

**U.S. DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY**

**MINERAL DEPOSITS AND OCCURRENCES OF THE BOLIVIAN  
ALTIPLANO AND CORDILLERA OCCIDENTAL**

compiled by the

**U.S. Geological Survey and Servicio Geológico de Bolivia**

in cooperation with the

**Trade Development Program  
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**This report is preliminary and has not been reviewed  
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## Introduction

This report presents data on mineral deposits and occurrences compiled by the U.S. Geological Survey-Servicio Geológico de Bolivia as part of the Mineral Resource Evaluation of the Bolivian Altiplano/Cordillera Occidental Project, funded by the Trade Development Program of the U.S. State Department. The data include information on all known deposits and occurrences within the project study area, the Bolivian Altiplano and Cordillera Occidental.

The data were compiled from published and unpublished literature in English, Spanish, French and German, from site visits by project geologists, and from information supplied by mineral exploration companies and individuals who have worked in the study area. Much of the data are from unpublished reports in the files of the Servicio Geológico de Bolivia located in their main office in La Paz.

All of the data presented in this report have been entered into the U.S. Geological Survey's Mineral Resources Data System (MRDS), a computerized information file on mineral resources, which is available to the public through Minerals Information Offices located throughout the United States, and the Servicio Geológico de Bolivia in La Paz, Bolivia. This report is an edited version of a print-out of Bolivian records in MRDS as of January 1, 1991 and will be useful to those who prefer a hard copy of the mineral deposit information.

## Explanation of Data Fields

Mineral deposit data in this report are presented in exactly the same format as in MRDS, according to data entry fields. Each field has a name followed by the pertinent data, which may be text, numeric data, an alphanumeric code, or a combination thereof. Brief explanations of the data fields and the codes used in this report follow, in the order that they appear in each individual site description.

### MRDS RECORD NUMBER

A unique number assigned to each record in MRDS. A record may refer to a single deposit, a group of adjacent deposits, or a formally designated mining district. For some mining districts described in this report, records for individual deposits within the district are also given. This was done so that district-scale phenomena, such as zoning, could be described in the district record, whereas deposit specific data could be described in a single site record.

### SITE NAME

The name most commonly used to refer to the deposit. Where a name is lacking, as in the case of mineral occurrences discovered during project related field work, the name of a nearby geographic feature is used.

### SYNONYM NAME

Other, less commonly used names for a deposit, along with names of veins, adits, ore bodies, or, in the case of districts, individual mines and mining claims.

### MINING DISTRICT/AREA

Name of the mining district or geographical area to which the deposit belongs.

**PROVINCE**

The Republic of Bolivia is divided into 9 departments, three of which, La Paz, Oruro, and Potosí, cover the study area. These departments are in turn divided into provinces. In order to facilitate using this report, the deposit descriptions have been grouped into three sections according to department. Hence it is only necessary to list the name of the province in which a deposit occurs.

**PHYSIOGRAPHIC PROVINCE**

The physiographic provinces (Cordillera Occidental, Altiplano, or Cordillera Oriental) in which the described deposit occurs.

**DRAINAGE AREA**

The hydrologic basin unit in which the deposit occurs.

**QUADRANGLE NAME**

The code number and, where known, the name and date of the 1:250,000 scale, 1 by 1.5 degree topographic quadrangle in which the deposit occurs.

**QUADRANGLE SCALE**

Scale of the quadrangle cited above.

**SECOND QUADRANGLE NAME**

The code number and, where known, the name and date of the 1:50,000 scale, 10 by 15 minute topographic quadrangle in which the deposit occurs.

**SECOND QUADRANGLE SCALE**

Scale of the second quadrangle.

**ELEVATION**

Altitude of the surface outcrop of the mineral deposit, or of the surface above a concealed deposit, in meters (M).

**LATITUDE/LONGITUDE**

Geodetic coordinates of the mineral deposit. Some locations are listed without any seconds given (i.e. 17-10- S) and are estimated to the nearest minute. A coordinate given as 17-10-00S is accurate to within 10 seconds of the seconds given. The reasons for these lesser accuracies is that coordinates were obtained by digitizing site spotted on maps with scales as small as 1:250,000 and no larger than 1:50,000. In some instances UTM coordinates are given in lieu of latitude and longitude.

**ACCURACY**

The symbol ACC indicates that the accuracies described above were obtained in measuring site coordinates. Any exceptions are noted.

**POSITION FROM NEAREST LOCALITY**

Distance in kilometers (KM) and compass direction from the nearest town or village.

**LOCATION COMMENTS**

Additional useful information on a deposit's location.

**COMMODITIES PRESENT**

Mineral commodities known to occur in a deposit are listed in decreasing order of overall abundance. Commodities which are elements are indicated by their chemical symbols as

found in the periodic table. Chemical or physical compounds, all of which are industrial minerals, are listed according to codes:

BRI	Brine
CLY	Clay
GYP	Gypsum
HAL	Halite
LST	Limestone
NASO4	Sodium Sulfate
STN2	Decorative Stone
SYL	Sylvite
TRO	Trona

#### ORE MATERIALS

Ore minerals or materials listed in decreasing order of abundance. Secondary and trace minerals are enclosed in parentheses. Semi-colons separate most important primary minerals from less important ones.

#### GENERAL ANALYTICAL DATA

Generally gives analyses of ore samples. Grab or dump samples are so indicated. For channel samples the length in meters (M) or centimeters (CM) of samples is given. Units are metric, e.g. grams per ton (G/T or G/MT), decigrams per ton (DM/T or DM/MT), parts per million (PPM), milligrams per kilogram (MG/KG), grams per kilogram (G/KG), grams per liter (G/L), milligrams per liter (MG/L), and grams per cubic centimeter (G/CM<sup>3</sup>).

#### COMMODITY INFO COMMENTS

Any additional information pertinent to mineral commodities present.

#### MAJOR/MINOR/POTEN/OCCUR

Commodities listed under COMMODITIES field are assigned to categories: MAJOR for commodities of primary economic interest, MINOR for coproducts or byproducts, POTEN for commodities of potential economic interest, and OCCUR for commodities that occur in small amounts and probably have no current economic importance or potential.

#### NON-PRODUCER MAIN/NON-PRODUCER MINOR

Commodities of major and minor potential economic interest for sites that have not produced.

#### PRODUCTION

Gives the amount of the primary commodity produced according to the size classification scheme of Guild (1981) given in Table 1. Codes are:

S	Small
M	Medium
L	Large
N	No Production
U	Uncertain Production Status
Y	Production of Unknown Amount

## STATUS AND ACTIVITY

A code number which indicates current status of exploration and/or mining activity at the site:

- 1 Occurrence, no significant activity
- 2 Prospect, not under exploration
- 3 Prospect, being explored
- 4 Inactive but little developed producer
- 5 Active but little developed producer
- 6 Inactive developed producer
- 7 Active developed producer
- 8 Intermittent producer

For Bolivia most small mines (Minería Chica) are classified as 2, 3, 4, 5 or 8. Medium and large mines (Minería Mediana and Gran Minería) are classified as 6, 7, or 8.

## DISCOVERER

Name of person or group responsible for discovery of the deposit. NATIVE AMERICANS indicates discovery before the arrival of the Spanish by members of the indigenous population. SPANISH COLONISTS indicates discovery during Spanish Colonial times.

## YEAR OF DISCOVERY

Exact year or time period when deposit was discovered.

## NATURE OF DISCOVERY

Letter code indicating how the discovery was made:

- A Ill defined
- B Discovery of surface outcrop of ore
- C Discovery of ore not in place
- D Geophysical discovery
- E Geochemical discovery
- F Other (described under EXPLORATION/DEVELOPMENT COMMENTS)

## YEAR OF FIRST PRODUCTION

Year in which a mine first produced.

## YEAR OF LAST PRODUCTION

Year in which an inactive producing mine last operated.

## OWNER (PRESENT/LAST)

Person or corporation which owns the mine or mining claims. The most recent owner is listed first, followed by previous owners.

## OPERATOR

Person or corporation which operates the mine. This may be a subsidiary or a lessee.

## TOTAL INVESTMENT M\$

Total investment in thousands of U.S. dollars in exploration and development of the mine at the site.

## MILL CAPACITY PER YR. (THOUS. UNITS)

Rated capacity of the mill in units of 1000 metric tons per year.

**YR APPLICABLE**

Year in which the rated capacity of the mill was reported.

**ECONOMIC COMMENTS**

Additional comments or information on the economic situation and mining operations at the site.

**EXPLORATION AND DEVELOPMENT COMMENTS**

Additional comments or information on exploration and development activity at the site.

**DEPOSIT TYPE**

One word descriptions of types of mineral occurrences at the site. Descriptors used are **LODE**, **STRATABOUND**, **DISSEMINATED**, **SINTER**, **STRATIFORM**, **SALAR**, and **SALINE LAKE**.

**USGS MODEL**

Name of the USGS deposit model according to which the mineral deposit or occurrence described is classified. Models found applicable to mineral deposits in the study area are (followed by their model numbers):

From Cox and Singer (1986):

Sediment Hosted Copper (30B)  
 Sn-Polymetallic Veins (20B)  
 Epithermal Quartz Alunite Au (25E)  
 Placer Au-PGE (39A)  
 Low Sulfide Gold Quartz Veins (36A)  
 Basaltic Cu (23)

From Orris and Bliss (1991):

Bedded Salt (IM35AC)  
 Bedded Gypsum (IM35AE)  
 Fumarolic Sulfur (IM25M)

Other (no published deposit model available):

Alkaline Lake Brine (IM35BM)  
 Saline Lake Brine (IM35BN)  
 Travertine

**USGS MODEL NUMBER**

Number used in Cox and Singer (1986) and Orris and Bliss (1991) which corresponds to the deposit models listed above.

**DEPOSIT FORM**

One word descriptions of the morphology or form of the mineral occurrences at the site. Descriptors used are **LENTICULAR**, **TABULAR**, **BEDDED**, **LENSOID**, and **LENSE**.

**DEPTH TO TOP**

Distance from the surface to the top of the mineralization in meters (M). A depth to top of 0 M indicates the mineralization crops out.

**DEPTH TO BOTTOM**

Distance from the surface to the bottom of the mineralization in meters (M).

**MAXIMUM LENGTH**

Longest dimension, in plan view, of the mineralization at the site in meters (M).

**MAXIMUM WIDTH**

Longest dimension, in plan view, normal to the maximum length in meters (M).

**MAXIMUM THICKNESS**

Longest dimension, in sectional view, of the mineralization at the site in meters (M).

**DEPOSIT SIZE**

Classification of the original, pre-mining, size of the deposit, according to the scheme of Guild (1981), Table 1.

Codes used are:

L	Large
M	Medium
S	Small

**STRIKE**

For mantos and other non-vein deposits, this is the strike of the mineral deposit as a whole. For veins, the strikes of principal vein sets are listed in order of importance.

**DIP**

Dips corresponding to the strikes listed above.

**PLUNGE**

Plunge of the ore deposit.

**DIRECTION OF PLUNGE**

Direction of plunge of the ore deposit.

**DEPOSIT DESCRIPTION COMMENTS**

Additional comments or information on the type, form and morphology of the mineralization at the site.

**DESCRIPTION OF WORKINGS**

Code indicating whether the workings are underground (U), open pit (O) or both (B).

**DEPTH BELOW SURFACE**

Maximum depth in meters (M) reached by mine workings.

**LENGTH OF WORKINGS**

Cumulative length, in meters (M), of all workings.

**OVERALL AREA OF WORKINGS**

Surface area, as seen in plan view, covered by workings, in square meters (M<sup>2</sup>)

**DESCRIPTION OF WORKINGS COMMENTS**

Additional comments and information on mine workings and mining methods.



**HOST ROCK AGE**

Age of the rock units which host mineralization. Codes used are:

QUAT	Quaternary
HOLO	Holocene
PLEIS	Pleistocene
TERT	Tertiary
PLIO	Pliocene
MIO	Miocene
OLIGO	Oligocene
EO	Eocene
PALEO	Paleocene
CRET	Cretaceous
DEV	Devonian
SIL	Silurian
ORD	Ordovician
PAL	Paleozoic
E	Early
L	Late
M	Middle

**HOST ROCK TYPE**

Lithologic name of rock units which host mineralization.

**AGE OF IGNEOUS ROCK**

Age of any igneous rock that may be related to mineralization, using the same codes as for HOST ROCK AGE.

**IGNEOUS ROCK TYPE**

Lithologic name of igneous rock units which may be related to mineralization.

**AGE OF MINERALIZATION**

Age of mineralization, using the same codes for HOST ROCK AGE.

**PERTINENT MINERALS (NOT ORE)**

Gangue minerals listed in order of decreasing abundance. Secondary minerals are enclosed by parentheses.

**ORE CONTROL/LOCUS**

Description of geologic factors which control the location of mineralization at the site.

**SIGNIFICANT REGIONAL STRUCTURES**

Description of any regional geologic structures relevant to the localization or displacement of mineralization.

**SIGNIFICANT LOCAL STRUCTURES**

Description of any local geologic structures relevant to the localization or displacement of mineralization.

**SIGNIFICANT ALTERATION**

Description of alteration types and their distribution and zoning.

**FORMATION AGE**

Age of a formal stratigraphic unit which host mineralization, using the same codes as for HOST ROCK AGE above.

**FORMATION NAME**

Name of a formal stratigraphic unit which hosts mineralization.

**IGNEOUS UNIT AGE**

Age of any igneous rock that may be related to mineralization, using the same codes as for HOST ROCK AGE.

**IGNEOUS UNIT NAME**

Lithologic name of igneous rock units which may be related to mineralization.

**GEOLOGY COMMENTS**

Additional comments or information on the geology of the site.

**GENERAL COMMENTS**

Additional comment or information on the site.

**WORK DONE BY USGS**

Any geological, geochemical or geophysical investigations performed at the site by U.S. Geological Survey personnel.

**NON-USGS WORK**

Any geological, geochemical or geophysical investigations performed at the site by persons or organizations other than the U.S. Geological Survey, with references. Abbreviations used are GEOBOL (Servicio Geológico de Bolivia) and COMIBOL (Corporación Minera de Bolivia).

**REFERENCE(S)**

References from which the data presented were obtained. Citations refer to the reference list in this report.

**ANNUAL/CUMULATIVE PRODUCTION**

A table which lists annual or cumulative production at the site. Under ITEM production is given in terms of ore (ORE), concentrates (CONS), or as refined product (labelled according to commodity). Additional codes used under ITEM are NAT (Native), SULF (Sulfide), and OX (Oxide). Under ACCURACY the code EST indicated estimated production and ACC reported production based on actual production records. Quantities are reported under AMOUNT and THOUS UNITS in terms of thousands of metric tons (MT), short tons (ST), kilograms (KG), or quintals (QQ). YEAR(S) is the year or range of years during which production took place. Dates given are inclusive. GRADE gives grade of ore or concentrate in weight percent (%), grams per metric ton (G/MT or G/T), or decigrams per metric ton (DM/MT or DM/T).

**SOURCE OF PRODUCTION INFORMATION**

References from which production data was obtained.

**PRODUCTION COMMENTS**

Comments on production at mine or on production data.

**RESERVES, POTENTIAL RESOURCES**

Tables, following the same format as for the production tables, listing reserves or potential resources. Codes under ACCURACY are PRO for probable, POS for positive, IND for indicated, and EST for an estimate of unknown certainty.

**SOURCE OF RESERVES/POTENTIAL RESOURCES INFORMATION**

References from which reserves and potential resources information was obtained.

**RESERVES/POTENTIAL RESOURCES COMMENTS**

Additional comments or information on reserves or potential resources.

**SOURCE OF INFORMATION**

Source of information on a site obtained from other than published sources such as oral communications and company files.

**TABLE 1. Size categories, in metric tonnes of metal or commodity unless otherwise specified. Numbers represent total past production + reserves.**

	Large	>	Medium	>	Small
Antimony		50,000		5,000	
Asbestos		10,000,000		100,000	
Barite (BaSO <sub>4</sub> )		5,000,000		50,000	
Beryllium (BeO)		1,000		10	
Boron (B <sub>2</sub> O <sub>3</sub> )		10,000,000		100,000	
Chromium (Cr <sub>2</sub> O <sub>3</sub> )		1,000,000		10,000	
Cobalt		20,000		1,000	
Copper		1,000,000		50,000	
Fluorite (CaF <sub>2</sub> )		5,000,000		50,000	
Gold		500		25	
Graphite		1,000,000		10,000	
Gypsum		100,000,000		5,000,000	
Iron (ore)		100,000,000		5,000,000	
Lead		1,000,000		50,000	
Lithium (Li <sub>2</sub> O)		100,000		10,000	
Magnesium (MgCO <sub>3</sub> )		10,000,000		100,000	
Manganese (tons of 40% Mn)		10,000,000		100,000	
Mercury (flasks)		500,000		10,000	
Molybdenum		500,000		5,000	
Nickel		500,000		25,000	
Phosphate (P <sub>2</sub> O <sub>5</sub> )		200,000,000		200,000	
Platinum Group		500		25	
Rare Earths (RE <sub>2</sub> O <sub>3</sub> )		1,000,000		1,000	
Silver		10,000		500	
Sodium (salts)		10,000,000		1,000,000	
Sulfur		10,000,000		100,000	
Talc		10,000,000		1,000,000	
Thorium		10,000		1,000	
Tin		100,000		5,000	
Tungsten		10,000		500	
Uranium		10,000		100	
Vanadium		10,000		500	
Zinc		1,000,000		50,000	

(Excerpted from Guild, 1981, Table 2)

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## DEPARTMENT OF LA PAZ

MRDS RECORD NUMBER.....BL10318  
 SITE NAME.....16 DE JULIO MINE  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....17-26-12S                      LONGITUDE.....068-18-46W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM N45E OF CALLAPA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 HOST ROCK AGE.....LOLIGO-LMIO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....LOLIGO-LMIO  
 FORMATION NAME.....TOTORA  
 REFERENCE...MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL00010  
 SITE NAME.....ALFA PROSPECT  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SINEJAVI 5742-III 1964  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4800 M  
 LATITUDE.....17-17-28S                      LONGITUDE.....069-24-04W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....15 KM W OF BERENGUELA  
 LOCATION COMMENTS.....ON E/NE FLANK OF CERRO WILA KKOLLU  
 COMMODITIES PRESENT.....AU    AG  
 ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....UP TO 0.35 G/MT AU AND 8 G/MT AG.  
 OCCUR.....AU    AG  
 PRODUCTION.....N

STATUS AND ACTIVITY.....1  
DISCOVERER.....MINTEC  
YEAR OF DISCOVERY.....1988  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....ROBERTO SANCHEZ  
OPERATOR.....ROBERTO SANCHEZ  
EXPLORATION AND DEVELOPMENT COMMENTS.....CONCESSION IS ABOUT 18 SQ  
KM IN AREA.  
HOST ROCK AGE.....LMIO-QUAT  
HOST ROCK TYPE.....ANDESITE  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
IGNEOUS ROCK TYPE.....ANDESITE, DACITE  
AGE OF MINERALIZATION.....LMIO-QUAT  
SIGNIFICANT ALTERATION.....ARGILLIC, SILICIC  
GEOLOGY COMMENTS.....DACITE DOME NEARBY AT CERRO LARAM KHAUA  
NON-USGS WORK.....EXPLORATION WORK BY MINTEC FROM 1988  
SOURCE OF INFORMATION....MINTEC

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MRDS RECORD NUMBER.....BL10130  
SITE NAME.....AMERICA UNIDAS MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....EST GRAL BALLIVIAN 5942-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....17-07-32S                      LONGITUDE.....068-28-16W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1 KM N25W OF COROCORO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE, COVELLITE; CUPRITE, MALACHITE,  
AZURITE  
GENERAL ANALYTICAL DATA.....GEOCHEMICAL SOIL SURVEY FOR CU BY BERNAL  
(1979). ANALYSES BY GEOBOL: 3.15 TO 18.7% CU.  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM LENGTH.....2500                      UNITS...M  
MAXIMUM THICKNESS.....4                      UNITS...M  
DEPOSIT SIZE.....SMALL  
STRIKE.....N30 TO 40W  
DIP.....40 TO 60SW  
DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT CONSISTS OF 19 MANTOS.  
MANTOS ARE UP TO 4 M THICK  
HOST ROCK AGE.....EO

HOST ROCK TYPE.....LITHARENITE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....CU MINERALS REPLACE FOSSIL PLANT MATTER  
FORMATION AGE.....EO  
FORMATION NAME.....BALLIVIAN  
WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL 1990  
NON-USGS WORK.....THESIS BY BERNAL (1979)  
REFERENCE....BERNAL (1979)

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MRDS RECORD NUMBER.....BL20003  
SITE NAME.....ANA MARIA MINE  
MINING DISTRICT/AREA.....SERRANIA DE TIWANAKU  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....GUAQUI 5844-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....16-37-07S                      LONGITUDE.....068-53-31W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....7 KM S60W FROM GUAQUI  
LOCATION COMMENTS.....SW OF CERRO JANKHO MARCA, 100 KM FROM LA  
PAZ BY ROAD.  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE, MALACHITE, AZURITE  
GENERAL ANALYTICAL DATA.....ANALYSES BY GEOBOL: 4.82-10.15% CU, 20-40  
G/MT AG  
MAJOR.....CU    AG  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
DISCOVERER.....LOCAL CAMPESINOS  
YEAR OF DISCOVERY.....1959  
NATURE OF DISCOVERY.....B  
YEAR OF FIRST PRODUCTION.....1959  
YEAR OF LAST PRODUCTION.....1967  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM THICKNESS.....15                      UNITS...M  
DEPOSIT SIZE.....SMALL  
STRIKE.....N60-85W  
DIP.....20-45NE  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....150                      UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....ADITS, SHAFTS  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT

ORE CONTROL/LOCUS.....CU MINERALS REPLACE FOSSIL PLANTS IN  
SANDSTONE  
SIGNIFICANT REGIONAL STRUCTURES.....NW ANTICLINE  
FORMATION AGE.....TERT  
FORMATION NAME.....HUAYLLAMARCA  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(GUERRA AND ASCARRUNZ, 1964)  
REFERENCES....VARGAS (1967), GUERRA AND ASCARRUNZ (1964B)

## ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
CONS	ACC	.006	MT	1967	17%CU

## CUMULATIVE PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
ORE	ACC	.223	MT	1959-1963	15% CU
ORE	ACC	.256	MT	1959-1963	3-4% CU

SOURCE OF PRODUCTION INFORMATION.....VARGAS(1967) GUERRA AND ASCARRUNZ  
(1964)

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MRDS RECORD NUMBER.....BL10354  
SITE NAME.....ANACOAIRA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....EASTERN CORDILLERA  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SAN PEDRO DE CURAHUARA 5941-II 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-31-08S LONGITUDE.....068-14-00W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....15.5 KM S70E OF CALLAPA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10197  
SITE NAME.....ANACONDA MINE  
MINING DISTRICT/AREA.....BERENGUELA  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1968  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....BERENGUELA 5742-II 1962  
SECOND QUAD SCALE.....1:50,000  
LATITUDE.....17-18-11S                      LONGITUDE.....069-06-06W  
ACCURACY.....ACC  
COMMODITIES PRESENT.....CU      NI      AS  
ORE MATERIALS.....BORNITE, CHALCOPYRITE, CHALCOCITE,  
CHRSYCOLLA, HAUCHECORNITE, MAUCHERITE  
MAJOR.....CU  
OCCUR.....NI      AS  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
YEAR OF LAST PRODUCTION.....1975  
DEPOSIT TYPE.....LODE  
STRIKE.....E-W  
DESCRIPTION OF WORKINGS.....U  
DESCRIPTION OF WORKINGS COMMENTS.....SHAFT, LEACH PADS  
HOST ROCK AGE.....TERT  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....PYRITE, CALCITE  
ORE CONTROL/LOCUS.....E-W STRUCTURE  
REFERENCES....AHLFELD AND SCHNEIDER-SCHERBINA (1964), SCHNEIDER-  
SCHERBINA (1962B)

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MRDS RECORD NUMBER.....BL10306  
SITE NAME.....ASUNTA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COROCORO 5942-III 1966  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-14-56S                      LONGITUDE.....068-27-46W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....3 KM S80E OF CAQUINGORA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
PRODUCTION.....U  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU



USGS MODEL NUMBER.....30B  
HOST ROCK AGE.....EOCENE  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EOCENE  
FORMATION NAME.....BALLIVIAN  
REFERENCE....ASCARRUNZ AND OTHERS (1967)

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MRDS RECORD NUMBER.....BL10294  
SITE NAME.....AURORA MINE  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....GUAQUI 5844-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4200 M  
LATITUDE.....16-36-52S                      LONGITUDE.....068-48-59W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....2.5 KM S30E OF GUAQUI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....EOCENE  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EOCENE  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA AND DELGADILLO (1968)

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MRDS RECORD NUMBER.....W002044  
SITE NAME.....BERENGUELA DISTRICT  
SYNONYM NAME.....MINES: SAN JOSE, HUCURANI, JOKOLLUNI, EL  
ZORRO, ANACONDA, MARIMARINI, PACOCAHUA, SAN LUIS, MANCO KAPAC  
MINING DISTRICT/AREA.....BERENGUELA  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARANA SE 19-6 1966  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....BERENGUELA 5742-II 1964  
SECOND QUAD SCALE.....1:50,000

ELEVATION.....4166 M  
LATITUDE.....17-17-15S LONGITUDE.....069-13-10W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....41 KM NE OF CHARANA; 24 KM SW OF  
ACHIRI  
LOCATION COMMENTS.....LAT LONG IS FOR APPROXIMATE CENTER OF  
DISTRICT NEAR SAN JOSE MINE  
COMMODITIES PRESENT.....AG CD CU ZN PB SB AS BI NI  
ORE MATERIALS.....SPHALERITE, GALENA, GREENOCKITE,  
TENNANTITE, CHALCOPYRITE, FREIESLEBENITE, STEPHANITE, STROMEYERITE,  
ARGYROPYRITE, POLYBASITE, MIARGYRITE, ARGENTITE; CHALCOCITE, MALACHITE;  
HAUCHECORNITE, MAUCHERITE  
GENERAL ANALYTICAL DATA.....SEE C. M. TSCHANZ REPORT IN PREPARATION  
MAJOR.....AG  
MINOR.....CD CU  
POTEN.....ZN PB  
OCCUR.....SB AS BI NI CO  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....8  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
PRODUCTION YEARS.....?-1780, 1928, 1930  
ECONOMIC COMMENTS.....NOT IN EXPLOITATION. OLD WORKINGS HAVE  
PROBLEMS WITH CO2 GAS.  
EXPLORATION AND DEVELOPMENT COMMENTS.....WORKED BY SPANISH UNTIL  
1780. INTERMITTENT WORKINGS 1923-1930 FOR ZN-CD AND CU.  
DEPOSIT TYPE.....LODE, DISSEMINATED  
DEPOSIT DESCRIPTION COMMENTS.....THERE ARE 2 PRINCIPAL VEIN  
SYSTEMS, SAN JOSE AT BERENGUELA AND MANCO KAPAC SOUTH OF BERENGUELA.  
OUTLYING VEINS ARE FOUND AT MARIMARINI AND PACOCAHUA TO THE SW OF  
BERENGUELA. DISTRICT IS ZONED. OUTER ZONE: MALACHITE-CHALCOCITE-  
QUARTZ-PYRITE-PYRRHOTITE-NATIVE SILVER VEINS IN BERENGUELA VOLCANICS.  
INNER ZONE: SPHALERITE-GALENA-GREENOCKITE VEIN SWARM IN PARALLEL  
MULTIPLE TENSION FRACTURES CUTTING BLEACHED SANDSTONES. CORE ZONE:  
SILVER-GOLD? IN SILICIFIED BRECCIAS WITHIN RHYOLITE INTRUSIVE. RELATED  
TRAVERTINE MOUNDS ARE ENRICHED IN AS AG AU SB.  
DESCRIPTION OF WORKINGS.....B  
HOST ROCK AGE.....OLIGO TO UMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF IGNEOUS ROCK.....MMIO OR LMIO  
IGNEOUS ROCK TYPE.....RHYOLITE INTRUSIVE  
AGE OF MINERALIZATION.....LMIO  
PERTINENT MINERALS (NOT ORE).....OPAL, BARITE, GYPSUM,  
CARBONATES, PYRITE, QUARTZ, MANGANESE OXIDES, PYRRHOTITE  
ORE CONTROL/LOCUS.....N 70 W FAULTS  
SIGNIFICANT LOCAL STRUCTURES.....BERENGUELA VOLCANIC DOME  
SIGNIFICANT ALTERATION.....SILICIFICATION, ARGILLIZATION  
FORMATION AGE.....OLIGO-MMIO  
FORMATION NAME.....TOTORA FM  
IGNEOUS UNIT AGE.....LTERT  
IGNEOUS UNIT NAME.....BERENGUELA VOLC.  
NON-USGS WORK.....INVESTIGATIONS BY GERMAN GEOLOGICAL  
MISSION (SCHNEIDER-SCHERBINA, 1962B)

REFERENCE....TSCHANZ (IN PREP), AHLFELD AND SCHNEIDER-SCHERBINA (1964),  
AHLFELD (1936), SCHNEIDER-SCHERBINA (1962B).

## CUMULATIVE PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEARS	GRADE
ORE	EST	500	MT		TO 1780	
SOURCE OF PRODUCTION INFORMATION.....SCHNEIDER-SCHERBINA (1962B)						
POTENTIAL RESOURCES COMMENTS.....VEINS APPEAR NARROW (0.20-0.5M) BUT DEPOSITS COULD BE OF INTEREST FOR CADMIUM AND OTHER BASE METALS. POSSIBLE GOLD POTENTIAL.						

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MRDS RECORD NUMBER.....BL10295  
SITE NAME.....CALLUMA MINE  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....JESUS DE MACHACA 5843-IV 1964  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3920 M  
LATITUDE.....16-44-51S LONGITUDE.....068-46-21W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....3 KM S70E OF JESUS DE MACHACA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....EOCENE  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EOCENE  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA AND DELGADILLO (1968)

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MRDS RECORD NUMBER.....BL10305  
SITE NAME.....CAQUINGORA DEPOSIT  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COROCORO 5942-III 1966  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M

LATITUDE.....17-14-49S                      LONGITUDE.....068-29-36W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....AT CAQUINGORA  
COMMODITIES PRESENT.....HAL  
ORE MATERIALS.....HALITE  
MAJOR.....HAL  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
USGS MODEL .....BEDDED SALT  
USGS MODEL NUMBER.....IM35AC  
HOST ROCK AGE.....TERT  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT  
REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10219  
SITE NAME.....CERRO ANALLAJCHI PROSPECT  
SYNONYM NAME.....MANTOS NEGROS MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....OKORURO 5840-III 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5000 M  
LATITUDE.....17-55-22S                      LONGITUDE.....068-53-44W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....3 KM S60W OF OKORURO  
COMMODITIES PRESENT.....AG    AU    MN    S  
ORE MATERIALS.....MN OXIDES; NATIVE S  
GENERAL ANALYTICAL DATA.....ANALYSES BY CIA MINERA INTI ILLIMANI:  
HYDROTHERMAL BRECCIA: 1.76 G/MT AG, 0.03 G/MT AU; ALTERATION: 1.29 G/MT  
AG, 0.01 G/MT AU; MANTOS BLANCOS MINE: 35.18% MN  
OCCUR.....AG    AU    MN    S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
EXPLORATION AND DEVELOPMENT COMMENTS.....EXAMINED AND SAMPLED BY  
CIA MINERA INTI ILLIMANI 1989  
DEPOSIT TYPE.....BRECCIA  
USGS MODEL .....FUMAROLIC S; HOT SPRINGS MN?  
USGS MODEL NUMBER.....IM25M  
DEPOSIT FORM.....IRREGULAR  
DEPOSIT DESCRIPTION COMMENTS.....REPORTED NATIVE S OCCURRENCE.  
MANTOS BLANCOS IS A DEPOSIT OF MN OXIDES. ALTERATION ZONE AND  
HYDROTHERMAL BRECCIA CARRY LOW VALUES OF AG AND AU.  
HOST ROCK AGE.....QUAT  
HOST ROCK TYPE.....ANDESITE  
AGE OF IGNEOUS ROCK.....QUAT  
IGNEOUS ROCK TYPE.....ANDESITE

AGE OF MINERALIZATION.....QUAT  
ORE CONTROL/LOCUS.....HYDROTHERMAL BRECCIA  
SIGNIFICANT ALTERATION.....PROBABLY ARGILLIC  
FORMATION AGE.....QUAT  
FORMATION NAME.....ESTRATOVOLCAN  
IGNEOUS UNIT AGE.....QUAT  
IGNEOUS UNIT NAME.....ESTRATOVOLCAN  
REFERENCE....EMPRESA MINERA ILLIMANI (1989), P. 1

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MRDS RECORD NUMBER.....BL10308  
SITE NAME.....CERRO ANTAQUIRA PROSPECT  
PROVINCE.....VILLAROEL  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5940-I  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4200 M  
LATITUDE.....17-39-53S                      LONGITUDE.....068-07-56W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....10 KM S75W OF SAN PEDRO DE  
CURAHUARA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....U  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT  
FORMATION NAME.....HUALLYAMARCA  
REFERENCE....MINISTERIO DE MINAS Y METALURGIA (1957)

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MRDS RECORD NUMBER.....BL10121  
SITE NAME.....CERRO CALERA OCCURRENCE  
SYNONYM NAME.....CERRO CATAVI  
PROVINCE.....LOS ANDES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5844-I  
SECOND QUAD SCALE.....1:50,000

ELEVATION.....3900 M  
LATITUDE.....16-29-04S LONGITUDE.....068-35-45W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1 KM SW OF COMUNIDAD CATAVI  
LOCATION COMMENTS.....AT CERRO CALERA  
COMMODITIES PRESENT.....LST  
ORE MATERIALS.....LIMESTONE (TRAVERTINE)  
GENERAL ANALYTICAL DATA.....AVERAGE 75.8% CACO3 (MONTES DE OCA AND VEDIA, 1965)  
COMMODITY INFO COMMENTS.....LIMESTONE MINED AS BUILDING STONE  
MAJOR.....LST  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....8  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATIFORM  
USGS MODEL .....TRAVERTINE  
DEPOSIT FORM.....BEDDED  
STRIKE.....N40W  
DEPOSIT DESCRIPTION COMMENTS.....ARE 19 LIMESTONE BEDS  
DESCRIPTION OF WORKINGS.....S  
HOST ROCK AGE.....TERT?  
HOST ROCK TYPE.....LIMESTONE, CLAY, MARL  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....CONIRI FAULT  
SIGNIFICANT REGIONAL STRUCTURES.....N40W ANTICLINE  
PROCESS OF CONCENTRATION/ENRICHMENT.....DEPOSITION OF TRAVERTINE FROM THERMAL WATERS  
GEOLOGY COMMENTS.....LIMESTONE NOT OF SUITABLE QUALITY FOR CEMENT. AHLFELD AND SCHNEIDER-SCHERBINA (1964) DESCRIBE LIMESTONE AS "TRAVERTINE" DEPOSITED BY THERMAL WATERS RELATED TO CONIRI FAULT THAT SEPARATES TERTIARY FROM PALEOZOIC ROCKS  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL (MONTES DE OCA AND VEDIA, 1965)  
REFERENCE...MONTES DE OCA AND VEDIA (1965), AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL00025  
SITE NAME.....CERRO CANASITA PROSPECT  
SYNONYM NAME.....KHANASITA  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CANASITA 5740-I 1964  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5100 M  
LATITUDE.....17-47-51S LONGITUDE.....069-09-09W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....13.5 KM N35W OF RIO BLANCO  
COMMODITIES PRESENT.....AG  
ORE MATERIALS.....UNKNOWN

OCCUR.....AG  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
DISCOVERER.....MINTEC  
NATURE OF DISCOVERY.....B  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....ANDESITE  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....ANDESITE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT  
IGNEOUS UNIT AGE.....TERT  
SOURCE OF INFORMATION....MINTEC FILES

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MRDS RECORD NUMBER.....BL10213  
SITE NAME.....CERRO PUSIMUJUNA PROSPECT  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CERRO LETANIAS 5943-IV 1983  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4600 M  
LATITUDE....16-46-50S                      LONGITUDE.....068-27-34W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....6 KM S70W OF KONIRI  
LOCATION COMMENTS.....ON CERRO PUSIMUJUNA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
OCCUR.....CU  
PRODUCTION.....N  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
YEAR OF LAST PRODUCTION.....1967  
OWNER (PRESENT/LAST).....N. BACIGALUPO  
OPERATOR.....N. BACIGALUPO  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM LENGTH.....50                      UNITS...M  
MAXIMUM THICKNESS.....2                      UNITS...M  
DEPOSIT DESCRIPTION COMMENTS.....ONE MANTO  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....PREFERRED BED  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA (1987)

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MRDS RECORD NUMBER.....BL10288  
SITE NAME.....CERRO SERKHE OCCURRENCE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5741-IV  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4650 M  
LATITUDE.....17-21-13S                      LONGITUDE.....069-21-51W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....8.5 KM N85E OF ESTANCIA LLAYTANI  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
OCCUR.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....LMIO-EPLIO  
HOST ROCK TYPE.....ANDESITE  
AGE OF IGNEOUS ROCK.....LMIO-EPLIO  
IGNEOUS ROCK TYPE.....ANDESITE  
AGE OF MINERALIZATION.....EPLIO  
FORMATION AGE.....LMIO-EPLIO  
FORMATION NAME.....CERKE  
IGNEOUS UNIT AGE.....LMIO-EPLIO  
IGNEOUS UNIT NAME.....CERKE  
REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10220  
SITE NAME.....CERRO SUNI KHAUA OCCURRENCE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....OKORURO 5840-III 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4600 M  
LATITUDE.....17-50-02S                      LONGITUDE.....068-58-37W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4.6 KM N80W OF OKORURO  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
OCCUR.....S  
PRODUCTION.....N



STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
DEPOSIT FORM.....IRREGULAR  
HOST ROCK AGE.....LMIO-QUAT  
HOST ROCK TYPE.....ANDESITE  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
IGNEOUS ROCK TYPE.....ANDESITE  
AGE OF MINERALIZATION.....LMIO-QUAT  
SIGNIFICANT ALTERATION.....PROBABLY ARGILLIC  
REFERENCE....MCVEY (1989)

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MRDS RECORD NUMBER.....BL10214  
SITE NAME.....CERRO TANCALOMA PROSPECT  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CERRO LETANIAS 5943-IV 1983  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4100 M  
LATITUDE.....16-45-26S                      LONGITUDE.....068-27-19W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....6 KM N20W OF KONIRI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
GENERAL ANALYTICAL DATA.....ORE ASSAYS 8.03% CU  
OCCUR.....CU  
PRODUCTION.....N  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM LENGTH.....60                      UNITS...M  
MAXIMUM THICKNESS.....2                      UNITS...M  
DEPOSIT DESCRIPTION COMMENTS.....ONE MANTO  
DESCRIPTION OF WORKINGS.....S  
DESCRIPTION OF WORKINGS COMMENTS.....ARE 3 PROSPECT PITS  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....BITUMEN  
ORE CONTROL/LOCUS.....CU MINERALS REPLACE ORGANIC MATTER  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA (1987)

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MRDS RECORD NUMBER.....BL10285  
SITE NAME.....CERRO TIQUERANI NORTH PROSPECT  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5741-I  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4400 M  
LATITUDE.....17-39-07S                      LONGITUDE.....069-11-56W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....2.5 KM S85E OF ESTANCIA TAYPI UMA  
COMMODITIES PRESENT.....UNK  
ORE MATERIALS.....UNKNOWN  
PRODUCTION.....U  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
HOST ROCK AGE.....TERT  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....INTRUSIVE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT  
FORMATION NAME.....ABAROA  
IGNEOUS UNIT AGE.....TERT  
REFERENCE....MONTES DE OCA AND OTHERS (1963)

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MRDS RECORD NUMBER.....BL10286  
SITE NAME.....CERRO TIQUERANI SOUTH PROSPECT  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5740-IV  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4300 M  
LATITUDE.....17-40-18S                      LONGITUDE.....069-11-40W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4 KM S50E OF ESTANCIA TAYPI UMA  
COMMODITIES PRESENT.....UNK  
ORE MATERIALS.....UNKNOWN  
PRODUCTION.....U  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
HOST ROCK AGE.....TERT  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....INTRUSIVE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT

FORMATION NAME.....ABAROA  
IGNEOUS UNIT AGE.....TERT  
REFERENCE....MONTES DE OCA AND OTHERS (1963)

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MRDS RECORD NUMBER.....W031652  
SITE NAME.....CHACARRILLA DISTRICT  
SYNONYM NAME.....MINES: AMIGO, BORDA, CONGRESO, ESPERANZA,  
EUREKA, MIZAGUE, PORFIA, SAN FERMIN, TEVIÑA  
MINING DISTRICT/AREA.....CHACARRILLA  
PROVINCE.....AROMA PROVINCE  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-8 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SAN PEDRO DE CURAHUARA 5941-II 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3850 M  
LATITUDE.....17-34-30S LONGITUDE.....068-12-00W  
ACCURACY.....WITHIN 1 MINUTE  
POSITION FROM NEAREST LOCALITY.....19 KM SE OF CHALLAPA; 30 KM SW OF  
UMALA; 183 KM FROM LA PAZ BY ROAD  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE, NATIVE COPPER; BORNITE,  
CHALCOPYRITE; CUPRITE, TENORITE, MALACHITE  
GENERAL ANALYTICAL DATA.....PORFIA MINE ORE GRADES 4 TO 20% CU,  
MIZAGUE MINE HAS 0.2% CU OXIDE  
MAJOR.....CU  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....8  
NATURE OF DISCOVERY.....B  
YEAR OF FIRST PRODUCTION.....1860  
YEAR OF LAST PRODUCTION.....1976  
OWNER (PRESENT/LAST).....NITTO BOLIVIA MINING CO.  
OPERATOR.....EMPRESA MINERA CHACARRILLA LTDA.  
TOTAL INVESTMENT M\$.....4000  
MILL CAPACITY PER YR. (THOUS. UNITS)...90  
YR APPLICABLE.....1963  
ECONOMIC COMMENTS.....IN EARLY 60'S PRODUCED 150 MT/MO 20% CU  
CONS AND 350 MT/MO 4% CU ORE THAT WERE SENT TO COROCORO MILL. PLANNED  
EXPANSION IN EARLY 60'S TO 10,000 OR 17,500 MT/MO.  
EXPLORATION AND DEVELOPMENT COMMENTS.....CHACARRILLA GROUP PURCHASED  
BY NITTO METAL MINING CO. LTD. 8/1961 (EXCEPT FOR CONGRESO, INCA AND DON  
HERNAN PROPERTIES). PROPERTY WAS 3,438 HA IN AREA. AFTER DRILLING  
CUMULATIVE 3000 M IN 25 DH CHOSE TO DEVELOP MINE CENTERED ON PORFIA  
PROPERTY  
DEPOSIT TYPE.....STRATIFORM  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
DEPTH TO BOTTOM.....600 UNITS...M  
MAXIMUM LENGTH.....8 UNITS...KM  
MAXIMUM WIDTH.....4 UNITS...M

DEPOSIT SIZE.....M  
 STRIKE.....N-S TO N 55 W  
 DIP.....20 TO 90 SW  
 DEPOSIT DESCRIPTION COMMENTS.....PORFIA MINE HAS 3 MANTOS ORIENTED N45 TO 55W 80 TO 90SW, 2 TO 4 M THICK. EUREKA-TEVIÑA-SAN FERMIN MINES HAVE 4 MANTOS ORIENTED N35W 30 TO 45W. MIZAGUE MINE HAS 8 MANTOS ORIENTED N35W 30 TO 45W AND IS A PROLONGATION OF EUREKA-TEVIÑA-SAN FERMIN TRENDS. AMIGO-BORDA-ESPERANZA PROSPECTS HAVE 4 MANTOS ORIENTED N-S 20SW.  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....600 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....A 100 M 30 DEGREE RAMP AT PORFIA MINE WITH 3 MAJOR CROSS CUTS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONES  
 AGE OF MINERALIZATION.....OLIGO OR YOUNGER  
 PERTINENT MINERALS (NOT ORE).....PYRITE, CELESTITE, GYPSUM  
 ORE CONTROL/LOCUS.....NW TRENDING FRACTURES, PREFERRED BEDDING, FLANKS OF ANTICLINE, "CUVETTE" DEPRESSIONS  
 SIGNIFICANT REGIONAL STRUCTURES.....ON EAST AND WEST FLANKS OF CHACARILLA ANTICLINE  
 SIGNIFICANT LOCAL STRUCTURES.....OVERTURNED ANTICLINE RELATED TO GYPSUM DIAPIRISM  
 SIGNIFICANT ALTERATION.....PYRITE-GYPSUM IN WALL ROCKS; OXIDATION OF PRIMARY ORE  
 FORMATION AGE.....TERT  
 FORMATION AGE.....TERT  
 FORMATION NAME.....HUAYLLAMARCA FM  
 FORMATION NAME.....CHUQUICHAMBI SANDSTONES  
 GEOLOGY COMMENTS.....U MINERALIZATION IS ASSOCIATED WITH YELLOWISH ALTERED SHALE AND GYPSUM OF THE CHUQUICHAMBI FORMATION.  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964), DELGADO (1962), MEYER AND MURILLO (1961), AHLFELD AND CANEDO (1940).

## CUMULATIVE PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
CONS	ACC	4.865	MT	1952-1959	20.10% CU
ORE	ACC	1465.836	MT	1963-1976	2.66% CU

SOURCE OF PRODUCTION INFORMATION.....MEYER AND MURILLO (1961); O. ANDRE, PERS COMM (1990)

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	MEA	187.068	MT	1978	2.37% CU
ORE	PRO	56.001	MT	1978	1.99% CU
ORE	EST	1000	MT		2.5% CU
ORE	EST	813.433	MT	1976	3.05% CU

SOURCE OF RESERVES AND RESOURCES INFORMATION.....ORLANDO ANDRE PERS COMM (1990)

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MRDS RECORD NUMBER.....BL10134  
 SITE NAME.....CHACOMA PROSPECT  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO LETANIAS 5943-IV 1985  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 M  
 LATITUDE.....16-48-02S                      LONGITUDE.....068-25-13W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....1 KM N OF ESTANCIA CHACOMA  
 GRANDE, 100 M FROM HIGHWAY BETWEEN VIACHA AND COROCORO.  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....5.98% CU FROM DUMP MATERIAL  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT DESCRIPTION COMMENTS.....ARE 4 MANTOS EACH ABOUT 0.6 M  
 THICK, 60 TO 450 M LONG.  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....8                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....1 INCLINED SHAFT; PROSPECT PITS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE, SHALE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 SIGNIFICANT REGIONAL STRUCTURES.....NW ANTICLINE  
 SIGNIFICANT LOCAL STRUCTURES.....ON OVERTURNED FLANK OF FOLD;  
 FOSSIL WOOD IN SANDSTONE  
 FORMATION AGE.....TERT  
 FORMATION NAME.....U HUAYLLAMARCA  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL 1990  
 REFERENCE....ZAPATA (1987)

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MRDS RECORD NUMBER.....BL10319  
 SITE NAME.....CHIGUANA MINE  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....17-29-50S                      LONGITUDE.....068-16-45W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....8.25 KM S75E OF CALLAPA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN

MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10113  
SITE NAME.....CHOQUEPINA MINES  
SYNONYM NAME.....KUSIMA, PERSEVERANCIA, ATAHUALLPA, TITANIA  
MINING DISTRICT/AREA.....BERENGUELA  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1968  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....BERENGUELA 5742-II 1962  
SECOND QUAD SCALE.....1:50,000  
LATITUDE.....17-12-28S                      LONGITUDE.....069-09-14W  
ACCURACY.....ACC  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE, CHALCOPYRITE, NEODIGENITE(?),  
COVELLITE  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....LODE  
DEPOSIT DESCRIPTION COMMENTS.....CHALCOPYRITE IS ACICULAR. SAID BY  
BARBA (1637) TO BE AN OLD INCAN AG MINE.  
STRIKE.....N65E  
DIP.....60SE  
DESCRIPTION OF WORKINGS.....U  
DESCRIPTION OF WORKINGS COMMENTS.....ONE MAIN ADIT  
HOST ROCK AGE.....LOLIGO-EMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....KAOLIN  
ORE CONTROL/LOCUS.....FAULT BRECCIA  
FORMATION AGE.....LOLIGO-EMIO  
FORMATION NAME.....MAURI  
REFERENCES....AHLFELD AND SCHNEIDER-SCHERBINA (1964), SCHNEIDER-  
SCHERBINA (1962B)

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MRDS RECORD NUMBER.....BL00018  
SITE NAME.....CHUCUANI MINE  
SYNONYM NAME.....CHUCANI, COLQENCHA, CERRO KORICAHUA  
PROVINCE.....AROMA  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALAMARCA 5943-II 1963  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....16-59-39S LONGITUDE.....068-11-33W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....13 KM S40W OF CALAMARCA  
COMMODITIES PRESENT.....AG PB ZN AU CU AS SB  
ORE MATERIALS.....OXIDES  
GENERAL ANALYTICAL DATA.....90TH PERCENTILE VALUES FROM SYSTEMATIC  
SAMPLING BY MINTEC: AU 0.04 G/MT, CU 70 PPM, PB 2000 PPM, ZN 1000 PPM,  
AG 20 G/MT, AS 300 PPM, SB 40 PPM.  
OCCUR.....CU AS SB  
MAJOR.....AG PB ZN  
MINOR.....AU  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....8  
YEAR OF DISCOVERY.....1800'S  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....ROBERTO SANCHEZ  
OPERATOR.....ROBERTO SANCHEZ  
EXPLORATION AND DEVELOPMENT COMMENTS.....EXPLORATION BY MINTEC  
DEPOSIT TYPE.....LODE, DISSEMINATED  
DEPOSIT DESCRIPTION COMMENTS.....VEINS STRIKE N80W AND NW PLUS  
SOME DISSEMINATED ORE  
DESCRIPTION OF WORKINGS.....U  
HOST ROCK AGE.....MMIO 16.6 MA K/AR  
HOST ROCK TYPE.....DACITE  
AGE OF IGNEOUS ROCK.....MMIO 16.6 MA K/AR  
IGNEOUS ROCK TYPE.....DACITE  
AGE OF MINERALIZATION.....MMIO?  
SIGNIFICANT REGIONAL STRUCTURES.....E OF CONIRI FAULT  
SOURCE OF INFORMATION....MINTEC FILES

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MRDS RECORD NUMBER.....BL10296  
SITE NAME.....COBRE CHACA MINE  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....JESUS DE MACHACA 5843-IV 1964  
SECOND QUAD SCALE.....1:50,000

ELEVATION.....3950 M  
LATITUDE.....16-45-16S LONGITUDE.....068-45-39W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4.5 KM S70E OF JESUS DE MACHACA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA AND DELGADILLO (1968)

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MRDS RECORD NUMBER.....BL10299  
SITE NAME.....COMANCHE QUARRY  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COLLANA 5943-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4100 M  
LATITUDE.....16-57-43S LONGITUDE.....068-25-12W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....0.5 KM S OF ESTACION COMANCHE  
COMMODITIES PRESENT.....STN2  
ORE MATERIALS.....DECORATIVE STONE  
MAJOR.....STN2  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....6  
NATURE OF DISCOVERY.....B  
DESCRIPTION OF WORKINGS.....S  
DESCRIPTION OF WORKINGS COMMENTS.....QUARRY  
HOST ROCK AGE.....EMIO  
K/AR AGE....17.9 +/- 1.0 M.Y.  
AGE OF IGNEOUS ROCK.....EMIO  
AGE OF MINERALIZATION.....EMIO  
FORMATION AGE.....EMIO  
FORMATION NAME.....COMANCHE  
IGNEOUS UNIT AGE.....EMIO  
IGNEOUS UNIT NAME.....COMANCHE  
REFERENCES.....AHLFELD AND SCHNEIDER-SCHERBINA (1964), REDWOOD AND  
MACINTYRE (1989), AVILA-SALINAS (1973), SMULIKOWSKI (1945)



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MRDS RECORD NUMBER.....BL10226  
SITE NAME.....CONGRESO AND SAN FERMIN MINES  
MINING DISTRICT/AREA.....CHACARILLA  
DISTRICT/PROVINCE.....VILLAROEL  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SAN PEDRO DE CURAHUARA 5941-II 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3860 M  
LATITUDE.....17-34-13S LONGITUDE.....068-12-16W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1 KM N60E OF THE TOWN OF  
CHACARILLA  
LOCATION COMMENTS.....LAT LONG IS FOR CONGRESO ADIT  
COMMODITIES PRESENT.....CU PB AG  
ORE MATERIALS.....CHALCOCITE  
GENERAL ANALYTICAL DATA.....ANALYSIS BY SCHNEIDER-SCHERBINA (1963):  
10.95% CU, 0.45% PB, 18 G/MT AG OVER 0.8 M.  
MAJOR.....CU  
MINOR.....AG  
POTEN.....PB  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....7  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....NITTO BOLIVIA MINING CO.  
OPERATOR.....NITTO BOLIVIA MINING CO.  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
DEPOSIT DESCRIPTION COMMENTS.....ONE MANTO 0.5 TO 1.15 M THICK  
(AVG. 0.65 M)  
DESCRIPTION OF WORKINGS.....U  
DESCRIPTION OF WORKINGS COMMENTS.....SEVERAL ADITS  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
SIGNIFICANT ALTERATION.....BLEACHING  
FORMATION AGE.....TERT  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GERMAN  
GEOLOGICAL MISSION TO BOLIVIA (SCHNEIDER-SCHERBINA, 1963)  
REFERENCE.....SCHNEIDER-SCHERBINA (1963)

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MRDS RECORD NUMBER.....BL10298  
SITE NAME.....CONIRI MINE  
SYNONYM NAME.....KONIRI  
PROVINCE.....INGAVI

PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CERRO LETANIAS 5943-IV 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....16-45-28S                      LONGITUDE.....068-24-08W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1 KM NE OF ESTANCIA KONIRI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO  
FORMATION NAME.....CONIRI  
REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10311  
SITE NAME.....COPACABANA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-23-58S                      LONGITUDE.....068-20-42W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....5 KM S10E OF COMUNIDAD CHOQUE  
PHUJO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE

AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE.....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10320  
SITE NAME.....COPACABANA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5941-III  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-30-52S                      LONGITUDE.....068-16-12W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....10 KM S65E OF CALLAPA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE.....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10322  
SITE NAME.....COPACABANA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5941-III  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-33-38S                      LONGITUDE.....068-17-41W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1 KM S80E OF ESTANCIA CHIVO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN

MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE.....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10326  
SITE NAME.....COPACABANA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5941-III  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-31-05S                      LONGITUDE.....068-15-14W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....11.5 KM S55E OF CALLAPA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN.  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE.....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....W002046  
SITE NAME.....COROCORO DISTRICT  
SYNONYM NAME.....MINES: BUEN PASTOS, CAPILLA; CHALLCOMA;  
COPACABANA; ESTRELLA; GUALLATIRI; LIBERTAD; MALCOCOYA; REMEDIOS; SAN

ANGEL; SAN AUGUSTIN; SAN GERONIMO; SANTA RITA; SANTA ROSA; TANCANI,  
VISCACHANI; YANABARRA  
MINING DISTRICT/AREA.....COROCORO COPPER DISTRICT  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COROCORO 5942-III 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4050 M  
LATITUDE.....17-10-09S LONGITUDE.....068-27-04W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....130 KM SW OF LA PAZ AND 340 KM  
FROM PORT OF ARICA, CHILE, BY RR.  
LOCATION COMMENTS.....LAT LONG IS FOR TOLEDO SHAFT IN  
APPROXIMATE CENTER OF DISTRICT ON THE NORTH SIDE OF THE TOWN OF  
COROCORO.  
COMMODITIES PRESENT.....CU AG PB ZN  
ORE MATERIALS.....NATIVE COPPER, CHALCOCITE; CUPRITE,  
MALACHITE, AZURITE, BRONCHANTITE, CHRYSOCOLLA; (ANGELSITE, ARNIMATE,  
ATACAMITE, BISBEEITE, BOOTHITE, BORNITE, CHALCANTHITE, CHALCOPHYLLITE,  
CHALCOPYRITE, CONICALCITE, COVELLITE, DOMEYKITE, GALENA, LAMPADITE,  
MINIUM, NATIVE SILVER, PLANCHEITE, ROSIERISITE, SPHALERITE,  
STROMEYERITE, TENNANTITE, TENORITE, CU-AS ALLOYS)  
GENERAL ANALYTICAL DATA.....TRACE ELEMENT STUDIES SHOW VETAS AND RAMOS  
ORE TO BE VERY SIMILAR; ABOUT 15 G/T AG PER 1% CU GRADE. PB VALUES AS  
HIGH AS 15% BUT AVERAGE 2.04%. AG GRADES UP TO 184 G/T AG BUT AVERAGE  
28.85 G/T.  
COMMODITY INFO COMMENTS.....CONCENTRATES CARRY SIGNIFICANT  
CONCENTRATIONS OF PB, ZN, SB, AS, FE, S, AND SI.  
MAJOR.....CU  
MINOR.....AG  
OCCUR.....PB ZN  
PRODUCTION.....M  
STATUS AND ACTIVITY.....8  
DISCOVERER.....NATIVE AMERICANS  
YEAR OF DISCOVERY.....BEFORE 1540  
NATURE OF DISCOVERY.....B  
YEAR OF LAST PRODUCTION.....1986  
OWNER (PRESENT/LAST).....CORP. MINERIA DE BOLIVIA  
OPERATOR.....CLOSED  
MILL CAPACITY PER YR. (THOUS. UNITS)...650 MT/DAY  
ECONOMIC COMMENTS.....TOLEDO MINE AREA MINED SINCE 1940.  
TANCANI-LIBERTAD MINES HAVE BEEN ABANDONED FOR A LONG TIME. BUEN PASTOS  
MINE WORKED FOR AG 1840-1860  
EXPLORATION AND DEVELOPMENT COMMENTS.....NATIVE COPPER WORKED BY  
INCAS AND SPANISH COLONISTS TO 1781. CU SULFIDES MINES FROM 1830. THE  
CHILEAN CIA. COROCORO DE BOLIVIA WORKED COROCORO FROM 1873 AND THE  
ANGLO-FRENCH COROCORO UNITED MINES LTD. WORKED COROCORO FROM 1909 TO  
1918 WHEN THE TWO FIRMS COMBINED. NOT WORKED 1930-32. PURCHASED BY  
ASARCO IN 1934, ACQUIRED ALL OF DISTRICT BY 1947. NATIONALIZED 1952 AS  
PART OF COMIBOL.  
DEPOSIT TYPE.....STRATABOUND

USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 DEPTH TO BOTTOM..... 650        UNITS...METERS  
 MAXIMUM LENGTH.....4,000       UNITS...METERS  
 MAXIMUM WIDTH..... 15        UNITS...METERS  
 MAXIMUM THICKNESS..... 70       UNITS...METERS  
 DEPOSIT SIZE.....M  
 STRIKE.....N20W  
 DIP.....65W TO 70E  
 PLUNGE.....40  
 DIRECTION OF PLUNGE.....S  
 DEPOSIT DESCRIPTION COMMENTS.....THE COROCORO MINE IS IN MANY WAYS  
 SIMILAR TO OTHER DEPOSITS OCCURRING IN MARGINAL TROUGH BETWEEN THE  
 EASTERN AND WESTERN ANDES OF BOLIVIA. THE COROCORO BASIN ITSELF, WHICH  
 FORMS THE WESTERN PART OF THE ALTIPLANO AND CONTAINS THE COROCORO MINE,  
 IS DOMINATED BY THE RED BED TYPE DEPOSITS. THESE ARE TRUE RED-BED CU  
 DEPOSITS WHICH OCCUR IN A NON-RIFT RELATED MOLASSE BASIN. SHALLOW PB-  
 ZN-AG DEPOSIT AT BUEN PASTOS MINE WAS WORKED FROM 1840-1860 YIELDING  
 ABOUT 25 MT/Y AG. VETAS ORE CONSISTS OF CHALCOCITE CEMENT IN ARKOSIC  
 SANDSTONE, CHALCOCITE REPLACEMENT OF FOSSIL PLANTS, AND POCKETS CEMENTED  
 BY GALENA AND SPHALERITE. RAMOS ORES CONSIST OF OF NATIVE CU FILLING  
 PORES IN SANDSTONE, FRACTURES IN SANDSTONE AND SHALE, REPLACEMENT OF  
 FOSSIL WOOD, AND REPLACEMENT OF ARAGONITE CEMENT IN SANDSTONE. RAMOS ORE  
 WAS OXIDIZED ABOVE THE WATER TABLE TO AZURITE-MALACHITE AND CUPRITE.  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE..... 650       .UNITS...METERS  
 LENGTH OF WORKINGS.....+4000       UNITS...METERS  
 HOST ROCK AGE.....EO, OLIGO-LMIO  
 HOST ROCK TYPE.....CONGLOMERATE, ARKOSIC SANDSTONE, SANDY  
 SHALE  
 AGE OF MINERALIZATION.....LMIO OR YOUNGER  
 PERTINENT MINERALS (NOT ORE).....HEMATITE, BARITE, CELESTITE,  
 GYPSUM, COLLOIDAL QUARTZ, MANGANESE OXIDE, PYRITE, ARAGONITE,  
 CHALCEDONY, ALUNITE, ANHYDRITE, ARAGONITE, DIOPTASE, HALITE, KAOLINITE,  
 MONTMORILLONITE, NONTRONITE, OLIVINE, SELENITE  
 ORE CONTROL/LOCUS.....PREFERRED BEDS IN CUVETTE DEPRESSIONS ON  
 FLANKS OF ANTICLINES  
 SIGNIFICANT REGIONAL STRUCTURES.....COROCORO FAULT, TRENDING N10W  
 AND DIPPING NEARLY VERTICAL, SEPARATES PARALLEL VETAS BEDS FROM RAMOS  
 BED WITH ABOUT 100 M DISPLACEMENT. GAULLATIRI THRUST FAULT CUTS ALL.  
 SIGNIFICANT LOCAL STRUCTURES.....FAULTED ANTICLINE, PERHAPS  
 RELATED TO GYPSUM DIAPIRISM  
 SIGNIFICANT ALTERATION.....SOME BLEACHING AROUND ORE IN OLDER RAMOS  
 BEDS BUT NONE AROUND ORE BODIES IN VETAS BEDS. ORE IS OXIDIZED TO 60 M  
 DEPTH.  
 FORMATION AGE.....EO  
 FORMATION AGE.....OLIGO - UMIO  
 FORMATION NAME.....BALLIVIAN (RAMOS)  
 FORMATION NAME.....TOTORA (VETAS)  
 GENERAL COMMENTS.....OPERATIONS WERE REPORTED SUSPENDED IN JAN,  
 1987.  
 NON-USGS WORK.....1955    GEOLMAP    ENTWHISTLE, ASARCO

REFERENCES....ENTWISTLE AND GOUIN (1955), SINGEWALD AND BERRY (1922), BERTON (1937), AHLFELD AND BRANISA (1960), AHLFELD AND SCHNEIDER-SCHERBINA (1964), LJUNGGREN AND OTHERS (1964), PELISSONIER (1964), KOHANOWSKI (1944), ENTWISTLE (1948), SARAVIA (1971), AHLFELD (1933), MURIEL (1971), RUTLAND (1966), ZUBRZYCKI (1955).

