.	<4.0	–H–	120.	150.	0.17	–H–	47.	—	—
991-245-4A	–H–	—	<4.0	34.	–H–	1100.	940.	0.21	–H–	820.	—	—
991-245-4B	–H–	—	<4.0	14.	–H–	1900.	1600.	0.14	–H–	690.	—	—
991-245-5	–H–	—	6.0	43.	–H–	57.	140.	0.14	–H–	120.	—	—
991-245-9	<0.15	—	<4.0	<4.0	<3.1	16.	<25.	0.01	<0.05	11.	—	—
991-265-1	–H–	—	<4.0	<4.0	<4.0	1200.	1100.	0.42	–H–	110.	—	—
991-265-1R	–H–	—	<4.0	5.0	<5.0	640.	580.	0.33	–H–	87.	—	—
991-265-2	–H–	—	<4.0	<4.0	<1.7	620.	530.	<0.005	–H–	370.	—	—
991-320-1	<0.15	—	<4.0	7.0	11.	36.	<30.	0.01	<0.05	5.0	—	—
991-320-2	<0.15	—	<4.0	20.	<4.0	97.	86.	0.05	0.12	6.0	—	—
991-320-4	<0.15	—	<4.0	<4.0	<15.	110.	110.	0.02	<0.05	12.	—	—
991-320-6	<0.15	—	<4.0	<4.0	–H–	28.	38.	0.02	<0.05	11.	—	—
991-320-7	<0.15	—	<4.0	<4.0	–H–	210.	160.	0.02	<0.05	21.	—	—
991-320-8	–H–	—	<4.0	<4.0	<21.	170.	190.	0.58	–H–	170.	—	—
991-320-8R	–H–	—	<4.0	<4.0	–H–	170.	220.	0.54	–H–	160.	—	—
991-350-1	–H–	—	<4.0	6.0	–H–	640.	590.	0.03	–H–	440.	—	—
991-350-2	<0.15	—	8.0	27.	–H–	230.	210.	0.02	0.05	27.	—	—
991-350-21	–H–	—	<4.0	4.0	<5.0	9800.	7600.	0.71	–H–	280.	—	—
991-350-365	<0.15	—	<4.0	<4.0	<6.0	180.	170.	0.009	<0.05	170.	—	—
991-365-1	–H–	—	5.0	12.	<6.0	1400.	1200.	0.05	–H–	690.	—	—

July 8, 1994

Orphan Mine Samples

Field ID	Na2O % XRF	Nb ppm AA	Nb ppm ICP	Nd ppm ICP	Nd ppm NA	Ni ppm ICP	Ni ppm NA	P % ICP	P2O5 % XRF	Pb ppm ICP	Pd ppb AA	Pr ppm ICP
991-365-3	-H-	—	<4.0	<4.0	-H-	950.	740.	0.08	-H-	1300.	—	—
991-365-910	<0.15	—	<4.0	7.0	<20.	1600.	1400.	0.03	<0.09	360.	—	—
991-365-X	<0.15	—	<4.0	<4.0	<10.	630.	510.	0.008	<0.05	150.	—	—
991-365-XR	<0.15	—	<4.0	<4.0	-H-	740.	600.	0.008	<0.05	250.	—	—
991-365-Y	<0.15	—	<4.0	<4.0	<2.5	990.	760.	0.007	<0.05	780.	—	—
991-375-D-1	<0.15	—	4.0	8.0	11.	17.	41.	0.03	0.07	4.0	—	—
991-400-1	-H-	—	<4.0	<4.0	<6.0	330.	310.	0.005	-H-	3500.	—	—
991-400-1R	-H-	—	<4.0	5.0	<14.	310.	300.	0.009	-H-	3600.	—	—
991-400-30	<0.15	—	<4.0	<4.0	<4.0	240.	220.	<0.005	<0.05	22.	—	—
991-400-R1	-H-	—	<4.0	<4.0	<30.	3100.	2300.	0.02	-H-	8900.	—	—
991-400-R3	-H-	—	<4.0	<4.0	<12.	280.	250.	<0.005	-H-	650.	—	—
991-400-R4	-H-	—	<4.0	7.0	-H-	13000.	11000.	0.02	-H-	68000.	—	—
991-525-33	-H-	—	<4.0	<4.0	-H-	2200.	1800.	0.01	-H-	370.	—	—
991-585-32	<0.15	—	<4.0	5.0	-H-	130.	140.	0.01	0.09	110.	—	—
991-585-33A	<0.15	—	<4.0	<4.0	<11.	140.	87.	0.006	<0.05	18.	—	—
991-585-33B	<0.15	—	<4.0	5.0	<6.0	1200.	930.	0.01	<0.05	340.	—	—
991-585-34	-H-	—	<4.0	<4.0	<5.0	950.	760.	0.05	-H-	75.	—	—
991-B-C85	<0.20	—	—	<4.0	2.4	420.	—	<0.005	(H) 0.05	1800.	—	—
991-D-C85	<0.15	—	—	<4.0	<3.2	10.	—	<0.005	<0.05	20.	—	—
991-E-C85	2.67	—	—	17.	19.	5.0	—	0.03	0.06	16.	—	—
991-F-C85	<0.20	—	—	<4.0	<13.	36.	—	<0.005	(H) 0.05	130.	—	—
991-G-C85	(H) 0.52	—	—	<4.0	<3.5	1300.	—	<0.005	(H) 0.05	18000.	<8.0	—
991-H-C85	0.20	—	—	11.	9.4	2.0	—	0.01	<0.05	19.	—	—
991-I-C85	<0.30	—	—	<4.0	<7.6	40.	—	<0.005	(H) 0.09	120.	—	—
991-J-C85	0.17	—	—	5.0	<22.	81.	—	0.006	<0.05	48.	—	—
991-K-C85	(H) 0.15	—	—	11.	<44.	150.	—	0.006	(H) 0.05	290.	<0.80	—
991-R-C87	<0.15	—	—	<8.0	4.2	210.	—	<0.01	<0.05	840.	—	—
991-S-C87	<0.20	—	—	<8.0	2.5	160.	—	0.01	<0.07	520.	—	—
991-T-C87	<0.15	—	—	26.	19.	810.	—	0.02	<0.05	32.	—	—
991-U-C87	<0.20	—	—	<8.0	<0.99	130.	—	<0.01	<0.07	320.	—	—

July 8, 1994

Orphan Mine Samples

Field ID	Na2O % XRF	Nb ppm AA	Nb ppm ICP	Nd ppm ICP	Nd ppm NA	Ni ppm ICP	Ni ppm NA	P % ICP	P2O5 % XRF	Pb ppm ICP	Pd ppb AA	Pr ppm ICP
991-W-C87	<0.20	—	—	<8.0	<2.7	170.	—	<0.01	<0.07	46.	—	—

July 8, 1994

Orphan Mine Samples

Field ID	Pt ppb AA	Rb ppm AA	Rb ppm NA	Rh ppb AA	Ru ppb AA	S % (Total)	Sb ppm AA	Sb ppm NA	Sc ppm ICP	Sc ppm NA	Se ppm AA	SiO2 % XRF
991-0-2	—	—	18.	—	—	<0.05	—	1.7	<2.0	0.57	1.1	(H) 86.9
991-0-3A	—	—	<40.	—	—	8.1	—	20.	<2.0	0.49	0.70	-H-
991-0-3B	—	—	110.	—	—	0.09	—	1.1	7.0	7.1	0.20	75.5
991-00-1	—	—	21.	—	—	3.2	—	2.1	<2.0	1.4	3.1	(H) 49.5
991-175-1	—	—	17.	—	—	0.88	—	3.1	<2.0	0.57	1.1	57.8
991-190-1	—	—	28.	—	—	14.	—	21.	<2.0	0.11	0.10	-H-
991-225-4	—	—	17.	—	—	5.4	—	1.2	<2.0	0.66	0.10	-H-
991-245-10	—	—	<20.	—	—	26.	—	2.6	<2.0	0.60	0.40	-H-
991-245-11	—	—	<22.	—	—	0.15	—	1.4	<2.0	0.99	0.90	59.8
991-245-11C	—	—	32.	—	—	<0.05	—	0.33	<2.0	1.3	0.10	58.5
991-245-2	—	—	22.	—	—	4.6	—	20.	<2.0	0.54	<0.10	-H-
991-245-4A	—	—	<26.	—	—	2.1	—	12.	<2.0	1.1	15.	-H-
991-245-4B	—	—	<30.	—	—	1.2	—	17.	<2.0	0.91	100.	-H-
991-245-5	—	—	93.	—	—	0.38	—	470.	3.0	4.0	0.20	-H-
991-245-9	—	—	18.	—	—	0.08	—	0.50	<2.0	0.72	0.60	59.2
991-265-1	—	—	<28.	—	—	13.	—	1.7	<2.0	1.3	<0.10	-H-
991-265-1R	—	—	38.	—	—	9.2	—	1.5	2.0	1.8	1.7	-H-
991-265-2	—	—	<20.	—	—	23.	—	2.6	<2.0	0.35	0.20	-H-
991-320-1	—	—	28.	—	—	<0.05	—	0.38	3.0	2.5	0.10	46.3
991-320-2	—	—	54.	—	—	<0.05	—	0.24	5.0	5.2	0.20	24.6
991-320-4	—	—	<25.	—	—	0.11	—	3.4	<2.0	0.62	0.60	66.5
991-320-6	—	—	11.	—	—	0.14	—	0.39	<2.0	0.63	0.30	67.3
991-320-7	—	—	21.	—	—	<0.05	—	0.69	<2.0	0.57	0.20	95.3
991-320-8	—	—	<20.	—	—	5.8	—	0.73	<2.0	0.51	<0.10	-H-
991-320-8R	—	—	<13.	—	—	5.5	—	0.53	<2.0	0.52	<0.10	-H-
991-350-1	—	—	<40.	—	—	3.9	—	11.	<2.0	0.92	6.9	-H-
991-350-2	—	—	80.	—	—	0.27	—	0.47	8.0	7.6	0.90	56.9
991-350-21	—	—	<80.	—	—	9.0	—	8.7	<2.0	0.87	<0.10	-H-
991-350-365	—	—	13.	—	—	0.54	—	0.86	3.0	3.1	1.3	29.0
991-365-1	—	—	100.	—	—	1.3	—	12.	4.0	3.6	0.70	-H-