#### CUMULATIVE PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
CU	EST	500.000	MET TONS	1800'S-19	
CU	EST	100	MT	1873-1912	
CU	EST	100	MT	1912-1935	
CU	EST	192,180	MT	1913-1951	
CU	ACC	34.788	MT	1932-1941	0.9% CU
AG	EST	.525	MT	1840-1860	
CU	EST	200	MT	THRU 1935	
CU	EST	490	MT	THRU 1971	
SULF ORE	ACC	352.772	ST	1949-1952	3.71% CU
SULF ORE	ACC	637.164	ST	1952-1958	2.41% CU
OX ORE	ACC	23.376	ST	1952-1958	9.11% CU

SOURCE OF PRODUCTION INFORMATION.....AHLFELD AND SCHNEIDER-SCHERBINA (1964); MINING MAGAZINE, V. 7, P. 207; KOHANOWSKI (1944); PERS. COMM. FROM LAWSON ENTWISTLE.

#### RESERVES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	1200	MT	1960	3.40% CU
SULF ORE	EST	427.038	MT	1971	4.11% CU
SULF ORE	EST	16.147	MT	1971	2.11% CU
DUMPS	EST	156.581	MT	1971	0.90% CU (0.58% SOLUBLE)
NAT CU ORE	EST	5570.329	MT	1971	3.17% CU
ORE	EST	467.94	ST	1952	3.68% CU

SOURCE OF RESERVES INFORMATION.....AHLFELD & BRANISA (1960), P. 273., PERS. COMM. LAWSON ENTWISTLE

RESERVES COMMENTS.....TIVIÑA-EUREKA SECTION RESERVES EXCEPT ITEM 6 SAN MARCOS/DOLORES VEINS

#### POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
CU	EST	500.000	MET TONS		

SOURCE OF POTENTIAL RESOURCES INFORMATION.....E. M. IRVING

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MRDS RECORD NUMBER.....BL10212  
 SITE NAME.....CUTUNA MINE  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1983  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO LETANIAS 5943-IV 1983  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3960 M  
 LATITUDE.....16-46-00S LONGITUDE.....068-26-00W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....NE OF CHUJÑUPA  
 COMMODITIES PRESENT.....CU

ORE MATERIALS.....UNKNOWN  
GENERAL ANALYTICAL DATA.....ORE ASSAYS 9.20% CU  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
YEAR OF LAST PRODUCTION.....1967  
OWNER (PRESENT/LAST).....ANGEL BASADRE, N. CASANOVA  
OPERATOR.....ANGEL BASADRE, N. CASANOVA  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
DEPOSIT DESCRIPTION COMMENTS.....ARE 2 MANTOS, OVER 200 M LONG,  
0.8 TO 1.4 M THICK.  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....CU MINERALS REPLACE ORGANIC MATTER  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA (1987)

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MRDS RECORD NUMBER.....BL10312  
SITE NAME.....DINAMITA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CORO CORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-24-18S                      LONGITUDE.....068-20-43W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4.75 KM S15E OF COMUNIDAD CHOQUE  
PHUJO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA



REFERENCE.....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10317  
SITE NAME.....EL CARMEN MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-26-36S                      LONGITUDE.....068-19-06W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....5 KM N45E OF CALLAPA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE.....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL20037  
SITE NAME.....EL COREANITO MINE  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....GUAQUI 5844-III 1985  
SECOND QUAD SCALE.....1:50,000  
LATITUDE.....16-38-42S                      LONGITUDE.....68-34-20W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....8 KM S65W OF GUAQUI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE, CUPRITE, MALACHITE, TENORITE,  
AZURITE  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4

NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....PALEO-EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....PALEO-EOCENE  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA AND DELGADILLO (1968)

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MRDS RECORD NUMBER.....BL10109  
SITE NAME.....EL HOGAR MINE  
SYNONYM NAME.....MANTOS: GLORIA, SAN JOSE, SANTIAGO  
MINING DISTRICT/AREA.....PUCARA-CALLAPA DISTRICT  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-23-49S                      LONGITUDE.....068-20-53W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....43 KM S OF ESTACION GENERAL PANDO  
LOCATION COMMENTS.....NEAR PUCARA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
GENERAL ANALYTICAL DATA.....ORE AVERAGES 3.62% CU; GLORIA MANTO: 16  
SAMPLES OVER 0.8 TO 1 M, 0.65 TO 7.1% CU, AVG. 3.63% CU; SAN JOSE MANTO:  
8 SAMPLES OVER 0.3 TO 0.6 M, 0.2 TO 2.4% CU, AVG. 1.99% CU; SANTIAGO  
MANTO: 6 SAMPLES OVER 0.1 TO 0.2 M, 3.3 TO 9.25% CU, AVG. 5.28% CU  
MAJOR.....CU  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....2  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....EMPRESA MINERA EL HOGAR LTDA.  
OPERATOR.....EMPRESA MINERA EL HOGAR LTDA.  
EXPLORATION AND DEVELOPMENT COMMENTS.....GLORIA MANTO DISCOVERED  
1940; OPERATED BY CHILEAN FIRM 1870-1880 TO 90 M DEPTH  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM LENGTH.....2000                      UNITS...M  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....CONGLOMERATE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT

FORMATION NAME.....HUAYLLAMARCA

REFERENCE....MEYER AND MURILLO (1961)

## CUMULATIVE PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
CONS	ACC	.0176	MT	1958-1959	19.20% CU

SOURCE OF PRODUCTION INFORMATION.....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10324

SITE NAME.....EL INCA MINE

PROVINCE.....PACAJES

PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....COROCORO SE 19-7 1981

QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....5941-III

SECOND QUAD SCALE.....1:50,000

ELEVATION.....3900 M

LATITUDE.....17-37-02S LONGITUDE.....068-15-32W

ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....8 KM S35E OF ESTANCIA CHIVO

COMMODITIES PRESENT.....CU

ORE MATERIALS.....UNKNOWN

MAJOR.....CU

PRODUCTION.....S

STATUS AND ACTIVITY.....4

NATURE OF DISCOVERY.....B

DEPOSIT TYPE.....STRATABOUND

USGS MODEL .....SEDIMENT-HOSTED CU

USGS MODEL NUMBER.....30B

DEPOSIT FORM.....LENTICULAR

HOST ROCK AGE.....LOLIGO-LMIO

HOST ROCK TYPE.....SANDSTONE

AGE OF MINERALIZATION.....TERT

FORMATION AGE.....LOLIGO-LMIO

FORMATION NAME.....TOTORA

REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL00008

SITE NAME.....EL NORTEÑO PROSPECT

PROVINCE.....PACAJES

PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE

DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....CHARAÑA SE 19-6 1967

QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....ANTACAHUA 5742-IV 1963

SECOND QUAD SCALE.....1:50,000

ELEVATION.....4700 M

LATITUDE.....17-07-31S LONGITUDE.....069-25-50W

ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....29 KM N55W OF BERENGUELA

LOCATION COMMENTS.....ON CERRO ANTACAHUA  
 COMMODITIES PRESENT.....AU AG  
 ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....GOLD VALUES UP TO 0.23 G/MT, AG UP TO 0.5 G/MT.  
 OCCUR.....AU AG  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....EDGAR QUISPE  
 OPERATOR.....EDGAR QUISPE  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....ANDESITE  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....ANDESITE  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 SIGNIFICANT ALTERATION.....ARGILLIZATION AND SILICIFICATION  
 NON-USGS WORK.....EXPLORATION WORK BY MINTEC  
 SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL10195  
 SITE NAME.....EL ZORRO MINE  
 MINING DISTRICT/AREA.....BERENGUELA  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....BERENGUELA 5742-II 1962  
 SECOND QUAD SCALE.....1:50,000  
 LATITUDE.....17-18-19S LONGITUDE.....069-07-02W  
 ACCURACY.....ACC  
 COMMODITIES PRESENT.....AG PB ZN  
 ORE MATERIALS.....SPHALERITE, GALENA  
 MAJOR.....AG  
 MINOR.....PB  
 POTEN.....ZN  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....2  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 STRIKE.....E-W  
 DESCRIPTION OF WORKINGS COMMENTS.....PROSPECT PITS ONLY  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....ANDESITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....ANDESITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....CALCITE  
 SIGNIFICANT ALTERATION.....KAOLINITIZATION

FORMATION AGE.....TERT  
 IGNEOUS UNIT AGE.....TERT  
 NON-USGS WORK.....INVESTIGATIONS BY GERMAN GEOLOGICAL  
 MISSION TO BOLIVIA (SCHNEIDER-SCHERBINA, 1962B)  
 REFERENCE....SCHNEIDER-SCHERBINA (1962B)

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MRDS RECORD NUMBER.....BL10224  
 SITE NAME.....**ESPERANZA - AMIGO - BORDA**  
**MINES**  
 MINING DISTRICT/AREA.....CHACARILLA DISTRICT  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN PEDRO DE CURAHUARA 5941-II 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3850 M  
 LATITUDE.....17-34-28S                      LONGITUDE.....068-12-38W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....JUST N OF TOWN OF CHACARILLA  
 LOCATION COMMENTS.....LAT LONG IS FOR ESPERANZA MINE  
 COMMODITIES PRESENT.....CU    PB    AG  
 ORE MATERIALS.....NATIVE CU; CUPRITE, TENORITE, MALACHITE  
 GENERAL ANALYTICAL DATA.....ANALYSIS (SCHNEIDER-SCHERBINA, 1963):  
 1.02% CU, 1.20% PB, TR AG OVER 50 M, 5.10% CU, 1.3% PB, 5 G/MT AG  
 MAJOR.....CU  
 MINOR.....AG  
 POTEN.....PB  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....NITTO BOLIVIA MINING CO.  
 OPERATOR.....NITTO BOLIVIA MINING CO.  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM LENGTH.....550                      UNITS...M  
 MAXIMUM WIDTH.....150                      UNITS...M  
 DEPOSIT DESCRIPTION COMMENTS.....ARE 4 MANTOS 2 TO 5 M THICK  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....80                      UNITS...M  
 LENGTH OF WORKINGS.....200                      UNITS...M  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 SIGNIFICANT ALTERATION.....BLEACHING  
 FORMATION AGE.....TERT  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GERMAN  
 GEOLOGICAL MISSION TO BOLIVIA (SCHNEIDER-SCHERBINA, 1963)

REFERENCE....SCHNEIDER-SCHERBINA (1963)

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MRDS RECORD NUMBER.....BL10162  
 SITE NAME.....**ESPERANZA MINE**  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-8 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5941-III  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 M  
 LATITUDE.....17-30-35S                      LONGITUDE.....068-19-37W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....4.5 KM S40E OF CALLAPA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; MALACHITE, AZURITE  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 STRIKE.....N 40 W  
 DIP.....40 SW  
 DEPOSIT DESCRIPTION COMMENTS.....5 MANTOS, EACH AVERAGE 2 M THICK  
 DESCRIPTION OF WORKINGS.....S  
 DEPTH BELOW SURFACE.....4                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....SHALLOW SHAFTS  
 HOST ROCK AGE.....LOLIGO-LMIO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....CHALCOCITE REPLACES ORGANIC MATTER  
 FORMATION AGE.....LOLIGO-LMIO  
 FORMATION NAME.....TOTORA  
 REFERENCE....MEYER AND MURILLO (1961)  
                   CUMULATIVE PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEARS	GRADE
CONS	ACC	.005	MT		1959	29.76% CU

 SOURCE OF PRODUCTION INFORMATION.....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10316  
 SITE NAME.....**EXPLORADORA MINE**  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....17-26-24S LONGITUDE.....068-19-16W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5 KM N40E OF CALLAPA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 HOST ROCK AGE.....LOLIGO-LMIO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....LOLIGO-LMIO  
 FORMATION NAME.....TOTORA  
 REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10138  
 SITE NAME.....FLOR MINE  
 PROVINCE.....ANDES, INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....NEAR TACHUA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; MALACHITE, AZURITE  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 DEPOSIT DESCRIPTION COMMENTS.....ARE 3 MANTOS, 1.2 TO 1.5 M THICK  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 FORMATION AGE.....TERT  
 REFERENCE....ZAPATA AND DELGADILLO (1968)

CUMULATIVE PRODUCTION					
ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
ORE	ACC	135.556	MT		2.0% CU

SOURCE OF PRODUCTION INFORMATION.....ZAPATA AND DELGADILLO (1968)

RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	0.45	MT		1968	

SOURCE OF RESERVES AND RESOURCES INFORMATION.....ZAPATA AND DELGADILLO (1968)

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MRDS RECORD NUMBER.....BL00011  
 SITE NAME.....GOLDEN HILL PROSPECT  
 SYNONYM NAME.....CERRO DORADO  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SINEJAVI 5742-III 1964  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4900 M  
 LATITUDE.....17-13-13S LONGITUDE.....069-25-13W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....23 KM N70W OF BERENGUELA  
 LOCATION COMMENTS.....ON CERRO SINEJAVI  
 COMMODITIES PRESENT.....AU AG S  
 ORE MATERIALS.....NATIVE S  
 GENERAL ANALYTICAL DATA.....SPORADIC AU VALUES UP TO 0.4 G/MT AND 30 G/MT AG BUT MOSTLY LESS THAN 0.05 G/MT AU AND 5 G/MT AG.  
 OCCUR.....AU AG  
 NON-PRODUCER MINOR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 YEAR OF DISCOVERY.....1988  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....ROBERTO SANCHEZ  
 OPERATOR.....ROBERTO SANCHEZ  
 EXPLORATION AND DEVELOPMENT COMMENTS.....CONCESSION IS ABOUT 25 SQ KM IN AREA  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....ANDESITE  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....ANDESITE  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 SIGNIFICANT ALTERATION.....SEVERAL LARGE AREAS OF ARGILLIC ALTERATION. LOCAL SILICIFICATION.  
 GEOLOGY COMMENTS.....TYPICAL HIGH-LEVEL ARGILLIC ALTERATION ZONE IN A STRATOVOLCANO  
 NON-USGS WORK.....EXPLORATION WORK BY MINTEC FROM 1988  
 SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL10314  
SITE NAME.....GRAN PODER MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-24-24S                      LONGITUDE.....068-20-15W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....5.25 KM S25E OF COMUNIDAD CHOQUE  
PHUJO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE.....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10289  
SITE NAME.....HUARICUNA OCCURRENCE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SINEJAVI 5742-III 1964  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5100 M  
LATITUDE.....17-14-30S                      LONGITUDE.....069-25-00W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....8 KM S OF ESTANCIA PICHUMA  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
OCCUR.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S

USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
IGNEOUS ROCK TYPE.....INTRUSIVE  
AGE OF MINERALIZATION.....LMIO-QUAT  
REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10221  
SITE NAME.....IQUIRI MINE  
SYNONYM NAME.....SAN SIMON II  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COLLANA 5943-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE....16-52-00S                      LONGITUDE....068-23-00W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....10 KM S OF CONIRI, NEAR IQUIRI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
DEPOSIT DESCRIPTION COMMENTS.....ARE 4 MANTOS EACH UP TO 20 CM  
THICK, 60 M LONG  
DESCRIPTION OF WORKINGS.....U  
DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....PREFERRED BEDS  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA (1987)

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MRDS RECORD NUMBER.....BL10303  
SITE NAME.....JANKHO KKOLLU MINE  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....GUAQUI 5844-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4100 KM  
LATITUDE.....16-36-54S               LONGITUDE.....068-47-51W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1 KM S20W OF COPAJIRA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA AND DELGADILLO (1968)

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MRDS RECORD NUMBER.....BL10184  
SITE NAME.....**JAYUMA DE LLALLAGUA MINE**  
SYNONYM NAME.....JAYUMA  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COROCORO 5942-III 1966  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4150 M  
LATITUDE.....17-17-46S               LONGITUDE.....068-29-03W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....0.5 KM SW OF JAYUMA DE LLALLAGUA  
COMMODITIES PRESENT.....HAL GYP  
ORE MATERIALS.....HALITE, GYPSUM  
MAJOR.....HAL  
POTEN.....GYP  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....7  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....BEDDED SALT, BEDDED GYPSUM  
USGS MODEL NUMBER.....35AC/AD  
DEPOSIT FORM.....LENTICULAR  
DESCRIPTION OF WORKINGS.....S  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....EVAPORITE  
AGE OF MINERALIZATION.....TERT

ORE CONTROL/LOCUS.....EVAPORITE FACIES  
FORMATION AGE.....TERT  
FORMATION NAME.....CHACARILLA  
REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10215  
SITE NAME.....JAYUMA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3960 M  
LATITUDE.....17-22-28S LONGITUDE.....068-15-57W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....14.5 KM N30E OF CALLAPA  
LOCATION COMMENTS.....WEST OF ESTANCIA JAYUMA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
OCCUR.....CU  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
EXPLORATION AND DEVELOPMENT COMMENTS.....EXAMINED BY CIA MINERA  
INTI ILLIMANI IN 1989  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
DESCRIPTION OF WORKINGS.....S  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....PREFERRED BEDS  
FORMATION AGE.....EO  
FORMATION NAME.....BALLIVIAN  
REFERENCE....EMPRESA MINERA ILLIMANI (1989)

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MRDS RECORD NUMBER.....BL10196  
SITE NAME.....JOKOLLUNI MINE  
SYNONYM NAME.....YOKOHAMA  
MINING DISTRICT/AREA.....BERENGUELA  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....BERENGUELA 5742-II 1964

SECOND QUAD SCALE.....1:50,000  
 LATITUDE.....17-18-26S LONGITUDE.....069-08-43W  
 ACCURACY.....ACC  
 COMMODITIES PRESENT.....AG PB ZN CD CU SB AS  
 ORE MATERIALS.....SPHALERITE, GREENOCKITE, CHALCOPYRITE,  
 TENNANTITE, FREIESLEBENITE, GALENA, ARGENTITE, STROMEYERITE,  
 CHALCOPYRITE, STEPHANITE, MIARGYRITE, PROUSTITE, NATIVE AG  
 GENERAL ANALYTICAL DATA.....ANALYSES BY AHLFELD (1936): 7 TO 12% ZN, 8  
 TO 11% CD, 26 TO 35% PB, 150 G/T AG, 4% CU, 0.1% SB, 1.6% AS, TR BI,  
 18.75% S, 16.5% GANGUE.  
 MAJOR.....AG  
 MINOR.....PB  
 POTEN.....ZN CD CU  
 OCCUR.....SB AS  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 EXPLORATION AND DEVELOPMENT COMMENTS.....JOKOLLUNI ADIT WAS DRIVEN  
 IN 1931.  
 DEPOSIT TYPE.....LODE  
 STRIKE.....E-W  
 DEPOSIT DESCRIPTION COMMENTS.....E-W VEIN EXTENDS OVER 600 M, IS  
 25 CM WIDE, HAS A 5 M ALTERATION HALO.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....80 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT, MANY PROSPECT PITS.  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....ANDESITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....ANDESITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE  
 SIGNIFICANT ALTERATION.....WEAK PYRITE ZONE, SERICITIZATION,  
 KAOLINITIZATION  
 FORMATION AGE.....TERT  
 IGNEOUS UNIT AGE.....TERT  
 NON-USGS WORK.....INVESTIGATIONS BY GERMAN GEOLOGICAL  
 MISSION (SCHNEIDER-SCHERBINA, 1962B)  
 REFERENCES....SCHNEIDER-SCHERBINA (1962B), AHLFELD (1936)

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MRDS RECORD NUMBER.....BL10120  
 SITE NAME.....LA CASUALIDAD AND SAN  
 FRANCISCO MINES  
 MINING DISTRICT/AREA.....SERRANIA DE TIWANAKU  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1970  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5843-I  
 SECOND QUAD SCALE.....1:50,000

ELEVATION.....3900 M  
LATITUDE.....16-45-15S LONGITUDE.....068-43-52W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1.6 KM S75E OF JESUS DE MACHACA,  
115 KM BY ROAD FROM LA PAZ  
LOCATION COMMENTS.....PART OF SECCION YAURIRI, NEAR SIEMPRE  
ADELANTE MINE  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE; COVELLITE, MALACHITE, AZURITE  
GENERAL ANALYTICAL DATA.....ORE ASSAYS: 0.7 TO 14.98% CU  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
STRIKE.....N80E TO E-W  
DIP.....30-65S/SW  
DESCRIPTION OF WORKINGS.....U  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
ORE CONTROL/LOCUS.....CU MINERALS REPLACE ORGANIC MATERIAL  
SIGNIFICANT REGIONAL STRUCTURES.....NW ANTICLINE  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(VARGAS, 1967)  
REFERENCE....VARGAS (1967)  
SOURCE OF PRODUCTION INFORMATION.....VARGAS (1967)  
PRODUCTION COMMENTS.....PRODUCING 2 MT/MO 15 TO 20% CU  
CONS JULY, 1967

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MRDS RECORD NUMBER.....BL10325  
SITE NAME.....LA CODIACADA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5941-III  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-37-29S LONGITUDE.....068-15-58W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....8 KM S30E OF ESTANCIA CHIVO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4

NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10140  
SITE NAME.....**LA ENCONTRADA MINE**  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5941-III  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3827 M  
LATITUDE.....17 34 00S                      LATITUDE.....68 14 00W  
POSITION FROM NEAREST LOCALITY.....W OF CHACARILLA, 193 KM BY ROAD  
FROM LA PAZ  
COMMODITIES PRESENT.....CU    BENT  
ORE MATERIALS.....CHALCOCITE; MALACHITE, AZURITE, BENTONITE  
GENERAL ANALYTICAL DATA.....GEOBOL ASSAYS: 11.0 TO 12.3% CU OVER 1.1  
M; BENTONITE IS 85 TO 99% MONTMORILLONITE, REMAINDER QUARTZ, BIOTITE, FE  
OXIDES  
MAJOR.....CU  
NON-PRODUCER MAIN.....BENT  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
DISCOVERER.....EMPRESA EMBOL  
YEAR OF DISCOVERY.....1956  
NATURE OF DISCOVERY.....B  
YEAR OF FIRST PRODUCTION.....1956  
OWNER (PRESENT/LAST).....EMPRESA EMBOL  
OPERATOR.....EMPRESA EMBOL  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
DEPOSIT DESCRIPTION COMMENTS.....CU MINERALIZED MANTOS STRIKE N15  
TO 38W DIP 25 TO 32SW. BENTONITE BEDS STRIKE N56E DIP 25NW  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....59                      UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....ADITS AND SHAFTS. NO WORKINGS  
ON BENTONITE BEDS.  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE TUFF

AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BED (CU), TUFF BEDS (BENTONITE)  
 SIGNIFICANT REGIONAL STRUCTURES.....ON W FLANK OF NW ANTICLINE  
 FORMATION AGE.....TERT  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (GUERRA AND ASCARRUNZ, 1964A, 1964C)  
 REFERENCES....GUERRA AND ASCARRUNZ (1964A, 1964C)  
 CUMULATIVE PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEARS	GRADE
CONS	ACC	0.63	MT		1956-1964	25% CU

 SOURCE OF PRODUCTION INFORMATION.....GUERRA AND ASCARRUNZ (1964C)

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MRDS RECORD NUMBER.....BL10287  
 SITE NAME.....LA ESPAÑOLA PROSPECT  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....BERENGUELA 5642-II 1964  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4250 M  
 LATITUDE.....17-13-52S LONGITUDE.....069-33-30W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....0.5 KM NE OF ESTANCIA CABAÑA  
 LIPHICHI  
 COMMODITIES PRESENT.....AG  
 OCCUR.....AG  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....ASARCO  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....ASARCO  
 OPERATOR.....ASARCO  
 HOST ROCK AGE.....QUAT  
 AGE OF IGNEOUS ROCK.....QUAT  
 AGE OF MINERALIZATION.....QUAT  
 FORMATION AGE.....QUAT  
 IGNEOUS UNIT AGE.....QUAT  
 SOURCE OF INFORMATION....ASARCO, ORAL COMM., 1990

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MRDS RECORD NUMBER.....BL10141  
 SITE NAME.....LA INCOGNITA MINE  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....TIAHUANUCU 5844-II 1985  
 SECOND QUAD SCALE.....1:50,000



ELEVATION.....3960 M  
 LATITUDE.....16-37-03S LONGITUDE.....068-47-13W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM S69E OF GUAQUI  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....ANALYSES BY VEDIA AND LLANOS (1965): 1.4  
 TO 16.1% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 YEAR OF DISCOVERY.....1963  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1963  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 STRIKE.....N 73 W  
 DIP.....55 TO 78 N  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....SHALLOW PITS AND SHAFTS  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....CU MINERALS REPLACE ORGANIC MATTER  
 FORMATION AGE.....EO  
 FORMATION NAME.....TIAHUANACU  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL (VEDIA  
 AND LLANOS, 1965)  
 REFERENCE....VEDIA AND LLANOS (1965)  
 ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	ACC	.0005	MT		1963	5.9% CU

 SOURCE OF PRODUCTION INFORMATION.....VEDIA AND LLANOS (1965)

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MRDS RECORD NUMBER.....BL00013  
 SITE NAME.....LA MONTURA PROSPECT  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....RIO BLANCO 5740-II 1963/COSAPA 5740-III  
 1964  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4800 M  
 LATITUDE.....17-57-00S LONGITUDE.....069-14-50W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....15 KM S72W OF RIO BLANCO  
 LOCATION COMMENTS.....ON CERRO CARBI ON BORDER WITH CHILE  
 COMMODITIES PRESENT.....AU AG AS

ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....TRACES OF AU, AS TO 600 PPM, AG LESS THAN  
 1 G/MT  
 OCCUR.....AU    AG    AS  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 YEAR OF DISCOVERY.....1988  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....EDGAR QUISPE  
 OPERATOR.....EDGAR QUISPE  
 HOST ROCK AGE.....QUAT?  
 HOST ROCK TYPE.....ANDESITE  
 AGE OF IGNEOUS ROCK.....QUAT?  
 IGNEOUS ROCK TYPE.....ANDESITE  
 AGE OF MINERALIZATION.....QUAT?  
 SIGNIFICANT ALTERATION.....ARGILLIC  
 FORMATION AGE.....QUAT?  
 FORMATION NAME.....ESTRATOVOLCAN?  
 GEOLOGY COMMENTS.....TYPICAL OF ARGILLIC ALTERATION IN  
 STRATOVOLCANOS IN WESTERN VOLCANIC ZONE.  
 NON-USGS WORK.....EXPLORATION WORK BY MINTEC  
 SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL00004  
 SITE NAME.....LA RIVIERA PROSPECT  
 SYNONYM NAME.....LA RIVERA  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CANASITA 5740-I 1964  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4500 M  
 LATITUDE.....17-49-29S                      LONGITUDE.....069-07-08W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....9 KM N35W FROM RIO BLANCO  
 LOCATION COMMENTS.....ON SE FLANK OF CERRO CANASITA  
 COMMODITIES PRESENT.....CU    AG    AU    AS    SB  
 ORE MATERIALS.....CUPRITE, MALACHITE, AZURITE, CHRYSOCOLLA,  
 TETRAHEDRITE, NATIVE AG  
 GENERAL ANALYTICAL DATA.....WESTERN CU-AG ZONE HAS UP TO 2.0% CU AND  
 50 PPM AG. EASTERN EPITHERMAL ZONE HAS 0.1 TO 0.3 G/T AU, UP TO 20 PPM  
 AG, UP TO 200 PPM AS AND UP TO 80 PPM SB.  
 OCCUR.....AS    SB  
 NON-PRODUCER MAIN.....CU    AG    AU  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 YEAR OF DISCOVERY.....1987  
 NATURE OF DISCOVERY.....B

OWNER (PRESENT/LAST).....JORGE QUIROGA AND EDGAR QUISPE  
OPERATOR.....JORGE QUIROGA AND EDGAR QUISPE  
EXPLORATION AND DEVELOPMENT COMMENTS.....UNDER EXPLORATION BY  
MINTEC FROM 1987  
HOST ROCK AGE.....MIO  
HOST ROCK TYPE.....ANDESITE FLOWS AND TUFF  
AGE OF IGNEOUS ROCK.....MIO  
IGNEOUS ROCK TYPE.....ANDESITE FLOWS AND TUFF, RHYOLITE DIKES  
AND SILLS  
AGE OF MINERALIZATION.....MIO?  
PERTINENT MINERALS (NOT ORE).....PYRITE, ALUNITE, CHALCEDONY,  
JAROSITE, LIMONITE  
SIGNIFICANT ALTERATION.....WESTERN CU-AG ZONE: PROPYLITIC. EASTERN  
ZONE: ARGILLIC AND SILICIC WITH HYPOGENE ALUNITE.  
FORMATION AGE.....MIO  
FORMATION AGE.....MIO  
FORMATION AGE.....MIO  
FORMATION NAME.....LA RIVIERA  
FORMATION NAME.....KANASITA  
FORMATION NAME.....ABAROA  
GEOLOGY COMMENTS.....A CU-AG ZONE ON WEST SIDE OF PROPERTY. ON  
EAST SIDE AN AREA OF ARGILLIC AND SILICIC ALTERATION WITH VEINLETS OF  
CHALCEDONY, JAROSITE AND LIMONITE AND DISSEMINATED PYRITE.  
NON-USGS WORK.....EXPLORATION WORK BY MINTEC FROM 1987.  
SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL10147  
SITE NAME.....LAS MERCEDES MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COLLANA 5943-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....16-51-06S                      LONGITUDE.....068-25-54W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4.5 KM S10W OF ESTACION CHACOMA  
GRANDE  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....FERNANDO BILBAO  
OPERATOR.....FERNANDO BILBAO  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR

HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....PREFERRED BEDS  
FORMATION AGE.....TERT  
FORMATION NAME.....HUAYLLAMARCA  
REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL00012  
SITE NAME.....LAS VEGAS PROSPECT  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CANASITA 5740-I 1964  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....17-33-29S                      LONGITUDE.....069-14-37W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....3 KM S OF ESTACION EDUARDO ABAROA  
LOCATION COMMENTS.....ON NE FLANK CERRO ALCA KKOLLU  
COMMODITIES PRESENT.....AU    AG  
ORE MATERIALS.....UNKNOWN  
GENERAL ANALYTICAL DATA.....SPORADIC VALUES UP TO 0.25 G/MT AU AND 1  
G/MT AG.  
OCCUR.....AU    AG  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
DISCOVERER.....MINTEC  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....EDGAR QUISPE  
OPERATOR.....EDGAR QUISPE  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE, ANDESITE, DACITE  
AGE OF IGNEOUS ROCK.....TERT?  
IGNEOUS ROCK TYPE.....ANDESITE, DACITE  
AGE OF MINERALIZATION.....TERT?  
ORE CONTROL/LOCUS.....LARGE N30W STRUCTURE INTRUDED BY ANDESITE  
DIKES  
SIGNIFICANT ALTERATION.....ANDESITE DIKES ARE BLEACHED AND OXIDIZED  
FORMATION AGE.....TERT  
FORMATION AGE.....TERT  
FORMATION AGE.....TERT  
FORMATION NAME.....ABAROA  
FORMATION NAME.....BERENGUELA  
FORMATION NAME.....MAURI  
NON-USGS WORK.....THESIS BY FERREY (1980)  
NON-USGS WORK.....EXPLORATION BY MINTEC  
REFERENCE....FERREY (1980)

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MRDS RECORD NUMBER.....TC00502  
SITE NAME.....LAURANI MINE  
SYNONYM NAME.....VEINS: CARNAVALITO, NUEVA, NEGRA,  
PARALELA, SAN ANTONIO, SAN CARLOS, SAN GERONIMO, SANTO DOMINGO, TORO  
MINING DISTRICT/AREA.....LAURANI  
PROVINCE.....AROMA  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CHIJMUNI 6041-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4050 M  
LATITUDE.....17-22-51S LONGITUDE.....067-46-30W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....10 KM S60E OF CHIJMUNI  
LOCATION COMMENTS.....ON CERRO HUARA PATA  
COMMODITIES PRESENT.....CU AG AU PB ZN AS BI SB SN  
ORE MATERIALS.....ENARGITE, TENNANTITE - FREIBURGITE,  
LUZONITE, ELECTRUM, CHALCOPYRITE, BORNITE, FAMATINITE, STIBNOLUZONITE;  
GALENA, SPHALERITE, JORDANITE, STEPHANITE, POLYBASITE, MIARGYRITE,  
PROUSTITE-PYRARGYRITE; TETRAHEDRITE, BOURNONITE, CHALCOSTIBNITE,  
ARGENTITE (CASSITERITE, STANNITE, PATRINITE, BISMUTHENITE, MATILDITE,  
RICKARDITE, UMANGITE, CALAVERITE)  
GENERAL ANALYTICAL DATA.....ANALYSES BY GEOBOL: 2.55 TO 17.4% CU; 2.6  
TO 16.15 G/T AG, 3 TO 10 G/T AU. ANALYSES BY CIA MINERA INTI ILLIMANI  
ARE FINDING NO AU AND AVERAGE AG GRADES OF 4 TO 6 G/MT.  
MAJOR.....CU AG AU  
MINOR.....PB  
POTEN.....ZN AS BI SB  
OCCUR.....SN  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....8  
DISCOVERER.....SPANISH COLONISTS  
YEAR OF DISCOVERY.....1770'S  
NATURE OF DISCOVERY.....B  
YEAR OF FIRST PRODUCTION.....1770'S  
OWNER (PRESENT/LAST).....UNITED MINING CORP. (50%); CIA. MINERA  
INTI ILLIMANI  
OPERATOR.....UNITED MINING CORP.; CIA. MINERA INTI  
ILLIMANI  
EXPLORATION AND DEVELOPMENT COMMENTS.....CIA. PLAYA VERDE WORKED 62  
DUMPS AT PATACAMAYA MILL FROM 1919. SOCAVON BRICKER DRIVEN 980 M 1920-  
1927. ST. JOSEPH LEAD CO. EXAMINED MINE IN 1927. ACQUIRED BY CHILEAN CIA  
MINERA LAURANI DE BOLIVIA S.A. USING VISCACHANI 40 MT/D FLOATATION MILL  
FROM 1936. PROPERTY EXAMINED BY HOCHSCHILD IN 1938. MINED FOR CU IN THE  
1950'S.  
DEPOSIT TYPE.....STOCKWORK, LODE, DISSEMINATED  
USGS MODEL .....EPITHERMAL QUARTZ ALUNITE  
USGS MODEL NUMBER.....25E  
DEPOSIT SIZE.....S

DEPOSIT DESCRIPTION COMMENTS.....MINERALIZED AREA 2 KM BY 1 KM.  
 DEPTH OF MINERALIZATION UNKNOWN. VEINS ORIENTED N15E 80SE, N45E 70NW  
 AND N10E 75NW. VEINS ARE 0.3 TO 1 M WIDE.  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....DEVELOPED BY 3 MAIN ADITS 300  
 TO 900 M LONG AS OF LATE 1950'S. ABOUT 5000 M TOTAL BY 1930.  
 HOST ROCK AGE.....LMIO  
 HOST ROCK TYPE.....RHYOLITE, DACITE, ANDESITE, PYROCLASTICS  
 AGE OF IGNEOUS ROCK.....LMIO  
 IGNEOUS ROCK TYPE.....ANDESITE, DACITE, RHYOLITE, PYROCLASTICS  
 AGE OF MINERALIZATION.....YOUNGER THAN 8.4 MA  
 PERTINENT MINERALS (NOT ORE).....BARITE, SIDERITE, QUARTZ,  
 PYRITE, SERICITE, ARSENOPYRITE  
 ORE CONTROL/LOCUS.....INTERSECTING N15E AND N75E FRACTURES  
 SIGNIFICANT REGIONAL STRUCTURES.....N50W FAULT BETWEEN FOLDED  
 SILURIAN QUARTZITE AND CRETACEOUS MUDSTONE  
 SIGNIFICANT LOCAL STRUCTURES.....FRACTURED AND ERODED  
 STRATOVOLCANO  
 SIGNIFICANT ALTERATION.....INTENSE PROPYLITIZATION, SILICIFICATION,  
 CLAYS  
 IGNEOUS UNIT AGE.....LMIO 8.4 MA K/AR  
 IGNEOUS UNIT NAME.....LAURANI VOLCANIC MASSIF  
 GEOLOGY COMMENTS.....DEPOSIT IS ZONED TO NE WITH PYRITE-  
 ENARGITE CORE, ENARGITE-TENNANTITE MIDDLE ZONE AND SPHALERITE-SILVER-  
 BEARING GALENA OUTER ZONE.  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GERMAN  
 GEOLOGICAL MISSION TO BOLIVIA (SCHNEIDER-SCHERBINA, 1961A)  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964), REDWOOD AND  
 MACINTYRE (1989), SCHNEIDER-SCHERBINA (1961A)

## ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CONS	ACC	0.8411	MT		1958	4.85% CU
CONS	ACC	0.05755	MT		1960	20% CU; 1500 G/MT AG

SOURCE OF PRODUCTION INFORMATION.....INVENTARACION DE RECURSOS  
 MINERALES DE LA MINERIA CHICA

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE		2000	MT		1988	2.41 G/MT AU, 169 G/MT AG

SOURCE OF RESERVES AND RESOURCES INFORMATION.....MINING MAGAZINE, MARCH  
 1989, P. 174.  
 POTENTIAL RESOURCES COMMENTS.....COMPANY REPORTS OF THE  
 1930'S CITED BY SCHNEIDER-SCHERBINA (1961A) LISTED RESERVES AS 50,000 TO  
 100,000 MT ORE WITH 3.0 TO 3.5% CU, 300 TO 400 G/MT AG, AND 4 TO 5 G/MT  
 AU.

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MRDS RECORD NUMBER.....BL10208  
 SITE NAME.....LETANIAS I MINE  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....CERRO LETANIAS 5943-IV 1985  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3940 M  
 LATITUDE.....16-47-00S                      LONGITUDE.....068-26-00W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....3.5 KM S40W OF KONIRI  
 LOCATION COMMENTS.....ON SOUTH BANK RIO JORENKO  
 COMMODITIES PRESENT.....CU ,  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 DEPOSIT DESCRIPTION COMMENTS.....ARE 4 MANTOS 70 CM THICK AND 30  
 TO 40 M LONG  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....ARE 2 OR 3 SHAFTS  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 FORMATION AGE.....EO  
 FORMATION NAME.....TIAHUANACU  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY ZAPATA (1987)  
 REFERENCE....ZAPATA (1987)

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MRDS RECORD NUMBER.....BL10209  
 SITE NAME.....LETANIAS II PROSPECT  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO LETANIAS 5943-IV 1985  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3940 M  
 LATITUDE.....16-47-30S                      , LONGITUDE.....068-26-00W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....4.5 KM S55W OF KONIRI  
 LOCATION COMMENTS.....ON NORTH BANK OF RIO JORENKO  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....UP TO 6.7% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND

USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....PREFERRED BEDS  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA (1987)

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MRDS RECORD NUMBER.....BL10144  
SITE NAME.....LLALLAGUA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....EST GRAL BALLIVIAN 5942-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4100 M  
LATITUDE.....17-00-06S                      LONGITUDE.....068-24-26W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4 KM S OF ESTACION COMANCHE  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE  
GENERAL ANALYTICAL DATA.....UP TO 10% CU (CARRASCO, 1962)  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....PREFERRED BEDS  
FORMATION AGE.....TERT  
FORMATION NAME.....HUAYLLAMARCA  
NON-USGS WORK.....THESIS BY CARRASCO (1962)  
REFERENCE....CARRASCO (1962)

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MRDS RECORD NUMBER.....BL10217  
SITE NAME.....LOMITAS QUARRY  
SYNONYM NAME.....JANTAÑA  
MINING DISTRICT/AREA.....LAURANI DISTRICT  
PROVINCE.....AROMA  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO



DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CHIJMUNI 6041-IV 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3860 M  
 LATITUDE.....17-23-48S                      LONGITUDE.....067-49-35W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....7 KM S25E OF CHIJMUNI  
 LOCATION COMMENTS.....AT END OF RR SPUR TO ESTANCIA JANTAÑA  
 COMMODITIES PRESENT.....LST  
 ORE MATERIALS.....CALCITE SINTER  
 MAJOR.....LST  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....7  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COOPERATIVA MARMOLERA SANTIAGO DE LAURANI  
 LTDA.  
 OPERATOR.....COOPERATIVA MARMOLERA SANTIAGO DE LAURANI  
 LTDA.  
 DEPOSIT TYPE.....CARBONATE SINTER  
 USGS MODEL .....TRAVERTINE  
 DEPOSIT FORM.....LENSOID  
 DEPOSIT DESCRIPTION COMMENTS.....VOLCANIC BRECCIA IS VEINED BY  
 CALCITE.  
 DESCRIPTION OF WORKINGS.....S  
 DESCRIPTION OF WORKINGS COMMENTS.....OPEN PIT  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....CALCITE SINTER, VOLCANIC BRECCIA  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....VOLCANIC BRECCIA  
 AGE OF MINERALIZATION.....TERT  
 REFERENCE....GERMAN GEOLOGICAL MISSION TO BOLIVIA (1972), AHLFELD AND  
 SCHNEIDER-SCHERBINA (1964), EMPRESA MINERA ILLIMANI (1989), P. 4.

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MRDS RECORD NUMBER.....BL10211  
 SITE NAME.....LORD DE SENES MINE  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO LETANIAS 5943-IV 1985  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4020 M  
 LATITUDE.....16-44-00S                      LONGITUDE.....068-27-00W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....6 KM NW OF KONIRI  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....ORE ASSAYS 5.48% CU  
 MAJOR.....CU

PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....ERALDO CASANOVA  
 OPERATOR.....ERALDO CASANOVA  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 DEPOSIT DESCRIPTION COMMENTS.....ARE 5 MANTOS, 200 M LONG, 0.4 TO  
 1.20 M THICK  
 DESCRIPTION OF WORKINGS.....S  
 DESCRIPTION OF WORKINGS COMMENTS.....ARE 3 CATEOS IN A 1500 M BELT  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 FORMATION AGE.....EO  
 FORMATION NAME.....TIAHANACU  
 REFERENCE....ZAPATA (1987)

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MRDS RECORD NUMBER.....BL10192  
 SITE NAME.....MANCO KAPAC MINE  
 SYNONYM NAME.....NELLY  
 MINING DISTRICT/AREA.....BERENGUELA  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....BERENGUELA 5742-II 1964  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4200 M  
 LATITUDE.....17-17-52S                      LONGITUDE.....069-12-37W  
 ACCURACY.....ACC  
 COMMODITIES PRESENT.....AG    PB    ZN    CD    SB  
 ORE MATERIALS.....TENNANTITE, GALENA, SPHALERITE,  
 FREIESLEBENITE, GREENOCKITE, CHALCOPYRITE, BORNITE, STEPHANITE,  
 STROMEYERITE, POLYBASITE, MIARGYRITE, ARGENTITE, COVELLITE, CERRUSITE,  
 MN OXIDES, CHLORARGYRITE  
 MAJOR.....AG  
 MINOR.....PB    ZN    CD  
 OCCUR.....SB  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 MAXIMUM LENGTH.....1000                      UNITS...M  
 STRIKE.....E-W  
 DIP.....VERTICAL

DEPOSIT DESCRIPTION COMMENTS.....OXIDE ZONE IS ABOUT 50 M DEEP  
 WITH CERUSSITE-CHLORARGYRITE-MN OXIDES GRADING 190 G/T AG.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....50 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....TUFF  
 AGE OF IGNEOUS ROCK.....EO  
 IGNEOUS ROCK TYPE.....TUFF  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....KAOLINITE, CHALCEDONY  
 FORMATION AGE.....EO  
 FORMATION NAME.....BERENGUELA  
 IGNEOUS UNIT AGE.....EO  
 IGNEOUS UNIT NAME.....BERENGUELA  
 NON-USGS WORK.....THESIS BY SIRVAS (1964)  
 NON-USGS WORK.....INVESTIGATIONS BY GERMAN GEOLOGICAL  
 MISSION (SCHNEIDER-SCHERBINA, 1962B)  
 REFERENCE....SIRVAS (1964), SCHNEIDER-SCHERBINA (1962B)

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MRDS RECORD NUMBER.....BL10125  
 SITE NAME.....MARIA ELENA MINE  
 SYNONYM NAME.....ELENA, VICTORIA  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1968  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5842-I  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3770 M  
 LATITUDE.....17-04-56S LONGITUDE.....068-40-45W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....1.5 KM W OF ANTAQUIRA, AT PIEDRA  
 PATA, 133 KM BY ROAD FROM LA PAZ  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE, BROCHANTITE; CUPRITE,  
 MALACHITE, AZURITE, CHRYSOCOLLA  
 GENERAL ANALYTICAL DATA.....GEOCHEMICAL SOIL/ROCK SURVEY (TERRAZAS,  
 1975) FOR PB CU ZN; GRAB SAMPLES ANALYZED BY GEOBOL (LOPEZ AND MURILLO,  
 1963B): 5.12 TO 16.2% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....SRES. JOSE GOYTIA Y RIVERA  
 OPERATOR.....NITTO BOLIVIAN MINING  
 EXPLORATION AND DEVELOPMENT COMMENTS.....NITTO DRILLED AND SAMPLED  
 PROPERTY. RUDIMENTARY DRILL LOGS IN TERRAZAS (1975)  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B

DEPOSIT FORM.....LENTICULAR  
 MAXIMUM LENGTH.....500       UNITS...M  
 DEPOSIT SIZE.....MEDIUM  
 STRIKE.....N 25 TO 35 W  
 DIP.....15 TO 80 SW  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT CONSISTS OF IRREGULAR  
 LENSES OF ORE WITHOUT CONTINUITY DISPLACED BY POST-MINERALIZATION  
 FAULTING. AVERAGE THICKNESS OF MANTOS IS 1.3 M.  
 HOST ROCK AGE.....LOLIGO-LMIO  
 HOST ROCK TYPE.....CARBONACEOUS SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....LIMONITE, GYPSUM  
 ORE CONTROL/LOCUS.....MEDIUM GRAINED SANDSTONE IS GOOD HOST  
 ROCK, FINE GRAINED SANDSTONE A POOR HOST  
 SIGNIFICANT REGIONAL STRUCTURES.....ON E FLANK OF NNW SYNCLINE  
 FORMATION AGE.....LOLIGO-LMIO  
 FORMATION NAME.....TOTORA  
 GEOLOGY COMMENTS.....GYPSUM OCCURS AS VEINLETS  
 GENERAL COMMENTS.....GEOCHEMICAL SURVEY (TERRAZAS) CONSISTED OF  
 A S70E LINE FROM COROCORO TO MARIA ELENA (39 KM, 1 SAMPLE PER KM, 39  
 SAMPLES) AND A LINE ACCROSS MARIA ELENA PROPERTY (230 M, 1 SAMPLE PER M,  
 230 SAMPLES) ANALYZED FOR PB ZN AND CU BY AA. SOIL SAMPLES TAKEN FROM 20  
 TO 30 CM DEEP, ROCK SAMPLES FROM 5 TO 10 CM DEEP.  
 NON-USGS WORK.....THESIS BY TERRAZAS (1975)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL (LOPEZ  
 AND MURILLO, 1963B; VARGAS, 1967)  
 REFERENCE.....TERRAZAS (1975), LOPEZ AND MURILLO (1963B), VARGAS (1967)  
 PRODUCTION COMMENTS.....PRODUCED 1925-1926  
 RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CU	EST	300	MT		1975	

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....TERRAZAS (1975)  
 RESERVES AND RESOURCES COMMENTS.....BASED ON DRILLING BY  
 NITTO BOLIVIA MINING

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MRDS RECORD NUMBER.....BL10145  
 SITE NAME.....**MARIA ELENA MINE**  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5843-I  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 M  
 LATITUDE.....16-46-05S       LONGITUDE.....068-41-45W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM S75E OF JESUS DE MACHACA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; AZURITE, MALACHITE  
 GENERAL ANALYTICAL DATA.....ANALYSES BY GEOBOL (ZAPATA AND DELGADILLO,  
 1968): 0.3 TO 11.94% CU OVER 0.3 TO 1.4 M, AVERAGE 8.13% CU.

MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....GUILLERMO ALVAREZ PLATA  
 OPERATOR.....GUILLERMO ALVAREZ PLATA  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM LENGTH.....180 UNITS...M  
 STRIKE.....N 60 W  
 DIP.....16 TO 65 SW  
 DEPOSIT DESCRIPTION COMMENTS.....ARE 7 MANTOS  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....SHALLOW PITS AND SHAFTS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....CU MINERALS REPLACE ORGANIC MATTER  
 FORMATION AGE.....TERT  
 FORMATION NAME.....HUAYLLAMARCA  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (ZAPATA AND DELGADILLO, 1968)  
 REFERENCE....ZAPATA AND DELGADILLO (1968), ZAPATA (1987), VARGAS (1967)  
 ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CONS	ACC	.151	MT		1964	13.90% CU

 SOURCE OF PRODUCTION INFORMATION.....VARGAS (1967)  
 PRODUCTION COMMENTS.....PRODUCTION 1967 6 TO 8 MT/MO CONS

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MRDS RECORD NUMBER.....BL10199  
 SITE NAME.....MARIMARINI MINE  
 SYNONYM NAME.....LOURDES INES  
 MINING DISTRICT/AREA.....BERENGUELA  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....BERENGUELA 5742-II 1962  
 SECOND QUAD SCALE.....1:50,000  
 LATITUDE.....17-17-36S LONGITUDE.....069-14-17W  
 ACCURACY.....ACC  
 COMMODITIES PRESENT.....AG PB ZN CD CU SB AS BI NI  
 CO  
 ORE MATERIALS.....SPHALERITE, GREENOCKITE, GALENA,  
 TENNANTITE, STROMEYERITE, STEPHANITE, HUACHECORNITE  
 GENERAL ANALYTICAL DATA.....ANALYSES BY SCHNEIDER-SCHERBINA (1962):  
 27.35% PB, 3.05% ZN, 880 G/T AG. ZN HAS 20% CD.  
 MAJOR.....AG  
 MINOR.....PB

POTEN.....ZN    CD  
 OCCUR.....SB    AS    BI    NI    CO    CU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 EXPLORATION AND DEVELOPMENT COMMENTS.....MINED BY SPANISH TO 1780.  
 ADITS DRIVEN 1924 TO 1928.  
 DEPOSIT TYPE.....LODE  
 MAXIMUM LENGTH.....500            UNITS...M  
 STRIKE.....N75W  
 DIP.....VERTICAL  
 DESCRIPTION OF WORKINGS.....B  
 DEPTH BELOW SURFACE..... 50            UNITS...M  
 LENGTH OF WORKINGS.....250+            UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ADITS, PROSPECT PITS, SHAFTS  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....EO  
 FORMATION NAME.....BERENGUELA  
 NON-USGS WORK.....INVESTIGATIONS BY GERMAN GEOLOGICAL  
 MISSION (SCHNEIDER-SCHERBINA, 1962B)  
 REFERENCE....SCHNEIDER-SCHERBINA (1962B)

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MRDS RECORD NUMBER.....BL10321  
 SITE NAME.....MICAYA MINE  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5941-III  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....17-31-22S            LONGITUDE.....068-16-06W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....10.5 KM S60E OF CALLAPA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 HOST ROCK AGE.....LOLIGO-LMIO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....LOLIGO-LMIO

FORMATION NAME.....TOTORA  
REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10185  
SITE NAME.....MIRAZAPANI QUARRY  
SYNONYM NAME.....BERENGUELA  
MINING DISTRICT/AREA.....BERENGUELA DISTRICT  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....BERENGUELA 5742-II 1964  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4250 M  
LATITUDE....17-16-58S                      LONGITUDE....069-13-02W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1 KM W OF BERENGUELA DE PACAJES  
COMMODITIES PRESENT.....LST TRA  
ORE MATERIALS.....LIMESTONE, TRAVERTINE  
GENERAL ANALYTICAL DATA.....ANALYSIS OF LIMESTONE (AHLFELD AND  
SCHNEIDER-SCHERBINA, 1964): 97.47% CaCO<sub>3</sub>, 0.30% MgCO<sub>3</sub>, 1.11% SiO<sub>2</sub>, 2.11%  
Fe<sub>2</sub>O<sub>3</sub>, 0.45% Al<sub>2</sub>O<sub>3</sub>, 0.50% INSOLUBLE RESIDUE.  
MAJOR....LST  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....7  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
YEAR OF FIRST PRODUCTION.....1600'S?  
DEPOSIT TYPE.....SINTER  
USGS MODEL .....TRAVERTINE  
DEPOSIT FORM.....LENSOID  
DEPOSIT DESCRIPTION COMMENTS.....ARE 8 DEPOSITS OF CARBONATE  
SINTER, 1 TO 3 M THICK, GENERALLY COVERED BY POROUS TRAVERTINE (SILICA  
SINTER)  
DESCRIPTION OF WORKINGS.....S  
HOST ROCK AGE.....TERT  
ORE CONTROL/LOCUS.....AREAS OF PALEOTHERMAL ACTIVITY (HOT  
SPRINGS)  
GEOLOGY COMMENTS.....LIMESTONE IS COLLOIDAL, SOLD AS "MARBLE-  
ONYX".  
REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10228  
SITE NAME.....MISAGUE MINE  
MINING DISTRICT/AREA.....CHACARILLA DISTRICT  
PROVINCE.....VILLAROEL  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1980

QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SAN PEDRO DE CURAHUARA 5941-II 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3960 M  
LATITUDE.....17-35-16S                      LONGITUDE.....068-11-48W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1.6 KM S45E OF TOWN OF CHACARILLA  
COMMODITIES PRESENT.....CU    PB    AG  
ORE MATERIALS.....MALACHITE  
GENERAL ANALYTICAL DATA.....ANALYSIS (SCHNEIDER-SCHERBINA, 1963): 9.8%  
CU, 1.1% PB, 12 G/MT AG  
MAJOR.....CU  
MINOR.....AG  
POTEN.....PB  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....NITTO BOLIVIA MINING CO.  
OPERATOR.....NITTO BOLIVIA MINING CO.  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM LENGTH.....200                      UNITS...M  
MAXIMUM WIDTH.....80                      UNITS...M  
STRIKE.....N 45 W  
DEPOSIT DESCRIPTION COMMENTS.....ARE 3 MANTOS  
DESCRIPTION OF WORKINGS.....B  
DESCRIPTION OF WORKINGS COMMENTS.....PROSPECT PITS, ADITS  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....PREFERRED BEDS  
SIGNIFICANT ALTERATION.....BLEACHING  
FORMATION AGE.....TERT  
NON-USGS WORK.....INVESTIGATIONS BY GERMAN GEOLOGICAL  
MISSION TO BOLIVIA (SCHNEIDER-SCHERBINA, 1963)  
REFERENCE....SCHNEIDER-SCHERBINA (1963)

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MRDS RECORD NUMBER.....BL00029  
SITE NAME.....MOCAL PROSPECT  
PROVINCE.....AROMA  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....AYO AYO 5942-I 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4100 M  
LATITUDE.....17-08-45S                      LONGITUDE.....068-02-29W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....7.5 KM S35W OF AYO AYO



COMMODITIES PRESENT.....UKN  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
DISCOVERER.....MINTEC  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....MINTEC  
OPERATOR.....MINTEC  
HOST ROCK AGE.....SIL  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....INTRUSIVE  
AGE OF MINERALIZATION.....TERT?  
FORMATION AGE.....SIL  
FORMATION NAME.....CATAVI  
IGNEOUS UNIT AGE.....TERT  
SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL10207  
SITE NAME.....MONTEBELLO MINE  
SYNONYM NAME.....MONTEVILLO  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....JESUS DE MACHACA 5843-IV 1964  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4160 M  
LATITUDE.....16-43-45S                      LONGITUDE.....068-45-42W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4.5 KM N75E OF JESUS DE MACHACA  
LOCATION COMMENTS.....ON NW FLANK CERRO PICACHANI  
COMMODITIES PRESENT.....CU    ZN    PB    AG  
GENERAL ANALYTICAL DATA.....CIA MINERA INTI ILLIMANI AVERAGE ASSAY  
(INCLUDING SAN LUIS MINE): 3.52% ZN, 0.27% PB, 2.65 G/MT AG  
MAJOR.....CU  
POTEN.....ZN    PB    AG  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....HUGO BAUDOIN  
OPERATOR.....HUGO BAUDOIN  
EXPLORATION AND DEVELOPMENT COMMENTS.....SAMPLED BY CIA MINERA INTI  
ILLIMANI 1989  
DEPOSIT TYPE.....LODE  
STRIKE.....N 30 E  
DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE 20 TO 30 CM WIDE WITH  
80 CM WIDE ORE SHOOT  
DESCRIPTION OF WORKINGS.....U  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....FRACTURES

FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
GEOLOGY COMMENTS.....MAY BE RELATED TO MINERALIZATION IN  
QUIMSACHATA DISTRICT (TERTIARY INTRUSIVES)  
REFERENCE....EMPRESA MINERA ILLIMANI (1989), P. 20-21.