July 8, 1994

Orphan Mine Samples

Field ID	Pt ppb AA	Rb ppm AA	Rb ppm NA	Rh ppb AA	Ru ppb AA	S % (Total)	Sb ppm AA	Sb ppm NA	Sc ppm ICP	Sc ppm NA	Se ppm AA	SiO2 % XRF
991-365-3	—	—	<31.	—	—	1.5	—	31.	<2.0	0.59	<0.10	-H-
991-365-910	—	—	42.	—	—	1.4	—	5.4	2.0	2.2	2.4	84.3
991-365-X	—	—	<11.	—	—	0.26	—	2.8	<2.0	0.58	0.40	76.9
991-365-XR	—	—	<11.	—	—	0.33	—	2.7	<2.0	0.59	0.40	80.1
991-365-Y	—	—	<10.	—	—	0.69	—	0.97	<2.0	0.55	0.40	81.4
991-375-D-1	—	—	50.	—	—	<0.05	—	0.24	3.0	3.3	0.40	43.3
991-400-1	—	—	<18.	—	—	19.	—	3.1	<2.0	0.80	0.50	-H-
991-400-1R	—	—	<60.	—	—	9.6	—	2.5	<2.0	1.0	0.90	-H-
991-400-30	—	—	51.	—	—	14.	—	2.5	<2.0	0.42	0.40	62.2
991-400-R1	—	—	<29.	—	—	1.9	—	72.	<2.0	1.00	0.40	-H-
991-400-R3	—	—	24.	—	—	25.	—	2.7	<2.0	0.66	0.50	-H-
991-400-R4	—	—	<100.	—	—	2.5	—	31.	2.0	2.5	<0.10	-H-
991-525-33	—	—	<25.	—	—	0.43	—	7.6	2.0	0.36	0.30	-H-
991-585-32	—	—	40.	—	—	0.28	—	11.	<2.0	0.82	0.10	84.3
991-585-33A	—	—	59.	—	—	<0.05	—	1.00	<2.0	1.7	0.20	89.4
991-585-33B	—	—	<24.	—	—	0.19	—	4.8	<2.0	0.34	20.	95.5
991-585-34	—	—	<40.	—	—	24.	—	4.8	<2.0	0.29	<0.10	-H-
991-B-C85	—	—	—	—	—	28.	—	3.8	<2.0	0.78	<1.00	(H) 38.2
991-D-C85	—	—	15.	—	—	0.81	—	1.0	<2.0	0.80	<5.0	57.5
991-E-C85	—	—	58.	—	—	<0.01	—	0.33	4.0	4.5	<0.50	77.0
991-F-C85	—	—	15.	—	—	2.7	—	1.8	<2.0	0.73	<20.	(H) 45.7
991-G-C85	<5.0	—	16.	<5.0	<5.0	3.3	—	4.1	<2.0	0.91	<20.	(H) 47.7
991-H-C85	—	—	37.	—	—	<0.01	—	0.11	<2.0	0.95	0.60	73.2
991-I-C85	—	—	17.	—	—	5.8	—	9.3	<2.0	0.96	-H-	(H) 45.5
991-J-C85	—	—	20.	—	—	0.33	—	0.44	<2.0	0.72	98.	50.0
991-K-C85	<0.50	—	17.	<0.50	<0.50	2.5	—	3.3	<2.0	0.84	<5.0	(H) 50.6
991-R-C87	—	—	13.	—	—	8.3	—	1.4	<4.0	0.57	0.30	78.5
991-S-C87	—	—	13.	—	—	27.	—	1.8	<4.0	0.30	<1.00	(H) 42.5
991-T-C87	—	—	62.	—	—	3.3	—	1.6	13.	14.	2.8	(H) 55.6
991-U-C87	—	—	—	—	—	39.	—	1.6	<4.0	0.42	<1.00	(H) 41.8

July 8, 1994

Orphan Mine Samples

Field ID	Pt ppb AA	Rb ppm AA	Rb ppm NA	Rh ppb AA	Ru ppb AA	S % (Total)	Sb ppm AA	Sb ppm NA	Sc ppm ICP	Sc ppm NA	Se ppm AA	SiO2 % XRF
991-W-C87	—	—	—	—	—	32.	—	7.9	<4.0	0.43	<1.00	(H) 52.0

July 8, 1994

Orphan Mine Samples

Field ID	Sm ppm ICP	Sm ppm NA	Sn ppm ICP	Sr ppm AA	Sr ppm ICP	Sr ppm NA	Ta ppm ICP	Ta ppm NA	Tb ppm ICP	Tb ppm NA	Te ppm AA	Th ppm DN
991-0-2	—	1.3	<5.0	—	24.	<140.	<40.	<0.50	—	0.16	—	<70.
991-0-3A	—	10.	<5.0	—	18.	<700.	<40.	<0.80	—	<0.26	—	<780.
991-0-3B	—	3.7	<5.0	—	83.	<270.	<40.	1.2	—	0.37	—	<62.
991-00-1	—	7.6	<5.0	—	85.	<230.	<40.	0.54	—	0.44	—	<560.
991-175-1	—	1.1	<5.0	—	74.	<1000.	<40.	<0.30	—	<0.14	—	<75.
991-190-1	—	1.2	<5.0	—	1300.	19000.	<40.	<0.40	—	<0.30	—	<81.
991-225-4	—	0.84	<5.0	—	31.	<110.	<40.	0.34	—	0.10	—	<8.0
991-245-10	—	1.2	<5.0	—	18.	<200.	<40.	<0.40	—	0.15	—	<75.
991-245-11	—	2.5	<5.0	—	81.	<400.	<40.	<0.50	—	<0.26	—	<150.
991-245-11C	—	1.00	<5.0	—	53.	<150.	<40.	0.29	—	0.11	—	<6.0
991-245-2	—	1.7	<5.0	—	150.	170.	<40.	<0.31	—	0.11	—	<98.
991-245-4A	—	11.	<5.0	—	57.	<500.	<40.	0.65	—	1.7	—	<2200.
991-245-4B	—	<9.0	<5.0	—	52.	<400.	<40.	<0.50	—	0.55	—	<2100.
991-245-5	—	17.	<5.0	—	2000.	2200.	<40.	1.4	—	0.90	—	<620.
991-245-9	—	1.00	<5.0	—	86.	<240.	<40.	0.21	—	0.13	—	<53.
991-265-1	—	3.0	<5.0	—	45.	<500.	<40.	<0.40	—	<0.30	—	<290.
991-265-1R	—	2.6	<5.0	—	47.	<300.	<40.	0.56	—	0.21	—	<130.
991-265-2	—	0.90	<5.0	—	8.0	<290.	<40.	<0.40	—	<0.27	—	<60.
991-320-1	—	2.4	<5.0	—	62.	<110.	<40.	0.46	—	0.28	—	<6.4
991-320-2	—	5.9	<5.0	—	86.	<240.	<40.	0.44	—	0.44	—	<190.
991-320-4	—	0.83	<5.0	—	60.	130.	<40.	0.25	—	<0.17	—	<7.7
991-320-6	—	1.4	<5.0	—	64.	<100.	<40.	<0.28	—	<0.16	—	<93.
991-320-7	—	1.1	<5.0	—	17.	<230.	<40.	0.23	—	<0.22	—	<24.
991-320-8	—	3.2	<5.0	—	30.	<190.	<40.	<0.30	—	<0.16	—	<500.
991-320-8R	—	6.1	<5.0	—	29.	<290.	<40.	<0.40	—	<0.27	—	<550.
991-350-1	—	9.7	<5.0	—	32.	<500.	<40.	<0.50	—	0.32	—	<1100.
991-350-2	—	8.2	<5.0	—	74.	<180.	<40.	1.00	—	0.69	—	<360.
991-350-21	—	0.50	<5.0	—	17.	<2000.	<40.	<1.4	—	<0.50	—	<5.7
991-350-365	—	0.68	<5.0	—	38.	<210.	<40.	<0.50	—	0.13	—	<7.9
991-365-1	—	3.5	<5.0	—	68.	<700.	<40.	1.1	—	0.27	—	<190.