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MRDS RECORD NUMBER.....BL20000  
SITE NAME.....NASA POKE MINE  
MINING DISTRICT/AREA.....QUIMSA CHATA  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ (SE 19-3) 1978  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....TIAHUANACU 5844-II 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4190 M  
LATITUDE.....16-38-56S LONGITUDE.....68-39-17W  
COMMODITIES PRESENT.....ZN  
ORE MATERIALS.....SPHALERITE  
NON-PRODUCER MAIN.....ZN  
PRODUCTION.....U  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....LODE  
DEPOSIT SIZE.....SMALL  
STRIKE.....N 50 E  
DIP.....80 S  
DESCRIPTION OF WORKINGS.....U  
DESCRIPTION OF WORKINGS COMMENTS.....1 ADIT  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE DACITE  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....DACITE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....QUARTZ, SERICITE  
ORE CONTROL/LOCUS.....FAULT  
SIGNIFICANT LOCAL STRUCTURES.....FAULTS  
SIGNIFICANT ALTERATION.....SERICITIZATION  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....CORDERO (1966)

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MRDS RECORD NUMBER.....BL10191  
SITE NAME.....NOE MINE  
SYNONYM NAME.....LA EXPLOTADA, CLARA ROSA, BRASIL, LA  
EXPLORADORA, PORTACHURO, CACHU, CHIGUANA  
MINING DISTRICT/AREA.....PINQUILLANI DISTRICT  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-27-22S LONGITUDE.....068-17-53W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....6.25 KM N65E OF CALLAPA  
COMMODITIES PRESENT.....CU PB AG  
ORE MATERIALS.....CHALCOCITE, NATIVE CU; MALACHITE, AZURITE  
GENERAL ANALYTICAL DATA.....ORE ANALYSIS: 8.7% CU 0.45% PB 1.85% S 30  
G/T AG OVER 0.5 M WIDTH  
MAJOR.....CU  
MINOR.....AG  
POTEN.....PB  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
DEPTH TO TOP.....0 UNITS...M  
MAXIMUM THICKNESS.....50 UNITS...M  
DEPOSIT SIZE.....SMALL  
STRIKE.....N 45 W  
DIP.....30 TO 50 SW  
DEPOSIT DESCRIPTION COMMENTS.....ARE 5 MANTOS. NATIVE CU ORE FOUND  
ABOVE WATER TABLE, CU SULFATES BELOW.  
DESCRIPTION OF WORKINGS.....S  
DEPTH BELOW SURFACE.....25 UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....PROSPECT PIT ONLY  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
WORK DONE BY USGS.....GEOLOGICAL INVESTIGATIONS BY USGS AND  
GEOBOL (MEYER AND MURILLO, 1961)  
REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10205  
SITE NAME.....NUESTRA SEÑORA DE LA PAZ  
PROSPECT  
PROVINCE.....AROMA  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ DE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALAMARCA 5943-II 1963  
SECOND QUAD SCALE.....1:50,000

ELEVATION.....4600 M  
 LATITUDE.....16-58-42S LONGITUDE.....068-10-39W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....2 KM S35W OF CALLAMARCA, 76 KM BY  
 ROAD FROM LA PAZ  
 LOCATION COMMENTS.....ON CERRO KORI CAHUA  
 COMMODITIES PRESENT.....AG PB  
 ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....CIA MINERA ILLIMANI ASSAYS: UP TO 109 G/MT  
 AG, AVERAGE 26.6 G/MT AG.  
 OCCUR.....AG PB  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....FREDDY SAAVEDRA M.  
 YEAR OF DISCOVERY.....1989  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....FREDDY SAAVEDRA M.  
 OPERATOR.....EMPRESA MINERA ILLIMANI  
 EXPLORATION AND DEVELOPMENT COMMENTS.....THERE APPEAR TO BE OLDER  
 WORKINGS. AREA CLAIMED BY SAAVEDRA IS 20 HA (OPTIONED TO EMPRESA MINERA  
 ILLIMANI). ILLIMANI IS EXPLORING 45 HA AREA.  
 DEPOSIT TYPE.....STOCKWORK  
 DESCRIPTION OF WORKINGS COMMENTS.....2 ADITS, TRENCHING  
 HOST ROCK AGE.....MIO?  
 HOST ROCK TYPE.....DACITE  
 AGE OF IGNEOUS ROCK.....MIO?  
 IGNEOUS ROCK TYPE.....DACITE  
 AGE OF MINERALIZATION.....MIO?  
 PERTINENT MINERALS (NOT ORE).....FE OXIDES  
 SIGNIFICANT ALTERATION.....ARGILLIC  
 REFERENCE....EMPRESA MINERA ILLIMANI (1989), P. 18

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MRDS RECORD NUMBER.....BL10151  
 SITE NAME.....OMONIMA MINE  
 MINING DISTRICT/AREA.....QUIMSA CHATA  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....TIAHUANACU 5844-II 1985  
 SECOND QUAD SCALE.....1:50,000  
 COMMODITIES PRESENT.....AG  
 MAJOR.....AG  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 OWNER (PRESENT/LAST).....ROBERTO SANCHEZ  
 OPERATOR.....ROBERTO SANCHEZ  
 DEPOSIT TYPE.....LODE  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS ORIENTED N30W AND N60W  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY CORDERO  
 (1966)

## REFERENCE....CORDERO (1966)

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MRDS RECORD NUMBER.....BL00016  
SITE NAME.....PACHEKHALA PROSPECT  
SYNONYM NAME.....MIRIQUIRI  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COLLANA 5943-III 1985/ESTACION GENERAL  
BALLIVIAN 5942-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4500 M  
LATITUDE.....16-59-45S LONGITUDE.....068-27-27W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....5 KM S40W OF ESTACION COMANCHE  
LOCATION COMMENTS.....ON CERRO PACHEKHALA (CERRO MIRIQUIRI)  
COMMODITIES PRESENT.....AU CU PB ZN FE  
ORE MATERIALS.....MAGNETITE; MALACHITE, AZURITE  
GENERAL ANALYTICAL DATA.....UP TO 5 PPM AU, 200 PPM CU, 2000 PPM PB  
OCCUR.....ZN  
NON-PRODUCER MAIN.....AU CU PB FE  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
DISCOVERER.....MINTEC  
YEAR OF DISCOVERY.....1987  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....ROBERTO SANCHEZ  
OPERATOR.....ROBERTO SANCHEZ  
EXPLORATION AND DEVELOPMENT COMMENTS.....TRACES OF COLONIAL  
PROSPECTING ACTIVITY. DRILLED 1989 BY AUSTRABOL: 14 50 TO 100 M ROTARY  
DRILL HOLES FOUND SPORADIC MINERALIZATION WITH SOME AU VALUES UP TO 5  
PPM. MINERALIZATION IN BRECCIA BODIES CEMENTED BY SPECULARITE IN  
ANDESITE ON WEST SIDE OF CERRO PACHEKHALA. MAGNETITE CEMENTED BRECCIAS  
FOUND LOWER IN THE SYSTEM.  
DEPOSIT TYPE.....LODE BRECCIA  
HOST ROCK AGE.....MMIO  
HOST ROCK TYPE.....ANDESITE, DACITE, SANDSTONE  
AGE OF IGNEOUS ROCK.....MMIO  
IGNEOUS ROCK TYPE.....ANDESITE, DACITE  
AGE OF MINERALIZATION.....MMIO  
PERTINENT MINERALS (NOT ORE).....SPECULARITE, APATITE, BARITE,  
PYRITE  
ORE CONTROL/LOCUS.....BRECCIA ZONES  
SIGNIFICANT ALTERATION.....SILICIC, QUARTZ-SERICITE, PROPYLITIC  
IGNEOUS UNIT AGE.....MMIO 15 TO 18 K/AR  
NON-USGS WORK.....EXPLORATION WORK BY MINTEC FROM 1987  
NON-USGS WORK.....DRILLING BY AUSTRABOL 1989  
REFERENCE....REDWOOD AND MACINTYRE (1989)

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MRDS RECORD NUMBER.....BL10194  
SITE NAME.....PACOCAGUA MINE  
SYNONYM NAME.....DOS AMIGOS  
MINING DISTRICT/AREA.....BERENGUELA  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....BERENGUELA 5742-II 1962  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4200 M  
LATITUDE.....17-19-06S                      LONGITUDE.....069-14-32W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4.5 KM S40W OF BERENGUELA  
COMMODITIES PRESENT.....AG    PB    ZN    AS  
ORE MATERIALS.....SPHALERITE, GALENA, PEARCEITE  
MAJOR.....AG  
MINOR.....PB  
POTEN.....ZN  
OCCUR.....AS  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
DISCOVERER.....SPANISH COLONISTS  
YEAR OF DISCOVERY.....1600'S  
NATURE OF DISCOVERY.....B  
YEAR OF LAST PRODUCTION.....1780  
DEPOSIT TYPE.....LODE  
MAXIMUM LENGTH.....350                      UNITS...M  
STRIKE.....E-W  
DEPOSIT DESCRIPTION COMMENTS.....VEIN IS 300 M LONG  
DESCRIPTION OF WORKINGS.....U  
DEPTH BELOW SURFACE.....15                      UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....LARGE DUMPS; 3 ADITS, 1 SHAFT,  
ALL FLOODED. MINE HAS A CO2 GAS PROBLEM.  
HOST ROCK AGE.....LMIO-EPLIO  
HOST ROCK TYPE.....ANDESITE  
AGE OF IGNEOUS ROCK.....LMIO-EPLIO  
IGNEOUS ROCK TYPE.....ANDESITE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....PYRITE, QUARTZ, BARITE  
SIGNIFICANT ALTERATION.....SILICIFICATION  
FORMATION AGE.....LMIO-EPLIO  
FORMATION NAME.....CERKE  
IGNEOUS UNIT AGE.....LMIO-EPLIO  
IGNEOUS UNIT NAME.....CERKE  
GEOLOGY COMMENTS.....MINE DISCHARGES SIO2 RICH FLUIDS AND CO2  
SUGGESTING RECENT OR ONGOING HYDROTHERMAL ACTIVITY. SOME 1000 CU M OF  
OPALINE SINTER FOUND NEARBY, SOME 12 M THICK.  
NON-USGS WORK.....INVESTIGATIONS BY GERMAN GEOLOGICAL  
MISSION (SCHNEIDER-SCHERBINA, 1962B)  
REFERENCE....SCHNEIDER-SCHERBINA (1962B)

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MRDS RECORD NUMBER.....BL10152  
SITE NAME.....PALMIRA MINE  
MINING DISTRICT/AREA.....SERRANIA DE TIWANAKU  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....GUAQUI 5844-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3875 M  
LATITUDE.....16-36-00S LONGITUDE.....068-50-00W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....NEAR CHAPICOLLO IN SUBURBAN  
GUAQUI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE; MALACHITE, AZURITE, CUPRITE  
GENERAL ANALYTICAL DATA.....ANALYSES BY CARO AND VARGAS (1963): 0.25  
TO 9.25% CU  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....EMPRESA MINERA ERICH HOCHHAUSER  
OPERATOR.....EMPRESA MINERA ERICH HOCHHAUSER  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
STRIKE.....N 62 TO 72 W  
DIP.....62 TO 68 NE  
DEPOSIT DESCRIPTION COMMENTS.....MANTOS ARE 0.5 TO 0.8 M THICK.  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....48 UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....CU MINERALS REPLACE ORGANIC MATTER  
SIGNIFICANT REGIONAL STRUCTURES.....ON NE FLANK OF ANTICLINE  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY CARO AND  
VARGAS (1963)  
REFERENCE....CARO AND VARGAS (1963)

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MRDS RECORD NUMBER.....BL00028  
SITE NAME.....PANDAL PROSPECT  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CERRO LETANIAS 5943-IV 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....16-44-50S                      LONGITUDE.....068-17-50W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1.5 KM N70E OF ESTANCIA  
CHUQUINUMA  
COMMODITIES PRESENT.....UKN  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
DISCOVERER.....MINTEC  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....MINTEC  
OPERATOR.....MINTEC  
HOST ROCK AGE.....DEV?  
FORMATION AGE.....DEV?  
SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL10153  
SITE NAME.....PISAKHERI MINE  
SYNONYM NAME.....PISAKHERI, ANACONDA, VIOLETA  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....EST GRAL BALLIVIAN 5942-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4080 M  
LATITUDE.....17-02-27S                      LONGITUDE.....068-29-21W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4.5 KM N30W OF ESTACION GENERAL  
BALLIVIAN  
LOCATION COMMENTS.....ON S FLANK CERRO PICHICANI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....NATIVE CU, CHALCOCITE; CUPRITE, MALACHITE,  
AZURITE  
GENERAL ANALYTICAL DATA.....ORE GRADES 3 TO 4% CU; GEOCHEMICAL SOIL  
SURVEY FOR CU BY BERNAL (1979)  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
DEPOSIT SIZE.....SMALL  
STRIKE.....N 30 W



DIP.....45 NE  
DEPOSIT DESCRIPTION COMMENTS.....NATIVE CU OCCURS AS 5 TO 20 MM  
NODULES REPLACING CEMENT IN SANDSTONE. CHALCOCITE FOUND SE OF FAULT.  
DESCRIPTION OF WORKINGS.....U  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE (LITHARENITE)  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....CU MINERALS REPLACE CLAY MATRIX OF  
PREFERRED LITHARENITE BEDS  
SIGNIFICANT REGIONAL STRUCTURES.....ON NW FLANK OF COROCORO  
ANTICLINE  
SIGNIFICANT ALTERATION.....BLEACHING  
FORMATION AGE.....EO  
FORMATION NAME.....BALLIVIAN  
NON-USGS WORK.....THESIS BY CARRASCO (1963)  
NON-USGS WORK.....THESIS BY BERNAL (1979)  
REFERENCES....CARRASCO (1963), LJUNGGREN AND MEYER (1964), BERNAL (1979)

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MRDS RECORD NUMBER.....BL10154  
SITE NAME.....PONTEZUELO MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....EST GRAL BALLIVIAN 5942-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....6 KM N OF COROCORO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE; AZURITE, MALACHITE  
GENERAL ANALYTICAL DATA.....ORE ANALYSES (VARGAS, 1967): 4.02 TO 6.43%  
CU  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....PIO GOITIA NAVA  
OPERATOR.....PIO GOITIA NAVA  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
STRIKE.....N 20 TO 30 W  
DIP.....50 TO 65 SW  
DEPOSIT DESCRIPTION COMMENTS.....MANTOS ARE 0.6 TO 1.5 M THICK.  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE, CONGLOMERATE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....PREFERRED BEDS  
SIGNIFICANT REGIONAL STRUCTURES.....ON E FLANK OF A NW SYNCLINE

FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE....VARGAS (1967)

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MRDS RECORD NUMBER.....BL10227  
SITE NAME.....**PORFIA MINE**  
MINING DISTRICT/AREA.....CHACARILLA DISTRICT  
PROVINCE.....VILLAROEL  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SAN PEDRO DE CURAHUARA 5941-II 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-34-26S                      LONGITUDE.....068-11-18W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1.2 KM E OF TOWN OF CHACARILLA  
COMMODITIES PRESENT.....CU    PB    AG  
ORE MATERIALS.....CHALCOCITE  
GENERAL ANALYTICAL DATA.....ANALYSIS (SCHNEIDER-SCHERBINA, 1963):  
13.95% CU, 0.65% PB, TR AG OVER 2.7 M.  
MAJOR.....CU  
MINOR.....AG  
POTEN.....PB  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....NITTO BOLIVIA MINING CO  
OPERATOR.....NITTO BOLIVIA MINING CO  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM LENGTH.....750                      UNITS...M  
MAXIMUM WIDTH.....100                      UNITS...M  
STRIKE.....N 55 W  
DEPOSIT DESCRIPTION COMMENTS.....ARE 2 MANTOS  
DESCRIPTION OF WORKINGS.....U  
DEPTH BELOW SURFACE.....120                      UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....INCLINED ADIT  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
SIGNIFICANT ALTERATION.....BLEACHING  
FORMATION AGE.....TERT  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GERMAN  
GEOLOGICAL MISSION TO BOLIVIA (SCHNEIDER-SCHERBINA, 1963)  
REFERENCE....SCHNEIDER-SCHERBINA (1963)

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MRDS RECORD NUMBER.....BL10155  
 SITE NAME.....**PORVENIR MINE**  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....EST GRAL BALLIVIAN 5942-IV 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 M  
 LATITUDE.....17-01-30S                      LONGITUDE.....068-30-00W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....AT KCANAPATA, NW OF PISAQUERI  
 MINE, 101 KM FROM LA PAZ BY ROAD.  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; COVELLITE, MALACHITE  
 GENERAL ANALYTICAL DATA.....ABOUT 5% CU AVERAGE GRADE  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 DISCOVERER.....ROBERTO WAGNER A.  
 YEAR OF DISCOVERY.....1962  
 OWNER (PRESENT/LAST).....ROBERTO WAGNER A.  
 OPERATOR.....ROBERTO WAGNER A.  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 STRIKE.....N 15 E  
 DIP.....15 NW  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....CU MINERALS REPLACE ORGANIC MATTER  
 FORMATION AGE.....EO  
 FORMATION NAME.....BALLIVIAN  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL (LOPEZ  
 AND MURILLO, 1963A)  
 REFERENCE....LOPEZ AND MURILLO (1963A)  
           ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
CONS	ACC	.000985	MT	1962	18.0% CU 122 G/T AG

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MRDS RECORD NUMBER.....BL10110  
 SITE NAME.....**PRIMERA MINE**  
 PROVINCE.....LOS ANDES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1970  
 QUADRANGLE SCALE.....1:250,000  
 ACCURACY.....ACC  
 COMMODITIES PRESENT.....CU

ORE MATERIALS.....CHALCOCITE; MALACHITE, AZURITE  
GENERAL ANALYTICAL DATA.....ORE GRADE ABOUT 11.35% CU  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND, LODE  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
MAXIMUM THICKNESS.....30           UNITS...CM  
DEPOSIT SIZE.....SMALL  
DEPOSIT DESCRIPTION COMMENTS.....MANTOS 0.2 TO 0.3 M THICK  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT  
FORMATION NAME.....HUAYLLAMARCA  
REFERENCE....ZAPATA AND DELGADILLO (1968)

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MRDS RECORD NUMBER.....BL10313  
SITE NAME.....PUCARA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-24-08S           LONGITUDE.....068-20-45W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4.5 KM S15E OF COMUNIDAD CHOQUE  
PHUJO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL00017  
 SITE NAME.....QUIMSA CHATA DISTRICT  
 SYNONYM NAME.....TIWANAKU DISTRICT. MINES: CARACOLLO,  
 CARMEN, GRANADA, NASA POKE, OMONIMA, SAN BARTOLOME, SAN CARLOS, SANTA  
 ROSA.  
 MINING DISTRICT/AREA.....QUIMSACHATA (TIWANAKU)  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....TIAHUANACU 5844-II 1985  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4300 M  
 LATITUDE.....16-38-11S LONGITUDE.....068-39-21W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....10 KM S15E OF TIWANAKU.  
 LOCATION COMMENTS.....ON CERRO QUIMSA CHATA  
 COMMODITIES PRESENT.....AG PB AU ZN CU AS  
 ORE MATERIALS.....GALENA, SPHALERITE; CHALCOPYRITE,  
 TETRAHEDRITE; (MALACHITE, AZURITE, CUPRITE)  
 GENERAL ANALYTICAL DATA.....SAMPLING BY MINTEC: AG MOSTLY LESS THAN 2  
 G/MT SOME 16 TO 430 G/MT, AU MOSTLY LESS THAN .01 G/MT SOME 0.12 TO 0.54  
 G/MT. DUMP SAMPLES (SCHNEIDER-SCHERBINA, 1961): 2.9 TO 4.45% PB, 1.05 TO  
 21.2% ZN, 1.0 TO 6.7% CU, 100 TO 2160 G/MT AG.  
 MAJOR.....AG  
 MINOR.....PB  
 POTEN.....AU ZN CU  
 OCCUR.....AS  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....ROBERTO SANCHEZ  
 OPERATOR.....ROBERTO SANCHEZ  
 EXPLORATION AND DEVELOPMENT COMMENTS.....EXPLORATION WORK BY MINTEC  
 DEPOSIT TYPE.....LODE, STOCKWORK  
 MAXIMUM LENGTH.....3000 UNITS...M  
 MAXIMUM WIDTH.....2400 UNITS...M  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS STRIKE N20E AND N50 TO 60  
 E, GENERALLY 0.1 TO 1 M WIDE AND UP TO 500 M LONG. ENTIRE DISTRICT IS 3  
 BY 2.5 KM IN AREA. ORE FOUND AS QUARTZ-BARITE-TOURMALINE-SULFIDE VEIN S  
 AND QUARTZ-TOURMALINE-SULFIDES IN IGNEOUS BRECCIA  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....200 UNITS...M  
 LENGTH OF WORKINGS.....1800 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....MANY ADITS. IN ADDITION ARE 500  
 M OF TRENCHING AND A 70 BY 30 M OPEN PIT ON THE SANTA ROSA-SAN CARLOS  
 VEIN.  
 HOST ROCK AGE.....PALEO-EOC  
 HOST ROCK TYPE.....SANDSTONE, CONGLOMERATE, DACITE  
 AGE OF IGNEOUS ROCK.....MMIO 11-13 MA K/AR  
 IGNEOUS ROCK TYPE.....DACITE  
 AGE OF MINERALIZATION.....MMIO 11 MA K/AR

PERTINENT MINERALS (NOT ORE).....QUARTZ, BARITE, TOURMALINE,  
 SERICITE, BARITE, KAOLINITE, PYRITE  
 ORE CONTROL/LOCUS.....NE TRENDING FRACTURE ZONES  
 SIGNIFICANT ALTERATION.....SERICITIZATION, KAOLINIZATION,  
 SILICIFICATION, PYRITIZATION  
 FORMATION AGE.....PALEO-EOC  
 FORMATION NAME.....TIWANAKU  
 IGNEOUS UNIT AGE.....MMIO 11-13 MA K/AR  
 IGNEOUS UNIT NAME.....QUIMSA CHATA STOCK  
 NON-USGS WORK.....THESES BY REDWOOD (1986), ACLAND (1989),  
 AND PATON (1989)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (CORDERO, 1966)  
 NON-USGS WORK.....INVESTIGATIONS BY GERMAN GEOLOGICAL  
 MISSION (SCHNEIDER-SCHERBINA, 1961B)  
 REFERENCE....REDWOOD AND MACINTYRE (1989), REDWOOD (1986), ACLAND  
 (1989), PATON (1989), CORDERO (1966), SCHNEIDER-SCHERBINA (1961B)  
 RESERVES AND POTENTIAL RESOURCES  
 ITEM ACCURACY AMOUNT THOUS UNITS YEAR GRADE  
 DUMPS EST 20 MT 1961  
 SOURCE OF RESERVES AND RESOURCES INFORMATION.....SCHNEIDER-SCHERBINA  
 (1961B, P. 6)

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MRDS RECORD NUMBER.....BL10323  
 SITE NAME.....RESGUARDO MINE  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5941-III  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....17-35-56S LONGITUDE.....068-16-43W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5 KM S30E OF ESTANCIA CHIVO  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 HOST ROCK AGE.....LOLIGO-LMIO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....LOLIGO-LMIO  
 FORMATION NAME.....TOTORA  
 REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10159  
 SITE NAME.....SAN AGUSTIN MINE  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....17-24-57S                      LONGITUDE.....068-28-53W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....8 KM N5E OF ULLOMA  
 LOCATION COMMENTS.....AT WILA KHAÑUTA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....ASSAYS BY VEDIA AND ASCARRUNZ (1970): 2.03  
 TO 15. 14% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 STRIKE.....N 10 W  
 DIP.....30 NE  
 DEPOSIT DESCRIPTION COMMENTS.....MANTOS ARE 5 CM TO 1.1 M THICK,  
 AVERAGE 30 CM THICK. CU MINERALS REPLACE CEMENT IN FLUVIAL CHANNEL  
 SANDSTONE  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....SHAFTS, RAMPS  
 HOST ROCK AGE.....LOLIGO-LMIO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 SIGNIFICANT REGIONAL STRUCTURES.....ON CORQUE SYNCLINE  
 SIGNIFICANT LOCAL STRUCTURES.....FLUVIAL CHANNELS  
 FORMATION AGE.....LOLIGO-LMIO  
 FORMATION NAME.....TOTORA  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL (VEDIA  
 AND ASCARRUNZ, 1970)  
 REFERENCE....VEDIA AND ASCARRUNZ (1970)

## ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	ACC	.003	MT		1969	6.80% CU

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MRDS RECORD NUMBER.....BL20004  
 SITE NAME.....SAN CARLOS MINE  
 MINING DISTRICT/AREA.....QUIMSA CHATA  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....TIAHUANACU 5844-II 1985  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3980 M  
 LATITUDE.....16-37-58S                      LONGITUDE.....068-39-22W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....9 KM S15E OF TIAHUANACU, 81 KM  
 FROM LA PAZ BY ROAD  
 LOCATION COMMENTS.....ON POTOSI AND CARACOLLO HILLS  
 COMMODITIES PRESENT.....AG    PB    ZN    CU  
 ORE MATERIALS.....GALENA, SPHALERITE, CHALCOPYRITE,  
 MALACHITE, AZURITE  
 GENERAL ANALYTICAL DATA.....ANALYSES BY GEOBOL: 1 TO 3% PB, 10 TO 120  
 G/MT AG  
 MAJOR.....AG  
 MINOR.....PB    ZN  
 OCCUR.....CU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N25E  
 DIP.....75SE  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE 2 TO 10 CM WIDE  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....108                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ADIT, STOPES, SHAFTS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE CONGLOMERATE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....QUARTZ PORPHYRY  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE, SIDERITE, LIMONITE,  
 BARITE  
 ORE CONTROL/LOCUS.....FRACTURES  
 FORMATION AGE.....TERT  
 FORMATION NAME.....TIAHUANACU  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (CORDERO, 1966; ESCOBAR AND JUAREZ, 1969)  
 REFERENCES...CORDERO (1966), ESCOBAR AND JUAREZ (1969)

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MRDS RECORD NUMBER.....BL10131  
 SITE NAME.....SAN FRANCISCO PROSPECT  
 PROVINCE.....PACAJES



PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5941-III  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....17-24-26S                      LONGITUDE.....068-19-22W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....8 KM N20E OF CALLAPA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE, CUPRITE, MALACHITE  
OCCUR.....CU  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
STRIKE.....N 40 W  
DIP.....45 SW  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....CHALCOCITE REPLACES ORGANIC MATTER  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE.....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10302  
SITE NAME.....SAN ISIDRO MINE  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....GUAQUI 5844-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4100 M  
LATITUDE.....16-36-44S                      LONGITUDE.....068-49-06W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....2.3 KM S35E OF GUAQUI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B

DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA AND DELGADILLO (1967)

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MRDS RECORD NUMBER.....BL10198  
SITE NAME.....SAN JOSE DE BERENGUELA MINE  
SYNONYM NAME.....ELISA, HUCURANI  
MINING DISTRICT/AREA.....BERENGUELA  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....BERENGUELA 5742-II 1962  
SECOND QUAD SCALE.....1:50,000  
LATITUDE.....17-17-17S                      LONGITUDE.....069-13-57W  
ACCURACY.....ACC  
COMMODITIES PRESENT.....AG    PB    ZN    CU  
ORE MATERIALS.....GALENA, SPHALERITE, TENNANTITE  
MAJOR.....AG  
MINOR.....PB  
POTEN.....ZN  
OCCUR.....CU  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....LODE  
MAXIMUM LENGTH..... 2000                      UNITS...M  
MAXIMUM WIDTH..... 400                      UNITS...M  
DESCRIPTION OF WORKINGS.....B  
DEPTH BELOW SURFACE..... 10+                      UNITS...M  
LENGTH OF WORKINGS.....1000+                      UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....OVER 100 SHAFTS/PITS; MANY  
COLONIAL ERA DUMPS  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....RHODOCHROSITE, MN OXIDE, OPAL  
ORE CONTROL/LOCUS.....E-W STRUCTURE  
SIGNIFICANT LOCAL STRUCTURES.....FAULT SETS STRIKING N80W AND  
N60W, AND N20W AND N70E, WITH DISPLACEMENTS UP TO 50 M.  
FORMATION AGE.....TERT  
FORMATION NAME.....HUALLYAMARCA  
NON-USGS WORK.....INVESTIGATIONS BY GERMAN GEOLOGICAL  
MISSION (SCHNEIDER-SCHERBINA, 1962B)  
REFERENCE....SCHNEIDER-SCHERBINA (1962B)

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MRDS RECORD NUMBER.....BL10193  
SITE NAME.....SAN LUIS MINE  
SYNONYM NAME.....MARY-MARY, HEIL HITLER, VILUIYO, KAIRIRI,  
ELISA  
MINING DISTRICT/AREA.....BERENGUELA  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....BERENGUELA 5742-II 1964  
SECOND QUAD SCALE.....1:50,000  
LATITUDE.....17-16-10S LONGITUDE.....069-12-54W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....2 KM N OF BERENGUELA  
COMMODITIES PRESENT.....ZN CD AG CU PB SB  
ORE MATERIALS.....SPHALERITE, GREENOCKITE, GALENA,  
TENNANTITE, NATIVE CU  
GENERAL ANALYTICAL DATA.....5% CD, UP TO 25% SB IN PLACES, 100 TO 200  
G/T AG.  
MAJOR.....ZN CD AG CU  
MINOR.....PB  
POTEN.....SB  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
EXPLORATION AND DEVELOPMENT COMMENTS.....MINED 1928 TO 1930 BY  
VILLAR PANDO FOR ZN-CD. VILUIYO MINED 1926-1930 FOR CU AS KAIRIRI. MAIN  
ADIT REOPENED 1952 AND LENGTHENED TO 100 M.  
DEPOSIT TYPE.....LODE  
MAXIMUM LENGTH.....300 UNITS...M  
STRIKE.....E-W (100)  
DIP.....70 TO 80 S  
DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE 10 TO 30 CM WIDE WITH  
ORE SHOOTS 10 TO 35 M LONG AND UP TO 3 M WIDE. DEPOSIT IS OXIDIZED TO 5  
TO 10 M DEPTH. EAST END OF VEIN (VILUIYO) CONTAINS ABUNDANT CU IN  
OXIDIZED ZONE.  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....100 UNITS...M  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....KAOLINITE  
ORE CONTROL/LOCUS.....E-W STRUCTURE  
SIGNIFICANT ALTERATION.....KAOLINITE SELVAGES AROUND VEINS  
FORMATION AGE.....EO  
FORMATION NAME.....BERENGUELA  
NON-USGS WORK.....THESIS BY SIRVAS (1964)  
NON-USGS WORK.....INVESTIGATIONS BY GERMAN GEOLOGICAL  
MISSION TO BOLIVIA (SCHNEIDER-SCHERBINA, 1962B)  
REFERENCES....SIRVAS (1964), SCHNEIDER-SCHERBINA (1962B)

ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CONS	EST	1	MT		1952	ZN, CD

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MRDS RECORD NUMBER.....BL10206  
 SITE NAME.....**SAN LUIS MINE**  
 SYNONYM NAME.....MARIA DEL CARMEN MERCEDES  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....JESUS DE MACHACA 5843-IV 1964  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4240 M  
 LATITUDE.....16-42-02S LONGITUDE.....068-47-10W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....4.5 KM N20E OF JESUS DE MACHACA  
 LOCATION COMMENTS.....ON SW FLANK OF CERRO KUMUPATA  
 COMMODITIES PRESENT.....CU PB ZN AG  
 ORE MATERIALS.....GALENA, SPHALERITE  
 GENERAL ANALYTICAL DATA.....CIA MINERA INTI ILLIMANI ASSAYS AVERAGE  
 (INCLUDING MONTEBELLO MINE): 3.52% ZN, 0.27% PB, 2.65 G/MT AG.  
 MAJOR.....CU  
 POTEN.....ZN AG PB  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....HUGO BAUDOIN  
 OPERATOR.....HUGO BAUDOIN  
 EXPLORATION AND DEVELOPMENT COMMENTS.....SAMPLED BY EMPRESA MINERA  
 ILLIMANI IN 1989  
 DEPOSIT TYPE.....LODE  
 STRIKE.....N 30 E  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE 20 TO 30 CM WIDE WITH  
 80 CM WIDE ORE SHOTS.  
 DESCRIPTION OF WORKINGS.....U  
 HOST ROCK AGE.....DEV  
 HOST ROCK TYPE.....QUARTZITE, SHALE  
 AGE OF MINERALIZATION.....TERT?  
 ORE CONTROL/LOCUS.....FRACTURES  
 GEOLOGY COMMENTS.....MINERALIZATION MAY BE RELATED TO  
 QUIMSACHATA DISTRICT (TERTIARY INTRUSIVES)  
 REFERENCE....EMPRESA MINERA ILLIMANI (1989), P. 20-21.

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MRDS RECORD NUMBER.....BL10160  
 SITE NAME.....**SAN MIGUEL MINE**  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3800 M  
 LATITUDE.....17-26-28S LONGITUDE.....068-20-55W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3.5 KM N5E OF CALLAPA, 158 KM BY  
 ROAD FROM LA PAZ  
 LOCATION COMMENTS.....ON NW FLANK WACASILLA LOMA  
 COMMODITIES PRESENT.....CU AU AG  
 ORE MATERIALS.....CHALCOCITE; MALACHITE  
 GENERAL ANALYTICAL DATA.....ASSAYS BY VEDIA AND OTHERS (1971): 5.7 TO  
 9.1% CU. ASSAYS BY CIA MINERA INTI ILLIMANI (1989): 3.80% CU, 77.5 G/T  
 AG, 0.01 G/T AU.  
 MAJOR.....CU  
 MINOR.....AG  
 OCCUR.....AU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 EXPLORATION AND DEVELOPMENT COMMENTS.....EXAMINED AND SAMPLED BY  
 CIA MINERA INTI ILLIMANI IN 1989  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 STRIKE.....N 40 W  
 DIP.....45 SW  
 DEPOSIT DESCRIPTION COMMENTS.....MANTO HAS AN AVERAGE THICKNESS OF  
 40 CM. MANTOS STRIKE N20W AND NS AND DIP 65SW.  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....SHAFTS ADITS  
 HOST ROCK AGE.....LOLIGO-LMIO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 SIGNIFICANT REGIONAL STRUCTURES.....ON E FLANK OF SYNCLINE  
 FORMATION AGE.....LOLIGO-LMIO  
 FORMATION NAME.....TOTORA  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL (VEDIA  
 AND OTHERS, 1971)  
 REFERENCE....VEDIA AND OTHERS (1971), COLUMBA AND OTHERS (1974), EMPRESA  
 MINERA ILLIMANI (1989), P. 3.  
 ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	ACC	.03	MT		1971	6.5% CU

 SOURCE OF PRODUCTION INFORMATION.....VEDIA AND OTHERS (1971)

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MRDS RECORD NUMBER.....BL20001  
 SITE NAME.....SAN SILVESTRE MINE  
 SYNONYM NAME.....MARIA ELENA

PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5843-I  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 M  
 LATITUDE.....16-46-57S                      LONGITUDE.....068-39-32W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....8 KM S70E OF JESUS DE MACHACA  
 COMMODITIES PRESENT.....CU    AG  
 ORE MATERIALS.....CHALCOCITE, AZURITE, MALACHITE  
 GENERAL ANALYTICAL DATA.....GRADES: 7.10 TO 11.40% CU, AVERAGES 2.15%  
 CU, 60 G/MT AG.  
 MAJOR.....CU    AG  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....GUILLERMO ALVAREZ PLATA  
 YEAR OF DISCOVERY.....1957?  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....GUILLERMO ALVAREZ PLATA  
 OPERATOR.....GUILLERMO ALVAREZ PLATA  
 ECONOMIC COMMENTS.....WAS PRODUCING 6 TO 8 MT/MO 15 TO 30% CU  
 CONS  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 STRIKE.....N 60 W  
 DIP.....27SW  
 DEPOSIT DESCRIPTION COMMENTS.....ARE 10 MANTOS 120 TO 150 M LONG,  
 0.3 TO 1.0 M WIDE  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....16                      UNITS...M  
 LENGTH OF WORKINGS.....24                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ADITS, SHAFTS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....CHALCOCITE REPLACES ORGANIC MATTER  
 SIGNIFICANT REGIONAL STRUCTURES.....ON E FLANK OF ANTICLINE  
 FORMATION AGE.....TERT  
 FORMATION NAME.....HUAYLLAMARCA  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (GUERRA AND ASCARRUNZ, 1964D)  
 REFERENCE....GUERRA AND ASCARRUNZ (1964D), ZAPATA AND DELGADILLO (1968)  
                   ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	ACC	.091	MT		1964	10.4% CU
CONS?	ACC	.06	MT		1964	17.4% CU
CONS	ACC	.02	MT		1967	30% CU

 PRODUCTION COMMENTS.....GUERRA AND ASCARRUNZ (1964D);  
 ZAPATA AND DELGADILLO (1968)

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	28.051	MT	1967	

SOURCE OF RESERVES AND RESOURCES INFORMATION.....ZAPATA AND DELGADILLO  
(1968)

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MRDS RECORD NUMBER.....BL10222  
SITE NAME.....**SAN SIMON I PROSPECT**  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COLLANA 5943-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....16-54-00S                      LONGITUDE.....068-22-50W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....15 KM S OF KONIRI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
GENERAL ANALYTICAL DATA.....ORE GRADES 6 TO 8% CU  
NON-PRODUCER MAIN.....CU  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
DESCRIPTION OF WORKINGS.....S  
DESCRIPTION OF WORKINGS COMMENTS.....PROSPECT PITS  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA (1987)

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MRDS RECORD NUMBER.....BL10293  
SITE NAME.....**SANTA CRUZ MINE**  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SD 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....GUAQUI 5844-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....16-36-41S                      LONGITUDE.....068-51-46W

ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....ACC  
LOCATION COMMENTS.....2.5 KM S35W OF PUERTO GUAQUI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA AND DELGADILLO (1968)

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MRDS RECORD NUMBER.....BL10300  
SITE NAME.....SANTA LUCIA MINE  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....GUAQUI 5844-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4100 M  
LATITUDE.....16-35-59S                      LONGITUDE.....068-54-01W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....0.25 KM S OF COMUNIDAD CHARA  
PATACA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA AND DELGADILLO (1968)

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MRDS RECORD NUMBER.....BL10301  
SITE NAME.....SANTA MARIA MINE  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....GUAQUI 5844-III 1985  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4100 M  
LATITUDE.....16-36-33S                      LONGITUDE.....068-49-17W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....S.3 KM S40E OF GUAQUI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA AND DELGADILLO (1968)

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MRDS RECORD NUMBER.....BL10216  
SITE NAME.....SANTA ROSA AND CONCEPCION MINES  
MINING DISTRICT/AREA.....LAURANI DISTRICT  
PROVINCE.....AROMA  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CHIJMUNI 6041-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3770 M  
LATITUDE.....17-23-52S                      LONGITUDE.....067-49-19W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....7.5 KM S30E OF CHIJMUNI  
LOCATION COMMENTS.....THE TWO MINES ARE ADJACENT, ABOUT 250 M  
APART  
COMMODITIES PRESENT.....PB    AG    AU    LST  
ORE MATERIALS.....MIMETITE  
GENERAL ANALYTICAL DATA.....ORE GRADES ABOUT 3% PB, 18 G/T AG, 0.01  
G/T AU  
MAJOR.....AG  
MINOR.....PB

OCCUR.....AU   LST  
PRODUCTION.....U  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
YEAR OF LAST PRODUCTION.....1981  
OWNER (PRESENT/LAST).....ALFONSO BEDOYA (SANTA ROSA MINE), N.  
GAINSBORG (MARIA CONCEPCION MINE)  
EXPLORATION AND DEVELOPMENT COMMENTS.....AREA ALSO COVERED BY A  
CONCESSION TO COOPERATIVA MARMOLERA SANTIAGO DE LAURANI LTDS. EXAMINED  
AND SAMPLED BY CIA MINERA INTI ILLIMANI IN 1989  
DEPOSIT TYPE.....SINTER  
USGS MODEL .....TRAVERTINE  
DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS A MINERALIZED CALCITE  
SINTER DEPOSIT  
HOST ROCK AGE.....TERT?  
HOST ROCK TYPE.....CALCITE SINTER, TUFF BRECCIA  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....TUFF BRECCIA  
AGE OF MINERALIZATION.....TERT?  
PERTINENT MINERALS (NOT ORE).....CALCITE  
REFERENCE....EMPRESA MINERA ILLIMANI (1989), P. 4

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MRDS RECORD NUMBER.....BL10315  
SITE NAME.....SANTIAGO MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-26-55S                      LONGITUDE.....068-21-48W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....3 KM N15W OF CALLAPA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL00009  
SITE NAME.....SERKHE PROSPECT  
SYNONYM NAME.....CERKE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CHARAÑA SE 19-6 1967  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5741-IV 5742-I  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4800 M  
LATITUDE.....17-20-46S ... LONGITUDE.....069-21-55W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....17 KM S65W FROM BERENGUELA  
LOCATION COMMENTS.....ON CERRO SERKHE NEAR SUMMIT  
COMMODITIES PRESENT.....AU AG  
ORE MATERIALS.....UNKNOWN  
GENERAL ANALYTICAL DATA.....A FEW ANOMALOUS SAMPLES UP TO 0.1 G/MT AU  
AND 8 G/MT AG.  
OCCUR.....AU AG  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
DISCOVERER.....MINTEC  
YEAR OF DISCOVERY.....1988  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....ROBERTO SANCHEZ  
OPERATOR.....ROBERTO SANCHEZ  
HOST ROCK AGE.....LMIO-EPLIO 6 MA K/AR  
HOST ROCK TYPE.....ANDESITE  
AGE OF IGNEOUS ROCK.....LMIO-EPLIO 6 MA K/AR  
IGNEOUS ROCK TYPE.....ANDESITE  
AGE OF MINERALIZATION.....LMIO-EPLIO  
SIGNIFICANT ALTERATION.....ARGILLIZATION AND SILICIFICATION  
FORMATION AGE.....LMIO  
FORMATION NAME.....CERKE  
GEOLOGY COMMENTS.....ALTERED ANDESITE CUT BY FRESH DIKES AND  
CAPPED BY UNALTERED LAVA. CERKE FORMATION DATED BY LAVENU AND OTHERS  
(1989) AT 5.7 PLUS/MINUS 0.5 MA FROM SAMPLE NEAR ESTANCIA SCACANI SE OF  
CERRO SERKHE.  
NON-USGS WORK.....EXPLORATION WORK BY MINTEC  
REFERENCE....LAVENU AND OTHERS (1989)

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MRDS RECORD NUMBER.....BL10297  
SITE NAME.....SIEMPRE ADELANTE MINE  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5843-I

SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....16-45-14S... LONGITUDE.....068-44-16W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....7 KM S75E OF JESUS DE MACHACA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
REFERENCE....ZAPATA AND DELGADILLO (1968)

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MRDS RECORD NUMBER.....BL10353  
SITE NAME.....TARICAGUA OCCURRENCE  
SYNONYM NAME.....TARICOYA  
PROVINCE.....AROMA  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....6042-III  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4100 M  
LATITUDE.....17-11-40S LONGITUDE.....067-58-25W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....5 KM DUE W OF VISCACHANI  
COMMODITIES PRESENT.....PB ZN AG SB  
ORE MATERIALS.....UNKNOWN  
OCCUR.....PB ZN AG SB  
PRODUCTION.....U  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....LODE  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....DACITE  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....DACITE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT  
IGNEOUS UNIT AGE.....TERT  
REFERENCE....AHLFELD (1954)

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MRDS RECORD NUMBER.....BL10225  
SITE NAME.....TIVIÑA AND EUREKA MINES  
MINING DISTRICT/AREA.....CHACARILLA DISTRICT  
PROVINCE.....VILLAROEL  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1980  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SAN PEDRO DE CURAHUARA 5941-II 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3860 M  
LATITUDE.....17-34-36S                      LONGITUDE.....068-12-08W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....AT EAST END OF TOWN OF CHACARILLA  
LOCATION COMMENTS.....LAT LONG IS FOR TIVIÑA ADIT  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....NATIVE CU  
GENERAL ANALYTICAL DATA.....ORE GRADES 4 TO 5% CU  
MAJOR.....CU  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....7  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....NITTO BOLIVIA MINING CO.  
OPERATOR.....NITTO BOLIVIA MINING CO.  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM LENGTH.....550                      UNITS...M  
MAXIMUM WIDTH.....200                      UNITS...M  
STRIKE.....N-S TO N 30 W  
DEPOSIT DESCRIPTION COMMENTS.....ARE 4 MANTOS 1 TO 4 M THICK THAT  
EXTEND OVER A DISTANCE OF 550 M  
DESCRIPTION OF WORKINGS.....U  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....CONGLOMERATE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....CELESTITE  
ORE CONTROL/LOCUS.....PREFERRED BEDS, FRACTURES  
SIGNIFICANT REGIONAL STRUCTURES.....NW ANTICLINE  
SIGNIFICANT LOCAL STRUCTURES.....MINERALIZED SUBVERTICAL  
FRACTURES INTERSECT MANTOS NW OF TEVIÑA ADIT  
SIGNIFICANT ALTERATION.....BLEACHING  
FORMATION AGE.....TERT  
GEOLOGY COMMENTS.....NATIVE CU-CELESTITE FILLS SUBVERTICAL  
FRACTURES WHICH INTERSECT MANTOS  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GERMAN  
GEOLOGICAL MISSION TO BOLIVIA (SCHNEIDER-SCHERBINA, 1963)  
REFERENCE....SCHNEIDER-SCHERBINA (1963)

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MRDS RECORD NUMBER.....BL10327  
SITE NAME.....TOLAMARCA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5941-III  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-31-25S                      LONGITUDE.....068-15-05W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....12 KM S60E OF CALLAPA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10163  
SITE NAME.....TRANSVAAL MINE  
SYNONYM NAME.....CONSOLIDATED, LIBERTAD  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....EST GRAL BALLIVIAN 5942-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4050 M  
LATITUDE.....17-07-28S                      LONGITUDE.....068-27-16W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....5 KM N5W OF COROCORO, 125 KM BY  
ROAD FROM LA PAZ  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
GENERAL ANALYTICAL DATA.....TRACE CU  
OCCUR.....CU  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
YEAR OF DISCOVERY.....1958?

NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 STRIKE.....N 10 W  
 DIP.....45 NE  
 DEPOSIT DESCRIPTION COMMENTS.....MANTO IS 0.45 M THICK  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....6           UNITS...M  
 LENGTH OF WORKINGS.....6           UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE SHAFT, ONE ADIT  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 FORMATION AGE.....EO  
 FORMATION NAME.....BALLIVIAN  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (GUERRA AND ASCARRUNZ, 1964F)  
 REFERENCE....GUERRA AND ASCARRUNZ (1964F)

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MRDS RECORD NUMBER.....BL10111  
 SITE NAME.....TRES AMIGOS MINE  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1980  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....TIAHUANACU 5844-II 1983  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 M  
 LATITUDE.....16-37-30S           LONGITUDE.....068-36-00W  
 ACCURACY.....EST  
 LOCATION COMMENTS.....NEAR FATIMA MINE  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; AZURITE, MALACHITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES: 4.91 TO 10.44% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....L. AND H. BAUDOIN  
 OPERATOR.....L. AND H. BAUDOIN  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM THICKNESS.....40           UNITS...CM  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N40 TO 80E  
 DIP.....30 TO 35 SE

DEPOSIT DESCRIPTION COMMENTS.....MANTOS 0.1 TO 0.4 M THICK  
DESCRIPTION OF WORKINGS.....U  
DESCRIPTION OF WORKINGS COMMENTS.....PIQUES  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....CU MINERALS REPLACE FOSSIL PLANTS  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(VARGAS, 1967)  
REFERENCE....VARGAS (1967)

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MRDS RECORD NUMBER.....BL10310  
SITE NAME.....TRINIDAD MINE  
SYNONYM NAME.....GUADALUPE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....17-24-12S                      LONGITUDE.....068-21-43W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4 KM S OF COMUNIDAD CHOQUE PHUJO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....LOLIGO-LMIO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
REFERENCE....MEYER AND MURILLO (1961)

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MRDS RECORD NUMBER.....BL10165  
SITE NAME.....UDANGA MINE  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
POSITION FROM NEAREST LOCALITY.....188 KM BY ROAD FROM LA PAZ



COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; MALACHITE, AZURITE  
 GENERAL ANALYTICAL DATA.....ORE ASSAYS BY GEOBOL (1964): 9.8 TO 23.5%  
 CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 YEAR OF DISCOVERY.....1956  
 OWNER (PRESENT/LAST).....EMPRESA EMBOL  
 OPERATOR.....EMPRESA EMBOL  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 STRIKE.....N 35 W  
 DIP.....25 SW  
 DEPOSIT DESCRIPTION COMMENTS.....MANTOS 0.5 TO 3 M THICK, AVERAGE  
 30 CM THICK.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....33        UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 SIGNIFICANT REGIONAL STRUCTURES.....ON APEX CHACARILLA SYNCLINE  
 FORMATION AGE.....TERT  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (GUERRA AND ASCARRUNZ, 1964E)  
 REFERENCE....GUERRA AND ASCARRUNZ (1964E)

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MRDS RECORD NUMBER.....BL10108  
 SITE NAME.....VATUTIN MINE  
 PROVINCE.....INGAVI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1970  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....GUAQUI 5844-III 1985  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....16-36-00S    LONGITUDE.....068-53-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....NEAR ANA MARIA MINE, NEAR  
 JANCOMARCA, 100 KM FROM LA PAZ BY ROAD  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....MALACHITE, AZURITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY VARGAS (1967): 3.63 TO  
 12.26% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B

DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM THICKNESS.....50 UNITS...CM  
DEPOSIT SIZE.....SMALL  
DESCRIPTION OF WORKINGS.....U  
HOST ROCK AGE.....EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....BEDS BEARING PLANT FOSSILS  
SIGNIFICANT REGIONAL STRUCTURES.....NW ANTICLINE  
FORMATION AGE.....EO  
FORMATION NAME.....TIAHUANACU  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY VARGAS (1967)  
REFERENCE....VARGAS (1967)

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MRDS RECORD NUMBER.....BL10129  
SITE NAME.....VETA VERDE MINE  
SYNONYM NAME.....SAN PEDRO, JULIANA, CARMEN, VICTORIA,  
CELESTINA, NUEVO COROCORO, ISABEL, HEPHESTUS, HUAYNA CAPATA, MARGARITA,  
EMA, CONCLUSION, YAURIRI  
PROVINCE.....PACAJES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1968  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CALLAPA 5941-IV 1967  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3950 M  
LATITUDE.....17-21-38S LONGITUDE.....068-24-05W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....15.5KM N20W OF CALLAPA, 144 KM BY  
ROAD FROM LA PAZ  
COMMODITIES PRESENT.....CU AG PB AS  
ORE MATERIALS.....CHALCOCITE, BORNITE, GALENA, NATIVE CU;  
CUPRITE, DOMEYKITE, MALACHITE, AZURITE  
GENERAL ANALYTICAL DATA.....ORE ANALYSES LOPEZ AND MURILLO (1963):  
0.05 TO 36.5% CU 0.8 TO 14.8% PB 16 TO 65 G/MT AG 26.1% FE 0.05% AS.  
ANALYSES BY SCHNEIDER-SCHERBINA (1963): IN OXIDE ZONE: 2.05% CU 0.6% PB  
14 G/T AG; SULFIDE ZONE: 5.35% CU OVER 0.5 M  
MAJOR.....CU AG  
POTEN.....PB  
OCCUR.....AS  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....VETA VERDE UNITED COPPER LTDA. (LUCIO  
CALDERIA)  
OPERATOR.....VETA VERDE UNITED COPPER LTDA.

EXPLORATION AND DEVELOPMENT COMMENTS.....ASARCO TESTED GALENA  
 MINERALIZATION WITH TWO DRILL HOLES IN 1950 WITHOUT SUCCESS  
 DEPOSIT TYPE.....STRATABOUND, DISSEMINATED  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM LENGTH.....2500 UNITS...M  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N40W  
 DIP.....50 TO 90 SW  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT CONSISTS OF 4 MANTOS  
 WHICH OUTCROP OVER A DISTANCE OF 2.5 KM. LENSES OF GALENA ARE UP TO 0.5  
 M THICK AND ARE FOUND IN SOUTH END OF THE DEPOSIT. CHALCOCITE AND  
 BORNITE REPLACE ANHYDRITE CEMENT IN SANDSTONE AND CONGLOMERATE. TOTORA  
 FORMATION HOSTS CHALCOCITE NATIVE CU MALACHITE AZURITE AS AND AG  
 MINERALS GALENA AND MN OXIDES. HUAYLLAMARCA FORMATION HOSTS CUPRITE  
 NATIVE CU MALACHITE AND DOMEYKITE MINERALIZATION AND IS LOWER IN GRADE.  
 SECONDARY COPPER MINERALS ARE FOUND IN VERTICAL FRACTURES AROUND  
 OREBODIES.  
 DESCRIPTION OF WORKINGS.....B  
 DESCRIPTION OF WORKINGS COMMENTS.....PROSPECT PITS, OPEN CUTS UP TO  
 10 M DEEP, 50 M LONG, COLONIAL SHAFT 40 M DEEP  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....CONGLOMERATE, SANDSTONE  
 PERTINENT MINERALS (NOT ORE).....MN OXIDES, FE OXIDES  
 SIGNIFICANT REGIONAL STRUCTURES.....ON W FLANK OF FAULTED ANTICLINE  
 (SAME STRUCTURE AS AT COROCORO)  
 SIGNIFICANT LOCAL STRUCTURES.....VERTICAL FRACTURES  
 FORMATION AGE.....LOLIGO-LMIO  
 FORMATION AGE.....TERT  
 FORMATION NAME.....TOTORA  
 FORMATION NAME.....HUAYLLAMARCA  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY MISION  
 ALEMANA EN BOLIVIA (SCHNEIDER-SCHERBINA, 1963C)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL (LOPEZ  
 AND MURILLO, 1963)  
 REFERENCE....SCHNEIDER-SCHERBINA (1963C), LOPEZ AND MURILLO (1963C),  
 LJUNGGREN AND MEYER (1964), MEYER AND MURILLO (1961)  
 CUMULATIVE PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
CONS	ACC	.254	MT	1939-1942	13.92% CU
CONS	ACC	.769	MT	1921-1962	15.20% CU
CONS	ACC	.279	MT	1957-1959	16.56% CU

 SOURCE OF PRODUCTION INFORMATION.....SCHNEIDER-SCHERBINA (1963C); LOPEZ  
 AND MURILLO (1963); MEYER AND MURILLO (1961)  
 RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	50	MT	1963	0.5 TO 6.0% CU

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....LOPEZ AND MURILLO  
 (1963C)

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MRDS RECORD NUMBER.....BL20026

SITE NAME.....VIRGEN DE COPACABANA PROSPECT  
PROVINCE.....INGAVI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COPACABANA SE' 19-2  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5974-II  
SECOND QUAD SCALE.....1:50,000  
UTM NORTHING...8165.5      EASTING...499.0      ZONE...19KDB  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....2.5 KM S45E OF DESAGUADERO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE, CUPRITE, MALACHITE, AZURITE  
OCCUR.....CU  
PRODUCTION.....U  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....PALEO-EO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....PALEO-EO  
FORMATION NAME.....TIAHUANACU  
SOURCE OF INFORMATION....FIELD INVESTIGATIONS BY GEOBOL, 1990.