July 8, 1994

Orphan Mine Samples

Field ID	Sm ppm ICP	Sm ppm NA	Sn ppm ICP	Sr ppm AA	Sr ppm ICP	Sr ppm NA	Ta ppm ICP	Ta ppm NA	Tb ppm ICP	Tb ppm NA	Te ppm AA	Th ppm DN
991-365-3	—	2.9	<5.0	—	12.	<900.	<40.	<0.40	—	<0.40	—	<340.
991-365-910	—	2.5	<5.0	—	40.	<400.	<40.	0.87	—	0.37	—	<58.
991-365-X	—	0.97	<5.0	—	50.	<130.	<40.	<0.50	—	<0.22	—	<42.
991-365-XR	—	1.2	<5.0	—	47.	<240.	<40.	<0.40	—	<0.26	—	<74.
991-365-Y	—	1.9	<5.0	—	110.	<290.	<40.	<0.28	—	<0.21	—	<140.
991-375-D-1	—	2.4	<5.0	—	73.	<90.	<40.	0.47	—	0.34	—	<5.7
991-400-1	—	1.2	<5.0	—	48.	<230.	<40.	<0.40	—	0.20	—	<3.2
991-400-1R	—	1.5	<5.0	—	64.	<190.	<40.	<0.31	—	0.18	—	<3.4
991-400-30	—	0.40	<5.0	—	39.	<300.	<40.	<0.31	—	<0.21	—	<2.5
991-400-R1	—	1.5	<5.0	—	12.	<1000.	<40.	<0.70	—	<0.21	—	<94.
991-400-R3	—	0.75	<5.0	—	15.	<300.	<40.	<0.40	—	<0.14	—	<7.2
991-400-R4	—	4.4	<5.0	—	41.	<2400.	<40.	<1.4	—	<0.80	—	<400.
991-525-33	—	4.4	<5.0	—	17.	<600.	<40.	<0.60	—	0.15	—	<360.
991-585-32	—	8.4	<5.0	—	23.	<500.	<40.	<0.40	—	0.15	—	<660.
991-585-33A	—	0.83	<5.0	—	49.	<260.	<40.	0.43	—	0.11	—	<7.9
991-585-33B	—	3.1	<5.0	—	15.	<500.	<40.	<0.80	—	0.15	—	<340.
991-585-34	—	1.9	<5.0	—	8.0	<600.	<40.	<0.70	—	<0.24	—	<100.
991-B-C85	—	0.61	<20.	—	38.	—	<40.	0.12	—	0.11	—	<13.
991-D-C85	—	0.83	<20.	—	40.	—	<40.	0.16	—	0.12	—	<110.
991-E-C85	—	4.2	<20.	—	110.	—	<40.	0.84	—	0.48	—	<5.6
991-F-C85	—	1.6	<20.	—	350.	—	<40.	0.18	—	0.20	—	<760.
991-G-C85	—	0.72	<20.	—	71.	—	<40.	0.14	—	0.12	—	<6.4
991-H-C85	—	2.2	<20.	—	90.	—	<40.	0.12	—	0.26	—	<6.4
991-I-C85	—	2.3	<20.	—	27.	—	<40.	0.11	—	0.29	—	<170.
991-J-C85	—	1.9	<20.	—	270.	—	<40.	0.34	—	0.20	—	<980.
991-K-C85	—	2.1	<20.	—	46.	—	<40.	0.49	—	0.41	—	<2200.
991-R-C87	—	0.66	<20.	—	70.	100.	<80.	0.13	—	0.064	—	<8.3
991-S-C87	—	0.57	<20.	—	30.	—	<80.	0.26	—	0.049	—	<5.5
991-T-C87	—	5.0	<20.	—	110.	89.	<80.	1.1	—	0.81	—	<61.
991-U-C87	—	0.40	<20.	—	28.	—	<80.	0.27	—	0.082	—	<13.

July 8, 1994

Orphan Mine Samples

Field ID	Sm ppm ICP	Sm ppm NA	Sn ppm ICP	Sr ppm AA	Sr ppm ICP	Sr ppm NA	Ta ppm ICP	Ta ppm NA	Tb ppm ICP	Tb ppm NA	Te ppm AA	Th ppm DN
991-W-C87	—	0.55	<20.	—	35.	—	<80.	0.21	—	0.047	—	<25.

July 8, 1994

Orphan Mine Samples

Field ID	Th ppm ICP	Th ppm NA	Ti % ICP	TiO2 % XRF	Tl ppm AA	Tm ppm ICP	Tm ppm NA	U ppm DN	U ppm ICP	U ppm NA	V ppm ICP	W ppm ICP
991-0-2	<4.0	1.4	0.04	(H) 0.10	—	—	—	150.	<140.	130.	33.	—
991-0-3A	<4.0	<1.8	0.01	-H-	—	—	—	2500.	2400.	2300.	24.	—
991-0-3B	11.	10.	0.15	0.73	—	—	—	120.	110.	100.	37.	—
991-00-1	<4.0	3.5	0.05	(H) 0.13	—	—	—	1500.	1500.	1400.	15.	—
991-175-1	<4.0	0.84	0.03	0.06	—	—	—	170.	180.	150.	9.0	—
991-190-1	<4.0	<0.70	<0.005	-H-	—	—	—	200.	190.	200.	<2.0	—
991-225-4	<4.0	0.78	0.03	-H-	—	—	—	31.	<100.	26.	5.0	—
991-245-10	<4.0	<1.3	0.02	-H-	—	—	—	180.	160.	160.	5.0	—
991-245-11	<4.0	2.1	0.04	0.07	—	—	—	400.	390.	350.	6.0	—
991-245-11C	<4.0	1.4	0.03	0.10	—	—	—	18.	<100.	17.	7.0	—
991-245-2	<4.0	1.4	0.03	-H-	—	—	—	250.	230.	210.	8.0	—
991-245-4A	<4.0	1.1	0.05	-H-	—	—	—	8400.	7700.	7800.	64.	—
991-245-4B	<4.0	1.6	0.05	-H-	—	—	—	8200.	7500.	7300.	95.	—
991-245-5	6.0	8.6	0.14	-H-	—	—	—	1700.	1500.	1600.	130.	—
991-245-9	<4.0	1.1	0.03	0.05	—	—	—	100.	100.	90.	6.0	—
991-265-1	<4.0	1.7	0.03	-H-	—	—	—	580.	520.	530.	15.	—
991-265-1R	<4.0	2.4	0.05	-H-	—	—	—	340.	320.	320.	25.	—
991-265-2	<4.0	0.67	0.01	-H-	—	—	—	130.	110.	120.	<2.0	—
991-320-1	<4.0	2.6	0.04	0.18	—	—	—	20.	<100.	17.	21.	—
991-320-2	<4.0	3.6	0.03	0.23	—	—	—	500.	880.	520.	28.	—
991-320-4	<4.0	1.4	0.03	0.06	—	—	—	28.	<100.	25.	5.0	—
991-320-6	<4.0	1.1	0.03	0.06	—	—	—	230.	250.	210.	5.0	—
991-320-7	<4.0	1.4	0.03	0.08	—	—	—	130.	130.	130.	50.	—
991-320-8	<4.0	0.85	0.03	-H-	—	—	—	1400.	1500.	1300.	9.0	—
991-320-8R	<4.0	1.00	0.03	-H-	—	—	—	1500.	1500.	1500.	9.0	—
991-350-1	<4.0	0.91	0.03	-H-	—	—	—	3700.	3400.	3000.	24.	—
991-350-2	7.0	9.2	0.16	0.68	—	—	—	710.	770.	700.	64.	—
991-350-21	<4.0	<1.00	0.04	-H-	—	—	—	19.	<100.	18.	7.0	—
991-350-365	<4.0	1.1	0.02	0.07	—	—	—	28.	<100.	34.	20.	—
991-365-1	5.0	6.2	0.14	-H-	—	—	—	490.	460.	450.	65.	—