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MRDS RECORD NUMBER.....BL20005  
SITE NAME.....VIRGEN DE FATIMA MINE  
SYNONYM NAME.....FATIMA  
PROVINCE.....LOS ANDES  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....LA PAZ SE 19-3 1970  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....TIAHUANACU 5844-II 1985  
SECOND QUAD SCALE.....1:50,000  
LATITUDE.....16-37-33S      LONGITUDE.....068-36-12W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....2.4 KM S40E OF TIAHUANACU  
LOCATION COMMENTS.....5 KM W OF ROAD BETWEEN LAJA AND  
TIAHUANACU, NEAR TRES AMIGOS MINE  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE, AZURITE, MALACHITE  
GENERAL ANALYTICAL DATA.....ORE ANALYSES: 0.65 TO 11.10% CU  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....L. AND M. BAUDOIN  
OPERATOR.....L. AND M. BAUDOIN

DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM LENGTH.....300 UNITS...M  
 MAXIMUM THICKNESS..... 2 UNITS...M  
 STRIKE.....N 40 TO 80 E  
 DIP.....30 TO 35 SE  
 DEPOSIT DESCRIPTION COMMENTS.....MANTOS ARE 0.05 TO 2 M THICK  
 DESCRIPTION OF WORKINGS.....B  
 DESCRIPTION OF WORKINGS COMMENTS.....SHAFTS, ADITS, OPEN CUTS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE CONGLOMERATE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....CU MINERALS REPLACE ORGANIC MATTER  
 SIGNIFICANT LOCAL STRUCTURES.....FAULT ZONE ADJACENT TO BEST  
 MANTO  
 FORMATION AGE.....TERT  
 FORMATION NAME.....HUAYLLAMARCA  
 GEOLOGY COMMENTS.....MINERALIZATION MORE INTENSE IN THE  
 DIRECTION OF THE LORIA KOLLU INTRUSIVE  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (ZAPATA AND DELGADILLO, 1968)  
 REFERENCE....ZAPATA AND DELGADILLO (1968)  
 ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CONS	ACC	16.814	KG		1974	22% CU

 SOURCE OF PRODUCTION INFORMATION.....BANCO MINERO  
 RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	39.6	MT		1968	

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....ZAPATA AND DELGADILLO  
 (1968)

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MRDS RECORD NUMBER.....BL10218  
 SITE NAME.....WACAN KKOLLU PROSPECT  
 SYNONYM NAME.....LA ESCONDIDA, CERRO WACAN KKOLLU  
 PROVINCE.....PACAJES  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA HUANCARAMA 5840-IV 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4500 M  
 LATITUDE.....17-47-56S LONGITUDE.....068-53-40W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3 KM N60W OF OKORURO  
 LOCATION COMMENTS.....ON CERRO WACAN KKOLLU  
 COMMODITIES PRESENT.....AG AU  
 ORE MATERIALS.....UNKNOWN

GENERAL ANALYTICAL DATA.....SAMPLING BY CIA MINERA INTI ILLIMANI  
(1989): WACAN KKOLLU ZONE: 2.19 G/MT AG, 0.03 G/MT AU; ALTERATION ZONE:  
3.60 G/MT AG, 0.02 G/MT AU.  
OCCUR.....AG AU  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....F. SAAVEDRA  
OPERATOR.....F. SAAVEDRA  
EXPLORATION AND DEVELOPMENT COMMENTS.....EXAMINED AND SAMPLED BY  
CIA. MINERA INTI ILLIMANI 1989. MINTEC MAY HAVE A CONCESSION NEARBY ("LA  
ESCONDIDA")  
DEPOSIT TYPE.....STOCKWORK  
DEPOSIT DESCRIPTION COMMENTS.....ALTERED AND MINERALIZED AREA IS  
250,000 SQ M IN EXTENT  
HOST ROCK AGE.....LMIO-QUAT  
HOST ROCK TYPE.....ANDESITE  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
IGNEOUS ROCK TYPE.....ANDESITE  
AGE OF MINERALIZATION.....LMIO-QUAT  
PERTINENT MINERALS (NOT ORE).....FE OXIDES, OPAL, PYRITE,  
JAROSITE, BARITE  
SIGNIFICANT ALTERATION.....ARGILLIC, SILICIFICATION, PYRITIZATION  
REFERENCE....EMPRESA MINERA ILLIMANI (1989), P. 2

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## DEPARTMENT OF ORURO

MRDS RECORD NUMBER.....BL10107  
 SITE NAME.....10 DE NOVIEMBRE MINE  
 SYNONYM NAME.....CERRO CABARAYA, CERRO CABARAY  
 PROVINCE.....ATAHUALLPA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOCLANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....TODOS SANTOS 5836-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5610 M  
 LATITUDE.....19-08-02S                      LONGITUDE.....068-42-20W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....15 KM S10E OF TODOS SANTOS, 250  
 KM BY ROAD FROM ORURO  
 LOCATION COMMENTS.....ON S FLANK OF CERRO CABARAYA  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 NON-PRODUCER MAIN.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....NAPOLEON BENAVIDES  
 OPERATOR.....NAPOLEON BENAVIDES  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMUROLIC S  
 USGS MODEL NUMBER.....25M  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT PARTLY COVERED BY  
 PERMANENT SNOW  
 DESCRIPTION OF WORKINGS COMMENTS.....NO WORKINGS  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....TUFF, BASALT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....TUFF, BASALT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 GEOLOGY COMMENTS.....DEPOSITS IN TUFF GRADE 30 TO 40% S, IN  
 ALTERED BASALT 10%.  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL,  
 VARGAS (1968)  
 REFERENCE....VARGAS (1968), AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10123  
 SITE NAME.....AMISTAD MINE  
 SYNONYM NAME.....SAN GERONIMO, SEVARUYO  
 PROVINCE.....ABAROA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....RIO MULATO SE 19-16 1968  
 QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....6235-IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....19-22-24S LONGITUDE.....066-55-08W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM S70W OF SEVARUYO  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....NATIVE CU, CHALCOCITE, AZURITE, MALACHITE  
 GENERAL ANALYTICAL DATA.....ORE ASSAYS: 0.61 TO 15.86% CU OVER 0.3 TO 5.29 M  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....GREGORIO COCA PATZI  
 OPERATOR.....GREGORIO COCA PATZI  
 EXPLORATION AND DEVELOPMENT COMMENTS.....PURCHASED BY SR. COCA IN 1954  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM LENGTH.....450 UNITS...M  
 MAXIMUM THICKNESS..... 2 UNITS...M  
 STRIKE.....N30 TO 40E  
 DIP.....40E  
 DEPOSIT DESCRIPTION COMMENTS.....MANTOS ARE 250 TO 450 M LONG, 0.7 TO 2 M THICK  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....30 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....TWO ADITS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....FRACTURES, BEDDING PLANES  
 SIGNIFICANT ALTERATION.....BLEACHING  
 FORMATION AGE.....TERT  
 FORMATION NAME.....CHAMORRA  
 GEOLOGY COMMENTS.....OXIDES OF CU FOUND NEARBY AT TERTIARY/QUATERNARY CONTACT  
 REFERENCE....SCHNEIDER-SCHERBINA (1963)  
 ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
CONS	ACC	.001	MT		24% CU

 SOURCE OF PRODUCTION INFORMATION....MURILLO AND OTHERS (1969)  
 RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	3.541	MT		4.66% CU

 SOURCE OF RESERVES INFORMATION....MURILLO AND OTHERS (1969)  
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 MRDS RECORD NUMBER.....BL00002  
 SITE NAME.....ANITA PROSPECT



PROVINCE.....ATAHUALLPA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....TODOS SANTOS 5836-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5000 M  
 LATITUDE.....19-08-27S                      LONGITUDE.....068-36-07W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....19 KM S40E OF TODOS SANTOS  
 LOCATION COMMENTS.....ENCOMPASSES ENTIRE RIDGE FROM CERRO  
 CABARAYA TO CERRO SEPARAYA  
 COMMODITIES PRESENT.....AU    AG    S  
 ORE MATERIALS.....NATIVE S  
 GENERAL ANALYTICAL DATA.....AU VALUES ABOVE 0.1 G/MT COMMON AND MAY  
 REACH 0.5 G/MT.  
 OCCUR.....AU    AG  
 NON-PRODUCER MINOR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 YEAR OF DISCOVERY.....1987  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....VICTOR CORTEZ  
 OPERATOR.....VICTOR CORTEZ  
 DEPOSIT TYPE.....LODE  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....ANDESITE DACITE  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....ANDESITE DACITE  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 ORE CONTROL/LOCUS.....NS AND EW TRENDS, PROBABLY FAULT VEINS  
 SIGNIFICANT ALTERATION.....ARGILLIZATION SILICIFICATION  
 NON-USGS WORK.....EXPLORATION WORK BY MINTEC FROM 1987  
 SOURCE OF DATA.....MINTEC FILES

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MRDS RECORD NUMBER.....BL10128  
 SITE NAME.....AZURITA MINE  
 SYNONYM NAME.....ADITS: PORVENIR, ADOLFITO, BABY  
 PROVINCE.....CARANGAS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1970  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA AZURITA 5939-I 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4100 M  
 LATITUDE.....18-04-06S                      LONGITUDE.....068-09-22W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5 KM W OF ESTANCIA HUAYLLA  
 PUCARA, 17 KM NE OF TURCO, 163 KM (5 HRS) BY ROAD FROM ORURO

COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....NATIVE CU, TENNANTITE; CUPRITE, TENORITE, MALACHITE, AZURITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY ZAPATA AND DELGADILLO (1968): 1.01 TO 5.49% CU OVER 1 TO 2.06 M. GRAB SAMPLES 10.27 TO 11.19% CU.  
 MAJOR.....CU  
 OCCUR.....AG  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....PABLO BIGGERMAN (CIA. CUPRIFERA CARANGAS)  
 YEAR OF DISCOVERY.....1948  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1948  
 OWNER (PRESENT/LAST).....NICOLAS MIHAIC  
 OPERATOR.....NICOLAS MIHAIC  
 ECONOMIC COMMENTS.....MITSUBISHI PLANNED TO PRODUCE 800 MT/MONTH ORE YIELDING 600 MT/MO CONS. SPENT \$1.5 MILLION EXPLORING AZURITA AND CUPRITA. IN 1990 LOCALS PRODUCING 1 MT CEMENT CU AND 3 MT CU SULFATE PER WEEK.  
 EXPLORATION AND DEVELOPMENT COMMENTS.....EXPLORATION OPTION HELD BY MITSUBISHI MINING CO. IN 1962 DROPPED AFTER CONSIDERABLE EXPLORATION WORK AND DRILLING DUE TO POLITICAL CONSIDERATIONS  
 DEPOSIT TYPE.....STRATABOUND, DISSEMINATED  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....IRREGULAR  
 DEPOSIT SIZE.....MEDIUM  
 DEPOSIT DESCRIPTION COMMENTS.....MANTO 0 NOT WORKED AND POORLY EXPOSED. MANTO 1 140 BY 150 M, 1.6 M THICK MINED TO 120 M DEPTH. MANTO 2 IS 75 M LONG WORKED TO 60 M DEPTH. MANTOS 3 AND 4 NOT EXPOSED NOR WORKED. MINERALIZATION EXTENDS 1000 M ALONG STRIKE, DISAPPEARS UNDER BASALT TO NORTH, THINS OUT TO SOUTH. DEPOSIT CONSISTS OF A MINERALIZED COARSE GRAINED SANDSTONE TO CONGLOMERATE SANDWICHED BETWEEN TWO MINERALIZED AND ALTERED BASALT FLOWS. SEDIMENTS ARE A FLUVIAL FACIES WITHIN A LACUSTRINE SEQUENCE. MINERALIZATION IN CONGLOMERATE CONSISTS OF A SERICITE-KAOLINITE MATRIX WITH NODULES AND POCKETS OF CU MINERALS. IN SANDSTONES CU MINERALS FOLLOW STRATIFICATION. ALL SEDIMENTS ARE CUT BY MINERALIZED SUBVERTICAL FRACTURES FILLED BY CUPRITE-TENNANTITE-CELESTITE?, INCLUDING SHALE BEDS. BASALT IS INTENSELY ALTERED BY CHLORITE-KAOLINITE-CARBONATE AND HOSTS IMPREGNATIONS AND IRREGULAR VEINLETS OF CUPRITE. NATIVE CU REPLACED CALCITE CEMENT, CHRYSOCOLLA REPLACES MATRIX OF BASALT.  
 DESCRIPTION OF WORKINGS.....B  
 DEPTH BELOW SURFACE..... 120                      UNITS...M  
 LENGTH OF WORKINGS.....1580                      UNITS...M  
 OVERALL AREA OF WORKINGS.....7100                      UNITS...SQ M  
 DESCRIPTION OF WORKINGS COMMENTS.....ADITS AND CROSS CUTS, OPEN PITS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE, CONGLOMERATE, BASALT  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....BASALT  
 AGE OF MINERALIZATION.....TERT

PERTINENT MINERALS (NOT ORE).....HEMATITE, LIMONITE, CELESTITE?,  
 SERICITE, KAOLINITE  
 ORE CONTROL/LOCUS.....POROSITY FRACTURES  
 SIGNIFICANT REGIONAL STRUCTURES.....ON W FLANK OF NNW SYNCLINE  
 SIGNIFICANT LOCAL STRUCTURES.....FRACTURES, SMALL NNE FAULTS WITH  
 ABOUT 2 M DISPLACEMENT, RELATION TO ORE UNKNOWN  
 SIGNIFICANT ALTERATION.....CHLORITE KAOLINITE CARBONATE ALTERATION OF  
 BASALT. SERICITE AND KAOLINITE REPLACE? CEMENT IN CONGLOMERATE  
 FORMATION AGE.....TERT  
 FORMATION NAME.....HUAYLLAMARCA  
 WORK DONE BY USGS.....EVALUATION OF POTENTIAL FOR CU RESERVES BY  
 CHARLES TSCHANTZ (1963)  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL 1990  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY MISION  
 ALEMANA EN BOLIVIA (SCHNEIDER-SCHERBINA 1963)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (ZAPATA AND DELGADILLO, 1968; MURILLO AND OTHERS, 1969)  
 REFERENCE....SCHNEIDER-SCHERBINA (1963), ZAPATA AND DELGADILLO (1968),  
 MURILLO AND OTHERS (1969).

## CUMULATIVE PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
ORE	EST	70	MT	1948 TO 1962	3.5 TO 4.0% CU

SOURCE OF PRODUCTION INFORMATION.....SCHNEIDER-SCHERBINA (1963)  
 PRODUCTION COMMENTS.....IN 1962 PRODUCING ABOUT 20 MT CU  
 PER MONTH

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	POS	250	MT	1963	4.0% CU
ORE	PRO	500	MT	1963	4.0% CU
ORE	EST	660	MT	1969	2.2% CU

SOURCE OF RESERVES AND RESOURCES INFORMATION.....MURILLO AND OTHERS  
 (1969)  
 RESERVES AND RESOURCES COMMENTS.....INFO BY TSCHANZ IN AN  
 UNPUBLISHED MEMO, 1963

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MRDS RECORD NUMBER.....BL20024  
 SITE NAME.....AÑAHUANI PROSPECT  
 PROVINCE.....CARANGAS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SOLEDAD 6040-IV 1983  
 SECOND QUAD SCALE.....1:50,000  
 LATITUDE.....17-47-35S LONGITUDE.....067-57-45W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....2 KM S40E OF ESTANCIA ORKHO  
 ORKHONI  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE, AZURITE, MALACHITE  
 OCCUR.....CU  
 PRODUCTION.....N

STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT SIZE.....SMALL  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....TERT  
 FORMATION NAME.....UMALA  
 REFERENCE....MINISTERIO DE MINAS Y METALURGIA (1957)

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MRDS RECORD NUMBER.....BL00006  
 SITE NAME.....AÑO NUEVO PROSPECT  
 PROVINCE.....LADISLAO CABRERA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....IÑEXA 6034-IV 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4200 M  
 LATITUDE.....19-42-41S                      LONGITUDE.....067-49-54W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....13 KM E OF IÑEXA, 17 KM BY ROAD  
 FROM SALINAS DE GARCI MENDOZA  
 LOCATION COMMENTS.....ON CERRO CHUIMA JAKKE  
 COMMODITIES PRESENT.....AG    PB    ZN    AU    CU  
 ORE MATERIALS.....GALENA SPHALERITE  
 GENERAL ANALYTICAL DATA.....AU GENERALLY LESS THAN 0.05 G/MT. AG  
 VALUES UP TO 87 G/T.  
 OCCUR.....CU  
 NON-PRODUCER MAIN.....AG    PB  
 NON-PRODUCER MINOR.....ZN    AU  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 YEAR OF DISCOVERY.....1987  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....ALFREDO DAVILA  
 OPERATOR.....ALFREDO DAVILA  
 DEPOSIT TYPE.....LODE  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS TREND N30E AND N45 TO 60W  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....ANDESITE, DACITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....ANDESITE, DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....SIDERITE, PYRITE, QUARTZ  
 ORE CONTROL/LOCUS.....FRACTURES

SIGNIFICANT ALTERATION.....SILICIFICATION ENVELOPES AROUND VEINS.  
 WIDESPREAD PROPYLITIC ALTERATION, SPORADIC SERICITIC AND ARGILLIC  
 ALTERATION.  
 FORMATION AGE.....TERT  
 FORMATION NAME.....TAGUA  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....TAGUA  
 GEOLOGY COMMENTS.....VEINS MAY BE IN TERTIARY ROCKS EXPOSED IN  
 WINDOWS WITHIN QUATERNARY VOLCANIC COVER.  
 NON-USGS WORK.....EXPLORATION BY MINTEC FROM 1987  
 SOURCE OF INFORMATION....MINTEC FILES

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MRDS RECORD NUMBER.....BL00032  
 SITE NAME.....BELEN DE ANDAMARCA PROSPECT  
 PROVINCE.....SUR CARANGAS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ANDAMARCA 6037-I 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 KM  
 LATITUDE.....18-49-08S LONGITUDE.....067-38-54W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....2 KM S70W OF BELEN DE ANDAMARCA  
 COMMODITIES PRESENT.....UKN  
 ORE MATERIALS.....UNKNOWN  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....ALFREDO DAVILA  
 OPERATOR.....ALFREDO DAVILA  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....INTRUSIVE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....INTRUSIVE  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....TERT  
 IGNEOUS UNIT AGE.....TERT  
 SOURCE OF INFORMATION....MINTEC FILES

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MRDS RECORD NUMBER.....BL00023  
 SITE NAME.....BLANCA NIEVES PROSPECT  
 PROVINCE.....SAJAMA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....NEVADOS PAYACHATA SE 19-10 1970  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....NEVADOS PAYACHATA 5739-I 1969

SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5200 M  
 LATITUDE.....18-03-08S                      LONGITUDE.....069-04-02W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....9 KM N45W OF ESTANCIA JUNTHUMA  
 LOCATION COMMENTS.....ON S FLANK OF NEVADO CONDORIRI  
 COMMODITIES PRESENT.....UNK  
 ORE MATERIALS.....UNKNOWN  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....VICTOR CORTEZ  
 OPERATOR.....VICTOR CORTEZ  
 HOST ROCK AGE.....QUAT  
 HOST ROCK TYPE.....LAVA  
 AGE OF IGNEOUS ROCK.....QUAT  
 IGNEOUS ROCK TYPE.....LAVA  
 AGE OF MINERALIZATION.....QUAT  
 SOURCE OF INFORMATION....MINTEC FILES

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MRDS RECORD NUMBER.....BL20023  
 SITE NAME.....BUENA ESPERANZA MINE  
 PROVINCE.....CARANGAS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5940-I  
 SECOND QUAD SCALE.....1:50,000  
 LATITUDE.....17-43-35S                      LONGITUDE.....068-05-35W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....2 KM S15W OF ESTANCIA PUYTUCUNI  
 COMMODITIES PRESENT.....CU    PB    AG  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU  
 POTEN.....PB    AG  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....TERT  
 FORMATION NAME.....HUAYLLAMARCA  
 SOURCE OF INFORMATION....FIELD INVESTIGATIONS BY GEOBOL, 1990.  
     ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CONS	ACC	.191	MT		1967	12.55% CU

CONS            ACC            .291 MT            1968 12.84% CU  
SOURCE OF PRODUCTION INFORMATION.....INVENTARACION DE RECURSOS  
MINERALES DE LA MINERIA CHICA

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MRDS RECORD NUMBER.....BL10102  
SITE NAME.....CANDELARIA MINE  
PROVINCE.....DANIEL CAMPOS  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SALINAS DE GARCÍ MENDOZA SE 19-15 1975  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SALINAS DE GARCÍ MENDOZA 6035-II 1973  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3900 M  
LATITUDE.....19-37-50S            LONGITUDE.....067-41-47W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....3 KM S80W OF SALINAS DE GARCÍ  
MENDOZA, 620 KM BY ROAD FROM LA PAZ  
COMMODITIES PRESENT.....AG  
ORE MATERIALS.....AG OXIDES  
GENERAL ANALYTICAL DATA.....ORE ANALYSIS BY SANJINES (1968A): 420 G/T  
AG  
MAJOR.....AG  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....COOPERATIVA MINERA EL PORVENIR  
OPERATOR.....COOPERATIVA MINERA EL PORVENIR  
DEPOSIT TYPE.....LODE  
STRIKE.....N 55 W  
DIP.....60N  
DEPOSIT DESCRIPTION COMMENTS.....VEIN IS 0.8M WIDE  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....37            UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....VITRIC TUFF  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....VITRIC TUFF  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....FRACTURES  
FORMATION AGE.....TERT  
FORMATION NAME.....TAGUA  
IGNEOUS UNIT AGE.....TERT  
IGNEOUS UNIT AGE.....TAGUA  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY SANJINES  
(1968A)  
REFERENCE....SANJINES (1968A)

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MRDS RECORD NUMBER.....BL00005  
 SITE NAME.....CANGURO PROSPECT  
 SYNONYM NAME.....CANGURO II, NAVIDAD  
 PROVINCE.....LADISLAO CABRERA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA 6035-II 1973  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4200 M  
 LATITUDE.....19-38-30S                      LONGITUDE.....067-41-21W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3 KM S70W OF SALINAS DE GARCI MENDOZA  
 LOCATION COMMENTS.....ON CERRO KANCHAS  
 COMMODITIES PRESENT.....AG    PB    ZN    AU    CU  
 ORE MATERIALS.....GALENA SPHALERITE  
 OCCUR.....CU  
 NON-PRODUCER MAIN.....AG    PB  
 NON-PRODUCER MINOR.....ZN    AU  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 YEAR OF DISCOVERY.....1987  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....ALFREDO DAVILA  
 OPERATOR.....ALFREDO DAVILA  
 DEPOSIT TYPE.....LODE  
 HOST ROCK AGE.....QUAT?  
 HOST ROCK TYPE.....ANDESITE, DACITE, RHYOLITE  
 AGE OF IGNEOUS ROCK.....QUAT?  
 IGNEOUS ROCK TYPE.....ANDESITE, DACITE, RHYOLITE  
 AGE OF MINERALIZATION.....QUAT?  
 PERTINENT MINERALS (NOT ORE).....PYRITE, SIDERITE, QUARTZ, BARITE  
 ORE CONTROL/LOCUS.....FRACTURES, BRECCIA FILLINGS  
 SIGNIFICANT ALTERATION.....SILICIFICATION  
 GEOLOGY COMMENTS.....SILICIFICATION AND BRECCIA ZONES ADJACENT TO DACITE AND RHYOLITE DIKES. BASE METAL VEINS OF QUARTZ-SIDERITE-BARITE-GALENA MAY BE IN OLDER TERTIARY ROCKS.  
 NON-USGS WORK.....EXPLORATION WORK BY MINTEC FROM 1987  
 SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....TC00503  
 SITE NAME.....CARANGAS MINE  
 SYNONYM NAME.....ADITS: SAN JOSE, ORKHO THUNKHO (ESPIRITU SANTU), SAN ANTONIO  
 MINING DISTRICT/AREA.....CARANGAS  
 PROVINCE.....ATAHUALLPA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1970



QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CARANGAS 5837-II 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....18-56-19S                      LONGITUDE.....068-37-42W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....0.5 KM S85E OF TOWN OF CARANGAS,  
 42 KM SW OF HUACHACALLA, 244 KM BY ROAD FROM ORURO  
 LOCATION COMMENTS.....LAT LONG IS FOR ORKHO THUNCO ADIT  
 COMMODITIES PRESENT.....AG    ZN    PB    CU  
 ORE MATERIALS.....CERARGYRITE, NATIVE SILVER, TENNANTITE,  
 PROUSTITE -PYRRARGYRITE; SPHALERITE, GALENA, CHALCOPYRITE  
 GENERAL ANALYTICAL DATA.....ANALYSES BY GUERRA AND OTHERS (1965):  
 DUMP: 3.5% PB 800 G/T AG, DUMP: 19.6% PB 360 G/T AG; 0.15 CM CHANNEL  
 SAMPLE: 10.7% PB 360 G/T AG, 0.15 CM CHANNEL SAMPLE: 8.0% PB 880 G/T AG.  
 ANALYSES BY PATIÑO CO. (1921): 202 G/T AG OVER 80 CM, (1936): 47.1 G/T  
 AG, 0.90% PB 1.84% ZN OVER 80 CM.  
 MAJOR.....AG  
 OCCUR.....ZN    PB    CU  
 PRODUCTION.....Y  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COMPANIA MINERA DEL SUR (COMSUR)  
 OPERATOR.....COMPANIA MINERA DEL SUR (COMSUR)  
 EXPLORATION AND DEVELOPMENT COMMENTS.....PURCHASED 1926 BY  
 DOMINGUEZ FAMILY, EDUARDO DOMINGUEZ WAS OWNER IN 1964  
 DEPOSIT TYPE.....STOCKWORK, LODE, DISSEMINATED  
 DEPOSIT DESCRIPTION COMMENTS.....N65W VEINS ON CERRO ESPIRITU  
 SANTO 12 CM MAX THICKNESS. N65W VEINS IN BELT 1700 M LONG ON CERRO SAN  
 ANTONIO. MINERALIZED ZONE ON CERRO ESPIRITO SANTO IS 350 M WIDE.  
 DESCRIPTION OF WORKINGS.....B  
 DEPTH BELOW SURFACE.....30                      UNITS...M  
 LENGTH OF WORKINGS.....270+                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....3 ADITS  
 HOST ROCK AGE.....PLIO? MIO?  
 HOST ROCK TYPE.....LITHIC TUFF, EXPLOSION BRECCIA, RHYOLITE  
 INTRUSIVE, FELDSPAR PORPHYRY (DACITE?) DIKES  
 AGE OF IGNEOUS ROCK.....PLIO? MIO?  
 IGNEOUS ROCK TYPE.....RHYOLITE INTRUSIVE, FELDSPAR PORPHYRY  
 DIKES, LITHIC TUFF, EXPLOSION BRECCIA  
 AGE OF MINERALIZATION.....PLIO?  
 PERTINENT MINERALS (NOT ORE).....PYRITE, CHALCEDONIC QUARTZ,  
 OPAL, BARITE, MANGANIFEROUS CARBONATE, SIDERITE, SERICITE, KAOLINITE  
 ORE CONTROL/LOCUS.....N65W FRACTURES  
 SIGNIFICANT REGIONAL STRUCTURES.....SANTÁ CATALINA VOLCANIC DOME  
 COMPLEX  
 SIGNIFICANT ALTERATION.....SILICIC, PYRITIC, ARGILLIC  
 IGNEOUS UNIT AGE.....EMIO  
 IGNEOUS UNIT NAME.....CARANGAS VOLCANICS (TUFF)  
 GENERAL COMMENTS.....CERRO ESPIRITU SANTO CONSISTS OF PHREATIC  
 EXPLOSION BRECCIA AND ASSOCIATED(?) RHYOLITE AND FELDSPAR PORPHYRY  
 INTRUSIVES.  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL GEOLOGISTS SEPT  
 1990

NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GUERRA AND OTHERS (1965C)

REFERENCE...AHLFELD AND SCHNEIDER-SCHERBINA (1964), GUERRA AND OTHERS (1965C), AVILA SALINAS (1965), SCHNEIDER-SCHERBINA (1962A), ANONYMOUS (1988)

REFERENCE...TODOS SANTOS-CARANGAS, IN FIELD GUIDE, YACIMIENTOS EPITERMALES EN AMBIENTES DE VOLCANISMO RECIENTE, SEMINARIO-TALLAR, LA PAZ, BOLIVIA, SEPT. 4-16, 1988, P. 37-40.

#### ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ESCORIAS	ACC	20	MT	1952	

#### CUMULATIVE PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
ORE	EST	>100	MT		

SOURCE OF PRODUCTION INFORMATION.....AHLFELD AND SCHNEIDER-SCHERBINA, 1964, P. 308.

PRODUCTION COMMENTS.....SPANISH COLONISTS MINED AN ESTIMATED 1.5 MILLION TONS ORE LEAVING 10,000 MT 35 TO 50% PB SLAG.

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MRDS RECORD NUMBER.....BL10275

SITE NAME.....CASINQUIRA MINE

PROVINCE.....ATAHUALLPA

PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE

DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975

QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....VILLA VITALINA 5936-III 1973

SECOND QUAD SCALE.....1:50,000

ELEVATION.....3825 M

LATITUDE.....19-10-50S LONGITUDE.....068-27-18W

ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....1 KM N35E OF ESTANCIA CASINQUIRA

LOCATION COMMENTS.....ON SW BASE OF CERRO PARIANI

COMMODITIES PRESENT.....AG PB

ORE MATERIALS.....UNKNOWN

MAJOR.....AG

MINOR.....PB

PRODUCTION.....Y

STATUS AND ACTIVITY.....4

NATURE OF DISCOVERY.....B

DEPOSIT TYPE.....LODE

HOST ROCK AGE.....LMIO-QUAT

AGE OF IGNEOUS ROCK.....LMIO-QUAT

AGE OF MINERALIZATION.....LMIO-QUAT

SOURCE OF INFORMATION.....MINE SPOTTED ON VILLA VITALINA (5936-III)

1:50,000 SCALE TOPOGRAPHIC MAP.

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MRDS RECORD NUMBER.....BL00024

SITE NAME.....CAUPOLICAN PROSPECT

PROVINCE.....SAJAMA

PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....NEVADOS PAYACHATA SE 19-10 1970  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO QUISI QUISINI 5739-II 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5000 M  
 LATITUDE.....18-14-20S                      LONGITUDE.....069-03-14W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....10 KM N40W OF ESTANCIA PAYOCONI  
 LOCATION COMMENTS.....ON CERRO QUISI QUISINI  
 COMMODITIES PRESENT.....UNK  
 ORE MATERIALS.....UNKNOWN  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....VICTOR CORTEZ  
 OPERATOR.....VICTOR CORTEZ  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL10204  
 SITE NAME.....**CERRO AYSA KKOLLU PLACERS**  
 PROVINCE.....CERCADO  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COCHABAMBA SE 19-8 1978  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SOLEDAD 6140-IV 1983  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3800 M  
 LATITUDE.....17-44-16S                      LONGITUDE.....067-16-30W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3 KM NE OF SOLEDAD  
 LOCATION COMMENTS.....ON EAST SIDE OF ROAD FROM CARACOLLO TO  
 SOLEDAD  
 COMMODITIES PRESENT.....AU  
 ORE MATERIALS.....GOLD  
 MAJOR.....AU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....PLACER  
 USGS MODEL .....PLACER AU  
 USGS MODEL NUMBER.....39A  
 DESCRIPTION OF WORKINGS.....S  
 DESCRIPTION OF WORKINGS COMMENTS.....DRY PLACER DIGGINGS  
 HOST ROCK AGE.....QUAT  
 HOST ROCK TYPE.....GLACIAL MORaine

AGE OF MINERALIZATION.....QUAT  
FORMATION AGE.....QUAT  
REFERENCE....LEZECA (1989)

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MRDS RECORD NUMBER.....BL10202  
SITE NAME.....CERRO COLORADO MINE  
MINING DISTRICT/AREA.....YONZA  
PROVINCE.....DANIEL CAMPOS  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....ESTANCIA JARUMA 6032-III 1972  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3700 M  
LATITUDE.....20-33-57S                      LONGITUDE.....067-59-19W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....8 KM N30E OF YONZA  
LOCATION COMMENTS.....ON S FLANK OF CERRO COLORADO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....MALACHITE, AZURITE  
GENERAL ANALYTICAL DATA.....ORE GRADES ABOUT 10% CU  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
YEAR OF DISCOVERY.....1946  
NATURE OF DISCOVERY.....B  
YEAR OF FIRST PRODUCTION.....1946  
DEPOSIT TYPE.....LODE  
USGS MODEL .....BASALTIC CU?  
USGS MODEL NUMBER.....23  
DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE LESS THAN 3 CM WIDE  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....7                      UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....BASALT  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....BASALT  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....FRACTURES  
FORMATION AGE.....TERT  
FORMATION NAME.....YONZA  
IGNEOUS UNIT AGE.....TERT  
IGNEOUS UNIT NAME.....YONZA  
NON-USGS WORK.....THESIS BY BUSTILLOS (1966)  
REFERENCE....BUSTILLOS (1966)

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MRDS RECORD NUMBER.....BL10233  
SITE NAME.....CERRO CUMI DEPOSIT

PROVINCE.....ATAHUALLPA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 191-5 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5836-IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5000 M  
 LATITUDE.....19-05-24S                      LONGITUDE.....068-46-03W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....9.5 KM S35W OF TODOS SANTOS  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 OCCUR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCE....MCVEY (1989)

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MRDS RECORD NUMBER.....BL10203  
 SITE NAME.....CERRO PABELLON DEPOSIT  
 MINING DISTRICT/AREA.....YONZA PENINSULA  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA JARUMA 6032-III 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3800 M  
 LATITUDE.....20-37-44S                      LONGITUDE.....067-58-21W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5 KM N85E OF YONZA  
 LOCATION COMMENTS.....ON CERRO PABELLON  
 COMMODITIES PRESENT.....FE  
 ORE MATERIALS.....SPECULARITE  
 GENERAL ANALYTICAL DATA.....ABOUT 1% IMPURITIES OF SN, CO, CU, GA, MO,  
 NI, V IN FE (BUSTILLOS, 1966)  
 NON-PRODUCER MAIN.....FE  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE, STOCKWORK  
 MAXIMUM LENGTH.....800                      UNITS...M  
 MAXIMUM WIDTH.....800                      UNITS...M  
 DEPOSIT DESCRIPTION COMMENTS.....INDIVIDUAL VEINS ARE UP TO 4 CM  
 WIDE  
 HOST ROCK AGE.....TERT

HOST ROCK TYPE.....SEDIMENTS  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....ANDESITE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....FRACTURES  
FORMATION AGE.....TERT  
FORMATION NAME.....YONZA  
NON-USGS WORK.....THESIS BY BUSTILLOS (1966)  
REFERENCE....BUSTILLOS (1966)

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MRDS RECORD NUMBER.....BL10234  
SITE NAME.....CERRO PARINACOTA OCCURRENCE  
PROVINCE.....SAJAMA  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....NEVADOS PAYACHATA SE 19-10 1970  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....NEVADOS PAYACHATA 5739-III 1969  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5500 M  
LATITUDE.....18-09-22S                      LONGITUDE.....069-08-01W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....13 KM N80W OF ESTANCIA PAPEL  
PAMPA  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
OCCUR.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMUROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
REFERENCE....MCVEY (1989)

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MRDS RECORD NUMBER.....BL10339  
SITE NAME.....CERRO POQUENTICA OCCURRENCE  
PROVINCE.....ATAHUALLPA  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CORQUE SE 19-11 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....JULO 5837-IV 1969  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5000 M  
LATITUDE.....18-44-48S                      LONGITUDE.....068-58-54W  
ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....11 KM S60W OF JULO  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 OCCUR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCE....MCVEY (1989)

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MRDS RECORD NUMBER.....BL10006  
 SITE NAME.....CERRO SACA SACANI PROSPECT  
 PROVINCE.....ATAHUALLPA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....TODOS SANTOS 5836-I  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5250 M  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....10 KM SW OF SAN ANTONIO DE  
 PITACOLLO  
 LOCATION COMMENTS.....ON NW FLANK CERRO SACA SACANI  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 NON-PRODUCER MAIN.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 EXPLORATION AND DEVELOPMENT COMMENTS.....PROSPECT APPEARS TO BE  
 RECENT  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT DESCRIPTION COMMENTS.....UPPER PROSPECT IS AT LEAST 10 BY  
 10 M IN SIZE. SECOND PROSPECT IS 40 TO 50 M BELOW FIRST.  
 DESCRIPTION OF WORKINGS.....S  
 DESCRIPTION OF WORKINGS COMMENTS.....SEVERAL PROSPECT PITS  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....ANDESITE  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....ANDESITE  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 SIGNIFICANT ALTERATION.....ARGILLIC, ALUNITIC, PROPYLITIC  
 GEOLOGY COMMENTS.....FE-STAINING IN PROPYLITICALLY ALTERED  
 ANDESITE

SOURCE OF INFORMATION....FIELD INVESTIGATIONS BY USGS/GEOBOL PERSONNEL,  
1990

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MRDS RECORD NUMBER.....BL10180  
SITE NAME.....CERRO TUNAPA OCCURRENCE  
SYNONYM NAME.....TUNAPA, VOLCAN TUNAPA  
PROVINCE.....ATAHUALLPA  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SALINAS DE GARCÍ MENDOZA SE 19-15 1975  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....ALIANZA 6034-I 1972  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5100 M  
LATITUDE.....19-49-28S LONGITUDE.....067-38-45W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....9 KM E OF ALIANZA  
LOCATION COMMENTS.....S DEPOSIT ON E FLANK OF CERRO TUNAPA  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
GENERAL ANALYTICAL DATA.....45.8 TO 83.0% S  
OCCUR.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
DEPOSIT FORM.....BLANKET  
MAXIMUM THICKNESS.....400 UNITS...M  
DEPOSIT DESCRIPTION COMMENTS.....S OCCURS AS POCKETS AND NODULES  
IN GYPSUM GANGUE.  
HOST ROCK AGE.....LMIO-QUAT  
HOST ROCK TYPE.....VOLCANIC ASH  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
IGNEOUS ROCK TYPE.....VOLCANIC ASH  
AGE OF MINERALIZATION.....LMIO-QUAT  
PERTINENT MINERALS (NOT ORE).....GYPSUM  
ORE CONTROL/LOCUS.....POROUS ASH BED  
NON-USGS WORK.....THESIS BY SANJINES (1968A)  
REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964), SANJINES (1968A)

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MRDS RECORD NUMBER.....BL10223  
SITE NAME.....CHUQUICHAMBI DEPOSITS  
SYNONYM NAME.....SAN MIGUEL, CELIA  
PROVINCE.....CARANGAS  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....6040-III



SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....17-54-17S                LONGITUDE.....067-54-38W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....W OF TOWN OF CHUQUICHAMBI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE; CHALCOPYRITE; AZURITE,  
MALACHITE  
MAJOR.....CU  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR, TABULAR  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....PYRITE  
ORE CONTROL/LOCUS.....CU MINERALS REPLACE CALCITE-FE OXIDE  
CEMENT IN SANDSTONES CAPPED BY IMPERMEABLE SHALE  
FORMATION AGE.....TERT  
FORMATION NAME.....HUAYLLAMARCA  
REFERENCE....RUIZ (1975)

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MRDS RECORD NUMBER.....BL10167  
SITE NAME.....CONCEPCION PROSPECT  
PROVINCE.....LADISLAO CABRERA  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....RIO MULATO SE 19-16 1970 SE 19-15 1975  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....PUQUI 6135-III 1968  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3500 M  
LATITUDE.....19-34-34S                LONGITUDE.....067-16-38W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....2 KM SE OF CAJUATA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....NATIVE CU; CUPRITE, MALACHITE  
GENERAL ANALYTICAL DATA.....10.88% CU OVER 30 CM  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....VIRGILIO HIDALGO MOREJON  
OPERATOR.....VIRGILIO HIDALGO MOREJON  
DEPOSIT TYPE.....STOCKWORK  
USGS MODEL .....BASALTIC CU  
USGS MODEL NUMBER.....23  
DEPOSIT FORM.....IRREGULAR

MAXIMUM THICKNESS.....40           UNITS...M  
 DEPOSIT DESCRIPTION COMMENTS.....1.5 M WIDE MINERALIZED ZONE  
 DESCRIPTION OF WORKINGS.....B  
 LENGTH OF WORKINGS.....4           UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT, PROSPECT PITS  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....PLAGIOCLASE BASALT  
 AGE OF IGNEOUS ROCK.....EO  
 IGNEOUS ROCK TYPE.....PLAGIOCLASE BASALT  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....FRACTURES IN BASALT  
 FORMATION AGE.....EO  
 FORMATION NAME.....TAMBILLO  
 IGNEOUS UNIT AGE.....EO  
 IGNEOUS UNIT NAME.....TAMBILLO  
 REFERENCE....MURILLO AND OTHERS (1969)

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MRDS RECORD NUMBER.....BL00007  
 SITE NAME.....COPAJUYO PROSPECT  
 PROVINCE.....SAJAMA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA AZURITA 5939-I 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4100 M  
 LATITUDE.....18-05-25S           LONGITUDE.....068-06-36W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....13 KM N40E OF TURCO  
 LOCATION COMMENTS.....ON CERRO COPAJUYO  
 COMMODITIES PRESENT.....CU   AU   AG  
 ORE MATERIALS.....CHALCOPYRITE  
 GENERAL ANALYTICAL DATA.....UP TO 0.5 G/MT AU. AG UP TO 15 G/MT.  
 NON-PRODUCER MAIN.....CU  
 NON-PRODUCER MINOR.....AG   AU  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 NATURE OF DISCOVERY.....4  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE, SPECULARITE, MAGNETITE  
 SIGNIFICANT ALTERATION.....ARGILLIZATION AND SILICIFICATION IN  
 VOLCANIC ROCKS OVERLYTING TERTIARY SEDIMENTS.  
 GEOLOGY COMMENTS.....AU VALUES FOUND IN BOTH ALTERED VOLCANICS  
 AND CU-MINERALIZATION BEARING SEDIMENTS. DACITE MAY BE INTRUSIVE IN  
 PART.  
 NON-USGS WORK.....EXPLORATION WORK BY MINTEC FROM 1987

## SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL10136  
SITE NAME.....CORONA DE ESPAÑA MINE  
SYNONYM NAME.....ADITS: AGUSTIN, QUINAYA, ABERTSIO, SAN  
LUIS  
PROVINCE.....SAJAMA  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CORQUE SE 19-11 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....MINA AZURITA 5939-I 1969  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3950 M  
LATITUDE.....18-07-30S LONGITUDE.....068-09-00W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....5 KM NE OF TURCO, 168 KM BY ROAD  
FROM ORURO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....NATIVE CU; CUPRITE, AZURITE, MALACHITE,  
CHRYSOCOLLA  
GENERAL ANALYTICAL DATA.....BARRIOS AND PREVOST (1969): AVG 5.02% CU  
OVER 0.5M. ORE 2.16 TO 9.22% CU OVER 10 TO 97 CM. DUMPS 4.91 TO 5.24%  
CU. CONS 16.4 TO 30.28% CU. TAILS 3.20% CU.  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....RAIMUNDO QUINAYA V.  
OPERATOR.....RAIMUNDO QUINAYA V.  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM LENGTH.....200 UNITS...M  
DEPOSIT SIZE.....SMALL  
STRIKE.....N47W  
DIP.....15 TO 73 NE  
DEPOSIT DESCRIPTION COMMENTS.....ARE 5 TO 6 MANTOS, 3 HAVE BEEN  
WORKED. MANTOS NORMALLY 10 TO 20 M LONG, 38 M MAX, AVERAGE 0.46 M THICK  
RANGING 0.2 TO 1 M THICK. ORE OCCURS AS SMALL NODULES, DENDRITES AND  
BANDS. PRIMARY NATIVE CU ORE OXIDIZED TO 30 TO 50 M DEEP.  
DESCRIPTION OF WORKINGS.....U  
DEPTH BELOW SURFACE.....13 UNITS...M  
LENGTH OF WORKINGS.....57+ UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....ONE SHAFT, SEVERAL ADITS  
HOST ROCK AGE.....MMIO-LMIO  
HOST ROCK TYPE.....SANDSTONE TUFF  
AGE OF IGNEOUS ROCK.....MMIO-LMIO  
IGNEOUS ROCK TYPE.....TUFF  
AGE OF MINERALIZATION.....TERT

ORE CONTROL/LOCUS.....PREFERRED BEDS  
 SIGNIFICANT ALTERATION.....BLEACHING OF GREY SANDSTONE  
 FORMATION AGE.....MMIO-LMIO  
 FORMATION NAME.....TURCO  
 IGNEOUS UNIT AGE.....MMIO-LMIO  
 IGNEOUS UNIT NAME.....TURCO  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (BARRIOS AND PREVOST, 1969)  
 REFERENCE....BARRIOS AND PREVOST (1969)  
 SOURCE OF PRODUCTION INFORMATION.....BARRIOS AND PREVOST (1969)  
 PRODUCTION COMMENTS.....MONTHLY PRODUCTION IN 1969 30  
 QUINTALS OF 17 TO 30% CU CONCENTRATES  
 RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	4.23	MT		1969	3.25% CU

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....BARRIOS AND PREVOST  
 (1969)  
 RESERVES AND RESOURCES COMMENTS.....ORE IN SIGHT ONLY

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MRDS RECORD NUMBER.....BL10119  
 SITE NAME.....CRUCERO MINE  
 SYNONYM NAME.....ESTUQUERA DE CRUCERO  
 PROVINCE.....SAN PEDRO DE TOTORA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1968  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5940-IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....17-47-43S      LONGITUDE.....068-16-35W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....AT TOWN OF CRUCERO?  
 LOCATION COMMENTS.....ON WEST BANK OF RIO CRUCERO  
 COMMODITIES PRESENT.....GYP  
 ORE MATERIALS.....GYPSUM  
 MAJOR.....GYP  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....REGIMIENTO 21 "ANDINO" DE INFANTERIA  
 OPERATOR.....REGIMIENTO 21 "ANDINO" DE INFANTERIA  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....BEDDED GYPSUM  
 USGS MODEL NUMBER.....IM35AD  
 MAXIMUM LENGTH.....22      UNITS...KM  
 MAXIMUM THICKNESS.....1500      UNITS...CM  
 STRIKE.....N 45 W  
 DIP.....10NE  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....LOLIGO-LMIO  
 HOST ROCK TYPE.....GYPSUM

AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO-LMIO  
FORMATION NAME.....TOTORA  
NON-USGS WORK.....THESIS BY MITCHELL (1968)  
REFERENCE....MITCHELL (1968)  
SOURCE OF PRODUCTION INFORMATION.....MITCHELL (1968)  
PRODUCTION COMMENTS.....20 QUINTALS/MONTH 69.35 TO 79.68%  
CASO4

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MRDS RECORD NUMBER.....BL10116  
SITE NAME.....CUPRITA MINING GROUP  
SYNONYM NAME.....CLAIMS: MALAQUITA, CHRYSACOLLA, TORITO,  
CUPRITA, AURA, AYAHUASA  
PROVINCE.....CARANGAS  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CORQUE SE 19-11 1970  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....TURCO 5939-II 1969  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3860 M  
LATITUDE.....18-15-55S                      LONGITUDE.....068-03-52W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....16 KM S50E OF TURCO  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....NATIVE CU; CUPRITE, CU OXIDES  
GENERAL ANALYTICAL DATA.....ORE ASSAYS: 3.36 TO 14.75% CU OVER 120 TO  
400 CM.  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....CIA. CUPRIFERA CARANGAS  
OPERATOR.....CIA. CUPRIFERA CARANGAS  
EXPLORATION AND DEVELOPMENT COMMENTS.....MITSUBISHI HAD AN OPTION  
TO PURCHASE IN EARLY 60'S. PROPERTY DROPPED AFTER CONSIDERABLE DRILLING  
DUE TO POLITICAL CONSIDERATIONS.  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM LENGTH.....1000                      UNITS...M  
MAXIMUM THICKNESS.....5                      UNITS...M  
DEPOSIT SIZE.....MEDIUM  
STRIKE.....NNW  
DIP.....40 NE  
DEPOSIT DESCRIPTION COMMENTS.....DEPOSITS ARE LENSES 5 TO 50 M IN  
DIAMETER SPACED 50 TO 300 M APART. AZURITA CLAIM MINERALIZED OVER 1500  
M, AYAHUASA CLAIM OVER 1000 M, CUPRITA CLAIM OVER 2600 M, MALAQUITA  
CLAIM OVER 1300 M, TORITO CLAIM OVER 500 M. MAIN ORE IN CONGLOMERATE  
(WITH COBBLES OF GRANITE, SYENITE, GNEISS) AS CUPRITE/CU OXIDE CEMENT.  
MINOR NATIVE CU/CU OXIDE MINERALIZATION IN SANDSTONE

DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE..... 50 UNITS...M  
 LENGTH OF WORKINGS.....4560 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....TRENCHES, ADITS, AND SHAFTS.  
 AURA CLAIM: 2 MANTOS WORKED BY AN 1800 M TRENCH. AYAHUASA CLAIM:  
 PROSPECT PITS. CUPRITA CLAIM: 1200 M TRENCH, 800 M ADIT. MALAQUITA  
 CLAIM: 1500 M TRENCH, 600 M ADIT. TORITO CLAIM: SHORT ADIT.  
 HOST ROCK AGE.....LMIO  
 HOST ROCK TYPE.....CONGLOMERATE, SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 SIGNIFICANT LOCAL STRUCTURES.....CONTINUITY OF ORE DISRUPTED BY  
 FAULTING  
 FORMATION AGE.....LMIO  
 FORMATION NAME.....AZURITA  
 GENERAL COMMENTS.....PREHISTORIC CU MINE NEARBY  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL 1990  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEORGI (1958)  
 REFERENCE...GEORGI (1958), MURILLO AND OTHERS (1969)

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	10000	MT	1958	2 TO 3% CU
TAILS	EST	1000	MT	1958	
ORE	EST	138	MT		2.0% CU
AURA CLAIM					
ORE	EST	30	MT		2.0% CU
AYAHUASA CLAIM					
ORE	EST	20	MT		2.0% CU
CUPRITA CLAIM					
ORE	EST	52	MT		2.0% CU
MALAQUITA CLAIM					
ORE	EST	26	MT		2.0% CU
TORITO CLAIM					
ORE	EST	10	MT		2.0% CU
ORE	EST	138	MT		2.0% CU
ORE	EST	138	MT	1969	2.0% CU

SOURCE OF RESERVES AND RESOURCES INFORMATION.....GEORGI (1958); MURILLO  
 AND OTHERS (1969)  
 RESERVES AND RESOURCES COMMENTS.....GROSS ESTIMATES.  
 TSCHANZ IN A 1963 MEMO CITES POTENTIAL RESERVES OF UP TO OR EVEN LARGER  
 THAN 25 MILLION MT OF 1.5% OR BETTER CU.

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MRDS RECORD NUMBER.....BL10106  
 SITE NAME.....FLORIDA MINE  
 PROVINCE.....CERCAÑO  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO/EASTERN CORDILLERA  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COCHABAMBA SE 19-8 1978  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....6140-II  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3800 M  
 LATITUDE.....17-59-45S LONGITUDE.....067-08-40W

ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....2 KM SW OF ORURO  
 LOCATION COMMENTS.....ON CERRO DE LA VIBORA  
 COMMODITIES PRESENT.....AG CU  
 ORE MATERIALS.....CHALCOCITE, MALACHITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY ROCHA AND BALDERRAMA  
 (1963): 8.60% CU 4 G/T AG OVER .3 M; 6.6% CU OVER 0.3 M; 3.50% CU OVER  
 0.4 M; 21.90% CU 10 G/T AG GRAB FROM DUMP  
 MAJOR.....AG CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 YEAR OF DISCOVERY.....1959  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1959  
 DEPOSIT TYPE.....LODE  
 DEPOSIT FORM.....LENTICULAR  
 STRIKE.....N-S / N50W / N60W  
 DIP.....70E / 60SW / 70SW  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....14 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....1 ADIT, PROSPECT PITS  
 HOST ROCK AGE.....PAL  
 HOST ROCK TYPE.....SANDSTONE, QUARTZITE  
 PERTINENT MINERALS (NOT ORE).....QUARTZ  
 ORE CONTROL/LOCUS.....FRACTURES  
 SIGNIFICANT LOCAL STRUCTURES.....FAULTS N10W 60NE 12 M THROW,  
 N75W 55NE 40 M THROW  
 FORMATION AGE.....PAL  
 GEOLOGY COMMENTS.....SEDIMENTS STRIKE N-S DIP 60E  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY ROCHA AND  
 BALDERRAMA (1963)  
 REFERENCE....ROCHA AND BALDERRAMA (1963)  
 ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CONS	ACC	.002	MT		1959	15% CU
CONS	ACC	.003	MT		1959	18% CU
CONS	ACC	.004	MT		1959	20% CU

 SOURCE OF PRODUCTION INFORMATION.....ROCHA AND BALDERRAMA (1963)

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MRDS RECORD NUMBER.....BL10201  
 SITE NAME.....GUADALUPE MINE  
 MINING DISTRICT/AREA.....SALINAS DE GARCI MENDOZA  
 PROVINCE.....LADISLAO CABRERA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ALIANZA 6034-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3800 M  
 LATITUDE.....19-41-20S LONGITUDE.....067-42-28W  
 ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....4 KM S35W OF SALINAS DE GARCIA  
 MENDOZA  
 COMMODITIES PRESENT.....AG CU AU  
 ORE MATERIALS.....ENARGITE?, TETRAHEDRITE?, AZURITE,  
 MALACHITE  
 GENERAL ANALYTICAL DATA.....URIBE (1989) REPORTS UP TO 16.6 G/T AU AND  
 660 G/T AG  
 MAJOR.....AG CU  
 POTEN.....AU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 EXPLORATION AND DEVELOPMENT COMMENTS.....MINED FOR AG BY SPANIARDS.  
 NOW A CU MINE.  
 DEPOSIT TYPE.....LODE; DISSEMINATED  
 STRIKE.....N 70 TO 85 E  
 DIP.....VERTICAL TO 80NW  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE MINERALIZED DIKES 100  
 TO 1000 M LONG AND UP TO 15 M WIDE.  
 DESCRIPTION OF WORKINGS.....B  
 DEPTH BELOW SURFACE.....20 UNITS...M  
 LENGTH OF WORKINGS.....30 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT, PROSPECT PITS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE DIKE; ANDESITE?  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE DIKE; ANDESITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, BARITE, PYRITE; FE  
 OXIDES  
 ORE CONTROL/LOCUS.....DIKES  
 SIGNIFICANT LOCAL STRUCTURES.....DACITE DIKES INTRUDING ANDESITE  
 SIGNIFICANT ALTERATION.....DIKES ARE HAVE PERVASIVE SILICIC OVERPRINT  
 ON ARGILLIC ALTERATION. REGIONAL PROPYLITIC ALTERATION WITH LOCAL  
 ARGILLIC ZONES.  
 FORMATION AGE.....TERT  
 IGNEOUS UNIT AGE.....TERT  
 WORK DONE BY USGS.....EXAMINED BY USGS/GEOL PERSONNEL SEPT  
 1990  
 NON-USGS WORK.....THESIS BY SANJINES (1968A)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (MEDINA  
 AND OTHERS, 1988)  
 REFERENCE....SANJINES (1968A), MEDINA AND OTHERS (1988), URIBE (1989)  
 REFERENCE....COMIBOL, INFORME SOBRE GRUPO MINERO MARIA LUISA, 4P.  
 SOURCE OF PRODUCTION INFORMATION.....SANJINES (1968A)  
 PRODUCTION COMMENTS.....WAS PRODUCING 3 MT/MO 20 TO 30% CU  
 CONS IN 1968

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	2500	MT	1990	0.4 G/T AU, 280 G/T AG
DUMPS	EST	20	MT	1990	0.4 G/T AU, 400 G/T AG



SOURCE OF RESERVES AND RESOURCES INFORMATION.....URIBE (1989)  
RESERVES AND RESOURCES COMMENTS.....ASSUMES ORE ZONE 1000  
BY 10 BY 100 M IN SIZE AND DENSITY OF 2.5 MY/CU M

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MRDS RECORD NUMBER.....BL10307  
SITE NAME.....HUALLYAMARCA MINE  
PROVINCE.....CARANGAS  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COROCORO SE 19-7 1981  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....6040-III  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....17-50-55S                      LONGITUDE.....067-56-51W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....2 KM SW OF HUALLYAMARCA  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT  
FORMATION NAME.....HUALLYAMARCA  
REFERENCE....RIVAS (1971)

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MRDS RECORD NUMBER.....BL10337  
SITE NAME.....IJUALLA MINE  
PROVINCE.....SUR CARANGAS  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CORQUE SE 19-11 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....ANDAMARCA 6037-I 1969  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4850 M  
LATITUDE.....18-48-57S                      LONGITUDE.....067-30-55W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4.5 KM S10W OF ANDAMARCA  
COMMODITIES PRESENT.....PB  
ORE MATERIALS.....UNKNOWN  
MAJOR.....PB

PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
HOST ROCK AGE.....CRET?  
SIGNIFICANT REGIONAL STRUCTURES.....THRUST FAULT  
FORMATION AGE.....CRET?  
SOURCE OF INFORMATION...MINE SPOTTED ON ANDAMARCA (6037-I) 1:50,000  
SCALE TOPOGRAPHIC MAP.

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MRDS RECORD NUMBER.....TC00500  
SITE NAME.....INTI RAYMI MINE  
SYNONYM NAME.....CERRO CHUQUINA, KHORI KKOLLU, KORI KOLLU  
MINING DISTRICT/AREA.....LA JOYA DISTRICT  
PROVINCE.....SAUCARI  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....COCHABAMBA SE 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SOLEDAD 6140-IV 1981  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3820 M  
LATITUDE.....17-48-10S                      LONGITUDE.....067-27-00W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....6 KM SE OF LA JOYA  
LOCATION COMMENTS.....MINE LOCATED ON TOP OF CERRO CHUQUINA  
COMMODITIES PRESENT.....AU   AG   CU   PB   ZN   SB   AS  
ORE MATERIALS.....GOLD, SILVER, SPHALERITE, GALENA,  
TETRAHEDRITE, CHALCOPYRITE, STIBNITE, REALGAR, ORPIMENT, CHALCOCITE  
GENERAL ANALYTICAL DATA.....ROCK, MINERAL AND FLUID INCLUSION ANALYSES  
(ALARCON AND VILLALPANDO, 1988)  
MAJOR.....AU   AG  
OCCUR.....CU   PB   ZN   SB   AS  
PRODUCTION.....S  
STATUS AND ACTIVITY.....7  
YEAR OF DISCOVERY.....1979  
NATURE OF DISCOVERY.....B  
YEAR OF FIRST PRODUCTION.....1983  
PRODUCTION YEARS.....1983-  
OWNER (PRESENT/LAST).....EMPRESA MINERA INTI RAYMI S.A.: BATTLE  
MOUNTAIN GOLD (51%), WESTWORLD RESOURCES (24.5%), ZELAND MINES S.A.  
(24.5%)  
TOTAL INVESTMENT M\$.....4000  
MILL CAPACITY PER YR. (THOUS. UNITS)...2500  
YR APPLICABLE.....1989  
ECONOMIC COMMENTS.....\$2.9 MILLION GUARANTEED LOAN FROM U.S.  
OVERSEAS PRIVATE INVESTMENT CORP. IN 1986  
DEPOSIT TYPE.....LODE  
USGS MODEL .....SN-POLYMETALLIC VEIN  
USGS MODEL NUMBER.....20B  
DEPOSIT FORM.....TABULAR  
DEPTH TO BOTTOM.....50                      UNITS...M  
MAXIMUM THICKNESS.....50                      UNITS...M

DEPOSIT SIZE.....S  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT HAS AN OXIDIZED SILICA  
 CAP, 35-50 M THICK WHERE JAROSITE AND MINOR GOETHITE REPLACE  
 DISSEMINATED AND VEINLET PYRITE. STOCKWORK SULFIDE MINERALIZATION IS  
 FOUND BELOW A WEAK CHALCOCITE ENRICHMENT BLANKET THAT FLOORS OXIDE ZONE.  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....MMIO 15 MA K/AR  
 HOST ROCK TYPE.....BIOTITE DACITE PORPHYRY OR GRANODIORITE  
 PORPHYRY  
 PERTINENT MINERALS (NOT ORE).....OXIDIZED ORE: GOETHITE,  
 JAROSITE, PYRITE; SULFIDE ORE: PYRITE, ARSENOPYRITE  
 ORE CONTROL/LOCUS.....INTENSE NE TRENDING FRACTURES  
 SIGNIFICANT ALTERATION.....INTENSE SERICITIZATION  
 IGNEOUS UNIT AGE.....MMIO 15 MA K/AR  
 IGNEOUS UNIT NAME.....LA JOYA INTRUSIVE COMPLEX  
 GEOLOGY COMMENTS.....SILICIFIED OXIDE ORE ZONE UNDERLAIN BY  
 SULFIDE BEARING, ADVANCED ARGILLIC ALTERED INTERMEDIATE INTRUSIVE.  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL 1990  
 REFERENCE....REDWOOD (1987), ALARCON AND VILLALPANDO (1988), ANZOLEAGA  
 (1988)

## ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
AU		291.6	KG		1987	
AG	ACC	3.6	KG		1987	
AG	ACC	7.0	KG		1988	
AU	ACC	1085.76	KG		1988	

SOURCE OF PRODUCTION INFORMATION.....U.S. EMBASSY LA PAZ (1988), P. 41-42

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
RESERVES	EST	10.000	MT		1983	1.20 G/MT AU, 15 G/MT AG
ORE	EST	60800	ST		1990	.067 OPT AU, 0.44 OPT AG

SOURCE OF RESERVES AND RESOURCES INFORMATION.....REDWOOD (1987)

RESERVES AND RESOURCES COMMENTS.....ITEM 1 IS OXIDIZED ORE ONLY. ITEM 2 HAS 55.1 MILLION ST SULFIDE ORE, 5.7 MILLION ST OXIDE ORE.

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MRDS RECORD NUMBER.....BL10105  
 SITE NAME.....IROCO MINE  
 PROVINCE.....CERCADO  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO/EASTERN CORDILLERA  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COCHABAMBA SE 19-8 1978  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....6140-II  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3750 M  
 LATITUDE.....17-57-58S LONGITUDE.....067-09-18W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....4 KM W OF ORURO  
 LOCATION COMMENTS.....NEAR ITOS AND SANTO CRISTO, WEST OF SAN JOSE MINE  
 COMMODITIES PRESENT.....AU CU

ORE MATERIALS.....NATIVE GOLD, CHALCOPYRITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GUERRA ET.AL. (1965): 1.53  
 TO 31.76 G/T AU  
 MAJOR.....AU  
 OCCUR.....CU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....ALBERTO YANEZ RIVAS  
 OPERATOR.....ALBERTO YANEZ RIVAS  
 EXPLORATION AND DEVELOPMENT COMMENTS.....LEASED AND PRODUCED 1948  
 TO 1956. PURCHASED BY YANEZ R. IN 1958. NOW OWNED BY A COOP WHICH HAS A  
 JV AGREEMENT WITH FREEPORT EXPLORATION CO WHO CONDUCTED A DRILLING  
 PROGRAM 1988-1989.  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....LOW SULFIDE AU QUARTZ VEIN  
 USGS MODEL NUMBER.....36A  
 STRIKE.....N-S / N45W  
 DIP.....50E THEN W / 60NE  
 DEPOSIT DESCRIPTION COMMENTS.....TWO VEIN SETS. VEINS ARE A FEW CM  
 TO A M WIDE.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....448           UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....4 ADITS 2 PROSPECT PITS  
 HOST ROCK AGE.....PAL  
 HOST ROCK TYPE.....ARGILLACEOUS SANDSTONE  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, OPAL, CHALCEDONY,  
 ARSENOPYRITE, PYRITE  
 ORE CONTROL/LOCUS.....FRACTURE PATTERN DUE TO FOLDING AND  
 INTRUSION OF SAN JOSE STOCK  
 SIGNIFICANT REGIONAL STRUCTURES.....REGIONAL NORMAL FAULT  
 SIGNIFICANT LOCAL STRUCTURES.....ANTICLINE N20E, VEINS ARE ON  
 AXIS  
 FORMATION AGE.....PAL  
 GEOLOGY COMMENTS.....GOLD PARTICLES, 30 MICRONS IN SIZE, ARE  
 FOUND IN QUARTZ  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GUERRA AND  
 OTHERS (1965A)  
 REFERENCE....GUERRA AND OTHERS (1965A), AHLFELD AND SCHNEIDER-SCHERBINA  
 (1964)  
     RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
AU	EST	250	TROY	OZ	1990	

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....J. MACNAMEE (PERS.  
 COMM.)

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MRDS RECORD NUMBER.....BL00022  
 SITE NAME.....INEXA PROSPECT  
 PROVINCE.....LADISLAO CABRERA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCIA MENDOZA SE 19-15 1975

QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....INEXA 6034-IV 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....19-43-16S                      LONGITUDE.....067-57-01W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....0.75 KM S10W OF INEXA  
 COMMODITIES PRESENT.....AG  
 ORE MATERIALS.....UNKNOWN  
 OCCUR.....AG  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....ALFREDO DAVILA  
 OPERATOR.....ALFREDO DAVILA  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 SOURCE OF INFORMATION....MINTEC FILES

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MRDS RECORD NUMBER.....BL10336  
 SITE NAME.....JANKHO VILQUE MINE  
 PROVINCE.....CARANGAS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....6039-IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4350 M  
 LATITUDE.....18-00-25S                      LONGITUDE.....067-47-06W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5 KM N85E OF ESTANCIA SAN JOSE  
 COMMODITIES PRESENT.....CU?  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU?  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....TERT  
 FORMATION NAME.....HUAYLLAMARCA  
 SOURCE OF INFORMATION....MINE SPOTTED ON CORQUE (SE 19-11) 1:250,000  
 SCALE TOPOGRAPHIC MAP.

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MRDS RECORD NUMBER.....BL10230  
 SITE NAME.....LA BARCA PROSPECT  
 MINING DISTRICT/AREA.....LA JOYA DISTRICT

PROVINCE.....SAUCARI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COCHABAMBA SE 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SOLEDAD 6140-IV 1981  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3760 M  
 LATITUDE.....17-46-05S                      LONGITUDE.....067-27-32W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....JUST NE OF LA BARCA  
 LOCATION COMMENTS.....ON S END CERRO QUIVIRI  
 COMMODITIES PRESENT.....AG  
 ORE MATERIALS.....UNKNOWN  
 OCCUR.....AG  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....CIA MINERA INTI RAYMI  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CIA MINERA INTI RAYMI  
 OPERATOR.....CIA MINERA INTI RAYMI  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....GRANODIORITE PORPHYRY  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....GRANODIORITE PORPHYRY  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....TERT  
 IGNEOUS UNIT AGE.....TERT  
 SOURCE OF INFORMATION....CIA MINERA INTI RAYMI, ORAL COMM., 1990

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MRDS RECORD NUMBER.....BL10053  
 SITE NAME.....LA DESEADA MINE  
 MINING DISTRICT/AREA.....SALINAS DE GARCI MENDOZA  
 PROVINCE.....LADISLAO CABRERA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA  
 QUADRANGLE SCALE.....1:250,000  
 ELEVATION.....3800 M  
 LATITUDE.....19-40-15S                      LONGITUDE.....067-42-12W  
 ACCURACY.....ACC  
 COMMODITIES PRESENT.....AG    PB    ZN    CU  
 ORE MATERIALS.....GALENA, SPHALERITE, MALACHITE, AZURITE  
 MAJOR.....AG  
 POTEN.....PB    ZN  
 OCCUR.....CU  
 PRODUCTION.....S  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B

DEPOSIT TYPE.....LODE  
 DEPOSIT FORM.....IRREGULAR  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS STRIKE E-W AND DIP VERTICAL  
 TO 80N ARE 600 TO 1000 M LONG AND 1 TO 2.5 M WIDE.  
 DESCRIPTION OF WORKINGS.....U  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....TUFF, LAVA, VOLCANIC BRECCIA  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....TUFF, LAVA, VOLCANIC BRECCIA  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, BARITE, PYRITE  
 ORE CONTROL/LOCUS.....E-W FRACTURES  
 SIGNIFICANT ALTERATION.....ZONED VERTICALLY FROM TOP: SILICIFICATION,  
 SILICIFICATION-ARGILLIZATION, PROPYLITIZATION  
 FORMATION AGE.....TERT  
 FORMATION NAME.....TAGUA  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....TAGUA  
 NON-USGS WORK.....GEOLOGICAL EVALUATION BY UNDP (MEDINA AND  
 OTHERS, 1988)  
 REFERENCE....MEDINA AND OTHERS (1988), URIBE (1989)

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MRDS RECORD NUMBER.....TC00501  
 SITE NAME.....LA JOYA DISTRICT  
 SYNONYM NAME.....MINES: CARMEN, SAN PABLO, SAN ANDRES,  
 INTI RAYMI; VEINS: CARMEN, SUSANA  
 MINING DISTRICT/AREA.....LA JOYA  
 PROVINCE.....SAUCARI, BARRON  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COCHABAMBA SE 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SOLEDAD 6140-IV 1983/CERRO LA JOYA 6040-I  
 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 M  
 LATITUDE.....17-48-00S                      LONGITUDE.....067-30-00W  
 ACCURACY.....APPROXIMATE DISTRICT CENTER  
 POSITION FROM NEAREST LOCALITY.....20 KM S OF EUCALIPTUS  
 LOCATION COMMENTS.....MINES LOCATED ON CERRO LA JOYA (CARMEN,  
 SAN PABLO), CERRO LLALLAGUA (SAN ANDRES) AND CERRO CHUQUINA (INTI  
 RAYMI). CERRO GUIVARI AND CERRO Balsa ARE INTENSELY ALTERED.  
 COMMODITIES PRESENT.....AU    AG    CU    BI  
 ORE MATERIALS.....ENARGITE, GOLD, SILVER, ELECTRUM;  
 CHALCOPYRITE, COVELLITE, CHALCOCITE, TENNANTITE; (BISMUTHINITE, NATIVE  
 BISMUTH)  
 GENERAL ANALYTICAL DATA.....ROCK AND MINERAL AND FLUID INCLUSION  
 ANALYSIS (ALARCON AND VILLALPANDO, 1988)  
 MAJOR.....AU    AG  
 MINOR.....CU  
 OCCUR.....BI  
 PRODUCTION.....S

STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONIALS  
 NATURE OF DISCOVERY.....B  
 PRODUCTION YEARS.....1983-  
 OWNER (PRESENT/LAST).....EMPRESA MINERA UNIFICADA (33%), WESTWORLD  
 OF TEXAS (33%), BATTLE MOUNTAIN GOLD (33%)  
 OPERATOR.....INTI RAYMI S.A.  
 ECONOMIC COMMENTS.....ONLY INTI RAYMI MINE (Q.V.) CURRENTLY IN  
 PRODUCTION  
 DEPOSIT TYPE.....LODE, DISSEMINATED  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DEPOSIT FORM.....TABULAR  
 DEPOSIT SIZE.....S  
 DESCRIPTION OF WORKINGS.....B  
 HOST ROCK AGE.....MMIO 15 MA K/AR, SIL  
 HOST ROCK TYPE.....BIOTITE DACITE PORPHYRY  
 AGE OF IGNEOUS ROCK.....MMIO 15 MA K/AR  
 IGNEOUS ROCK TYPE.....BIOTITE DACITE PORPHYRY  
 AGE OF MINERALIZATION.....10 MA K/AR MMIO  
 PERTINENT MINERALS (NOT ORE).....PYRITE, ARSENOPYRITE, QUARTZ,  
 SERICITE, TOURMALINE  
 ORE CONTROL/LOCUS.....NE TRENDING FRACTURES  
 SIGNIFICANT REGIONAL STRUCTURES.....SOLEDAD COLLAPSE CALDERA, FOLDED  
 SILURIAN BASEMENT  
 SIGNIFICANT LOCAL STRUCTURES.....DACITE FLOW DOMES THAT PREDATE  
 SOLEDAD CALDERA COLLAPSE  
 SIGNIFICANT ALTERATION.....PHYLIC ALTERATION, SILICIFICATION,  
 ARGILLIC ALTERATION  
 PROCESS OF CONCENTRATION/ENRICHMENT.....OXIDIZED ZONE 70 M THICK AT  
 CERRO LA JOYA  
 IGNEOUS UNIT AGE.....MMIO 15 MA K/AR  
 IGNEOUS UNIT NAME.....LA JOYA DOME COMPLEX  
 GENERAL COMMENTS.....SEE RECORD TC00500 ON INTI RAYMI MINE  
 REFERENCE...REDWOOD (1987), ALARCON AND VILLALPANDO (1988), ANZOLEAGA  
 (1988), JIMENEZ AND OTHERS (1988), ZAMORA (1989)

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MRDS RECORD NUMBER.....BL10309  
 SITE NAME.....LA NEGRA PROSPECT  
 SYNONYM NAME.....KISKA  
 PROVINCE.....BARRON  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO LA JOYA 6040-I 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3800 M  
 LATITUDE.....17-51-15S LONGITUDE.....067-32-35W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....4 KM S80E OF KISCA  
 COMMODITIES PRESENT.....AU



OCCUR.....AU  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
DISCOVERER.....ASARCO  
YEAR OF DISCOVERY.....1990  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....ASARCO  
OPERATOR.....ASARCO  
SOURCE OF INFORMATION...ASARCO, ORAL COMM., 1990

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MRDS RECORD NUMBER.....BL10039  
SITE NAME.....LAGO POOPO  
PROVINCE.....CERCADO, SAUCARI, POOPO, AVAROA, SUD  
CARANGAS, L. CABRERA, S. PAGADOR  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....UNCIA SE 19-12 1981/RIO MULATO SE 19-16  
1970  
QUADRANGLE SCALE.....1:250,000  
ELEVATION.....3686 M  
LATITUDE.....19-00-00S                      LONGITUDE.....067-00-00W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....DUE WEST OF CHALLAPATA  
LOCATION COMMENTS.....GEODETIC COORDINATES FOR APPROXIMATE LAKE  
CENTER  
COMMODITIES PRESENT.....TRO  
ORE MATERIALS.....NATRON  
OCCUR.....TRO  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....ALKALINE LAKE  
USGS MODEL .....ALKALINE LAKE BRINE  
USGS MODEL NUMBER.....IM35BM  
HOST ROCK AGE.....HOLO  
HOST ROCK TYPE.....WATER  
AGE OF MINERALIZATION.....HOLO  
PERTINENT MINERALS (NOT ORE).....CALCITE  
TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
FORMATION AGE.....HOLO  
NON-USGS WORK.....GEOLOGICAL STUDIES BY CARMOUZE AND OTHERS  
(1978) AND MURILLO AND BUSTILLOS (1968)  
REFERENCE....CARMOUZE AND OTHERS (1978), MURILLO AND BUSTILLOS, (1968),  
BALLIVIAN AND RISACHER (1981), SERVANT-VILDARY (1978)

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MRDS RECORD NUMBER.....BL10338  
SITE NAME.....MANTOS MINE  
PROVINCE.....ATAHUALLPA  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CARANGAS 5837-II 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3850 M  
 LATITUDE.....18-53-19S                      LONGITUDE.....068-37-43W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5.5 KM S10W OF NEGRILLOS  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 HOST ROCK AGE.....EMIO  
 AGE OF IGNEOUS ROCK.....EMIO  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....EMIO  
 FORMATION NAME.....CARANGAS  
 IGNEOUS UNIT AGE.....EMIO  
 IGNEOUS UNIT NAME.....CARANGAS  
 REFERENCE....PONCE AND AVILA (1965)

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MRDS RECORD NUMBER.....BL10158  
 SITE NAME.....**MARGARITA MINE**  
 MINING DISTRICT/AREA.....SALINAS DE GARCI MENDOZA  
 PROVINCE.....LADISLAO CABRERA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ALIANZA 6034-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3800 M  
 LATITUDE.....19-43-58S                      LONGITUDE.....067-40-35W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....9.5 KM S5W OF SALINAS DE GARCI MENDOZA  
 LOCATION COMMENTS.....MARGARITA MINE WORKS SAME VEIN SYSTEM AS SAN MIGUEL MINE (BL10200) LOCATED 50 M ABOVE MARGARITA WORKINGS.  
 COMMODITIES PRESENT.....AG    PB    ZN    AU    CU    CD  
 ORE MATERIALS.....SPHALERITE, GALENA, CHALCOPYRITE  
 GENERAL ANALYTICAL DATA.....AHLFELD AND SCHNEIDER-SCHERBINA (1964):  
 20% PB, 15% ZN, 300 G/T AG.  
 MAJOR.....AG  
 MINOR.....PB    AU  
 POTEN.....ZN    CD  
 OCCUR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS

NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 MAXIMUM LENGTH.....330           UNITS...M  
 STRIKE.....N 45-75W; N80E  
 DIP.....80 NE TO VERTICAL  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE VARIABLY  
 SILICIFIED/MINERALIZED SHEAR ZONES FROM 50 CM TO 6 M WIDE. ORE SHOOTS ARE  
 UP TO 70 M LONG WITH UP TO 30% ORE MINERALS OVERALL.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....700-800           UNITS...M  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....TUFF, VOLCANICLASTICS  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....TUFF, VOLCANICLASTICS  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE, ANKERITE; FE  
 OXIDE  
 ORE CONTROL/LOCUS.....FRACTURES  
 SIGNIFICANT LOCAL STRUCTURES.....NW TRENDING SHEAR ZONES  
 SIGNIFICANT ALTERATION.....EXTENSIVE PROPYLITIC, SILICIC WITHIN  
 SHEARS, ARGILLIC ENVELOPES AROUND SHEARS UP TO 2 M WIDE.  
 FORMATION AGE.....TERT  
 FORMATION NAME.....TAGUA  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....TAGUA  
 WORK DONE BY USGS.....EXAMINED BY USGS/GEOBOL PERSONNEL SEPT  
 1990  
 NON-USGS WORK.....THESIS BY SANJINES (1968A)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (MEDINA  
 AND OTHERS, 1988)  
 REFERENCE.... AHLFELD AND SCHNEIDER-SCHERBINA (1964), SANJINES (1968A),  
 MEDINA AND OTHERS (1988)  
 REFERENCE....COMIBOL, INFORME SOBRE GRUPO MINER MARIA LUISA, 4P.  
     ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
CONS	ACC	1.654	MT	1967	63.5% PB 3.4% AG

     RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	ACC	253.084	MT		84 G/MT AG, 6.94% PB, 9.52% ZN

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....COMIBOL  
  
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 MRDS RECORD NUMBER.....BL00003  
 SITE NAME.....MARIA ELENA PROSPECT  
 PROVINCE.....ATAHUALLPA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCIA MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....TODOS SANTOS 5836-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4800 M  
 LATITUDE.....19-04-18S LONGITUDE.....068-42-14W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....7 KM S10E OF TODOS SANTOS  
 LOCATION COMMENTS.....ON TOP AND WESTERN AND SOUTHERN FLANKS OF  
 CERRO CULEBRA.  
 COMMODITIES PRESENT.....AU AG  
 ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....AU VALUES UP TO 0.5 G/MT, MANY ABOVE 0.1  
 G/MT. AG VALUES LESS THAN 1 PPM.  
 OCCUR.....AU AG  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 YEAR OF DISCOVERY.....1987  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....VICTOR CORTEZ  
 OPERATOR.....VICTOR CORTEZ  
 DEPOSIT TYPE.....DISSEMINATED?  
 HOST ROCK AGE.....LMIO  
 HOST ROCK TYPE.....ANDESITE, DACITE  
 AGE OF IGNEOUS ROCK.....LMIO  
 IGNEOUS ROCK TYPE.....ANDESITE, DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE, JAROSITE?  
 ORE CONTROL/LOCUS.....BRECCIA ZONES  
 SIGNIFICANT LOCAL STRUCTURES.....OPALIZED SUBVOLCANIC INTRUSION  
 IN CORE OF STRATOVOLCANO; NE TRENDING SILICIC SILLS AND DIKES  
 SIGNIFICANT ALTERATION.....SILICIFICATION, ARGILLIZATION  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL SEPT 1990  
 NON-USGS WORK.....EXPLORATION WORK BY MINTEC FROM 1987  
 SOURCE OF INFORMATION....MINTEC FILES

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MRDS RECORD NUMBER.....BL10051  
 SITE NAME.....MARIA LUISA MINE  
 SYNONYM NAME.....VEIN: SANTO DOMINGO  
 MINING DISTRICT/AREA.....SALINAS DE GARCIA MENDOZA  
 PROVINCE.....LADISLAO CABRERA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCIA MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ALIANZA 6034-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3825 M  
 LATITUDE.....19-42-30S LONGITUDE.....067-42-51W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....9.5 KM S25W OF SALINAS DE GARCIA  
 MENDOZA  
 COMMODITIES PRESENT.....AG PB ZN AU CU CD

ORE MATERIALS.....SPHALERITE, GALENA, FREIBERGITE,  
 ARGENTITE, STEPHANITE, CHALCOPYRITE; CERUSSITE, COVELLITE, CERARGYRITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY ENTWISTLE (1948). AHLFELD  
 AND SCHNEIDER-SCHERBINA (1964) REPORT CD ASSAYS OF 0.14 AND 0.02%.  
 SCHULTZE (1968) REPORTS THAT CONCENTRATES SENT TO ASARCO SMELTER IN EL  
 PASO IN 1948 HAD GRADES OF 0.5 G/T AG AND 350 G/T AG.

MAJOR.....AG  
 MINOR.....PB      ZN  
 POTEN.....AU  
 OCCUR.....CU      CD

PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....EMPRESA MINERA MARIA LUISA (COMIBOL)  
 EXPLORATION AND DEVELOPMENT COMMENTS.....EXPLORATION BY A CHILEAN  
 CONCERN 1925. MAJOR EXPLORATION PROGRAM BY ASARCO 1947-1949.  
 NATIONALIZED 1952.  
 DEPOSIT TYPE.....LODE; DISSEMINATED  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 DEPOSIT FORM.....IRREGULAR  
 STRIKE.....N 40 W TO EW  
 DIP.....60NE TO VERTICAL  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS STRIKE N 70 TO 80 W, DIP  
 VERTICAL TO 70N AND ARE 0.1 TO 2 M WIDE. ARE OTHER VEIN SYSTEMS  
 (CRUCERO, TANCANE, SANTA RITA, JOHNNY WALKER, ETC.) THAT ARE UNEXPLORED.  
 SANTO DOMINGO VEIN IS 3000 M LONG AND UP TO 6 M WIDE BUT GENERALLY  
 AROUND 2 M WIDE. THE PIE DE GALLO ORE SHOOT WAS 200 M LONG, AND 2 TO 5 M  
 WIDE.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....120 M      UNITS  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT. MANY OLD COLONIAL  
 WORKINGS.  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....TUFF, LAVA, VOLCANIC BRECCIA  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....TUFF, LAVA, VOLCANIC BRECCIA  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE; JAROSITE,  
 LIMONITE, HEMATITE, SPECULARITE, SERICITE, CHLORITE, KAOLINITE  
 ORE CONTROL/LOCUS.....NW FRACTURES  
 SIGNIFICANT ALTERATION.....SILICIFICATION AND ARGILLIZATION EXTENDING  
 UP TO 30 M FROM VEINS. WEAK SILICIFICATION OF COUNTRY ROCK. CHALCEDONY-  
 PYRITE ALTERATION FOUND IN ONE DRILL HOLE.  
 FORMATION AGE.....TERT  
 IGNEOUS UNIT AGE.....TERT  
 GEOLOGY COMMENTS.....HOST ROCKS ARE A THICK SECTION OF  
 PORPHYRITIC LAVAS, LAPILLI AND CRYSTAL-RICH TUFFS, AND ASSOCIATED  
 BRECCIAS OF PROBABLE MIOCENE AGE. WALL ROCKS CONTAIN UP TO 1%  
 DISSEMINATED PYRITE PLUS A LESSER AMOUNT OF DARK SULFIDES.  
 WORK DONE BY USGS.....EXAMINED BY USGS/GEOBOL PERSONNEL 1990

NON-USGS WORK.....DETAILED EXPLORATION BY ASARCO 1917-1949  
(ENTWISTLE, 1948)  
NON-USGS WORK.....SPORADIC EXPLORATION BY COMIBOL AFTER 1952  
(SCHULTZE, 1968; PAZ, 1971, GAMBOA, 1982)  
NON-USGS WORK.....GEOLOGICAL STUDY BY UNDP 1988 (MEDINA AND  
OTHERS, 1988)  
NON-USGS WORK.....THESIS BY SANJINES (1968A)  
REFERENCE....ENTWISTLE (1948), GAMBOA (1982), PAZ (1971)  
SCHULTZE (1968), MEDINA AND OTHERS (1988), AHLFELD AND SCHNEIDER-  
SCHERBINA (1964), SANJINES (1968A), SILLITOE (1988), COMIBOL (N.D.)

## ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	ACC	1.284	MT	1967	66.8% PB 3.1% AG

## RESERVES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	ACC	436.2	MT	1948	5.52% ZN, 4.5% PB, 263 G/T AG
ORE	ACC	304.5	MT	1982	4.44% ZN, 4.0% PB, 287 G/T AG
ORE	ACC	196.016	MT		483 G/MT AG, 1.13% PB, 1.83% ZN
DUMPS	ACC	22.9	MT		254 G/MT AG, 0.64% PB, 1.56% ZN

SOURCE OF RESERVES INFORMATION.....ENTWISTLE (1948), GAMBOA (1982)  
RESERVES COMMENTS.....INCLUDES ORE IN MARGARITA AND SAN  
MIGUEL MINES EXCEPT FOR ITEMS 3 AND 4 WHICH IS MARIA LUISA EXCLUSIVELY.

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MRDS RECORD NUMBER.....BL00001  
SITE NAME.....MILENKA PROSPECT  
PROVINCE.....ATAHUALLPA  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5836-IV  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5000 M  
LATITUDE.....19-00-51S LONGITUDE.....068-49-47W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....11 KM W OF TODOS SANTOS  
LOCATION COMMENTS.....CENTERED ON CERRO CURUMAYA  
COMMODITIES PRESENT.....AU AG  
ORE MATERIALS.....UNKNOWN  
GENERAL ANALYTICAL DATA.....AU VALUES TO 0.2 G/MT. AG VALUES LESS THAN  
1 PPM.  
OCCUR.....AU AG  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
DISCOVERER.....MINTEC  
YEAR OF DISCOVERY.....1987  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....VICTOR CORTEZ  
OPERATOR.....VICTOR CORTEZ

HOST ROCK AGE.....MIO  
 HOST ROCK TYPE.....ANDESITE, DACITE  
 AGE OF IGNEOUS ROCK.....MIO  
 IGNEOUS ROCK TYPE.....ANDESITE, DACITE  
 AGE OF MINERALIZATION.....TERT?  
 ORE CONTROL/LOCUS.....BRECCIA ZONE  
 SIGNIFICANT LOCAL STRUCTURES.....ERODED CORE OF STRATOVOLCANO  
 SIGNIFICANT ALTERATION.....SILICIFICATION, SERICITIZATION,  
 ARGILLIZATION  
 FORMATION AGE.....MIO  
 IGNEOUS UNIT AGE.....MIO  
 GEOLOGY COMMENTS.....POSSIBLE SOLFATARIC ALTERATION AND NATIVE  
 S MINERALIZATION  
 NON-USGS WORK.....EXPLORATION WORK BY MINTEC 1987-1989  
 SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL10009  
 SITE NAME.....NEGRILLOS MINE  
 SYNONYM NAME.....LA PLATA  
 PROVINCE.....ATAHUALLPA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1970  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....NEGRILLOS 5837-I 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....18-50-26S                      LONGITUDE.....068-37-42W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....14 KM N OF CARANGAS, 207 KM BY  
 ROAD FROM ORURO  
 COMMODITIES PRESENT.....AG    PB    ZN    CU    MN  
 ORE MATERIALS.....GALENA, SPHALERITE, TETRAHEDRITE,  
 PYRRARGYRITE, POLYBASITE, FREIBURGITE, CHALCOPYRITE; (CERUSSITE, MN  
 OXIDES)  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GUERRA AND OTHERS (1965):  
 OXIDE ORE: 5 SAMPLES, CHANNELS UP TO 22 CM, 3.87% PB 1.04% ZN 800 G/T  
 AG, VEIN SULPHIDE ORE: 2 SAMPLES, CHANNELS UP TO 19 CM, 3.35% PB, 7.4%  
 ZN, 1040 G/T AG; DISSEMINATED SULFIDE ORE: 4 SAMPLES, CHANNELS UP TO 26  
 CM, 2.0% PB 26.0% AN 270 G/T AG; TAQUEOS: 1 GRAB SAMPLE, 1.2% PB 400 G/T  
 AG  
 MAJOR.....AG  
 POTEN.....PB    ZN  
 OCCUR.....CU    MN  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 YEAR OF DISCOVERY.....1600  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1600  
 OWNER (PRESENT/LAST).....EMPRESA MINERA LA PLATA  
 OPERATOR.....EMPRESA MINERA LA PLATA

EXPLORATION AND DEVELOPMENT COMMENTS.....MINED BY SPANISH 1600 TO 1650. WORKED BY PERUVIAN CONCERN IN 1850, ORE SHIPPED TO PERU VIA ARICA. EXPLORED BY COROCORO CO. 1920, PATIÑO CO. 1933, WORKED BY JORGE IRMAS 1945 TO 1947 WHO SHIPPED ORE TO HOCHSCHILD, PURCHASED BY ANTONIO IRMAS AS LA PLATA MINE 1948, SOLD TO ADOLFO BALLIVIAN SALES IN 1958.

DEPOSIT TYPE.....LODE DISSEMINATED

DEPOSIT FORM.....IRREGULAR

DEPOSIT SIZE.....SMALL

DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT CONSISTS OF THREE VEINS. VETA A AND C ARE ORIENTED N70W 85 NE, ARE 300 M LONG AND 1 TO 40 CM WIDE. VEIN B IS OREINTED N50E 85NW TO VERTICAL, IS 1000 M LONG AND UP TO 1 M WIDE.

DESCRIPTION OF WORKINGS.....U

LENGTH OF WORKINGS.....148+ UNITS...M

DESCRIPTION OF WORKINGS COMMENTS.....3 ADITS; MANY OTHER PITS

HOST ROCK AGE.....QUAT?

HOST ROCK TYPE.....TUFF, ANDESITE BRECCIA

AGE OF IGNEOUS ROCK.....QUAT?

IGNEOUS ROCK TYPE.....TUFF; ANDESITE BRECCIA

AGE OF MINERALIZATION.....QUAT?

PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE, CHALCEDONY, RHODONITE, MN OXIDES

ORE CONTROL/LOCUS.....FRACTURES

SIGNIFICANT REGIONAL STRUCTURES.....N-S SYNCLINE WITH AXIS 1 KM W OF TOWN OF NEGRILLOS

SIGNIFICANT LOCAL STRUCTURES.....N80E 65N FAULT ZONES

SIGNIFICANT ALTERATION.....ARGILLIC, PROPYLITIC. ORE IS OXIDIZED FROM 8 TO 15 M DEPTH.

FORMATION AGE.....QUAT?

GEOLOGY COMMENTS.....AT SURFACE OUTCROPS OF VEINS MN OXIDES ARE FOUND AS MASSES AND NODULES. DISSEMINATED ORE IS FOUND BELOW 30M.

WORK DONE BY USGS.....VISITED BY USGS/GEOBOL GEOLOGISTS SEPT 1990

NON-USGS WORK.....THESIS BY AVILA-SALINAS (1965)

NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GUERRA AND OTHERS (1965B)

REFERENCE....AVILA SALINAS (1965), GUERRA AND OTHERS (1965B)

#### ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
CONS	ACC	1.445	KG	1948	51.6% PB
CONS	ACC	.842	KG	1949	60.0% PB
CONS	ACC	.678	KG	1964	59.6% PB 1700 G/T AG

SOURCE OF PRODUCTION INFORMATION.....GUERRA AND OTHERS (1965)

PRODUCTION COMMENTS.....IN 1945-47 SOME 15,000 TO 20,000 MT OF ESCORIAS WERE PRODUCED

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MRDS RECORD NUMBER.....BL10236

SITE NAME.....NEVADO QUIMSA CHATA OCCURRENCE

PROVINCE.....SAJAMA

PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE

DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....NEVADOS PAYACHATA SE 19-10 1970



QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5738-I  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5500 M  
LATITUDE.....18-23-54S                      LONGITUDE.....069-02-21W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....11 KM S15W OF ESTANCIA PAYOCONI  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
OCCUR.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
REFERENCE....MCVEY (1989)

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MRDS RECORD NUMBER.....BL10333  
SITE NAME.....NEVADO SAJAMA OCCURRENCE  
PROVINCE.....SAJAMA  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CORQUE SE 19-11 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....NEVADO SAJAMA 5839-IV 1969  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....6000 M  
LATITUDE.....18-06-34S                      LONGITUDE.....068-52-18W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....10 KM N70E OF SAJAMA  
COMMODITIES PRESENT.....SB    S?  
ORE MATERIALS.....NATIVE S?  
OCCUR.....SB    S?  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
DEPOSIT DESCRIPTION COMMENTS.....NATIVE S OCCURRENCE IS DISPUTED  
BY AHLFELD AND SCHNEIDER-SCHERBINA (1964)  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10235

SITE NAME.....NEVADOS PAYACHATA OCCURRENCE  
 PROVINCE.....SAJAMA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....NEVADOS PAYACHATA SE 19-10 1970  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....NEVADOS PAYACHATA 5739-I 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5500 M  
 LATITUDE.....18-08-34S                      LONGITUDE.....069-07-48W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....12 KM N60W OF ESTANCIA PAPEL  
 PAMPA  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 OCCUR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCE.....MCVEY (1989)

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MRDS RECORD NUMBER.....BL10016  
 SITE NAME.....PACO KHAUA PROSPECT  
 SYNONYM NAME.....CERRO PACO KHAUA, PACO CAGUA  
 PROVINCE.....ATAHUALLPA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO CAPITAN 5837-III 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5000 M  
 LATITUDE.....18-48-50S                      LONGITUDE.....068-47-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5 KM S OF ESTANCIA VILUYO, 470 KM  
 BY ROAD FROM LA PAZ.  
 LOCATION COMMENTS.....WITHIN THE ABRA DE KOLLAVILQUE BETWEEN  
 CERRO PACO KHAUA AND VOLCAN PACO KHAUA  
 COMMODITIES PRESENT.....PB    CU    AG    AU    SN  
 ORE MATERIALS.....CASSITERITE  
 GENERAL ANALYTICAL DATA.....ASSAYS BY CIA. MINERA ILLIMANI (1989)  
 AVERAGE: 0.01 G/T AU, 4.95 G/T AG  
 OCCUR.....SN  
 NON-PRODUCER MAIN.....PB    CU    AG  
 NON-PRODUCER MINOR.....AU  
 PRODUCTION.....N

STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE, STOCKWORK  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DESCRIPTION OF WORKINGS.....S  
 DESCRIPTION OF WORKINGS COMMENTS.....PROSPECT PITS  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....RHYOLITE, BASALT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 ORE CONTROL/LOCUS.....BRECCIA ZONE  
 SIGNIFICANT ALTERATION.....SERICITIZATION, ARGILLIZATION  
 SILICIFICATION  
 NON-USGS WORK.....THESIS BY AVILA-SALINAS (1965)  
 NON-USGS WORK.....SURFACE SAMPLING BY CIA. MINERA ILLIMANI  
 (1989)  
 REFERENCE....AVILA-SALINAS (1965)  
 REFERENCE....EMPRESA MINERA ILLIMANI (1989)

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MRDS RECORD NUMBER.....BL10334  
 SITE NAME.....PACUNI MINE  
 PROVINCE.....SAJAMA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA LAGUNA 5839-III 1968  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4600 M  
 LATITUDE.....18-18-00S                      LONGITUDE.....068-49-44W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....15 KM N75E OF CHACHACOMANI  
 COMMODITIES PRESENT.....AG    PB  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....AG  
 MINOR.....PB  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS?  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 HOST ROCK AGE.....QUAT  
 HOST ROCK TYPE.....BRECCIA  
 AGE OF IGNEOUS ROCK.....QUAT  
 IGNEOUS ROCK TYPE.....BRECCIA, INTRUSIVE  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 FORMATION AGE.....LMIO-QUAT  
 IGNEOUS UNIT AGE.....LMIO-QUAT  
 SOURCE OF INFORMATION....MINTEC FILES

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MRDS RECORD NUMBER.....BL00031  
SITE NAME.....**PAMPA AULLAGAS PROSPECT**  
PROVINCE.....LADISLAO CABRERA  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....RIO MULATO SE 19-16 1970  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....PAMPA AULLAGAS 6136-II 1969  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3750 M  
LATITUDE.....19-11-50S                      LONGITUDE.....067-02-34W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1.5 KM S80E OF PAMPA AULLAGAS  
COMMODITIES PRESENT.....UNK  
ORE MATERIALS.....UNKNOWN  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
DISCOVERER.....MINTEC  
NATURE OF DISCOVERY.....B  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....RHYODACITE  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....RHYODACITE  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT  
IGNEOUS UNIT AGE.....TERT  
SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL00020  
SITE NAME.....**PAOLA PROSPECT**  
PROVINCE.....ATAHUALLPA  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....VILLA VITALINA 5936-III 1973  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4450 M  
LATITUDE.....19-19-00S                      LONGITUDE.....068-17-45W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....5 KM S25W OF COIPASA  
COMMODITIES PRESENT.....UNK  
ORE MATERIALS.....UNK  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
DISCOVERER.....MINTEC  
YEAR OF DISCOVERY.....1987  
NATURE OF DISCOVERY.....B  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL00033  
 SITE NAME.....**POTOSI PROSPECT**  
 PROVINCE.....LITORAL  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESCARA 5937-II 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4400 M  
 LATITUDE.....18-51-21S                      LONGITUDE.....068-11-58W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3 KM W OF ESCARA  
 COMMODITIES PRESENT.....UKN  
 ORE MATERIALS.....UNKNOWN  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 NATURE OF DISCOVERY.....B  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 SOURCE OF INFORMATION....MINTEC FILES

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MRDS RECORD NUMBER.....BL10040  
 SITE NAME.....**SALAR DE COIPASA**  
 SYNONYM NAME.....BORATERA DE SABAYA  
 PROVINCE.....ATAHUALLPA, L. CABRERA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5836-II, 5935-I,II,III,IV, 5936-I,II,III,IV, 6035-III, IV, 6036-III,IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3657 M  
 LATITUDE.....19-22-00S                      LONGITUDE.....068-08-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....AT COIPASA  
 COMMODITIES PRESENT.....HAL BRI B  
 ORE MATERIALS.....HALITE, LI-K BRINES, ULEXITE  
 GENERAL ANALYTICAL DATA.....BRINE ANALYSES BY ERICKSEN AND OTHERS (1978): LI 210 TO 580 PPM, K 7,700 TO 20,000 PPM K. BRINE ANALYSES BY RETTIG AND OTEHRS (1980): PH 6.97 TO 7.37; DENSITY 1.223 TO 1.247 G/CM3; HCO3 642 TO 922 MG/KG; SO4 20,100 TO 33,300 MG/KG; CL 150,000 TO 152,000 MG/KG; F 19 TO 30 MG/KG, BR 88 TO 221 MG/KG; CA 67 TO 207 MG/KG; MG 8,990 TO 21,800 MG/KG; NA 59,600 TO 83,500 MG/KG; K 7,140 TO 18,300 MG/KG; SR 14 TO 18 MG/KG; LI 251 TO 524 MG/KG; B 497 TO 1,300 MG/KG; PO4 6.1 TO 13 MG/KG; SIO2 4.9 TO 20 MG/KG.

OCCUR.....B  
 NON-PRODUCER MAIN.....LI    K    HAL  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....U.S. GEOLOGICAL SURVEY/SERVICIO GEOLOGICO  
 DE BOLIVIA  
 YEAR OF DISCOVERY.....1976  
 NATURE OF DISCOVERY.....B  
 EXPLORATION AND DEVELOPMENT COMMENTS.....FAVORABILITY FOR LITHIUM  
 ACCUMULATIONS IDENTIFIED BY ERICKSEN AND OTHERS (1977), CONFIRMED BY  
 FIELD WORK IN 1976.  
 DEPOSIT TYPE.....SALAR, SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 DEPOSIT DESCRIPTION COMMENTS.....SALAR IS 2,000 SQUARE KM IN AREA  
 WITH A SALT CRUST OF 0.5 M THICKNESS. SALT CRUST CONSISTS OF HALITE IN  
 THE INTERIOR OF THE LAKE WITH A MARGIN OF CLAY-GYPSUM-ULEXITE.  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....HALITE  
 AGE OF MINERALIZATION.....HOLO  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 FORMATION AGE.....HOLO  
 WORK DONE BY USGS.....FIELD AND LABORATORY INVESTIGATIONS BY  
 USGS/GEOBOL (ERICKSEN AND OTHERS, 1977; RETTIG AND OTHERS, 1980)  
 REFERENCE....ERICKSEN AND OTHERS (1977, 1978), BALLIVIAN AND RISACHER  
 (1981), RETTIG AND OTHERS (1980)  
 RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
SALT	EST	1700000	MT	1969	

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MRDS RECORD NUMBER.....BL10231  
 SITE NAME.....SAN ANDRES MINE  
 SYNONYM NAME.....VEINS: MARUJA, AVIADORA, CENTRAL WOLFRAM  
 MINING DISTRICT/AREA.....LA JOYA DISTRICT  
 PROVINCE.....SAUCARI  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COCHABAMBA SE 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SOLEDAD 6140-IV 1981  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3800 M  
 LATITUDE.....17-47-12S                      LONGITUDE.....067-27-27W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....1 KM N40W OF CHUQUIÑA  
 LOCATION COMMENTS.....ON N FLANK CERRO LLALLAGUA. LAT LONG IS  
 FOR SAN ANDRES ADIT.  
 COMMODITIES PRESENT.....AG    AU    PB    ZN    CU    W    SN  
 ORE MATERIALS.....GOLD, JAMESONITE, GALENA, SPHALERITE;  
 WOLFRAMITE, CHALCOPYRITE, BOULANGERITE, STIBNITE

GENERAL ANALYTICAL DATA.....ORE SHOOT OF AURIFEROUS PYRITE ASSAYED 40 G/MT AU.

MAJOR.....AG AU

POTEN.....PB ZN

OCCUR.....CU W SN

PRODUCTION.....Y

STATUS AND ACTIVITY.....4

NATURE OF DISCOVERY.....B

OWNER (PRESENT/LAST).....CIA. MINERA INTI RAYMI

OPERATOR.....CIA. MINERA INTI RAYMI

DEPOSIT TYPE.....LODE

USGS MODEL .....SN POLYMETALLIC VEIN

USGS MODEL NUMBER.....25A

STRIKE.....N 10 TO 20 E

DEPOSIT DESCRIPTION COMMENTS.....MARUJA VEIN IS 235 M LONG, 400 M DEEP, 23 CM WIDE; AVIADORA VEIN IS 500 M LONG, OXIDIZED TO 100 M DEPTH.

DESCRIPTION OF WORKINGS.....B

DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT, PROSPECT PITS

HOST ROCK AGE.....TERT

HOST ROCK TYPE.....GRANODIORITE PORPHYRY

AGE OF IGNEOUS ROCK.....TERT

IGNEOUS ROCK TYPE.....GRANODIORITE PORPHYRY

AGE OF MINERALIZATION.....TERT

PERTINENT MINERALS (NOT ORE).....PYRITE, ARSENOPYRITE, MARCASITE, PYRRHOTITE, ANKERITE, QUARTZ

FORMATION AGE.....TERT

IGNEOUS UNIT AGE.....TERT

REFERENCE....AHLFELD (1954)

ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
AU	ACC	0.265	KG		1940	

CUMULATIVE PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEARS	GRADE
ORE	ACC				1936-1940	50 G/MT AU

SOURCE OF PRODUCTION INFORMATION.....AHLFELD (1954) P. 154

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MRDS RECORD NUMBER.....W002048

SITE NAME.....SAN JOSE DE ORURO MINE

SYNONYM NAME.....MINES: COLORADA, TETILLA, ITOS

MINING DISTRICT/AREA.....ORURO

PROVINCE.....CERCADO

PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....COCHABAMBA SE 19-8 1975

QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....6140-II

SECOND QUAD SCALE.....1:50,000

ELEVATION.....3850 M

LATITUDE.....17-57-12S LONGITUDE.....067-08-00W

ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....2 KM W OF ORURO

LOCATION COMMENTS.....MINES ARE IN NORTH-SOUTH VOLCANIC CLUSTER  
 6KM N-S X 2 KM E-W RISING 400M ABOVE ADJOINING ALTIPLANO. LAT LONG IS  
 FOR LA COLORADA MINE  
 COMMODITIES PRESENT.....AG SN PB SB ZN CU AU AS  
 ORE MATERIALS.....TETRAHEDRITE, FREIBURGITE, JAMESONITE,  
 PLUMOSITE, ANDORITE, GALENA, SPHALERITE, CHALCOPYRITE, CASSITERITE,  
 STANNITE, STIBNITE, ENARGITE, SULPHANTIMONIDES OF PB  
 MAJOR.....AG SN  
 MINOR.....PB SB  
 POTEN.....ZN  
 OCCUR.....CU AU AS  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....7  
 DISCOVERER.....NATIVE AMERICANS SPANISH COLONISTS  
 YEAR OF DISCOVERY.....PRE 1595  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1607  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....COMPANIA MINERA DE URUO  
 YR APPLICABLE.....1975  
 ECONOMIC COMMENTS.....INCREASING DEPTH OF MINING WITH GRADUAL  
 IMPOVERISHMENT  
 EXPLORATION AND DEVELOPMENT COMMENTS.....IMPORTANCE OF TIN  
 MINERALIZATION NOT RECOGNIZED UNTIL LATE 19TH CENTURY  
 DEPOSIT TYPE.....LODE DISSEMINATED  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DEPOSIT FORM.....OVOID IRREGULAR STOCKWORK  
 DEPTH TO BOTTOM.....550+ UNITS...M  
 MAXIMUM LENGTH.....250 UNITS...METERS  
 MAXIMUM THICKNESS.....15 UNITS...METERS  
 DEPOSIT SIZE.....L  
 STRIKE.....NW-SE  
 DIP.....70 NE AND SW  
 DEPOSIT DESCRIPTION COMMENTS.....MORE THAN 8 MAJOR VEINS WITH  
 DIFFERENT ORIENTATIONS  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....550 UNITS...M  
 OVERALL LENGTH.....2,000 UNITS...METERS  
 OVERALL WIDTH.....1,200 UNITS...METERS  
 OVERALL AREA OF WORKINGS.....2.4 UNITS...KM 2  
 HOST ROCK AGE.....DEV; MMIO  
 HOST ROCK TYPE.....SHALE; RHYOLITE PORPHYRY QUARTZ MONZONITE  
 PORPHYRY  
 AGE OF IGNEOUS ROCK.....MMIO 16 MA K/AR  
 IGNEOUS ROCK TYPE.....RHYOLITE PORPHYRY, QUARTZ MONZONITE  
 PORPHYRY  
 AGE OF MINERALIZATION.....MMIO 15 MA K/AR  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, TOURMALINE, PYRITE,  
 ALUNITE, SERICITE, DICKITE  
 ORE CONTROL/LOCUS.....NE-SW FRACTURE-FISSURE SYSTEMS, DIPPING  
 30-60 DEG NE AND SW, IN FOUR CLUSTERS (SAN JOSE, ITOS, COLORADO, AND  
 TETILLA).  
 SIGNIFICANT REGIONAL STRUCTURES.....NW-SE



SIGNIFICANT LOCAL STRUCTURES.....BRECCIAS FORM VOLCANIC CONDUITS  
SIGNIFICANT ALTERATION.....THE SAN JOSE AND ITOS STOCKS, AND THE  
BRECCIAS, ARE PERVASIVELY SERICITIZED.

PROCESS OF CONCENTRATION/ENRICHMENT.....SUPERGENE AG

GEOLOGY COMMENTS.....VEINS IN ORURO SHALES BECOME NARROW AND  
SPARSE DOWNWARD. HYDROTHERMAL INTRUSION BRECCIA IS COMMON AT ORURO IN  
IRREGULAR BODIES, PIPES, LENSES, DIKES AND VEINLETS. BEST ORE IS  
ASSOCIATED WITH INTRUSIVE RHYOLITE PORPHYRY. PRE-RHYOLITE PORPHYRY  
QUARTZ MONZONITE PORPHYRY IS A POOR HOST.

GENERAL COMMENTS.....A RESIDUAL HILL MEASURING 6 BY 3 KILOMETERS  
AT ORURO IS COMPOSED OF SEVERAL STOCKS AND FLOWS. THE STOCKS DECREASE IN  
SIZE DOWNWARD. VEINS GRADE 500 TO 1500 GPT AG WITH UP TO 10% PB AND  
UNKNOWN GRADES OF ZN CU SB SN. GOLD GRADE IS ABOUT 1/1000 OF AG GRADE.  
THE PAYING PORTION OF VEINS IS LESS THAN 1 M WIDE.

WORK DONE BY USGS.....STUDY OF TIN RESERVES BY MCALLISTER (N.D.)  
REFERENCE....CHACE (1948), CAMPBELL (1942), AHLFELD AND SCHNEIDER-  
SCHERBINA (1964), KOZLOWSKI AND JASKOLSKI (1932), MCALLISTER (N.D.),  
SILLITOE AND OTHERS (1975), STAM (1965), ARGANDOÑA (1989), LINDGREN AND  
ABBOTT (1931)

#### CUMULATIVE PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
SN	ACC	23072.	KGS	1952-1971	
AG	ACC	331.000	KGS	1952-1971	
PB	ACC	25573.	KGS	1952-1971	
SB	ACC	748.000	KGS	1952-1971	

SOURCE OF PRODUCTION INFORMATION.....MINISTRY OF MINES AND METALLURGY,  
1971

PRODUCTION COMMENTS.....MINES SHOW PERCEPTABLE DECLINE IN  
PRODUCTION FROM 1952 FORWARD.

RESERVES AND RESOURCES COMMENTS.....SUBSTANTIAL  
RESERVES/RESOURCES REMAIN WITH CONSISTENT GRADE OF 500 TO 1500 G/T AG  
FROM -460 LEVEL (BEING MINED 1990) TO -550 LEVEL AND BELOW. DEPTH LIMITS  
UNKNOWN.

#### RESERVES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
SN	EST	16000.	KGS		

SOURCE OF RESERVES INFORMATION.....MINISTRY OF MINES AND ENERGY, 1972

RESERVES COMMENTS.....ESTIMATED 14 YEARS RESERVES OF TIN

#### POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
SN	EST	16000			

POTENTIAL RESOURCES COMMENTS.....ESTIMATED AT 100% OF  
POSITIVE AND PROBABLE RESERVES

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MRDS RECORD NUMBER.....BL10200

SITE NAME.....SAN MIGUEL MINE

MINING DISTRICT/AREA.....SALINAS DE GARCI MENDOZA

PROVINCE.....LADISLAO CABRERA

PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE

DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975

QUADRANGLE SCALE.....1:250,000

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SECOND QUADRANGLE NAME.....ALIANZA 6034-I 1972
SECOND QUAD SCALE.....1:50,000
ELEVATION.....3800 M
LATITUDE.....19-43-50S          LONGITUDE.....067-40-44W
ACCURACY.....ACC
LOCATION COMMENTS.....SAN MIGUEL MINE` IS LOCATED 50 M ABOVE
MARGARITA MINE (BL10158) ALONG SAME VEIN SYSTEM.
COMMODITIES PRESENT.....AG    PB    ZN    CU
ORE MATERIALS.....GALENA, SPHALERITE, CHALCOPYRITE
MAJOR.....AG
MINOR.....PB
POTEN.....ZN
OCCUR.....CU
PRODUCTION.....Y
STATUS AND ACTIVITY.....4
DISCOVERER.....SPANISH COLONISTS
NATURE OF DISCOVERY.....B
OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)
OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)
DEPOSIT TYPE.....LODE
USGS MODEL .....SN-POLYMETALLIC VEIN
MAXIMUM WIDTH.....1.25          UNITS...M
STRIKE.....N 45-75W; N80E
DIP.....80 NE TO VERTICAL
DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE VARIABLY
MINERALIZED/SILICIFIED SHEAR ZONES FROM 50 CM TO 6 M WIDE.
DESCRIPTION OF WORKINGS.....U
LENGTH OF WORKINGS.....275-300          UNITS...M
DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT
HOST ROCK AGE.....TERT
HOST ROCK TYPE.....TUFF, VOLCANICLASTICS
AGE OF IGNEOUS ROCK.....TERT
IGNEOUS ROCK TYPE.....TUFF, VOLCANICLASTICS
AGE OF MINERALIZATION.....TERT
PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE, ANKERITE; FE
OXIDE
ORE CONTROL/LOCUS.....FRACTURES
SIGNIFICANT LOCAL STRUCTURES.....NW TRENDING SHEAR ZONES
SIGNIFICANT ALTERATION.....EXTENSIVE PROPYLITIC, UP TO 2 M WIDE
ARGILLIC ENVELOPES ON SILICIFIED SHEARS
FORMATION AGE.....TERT
IGNEOUS UNIT AGE.....TERT
WORK DONE BY USGS.....EXAMINED BY USGS/GEOBOL PERSONNEL SEPT
1990
NON-USGS WORK.....THESIS BY SANJINES (1968A)
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (MEDINA
AND OTHERS, 1988)
REFERENCE....SANJINES (1968A), MEDINA AND OTHERS (1988)
REFERENCE....COMIBOL, INFORME SOBRE GRUPO MINERO MARIA LUISA, 4P.