July 8, 1994

Orphan Mine Samples

Field ID	Th ppm ICP	Th ppm NA	Ti % ICP	TiO2 % XRF	Tl ppm AA	Tm ppm ICP	Tm ppm NA	U ppm DN	U ppm ICP	U ppm NA	V ppm ICP	W ppm ICP
991-365-3	<4.0	1.4	0.03	-H-	—	—	—	720.	690.	650.	10.	—
991-365-910	<4.0	4.4	0.09	0.44	—	—	—	100.	<100.	89.	30.	—
991-365-X	<4.0	1.2	0.02	0.07	—	—	—	76.	<100.	63.	6.0	—
991-365-XR	<4.0	1.2	0.02	0.08	—	—	—	160.	160.	150.	6.0	—
991-365-Y	<4.0	1.3	0.02	0.10	—	—	—	380.	350.	340.	6.0	—
991-375-D-1	<4.0	3.3	0.06	0.22	—	—	—	16.	<100.	16.	28.	—
991-400-1	<4.0	0.58	0.005	-H-	—	—	—	6.9	<100.	5.9	5.0	—
991-400-1R	<4.0	0.59	0.006	-H-	—	—	—	5.6	<100.	5.5	9.0	—
991-400-30	<4.0	0.71	0.02	0.09	—	—	—	4.4	<100.	4.2	5.0	—
991-400-R1	<4.0	1.9	0.04	-H-	—	—	—	220.	210.	200.	<2.0	—
991-400-R3	<4.0	1.9	0.04	-H-	—	—	—	30.	<100.	27.	5.0	—
991-400-R4	<4.0	6.6	0.13	-H-	—	—	—	930.	900.	880.	10.	—
991-525-33	<4.0	1.1	0.02	-H-	—	—	—	840.	860.	800.	5.0	—
991-585-32	<4.0	1.6	0.03	0.44	—	—	—	1900.	2000.	1900.	13.	—
991-585-33A	<4.0	2.8	0.06	0.23	—	—	—	27.	<100.	25.	21.	—
991-585-33B	<4.0	1.3	0.02	0.03	—	—	—	710.	660.	650.	7.0	—
991-585-34	4.0	<0.50	0.009	-H-	—	—	—	260.	210.	210.	4.0	—
991-B-C85	<4.0	0.99	0.03	(H) 0.08	—	—	—	72.	<100.	73.	11.	—
991-D-C85	<4.0	0.58	0.03	0.07	—	—	—	310.	300.	290.	19.	—
991-E-C85	4.0	6.0	0.14	0.33	—	—	—	20.	<100.	21.	150.	—
991-F-C85	<4.0	0.91	0.03	(H) 0.06	—	—	—	3100.	3400.	2700.	11.	—
991-G-C85	<4.0	0.98	0.03	(H) 0.06	—	—	—	30.	<100.	29.	7.0	—
991-H-C85	<4.0	1.2	0.03	0.04	—	—	—	27.	<100.	29.	1100.	—
991-I-C85	<4.0	4.3	0.03	(H) 0.10	—	—	—	490.	500.	210.	16.	—
991-J-C85	<4.0	0.86	0.03	0.07	—	—	—	4200.	4500.	3900.	8.0	—
991-K-C85	<4.0	1.8	0.04	(H) 0.07	—	—	—	10000.	11000.	9200.	7.0	—
991-R-C87	<8.0	0.76	0.03	0.07	—	—	—	41.	<200.	42.	10.	—
991-S-C87	<8.0	0.63	0.03	(H) 0.07	—	—	—	26.	<200.	26.	7.0	—
991-T-C87	11.	14.	0.21	(H) 0.50	—	—	—	360.	400.	350.	51.	—
991-U-C87	<8.0	0.46	0.02	(H) 0.09	—	—	—	79.	<200.	76.	<4.0	—

July 8, 1994

Orphan Mine Samples

Field ID	Th ppm ICP	Th ppm NA	Ti % ICP	TiO2 % XRF	Tl ppm AA	Tm ppm ICP	Tm ppm NA	U ppm DN	U ppm ICP	U ppm NA	V ppm ICP	W ppm ICP
991-W-C87	<8.0	0.63	0.03	(H) 0.08	—	—	—	150.	<200.	150.	5.0	—

July 8, 1994

Orphan Mine Samples

Field ID	Y ppm AA	Y ppm ICP	Yb ppm ICP	Yb ppm NA	Zn ppm AA	Zn ppm ICP	Zn ppm NA	Zr ppm ICP	Zr ppm NA
991-0-2	—	4.0	<1.00	0.59	—	67.	73.	—	-H-
991-0-3A	—	8.0	<1.00	<1.3	—	89.	220.	—	-H-
991-0-3B	—	10.	1.00	2.3	—	120.	120.	—	300.
991-00-1	—	12.	<1.00	0.78	—	640.	550.	—	-H-
991-175-1	—	3.0	<1.00	<0.60	—	10000.	8600.	—	-H-
991-190-1	—	7.0	<1.00	<0.90	—	3200.	2300.	—	-H-
991-225-4	—	4.0	<1.00	0.40	—	90.	30.	—	130.
991-245-10	—	<2.0	<1.00	<0.60	—	49.	48.	—	-H-
991-245-11	—	4.0	<1.00	<0.40	—	22.	49.	—	-H-
991-245-11C	—	4.0	<1.00	<1.1	—	4.0	<110.	—	<150.
991-245-2	—	2.0	<1.00	<0.50	—	1000.	800.	—	-H-
991-245-4A	—	36.	2.0	2.0	—	29.	80.	—	-H-
991-245-4B	—	28.	<1.00	<1.5	—	19.	88.	—	-H-
991-245-5	—	17.	1.00	<2.4	—	280.	310.	—	-H-
991-245-9	—	4.0	<1.00	0.57	—	25.	<100.	—	-H-
991-265-1	—	4.0	<1.00	2.5	—	1200.	1200.	—	-H-
991-265-1R	—	4.0	<1.00	0.37	—	530.	520.	—	-H-
991-265-2	—	<2.0	<1.00	<0.50	—	370.	330.	—	-H-
991-320-1	—	8.0	<1.00	1.00	—	57.	51.	—	<400.
991-320-2	—	16.	2.0	1.6	—	94.	110.	—	-H-
991-320-4	—	3.0	<1.00	0.65	—	58.	89.	—	210.
991-320-6	—	2.0	<1.00	0.45	—	27.	26.	—	-H-
991-320-7	—	3.0	<1.00	<0.70	—	230.	190.	—	-H-
991-320-8	—	2.0	<1.00	<0.80	—	95.	94.	—	320.
991-320-8R	—	2.0	<1.00	<0.50	—	82.	<21.	—	-H-
991-350-1	—	11.	<1.00	<1.2	—	610.	510.	—	-H-
991-350-2	—	17.	2.0	3.1	—	200.	180.	—	-H-
991-350-21	—	5.0	<1.00	<1.00	—	2900.	2500.	—	<1100.
991-350-365	—	4.0	<1.00	0.64	—	120.	130.	—	<260.
991-365-1	—	8.0	<1.00	2.2	—	2100.	1800.	—	-H-

July 8, 1994

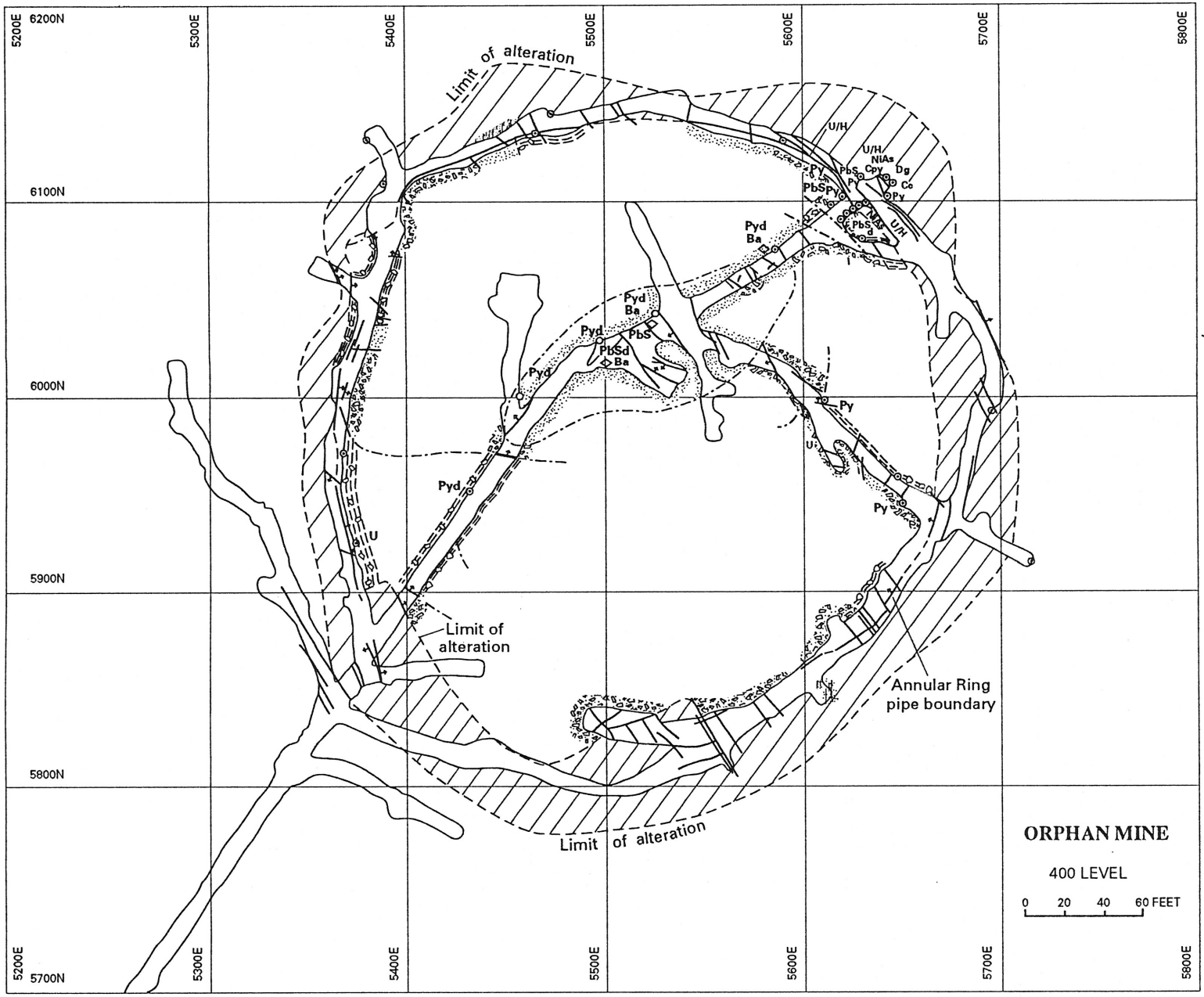
Orphan Mine Samples

Field ID	Y ppm AA	Y ppm ICP	Yb ppm ICP	Yb ppm NA	Zn ppm AA	Zn ppm ICP	Zn ppm NA	Zr ppm ICP	Zr ppm NA
991-365-3	—	13.	<1.00	<0.80	—	6700.	5100.	—	-H-
991-365-910	—	12.	1.00	1.9	—	400.	380.	—	430.
991-365-X	—	4.0	<1.00	0.45	—	290.	240.	—	-H-
991-365-XR	—	4.0	<1.00	<0.60	—	350.	280.	—	-H-
991-365-Y	—	4.0	<1.00	0.55	—	150.	120.	—	-H-
991-375-D-1	—	9.0	<1.00	1.2	—	17.	25.	—	<210.
991-400-1	—	6.0	<1.00	<0.50	—	220.	260.	—	<210.
991-400-1R	—	9.0	<1.00	0.67	—	260.	240.	—	<150.
991-400-30	—	<2.0	<1.00	<0.70	—	24.	<21.	—	230.
991-400-R1	—	6.0	<1.00	2.3	—	6100.	5400.	—	-H-
991-400-R3	—	<2.0	<1.00	<0.80	—	86.	96.	—	<700.
991-400-R4	—	13.	1.00	<3.0	—	3500.	3200.	—	-H-
991-525-33	—	4.0	<1.00	<0.70	—	510.	460.	—	-H-
991-585-32	—	5.0	<1.00	1.2	—	2300.	1800.	—	-H-
991-585-33A	—	4.0	<1.00	1.00	—	250.	240.	—	490.
991-585-33B	—	3.0	<1.00	<0.50	—	82.	120.	—	-H-
991-585-34	—	<2.0	<1.00	<0.80	—	280.	270.	—	-H-
991-B-C85	—	3.0	<1.00	0.41	—	100.	120.	—	<8.2
991-D-C85	—	4.0	<1.00	0.48	—	8.0	19.	—	<44.
991-E-C85	—	12.	2.0	2.1	—	20.	26.	—	<120.
991-F-C85	—	6.0	<1.00	0.69	—	72.	77.	—	<350.
991-G-C85	—	4.0	<1.00	0.43	—	23000.	21000.	—	—
991-H-C85	—	7.0	<1.00	0.60	—	10.	14.	—	—
991-I-C85	—	4.0	<1.00	0.38	—	42.	38.	—	—
991-J-C85	—	6.0	<1.00	1.1	—	10.	18.	—	—
991-K-C85	—	12.	<1.00	1.3	—	110.	130.	—	—
991-R-C87	—	<4.0	<2.0	0.30	—	280.	290.	—	<38.
991-S-C87	—	<4.0	<2.0	0.55	—	10.	26.	—	<25.
991-T-C87	—	15.	2.0	3.0	—	490.	470.	—	<95.
991-U-C87	—	<4.0	<2.0	0.33	—	400.	400.	—	<26.

July 8, 1994

Orphan Mine Samples

Field ID	Y ppm AA	Y ppm ICP	Yb ppm ICP	Yb ppm NA	Zn ppm AA	Zn ppm ICP	Zn ppm NA	Zr ppm ICP	Zr ppm NA
991-W-C87	—	<4.0	<2.0	0.61	—	9.0	27.	—	<36.

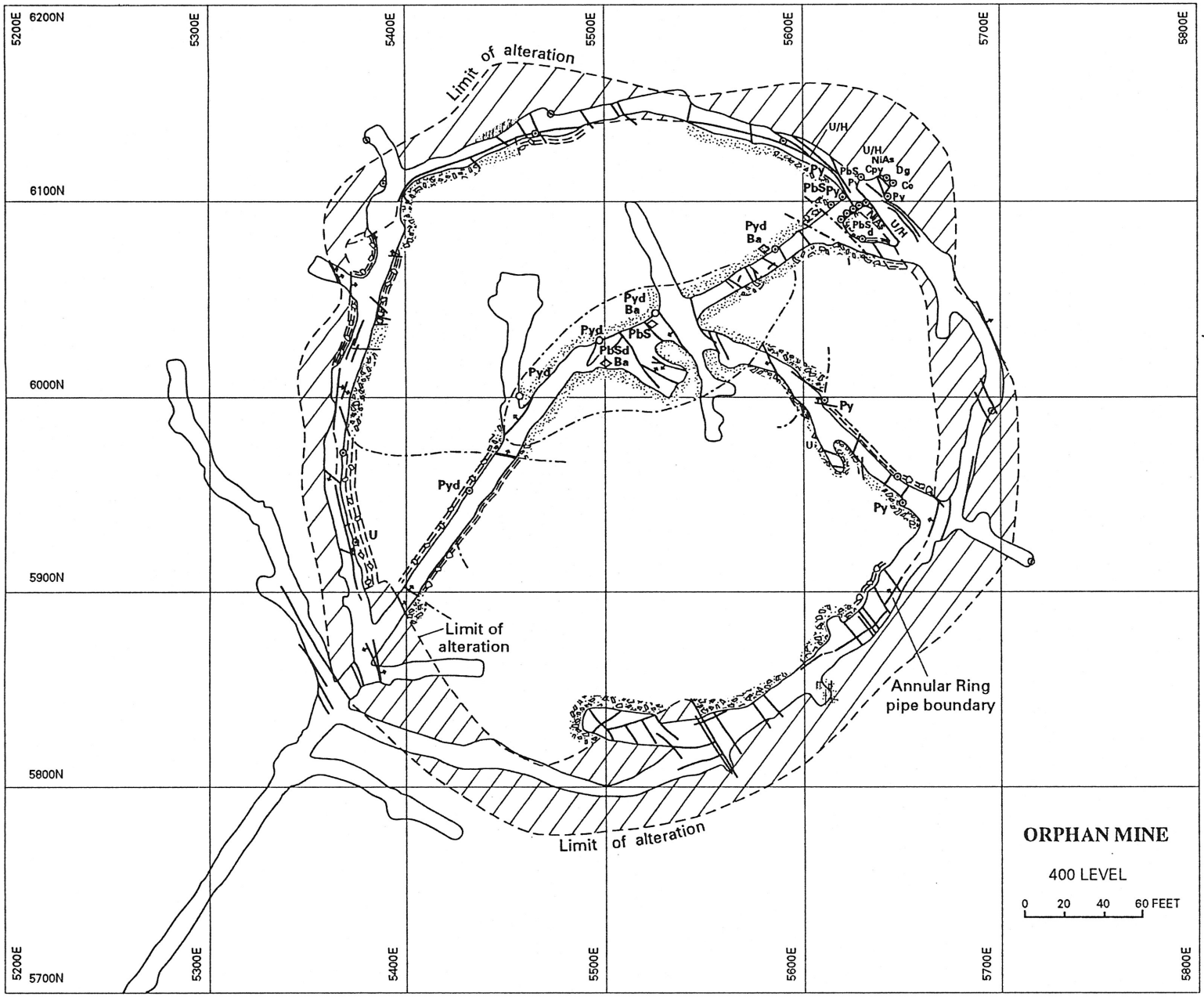


KEY

- Bleached Supai Group
- Sandstone pipe fill (massive)
- Sandstone breccia
- Mudstone breccia
- Mudstone
- Calcareous sandstone pipe fill
- Faults or fractures
- Contact between pipe lithologies
- Sample location

MINERALS

Py	Pyrite
U	Uraninite
H	Hematite
Cpy	Chalcopyrite
Cc	Chalcocite
Dg	Digenite
Bn	Bornite
Mo	Molybdenum
Cu	Copper
PbS	Galena
ZnS	Sphalerite
Ar	Arsenopyrite
NiAs	Nickel arsenides
Ba	Barite
◇	Siderite
◈	Calcite
d	Disseminated