      ANNUAL PRODUCTION
ITEM  ACCURACY      AMOUNT  THOUS  YEAR  GRADE
                                UNITS
CONS      ACC      1.667  MT    1967  66.8% PB, 5.5 AG
SOURCE OF PRODUCTION INFORMATION.....SANJINES (1968)

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RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	YEAR	GRADE
			UNITS		
ORE	ACC	46.514	MT		176 G/MT AG, 6.28% PB, 5.46% ZN
DUMPS	ACC	3.5	MT		60 G/MT AG, 3.58% PB, 2.1% ZN

SOURCE OF RESERVES AND RESOURCES INFORMATION.....COMIBOL REPORT

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MRDS RECORD NUMBER.....BL10114  
 SITE NAME.....SAN MIGUEL PROSPECT  
 SYNONYM NAME.....LLANQUERA  
 PROVINCE.....CARANGAS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO LA JOYA 6040-II 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4150 M  
 LATITUDE.....17-59-19S LONGITUDE.....067-44-21W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5 KM W OF LLANQUERA, 71 KM BY  
 ROAD FROM URURO  
 COMMODITIES PRESENT.....CU AG  
 ORE MATERIALS.....CHALCOCITE; MALACHITE, AZURITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY MURILLO (1960): 4.25% CU  
 15 G/T AG OVER 3 M; 2.15% CU OVER 0.6 M  
 NON-PRODUCER MAIN.....CU AG  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....ENRIQUE MORALES  
 OPERATOR.....ENRIQUE MORALES  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 50 E  
 DIP.....40 SW  
 DEPOSIT DESCRIPTION COMMENTS.....ARE SIX MANTOS, LENSE SHAPED,  
 THAT CROP OUT OVER A LENGTH OF 20 KM  
 DESCRIPTION OF WORKINGS.....B  
 DEPTH BELOW SURFACE.....12 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE SHAFT  
 HOST ROCK AGE.....LOLIGO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ  
 SIGNIFICANT REGIONAL STRUCTURES.....SYNCLINE  
 SIGNIFICANT LOCAL STRUCTURES.....POST-MINERALIZATION FAULTS  
 DISLOCATED ORE  
 FORMATION AGE.....LOLIGO

FORMATION NAME.....CONIRI  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (MURILLO, 1960, AND LOPEZ, 1958)  
 REFERENCE....MURILLO (1960), LOPEZ (1958)

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CU	EST	325	MT		1958	5% CU

SOURCE OF RESERVES AND RESOURCES INFORMATION.....LOPEZ (1958)

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MRDS RECORD NUMBER.....BL10229  
 SITE NAME.....SAN PABLO AND CARMEN MINES  
 MINING DISTRICT/AREA.....LA JOYA DISTRICT  
 PROVINCE.....BARRON  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....LA PAZ SE 19-3 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO LA JOYA 6040-I 1967  
 SECOND QUAD SCALE.....1:50,000  
 LATITUDE.....17-46-50S LONGITUDE.....067-30-19W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....W OF LA JOYA  
 LOCATION COMMENTS.....ON SE FLANK CERRO LA JOYA. LAT LONG IS FOR  
 SAN PABLO ADIT  
 COMMODITIES PRESENT.....AG  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....AG  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CIA. MINERA INTI RAYMI  
 OPERATOR.....CIA. MINERA INTI RAYMI  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....ARE 3 ADITS (SAN PABLO, CARMEN,  
 WOLFRAM?)  
 HOST ROCK AGE.....DEV, TERT  
 HOST ROCK TYPE.....SHALE, SILTSTONE, GRANODIORITE PORPHYRY  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....GRANODIORITE PORPHYRY  
 AGE OF MINERALIZATION.....TERT?  
 FORMATION AGE.....DEV  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10135  
 SITE NAME.....SANTA CLARA MINE  
 SYNONYM NAME.....CLARA  
 MINING DISTRICT/AREA.....CARANGAS

PROVINCE.....SAJAMA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA MARCARANI 5939-IV 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4600 M  
 LATITUDE.....18-02-26S                      LONGITUDE.....068-20-10W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....22 KM N35W OF TURCO  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; MALACHITE, CHRYSOCOLLA,  
 AZURITE  
 GENERAL ANALYTICAL DATA.....ANALYSES BY GEOBOL (MURILLO AND OTHERS,  
 1969): 26.54% CU OVER 25 CM, 17.82% CU OVER 16 CM, 7.83% CU OVER 190 CM,  
 7.32% CU GRAB SAMPLE FROM DUMP.  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....NICOLAS MIHAIC  
 OPERATOR.....NICOLAS MIHAIC  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM LENGTH.....80                      UNITS...M  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 40 W  
 DIP.....30 TO 40 NE  
 DEPOSIT DESCRIPTION COMMENTS.....CHALCOCITE DISSEMINATED IN BANDS  
 5 TO 10 CM THICK GRADING UP TO 20% CU BETWEEN BANDS OF CHRYSOCOLLA AND  
 MALACHITE.  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....25                      UNITS...M  
 HOST ROCK AGE.....MMIO-LMIO  
 HOST ROCK TYPE.....CRYSTAL TUFF, TUFFACEOUS SANDSTONE  
 AGE OF IGNEOUS ROCK.....MMIO-LMIO  
 IGNEOUS ROCK TYPE.....CRYSTAL TUFF  
 AGE OF MINERALIZATION.....TERT  
 SIGNIFICANT LOCAL STRUCTURES.....N 65 E FAULT DISPLACES MANTOS 12  
 M.  
 SIGNIFICANT ALTERATION.....KAOLINITE (DOES NOT AFFECT PRIMARY  
 PLAGIOCLASE OR BIOTITE)  
 FORMATION AGE.....MMIO-LMIO  
 FORMATION NAME.....TURCO  
 IGNEOUS UNIT AGE.....MMIO-LMIO  
 IGNEOUS UNIT NAME.....TURCO  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY ZAPATA AND  
 DELGADILLO (1968)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY MURILLO AND  
 OTHERS (1969)  
 REFERENCE....MURILLO AND OTHERS (1969), KURONUMA (1971)

ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CONS	ACC	0.028	MT		1969	20.0% CU

SOURCE OF PRODUCTION INFORMATION.....MURILLO AND OTHERS (1969)

RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	0.63	MT		1969	7.0% CU
DUMPS	EST	0.7	MT		1969	3.0% CU
ORE	EST	1.33	MT		1969	4.9% CU

SOURCE OF RESERVES AND RESOURCES INFORMATION.....MURILLO AND OTHERS (1969)

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MRDS RECORD NUMBER.....BL10117

SITE NAME.....SANTA MARIA PROSPECT

SYNONYM NAME.....HUAYLLAMARCA

PROVINCE.....CARANGAS

PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....COROCORO SE 19-7 1968

QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....6040-III

SECOND QUAD SCALE.....1:50,000

ELEVATION.....4180 M

LATITUDE.....17-50-55S LONGITUDE.....067-56-51W

ACCURACY.....EST

POSITION FROM NEAREST LOCALITY.....SW OF HUAYLLA MARCA

LOCATION COMMENTS.....ON EAST FLANK OF SERRANIA HUAYLLAMARCA

COMMODITIES PRESENT.....CU

ORE MATERIALS.....MALACHITE, AZURITE, CU OXIDES

GENERAL ANALYTICAL DATA.....ORE ASSAYS BY VEDIA AND GONZALES (1970):  
20 TO 60 CM CHANNEL SAMPLES 2.44 TO 10.78% CU

MAJOR.....CU

PRODUCTION.....N

STATUS AND ACTIVITY.....1

NATURE OF DISCOVERY.....B

OWNER (PRESENT/LAST).....DARDO PANTOJO

OPERATOR.....DARDO PANTOJO

DEPOSIT TYPE.....STRATABOUND, LOSE

USGS MODEL .....SEDIMENT-HOSTED CU

USGS MODEL NUMBER.....30B

DEPOSIT FORM.....LENTICULAR

DEPOSIT SIZE.....SMALL

DEPOSIT DESCRIPTION COMMENTS.....VETA CRUCERA: N12E 49NW 25 CM  
WIDE 160 M LONG; MANTO 1N N55W 40-49SW 30 CM WIDE, 300 M LONG. MANTO 1S  
AND 2S (PARALLEL) N58W 40-50SW UP TO 30 CM WIDE, 380 AND 270 M LONG  
RESPECTIVELY.

DESCRIPTION OF WORKINGS.....S

DEPTH BELOW SURFACE.....3 UNITS...M

DESCRIPTION OF WORKINGS COMMENTS.....ONE PROSPECT PIT

HOST ROCK AGE.....TERT

HOST ROCK TYPE.....SANDSTONE

AGE OF MINERALIZATION.....TERT

FORMATION AGE.....TERT  
FORMATION NAME.....HUAYLLAMARCA  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY VEDIA AND  
GONZALES (1970)  
REFERENCE....VEDIA AND GONZALEZ (1970)

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MRDS RECORD NUMBER.....BL00015  
SITE NAME.....SONIA-SUSANA PROSPECTS  
PROVINCE.....ATAHUALPA  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CORQUE SE 19-11 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CERRO CAPITAN 5837-III JULO 5837-IV 1969  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5000 M  
LATITUDE.....18-47-04S LONGITUDE.....068-50-30W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....10 KM S25E OF JULO  
LOCATION COMMENTS.....SONIA IS ON N FLANK OF CERRO AZUFRANI.  
SUSANA CONCESSION COVERS CERRO SANTA CATALINA AND CERRO PACO KHAUA.  
COMMODITIES PRESENT.....AG PB CU AU AS SB  
ORE MATERIALS.....GALENA, CU OXIDE  
GENERAL ANALYTICAL DATA.....UP TO 0.4 G/MT AU AND 16 G/MT AG. ON  
SAMPLE OF VEINLETS ASSAYED 2.3 G/MT AU 1740 G/MT AG 100 PPM AS AND 110  
PPM SB  
OCCUR.....CU AS SB  
NON-PRODUCER MINOR.....PB AG AU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....VICTOR CORTEZ  
OPERATOR.....VICTOR CORTEZ  
EXPLORATION AND DEVELOPMENT COMMENTS.....MINOR AG PRODUCTION BY  
SPANISH COLONISTS  
DEPOSIT TYPE.....LODE, STOCKWORK  
HOST ROCK AGE.....LMIO-QUAT  
HOST ROCK TYPE.....ANDESITE DACITE  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
IGNEOUS ROCK TYPE.....ANDESITE DACITE  
AGE OF MINERALIZATION.....LMIO-QUAT  
PERTINENT MINERALS (NOT ORE).....FE OXIDES MN OXIDES FLUORITE?  
ORE CONTROL/LOCUS.....STRONG N-S STRUCTURAL CONTROL  
SIGNIFICANT ALTERATION.....SILICIC, ARGILLIC, PROPYLITIC  
GEOLOGY COMMENTS.....LARGE ALTERATION ZONE IN ERODED  
STRATOVOLCANO COMPLEX  
WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL 1990  
NON-USGS WORK.....EXPLORATION BY MINTEC  
SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL10328  
 SITE NAME.....TAMBILLO MINE  
 SYNONYM NAME.....HISLATA  
 PROVINCE.....LADISLAO CABRERA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....RIO MULATO SE 19-16 1970  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....TAMBO TAMBILLO 6135-IV 1967  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3700 M  
 LATITUDE.....19-24-37S                      LONGITUDE.....067-23-02W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3.5 KM N40W OF TAMBO TAMBILLO  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....NATIVE CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....BASALTIC CU  
 USGS MODEL NUMBER.....23  
 HOST ROCK AGE.....LOLIGO-LMIO  
 HOST ROCK TYPE.....BASALT  
 AGE OF IGNEOUS ROCK.....LOLIGO-LMIO  
 IGNEOUS ROCK TYPE.....BASALT  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....LOLIGO-LMIO  
 FORMATION NAME.....TOTORA  
 IGNEOUS UNIT AGE.....LOLIGO-LMIO  
 IGNEOUS UNIT NAME.....TOTORA  
 REFERENCES....AHLFELD AND SCHNEIDER-SCHERBINA (1964), SCHNEIDER-SCHERBINA (1963)

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MRDS RECORD NUMBER.....BL10118  
 SITE NAME.....TANGANI PROSPECT  
 SYNONYM NAME.....YAUARI CHAMBI  
 PROVINCE.....SAJAMA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....COROCORO SE 19-7 1968  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5940-IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3950 M  
 LATITUDE.....17-45-47S                      LONGITUDE.....068-25-24W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....10 KM N10W OF CURAHUARA DE CARANGAS  
 COMMODITIES PRESENT.....CU



ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....UP TO 8% CU (MITCHELL, 1968)  
 NON-PRODUCER MAIN.....CU  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM LENGTH.....15        UNITS...M  
 MAXIMUM THICKNESS.....30       UNITS...CM  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 5 W  
 DIP.....29 NE  
 DEPOSIT DESCRIPTION COMMENTS.....MANTOS ARE 10 TO 30 CM THICK  
 HOST ROCK AGE.....LOLIGO-LMIO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 FORMATION AGE.....LOLIGO-LMIO  
 FORMATION NAME.....TOTORA  
 GEOLOGY COMMENTS.....CU MINERALS REPLACE CALCITE CEMENT IN  
 SANDSTONE  
 NON-USGS WORK.....THESIS BY MITCHELL (1968)  
 REFERENCE....MITCHELL (1968)

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MRDS RECORD NUMBER.....TC00504  
 SITE NAME.....**TODOS SANTOS MINE**  
 MINING DISTRICT/AREA.....TODOS SANTOS DISTRICT  
 PROVINCE.....ATAHUALLPA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....TODOS SANTOS 5836-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4050 M  
 LATITUDE.....19-00-48S        LONGITUDE.....068-43-19W  
 ACCURACY.....ACC  
 LOCATION COMMENTS.....36.5 KM W OF SABAYA  
 COMMODITIES PRESENT.....AG    ZN    PB  
 ORE MATERIALS.....TETRAHEDRITE, PROUSTITE-PYRRARGARITE,  
 STEPHANITE, CERARGYRITE, MIARGYRITE, ARGENTITE; SPAHALERITE, GALENA  
 MAJOR.....AG  
 MINOR.....ZN    PB  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONIALS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COMPANIA MINERA DEL SUR S.A. (COMSUR)  
 OPERATOR.....COMPANIA MINERA DEL SUR S.A. (COMSUR)

DEPOSIT TYPE.....DISSEMINATED, VEIN  
 DEPOSIT FORM.....TABULAR  
 MAXIMUM LENGTH.....4000 UNITS...M  
 MAXIMUM WIDTH.....1000 UNITS...M  
 MAXIMUM THICKNESS..... 50 UNITS...M  
 STRIKE.....N10E; N80W  
 DIP.....75W; 70N  
 DESCRIPTION OF WORKINGS.....B  
 LENGTH OF WORKINGS.....2350+ UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....COMSUR FROM 1985-88 EXCAVATED  
 2346.9 M DRIFTS AND CROSSCUTS AND DRILLED 48 HOLES FOR A TOTAL OF 2772.7  
 M.  
 HOST ROCK AGE.....OLIGO-MIO  
 HOST ROCK TYPE.....LITHIC TUFF, VOLCANICLASTIC BRECCIA  
 AGE OF IGNEOUS ROCK.....OLIGO-MIO  
 IGNEOUS ROCK TYPE.....RHYOLITE DOME (OBSIDIAN VITROPHYRE  
 MARGIN), LITHIC TUFF, VOLCANICLASTIC BRECCIA  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE, QUARTZ, HEMATITE,  
 MANGANESE OXIDE  
 SIGNIFICANT REGIONAL STRUCTURES.....SANTA CATALINA VOLCANIC DOME  
 COMPLEX, E-W LINEAMENT  
 SIGNIFICANT LOCAL STRUCTURES.....N10W FAULT CUTTING VENT (CONE OR  
 TUFF RING) INTRUDED BY RHYOLITE DOME  
 SIGNIFICANT ALTERATION.....ARGILLIZATION, CHLORITIZATION  
 IGNEOUS UNIT AGE.....OLIGO-MIO  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL AUGUST  
 1990  
 REFERENCE....ANONYMOUS (1988)  
 RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	1000	MT		1988	70 G/T AG, .07 G/T AU

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....COMSUR

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MRDS RECORD NUMBER.....BL10335  
 SITE NAME.....TORAQUIRI MINE  
 SYNONYM NAME.....TURAQUIRI  
 PROVINCE.....SAJAMA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA MAARCARANI 5939-IV 1969  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4100 M  
 LATITUDE.....18-08-17S LONGITUDE.....068-25-16W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3.5 KM W OF ESTANCIA TURINI  
 COMMODITIES PRESENT.....AG PB  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....AG  
 MINOR.....PB

PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS?  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCE....AHLFELD (1954)

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MRDS RECORD NUMBER.....BL00030  
 SITE NAME.....**TUNAVI PROSPECT**  
 PROVINCE.....SUR CARANGAS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....RIO MULATO SE 19-16 1970  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....UCUMASI 6136-IV 1966  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3700 M  
 LATITUDE.....19-00-16S                      LONGITUDE.....067-22-34W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....1 KM S70W OF ESTANCIA TUNAVI  
 COMMODITIES PRESENT.....UKN  
 ORE MATERIALS.....UNKNOWN  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....RODOLFO AGUIRRE  
 OPERATOR.....RODOLFO AGUIRRE  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....RHYODACITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....RHYODACITE  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....TERT  
 IGNEOUS UNIT AGE.....TERT  
 SOURCE OF INFORMATION....MINTEC FILES

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MRDS RECORD NUMBER.....BL00019  
 SITE NAME.....**VICTORIA PROSPECT**  
 PROVINCE.....ATAHUALLPA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCIA MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....TODOS SANTOS 5836-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5000 M

LATITUDE.....19-08-08S                      LONGITUDE.....068-31-35W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....8.5 KM N20E OF PAGADOR  
 LOCATION COMMENTS.....ON CERRO TATA SABAYA  
 COMMODITIES PRESENT.....S  
 OCCUR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCE....MCVEY (1989)

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MRDS RECORD NUMBER.....BL00014  
 SITE NAME.....WARA WARA PROSPECT  
 PROVINCE.....SAJAMA  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CORQUE SE 19-11 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA AGUA RICA 5839-II 1968  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4800 M  
 LATITUDE.....18-13-30S                      LONGITUDE.....068-32-30W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....20 KM S70E FROM COSAPA  
 LOCATION COMMENTS.....IN SADDLE BETWEEN CERRO ASU ASUNI AND  
 CERRO PASA WILLKHI  
 COMMODITIES PRESENT.....AU    AG    PB    SB    AS  
 ORE MATERIALS.....UNKNOWN  
 GENERAL ANALYTICAL DATA.....AU UP TO 0.04 G/MT AG UP TO 1 G/MT AS 4 TO  
 230 PPM AND SB 4 TO 18 PPM. MOST AS VALUES LESS THAN 20 PPM  
 OCCUR.....AU    AG    AS    SB  
 NON-PRODUCER MINOR.....PB  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....MINTEC  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....RODOLFO AGUIRRE  
 OPERATOR.....RODOLFO AGUIRRE  
 EXPLORATION AND DEVELOPMENT COMMENTS.....CONCESSION IS ABOUT 30 SQ  
 KM IN AREA  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....HORNBLLENDE ANDESITE-DACITE  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....HORNBLLENDE ANDESITE-DACITE  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 PERTINENT MINERALS (NOT ORE).....JAROSITE?  
 SIGNIFICANT LOCAL STRUCTURES.....POSSIBLE INTRUSIVE INTO CORE OF  
 STRATOVOLCANO

SIGNIFICANT ALTERATION.....ARGILLIC, SILICIC AND SERICITIC; ALUNITIC?  
IGNEOUS UNIT AGE.....LMIO-QUAT  
GEOLOGY COMMENTS.....A VERY LARGE AND COMPLEX ZONE OF  
ALTERATION IN AN ERODED STRATOVOLCANO  
WORK DONE BY USGS.....EXAMINED BY USGS/GEOBOL GEOLOGISTS 1990  
NON-USGS WORK.....EXPLORATION WORK BY MINTEC  
SOURCE OF INFORMATION....MINTEC FILES

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## DEPARTMENT OF POTOSI

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MRDS RECORD NUMBER.....BL10067  
 SITE NAME.....10 DE DICIEMBRE MINE  
 SYNONYM NAME.....HERRERIA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4900 M  
 LATITUDE.....21-46-34S                      LONGITUDE.....066-28-08W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....AT PHAJCHAYOC 3 KM NW OF MINA  
 BOLIVAR  
 COMMODITIES PRESENT.....AG    PB    ZN    CU    SN    BI  
 ORE MATERIALS.....GALENA, SPHALERITE, CHALCOPYRITE,  
 CASSITERITE, BISMUTHENITE  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES VEDIA (1960) 0 TO 36.6% PB 0  
 TO 0.025% BI 0 TO 4.85% CU 0.04 TO 0.15% SN 0.3 TO 1370 G/T AG  
 MAJOR.....AG  
 POTEN.....PB    ZN  
 OCCUR.....CU    SN    BI  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DEPOSIT FORM.....IRREGULAR  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....E-W  
 DIP.....65-75S  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....PROSPECT SHAFTS REPORTED TO BE  
 OF RECENT ORIGIN BY VEDIA (1960)  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE PORPHYRY  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE PORPHYRY  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE, LIMONITE  
 ORE CONTROL/LOCUS.....E-W FRACTURES  
 SIGNIFICANT ALTERATION.....KAOLINITE-SERICITE-CARBONATE  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (VEDIA, 1960B), AND UNDP (JIMENEZ AND NUÑEZ, 1988)  
 REFERENCE....VEDIA (1960B), JIMENEZ AND NUÑEZ (1988)

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MRDS RECORD NUMBER.....BL10340  
SITE NAME.....12 DE OCTUBRE MINE  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COMUNIDAD MALLCU 6128-IV 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4100 M  
LATITUDE.....21-40-15S                      LONGITUDE.....067-23-57W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....12 KM N40E OF COMUNIDAD MALLCU  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
HOST ROCK AGE.....ORD?  
FORMATION AGE.....ORD?  
REFERENCE.....RODRIGUEZ AND OTHERS (1976)

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MRDS RECORD NUMBER.....BL10095  
SITE NAME.....25 DE JULIO MINE  
SYNONYM NAME.....PEÑA BLANCA  
MINING DISTRICT/AREA.....SERRANIA DE LAS MINAS  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COMUNIDAD MALLCU 6128-IV 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4100 M  
LATITUDE.....21-42-49S                      LONGITUDE.....067-28-02W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....7 KM N25E OF COMUNIDAD MALLCU,  
178 KM BY ROAD FROM UYUNI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOPYRITE, NATIVE CU; CUPRITE,  
MALACHITE, AZURITE, CHRYSOCOLLA  
GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971A): TRACE TO  
4.59% CU  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
OPERATOR.....COOPERATIVA MINERA NUEVOS HORIZONTES

EXPLORATION AND DEVELOPMENT COMMENTS.....OPERATED AS PENA BLANCA  
MINE BY CIA. LIPEZ MINING CO. IN 1969  
DEPOSIT TYPE.....LODE  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....TABULAR  
DEPOSIT SIZE.....SMALL  
DEPOSIT DESCRIPTION COMMENTS.....ARE THREE VEIN SETS. (1) 8 TO 25  
CM WIDE VEINLETS WITHIN A TABULAR ZONE 0.2 TO 1.15 M THICK. (2) N70W 85S  
VEINS 1 TO 10 CM WIDE. (3) N70E 75NW VEINS 1 TO 5 CM WIDE.  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....291           UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....ADITS  
HOST ROCK AGE.....OLIGO-MIO  
HOST ROCK TYPE.....CONGLOMERATE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....HEMATITE, LIMONITE  
ORE CONTROL/LOCUS.....FRACTURES  
FORMATION AGE.....OLIGO-MIO  
FORMATION NAME.....SAN VICENTE  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(1971A)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971A)

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MRDS RECORD NUMBER.....BL10036  
SITE NAME.....**ABAROA MINE**  
SYNONYM NAME.....EDUARDO ABAROA, AVAROA, EL DESCUIDO  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....MINA AVAROA 6129-II 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3990 M  
LATITUDE.....21-36-27S           LONGITUDE.....067-02-43W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....AT ALKAMARIHUAJ, 67 KM SW OF  
COCANI, 150 KM BY ROAD FROM UYUNI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE, CHALCOPYRITE, BORNITE, NATIVE  
CU; TENORITE, CUPRITE, AZURITE, MALACHITE, CHRYSOCOLLA  
GENERAL ANALYTICAL DATA.....ASSAYS VEDIA AND CORTEZ (1966) AND GEOBOL  
(1971): TRACE TO 28.81% CU. CHANNEL SAMPLES BASSI (1980):  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
DISCOVERER.....SPANISH COLONISTS  
YEAR OF DISCOVERY.....1963  
NATURE OF DISCOVERY.....B  
YEAR OF FIRST PRODUCTION.....1964  
OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)



OPERATOR.....COOPERATIVA MINERA LITORAL (LEASE SINCE 1963)  
 ECONOMIC COMMENTS.....CUT OFF GRADE IN 1970 WAS 10% CU  
 EXPLORATION AND DEVELOPMENT COMMENTS.....DRILLED BY COMIBOL 1970-1971  
 DEPOSIT TYPE.....STRATABOUND, LODE  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 STRIKE.....N 30 TO 50 E  
 DIP.....65 TO 85 NW  
 DEPOSIT DESCRIPTION COMMENTS.....INDIVIDUAL OREBODIES ARE 0.5 TO 3 M LONG, 10 TO 20 CM THICK, AND 50 TO 80 CM WIDE. MANTOS DIP 2 TO 8 E. ORIENTATION GIVEN ABOVE IS FOR MINERALIZED FRACTURES. ARE 6 MANTOS, ONLY ONE EXPLOITED AS OF 1971. MANTOS HAVE CHALCOCITE NATIVE CU, CUPRITE, AZURITE, MALACHITE, TENORITE, CHRYSOCOLLA. VEINS HAVE CHALCOCITE AND BORNITE. ORE IS FOUND A FEW M BELOW CONTACT BETWEEN SEDIMENTS AND DISCORDANTLY OVERLYING TUFF.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....2453 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....AT LEAST 11 ADITS  
 HOST ROCK AGE.....OLIGO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE, CELESTITE, CALCITE, CHALCEDONY  
 ORE CONTROL/LOCUS.....CONTACT WITH OVERLYING U. QUEHUA TUFF, PREFERRED BEDS, FRACTURES.  
 SIGNIFICANT REGIONAL STRUCTURES.....ANTICLINE  
 SIGNIFICANT LOCAL STRUCTURES.....FRACTURES  
 FORMATION AGE.....OLIGO  
 FORMATION NAME.....QUEHUA  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL 1990  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATION BY GEOBOL VEDIA AND CORTEZ (1966)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATION BY GEOBOL (197B1)  
 REFERENCE...VEDIA AND CORTEZ (1966A), SERVICIO GEOLOGICO DE BOLIVIA (1971B), BASSI (1980)  
 ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
CONS	ACC	.08	MT	1964	30% CU
CONS	ACC	1.21161	MT	1970	18.72% CU

 CUMULATIVE PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
ORE	ACC	4.5	MT	1966-1972	24.0% CU

 SOURCE OF PRODUCTION INFORMATION.....VEDIA AND CORTEZ (1966); BASSI (1980)  
 PRODUCTION COMMENTS.....PRODUCTION FOR MONTH OF JUNE ONLY  
 RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	450	MT	1972	5.0% CU

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....BASSI (1980) P. 20  
 RESERVES AND RESOURCES COMMENTS.....BASED ON LIMITED SAMPLING

RESERVES					
ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR GRADE
ORE	EST	48.64	MT		1966 15.40% CU
ORE	EST	29.6361	MT		1971 5.8% CU
DUMPS	EST	18.722	MT		1971 3.69% CU
ORE	EST	3.474	MT		1971 3.21% CU
ORE	EST	6.106	MT		1971 6.08% CU
ORE	EST	20.051	MT		1971 6.16% CU
ORE	EST	38.81	MT		1971 5.80% CU
CU	EST	4.4774	MT		1971

SOURCE OF RESERVES INFORMATION.....VEDIA AND CORTEZ (1966A)

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MRDS RECORD NUMBER.....BL10112  
 SITE NAME.....**AGUILA MINE**  
 SYNONYM NAME.....AGUILANI  
 MINING DISTRICT/AREA.....CHINCHILLAHUAY  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE 1:250,000  
 SECOND QUADRANGLE NAME.....CAHUANA CHICA 5934-III 1973  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4050 M  
 LATITUDE.....19-59-07S LONGITUDE.....068-20-55W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5.25 KM N75W OF CAHUANA CHICA  
 LOCATION COMMENTS.....ON SE FLANK OF CERRO CHINCHILHUMA  
 COMMODITIES PRESENT.....AG PB ZN  
 ORE MATERIALS.....GALENA, SPHALERITE; CERRUSITE  
 MAJOR.....AG  
 MINOR.....PB  
 POTEN.....ZN  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....LAVA  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....LAVA, DIKES  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCE....SANJINES (1968B), MCNAMEE (1985A)

ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CONS	ACC	.008	MT		1969	53.93% PB

SOURCE OF PRODUCTION INFORMATION.....INVENTARACION DE RECURSOS MINERALES DE LA MINERIA CHICA

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MRDS RECORD NUMBER.....BL10058  
SITE NAME.....AGUILAR MINE  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....MINA AVAROA 6129-II 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3920 M  
LATITUDE.....21-39-05S                      LONGITUDE.....067-09-04W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....5 KM S35W OF ESTANCIA KOLLPANI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE, BORNITE; MALACHITE,  
CHRYSOCOLLA  
GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971): TRACE TO  
24% CU  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
DISCOVERER.....PEASANT MINER  
YEAR OF DISCOVERY.....1967  
NATURE OF DISCOVERY.....B  
YEAR OF FIRST PRODUCTION.....1967  
OWNER (PRESENT/LAST).....COOPERATIVA NUEVAS HORIZONTES  
OPERATOR.....COOPERATIVA NUEVAS HORIZONTES  
ECONOMIC COMMENTS.....PRODUCING ABOUT 5 MT/MO HAND SORTED 15% CU  
ORE 1969  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
MAXIMUM THICKNESS.....50                      UNITS...CM  
DEPOSIT SIZE.....SMALL  
STRIKE.....N30 TO 54W  
DIP.....4 TO 6 NE  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....158                      UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....7 ADITS; PROSPECT PITS  
HOST ROCK AGE.....LOLIGO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....PREFERRED BED UNDER IMPERMEABLE SHALE  
HORIZON  
SIGNIFICANT REGIONAL STRUCTURES.....AGUILAR ANTICLINE  
FORMATION AGE.....LOLIGO  
FORMATION NAME.....QUEHUA INFERIOR  
WORK DONE BY USGS.....VISITED BY GEOBOL/USGS PERSONNEL 1990  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(1971C)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971C)

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MRDS RECORD NUMBER.....BL10097  
SITE NAME.....**ALIANZA MINE**  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....COMUNIDAD TODOS SANTOS 6128-I 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....21-41-16S                      LONGITUDE.....067-09-06W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....5 KM N25E OF COMUNIDAD TODOS  
SANTOS, 169 KM FROM UYUNI BY ROAD  
COMMODITIES PRESENT.....CU    PB    AG  
ORE MATERIALS.....CHALCOPYRITE, BORNITE, CHALCOCITE, GALENA,  
TETRAHEDRITE; MALACHITE, AZURITE  
MAJOR.....CU  
POTEN.....PB    AG  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
OPERATOR.....COOPERATIVA MINERA LITORAL  
DEPOSIT TYPE.....STRATABOUND, LODE  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
DEPOSIT SIZE.....SMALL  
STRIKE.....NE  
DEPOSIT DESCRIPTION COMMENTS.....VEINS IN N82E 67-78NW NORMAL  
FAULT. MANTOS ARE 0.6 TO 0.8 M THICK. MANTOS ARE SANDSTONES CEMENTED BY  
CALCITE, FE OXIDE, MALACHITE AND CHLORITE, WITH FRACTURES FILLED BY  
CHALCOCITE-MALACHITE-AZURITE-BORNITE-CHALCOPYRITE, AND GYPSUM VEINLETS.  
ONE FAULT IS FILLED BY GALENA-CHALCOPYRITE-TETRAHEDRITE-FE OXIDES BUT  
MAY BE RELATED TO NEARBY ANTONIO MINE.  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....600                      UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....ADITS, PROSPECT PITS  
HOST ROCK AGE.....LOLIGO  
HOST ROCK TYPE.....SANDSTONE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....FE OXIDES GYPSUM  
ORE CONTROL/LOCUS.....FAULTS, PREFERRED BEDS  
SIGNIFICANT REGIONAL STRUCTURES.....NE ANTICLINE  
SIGNIFICANT LOCAL STRUCTURES.....NORMAL FAULT N82E  
FORMATION AGE.....LOLIGO  
FORMATION NAME.....QUEHUA INFERIOR  
WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL 1990  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(1971D)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971D)  
RESERVES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	2.0	MT		1971	4.36% CU

SOURCE OF RESERVES INFORMATION.....GEOBOL (1971D)

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MRDS RECORD NUMBER.....BL10035  
 SITE NAME.....ANIMAS MINE  
 SYNONYM NAME.....JOUKIA  
 MINING DISTRICT/AREA.....SAN CRISTOBAL  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN CRISTOBAL 6130-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4180 M  
 LATITUDE.....21-06-21S LONGITUDE.....067-13-17W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....2 KM SW OF SAN CRISTOBAL, 107 KM  
 BY ROAD FROM UYUNI  
 COMMODITIES PRESENT.....AG PB ZN  
 ORE MATERIALS.....GALENA, SPHALERITE  
 GENERAL ANALYTICAL DATA.....ASSAYS BY VEDIA AND CORTEZ (1966): BRECCIA  
 ZONE 25 CM CHANNEL SAMPLE 48.5% PB 1,000 G/T AG; 3 CM VEIN 1.0% PB 10  
 G/T AG; VEIN WALL GRAB SAMPLE 1.2% PB 10 G/T AG  
 MAJOR.....AG  
 POTEN.....PB ZN  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COOPERATIVA MINERA LITORAL  
 OPERATOR.....COOPERATIVA MINERA LITORAL  
 DEPOSIT TYPE.....LODE BRECCIA PIPE  
 DEPOSIT FORM.....IRREGULAR  
 MAXIMUM LENGTH.....300 UNITS...M  
 MAXIMUM WIDTH.....40 UNITS...M  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 10 W  
 DIP.....VARIABLE  
 DEPOSIT DESCRIPTION COMMENTS.....BRECCIA PIPE STRIKES N30W. ORE  
 CONSISTS OF REPLACEMENT OF BRECCIA MATRIX. BRECCIAS CONTAIN ANGULAR TO  
 SUBROUNDED FRAGMENTS OF IGNEOUS AND SEDIMENTARY ROCKS IN A FINE GRAINED  
 MATRIX.  
 DESCRIPTION OF WORKINGS.....B  
 DEPTH BELOW SURFACE.....20 UNITS...M  
 LENGTH OF WORKINGS.....75+ UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ADITS OPEN STOPES  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....BRECCIA PIPE, SANDSTONE, SHALE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE FE OXIDES

ORE CONTROL/LOCUS.....BRECCIA PIPE  
 SIGNIFICANT REGIONAL STRUCTURES.....N10W ANTICLINE  
 SIGNIFICANT LOCAL STRUCTURES.....BRECCIATION  
 SIGNIFICANT ALTERATION.....SILICIFICATION CLAYS  
 FORMATION AGE.....EO  
 FORMATION NAME.....POTOCO  
 WORK DONE BY USGS.....GEOLOGICAL, GEOCHEMICA AND GEOPHYSICAL  
 INVESTIGATIONS, JACOBSON AND OTHERS (1969)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS GEOBOL VEDIA AND  
 CORTEZ (1966)  
 NON-USGS WORK.....THESIS BY TORRICO (1966)  
 REFERENCE....VEDIA AND CORTEZ (1966D), JACOBSON AND OTHERS (1969),  
 TORRICO (1966)', AHLFELD (1944), MURILLO AND OTHERS (1967)  
 PRODUCTION COMMENTS.....CIA. MINERA LITORAL WAS PRODUCING  
 2 TO 3 MT GALENA CONS/MONTH IN 1966.

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	131.25	MT		1966	0.98% PB 1.0% ZN

SOURCE OF RESERVES AND RESOURCES INFORMATION.....MURILLO AND OTHERS  
(1967)

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MRDS RECORD NUMBER.....BL10064  
 SITE NAME.....ANTONIO MINE  
 SYNONYM NAME.....ANTONIA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....COMUNIDAD TODOS SANTOS 6128-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4150 M  
 LATITUDE.....21-44-43S      LONGITUDE.....067-12-59W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....4.5 KM S60W OF COMUNIDAD TODOS  
 SANTOS  
 COMMODITIES PRESENT.....SB   AG   PB   ZN   CU  
 ORE MATERIALS.....STIBNITE, CERVANTITE, GALENA, SPHALERITE,  
 CHALCOPYRITE  
 GENERAL ANALYTICAL DATA.....ORE ASSAYS BY GEOBOL (1971E): 24.5 TO  
 41.8% SB.  
 MAJOR.....SB  
 POTEN.....AG   PB   ZN  
 OCCUR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COOPERATIVA MINERA LITORAL  
 OPERATOR.....COOPERATIVA MINERA LITORAL  
 DEPOSIT TYPE.....LODE  
 DEPOSIT FORM.....PINCH AND SWELL  
 MAXIMUM LENGTH.....50      UNITS...M

MAXIMUM WIDTH.....15      UNITS...CM  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....E-W  
 DIP.....60 TO 70 N  
 DEPOSIT DESCRIPTION COMMENTS.....ORE IN ZONE OF ALTERATION  
 STRIKING E-W. DISSEMINATED SB MINERALS OUTSIDE VEINS IN ALTERED HOST  
 ROCK  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....SHAFTS DRIFTS  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE, SHALE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....BIOTITE DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, BARITE, PYRITE, LIMONITE  
 ORE CONTROL/LOCUS.....E-W FRACTURED/ALTERED ZONE  
 FORMATION AGE.....EO  
 FORMATION NAME.....POTOCO  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971E)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971E)  
 ANNUAL PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CONS	ACC	3.262	MT		1965	67.7% SB
CONS	ACC	14.693	MT		1966	60.5% SB
CONS	ACC	79.683	MT		1967	60.3% SB
CONS	ACC	41.361	MT		1968	60.6% SB

 SOURCE OF PRODUCTION INFORMATION.....GEOBOL (1971E)  
 PRODUCTION COMMENTS.....HAND SORTED CONS

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MRDS RECORD NUMBER.....BL10132  
 SITE NAME.....AVIADORA MINE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....21-50-00S      LONGITUDE.....066-16-00W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....1.5 KM N60E OF PUEBLO VIEJO  
 COMMODITIES PRESENT.....CU    AG  
 ORE MATERIALS.....CHACLOCITE, NATIVE CU; CUPRITE, MALACHITE,  
 AZURITE  
 GENERAL ANALYTICAL DATA.....ASSAYS BY GEOBOL: 0.8 TO 10.9 DM/T AG, 2.2  
 TO 17.4% CU  
 MAJOR.....CU  
 MINOR.....AG  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8

NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
DEPOSIT TYPE.....FISSURE FILLING  
USGS MODEL .....BASALTIC CU  
USGS MODEL NUMBER.....23  
DEPOSIT SIZE.....SMALL  
DEPOSIT DESCRIPTION COMMENTS.....NO PREFERRED ORIENTATION TO  
FISSURES. CALCITE VEINLETS 0.1 CM TO 3 M WIDE.  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....51           UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....2 ADITS  
HOST ROCK AGE.....LOLIGO  
HOST ROCK TYPE.....PLAGIOCLASE BASALT  
AGE OF IGNEOUS ROCK.....LOLIGO  
IGNEOUS ROCK TYPE.....PLAGIOCLASE BASALT  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....CALCITE, QUARTZ  
ORE CONTROL/LOCUS.....FISSURES  
FORMATION AGE.....LOLIGO  
FORMATION NAME.....RONDAL  
IGNEOUS UNIT AGE.....LOLIGO  
IGNEOUS UNIT NAME.....RONDAL BASALT  
NON-USGS WORK.....GEOLOGIC INVESTIGATIONS BY GEOBOL (1971F)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971F)

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MRDS RECORD NUMBER.....BL10103  
SITE NAME.....**BALTAZAR MINE**  
PROVINCE.....DANIEL CAMPOS  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME...CAHUANA CHICA 5934-III 1973  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4500 M  
LATITUDE.....19-58-32S           LONGITUDE.....068-23-12W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....10 KM N75W OF CAHUANA CHICA, 620  
KM BY ROAD FROM LA PAZ  
LOCATION COMMENTS.....ON W FLANK OF CERRO CHINCHILHUMA  
(CHINCHILLAHUAY)  
COMMODITIES PRESENT.....AG   PB   ZN   CU   SN  
ORE MATERIALS.....GALENA, SPHALERITE, CUPRITE, CASSITERITE  
GENERAL ANALYTICAL DATA.....ORE ANALYSES BY SANJINES (1968B): 790 G/T  
AG 21.89% PB  
MAJOR.....AG   PB  
POTEN.....ZN  
OCCUR.....CU   SN  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
DISCOVERER.....SPANISH COLONISTS



NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COOPERATIVA MINERA EL PORVENIR  
 OPERATOR.....COOPERATIVA MINERA EL PORVENIR  
 EXPLORATION AND DEVELOPMENT COMMENTS.....UNDER DEVELOPMENT BY  
 COOPERATIVA EL PORVENIR IN 1968  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DEPOSIT DESCRIPTION COMMENTS.....VEIN IS 18 CM WIDE  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....62           UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....VITRIC TUFF  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....VITRIC TUFF  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 PERTINENT MINERALS (NOT ORE).....SPECULARITE LIMONITE  
 ORE CONTROL/LOCUS.....N-S ZONES OF WEAKNESS  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL,  
 SANJINES (1968B), MCNAMEE (1985A)  
 REFERENCE....SANJINES (1968B)

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MRDS RECORD NUMBER.....BL10010  
 SITE NAME.....BARRAHUAYCO MINE  
 SYNONYM NAME.....BARRA WAYKHO, HUARRAWAICO  
 MINING DISTRICT/AREA.....CERRO BONETE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4600 M  
 LATITUDE.....21-43-12S   ...   LONGITUDE.....066-28-34W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....16 KM S85E OF SAN PABLO DE LIPEZ  
 COMMODITIES PRESENT.....AG   PB   ZN   CU  
 ORE MATERIALS.....GALENA, CHALCOPYRITE; MALACHITE, AZURITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (PROYECTO LIPEZ,  
 1971). 0.6 TO 58.4 DM/T AG, 0.9 TO 17% PB, 1.0 TO 33.4% ZN.  
 MAJOR.....AG  
 POTEN.....PB    ZN  
 OCCUR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 YEAR OF LAST PRODUCTION.....1971  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)

EXPLORATION AND DEVELOPMENT COMMENTS.....EXPLORED BY COMIBOL 1967 AND 1971  
 DEPOSIT TYPE.....STOCKWORK, LODE  
 DEPOSIT FORM.....IRREGULAR  
 DEPTH TO BOTTOM.....400 UNITS...M  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS STRIKING N40 TO 70W DIPPING 70 TO 80SW 8 TO 70 CM THICK OF QUARTZ-PYRITE-GALENA. STOCKWORK ZONE 100 M WIDE WITH 8 FRACTURES PER SQUARE METER ORIENTED N40 TO 60W AND E-W FILLED BY IRON OXIDES WITHIN SILICIFIED AND ARGILLIZED VOLCANICS  
 DESCRIPTION OF WORKINGS.....B  
 DEPTH BELOW SURFACE.....30 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS CONSIST OF SHALLOW PROSPECT PITS, ONE SHAFT, AND ADITS.  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE, LIMONITE, KAOLINITE, MELANTERITE?  
 ORE CONTROL/LOCUS.....NW FRACTURES  
 SIGNIFICANT ALTERATION.....SILICIFICATION AND ARGILLIZATION IN CENTRAL ZONE, PROPYLITIZATION OUTSIDE CENTRAL ZONE.  
 FORMATION AGE.....TERT  
 FORMATION NAME.....CERRO BONETE  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....CERRO BONETE  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL (PROYECTO LIPEZ, 1971)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (MEDINA AND IBAÑEZ, 1988A)  
 REFERENCE....MEDINA AND IBAÑEZ (1988A), SERVICIO GEOLOGICO DE BOLIVIA (1971G)

## POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
STOCKWORK						
ORE	EST	16000	MT		1988	UNKNOWN
SOURCE OF POTENTIAL RESOURCES INFORMATION.....MEDINA AND IBAÑEZ (1988A)						
POTENTIAL RESOURCES COMMENTS.....AMOUNT OF STOCKWORK						
MINERALIZED ROCK ESTIMATED AT 10 TO 16 MILLION MT						

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MRDS RECORD NUMBER.....BL10093  
 SITE NAME.....BARTOLA MINE  
 SYNONYM NAME.....SAN BARTOLO, BARTOLO  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....COMUNIDAD MALLCU CUEVA 6128-IV 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4200 M

LATITUDE.....21-42-57S                      LONGITUDE.....067-27-47W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....4.5 KM N20E OF MALLCU CUEVA, 176  
 KM BY ROAD FROM UYUNI  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; MALACHITE, CHRYSOCOLLA,  
 AZURITE, COVELLITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971H): 0 TO  
 11.10% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....COOPERATIVA MINERA  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 30 E  
 DIP.....35 TO 54 SE  
 DEPOSIT DESCRIPTION COMMENTS.....ARE SEVERAL MANTOS  
 DESCRIPTION OF WORKINGS.....S  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS CONSIST OF PROSPECT  
 PITS  
 HOST ROCK AGE.....OLIGO-MIO  
 HOST ROCK TYPE.....SANDY CONGLOMERATE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 SIGNIFICANT REGIONAL STRUCTURES.....ON W FLANK OF SYNCLINE  
 SIGNIFICANT LOCAL STRUCTURES.....POST-MINERALIZATION N75E FAULT  
 FORMATION AGE.....OLIGO-MIO  
 FORMATION NAME.....SAN VICENTE  
 GEOLOGY COMMENTS.....MANTOS ARE THINNER IN LOWER MEMBER 1 OF  
 SAN VICENTE FORMATION THAN IN UPPER MEMBER 2.  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971H)  
 REFERENCE...SERVICIO GEOLOGICO DE BOLIVIA (1971H)  
                   RESERVES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	2.4003	MT		1971	3.55% CU

 SOURCE OF RESERVES INFORMATION.....GEOBOL (1971H)

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MRDS RECORD NUMBER.....BL10054  
 SITE NAME.....BERTHA MINE  
 MINING DISTRICT/AREA.....SAN CRISTOBAL  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....SAN CRISTOBAL 6330-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 LATITUDE.....21-06-04S                      LONGITUDE.....067-12-22W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....109 KM BY ROAD FROM UYUNI  
 COMMODITIES PRESENT.....AG    PB    ZN  
 ORE MATERIALS.....GALENA, ARGENTITE, SPHALERITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY ROCHA (1958): 2.5 TO 64.5%  
 PB 0.55 TO 13.8%ZN 0 TO 4490 G/T AG  
 MAJOR.....AG  
 MINOR.....PB  
 POTEN.....ZN  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 DEPOSIT FORM.....IRREGULAR  
 MAXIMUM WIDTH.....0.2                      UNITS...M  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....E  
 DEPOSIT DESCRIPTION COMMENTS.....VEIN 0.15 TO 0.20 M WIDE  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....195                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....1 ADIT (SOCAVON BERTHA)  
 TRENCHING (NOT INCLUDED IN LENGTH OF WORKINGS)  
 HOST ROCK AGE.....TERT  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE, ARSENOPYRITE, SIDERITE  
 ORE CONTROL/LOCUS.....FRACTURES  
 FORMATION AGE.....TERT  
 WORK DONE BY USGS.....GEOLOGICAL INVESTIGATIONS BY JACOBSON AND  
 OTHERS (1969)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (MURILLO AND OTHERS, 1967, ROCHA, 1958)  
 REFERENCE....ROCHA (1958), JACOBSON AND OTHERS (1969), MURILLO AND  
 OTHERS (1967)

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MRDS RECORD NUMBER.....BL10078  
 SITE NAME.....BIENVENIDA MINE  
 SYNONYM NAME.....AZUFRERA BIENVENIDA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN JURIQUEZ SF 19-11 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO PANIZO 6027-II 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4700 M  
 LATITUDE.....22-16-38S                      LONGITUDE.....067-33-10W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....16 KM SE OF LAGUNA COLORADA

LOCATION COMMENTS.....ON CERRO BIENVENIDA SOUTH OF CERRO PANIZO  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY CORDERO AND BALLIVIAN  
 (1969): 1.78 TO 10.44% S  
 NON-PRODUCER MAIN.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMUROLIC S  
 USGS MODEL NUMBER.....25M  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....TUFF, LAVA  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....TUFF, LAVA  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 PERTINENT MINERALS (NOT ORE).....GYPSUM  
 ORE CONTROL/LOCUS.....POROUS VOLCANIC ROCKS  
 GEOLOGY COMMENTS.....ORE IS NATIVE S DISSEMINATED IN ALTERED  
 TUFF (SECTOR 1, 6.79% S AVG.) AND IN ALTERED LAVA (SECTOR 2, 9.53% S  
 AVG).  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (CORDERO AND BALLIVIAN, 1969)  
 REFERENCE....CORDERO AND BALLIVIAN (1969)

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MRDS RECORD NUMBER.....BL10015  
 RSITE NAME.....BOLIVAR MINE  
 MINING DISTRICT/AREA.....CERRO BONETE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4700 M  
 LATITUDE.....21-47-47S      LONGITUDE.....066-27-04W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....8.5 KM N45E OF GUADALUPE  
 LOCATION COMMENTS.....NORTH OF THE RIO CANCHA MAYU.  
 COMMODITIES PRESENT.....BI   AG   PB   CU  
 ORE MATERIALS.....PAVONITE, AIKINITE, BENJAMINITE,  
 BISMUTHINITE, CHALCOPYRITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES (UNDP): 70 TO 90 G/MT AG, 51%  
 BI  
 MAJOR.....BI   AG  
 POTEN.....PB   CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B

OWNER (PRESENT/LAST).....EMPRESA MINERA UNIFICADA (EMUSA)  
 OPERATOR.....EMPRESA MINERA UNIFICADA (EMUSA)  
 DEPOSIT TYPE.....LODE  
 STRIKE.....E-W  
 DIP.....VERTICAL  
 DEPOSIT DESCRIPTION COMMENTS.....A MAIN VEIN STRIKES N86W WITH  
 VERTICAL DIP AND VARIABLE WIDTH OF 10 TO 25 CM. MINE WORKED A MAJOR ORE  
 SHOOT 45 M LONG AND 70 M DEEP.  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....MINE CONSISTS OF THREE LEVELS  
 BETWEEN 4400 AND 4500 M.  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE BRECCIA  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE BRECCIA  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, ANKERITE, SIDERITE,  
 PYRITE  
 SIGNIFICANT ALTERATION.....PROPYLITIZATION  
 FORMATION AGE.....TERT  
 FORMATION NAME.....CERRO BONETE  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....CERRO BONETE  
 NON-USGS WORK.....MINERALOGY OF MINE (PAVONITE) WAS STUDIED  
 BY AHLFELD (1954)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (JIMENEZ  
 AND NUÑEZ, 1988)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY VALENCIA  
 (1973)  
 REFERENCES....JIMENEZ AND NUÑEZ (1988), VALENCIA (1973), ROWE (1961),  
 AHLFELD (1954), MENDOZA (1977)

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MRDS RECORD NUMBER.....BL10060  
 SITE NAME.....BOLIVAR MINE  
 SYNONYM NAME.....CABRERIA MINE, SAN SALVADOR MINE  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA AVAROA 6129-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 M  
 LATITUDE.....21-38-05S      LONGITUDE.....067-06-11W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....7 KM S45W OF AVAROA MINE  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE, CHALCOPYRITE; MALACHITE,  
 AZURITE  
 GENERAL ANALYTICAL DATA.....ORE ASSAYS BY GEOBOL (1971): AVERAGE 3.92%  
 CU OVER 0.60 M  
 MAJOR.....CU

PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA  
 OPERATOR.....COOPERATIVA MINERA UNION PORVENIR  
 ECONOMIC COMMENTS.....PRODUCTION IN 1970 WAS ABOUT 2 MT/MONTH  
 EXPLORATION AND DEVELOPMENT COMMENTS.....OWNED BY COOPERATIVA  
 MINERA LITORAL UP TO 1969  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N54E  
 DIP.....5 TO 7SE  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT CONSISTS OF 3 MANTOS  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....ADITS  
 HOST ROCK AGE.....LOLIGO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....REPLACEMENT OF FOSSILIZED PLANTS  
 SIGNIFICANT REGIONAL STRUCTURES.....ANTICLINE  
 SIGNIFICANT LOCAL STRUCTURES.....N50 TO 80E FRACTURES  
 SIGNIFICANT ALTERATION.....WEAK KAOLINIZATION  
 FORMATION AGE.....LOLIGO  
 FORMATION NAME.....QUEHUA INFERIOR  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971I)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971I)  
 RESERVES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	4.811	MT		1971	2.82% CU
ORE	EST	4.651	MT		1971	2.63% CU

 SOURCE OF RESERVES INFORMATION.....GEOBOL (1971I)  
 RESERVES COMMENTS.....ESTIMATES FOR DIFFERENT PARTS OF  
 MINE

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MRDS RECORD NUMBER.....BL10187  
 SITE NAME.....**BONETE MINE**  
 SYNONYM NAME.....CERRO BONETE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5300 M  
 LATITUDE.....21-45-13S      LONGITUDE.....066-28-14W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....11 KM N15E OF GUADALUPE

COMMODITIES PRESENT.....AG PB CU BI  
 ORE MATERIALS.....CHALCOPYRITE, BISMUTHINITE, GALENA,  
 TENNANTITE, BORNITE; CERRUSITE  
 MAJOR.....AG  
 MINOR.....PB  
 OCCUR.....CU BI  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MININERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....LODE  
 STRIKE.....N23 TO 80W  
 DESCRIPTION OF WORKINGS.....U  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, SIDERITE, KAOLINITE, FE  
 OXIDES  
 ORE CONTROL/LOCUS.....FRACTURES  
 SIGNIFICANT ALTERATION.....KAOLINIZATION  
 FORMATION AGE.....TERT  
 FORMATION NAME.....CERRO BONETE  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....CERRO BONETE  
 REFERENCES....SERVICIO GEOLOGICO DE BOLIVIA (1971J), JIMENEZ AND NUÑEZ  
 (1988)

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MRDS RECORD NUMBER.....BL10023  
 SITE NAME.....BORATERA PAMPA DEPOSIT  
 SYNONYM NAME.....SALAR DE UYUNI, LLIPI-LLIPI, RIO GRANDE  
 MINING DISTRICT/AREA.....SALAR DE UYUNI  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....UYUNI SF 19-4 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....6131-I,-IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3653 M  
 LATITUDE.....20-44-00S LONGITUDE.....067-18-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....58 KM SW OF UYUNI  
 LOCATION COMMENTS.....ON SE SIDE OF SALAR DE UYUNI NEAR RIO  
 GRANDE RIVER DELTA  
 COMMODITIES PRESENT.....B  
 ORE MATERIALS.....ULEXITE  
 NON-PRODUCER MAIN.....B  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1



NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....BORATES  
 DEPOSIT FORM.....LENSE  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSITS OCCUR AS DIAGENETIC  
 LENSES AT VARIABLE DEPTHS WITHIN A FLUVIAL-DELTAIC SEDIMENTARY COMPLEX.  
 LENSES ARE 50 TO 300 M IN DIAMETER AND 5 TO 50 CM THICK. BORATERA LLIPI-  
 LLIPI IS 0.7 SQ KM IN AREA, 30 CM THICK. BORATERA RIO GRANDE IS UP TO  
 60 CM THICK.  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....MUD  
 AGE OF MINERALIZATION.....HOLO  
 PERTINENT MINERALS (NOT ORE).....CLAY  
 ORE CONTROL/LOCUS.....ULEXITE PRECIPITATION IS CONTROLLED BY NA,  
 CA AND B CONCENTRATION OF INTERSTITIAL BRINES.  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 SIGNIFICANT LOCAL STRUCTURES.....FLUVIAL-DELTAIC COMPLEX  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 FORMATION AGE.....HOLO  
 NON-USGS WORK.....GEOLOGICAL EVALUATION OF BORATE CONCESSION  
 (CADIMA AND LAFUENTE, 1967, 1976-78)  
 REFERENCE...BALLIVIAN AND RISACHER (1981), CADIMA AND LAFUENTE (1969)

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
RIO GRANDE						
ORE	EST	3721.353	MT		1969	58.7% BORAX

## RESERVES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ULEXITE	EST	2750	MT		1967	

SOURCE OF RESERVES INFORMATION.....CADIMA AND LAFUENTE (1969)  
 RESERVES COMMENTS.....PERTAINS TO A CONCESSION OF 5.8  
 SQUARE KM, 10% OF TOTAL AREA OF THE DEPOSIT

## POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ULEXITE	EST	12000	MT		1981	

SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)  
 POTENTIAL RESOURCES COMMENTS.....ESTIMATE ASSUMING 50  
 SQUARE KM AREA, 20 CM AVERAGE THICKNESS, AND A GRADE OF 60% ULEXITE

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MRDS RECORD NUMBER.....BL10003  
 SITE NAME.....BUENA VISTA MINE  
 SYNONYM NAME.....SAN JUAN; VEINS: SAN PABLITO, SAN PEDRITO,  
 ONCE. ADITS: ANTIGUO II  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN PABLO DE LIPEZ 6228-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4400 M

LATITUDE.....21-43-33S                      LONGITUDE.....066-37-50W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5 KM S15W OF SAN PABLO DE LIPEZ  
 LOCATION COMMENTS.....LAT LONG IS FOR NORTHWESTERNMOST ADIT  
 COMMODITIES PRESENT.....AG AU PB ZN CU SB AS  
 ORE MATERIALS.....GALENA, SPHALERITE; CHALCOPYRITE,  
 ELECTRUM, ARGENTITE, PYRARGYRITE, JALPAITE, FAMATINITE, TETRAHEDRITE,  
 TENNANTITE, BOURNONITE, FIZELYITE, BOULANGERITE, SEMSEYITE, STIBNITE,  
 REALGAR, ORPIMENT, MIARGYRITE  
 GENERAL ANALYTICAL DATA.....5 DRILL CORE ASSAYS BY GEOBOL SHOW 5 G/T  
 AU, 123 G/T AG, 2.55% PB, 4.71% ZN IN VEINLETS. SAN PABLITO VEIN; 300 -  
 1000 G/T AG, 10 - 30 % PB, 45% ZN, AND A MINIMAL 2 OR 3% SB. SAN  
 PEDRITO VEIN; SAMPLE 1; 4.55 G/T AU, 280 G/T AG SAMPLE 2; 1.76 G/T AU,  
 319 G/T AG. SOCAVON ANTIGUO II VEIN; 2.34 G/T AU, 387 G/T AG, SMALL  
 PERCENTAGES OF PB, ZN, SB.  
 MAJOR.....AG  
 MINOR.....PB ZN CU  
 POTEN.....AU  
 OCCUR.....SB AS  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 70 TO 75W  
 DIP.....70 TO 75 NE  
 DEPOSIT DESCRIPTION COMMENTS.....BUENA VISTA IS IN THE MIDDLE OF A  
 HYDROTHERMALLY ALTERED ZONE ABOUT 14 HECTARES IN AREA. SAN PABLITO VEIN  
 STRIKES N70 TO 75W, DIPS 70-75NE, EXTENDS 700 M AND IS 10 TO 80 CM WIDE.  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....300                      UNITS...M  
 HOST ROCK AGE.....EMIO-MMIO 14 - 24 M.A.  
 HOST ROCK TYPE.....TUFF, TUFFACEOUS BRECCIA  
 AGE OF IGNEOUS ROCK.....EMIO-MMIO  
 IGNEOUS ROCK TYPE.....TUFF, TUFFACEOUS BRECCIA  
 AGE OF MINERALIZATION.....MMIO K/AR 11.3 MA  
 PERTINENT MINERALS (NOT ORE).....PYRITE, QUARTZ; LIMONITE,  
 SERICITE, ARSENOPYRITE  
 ORE CONTROL/LOCUS.....NW TRENDING SHEAR ZONE  
 SIGNIFICANT LOCAL STRUCTURES.....TWO SETS OF FRACTURES. THE  
 PREDOMINANT SET TRENDS N 40 - 72 W AND DIPS NORTH TO SUBVERTICAL WITH  
 SOME DIPPING SW. THIS SET IS PARALLEL TO THE SHEAR ZONE. THE SECOND  
 SET OF FRACTURES TRENDS N 20 -40 E WITH A SUBVERTICAL DIP.  
 SIGNIFICANT ALTERATION.....SERICITIZATION, KAOLINIZATION  
 FORMATION AGE.....MIO  
 FORMATION NAME.....QUEHUA SUPERIOR  
 IGNEOUS UNIT AGE.....MIO  
 IGNEOUS UNIT NAME.....QUEHUA SUPERIOR  
 GEOLOGY COMMENTS.....FLUID INCLUSIONS IN QUARTZ AND SPHALERITE  
 YIELD HOMOGENIZATION TEMPERATURES OF 170 TO 305 DEGREES CENTIGRADE AND  
 SALINITIES OF 4.4 TO 5.8 WT% NaCl (SUGAKI AND OTHERS, 1986)

GENERAL COMMENTS.....A DIAMOND DRILL HOLE DRILLED AT AN ANGLE FOR A LENGTH OF 190 M. NO STRUCTURES OF MINERAL IMPORTANCE WERE INTERSECTED AS DETERMINED BY EXAMINATION OF THE DRILL CORE. AT THE BOTTOM OF THE HOLE (SOMEWHERE IN THE ORE BODY) GRAY-WHITE DACITE WAS ENCOUNTERED. SOME PARTS OF THE DACITE WERE MORE ALTERED THAN OTHERS. MINERALIZED VEINLETS WERE ENCOUNTERED AND CONTAINED SPHALERITE AND GALENA WITH VERY LITTLE STIBNITE. OTHER SECTIONS REVEALED LIMONITIC ZONES OFFSET BY SMALL FAULTS. AT 100 M DISSEMINATED PYRITE WAS SEEN, AND IN OTHER SECTIONS DARK ARGILLITIC MATERIAL (DISSEMINATED AG OR STIBNITE?) WAS SEEN. GEOPHYSICAL EXPLORATION: TURAM 281 LINES IN 472,000 SQ M.