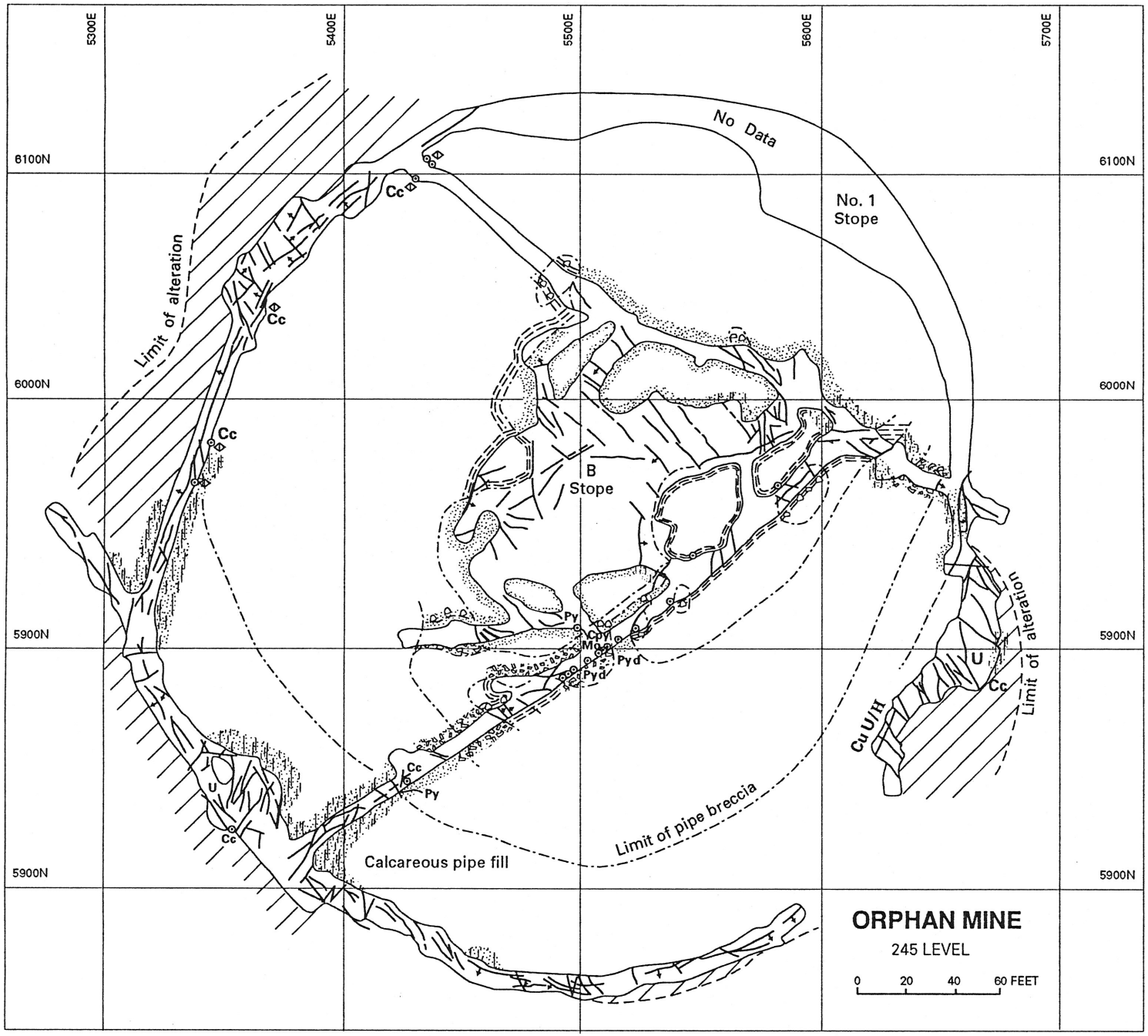


KEY

- Bleached Supai Group
- Sandstone pipe fill (massive)
- Sandstone breccia
- Mudstone breccia
- Mudstone
- Calcareous sandstone pipe fill
- Faults or fractures
- Contact between pipe lithologies
- Sample location

MINERALS

Py	Pyrite
U	Uraninite
H	Hematite
Cpy	Chalcopyrite
Cc	Chalcocite
Dg	Digenite
Bn	Bornite
Mo	Molybdenum
Cu	Copper
PbS	Galena
ZnS	Sphalerite
Ar	Arsenopyrite
NiAs	Nickel arsenides
Ba	Barite
◇	Siderite
◈	Calcite
d	Disseminated

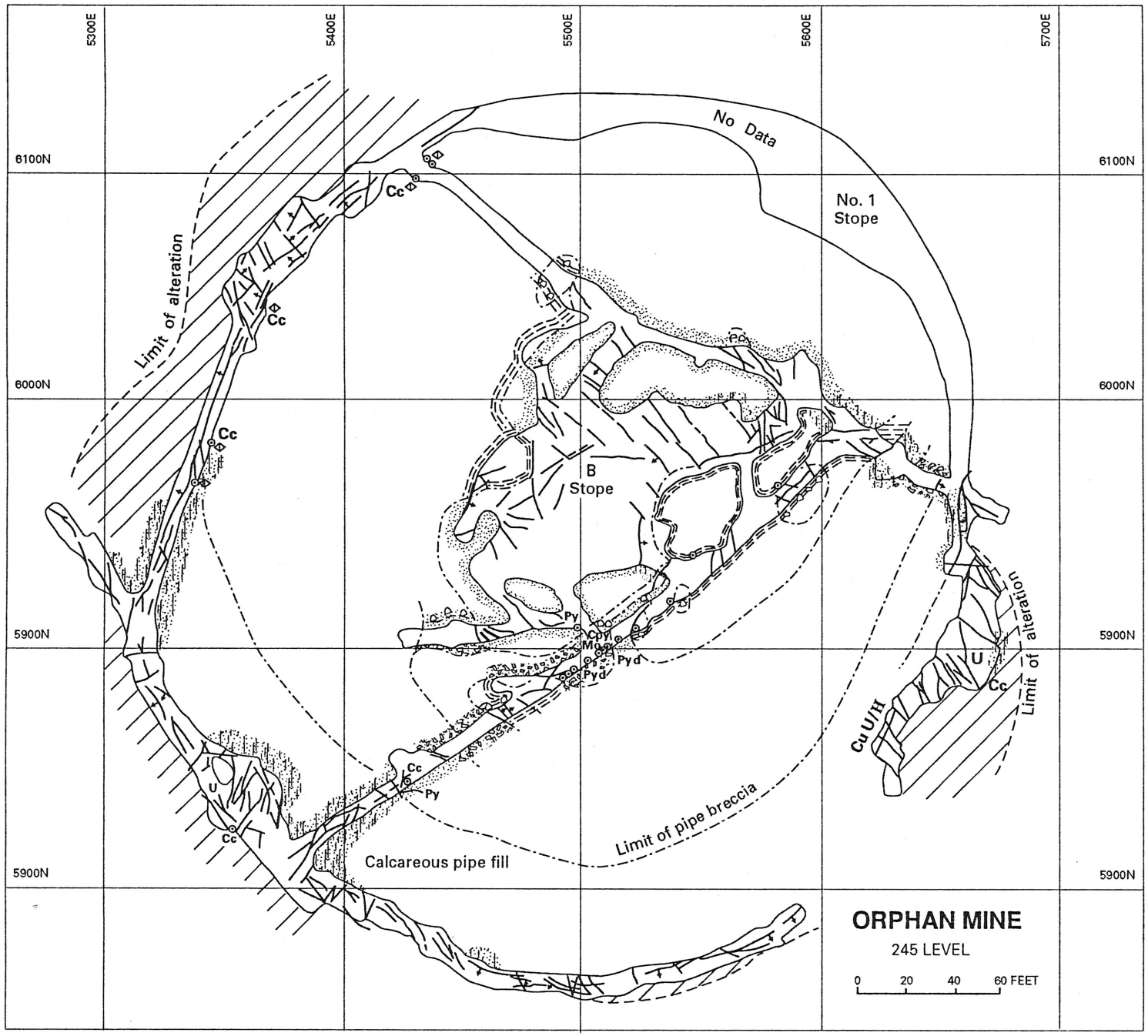


KEY

- Bleached Supai Group
- Sandstone pipe fill (massive)
- Sandstone breccia
- Mudstone breccia
- Mudstone
- Calcareous sandstone pipe fill
- Faults or fractures
- Contact between pipe lithologies
- Sample location

MINERALS

Py	Pyrite
U	Uraninite
H	Hematite
Cpy	Chalcopyrite
Cc	Chalcocite
Dg	Digenite
Bn	Bornite
Mo	Molybdenum
Cu	Copper
PbS	Galena
ZnS	Sphalerite
Ar	Arsenopyrite
NiAs	Nickel arsenides
Ba	Barite
◇	Siderite
◈	Calcite
d	Disseminated



KEY

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Key:


Bleached Supai Group


Sandstone pipe fill (massive)


Sandstone breccia


Mudstone breccia


Mudstone


Calcareous sandstone pipe fill


Faults or fractures

⊙ Sample location

Minerals

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H	hematite
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ROCK UNITS OUTSIDE PIPE AT MINE LEVELS

Level	Formation
adit (0)	Hermit
100	Espanade
140	" "
175	" "
190	" "
225	" "
245	" "
265	" "
285-290	" "
310-365	" "
375	Wescogame
400	" "
420	" "
525	" "
550	" "
585	" "

KEY

 Bleached Supai Group

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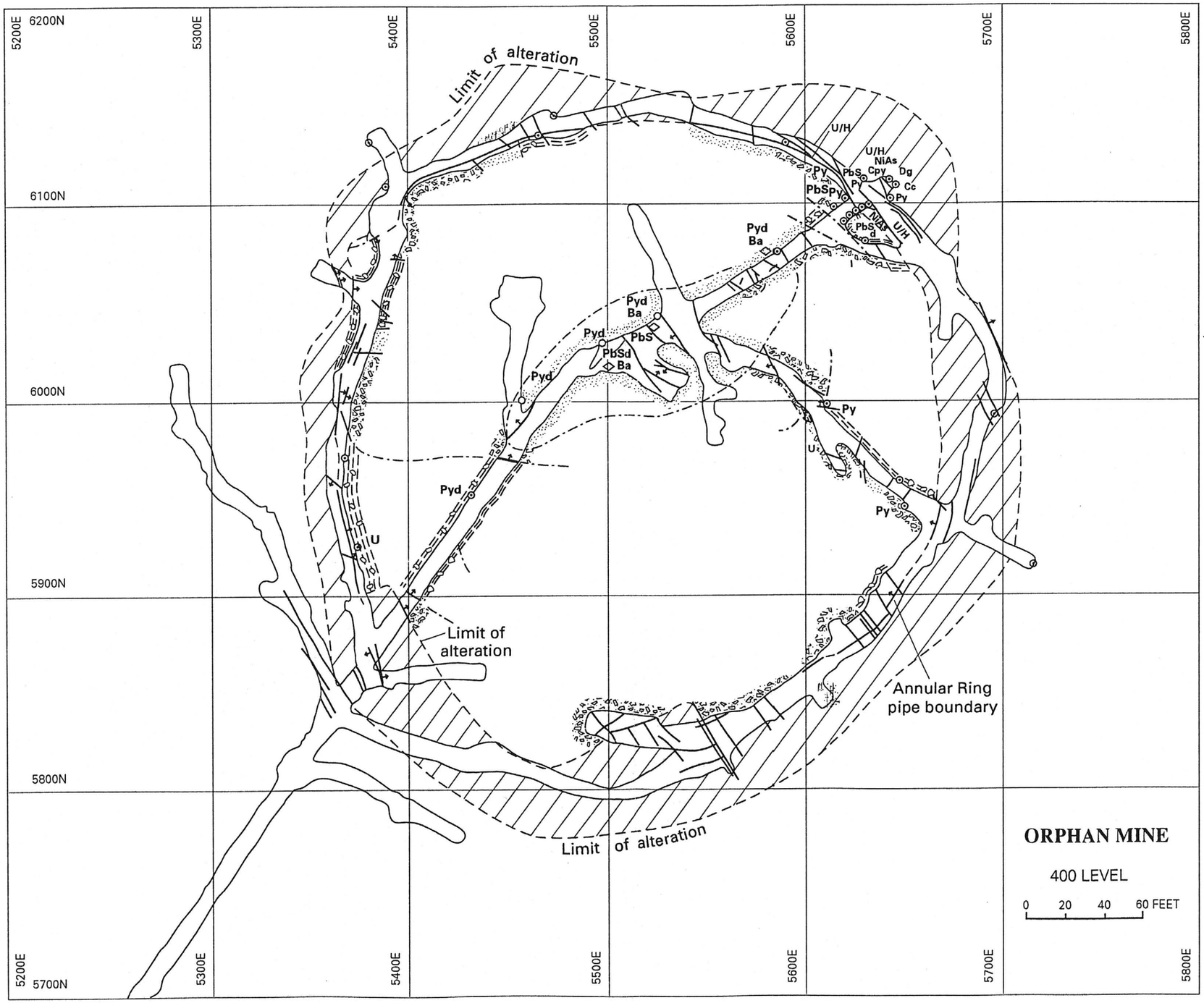

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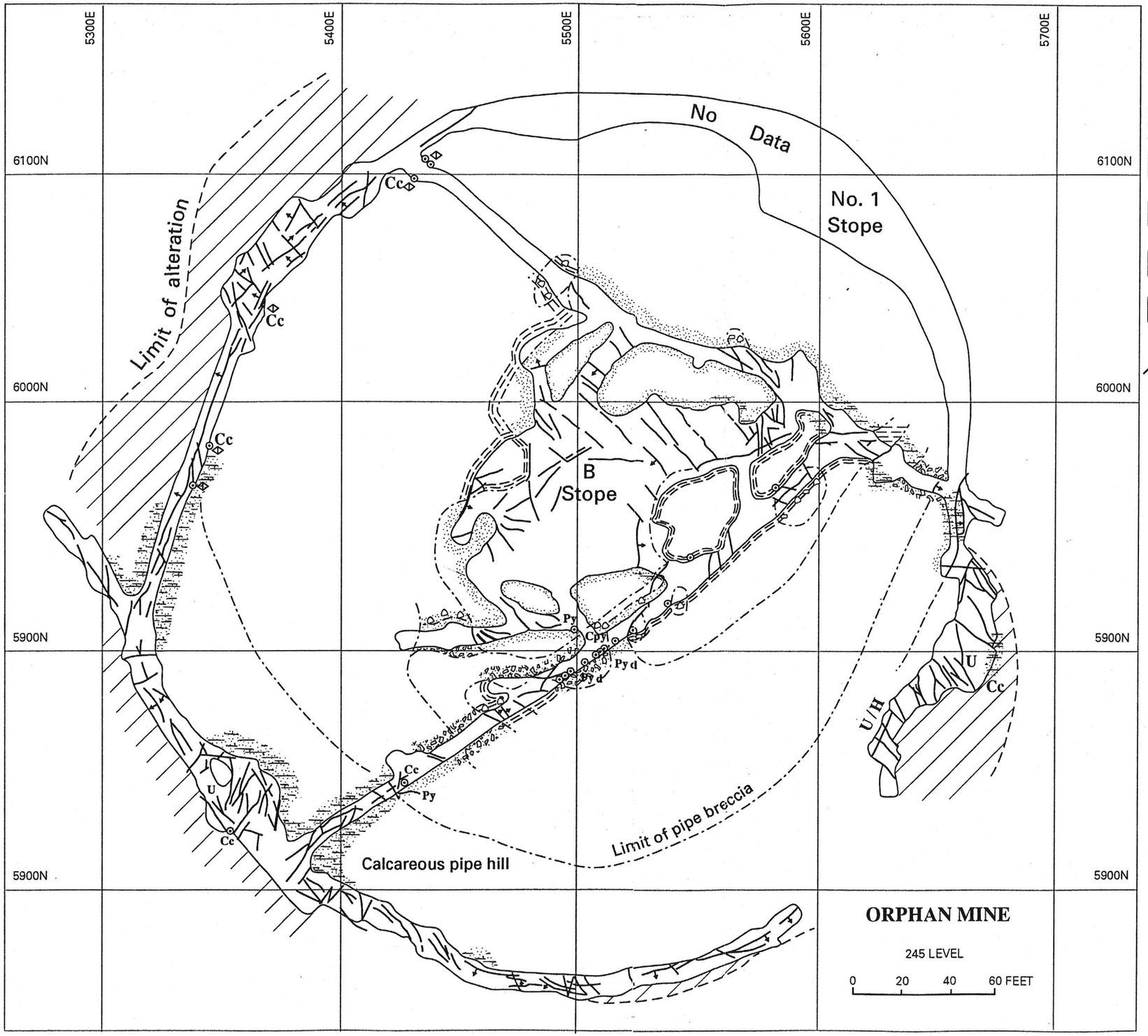

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NiAs	Nickel ansenides
Ba	Banite
◇	Siderite
◈	Calcite
d	Disseminated

Map 5

5200E 5300E 5100E 5000E 4900E 4800E

6100N

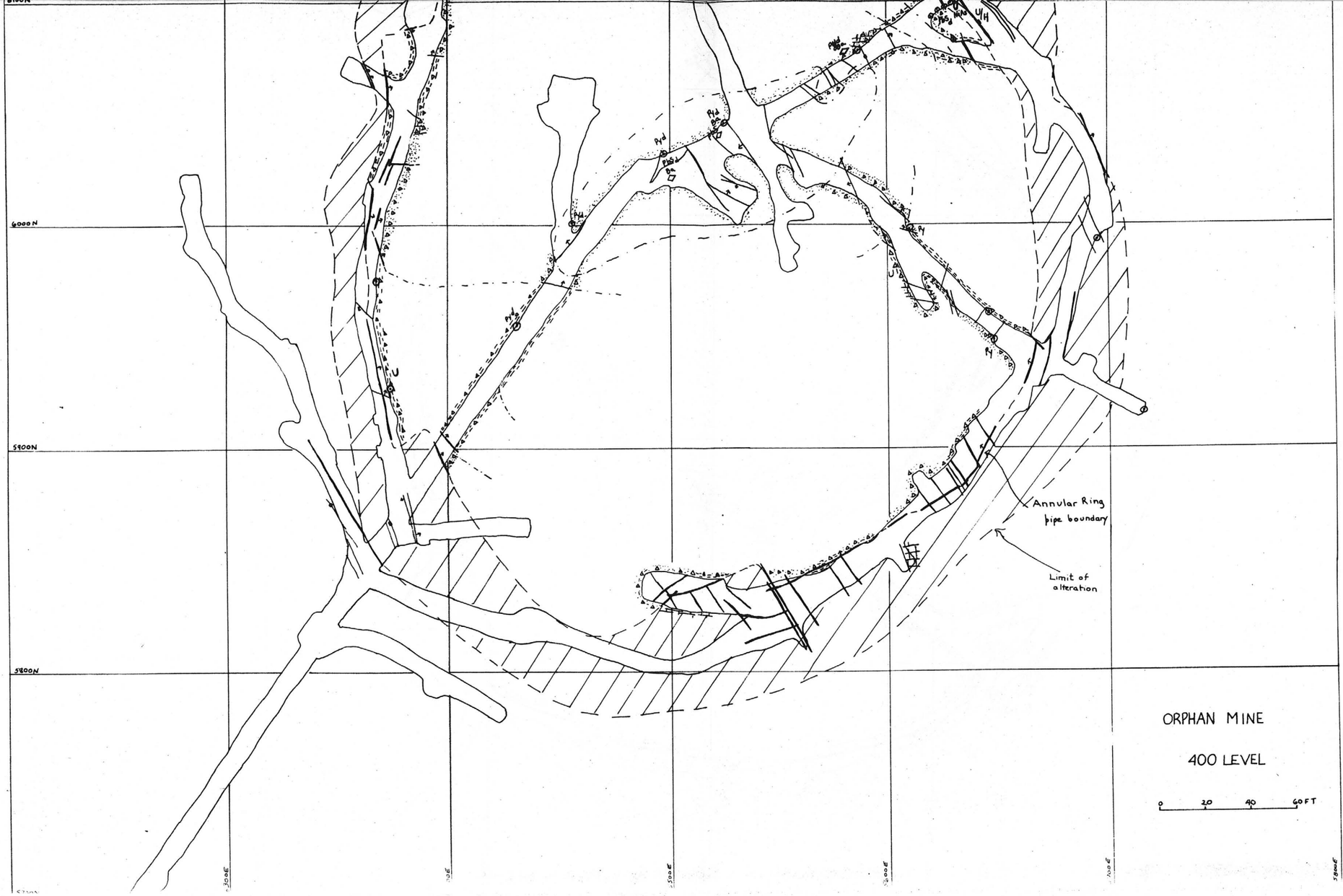
6000N

5900N

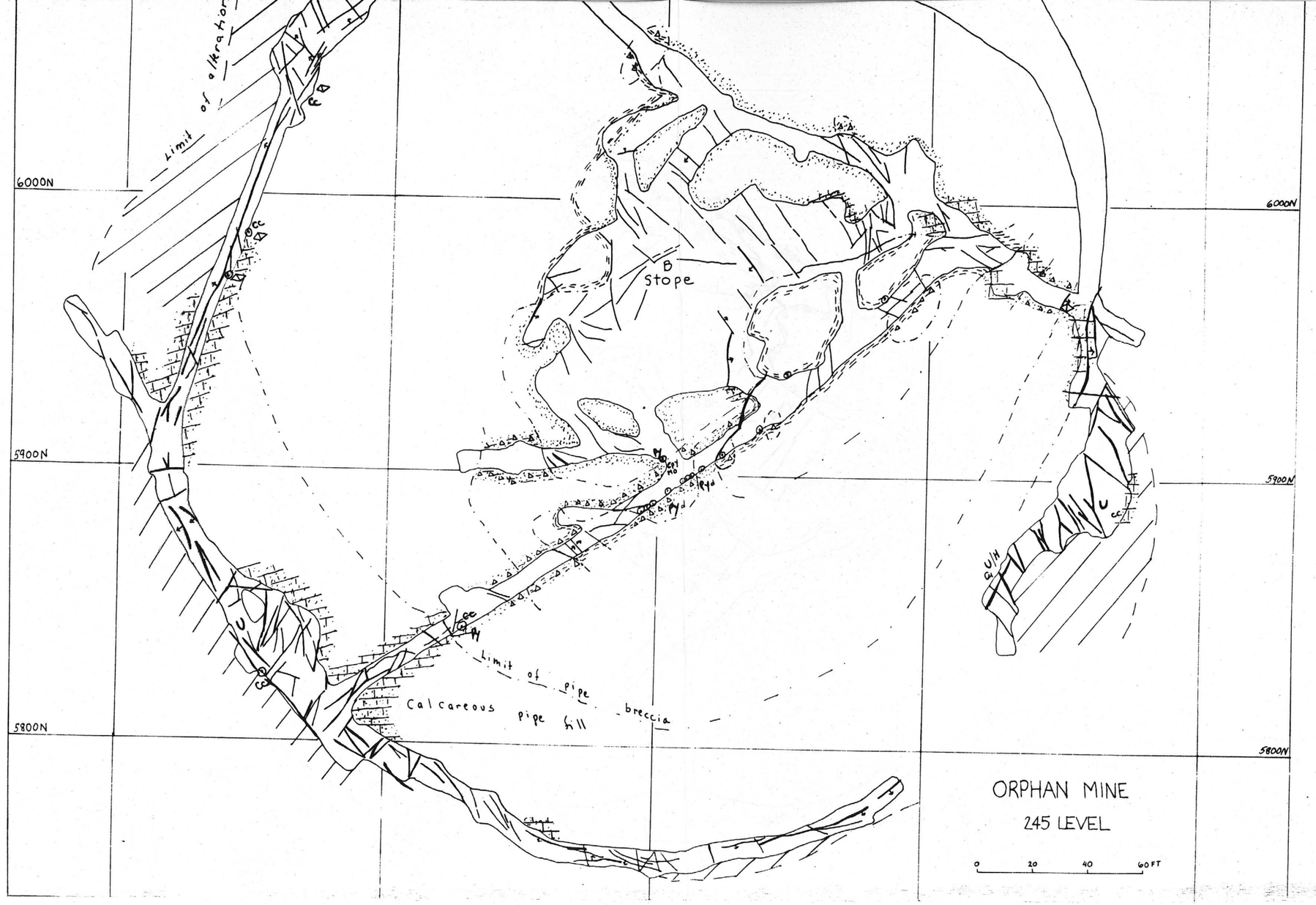
U/H

Annular Ring
pipe boundary

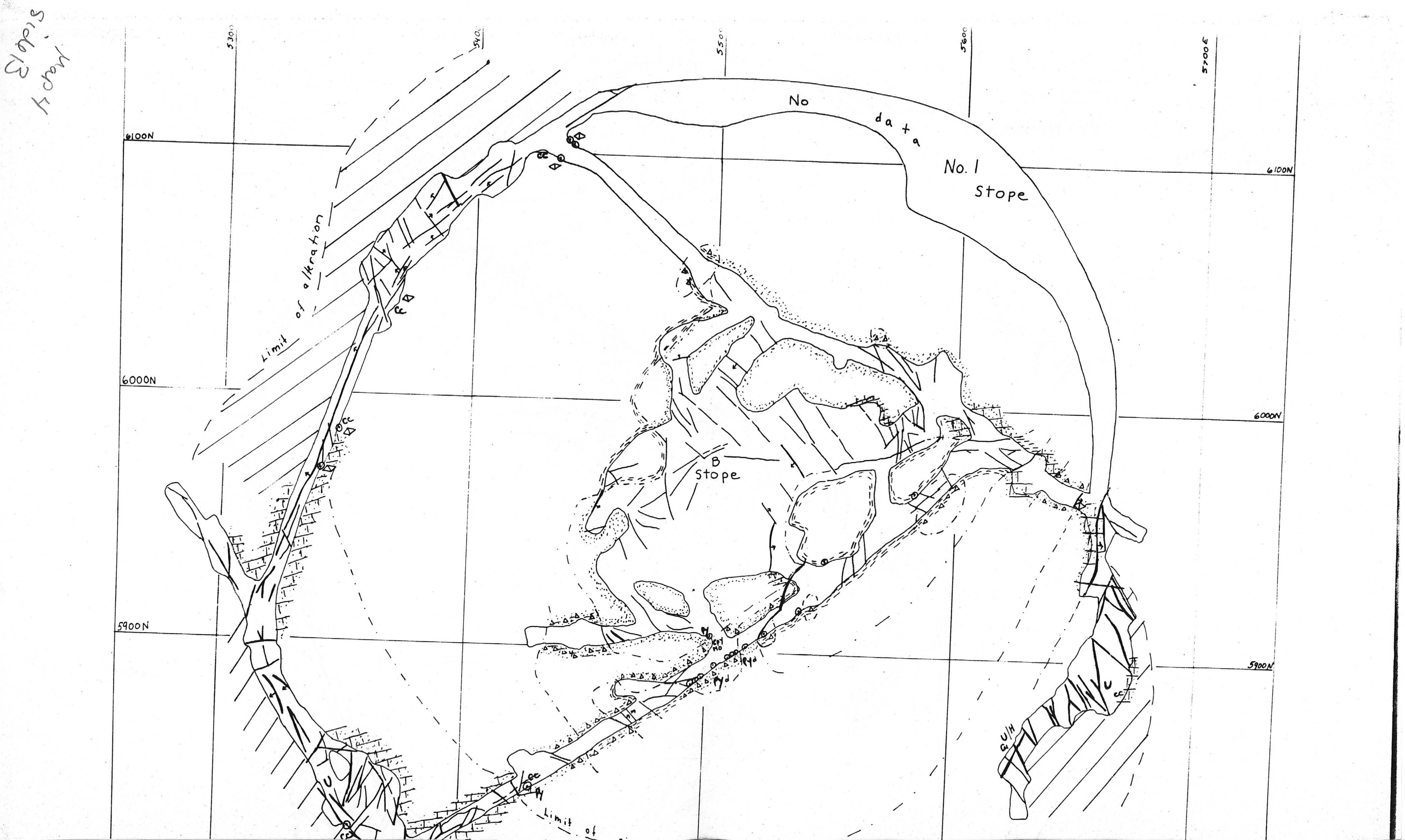
Limit of
alteration


6100N
6000N
5900N
5800N
300E
400E
500E
600E
700E
800E
Annular Ring
pipe boundary
Limit of
alteration
ORPHAN MINE
400 LEVEL
0 20 40 60 FT

maps
code B


6000N
5900N
5800N
Limit of alkration
B Stope
Limit of pipe
Calcareous pipe fill
breccia
ORPHAN MINE
245 LEVEL
0 20 40 60 FT

Side A
Map #3


Map 4
Slide 13
5300
5400
5500
5600
5700E
6100N
6000N
5900N
No data
No. 1 Stope
B Stope
Limit of alteration
Limit of