NON-USGS WORK.....GEOPHYSICAL EXPLORATION BY GEOBOL (1971)

NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY JICA/MMAJ (SUGAKI AND OTHERS, 1986)

REFERENCE....IBÁÑEZ AND MEDINA (1988), SUGAKI AND OTHERS (1986), REQUENA (1971), SERVICIO GEOLOGICO DE BOLIVIA (1971K)

#### POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	AU EST	13000.00	MET TONS	1985	1 G/T AU
AU	EST	.013	MET TONS	1985	

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MRDS RECORD NUMBER.....BL10074

SITE NAME.....CAHUANA MINE

SYNONYM NAME.....EL PORTAL, CABAÑA, CERRO CABAÑA, CERRO CAHUANA

PROVINCE.....SUD LIPEZ

PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE

DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....VOLCAN JURQUES SF 19-11 1974

QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....VOLCAN CHICO 6027-IV 1972

SECOND QUAD SCALE.....1:50,000

ELEVATION.....5600 M

LATITUDE.....22-03-33S LONGITUDE.....067-57-39W

ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....7 KM FROM SILALA, 820 KM BY ROAD FROM LA PAZ

LOCATION COMMENTS.....ON W FLANK OF CERRO VOLCAN APAGADO

COMMODITIES PRESENT.....S AS

ORE MATERIALS.....NATIVE S

GENERAL ANALYTICAL DATA.....ORE ANALYSES BY SANJINES AND OTHERS (1968A): 2.81 TO 51.19% S 0.02 TO 0.08% AS

MAJOR.....S

OCCUR.....AS

PRODUCTION.....S

STATUS AND ACTIVITY.....8

NATURE OF DISCOVERY.....B

EXPLORATION AND DEVELOPMENT COMMENTS.....WAS WORKED BY A CHILEAN CONCERN

DEPOSIT TYPE.....DISSEMINATED

USGS MODEL .....FUMUROLIC S

USGS MODEL NUMBER.....IM25M

DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT COVERED BY SNOW YEAR  
 ROUND  
 DESCRIPTION OF WORKINGS.....B  
 LENGTH OF WORKINGS.....138            UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....5 ADITS OPEN PITS  
 HOST ROCK AGE.....QUAT  
 HOST ROCK TYPE.....TUFF  
 AGE OF IGNEOUS ROCK.....QUAT  
 IGNEOUS ROCK TYPE.....DACITE ANDESITE  
 AGE OF MINERALIZATION.....QUAT  
 ORE CONTROL/LOCUS.....POROUS FRACTURED TUFF  
 FORMATION AGE.....QUAT  
 FORMATION NAME.....ESTRATOVOLCAN  
 IGNEOUS UNIT AGE.....QUAT  
 IGNEOUS UNIT NAME.....ESTRATOVOLCAN  
 GEOLOGY COMMENTS.....TUFF IS ALTERED. ORE CONSISTS OF VEINLETS  
 AND IMPREGNATIONS OF NATIVE S  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL,  
 SANJINES AND OTHERS (1968A, 1968B)  
 REFERENCE....SANJINES AND OTHERS (1968A, 1986B)  
 RESERVES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	4820.954	MT		1968	10.8% S

 SOURCE OF RESERVES INFORMATION.....SANJINES AND OTHERS (1968A)

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MRDS RECORD NUMBER.....BL10133  
 SITE NAME.....**CAMPANARIO MINE**  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....PUEBLO VIEJO 6328-III 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3800 M  
 LATITUDE.....21-53-00S            LONGITUDE.....066-16-00W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....6 KM S12E OF PUEBLO VIEJO, 15 KM  
 S OF MOJINETE  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....BORNITE, COVELLITE, CHALCOCITE; MALACHITE,  
 AZURITE, CUPRITE  
 GENERAL ANALYTICAL DATA.....GEOBOL ASSAYS: 1.6 TO 22.5% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....IMPREGNATIONS, FISSURE FILLINGS  
 USGS MODEL .....BASALTIC CU  
 USGS MODEL NUMBER.....23

STRIKE.....N44W AND N81W  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....42           UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
 HOST ROCK AGE.....OLIGO-MIO  
 HOST ROCK TYPE.....CONGLOMERATE, BASALT  
 AGE OF IGNEOUS ROCK.....LOLIGO  
 IGNEOUS ROCK TYPE.....BASALT  
 AGE OF MINERALIZATION.....TERT?  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, HEMATITE, CALCITE  
 ORE CONTROL/LOCUS.....FISSURES  
 FORMATION AGE.....OLIGO-MIO  
 FORMATION NAME.....SAN VICENTE  
 IGNEOUS UNIT AGE.....LOLIGO  
 IGNEOUS UNIT NAME.....RONDAL  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971L)  
 REFERENCE...SERVICIO GEOLOGICO DE BOLIVIA (1971L)

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MRDS RECORD NUMBER.....BL10085  
 SITE NAME.....CANDELARIA MINE  
 SYNONYM NAME.....CANDELARIA DE SANTA ISABEL. ADIT: LINARES.  
 VEINS: MINA DE PLATA, VETA DOS, ESCALERO, CONSUELITO, VERA CRUZ.  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO SANTA ISABEL 6229-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4867 M  
 LATITUDE.....21-37-40S           LONGITUDE.....066-30-07W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....14 KM N60E OF SAN PABLO DE LIPEZ,  
 207 KM BY ROAD FROM UYUNI  
 LOCATION COMMENTS.....ON CERRO SANTA ISABEL  
 COMMODITIES PRESENT.....AG   ZN   PB   SN   AU   CU   CD  
 ORE MATERIALS.....GALENA, SPHALERITE, CHALCOPYRITE;  
 TETRAHEDRITE-TENNANTITE, BOURNONITE, JAMESONITE, SEMSEYITE, PYRARGYRITE,  
 CASSITERITE, STANNITE, FRANKITE, FIZELYITE, PETZITE, NATIVE AU.  
 (ANGLESITE, CERUSSITE, ZINC OXIDES)  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY CARO (1964): 0 TO 33% SN,  
 0 TO 11.1% PB, 0 TO 61.7% ZN, 0 TO 2720 G/T AG. MINED ORE GRADES 2 TO  
 15% PB, 0.5 TO 31% ZN, AND 60 TO 270 G/MT AG (SUGAKI AND OTHERS, 1986)  
 MAJOR.....AG  
 MINOR.....SN  
 POTEN.....ZN   PB   AU   CU  
 OCCUR.....CD  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B

OWNER (PRESENT/LAST).....W. HUARACHI  
 OPERATOR.....W. HUARACHI  
 EXPLORATION AND DEVELOPMENT COMMENTS.....OWNED BY NUEVA CIA. DE  
 LIPEZ TO 1908. ACQUIRED BY W. HUARACHI 1961  
 DEPOSIT TYPE.....LODE, BRECCIA  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DEPTH TO BOTTOM.....500           UNITS...M  
 MAXIMUM LENGTH.....800           UNITS...M  
 MAXIMUM WIDTH.....800           UNITS...M  
 MAXIMUM THICKNESS.....500       UNITS...M  
 STRIKE.....N70W TO 80E AND N50 TO 70W  
 DIP.....70 SW TO 80SE  
 DEPOSIT DESCRIPTION COMMENTS.....FRACTURE FILLINGS AND VEINS IN  
 BRECCIATED ZONE. VEINS ARE 20 TO 180 CM WIDE. OXIDE/SULFIDE TRANSITION  
 ZONE IS AT ABOUT 4700 M ALTITUDE. JUST S OF CERRO SANTA ISABEL IS A ZONE  
 OF INTENSE ARGILLIC ALTERATION WITH 0.2 M WIDE VEINS STRIKING N80W  
 DIPPING 70S ASSOCIATED WITH DISSEMINATED PYRITE, CHALCOPYRITE, AND  
 CHALCOCITE. THIS COULD BE A PORPHYRY COPPER SYSTEM RELATED TO EPITHERMAL  
 MINERALIZATION AT CERRO CANDELARIA. FRACTURES ARE FILLED BY PYRITE-  
 SPHALERITE-GALENA IN SULFIDE ZONE, CASSITERITE AND AG MINERALS IN OXIDE  
 ZONE. BRECCIA ZONES ARE CEMENTED BY CLAY AND LIMONITE. BRECCIA WAS  
 REBRECCIATED PRIOR TO OXIDATION.  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE..... 300           UNITS...M  
 LENGTH OF WORKINGS.....1200+       UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....AT LEAST 4 ADITS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....RHYOLITE PORPHYRY  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....RHYOLITE PORPHYRY  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, CALCITE, PYRITE,  
 MARCASITE, ARSENOPYRITE; (LIMONITE, JAROSITE, HEMATITE, ALUINTE, OPAL,  
 KAOLINITE)  
 ORE CONTROL/LOCUS.....E-W FRACTURES  
 SIGNIFICANT LOCAL STRUCTURES.....RHYOLITE STOCK ELONGATED N-S  
 SIGNIFICANT ALTERATION.....SERICITE-CHLORITE-PYRITE IN RHYOLITE.  
 KAOLINIZATION, SILICIFICATION, CARBONITIZATION. ARGILLIC, PROPYLITIC AND  
 SERICITIC ZONES RECOGNIZED.  
 FORMATION AGE.....TERT  
 FORMATION NAME.....RHYOLITE PORPHYRY  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....RHYOLITE PORPHYRY  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL 1990  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL, CARO  
 (1964A, 1964B)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY JICA/MMAJ  
 (SUGAKI AND OTHERS, 1986)  
 REFERENCE....CARO (1964A), SUGAKI AND OTHERS (1986), AHLFELD (1954),  
 SEGUROLA AND OTHERS (1987)

CUMULATIVE PRODUCTION  
 ITEM   ACCURACY    AMOUNT   THOUS   YEARS       GRADE  
                                   UNITS

CONS ACC .640 QQ 1961-1964 0.58% SN

SOURCE OF PRODUCTION INFORMATION.....CARO (1964A)

RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	YEAR	GRADE
UNITS					
ORE	EST	121	MT	1987	400 G/T AG, 2.1% PB, 1.0% SN, 3.5 G/T AU
ORE	EST	67	MT	1987	155 G/T AG, 4.4% ZN, 1.8% PB, 0.65% SN, 0.13% AU
ORE	EST	105	MT	1987	494 G/T AG, 4.6% ZN, 6.7% PB, 0.3% SN

SOURCE OF RESERVES AND RESOURCES INFORMATION.....SEGUROLA AND OTHERS (1987)

RESERVES AND RESOURCES COMMENTS.....ITEM 1 IS OXIDE ORE IN VETA DOS; ITEM 2 SULFIDE ORE IN VETA DOS; ITEM 3 CONSUELITO VEIN. TOTAL POTENTIAL IS GIVEN AS 141,000 MT MEASURED ORE AND 550,000 MT OF INFERRED ORE.

RESERVES

ITEM	ACCURACY	AMOUNT	THOUS	YEAR	GRADE
UNITS					
BLOCK A					
ORE	EST	3.42544	MT	1964	7.47% SN 135.1 G/T AG
BLOCK B					
ORE	EST	18.2057	MT	1964	33.6% SN 336.4 G/T AG 5.0% PB
BLOCK C					
ORE	EST	4.650	MT	1964	0.45% SN 400 G/T AG 2.7% PB 7.2 % ZN
BLOCK D					
ORE	EST	76.9575	MT	1964	374.7 G/T AG 3.2% PB 31.93% ZN

SOURCE OF RESERVES INFORMATION.....CARO (1964A, 1964B)

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MRDS RECORD NUMBER.....BL10088  
 SITE NAME.....CAQUILLAN MINE  
 SYNONYM NAME.....CAQUILAN  
 PROVINCE.....  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA CASA GRANDE 6129-III 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4300 M  
 LATITUDE.....21-36-03S LONGITUDE.....067-24-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....0.5 KM DUE E OF ESTANCIA KAKELAN  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOPYRITE; MALACHITE  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE

DEPOSIT SIZE.....SMALL  
 STRIKE.....N73E  
 DIP.....65 TO 87 NW  
 DEPOSIT DESCRIPTION COMMENTS.....ORE OCCURS AS WEAK IMPREGNATIONS  
 AND LENSES IN 0.5 TO 0.8M WIDE FAULT ZONES  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE..... 10           UNITS...M  
 LENGTH OF WORKINGS.....200       UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ADITS AND SHAFTS  
 HOST ROCK AGE.....ORD  
 HOST ROCK TYPE.....SHALE, SANDSTONE  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE, FE OXIDES  
 ORE CONTROL/LOCUS.....NE FAULTS  
 SIGNIFICANT ALTERATION.....VEINLETS OF QUARTZ-PYRITE IN WALL ROCK  
 FORMATION AGE.....ORD  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971M)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971M)

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MRDS RECORD NUMBER.....BL10084  
 SITE NAME.....**CARMEN MINE**  
 MINING DISTRICT/AREA.....SAN PABLO DE LIPEZ  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....8 KM FROM SAN PABLO DE LIPEZ, 214  
 KM BY ROAD FROM TUPIZA  
 COMMODITIES PRESENT.....SB   AG   PB  
 ORE MATERIALS.....STIBNITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY ROCHA AND GUERRA (1964):  
 24.0% SB, 0.05% PB, 280 G/T AG AND 30.5% SB, 0.04% PB, NO AG  
 MAJOR.....SB  
 POTEN.....AG   PB  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 YEAR OF DISCOVERY.....1938  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1938  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....E-W  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS A FISSURE VEIN .03 TO  
 .08 M WIDE WITHIN AN E-W BECCIATED ZONE 15 TO 20 M WIDE.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....18       UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
 HOST ROCK AGE.....TERT



HOST ROCK TYPE.....DACITE  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....DACITE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....QUARTZ  
ORE CONTROL/LOCUS.....E-W FAULT ZONE  
SIGNIFICANT ALTERATION.....SERICITE CLAY CALCITE  
FORMATION AGE.....TERT  
FORMATION NAME.....DACITE  
IGNEOUS UNIT AGE.....TERT  
IGNEOUS UNIT NAME.....DACITE  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL (ROCHA  
AND GUERRA, 1964)  
REFERENCE....ROCHA AND GUERRA (1964)

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MRDS RECORD NUMBER.....BL10276
SITE NAME.....CARMEN MINE
PROVINCE.....SUD LIPEZ
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE
DRAINAGE AREA.....ALTIPLANO
QUADRANGLE NAME.....VOLCAN JURIKUES SF 19-11 1974
QUADRANGLE SCALE.....1:250,000
SECOND QUADRANGLE NAME.....VOLCAN PUTANA 6026-III 1973
SECOND QUAD SCALE.....1:50,000
ELEVATION.....5400 M
LATITUDE.....22-35-14S      LONGITUDE.....067-49-41W
ACCURACY.....ACC
POSITION FROM NEAREST LOCALITY.....5.5 KM N15W OF RIO BLANCO
COMMODITIES PRESENT.....S
ORE MATERIALS.....NATIVE S
MAJOR.....S
PRODUCTION.....Y
STATUS AND ACTIVITY.....4
NATURE OF DISCOVERY.....B
DEPOSIT TYPE.....DISSEMINATED
USGS MODEL .....FUMAROLIC S
USGS MODEL NUMBER.....IM25M
HOST ROCK AGE.....LMIO-QUAT
HOST ROCK TYPE.....LAVA
AGE OF IGNEOUS ROCK.....LMIO-QUAT
IGNEOUS ROCK TYPE.....LAVA
AGE OF MINERALIZATION.....LMIO-QUAT
REFERENCE....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10331  
SITE NAME.....CERRO ASCOTAN RAMADITAS  
OCCURRENCE  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5928-I  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5500 M  
LATITUDE.....21-39-50S           LONGITUDE.....068-07-01W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....17 KM S45W OF MINA CORINA  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
OCCUR.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....UMIO-PLIO  
AGE OF IGNEOUS ROCK.....UMIO-PLIO  
AGE OF MINERALIZATION.....UMIO-PLIO  
REFERENCE....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10332  
SITE NAME.....CERRO CACHI LAGUNA OCCURRENCE  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....6028-IV, 6029-III  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5100 M  
LATITUDE.....21-39-47S           LONGITUDE.....067-53-32W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....12 KM S40E OF MINA CORINA  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
OCCUR.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
REFERENCE....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10190

SITE NAME.....**CERRO CAQUELLA OCCURRENCE**  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO INTI PASTO 6029-IV 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5000 M  
 LATITUDE.....21-28-27S                      LONGITUDE.....067-56-05W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....11 KM N15E OF CAMPAMENTO MINA  
 CORINA  
 LOCATION COMMENTS.....ON NW FLANK OF CERRO CAQUELLA  
 COMMODITIES PRESENT.....S            MN  
 ORE MATERIALS.....NATIVE S  
 NON-PRODUCER MAIN.....S  
 NON-PRODUCER MINOR.....MN  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED, BLANKET  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT FORM.....IRREGULAR  
 DEPOSIT DESCRIPTION COMMENTS.....ORE OCCURS AS DISSEMINATIONS,  
 POCKETS, VEINLETS AND MANTOS. A 5 HA AREA HAS UP TO 98% S 1 M DEEP.  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....VOLCANIC ASH  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 ORE CONTROL/LOCUS.....POROUS ASH BEDS  
 REFERENCE....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10290  
 SITE NAME.....**CERRO CATALMA OCCURRENCE**  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....HUANAQUE 5933-IV 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4700 M  
 LATITUDE.....20-03-33S                      LONGITUDE.....068-19-04W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....8 KM N75W OF CANQUELLA  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1

NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
REFERENCE....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10329  
SITE NAME.....CERRO CHIGUANA OCCURRENCE  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....6030-IV  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5000 M  
LATITUDE.....21-06-57S                      LONGITUDE.....067-51-32W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....12 KM S60E OF CHIGUANA  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
OCCUR.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
REFERENCE....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10087  
SITE NAME.....CERRO COLORADO MINE  
SYNONYM NAME.....NEGRA  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....ESTANCIA CASA GRANDE 6129-III 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4200 M  
LATITUDE.....21-37-15S                      LONGITUDE.....067-25-01W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....2 KM N50E OF ESTANCIA MORRO

COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE; MALACHITE, CHRYSOCOLLA  
GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971): AVERAGE  
1.40% CU OVER 0.3 CM, RANGE 0.21 TO 7.89% CU  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....COOPERATIVA MINERA SERRANIA DE LAS MINAS  
OPERATOR.....COOPERATIVA MINERA SERRANIA DE LAS MINAS  
EXPLORATION AND DEVELOPMENT COMMENTS.....ACQUIRED BY COOPERATIVA  
MINERA SERRANIA DE LAS MINAS IN 1969  
DEPOSIT TYPE.....LODE; STRATABOUND; PLACER  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
DEPOSIT SIZE.....SMALL  
DEPOSIT DESCRIPTION COMMENTS.....MANTOS ARE ORIENTED N25 TO 30E 60  
TO 65SE AND ARE 2 TO 36 CM THICK. ARE TWO VEINS, ONE N75W 29N 33 TO 38  
CM WIDE, THE OTHER N84W 29N 2 TO 20 CM WIDE. PLACER CONSISTS OF  
COLLUVIUM WITH 20 TO 30 CM CLASTS OF CHALCOCITE-MALACHITE ORE IN 1.5 TO  
2 M THICK BEDS. COPPER MINERALS REPLACE SERICITE-HEMATITE CEMENT OF  
SANDSTONE.  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....312           UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....SEVERAL ADITS  
HOST ROCK AGE.....OLIGO-MIO  
HOST ROCK TYPE.....FERRUGINOUS SANDSTONE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....QUARTZ, HEMATITE, KAOLINITE,  
CALCITE, MN OXIDES  
ORE CONTROL/LOCUS.....FAULTS, PREFERRED BEDS  
FORMATION AGE.....OLIGO-MIO  
FORMATION NAME.....SAN VICENTE  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(1971N)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971N)

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MRDS RECORD NUMBER.....BL10057  
SITE NAME.....CERRO NEGRO MINE  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....MINA AVAROA 6129-II 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3950 M  
LATITUDE.....21-37-50S           LONGITUDE.....067-08-22W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....3 KM S20W OF ESTANCIA KOLLPANI  
COMMODITIES PRESENT.....CU

ORE MATERIALS.....BORNITE; MALACHITE, AZURITE  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....COOPERATIVA NUEVOS HORIZONTES  
 YEAR OF DISCOVERY.....1970  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1970  
 OWNER (PRESENT/LAST).....COOPERATIVA NUEVOS HORIZONTES  
 OPERATOR.....COOPERATIVA NUEVOS HORIZONTES  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 5 E  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....4           UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....SHAFTS  
 HOST ROCK AGE.....LOLIGO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 SIGNIFICANT REGIONAL STRUCTURES.....LINARES ANTICLINE  
 FORMATION AGE.....LOLIGO  
 FORMATION NAME.....QUEHUA INFERIOR  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971AA)  
 REFERENCE...SERVICIO GEOLOGICO DE BOLIVIA (1971AA)  
           RESERVES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	.092	MT		1971	9.43% CU

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MRDS RECORD NUMBER.....BL10277  
 SITE NAME.....CERRO PABELLON OCCURRENCE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN JURIQUES SF 19-11 1974  
 QUADRANGLE SCALE.....1:250000  
 SECOND QUADRANGLE NAME.....CERRO NEGRO 6027-III 1973  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5300 M  
 LATITUDE.....22-19-37S           LONGITUDE.....067-45-33W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....10 KM S OF LAGUNA COLORADA  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 OCCUR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B

DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
REFERENCE....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL00026  
SITE NAME.....CERRO PANIZO PROSPECT  
PROVINCE.....DANIEL CAMPOS  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....HUANAQUE 5933-IV 1972  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4800 M  
LATITUDE.....20-05-04S                      LONGITUDE.....068-29-43W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....9 KM S60W OF ESTANCIA JANKHO ANTA  
COMMODITIES PRESENT.....UNK  
ORE MATERIALS.....UNKNOWN  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
DISCOVERER.....MINTEC  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....RODOLFO AGUIRRE  
OPERATOR.....RODOLFO AGUIRRE  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
SOURCE OF INFORMATION...MINTEC FILES

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MRDS RECORD NUMBER.....BL10268  
SITE NAME.....CERRO PIEDRAS GRANDES PROSPECT  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....6126-II  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5500 M  
LATITUDE.....22-30-56S                      LONGITUDE.....067-02-33W  
ACCURACY.....ACC  
LOCATION COMMENTS.....AT CERRO PIEDRAS GRANDES  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
MAJOR.....S

PRODUCTION.....Y  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
REFERENCES....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10278  
SITE NAME.....CERRO SAIRECABUR OCCURRENCE  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VOLCAN JURIQUEZ SF 19-11 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....LAGUNA VERDE 6025-IV 1973  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5800 M  
LATITUDE....22-42-20S                      LONGITUDE....067-53-03W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....11.5 KM S45W OF RIO BLANCO  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
OCCUR.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
REFERENCE....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL00021  
SITE NAME.....CERRO SANTAILE PROSPECT  
PROVINCE.....DANIEL CAMPOS  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....RANCHO UPILA 5834-II 1972  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE....19-54-51S                      LONGITUDE....068-30-40W  
ACCURACY.....ACC



POSITION FROM NEAREST LOCALITY.....4.5 KM N30W OF MURMUNTANI  
 LOCATION COMMENTS.....ON NE FLANK OF CERRO SANTAILE  
 COMMODITIES PRESENT.....AG  
 ORE MATERIALS.....UNKNOWN  
 OCCUR.....AG  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....LAVA  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....LAVA  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCE....MCNAMEE (1985B)

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MRDS RECORD NUMBER.....BL10272  
 SITE NAME.....CERRO SONIQUERA OCCURRENCE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LAGUNA MORREJON 6127-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5500 M  
 LATITUDE.....22-00-08S                      LONGITUDE.....067-13-10W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....13.5 KM N30E OF ESTANCIA SOL DE  
 MAÑANA  
 LOCATION COMMENTS.....ON CERRO SONIQUERA  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 OCCUR.....S  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCES....DEL CARPIO (1972), PLONSKONKA (1975)

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MRDS RECORD NUMBER.....BL10291  
 SITE NAME.....CERRO TANKHANI OCCURRENCE  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1974

QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....HUANAQUE 5933-IV 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4200 M  
 LATITUDE.....20-07-19S                      LONGITUDE.....068-25-38W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM N55E OF ESTANCIA CHOJJA  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 OCCUR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCES....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10279  
 SITE NAME.....CERRO TOCOR PURI OCCURRENCE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN JURIQUES SF 19-11 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO MICHINA 6026-IV 1973  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5500 M  
 LATITUDE.....22-24-56S                      LONGITUDE.....067-53-46W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....25 KM N20W OF RIO BLANCO  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 OCCUR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....LAVA  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....LAVA  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCES....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10071  
 SITE NAME.....**CERRO TOMASAMIL PROSPECT**  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO TOMASAMIL 6030-III 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5000 M  
 LATITUDE.....21-17-00S                      LONGITUDE.....067-57-40W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....40 KM SE OF CHIGUANA  
 LOCATION COMMENTS.....ON NORTH FLANK OF CERRO TOMASAMIL  
 COMMODITIES PRESENT.....ZN    MN    FE  
 ORE MATERIALS.....SPHALERITE, MAGNETITE, MN OXIDES  
 NON-PRODUCER MAIN.....ZN    MN    FE  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE, BRECCIA  
 DEPOSIT FORM.....IRREGULAR  
 STRIKE.....E-W  
 DIP.....80N  
 DEPOSIT DESCRIPTION COMMENTS.....MINERALIZED E-W VEINS WITHIN  
 FRACTURES PERPENDICULAR TO N10E FAULT. E-W VEINS ARE UP TO 5 M THICK.  
 VEINS IN N10E FAULT ARE 10 TO 20 CM WIDE. THERE IS A SEPERATE BRECCIA  
 BODY NE OF VEINS.  
 DESCRIPTION OF WORKINGS COMMENTS.....THERE ARE NO WORKINGS  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....HORNBLLENDE ANDESITE  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....HORNBLLENDE ANDESITE  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 PERTINENT MINERALS (NOT ORE).....SPECULARITE, SERICITE, LIMONITE,  
 CLAY  
 ORE CONTROL/LOCUS.....FAULTS, FRACTURES, BRECCIA BODIES  
 SIGNIFICANT ALTERATION.....SERICITE, HEMATITE, LIMONITE, CLAY  
 GEOLOGY COMMENTS.....VEINS CONSISTS OF FE OXIDES AND SERICITE-  
 HEMATITE-CLAY. BRECCIA IS CEMENTED BY MAGNETITE SPHALERITE AND  
 SPECULARITE  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL,  
 SANJINES AND OTHERS (1968B)  
 REFERENCE....SANJINES AND OTHERS (1968B)

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MRDS RECORD NUMBER.....BL10127  
 SITE NAME.....**COBRIZOS MINE**  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....UYUNI SF 19-4 1975  
 QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....ESTANCIA VITO 6131-II 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3740 M  
 LATITUDE.....20-59-37S                      LONGITUDE.....067-12-36W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....21 KM S20E OF RIO GRANDE, 125 KM  
 BY ROAD FROM UYUNI  
 COMMODITIES PRESENT.....CU    AG  
 ORE MATERIALS.....NATIVE CU, NATIVE AG, CHALCOCITE,  
 COVELLITE; CUPRITE, MALACHITE, AZURITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES GEOBOL (1971): IN TRAVERTINE:  
 3.27% CU OVER 0.72 M; IN SANDSTONE: 0.94% CU OVER 0.49 M  
 MAJOR.....CU    AG  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 EXPLORATION AND DEVELOPMENT COMMENTS.....INITIALLY WORKED BY  
 COLONISTS FOR CU CARBONATES, THEN FOR NATIVE CU. WORKED BY EMPRESA  
 ARANAL Y CIA. 1892 TO 1906, ABANDONED DUE TO BAD MINE GASES. ACQUIRED BY  
 CIA. ARAMAYO IN 1930 BUT NOT WORKED.  
 DEPOSIT TYPE.....DISSEMINATED, LODE, STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR IRREGULAR  
 DEPTH TO BOTTOM.....60                      UNITS...M  
 DEPOSIT SIZE.....MEDIUM  
 DEPOSIT DESCRIPTION COMMENTS.....MAIN ORE ZONE IS ALONG A FAULT  
 ZONE WITH VEINLETS IN N7W TO N8E 61 TO 71E SANDSTONE. BEDDED AND VEINLET  
 MINERALIZATION IN TRAVERTINE. MINERALIZATION IN SANDSTONE CONSISTS OF  
 VEINLETS OF CHALCOCITE, COVELLITE, CUPRITE, MALACHITE AND AZURITE ALONG  
 FRACTURES WHICH FOLLOW OR CUT STRATIFICATION ACCOMPANIED BY VEINLETS OF  
 GYPSUM AND TRAVERTINE. NATIVE CU AND AG ARE IRREGULARLY DISTRIBUTED  
 ALONG FRACTURES OR FINELY LAMINATED ALONG BEDDING PLANES. IN PLACES THE  
 SANDSTONE IS CEMENTED BY CALCITE-AZURITE OR FE OXIDES AND CUT BY CALCITE  
 VEINLETS. CU CARBONATES MINERALIZATION IN MINCHIN LIMESTONE IS CONFINED  
 TO BEDS OF TRAVERTINE.  
 DESCRIPTION OF WORKINGS.....U  
 HOST ROCK AGE.....EO, QUAT?, QUAT  
 HOST ROCK TYPE.....SANDSTONE, TRAVERTINE, LIMESTONE  
 AGE OF MINERALIZATION.....QUAT?  
 PERTINENT MINERALS (NOT ORE).....GYPSUM, TRAVERTINE, CALCITE, FE  
 OXIDES  
 ORE CONTROL/LOCUS.....FRACTURES FAULT ZONE STRATIFICATION  
 FORMATION AGE.....EO  
 FORMATION AGE.....QUAT  
 FORMATION NAME.....POTOCO  
 FORMATION NAME.....MINCHIN  
 NON-USGS WORK.....REPORT TO COMIBOL BY KERSEN AND LYON IN  
 1957; 5 HOLES DRILLED  
 NON-USGS WORK.....REPORT TO COMIBOL BY J. FUENTES IN 1967

NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(19710)

REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (19710), LYONS (1957)

RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	400	MT	1957	0.6% CU; 0.01 DM/T AG
DUMPS	EST	25	CU M	1967	0.90% CU

SOURCE OF RESERVES AND RESOURCES INFORMATION.....GEOBOL (19710)

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MRDS RECORD NUMBER.....BL10183  
 SITE NAME.....COLCHANI MINE  
 MINING DISTRICT/AREA.....SALAR DE UYUNI  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....UYUNI SF 19-4 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....6233-III  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3653 M  
 LATITUDE.....20-18-50S LONGITUDE.....066-58-43W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....JUST W OF COLCHANI  
 LOCATION COMMENTS.....SALT CRUST OF SALAR DE UYUNI IS MINED JUST  
 WEST OF COLCHANI  
 COMMODITIES PRESENT.....HAL  
 ORE MATERIALS.....HALITE, SODIUM SULFATE  
 GENERAL ANALYTICAL DATA.....ANALYSIS (AHLFELD AND SCHNEIDER-SCHERBINA,  
 1964): 95.10% NaCl, 0.34% Na<sub>2</sub>SO<sub>4</sub>, 0.25% Na<sub>2</sub>CO<sub>3</sub>, 0.13% INSOLUBLE  
 RESIDUUM, TRACE FE. BRINE ANALYSIS (RETTIG AND OTHERS, 1980): PH 6.37,  
 DENSITY 1.256 G/CM<sup>2</sup>, HCO<sub>3</sub> 1,800 MG/KG, SO<sub>4</sub> 32,600 MG/KG, CL 161,000  
 MG/KG, F 17 MG/KG, BR 210 MG/KG, CA 0 MG/KG, MG 36,200 MG/KG, NA 40,600  
 MG/KG, K 24,100 MG/KG, SR LESS THAN 50 MG/KG, LI 1,510 MG/KG, B 722  
 MG/KG, PO<sub>4</sub> 6.4 MG/KG, SiO<sub>2</sub> 18 MG/KG.  
 MAJOR.....HAL  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....7  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....LATE 1500'S  
 DEPOSIT TYPE.....SALAR  
 USGS MODEL .....BEDDED SALT  
 USGS MODEL NUMBER.....IM35AC  
 DEPOSIT FORM.....BEDDED  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....QUAT  
 HOST ROCK TYPE.....EVAPORITE  
 AGE OF MINERALIZATION.....QUAT  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 FORMATION AGE.....QUAT  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964), RETTIG AND OTHERS  
 (1980)

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MRDS RECORD NUMBER.....BL10081  
SITE NAME.....COLON MINE  
MINING DISTRICT/AREA.....SAN CRISTOBAL  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SAN CRISTOBAL 6130-I 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4300 M  
LATITUDE.....21-06-09S LONGITUDE.....067-12-43W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....1.2 KM SW OF SAN CRISTOBAL  
COMMODITIES PRESENT.....AG PB  
ORE MATERIALS.....GALENA  
MAJOR.....AG  
POTEN.....PB  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....LODE  
DEPOSIT FORM.....LENTICULAR  
DEPOSIT DESCRIPTION COMMENTS.....ONE VEIN STRIKES N-NW DIPS NE AT  
A LOW ANGLE AND HAS A THICKNESS OF 10 TO 50 CM. THE OTHER VEIN STRIKES  
NW, DIPS 40NW AND HAS A THICKNESS OF 15 TO 20 CM.  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....25 UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....SANDSTONE, TUFF  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....BARITE  
ORE CONTROL/LOCUS.....N-NW TRENDING FAULTS  
SIGNIFICANT REGIONAL STRUCTURES.....N10W ANTICLINE  
SIGNIFICANT ALTERATION.....WALL ROCK ALTERED  
FORMATION AGE.....TERT  
FORMATION NAME.....QUEHUA  
WORK DONE BY USGS.....GEOLOGICAL AND GEOCHEMICAL INVESTIGATIONS  
BY JACOBSON AND OTHERS (1969)  
NON-USGS WORK.....THESIS BY TORRICO (1966)  
REFERENCE....JACOBSON AND OTHERS (1966), TORRICO (1966), AHLFELD (1944)

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MRDS RECORD NUMBER.....BL10174  
SITE NAME.....CONCEPCION MINE  
MINING DISTRICT/AREA.....CERRO CAYTE SULFUR DEPOSIT  
PROVINCE.....DANIEL CAMPOS  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ABRA DE NAPA 5832-II 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 M  
 LATITUDE.....20-32-20S LONGITUDE.....068-31-55W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....1.5 KM S12E OF EL DESIERTO  
 LOCATION COMMENTS.....ON N FLANK CERRO COYA COYANI, CERRO CAYTE  
 VOLCANO  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 GENERAL ANALYTICAL DATA.....AVERAGE GRADE 55% S  
 MAJOR.....S  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT FORM.....BLANKET  
 MAXIMUM THICKNESS.....5 UNITS...M  
 DIP.....15 TO 20 N  
 DEPOSIT DESCRIPTION COMMENTS.....MANTO IS 0.5 TO 5 M THICK.  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....PLIO  
 HOST ROCK TYPE.....VOLCANIC ASH  
 AGE OF IGNEOUS ROCK.....PLIO  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH  
 AGE OF MINERALIZATION.....PLIO  
 ORE CONTROL/LOCUS.....ZONE OF FUMAROLIC ACTIVITY  
 GEOLOGY COMMENTS.....MINE IS WITHIN AN AREA OF ACTIVE FUMAROLIC  
 ACTIVITY  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)  
 RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	320	MT		1964	58.65% S

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....AHLFELD AND SCHNEIDER-  
 SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10100  
 SITE NAME.....CONDOR MINE  
 MINING DISTRICT/AREA.....CHINCHILLA HUAY  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CAHUANA CHICA 5934-III 1973  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4500 M  
 LATITUDE.....19-58-00S LONGITUDE.....068-22-00W

ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....620 KM FROM LA PAZ BY ROAD  
 LOCATION COMMENTS.....ON NE FLANK OF CERRO CHINCHILHUMA  
 (CHINCHILAHUAY)  
 COMMODITIES PRESENT.....AG PB ZN CU SN  
 ORE MATERIALS.....GALENA, SPHALERITE, CUPRITE, JACOBITE,  
 CASSITERITE, CERUSSITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY SANJINES (1968B): 8.0% PB  
 175 G/T AG; 2.25% PB 1320 G/T AG  
 MAJOR.....AG PB  
 POTEN.....ZN  
 OCCUR.....CU SN  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COOPERATIVA MINERA INDUSTRIAL EL PORVENIR  
 EXPLORATION AND DEVELOPMENT COMMENTS.....UNDER DEVELOPMENT IN 1968  
 BY COOPERATIVA EL PORVENIR  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 STRIKE.....N10W  
 DIP.....75-80SW  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS UP TO 20 CM WIDE  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....112 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....2 ADITS 1 SHAFT  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....VITRIC TUFF  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....VITRIC TUFF  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 PERTINENT MINERALS (NOT ORE).....SPECULARITE LIMONITE  
 ORE CONTROL/LOCUS.....N-S ZONES OF WEAKNESS  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY SANJINES  
 (1968B)  
 REFERENCE....SANJINES (1968B), MCNAMEE (1985A)

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MRDS RECORD NUMBER.....BL10094  
 SITE NAME.....COPACABANA MINE  
 SYNONYM NAME.....HUALLEPA COYA  
 MINING DISTRICT/AREA.....SERRANIA DE LAS MINAS  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....COMUNIDAD MALLCU 6128-IV 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4100 M  
 LATITUDE.....21-41-30S LONGITUDE.....067-26-58W



ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6.5 KM N25E OF COMUNIDAD MALLCU  
 LOCATION COMMENTS.....LAT LONG IS FOR NORTHERN ADIT  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE, BORNITE; MALACHITE,  
 CHRYSOCOLLA  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971): 0.1 TO  
 19.4% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 EXPLORATION AND DEVELOPMENT COMMENTS.....WAS WORKED AS HUALLPA  
 CKOYA MINE BY EMPRESA LIPEZ MINING CO. 1966 TO 1969.  
 DEPOSIT TYPE.....LODE, STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT SIZE.....SMALL  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE E-W, VERTICAL AND 0.05  
 TO 0.15 M WIDE. MANTOS STRIKE N30E AND ARE 0.1 TO 1 M THICK. VEINS  
 CARRY CHALCOCITE-BORNITE-MALACHITE-CHRYSOCOLLA. MANTOS CONSIST OF  
 VEINLETS OF MALACHITE-CHRYSOCOLLA GRADING ABOUT 2% CU.  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....TWO ADITS  
 HOST ROCK AGE.....OLIGO-MIO  
 HOST ROCK TYPE.....SANDY CONGLOMERATE  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....OLIGO-MIO  
 FORMATION NAME.....SAN VICENTE MEMBER 2  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971Q)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971Q)

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MRDS RECORD NUMBER.....BL10070  
 SITE NAME.....CORINA MINE  
 SYNONYM NAME.....CERRO TAPAQUILCHA  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA CORINA 6029-III 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5650 M  
 LATITUDE.....21-36-17S                      LONGITUDE.....067-57-30W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....39 KM W OF ESTANCIA LAS JUNTAS,  
 793 KM BY ROAD FROM LA PAZ  
 LOCATION COMMENTS.....ON CERRO TAPAQUILCHA  
 COMMODITIES PRESENT.....S                      AS

ORE MATERIALS.....NATIVE S  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY FLORES (1968): 16.84% TO  
 63.74% S, 0 TO 0.1% AS  
 MAJOR.....S  
 OCCUR.....AS  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1936  
 YEAR OF LAST PRODUCTION.....1984  
 OWNER (PRESENT/LAST).....EMPRESA MINERA CORINA  
 EXPLORATION AND DEVELOPMENT COMMENTS.....ATTEMPT TO MINE S IN 1954  
 FAILED. MINE REOPENED IN 1967 BY EMPRESA MINERA CORINA. PARRA (1968)  
 REPORTS THAT MINE WAS FIRST EXPLORED IN 1951 AND PRODUCED TO 1953.  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMUROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM THICKNESS.....2 UNITS...M  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N28 TO 30E  
 DIP.....50 TO 75  
 DEPOSIT DESCRIPTION COMMENTS.....MANTOS ARE 0.5 TO 2M THICK.  
 DESCRIPTION OF WORKINGS.....S  
 DESCRIPTION OF WORKINGS COMMENTS.....MINOR WORKINGS  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....ANDESITE, BIOTITE DACITE, VOLCANIC ASH  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....ANDESITE, BIOTITE DACITE, VOLCANIC ASH  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 PERTINENT MINERALS (NOT ORE).....GYPSUM ILLITE CHALCEDONY  
 ORE CONTROL/LOCUS.....POROUS AND FRACTURED VOLCANIC ROCK  
 SIGNIFICANT ALTERATION.....ILLITE  
 GEOLOGY COMMENTS.....BIOTITE DACITE IS ALTERED. PYROCLASTIC  
 ZONE INCLUDES MANTOS OF IMPREGNATIONS OF NATIVE S AND S FLOWS. FRACTURED  
 LAVA HAS STOCKWORKS OF S VEINLETS.  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL,  
 FLORES (1968), ALVAREZ AND SALAZAR (1969)  
 NON-USGS WORK.....THESIS BY PARRA (1968)  
 REFERENCE....FLORES (1968), ALVAREZ AND SALAZAR (1969), PARRA (1968),  
 AHLFELD AND SCHNEIDER-SCHERBINA (1964)

## ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
S	ACC	3.5	MT			

SOURCE OF PRODUCTION INFORMATION.....PARRA (1968)

## RESERVES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	4361.4	MT		1967	40% S
ORE	EST	4217	MT		1968	11.91% S
ORE	EST	16135.4	MT		1968	11.34% S
ORE	EST	4379.16	MT		1968	44.8% S
ORE	EST	1744.56	MT		1974	40.0% S

SOURCE OF RESERVES INFORMATION.....FLORES (1967), ALVAREZ AND SALAZAR (1968), PARRA (1968)

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MRDS RECORD NUMBER.....BL10264  
SITE NAME.....CRISTOBAL COLON MINE  
SYNONYM NAME.....CERRO ZAPALERI  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....6125-I  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5500 M  
LATITUDE.....22-48-00S           LONGITUDE.....067-12-00W  
ACCURACY.....EST  
LOCATION COMMENTS.....ON CERRO ZAPALERI  
COMMODITIES PRESENT.....MN    S    CU  
ORE MATERIALS.....NATIVE S, MN OXIDES  
OCCUR.....MN    S    CU  
PRODUCTION.....U  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
USGS MODEL .....FUMAROLIC S; HOT SPRINGS MN  
USGS MODEL NUMBER.....IM25M  
DEPOSIT DESCRIPTION COMMENTS.....MAY BE UP TO THREE DEPOSITS ON  
CERRO ZAPALERI: A FUMAROLIC S DEPOSIT, AN EPITHERMAL MN DEPOSIT, AND  
POSSIBLE CU PORPHYRY MINERALIZATION.  
HOST ROCK AGE.....QUAT  
AGE OF IGNEOUS ROCK.....QUAT  
AGE OF MINERALIZATION.....QUAT  
REFERENCE....RODRIGUEZ AND OTHERS (1976)

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MRDS RECORD NUMBER.....BL10018  
SITE NAME.....CUIDADO MINE  
SYNONYM NAME.....CERRO ESKAPA  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....ESTANCIA SORA 6030-II 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4500 M  
LATITUDE.....21-15-30S           LONGITUDE.....067-42-00W  
ACCURACY.....EST  
LOCATION COMMENTS.....LOCATED ON WEST FLANK OF CERRO ESKAPA  
COMMODITIES PRESENT.....AG    AU  
ORE MATERIALS.....UNKNOWN  
GENERAL ANALYTICAL DATA.....ROCK AND ORE ASSAYS (OFFICER, 1917), TRACE  
TO 5.54 OZ/T AU, TRACE TO 30.5 OZ/T AG  
MINOR.....AG

POTEN.....AU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSITS ARE IN N45W BRECCIA  
 ZONES THAT DIP VERTICALLY, ALL WITHIN AN ALTERATION ZONE OF 12 SQ KM IN  
 EXTENT.  
 DESCRIPTION OF WORKINGS.....B  
 DEPTH BELOW SURFACE.....10           UNITS...M  
 LENGTH OF WORKINGS.....20           UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS CONSIST OF SHALLOW  
 PROSPECT PITS AND A TWO SHAFTS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE OR RHYOLITE PORPHYRY  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE OR RHYOLITE PORPHYRY  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE, BARITE  
 ORE CONTROL/LOCUS.....NW BRECCIA ZONES  
 SIGNIFICANT ALTERATION.....ARGILLIC, SILICIFICATION  
 IGNEOUS UNIT AGE.....TERT  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL GEOLOGISTS IN 1990  
 NON-USGS WORK.....PROSPECT EXAMINATION BY ANDES EXPLORATION  
 CO. (ANACONDA) 1917  
 REFERENCE....OFFICER (1917A)

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MRDS RECORD NUMBER.....BL10347  
 SITE NAME.....DOS MARTILLOS MINE  
 MINING DISTRICT/AREA.....CERRO BONETE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4500 M  
 LATITUDE.....21-47-08S           LONGITUDE.....066-27-14W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM N60E OF ESTANCIA SANTA ROSA  
 COMMODITIES PRESENT.....UNK  
 ORE MATERIALS.....UNKNOWN  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....LODE  
 HOST ROCK AGE.....TERT  
 AGE OF IGNEOUS ROCK.....TERT

AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT  
FORMATION NAME.....CERRO BONETE  
IGNEOUS UNIT AGE.....TERT  
IGNEOUS UNIT NAME.....CERRO BONETE  
REFERENCE....JIMENEZ AND NUÑEZ (1988)

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MRDS RECORD NUMBER.....BL10267  
SITE NAME.....DULCE NOMBRE MINE  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....6126-II  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5400 M  
LATITUDE....22-32-50S                      LONGITUDE.....067-01-49W  
ACCURACY.....ACC  
LOCATION COMMENTS.....ON CERRO DULCE NOMBRE  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
MAJOR.....S  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....2  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....LMIO-QUAT  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
AGE OF MINERALIZATION.....LMIO-QUAT  
REFERENCE....RODRIGUEZ AND OTHERS (1976)

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MRDS RECORD NUMBER.....BL10175  
SITE NAME.....EL DESIERTO MINE  
MINING DISTRICT/AREA.....CERRO CAYTE SULFUR DEPOSIT  
PROVINCE.....DANIEL CAMPOS  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....ABRA DE NAPA 5832-II 1971  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3950 M  
LATITUDE....20-32-30S                      LONGITUDE.....068-31-43W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....18 KM S20E OF EL DESIERTO  
LOCATION COMMENTS.....ON SAME DEPOSIT AS MINA CONCEPCION, N  
FLANK OF CERRO COYA COYANI, CERRO CAYTE VOLCANO

COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 MAJOR.....S  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT FORM.....BLANKET  
 MAXIMUM THICKNESS.....5        UNITS...M  
 STRIKE.....E-W  
 DIP.....15 TO 20 N  
 DEPOSIT DESCRIPTION COMMENTS.....MANTO IS 0.5 TO 5 M THICK, IN A  
 ZONE OF ACTIVE FUMAROLIC ACTIVITY  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....PLIO  
 HOST ROCK TYPE.....VOLCANIC ASH  
 AGE OF IGNEOUS ROCK.....PLIO  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH  
 AGE OF MINERALIZATION.....PLIO  
 ORE CONTROL/LOCUS.....ZONE OF FUMAROLIC ACTIVITY  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)  
       RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	235	MT		1964	56.5% S

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....AHLFELD AND SCHNEIDER-  
 SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10061  
 SITE NAME.....EL MORRO MINE  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA AVAROA 6129-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....21-39-19S        LONGITUDE.....067-07-04W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5.5 KM S15E OF ESTANCIA KOLLPANI  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; MALACHITE, AZURITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971): 0.3 TO  
 9.30% CU OVER 0.3 TO 1.75 M.  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND, LODE  
 USGS MODEL .....SEDIMENT-HOSTED CU

USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 DEPOSIT SIZE.....SMALL  
 DEPOSIT DESCRIPTION COMMENTS.....MANTOS STRIKE N15 TO 22E DIP 7 TO  
 8 NW AND ARE 0.1 TO 0.45 M THICK. VEINS ARE 0.06 TO 0.6 M WIDE AND  
 STRIKE N46E TO N70W AND DIP 65-81N TO NE. MANTOS AND VEINS HAVE SAME  
 MINERALOGY  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....27 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....4 ADITS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS FRACTURES  
 SIGNIFICANT REGIONAL STRUCTURES.....SYNCLINE  
 SIGNIFICANT LOCAL STRUCTURES.....FRACTURES  
 FORMATION AGE.....TERT  
 FORMATION NAME.....QUEHUA INFERIOR  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971R)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971R)  
 RESERVES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	3.034	MT		1971	3.09% CU

 SOURCE OF RESERVES INFORMATION.....SERVICIO GEOLOGICO DE BOLIVIA  
 (1971R)

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MRDS RECORD NUMBER.....BL10069  
 SITE NAME.....EL TRIUNFO MINE  
 MINING DISTRICT/AREA.....CAÑAPA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERROS DE CAÑAPA 5929-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5250 M  
 LATITUDE.....21-29-16S LONGITUDE.....068-05-49W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....16 KM N45W OF CAMPAMENTO MINA  
 CORINA, 200 KM FROM UYUNI BY ROAD  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 MAJOR.....S  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1941  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMUROLIC S  
 USGS MODEL NUMBER.....IM25M

DEPOSIT FORM.....LENTICULAR  
 DEPOSIT SIZE.....SMALL  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....PLIO  
 HOST ROCK TYPE.....VOLCANIC ASH  
 AGE OF IGNEOUS ROCK.....PLIO  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH  
 AGE OF MINERALIZATION.....PLIO  
 ORE CONTROL/LOCUS.....POROUS VOLCANIC ASH  
 GEOLOGY COMMENTS.....DEPOSIT CONSISTS OF NATIVE S DISSEMINATED  
 IN ALTERED VOLCANIC ASH  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY PONCE (1967)  
 REFERENCE....PONCE (1967), SANTIESTEBAN (1972)

## ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CONS	ACC	1.23	MT		1941	94% S

SOURCE OF PRODUCTION INFORMATION.....PONCE (1967)

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MRDS RECORD NUMBER.....BL10098  
 SITE NAME.....**ESCALA MINE**  
 SYNONYM NAME.....CROSCA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA ESCALA 6229-III 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4100 M  
 LATITUDE.....21-35-16S      LONGITUDE.....066-51-57W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3.5 KM N65 E OF ESTANCIA ESCALA  
 LOCATION COMMENTS.....LAT LONG IS FOR ADIT CLOSEST TO MINING  
 CAMP  
 COMMODITIES PRESENT.....AG    ZN    PB    CU  
 ORE MATERIALS.....GALENA, SPHALERITE; CHALCOPYRITE,  
 CHALCOCITE, TETRAHEDRITE, JAMESONITE, SEMSEYITE; CERUSSITE, ANGLESITE,  
 CALAMINE, MALACHITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971): 0 TO 46.1%  
 PB, 0 TO 24.6 DM/T AG, 0 TO 55.3% ZN, 0 TO 4.6% CU  
 MAJOR.....AG    PB  
 MINOR.....ZN  
 POTEN.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....COOPERATIVA MINERA  
 EXPLORATION AND DEVELOPMENT COMMENTS.....WAS EXAMINED BY P.  
 ZUBRZYCKI FOR COMIBOL IN 1958. OPERATED BY EMPRESA LIPEZ MINING CO. 1966  
 TO 1969.



DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 MAXIMUM WIDTH.....50 UNITS...CM  
 STRIKE.....N55 TO 70W AND N70E  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE 10 CM TO 50 CM WIDE AND  
 ARE FOUND IN TWO MAJOR ZONES THAT TREND N50-55W AND DIP 75-85NE. ZONES  
 ARE UP TO 4 M WIDE AND 500 M LONG. MINERALIZATION WITHIN AN ALTERED  
 STOCK 3.5 KM IN DIAMETER.  
 DESCRIPTION OF WORKINGS.....B  
 LENGTH OF WORKINGS.....146 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....6 ADITS, PITS AND TRENCHES  
 WITHIN A 2 SQ KM ALTERED ZONE.  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....RHYOLITE PORPHYRY  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....RHYOLITE PORPHYRY  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE, MARCASITE,  
 ARSENOPYRITE, SIDERITE; PYRRHOTITE, CHALCEDONY, FE OXIDES, SERICITE,  
 KAOLINITE  
 ORE CONTROL/LOCUS.....NW TRENDING FRACTURE ZONES  
 SIGNIFICANT ALTERATION.....EXTENSIVE SILICIFICATION, SERICITIZATION  
 AND KAOLINIZATION.  
 FORMATION AGE.....TERT  
 IGNEOUS UNIT AGE.....TERT  
 GENERAL COMMENTS.....GEOCHEMICAL SURVEY: SOIL GEOCHEM FOR PB  
 AND ZN, 1176 SAMPLES IN 1,186,200 SQUARE METER AREA. GEOPHYSICAL SURVEY:  
 1250 BY 480 M AREA SURVEYED USING GROUND EM (31 LINES IN 744,000 SQ M)  
 NON-USGS WORK.....GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL  
 INVESTIGATIONS BY GEOBOL (1971S)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY JICA/MMAJ  
 (SUGAKI AND OTHERS, 1986)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (1989)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971S), SUGAKI AND OTHERS  
 (1986), ALFARO (1989)  
 PRODUCTION COMMENTS.....IN 1990 PRODUCING HAND SORTED ORES  
 RUNNING 15% PB, 30% ZN, 200 G/T AG.  
 POTENTIAL RESOURCES COMMENTS.....IN 1990 A FEW THOUSAND  
 TONS ORE IN SIGHT

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MRDS RECORD NUMBER.....BL10019  
 SITE NAME.....**ESCAPA MINE**  
 SYNONYM NAME.....ESKAPA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA SORA 6030-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4225 M  
 LATITUDE.....21-13-35S LONGITUDE.....067-41-20W

ACCURACY.....EST  
 LOCATION COMMENTS.....LOCATED ON THE NORTH FLANK OF CERRO ESCAPA  
 3 KM NE OF CUIDADO SILVER PROSPECT  
 COMMODITIES PRESENT.....CU AG AU  
 ORE MATERIALS.....TENORITE, CHRYSOCOLLA, BROCHANTITE?  
 GENERAL ANALYTICAL DATA.....ORE ANALYSIS BY OFFICER (1917) 25.4% CU,  
 1.5 OZ/T AG, TRACE AU  
 MAJOR.....CU  
 POTEN.....AG AU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 YEAR OF LAST PRODUCTION.....1971  
 EXPLORATION AND DEVELOPMENT COMMENTS.....WORKED BY A COOPERATIVE IN  
 1968 AND 1971  
 DEPOSIT TYPE.....LODE  
 DEPOSIT FORM.....IRREGULAR  
 MAXIMUM LENGTH.....500 UNITS...M  
 MAXIMUM WIDTH.....20 UNITS...CM  
 STRIKE.....N10W  
 DIP.....90  
 DEPOSIT DESCRIPTION COMMENTS.....LODE IS A BROAD AND IRREGULAR  
 BROKEN AND BRECCIATED ZONE.  
 DESCRIPTION OF WORKINGS.....S  
 DEPTH BELOW SURFACE.....15 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS AND FURNACE WERE  
 THOUGHT BY OFFICER (1917) TO BE ATTRIBUTABLE TO NATIVE AMERICANS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....BIOTITE DACITE OR RHYOLITE PORPHYRY  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....BIOTITE DACITE OR RHYOLITE PORPHYRY  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....CALCITE  
 IGNEOUS UNIT AGE.....TERT  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL IN 1990  
 NON-USGS WORK.....PROSPECT EVALUATION BY ANDES EXPLORATION  
 CO. (ANACONDA) 1917  
 REFERENCE....OFFICER (1917A)

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MRDS RECORD NUMBER.....BL10169  
 SITE NAME.....**ESMERALDA MINE**  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA ESMERALDA 6229-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4120 M  
 LATITUDE.....21-23-30S LONGITUDE.....066-34-08W  
 ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....7 KM N72W OF CERILLOS  
 LOCATION COMMENTS.....ADJACENT TO SAN PABLO MINE  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; CUPRITE, TENORITE  
 GENERAL ANALYTICAL DATA.....8.29 TO 18.69% CU OVER 25 TO 90 CM.  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....WALTER GUARACHI  
 OPERATOR.....WALTER GUARACHI  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM LENGTH.....140        UNITS...M  
 MAXIMUM WIDTH.....20        UNITS...M  
 MAXIMUM THICKNESS.....180       UNITS...CM  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 70 TO 80 E  
 DIP.....22 TO 40 NW  
 DEPOSIT DESCRIPTION COMMENTS.....MANTOS ARE 30 TO 180 CM THICK.  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....7        UNITS...M  
 LENGTH OF WORKINGS.....10+       UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....THREE ADITS (INCLUDING SOCAVON  
 ESMERALDA AND SALVADORA), ONE SHAFT  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 SIGNIFICANT REGIONAL STRUCTURES.....ON NW FLANK KELLU KELLU  
 ANTICLINE  
 SIGNIFICANT LOCAL STRUCTURES.....MANTOS DISPLACED BY FAULTING  
 SIGNIFICANT ALTERATION.....BLEACHING  
 FORMATION AGE.....TERT  
 REFERENCE....BASSI (1980)  
 PRODUCTION COMMENTS.....PRODUCED 8 MT/MO 17 TO 18% CU CONS

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MRDS RECORD NUMBER.....BL10002  
 SITE NAME.....ESMORACA DISTRICT  
 SYNONYM NAME.....MINES: AZULEJOS, CENTRAL, FARELLONES,  
 AGUAS CALIENTES, GERMANIA, CONCHITAS  
 MINING DISTRICT/AREA.....ESMORACA  
 PROVINCE.....SUR CHICHAS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4700M

LATITUDE.....21-40-00S                      LONGITUDE.....066-17-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5 KM N70W OF TOWN OF ESMORACA  
 COMMODITIES PRESENT.....AU    AG    BI    W    CU    SN  
 ORE MATERIALS.....GOLD, CHALCOPYRITE, BISMUTITE, CHALCOCITE,  
 BORNITE, ENARGITE, BISMUTHENITE, MATILDITE, WOLFRAMITE  
 MAJOR.....AU    AG    BI    W  
 OCCUR.....CU    SN  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....6  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....EMPRESA MINERA SAN JOSE DE BERQUE  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DEPOSIT FORM.....EN ECHELON VEINS  
 MAXIMUM LENGTH.....200                      UNITS...M  
 MAXIMUM WIDTH.....60                      UNITS...CM  
 STRIKE.....EW  
 DIP.....70 TO 80S  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....MILL CAPACITY 100 MT/DAY  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE, HEMATITE  
 SIGNIFICANT ALTERATION.....SILICIFICATION, KAOLINIZATION  
 NON-USGS WORK.....EXPLORATION BY COMIBOL  
 REFERENCE....PINTO (1988D), CORTEZ (1966), MERIDA (1969)

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MRDS RECORD NUMBER.....BL10077  
 SITE NAME.....ESPERANZA MINE  
 SYNONYM NAME.....SEGUNDA ESPERANZA  
 MINING DISTRICT/AREA.....CERRO BONETE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4185 M  
 LATITUDE.....21-48-42S                      LONGITUDE.....066-29-22W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....4.5 KM N30E OF GUADALUPE  
 LOCATION COMMENTS.....ON NORTH FLANK OF CERRO MAYAROC IN THE  
 QUEBRADA RIO SANTA ROSA. SEGUNDA ESPERANZA IS A SECOND WORKING E OF  
 ESPERANZA AT 4650 M ALTITUDE.  
 COMMODITIES PRESENT.....AG    PB

ORE MATERIALS.....GALENA  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY CORTEZ AND KURONUMA  
 (1969): 0.004 TO 0.02% AG  
 MAJOR.....AG  
 POTEN.....PB  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1967  
 DEPOSIT TYPE.....LODE  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N50W  
 DIP.....80W AND 88E  
 DEPOSIT DESCRIPTION COMMENTS.....VEIN AT ESPERANZA STRIKES N50W  
 DIPS 80W AND IS 5 TO 50 CM WIDE. VEIN AT SEGUNDA ESPERANZA STRIKES N 50W  
 DIPS 88E AND IS 83 CM WIDE. ESPERANZA VEIN CARRIES GALENA. SEGUNDA  
 ESPERANZA VEIN CARRIES FE OXIDES LIMONITE AND CLAY.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....36           UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....2 ADITS.  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....LAVA  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....LAVA  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....FE OXIDES LIMONITE CLAY  
 ORE CONTROL/LOCUS.....FRACTURES  
 SIGNIFICANT ALTERATION.....KAOLINIZATION  
 FORMATION AGE.....TERT  
 FORMATION NAME.....ESMORACA  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....ESMORACA  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL,  
 CORTEZ AND KURONUMA (1969)  
 REFERENCE....CORTEZ AND KURONUMA (1969)

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MRDS RECORD NUMBER.....BL10341  
 SITE NAME.....**ESTELA MINE**  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....COMUNIDAD MALLCU 6128-IV 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4100 M  
 LATITUDE.....21-49-30S           LONGITUDE.....067-19-40W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....1.5 KM N30E OF ESTELA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU

PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 HOST ROCK AGE.....EMIO-MMIO  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....EMIO-MMIO  
 FORMATION NAME.....QUEHUA SUPERIOR  
 REFERENCE....RODRIGUEZ AND OTHERS (1976)

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MRDS RECORD NUMBER.....BL10089  
 SITE NAME.....FARELLON MINE  
 MINING DISTRICT/AREA.....SERRANIA DE LAS MINAS  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA CASA GRANDE 6129-III 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4200 M  
 LATITUDE.....21-34-32S                      LONGITUDE.....067-25-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....1.5 KM S85E OF ESTANCIA THOLA  
 WAYKO  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE, CUPRITE; TENORITE, MALACHITE,  
 AZURITE, CHRYSOCOLLA  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971): TRACE TO  
 15.58% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COOPERATIVA MINERA SERRANIA DE LAS MINAS  
 OPERATOR.....COOPERATIVA MINERA SERRANIA DE LAS MINAS  
 DEPOSIT TYPE.....LODE, STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 10 W  
 DIP.....17NE  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS STRIKE N75W DIP 75NE.  
 MANTOS ARE SANDSTONE CEMENTED BY CALCITE-MALACHITE-AZURITE. VEINS HAVE  
 CHALCOCITE-AZURITE-MALACHITE-TENORITE-CUPRITE-HEMATITE-MN OXIDES.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....612                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ADITS  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....ARKOSIC SANDSTONE  
 PERTINENT MINERALS (NOT ORE).....HEMATITE MN OXIDES CALCITE  
 ORE CONTROL/LOCUS.....FAULTS, PREFERRED BEDS  
 FORMATION AGE.....EO

FORMATION NAME.....POTOCO  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(1971T)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971T)  
SOURCE OF PRODUCTION INFORMATION.....GEOBOL (1971T)  
PRODUCTION COMMENTS.....IN 1969 COOPERATIVA SERRANIA DE  
LAS MINAS PRODUCING ABOUT 5 MT/MO 22 TO 35% CU CONS.

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MRDS RECORD NUMBER.....BL10099  
SITE NAME.....GRANADA PROSPECT  
PROVINCE.....DANIEL CAMPOS  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....ESTANCIA PHOKHER KHAUA 5933-I 1971  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3730 M  
LATITUDE.....20-07-30S LONGITUDE.....068-15-45W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....4 KM S25E OF CANQUELLA, 625 KM BY  
ROAD FROM LA PAZ  
COMMODITIES PRESENT.....MN  
ORE MATERIALS.....MN OXIDES  
GENERAL ANALYTICAL DATA.....GRAB SAMPLE ANALYSIS BY DONOSO (1959):  
41.60% MN 45.76% SIO2 2.34% FE2O3 0.155% P  
OCCUR.....MN  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....LODE  
USGS MODEL .....EPITHERMAL MN  
USGS MODEL NUMBER.....25G  
DEPOSIT SIZE.....SMALL  
DEPOSIT DESCRIPTION COMMENTS.....ORE OCCURS AS SURFACE CRUSTS OF  
COLLOIDAL MN OXIDES AND AS CEMENT IN SANDY CONGLOMERATE  
DESCRIPTION OF WORKINGS COMMENTS.....NO WORKINGS  
HOST ROCK TYPE.....SANDY CONGLOMERATE  
GEOLOGY COMMENTS.....CONGLOMERATE INCLUDES CLASTS OF CHALCEDONY  
AND ALTERED VOLCANICS  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY DONOSO (1959)  
REFERENCE....DONOSO (1959)  
SOURCE OF POTENTIAL RESOURCES INFORMATION.....DONOSO (1959)  
POTENTIAL RESOURCES COMMENTS.....500 TO 1000 MT  
MINERALIZATION IN SIGHT

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MRDS RECORD NUMBER.....BL10080  
SITE NAME.....HEDIONDA MINE  
SYNONYM NAME.....SANTA BARBARA DE JAYULA  
MINING DISTRICT/AREA.....SAN CRISTOBAL

PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN CRISTOBAL 6130-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4340 M  
 LATITUDE.....21-05-18S                      LONGITUDE.....067-12-19W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....1 KM NORTH OF SAN CRISTOBAL  
 COMMODITIES PRESENT.....AG    PB    ZN  
 ORE MATERIALS.....NATIVE SILVER, GALENA, SPHALERITE  
 MAJOR.....AG  
 POTEN.....PB    ZN  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....A. A. BARBA  
 YEAR OF DISCOVERY.....1600'S  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....LIPEZ MINING CO.  
 EXPLORATION AND DEVELOPMENT COMMENTS.....DEPOSIT RELOCATED BY J.  
 JACKOWSKI IN 1896, OPERATED MINE FROM 1896 TO 1901 AND FROM 1927 TO  
 1936. DE WETT ADIT OPENED 1963 BY P. ZUBRZYCKI. SOLD TO LIPEZ MINING CO.  
 IN 1966.  
 DEPOSIT TYPE.....LODE DISSEMINATED  
 DEPOSIT FORM.....IRREGULAR  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....3 ADITS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....AGGLOMERATE, DACITE PORPHYRY  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....AGGLOMERATE, DACITE PORPHYRY  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE  
 ORE CONTROL/LOCUS.....BRECCIATED CONTACT BETWEEN INTRUSIVE AND  
 AGGLOMERATE  
 SIGNIFICANT REGIONAL STRUCTURES.....N10W ANTICLINE  
 SIGNIFICANT ALTERATION.....CLAYS  
 FORMATION AGE.....TERT  
 FORMATION NAME.....QUEHUA SUPERIOR  
 WORK DONE BY USGS.....GEOLOGICAL AND GEOCHEMICAL INVESTIGATIONS  
 BY JACOBSON AND OTHERS (1969)  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL MAY, 1990  
 NON-USGS WORK.....THESIS BY TORRICO (1966)  
 REFERENCE....JACOBSON AND OTHERS (1966), TORRICO (1966), AHLFELD (1944).  
 ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
CONS	ACC	.905	KG	1900	1.51% AG
CONS	ACC	6.195	KG	1900	.75% AG 17.59% PB
CONS	ACC	4.544	KG	1901	.38% AG 38.50% PB
CONS	ACC	.279	KG	1901	.26% AG
CONS	ACC	3.300	KG	1929	.70% AG 43.0% PB
CONS	ACC	.600	KG	1929	.53% AG 42.1% PB



CONS           ACC       .336   KG                   1929   .53% AG 38.2% PB  
 SOURCE OF PRODUCTION INFORMATION.....JACOBSON AND OTHERS (1969)  
 PRODUCTION COMMENTS.....PARTIAL SMELTER RETURNS

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MRDS RECORD NUMBER.....BL10139  
 SITE NAME.....HIMALAYA MINE  
 SYNONYM NAME.....CERRO MOROCO, MOROKHO, CERRO MORUCO; ADIT:  
 KOSAN; VEIN: RICA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN ANTONIO DE ESMORUCO 6228-II 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4900 M  
 LATITUDE.....21-50-34S                   LONGITUDE.....066-35-04W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM N85W OF GUADALUPE, 35 KM BY  
 ROAD FROM SAN PABLO DE LIPEZ  
 LOCATION COMMENTS.....ON NE FLANK OF CERRO MOROKHO  
 COMMODITIES PRESENT.....AG   PB   ZN   SN  
 ORE MATERIALS.....GALENA, SPHALERITE; TETRAHEDRITE,  
 TEALLITE, PYRARGYRITE, MIARGYRITE, NATIVE AG, CASSITERITE  
 GENERAL ANALYTICAL DATA.....GEOBOL (1971) ASSAYS: 0 TO 58.4 DM/T AG,  
 0.4 TO 9.0% PB, 0.47 TO 31.2% ZN, NO BI DETECTED  
 MAJOR.....AG  
 MINOR.....PB    ZN  
 OCCUR.....SN  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 EXPLORATION AND DEVELOPMENT COMMENTS.....MINE REOPENED FOR  
 EXPLORATION BY COMIBOL IN 1970. WORKED BY CIA. VIEJA LIPEZ DE BOLIVIA  
 1865-1885.  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS STRIKE N60W TO E-W DIP 70  
 TO 90 S AND ARE 10 TO 70 CM WIDE.  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....150           UNITS...M  
 LENGTH OF WORKINGS.....1116          UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE SHAFT, 2 ADITS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE  
 AGE OF MINERALIZATION.....TERT

PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE, MARCASITE, FE  
 OXIDES, KAOLINITE, SERICITE, MANGANOCALCITE, ANKERITE  
 ORE CONTROL/LOCUS.....FRACTURES  
 SIGNIFICANT ALTERATION.....SILICIFICATION, KAOLINIZATION  
 NON-USGS WORK.....GEOLOGICAL INVESTIBATIONS BY COMIBOL  
 (ZUBRZYCKI AND MURILLO, 1958)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971U)  
 NON-USGS WORK.....GEOCHEMICAL EXPLORATION BY GEOBOL (1971),  
 88 SAMPLES IN 122,000 SQ M AREA ANALYZED FOR PB AND ZN.  
 REFERENCE....ZUBRZYCKI AND MURILLO (1958), SERVICIO GEOLOGICO DE BOLIVIA  
 (1971U), AHLFELD (1954), REQUENA (1971)  
 PRODUCTION COMMENTS.....MINE WORKED FROM 1865 TO 1885 BY  
 CIA. VIEJA LIPEZ DE BOLIVIA

## POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	48240	MT		1989	UNKNOWN

SOURCE OF POTENTIAL RESOURCES INFORMATION.....COMIBOL PROSPECTUS

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MRDS RECORD NUMBER.....BL10063  
 SITE NAME.....HORNILLOS MINE  
 SYNONYM NAME.....ALMACEN  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....COMUNIDAD TODOS SANTOS 6128-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4100 M  
 LATITUDE.....21-46-23S LONGITUDE.....067-08-36W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6.5 KM S40E OF COMUNIDAD TODOS  
 SANTOS  
 COMMODITIES PRESENT.....AG PB ZN  
 ORE MATERIALS.....GALENA, SPHALERITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971V): VEIN A:  
 0.3 TO 4.5 DM/T AG UP TO 30 CM. VEIN B: 0.6 TO 3.1 DM/T AG UP TO 90 CM.  
 IN GENERAL: 0.6 TO 23.4% PB, 0 TO 11.2 DM/T AG, 0 TO 30.1% ZN  
 MAJOR.....AG  
 POTEN.....PB ZN  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....LODE  
 DEPOSIT FORM.....TABULAR PINCH AND SWELL  
 DEPOSIT DESCRIPTION COMMENTS.....VEIN A STRIKES N80W AND IS 30 CM  
 WIDE. VEIN B STRIKES N60W AND IS 40 TO 90 CM WIDE.  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....ADITS

HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE, ANDESITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE, ANDESITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE, LIMONITE,  
 SIDERITE, KAOLINITE, MN OXIDES  
 ORE CONTROL/LOCUS.....FRACTURES  
 SIGNIFICANT ALTERATION.....HEMATITE-SERICITE-CALCITE ALTERATION OF  
 DACITE; PYRITIZATION  
 FORMATION AGE.....TERT  
 IGNEOUS UNIT AGE.....TERT  
 GENERAL COMMENTS.....EM SURVEY COVERED 60,000 SQ M IN 3 LINES  
 USING EM GUN APPARATUS.  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS AND EM  
 (GEOPHYSICAL) SURVEY BY GEOBOL (1971V)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971V)

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MRDS RECORD NUMBER.....BL10020  
 SITE NAME.....HUANCANE DISTRICT  
 SYNONYM NAME.....LA RESERVADA, BANCANI; MINES: EL ROSARIO,  
 SAN PEDRO, SAN PABLO, SAN LUIS, LA COBRERA, SAN JUAN, MANTOS  
 MINING DISTRICT/AREA.....HUANCANE DISTRICT  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME..... SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA ESCALA 6229-III 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4190 M  
 LATITUDE.....21-26-10S LONGITUDE.....066-32-44W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM S70W OF CERRILLOS  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE, CU CARBONATES, NATIVE CU,  
 CUPRITE, TENORITE  
 GENERAL ANALYTICAL DATA.....OFFICER (1917B) REPORTS 3-4% CU ORE GRADE  
 OVER 13 M BED WIDTH  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....NATIVE AMERICANS?  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....RENATO PAREDES  
 OPERATOR.....RENATO PAREDES  
 ECONOMIC COMMENTS.....PRODUCING 5 MT/MO 15 TO 18% CU HAND SORTED  
 CONS IN 1969.  
 EXPLORATION AND DEVELOPMENT COMMENTS.....ATTEMPTED DEVELOPMENT IN  
 1908 BY SR. LUIS M. SOLA, OF ANTOFAGASTA, CHILE  
 DEPOSIT TYPE.....DISSEMINATED, STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU

USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 STRIKE.....N 12 W  
 DIP.....20 NE  
 DEPOSIT DESCRIPTION COMMENTS.....MANTOS ARE UP TO 30 M LONG, 15 TO 20 M THICK.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....100           UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS CONSIST OF 5 ADITS, CROSSCUTS AND WINZES  
 HOST ROCK AGE.....E TERT  
 HOST ROCK TYPE.....SANDSTONE, CONGLOMERATE  
 AGE OF MINERALIZATION.....TERT  
 SIGNIFICANT REGIONAL STRUCTURES.....ON SW FLANK KELLU KELLU ANTICLINE  
 SIGNIFICANT LOCAL STRUCTURES.....NORMAL FAULT DISPLACES ORE 50 CM TO 1 M.  
 FORMATION AGE.....EO  
 FORMATION AGE.....OLIGO-MIO  
 FORMATION NAME.....POTOCO  
 FORMATION NAME.....SAN VICENTE  
 GEOLOGY COMMENTS.....SANDSTONE BEDS ARE FOLDED INTO A DOMAL ANTICLINE. COPPER BEARING BEDS ARE OFTEN DISPLACED BY FAULTING  
 NON-USGS WORK.....PROSPECT EVALUATION BY A FRENCH MINING ENGINEER, CATELIN, 1908  
 NON-USGS WORK.....PROSPECT EVALUATION BY W.D. THOMPSON FOR CHILE EXPLORATION CO., 1917  
 NON-USGS WORK.....PROSPECT EVALUATION FOR ANDES EXPLORATION CO. (ANACONDA), 1917  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEÓBOL (1969)  
 REFERENCE...OFFICER (1917B), SERVICIO GEOLOGICO DE BOLIVIA (1969)  
     POTENTIAL RESOURCES  
 ITEM   ACCURACY       AMOUNT   THOUS   UNITS   YEAR   GRADE  
 ORE       EST           4000   MT           1908   3 TO 4% CU  
 SOURCE OF POTENTIAL RESOURCES INFORMATION.....OFFICER (1917)  
 POTENTIAL RESOURCES COMMENTS.....ESTIMATE BY FRENCH MINING ENGINEER, CATELIN. H.G. OFFICER FOUND NO EVIDENCE TO SUPPORT SUCH A LARGE ESTIMATE.

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MRDS RECORD NUMBER.....BL10048  
 SITE NAME.....INCA MINE  
 MINING DISTRICT/AREA.....SAN CRISTOBAL  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN CRISTOBAL 6130-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4220 M  
 LATITUDE.....21-06-32S           LONGITUDE.....067-11-52W  
 ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....1.5 KM SE OF SAN CRISTOBAL  
 COMMODITIES PRESENT.....AG FE ZN PB CU AS SB  
 ORE MATERIALS.....NATIVE AG, STROMEYERITE, CHALCOPYRITE,  
 PYARGYRITE, POLYBASITE  
 GENERAL ANALYTICAL DATA.....ASSAYS BY VEDIA AND CORTEZ (1966C): GRAB  
 SAMPLE 32.2% FE 10G/T AG 1.0% PB; 20 CM CHANNEL SAMPLE 8.60% FE 20 G/T  
 AG 1.8% PB; USGS ASSAY 5 CM VEIN (1990): 20 G/T AG, 200 PPM AS, 15 PPM  
 BI, 50 PPM CU, 2000 PPM PB, 200 PPM SB, <10 PPM SN, 1000 PPM ZN.  
 MAJOR.....AG  
 MINOR.....FE PB ZN  
 OCCUR.....CU AS SB  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 YEAR OF LAST PRODUCTION.....1966  
 OWNER (PRESENT/LAST).....EMPRESA MINERA YANA MALLCU SA  
 OPERATOR.....EMPRESA MINERA YANA MALLCU SA  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 DEPOSIT FORM.....IRREGULAR  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 0 TO 30 W  
 DIP.....STEEPLY NE  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE 10 TO 40 CM WIDE  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....25 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....2 ADITS  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....ANDESITE PORPHYRY  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....BARITE, CALCITE, HEMATITE  
 ORE CONTROL/LOCUS.....CONTACT BETWEEN ANDESITE PORPHYRY AND  
 SANDSTONE  
 SIGNIFICANT REGIONAL STRUCTURES.....N10W ANTICLINE  
 SIGNIFICANT LOCAL STRUCTURES.....FRACTURES  
 SIGNIFICANT ALTERATION.....CLAYS  
 FORMATION AGE.....EO  
 FORMATION NAME.....POTOCO  
 WORK DONE BY USGS.....GEOLOGICAL AND GEOCHEMICAL INVESTIGATIONS  
 BY JACOBSON AND OTHERS (1969)  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL MAY, 1990  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY VEDIA AND  
 CORTEZ (1966C)  
 NON-USGS WORK.....THESIS BY TORRICO (1966)  
 REFERENCE....VEDIA AND CORTEZ (1966C), JACOBSON AND OTHERS,  
 (1969)TORRICO (1966), AHLFELD (1944)  
 ANNUAL PRODUCTION  
 ITEM ACCURACY AMOUNT THOUS UNITS YEAR GRADE  
 ORE ACC .002 MT 1966 10 G/T AG ?% FE  
 SOURCE OF PRODUCTION INFORMATION.....VEDIA AND CORTEZ (1966C)

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MRDS RECORD NUMBER.....BL10126  
 SITE NAME.....INES MINE  
 SYNONYM NAME.....INEZ  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA PAKO 6130-IV 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3800 M  
 LATITUDE.....21-06-27S                      LONGITUDE.....067-27-10W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....1 KM S10W OF ESTANCIA TOMAQUESA,  
 135 KM FROM UYUNI BY ROAD  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; TENORITE, MALACHITE, AZURITE,  
 CHRYSOCOLLA  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COOPERATIVA MINERA UNION PORVENIR  
 OPERATOR.....COOPERATIVA MINERA UNION PORVENIR  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 DEPOSIT SIZE.....SMALL  
 DEPOSIT DESCRIPTION COMMENTS.....MANTO IS HORIZONTAL  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....160                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....3 ADITS  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....MN OXIDES, HEMATITE  
 SIGNIFICANT REGIONAL STRUCTURES.....ON W FLANK NS TO N30E ANTICLINE  
 FORMATION AGE.....EO  
 FORMATION NAME.....POTOCO  
 GEOLOGY COMMENTS.....SANDSTONE IS GYPSUM BEARING  
 NON-USGS WORK.....VISITED BY JULIO FUENTES OF COMIBOL IN  
 1967  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971W)  
 REFERENCE.....SERVICIO GEOLOGICO DE BOLIVIA (1971W)  
 SOURCE OF PRODUCTION INFORMATION.....GEOBOL (1971W)  
 PRODUCTION COMMENTS.....PRODUCING 4 MT/MO 11-12% CU CONS  
 1970

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	15.137	MT		1970	3.57% CU

## SOURCE OF RESERVES AND RESOURCES INFORMATION.....GEOBOL (1971W)

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MRDS RECORD NUMBER.....BL10124  
 SITE NAME.....**JAQUEGUA MINE**  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN ANTONIO DE ESMORUCO 6228-II 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4250 M  
 LATITUDE.....21-57-51S LONGITUDE.....066-45-18W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3.5 KM N60E OF ESTANCIA VENTILLA  
 COMMODITIES PRESENT.....AG PB ZN AU  
 ORE MATERIALS.....GALENA, SPHALERITE, ARGENTITE; CERUSSITE  
 GENERAL ANALYTICAL DATA.....GEOBOL (1971X): UP TO 70 G/MT AG, 27.3%  
 PB, 5.24% ZN; ZUBRZYCKI AND MURILLO (1958): .8 OZ/T AU FROM DUMP SAMPLE  
 MAJOR.....AG  
 MINOR.....PB ZN AU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 STRIKE.....E-W AND N80W, DIP VERTICAL  
 DESCRIPTION OF WORKINGS.....U

HOST ROCK AGE.....EMIO-MMIO  
 HOST ROCK TYPE.....BIOTITE DACITE TUFF, DACITE INTRUSIVE AND  
 FLOWS  
 AGE OF IGNEOUS ROCK.....EMIO-MIO  
 IGNEOUS ROCK TYPE.....BIOTITE DACITE TUFF, DACITE INTRUSIVE AND  
 FLOWS  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE, QUARTZ, BARITE, MN  
 OXIDES, LIMONITE  
 SIGNIFICANT ALTERATION.....SILICIFICATION, KAOLINITIZATION,  
 SERICITIZATION OVER A VERY LARGE AREA  
 FORMATION AGE.....EMIO-MMIO  
 FORMATION NAME.....QUEHUA SUPERIOR  
 IGNEOUS UNIT AGE.....EMIO-MMIO  
 IGNEOUS UNIT NAME.....QUEHUA SUPERIOR  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971X), ZUBRZYCKI AND  
 MURILLO (1958)

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MRDS RECORD NUMBER.....BL10270  
 SITE NAME.....**JAQUELINE MINE**  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....LAGUNA LOROMAYU 6126-I 1972  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4600 M  
LATITUDE.....22-27-17S                LONGITUDE.....067-00-21W  
ACCURACY.....ACC  
LOCATION COMMENTS.....ON S SHORE OF LAGUNA CORUTO  
COMMODITIES PRESENT.....HAL    GYP  
ORE MATERIALS.....HALITE, GYPSUM  
PRODUCTION.....U  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
HOST ROCK AGE.....QUAT  
AGE OF IGNEOUS ROCK.....QUAT  
AGE OF MINERALIZATION.....QUAT  
REFERENCE....RODRIGUEZ AND OTHERS (1976)

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MRDS RECORD NUMBER.....BL10280  
SITE NAME.....JUANITA MINE  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VOLCAN JURIQUEZ SF 19-11 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....VOLCAN PUTANA 6026-III 1973  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5400 M  
LATITUDE.....22-36-04S                LONGITUDE.....067-47-35W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....3 KM N30E OF RIO BLANCO  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
MAJOR.....S  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....QUAT  
AGE OF IGNEOUS ROCK.....QUAT  
AGE OF MINERALIZATION.....QUAT  
REFERENCES....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10091  
SITE NAME.....KOHOLPANI MINE  
SYNONYM NAME.....COLLPANI, COLPANI, CALIFORNIA  
PROVINCE.....NOR LIPEZ



PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN CRISTOBAL 6130-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3700 M  
 LATITUDE.....21-11-30S                      LONGITUDE.....067-09-15W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....35 KM NE OF CULPINA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; MALACHITE, AZURITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971Y): 0 TO 4.3%  
 CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 YEAR OF DISCOVERY.....1966  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....TABULAR  
 MAXIMUM THICKNESS.....90                      UNITS...CM  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 30 E  
 DIP.....8 TO 10NW  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS A MANTO 20 TO 90 CM  
 THICK  
 HOST ROCK AGE.....LOLIGO  
 HOST ROCK TYPE.....CALCAREOUS CONGLOMERATE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....HEMATITE  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 SIGNIFICANT REGIONAL STRUCTURES.....ON W FLANK OF ANTICLINE  
 FORMATION AGE.....LOLIGO  
 FORMATION NAME.....QUEHUA INFERIOR  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971Y)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971Y)

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MRDS RECORD NUMBER.....BL10011  
 SITE NAME.....LA COLORADA MINE  
 SYNONYM NAME.....PUCA SALLE, PUCASALLE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971

SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4850 M  
 LATITUDE.....21-48-41S LONGITUDE.....066-26-46W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM N50E OF GUADALUPE  
 COMMODITIES PRESENT.....AG PB ZN CU  
 ORE MATERIALS.....GALENA, SPHALERITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (PROYECTO LIPEZ,  
 1971)  
 MAJOR.....AG  
 MINOR.....PB  
 POTEN.....ZN  
 OCCUR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....LODE  
 STRIKE.....N78E  
 DIP.....58 TO 85NW  
 DEPOSIT DESCRIPTION COMMENTS.....VEIN IS ABOUT 1 M WIDE.  
 DESCRIPTION OF WORKINGS.....U  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE, RHYODACITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE, RHYODACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE  
 SIGNIFICANT ALTERATION.....SILICIFICATION, SERICITIZATION;  
 PYRITIZATION  
 FORMATION AGE.....TERT  
 FORMATION NAME.....CERRO BONETE  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....CERRO BONETE  
 NON-USGS WORK.....GEOLOGIC INVESTIGATIONS BY GEOBOL (1971KK)  
 NON-USGS WORK.....GEOLOGIC INVESTIGATIONS BY UNDP (JIMENEZ  
 AND NUÑEZ, 1988)  
 REFERENCE....JIMENEZ AND NUÑEZ (1988), SERVICIO GEOLOGICO DE BOLIVIA  
 (1971KK), VALENCIA (1973)  
 CUMULATIVE PRODUCTION  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
COLONIAL PRODUCTION					
ORE	EST	7	MT		UNKNOWN

 SOURCE OF PRODUCTION INFORMATION.....JIMENEZ AND NUNEZ (1988)  
 PRODUCTION COMMENTS.....ESTIMATE BASED ON SIZE OF WORKINGS

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MRDS RECORD NUMBER.....BL10142  
 SITE NAME.....LA MOZA MINE  
 MINING DISTRICT/AREA.....CERRO BONETE  
 PROVINCE.....SUD LIPEZ

PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5000 M  
LATITUDE.....21-44-08S                      LONGITUDE.....066-27-36W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....3 KM FROM LIPEÑA MINE, 13 KM N25E  
OF GUADALUPE  
COMMODITIES PRESENT.....AG    PB    BI    ZN    CU    SN  
ORE MATERIALS.....GALENA, CHALCOPYRITE, BISMUTHENITE  
GENERAL ANALYTICAL DATA.....ANALYSES BY GEOBOL (1971): 0.6 TO 23.5  
DM/T AG, 0 TO 1.2% PB, 0 TO 4.6% BI  
MAJOR.....AG  
MINOR.....PB  
POTEN.....BI    ZN  
OCCUR.....CU    SN  
PRODUCTION.....S  
STATUS AND ACTIVITY.....2  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
OPERATOR.....COOPERATIVA MINERA SANTA ANA  
EXPLORATION AND DEVELOPMENT COMMENTS.....OPERATED BY COMIBOL 1967  
AND 1971, THEN BY COOPERATIVE  
DEPOSIT TYPE.....LODE, STOCKWORK  
USGS MODEL .....SN-POLYMETALLIC VEIN  
USGS MODEL NUMBER.....20B  
DEPOSIT DESCRIPTION COMMENTS.....LIMONITE-PYRITE VEINS STRIKE N11  
TO 58E AND N36 TO 49W WITH VARIABLE DIP AND WIDTHS OF 1 TO 5 CM.  
STOCKWORK MINERALIZATION CONSISTS OF UP TO 0.1 M WIDE VEINLETS STRIKING  
N35 TO 80W AND DIPPING 40 TO 70SW WITH A FRACTURE DENSITY OF 10 PER  
SQUARE METER. THESE VEINS ARE FILLED BY LIMONITE-QUARTZ-BARITE-PYRITE.  
PB, AG, BI MINERALS FOUND IN PYRITE-BARITE-FE OXIDE GANGUE IN OLD DUMPS.  
DESCRIPTION OF WORKINGS.....B  
DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS CONSIST OF SHALLOW  
PROSPECT PITS AND ADITS.  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....DACITE  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....DACITE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....PYRITE, LIMONITE, BARITE,  
QUARTZ, SPECULARITE  
ORE CONTROL/LOCUS.....FRACTURES  
SIGNIFICANT ALTERATION.....SERICITE, KAOLINITE, CHLORITE;  
SILICIFICATION GRADES OUTWARD INTO MIXED SILICIFICATION, ARGILLIZATION  
AND PROPYLITIZATION.  
FORMATION AGE.....TERT  
FORMATION NAME.....CERRO BONETE  
IGNEOUS UNIT AGE.....TERT  
IGNEOUS UNIT NAME.....CERRO BONETE

NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(1971Z)  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (MEDINA  
AND IBAÑEZ, 1988A)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971Z), MEDINA AND IBAÑEZ  
(1988A).

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	44000	MT		1988	UNKNOWN

SOURCE OF RESERVES AND RESOURCES INFORMATION.....MEDINA AND IBAÑEZ  
(1988A)

RESERVES AND RESOURCES COMMENTS.....AMOUNT OF MINERALIZED  
ROCK ESTIMATED AT BETWEEN 19 AND 44 MILLION MT.

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MRDS RECORD NUMBER.....BL10232  
SITE NAME.....**LA SALVADORA MINE**  
MINING DISTRICT/AREA.....CERRO BONETE  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4450 M  
LATITUDE.....21-48-22S LONGITUDE.....066-26-43W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....8 KM N45E OF GUADALUPE, 208 KM  
FROM VILLAZON BY ROAD.  
LOCATION COMMENTS.....ON E FLANK OF CERRO SOMBRERITO.  
COMMODITIES PRESENT.....BI AG PB CU  
ORE MATERIALS.....PAVONITE, AIKENITE, BISMUTHENITE,  
CHALCOPYRITE, GALENA, SPHALERITE, TETRAHEDRITE, PYRARGYRITE  
MAJOR.....BI AG  
POTEN.....PB  
OCCUR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....EMPRESA MINERA UNIFICADA (EMUSA)  
OPERATOR.....EMPRESA MINERA UNIFICADA (EMUSA)  
EXPLORATION AND DEVELOPMENT COMMENTS.....WORKED 1930 TO 1956 BY  
JOSE BACH; OWNED BY EMPRESA MINERA SAN JOSE DE BERQUE IN 1966  
DEPOSIT TYPE.....LODE  
STRIKE.....E-W  
DIP.....VERTICAL  
DEPOSIT DESCRIPTION COMMENTS.....VEINS STRIKE N60 TO 80E AND N50  
TO 70W, DIP 50S TO VERTICAL, AND ARE 5 TO 25 CM WIDE. VEINS ARE AN  
EXTENSION OF THE VEIN SYSTEM AT THE BOLIVAR MINE. VEINS ARE EXPOSED OVER  
A LENGTH OF 150 M.  
DESCRIPTION OF WORKINGS.....U

LENGTH OF WORKINGS.....206+      UNITS...M  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, ANKERITE, SIDERITE  
 ORE CONTROL/LOCUS.....E-W STRUCTURE; CONTACT BETWEEN DACITE  
 INTRUSIVE AND BONETE LAVAS  
 SIGNIFICANT ALTERATION.....PROPYLITIZATION, SILICIFICATION  
 FORMATION AGE.....TERT  
 FORMATION NAME.....CERRO BONETE  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....CERRO BONETE  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (JIMENEZ  
 AND NUÑEZ, 1988)  
 NON-USGS WORK.....THESIS BY VALENCIA (1973)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL (VEDIA  
 AND CORTEZ, 1966)  
 REFERENCE....JIMENEZ AND NUÑEZ (1988), VALENCIA (1973), VEDIA AND CORTEZ  
 (1966), AHLFELD (1954)

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MRDS RECORD NUMBER.....BL10170  
 SITE NAME.....LADISLAO CABRERA MINE  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA ESCALA 6229-III 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4130 M  
 LATITUDE.....21-37-10S      LONGITUDE.....066-51-30W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....S OF CERRO ESCALA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHRYSOCOLLA, MALACHITE  
 GENERAL ANALYTICAL DATA.....3.16% CU OVER 20 CM, 1.38% CU OVER 90 CM.  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COOPERATIVA MINERA LITORAL  
 OPERATOR.....COOPERATIVA MINERA LITORAL  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM THICKNESS.....96      UNITS...CM  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE, TUFF  
 AGE OF IGNEOUS ROCK.....EO

IGNEOUS ROCK TYPE.....TUFF  
 AGE OF MINERALIZATION.....TERT  
 SIGNIFICANT ALTERATION.....TUFFS ARE ALTERED  
 FORMATION AGE.....EO  
 FORMATION NAME.....POTOCO  
 IGNEOUS UNIT AGE.....EO  
 IGNEOUS UNIT NAME.....POTOCO  
 REFERENCE....MURILLO AND OTHERS (1969)

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MRDS RECORD NUMBER.....BL10026  
 SITE NAME.....LAGUNA CACHI  
 SYNONYM NAME.....CACHI LAGUNA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5928-I  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4495 M  
 LATITUDE.....21-43-45S                      LONGITUDE.....067-56-30W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....41 KM S70W OF ESTANCIA LAS  
 JUNTAS, 220 KM FROM UYUNI BY ROAD  
 LOCATION COMMENTS.....DUE WEST OF CERRO PABELLON CACHI LAGUNA  
 COMMODITIES PRESENT.....TRO LI B MO W AS  
 ORE MATERIALS.....BRINES, TRONA, THERMONATRITE  
 GENERAL ANALYTICAL DATA.....BRINE ANALYSES BY BALLIVIAN AND RISACHER  
 (1981): DENSITY 1.044, PH 10.60, CL 12 G/L, SO4 787 MG/L, B 216 MG/L,  
 SIO2 90 MG/L, NA 20.9 G/L, K 7.29 G/L, LI 177 MG/L, CA 10.0 MG/L, MG 0.4  
 MG/L. ANALYSIS OF SODA CRUST (AHLFELD AND SCHNEIDER-SCHERBINA, 1964):  
 47.30% NA2CO3, 11.00% NAHCO3, 11.05% NA2SO4, 7.10% NACL, 0.97% INSOLUBLE  
 RESIDUE. BRINE ANALYSES BY RISACHER AND OTHERS (1984): 21 TO 25 DEGREES  
 CENT, DENSITY 1,196 TO 1,238; PH 10.05 TO 10.38; CO3 75,000 TO 81,000  
 MG/L; CL 32,000 TO 57,200 MG/L; SO4 25,900 TO 35,800 MG/L; B 1,210 TO  
 2,500 MG/L; SI 202 TO 225 MG/L; P 160 TO 230 MG/L; F 40 TO 70 MG/L; AS  
 438 TO 2,300 MG/L; NA 80,000 TO 92,000 MG/L; K 19,700 TO 35,600 MG/L; LI  
 416 TO 848 MG/L; CA 4.9 TO 6.0 MG/L; MG 0.7 TO 2.9 MG/L; MO 25 TO 50  
 MG/L; W 11 TO 20 MG/L.  
 MAJOR.....TRO  
 POTEN.....LI B  
 OCCUR.....MO W AS  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 YEAR OF LAST PRODUCTION.....1960  
 OWNER (PRESENT/LAST).....QUIMICA BOLIVIANA  
 OPERATOR.....QUIMICA BOLIVIANA  
 EXPLORATION AND DEVELOPMENT COMMENTS.....PRODUCTION AND REFINING OF  
 TRONA FROM 1958 TO 1960.  
 DEPOSIT TYPE.....ALKALINE LAKE  
 USGS MODEL .....ALKALINE LAKE BRINE

USGS MODEL NUMBER.....IM35BM  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS AN ALKALINE LAKE OF  
 3000 SQUARE METERS AREA. THE PART OF THE LAKE CONTAINING BRINES IS 1.5  
 KM IN AREA WITH AN AVERAGE DEPTH OF 0.2 M FOR AN AREA OF 1 SQUARE KM AND  
 10 CM FOR AN AREA OF 0.5 SQUARE KM.  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....BRINE  
 AGE OF MINERALIZATION.....HOLO  
 PERTINENT MINERALS (NOT ORE).....CHLORIDES, SULFATES, BORATES AND  
 BICARBONATES OF NA AND K  
 ORE CONTROL/LOCUS.....ALKALINE LAKE  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 GEOLOGY COMMENTS.....LAKE FREEZES OVER IN WINTER WITH A CRUST  
 OF NATRON, THERMONATRITE AND HALITE.  
 NON-USGS WORK.....GEOLOGICAL AND ECONOMIC EVALUATION BY  
 BALLIVIAN AND RISACHER (1981)  
 REFERENCE....BALLIVIAN AND RISACHER (1981), AHLFELD AND SCHNEIDER-  
 SCHERBINA (1964), RISACHER AND OTHERS (1984)  
 POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
TRONA	EST	18	MT		1981	

 SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)  
 POTENTIAL RESOURCES COMMENTS.....ASSUMES LAKE VOLUME OF  
 420,000 CUBIC METERS, 42.4 G/L TRONA

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MRDS RECORD NUMBER.....BL10030  
 SITE NAME.....LAGUNA CAPINA SUR  
 SYNONYM NAME.....CAPINA, BORATERA DE CAPINA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO QUEBRADA HONDA 6028-II 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4480 M  
 LATITUDE.....21-55-30S      LONGITUDE.....067-34-20W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....31 KM S OF ESTANCIA LAS JUNTAS  
 LOCATION COMMENTS.....S OF CERRO SAN BARTOLOME  
 COMMODITIES PRESENT.....B      LI      K  
 ORE MATERIALS.....ULEXITE, BRINES  
 GENERAL ANALYTICAL DATA.....BRINE ANALYSES BY BALLIVIAN AND RISACHER  
 (1981): PH 8.60, CL 17.3 G/L, SO4 192 MG/L, B 280 MG/L, SIO2 73 MG/L, NA  
 8.5 G/L, K 1.46 G/L, LI 193 MG/L, CA 800 MG/L, MG 260 MG/L  
 NON-PRODUCER MAIN.....B      LI      K  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B

DEPOSIT TYPE.....SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS A SALINE LAKE 8 SQUARE  
 KM IN AREA WITH AN AVERAGE DEPTH OF 20 CM AND A VOLUME OF 1,600,000  
 CUBIC METERS  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....BRINE, CLAY, LIME  
 AGE OF MINERALIZATION.....HOLO  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 NON-USGS WORK.....GEOLOGIC AND ECONOMIC EVALUATION BY  
 BALLIVIAN AND RISACHER (1981)  
 REFERENCE....BALLIVIAN AND RISACHER (1981)

## POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ULEXITE	EST	900	MT		1981	
B	EST	0.45	MT		1981	
LI	EST	0.3	MT		1981	
K	EST	2.3	MT		1981	

SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)

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MRDS RECORD NUMBER.....BL10032  
 SITE NAME.....LAGUNA CAÑAPA NORTE  
 SYNONYM NAME.....CAÑAPA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO ARARAL 5929-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4140 M  
 LATITUDE.....21-30-00S LONGITUDE.....068-00-30W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....46 KM N75W OF ESTANCIA LAS JUNTAS  
 LOCATION COMMENTS.....W OF CERRO CAQUELA  
 COMMODITIES PRESENT.....NASO4 BRI GYP  
 ORE MATERIALS.....MIRABILITE, TENARDITE  
 GENERAL ANALYTICAL DATA.....BRINE ANALYSES BY BALLIVIAN AND RISACHER  
 (1981): PH 8.34, CL 2.25 G/L, SO4 5.07 G/L, B 13 MG/L, SIO2 67 MG/L, NA  
 3.59 G/L, K 212 MG/L, LI 19.5 MG/L, CA 65 MG/L, MG 34 MG/L  
 OCCUR.....GYP  
 NON-PRODUCER MAIN.....NASO4  
 NON-PRODUCER MINOR.....LI K  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN



MAXIMUM LENGTH.....1500      UNITS...M  
 MAXIMUM WIDTH..... 900      UNITS...M  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS A NA-CL-SO4 SALINE  
 LAKE 1.25 SQUARE KM IN AREA.  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....CLAY, LIME, BRINE  
 AGE OF MINERALIZATION.....HOLO  
 PERTINENT MINERALS (NOT ORE).....GYPSUM  
 ORE CONTROL/LOCUS.....SALINE LAKE  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 NON-USGS WORK.....GEOLOGICAL AND ECONOMIC EVALUATION BY  
 BALLIVIAN AND RISACHER (1981)  
 REFERENCE...BALLIVIAN AND RISACHER (1981)

## POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
MIRABILITE						
	EST	30	MT		1981	
SODIUM SULFATE						
	EST	0.3	MT		1981	
LI	EST	0.001	MT		1981	
K	EST	0.01	MT		1981	

SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
(1981)

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MRDS RECORD NUMBER.....BL10034  
 SITE NAME.....LAGUNA CHIAR KKOTA  
 SYNONYM NAME.....CHIAR KKOTA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1971  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO ARARAL 5929-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4110 M  
 LATITUDE.....21-35-00S      LONGITUDE.....068-04-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....45 KM N85W OF ESTANCIA LAS JUNTAS  
 LOCATION COMMENTS.....SE OF CERRO PAPELLON  
 COMMODITIES PRESENT.....GYP   B   S   BRI  
 ORE MATERIALS.....GYPSUM, ULEXITE, NATIVE SULFUR, NA-(CA)-  
 CL-SO4 BRINE  
 GENERAL ANALYTICAL DATA.....BRINE ANALYSES BY BALLIVIAN AND RISACHER  
 (1981): DENSITY 1.050, PH 8.28, CL 38.5 G/L, SO4 4.08 G/L, B 250 MG/L,  
 SIO2 82 MG/L, NA 25 G/L, K 2.5 G/L, LI 176 MG/L, CA 1.34 G/L, MG 1.14  
 G/L  
 OCCUR.....BRI  
 NON-PRODUCER MAIN.....GYP   B   S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B

DEPOSIT TYPE.....SALINE LAKE  
USGS MODEL .....SALINE LAKE BRINE  
USGS MODEL NUMBER.....IM35BN  
DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS A SALINE LAKE 2 SQUARE  
KM IN AREA, AVERAGE DEPTH 20 CM, AND VOLUME 400,000 CUBIC METERS  
HOST ROCK AGE.....HOLO  
HOST ROCK TYPE.....BRINE, GYPSUM  
AGE OF MINERALIZATION.....HOLO  
ORE CONTROL/LOCUS.....SALINE LAKE  
TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
NON-USGS WORK.....GEOLOGIC AND ECONOMIC EVALUATION BY  
BALLIVIAN AND RISACHER (1981)  
REFERENCE....BALLIVIAN AND RISACHER (1981)

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MRDS RECORD NUMBER.....BL10031  
SITE NAME.....LAGUNA CHULLUNCANI  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....MINA CORINA 6029-III 1973  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4430 M  
LATITUDE....21-32-45S                      LONGITUDE....067-53-00W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....32 KM N75W OF ESTANCIA LAS JUNTAS  
LOCATION COMMENTS.....NW OF CERRO CHULLUNCANI  
COMMODITIES PRESENT.....NASO4 LI   B   K  
ORE MATERIALS.....SODIUM SULFATE, BRINES  
GENERAL ANALYTICAL DATA.....BRINE ANALYSES BY BALLIVIAN AND RISACHER  
(1981): PH 8.8, CL 44 G/L, SO4 26 G/L, B 960 MG/L, SIO2 47 MG/L, NA 31  
G/L, K 12 G/L, LI 22.5 MG/L, CA 730 MG/L, MG 1.9 G/L  
OCCUR.....LI   B   K  
NON-PRODUCER MAIN.....NASO4  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....SALINE LAKE  
USGS MODEL .....SALINE LAKE BRINE  
USGS MODEL NUMBER.....IM35BN  
DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS A SALINE LAKE OF  
800,000 SQUARE METERS AREA, AVERAGE DEPTH OF 15 CM AND A VOLUME OF  
120,000 CUBIC METERS.  
HOST ROCK AGE.....HOLO  
HOST ROCK TYPE.....NA-CL-SO4 BRINE  
AGE OF MINERALIZATION.....HOLO  
TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
NON-USGS WORK.....GEOLOGICAL AND ECONOMIC EVALUATION BY  
BALLIVIAN AND RISACHER (1981)

REFERENCE...BALLIVIAN AND RISACHER (1981)

POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
SODIUM SULFATE					

	EST	4.8	MT	1981	
LI	EST	0.003	MT	1981	
B	EST	0.1	MT	1981	
K	EST	1.5	MT	1981	

SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER (1981)

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MRDS RECORD NUMBER.....BL10045  
 SITE NAME.....LAGUNA COLORADA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN JURIKES SF 19-11 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO NEGRO 6027-III 1973  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4278 M  
 LATITUDE.....22-11-20S LONGITUDE.....067-46-30W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....14 KM N OF CERRO PABELLON  
 COMMODITIES PRESENT.....TRO NASO4 HAL BRI  
 ORE MATERIALS.....TRONA, MIRABILITE, HALITE  
 GENERAL ANALYTICAL DATA.....BALLIVIAN AND RISACHER (1981) REPORT ABOUT  
 100 G/L DISSOLVED SALTS AND A PH OF 8.5  
 COMMODITY INFO COMMENTS.....UNCONFIRMED REPORTS OF BORATES  
 NON-PRODUCER MAIN.....TRO NASO4 HAL BRI  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....CLAY, DIATOMITE, SODIUM SULFATE  
 AGE OF MINERALIZATION.....HOLO  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 REFERENCE...BALLIVIAN AND RISACHER (1981), CAMACHO (1971), CORTEZ (1968)

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MRDS RECORD NUMBER.....BL10025  
 SITE NAME.....LAGUNA HEDIONDA SUR  
 SYNONYM NAME.....LAGUNA HEDIONDA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO SURIPHUYO 6126-IV 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4510 M  
 LATITUDE.....22-27-20S                      LONGITUDE.....067-23-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....15 KM S OF ESTANCIA LACHITA, 306  
 KM FROM UYUNI BY ROAD  
 LOCATION COMMENTS.....2 KM NE OF LAGUNA KOLLPA  
 COMMODITIES PRESENT.....TRO  
 ORE MATERIALS.....TRONA  
 GENERAL ANALYTICAL DATA.....WATER ANALYSES BY BALLIVIAN AND RISACHER  
 (1981): DENSITY 1.028, PH 10.46, CO3 10.7 G/L, HCO3 336 MG/L, CL 6.71  
 G/L, SO4 1.35 G/L, SIO2 110 MG/L, B 114 MG/L, P 2.1 MG/L, NA 12.5 G/L, K  
 1.65 G/L, LI 0.5 MG/L, CA 9.0 MG/L, MG 2.8 MG/L  
 NON-PRODUCER MAIN.....TRO  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....BRINE  
 USGS MODEL .....ALKALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BM  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS AN ALKALINE LAKE  
 2,820,000 SQUARE METERS IN AREA WITH AN AVERAGE DEPTH OF 0.75 M AND  
 VOLUME OF 2,115,000 CUBIC METERS. TOTAL DISSOLVED SALTS ARE 33.5 G/L  
 CONSISTING OF 56% TRONA, 32% NACL AND KCL, AND 12% SULFATES,  
 BICARBONATES AND BORATES OF NA AND K.  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....WATER  
 AGE OF MINERALIZATION.....HOLO  
 PERTINENT MINERALS (NOT ORE).....SULFATES, BICARBONATES AND  
 BORATES OF NA AND K  
 ORE CONTROL/LOCUS.....ALKALINE LAKE  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 NON-USGS WORK.....GEOLOGICAL AND ECONOMIC EVALUATION BY  
 BALLIVIAN AND RISACHER (1981)  
 REFERENCE....BALLIVIAN AND RISACHER (1981)  
     POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
TRONA	EST	39	MT		1981	

 SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)  
 POTENTIAL RESOURCES COMMENTS.....ASSUMES 2,115,000 CUBIC  
 METER LAKE VOLUME, 18.9 G/L TRONA

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MRDS RECORD NUMBER.....BL10033  
 SITE NAME.....LAGUNA HEDIONDA NORTE  
 SYNONYM NAME.....LAGUNA HEDIONDA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE

DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO ARARAL 5929-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4100 M  
 LATITUDE.....21-34-00S                      LONGITUDE.....068-03-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....47 KM N5W OF ESTANCIA LAS JUNTAS  
 LOCATION COMMENTS.....DUE EAST OF CERRO PABELLON  
 COMMODITIES PRESENT.....NASO4    B    K    LI  
 ORE MATERIALS.....BRINES, MIRABILITE, ULEXITE  
 GENERAL ANALYTICAL DATA.....BRINE ANALYSES BY BALLIVIAN AND RISACHER  
 (1981): DENSITY 1.006, PH 7.28, CL 3.75 G/L, SO4 455 MG/L, B 20.5 MG/L,  
 SIO2 123 MG/L, NA 2.1 G/L, K 200 MG/L, LI 15 MG/L, CA 300 MG/L, MG 114  
 MG/L  
 OCCUR.....B        LI        K  
 NON-PRODUCER MAIN.....NASO4  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS A SALINE LAKE OF 3.5  
 SQUARE KILOMETERS AREA, AN AVERAGE DEPTH OF 20 CM AND A VOLUME OF  
 700,000 CUBIC METERS.  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....BRINE  
 AGE OF MINERALIZATION.....HOLO  
 ORE CONTROL/LOCUS.....SALINE LAKE  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 NON-USGS WORK.....GEOLOGICAL AND ECONOMIC EVALUATION BY  
 BALLIVIAN AND RISACHER (1981)  
 REFERENCE....BALLIVIAN AND RISACHER (1981), ECHENIQUE AND OTHERS (1978)  
                   POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
SODIUM SULFATE						
	EST	19	MT		1981	
LI	EST	0.084	MT		1981	
K	EST	1.47	MT		1981	

 SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)

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MRDS RECORD NUMBER.....BL10037  
 SITE NAME.....LAGUNA HONDA NORTE  
 SYNONYM NAME.....HONDA NORTE, LAGUNA HONDA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972

QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO ARARAL 5929-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4110 M  
 LATITUDE.....21-37-00S                      LONGITUDE.....068-04-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....10 KM S70W OF CAMPAMENTO MINA  
 CORINA  
 LOCATION COMMENTS.....W OF CERRO TAPAQUILLCHA  
 COMMODITIES PRESENT.....NASO4 BRI GYP DIT CLY HAL LST  
 ORE MATERIALS.....BRINES, GYPSUM, TENARDITE, DIATOMITE,  
 HALITE, CLAY, CALCITE  
 GENERAL ANALYTICAL DATA.....BRINE ANALYSES BY BALLIVIAN AND RISACHER  
 (1981)  
 OCCUR.....NASO4 BRI GYP DIT CLY HAL LST  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS A SALINE LAKE 0.4  
 SQUARE KM IN AREA, AVERAGE DEPTH 20 CM, AND VOLUME 80,000 CUBIC M. LAKE  
 IS FLOORED BY CLAY-DIATOMITE-GYPSUM-CALCITE SEDIMENTS AND BOUNDED BY  
 HALITE-TENARDITE-CALCITE SEDIMENTS.  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....LIMEY CLAY, BRINE  
 AGE OF MINERALIZATION.....HOLO  
 PERTINENT MINERALS (NOT ORE).....CALCITE  
 ORE CONTROL/LOCUS.....SALINE LAKE  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 NON-USGS WORK.....GEOLOGICAL AND ECONOMIC EVALUATION BY  
 BALLIVIAN AND RISACHER (1981)  
 REFERENCE....BALLIVIAN AND RISACHER (1981)  
     POTENTIAL RESOURCES  
 ITEM    ACCURACY            AMOUNT    THOUS UNITS    YEAR    GRADE  
 SODIUM SULFATE  
          EST                0.3    MT                    1981  
 SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)

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MRDS RECORD NUMBER.....BL10028  
 SITE NAME.....LAGUNA HONDA SUR  
 SYNONYM NAME.....LAGUNA HONDA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LAGUNA TOTOTAL 6126-III 1972  
 SECOND QUAD SCALE.....1:50,000

ELEVATION.....4450 M  
 LATITUDE.....22-34-10S LONGITUDE.....067-27-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....28 KM S15W OF ESTANCIA LACHITA  
 LOCATION COMMENTS.....3.5 KM W OF LAGUNA HUIRA SOKHA  
 COMMODITIES PRESENT.....TRO  
 ORE MATERIALS.....BRINES  
 GENERAL ANALYTICAL DATA.....WATER ANALYSES BY BALLIVIAN AND RISACHER  
 (1981): DENSITY 1.024, TDS 36.8 G/L, PH 9.88, CO3 2.29 G/L, HCO3 409  
 MG/L  
 NON-PRODUCER MAIN.....TRO  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....ALKALINE LAKE  
 USGS MODEL .....ALKALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BM  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS AN ALKALINE LAKE WITH  
 SURFACE AREA OF 300,000 SQUARE M AND AVERAGE DEPTH OF 0.1 M  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....BRINE  
 AGE OF MINERALIZATION.....HOLO  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 NON-USGS WORK.....GEOLOGICAL AND ECONOMIC EVALUATION BY  
 BALLIVIAN AND RISACHER (1981)  
 REFERENCE....BALLIVIAN AND RISACHER (1981)  
 POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
TRONA	EST	0.12	MT		1981	

 SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)

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MRDS RECORD NUMBER.....BL10027  
 SITE NAME.....LAGUNA KHARA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LAGUNA KHARA 6028-III 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4509 M  
 LATITUDE.....21-53-50S LONGITUDE.....067-51-30W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....31 KM S15E OF CAMPAMENTO MINA  
 CORINA  
 LOCATION COMMENTS.....SE OF CERRO CHASCON  
 COMMODITIES PRESENT.....TRO  
 ORE MATERIALS.....BRINES  
 GENERAL ANALYTICAL DATA.....WATER ANALYSES BY BALLIVIAN AND RISACHER  
 (1981): PH 9.40, CO3 516 MG/L, HCO3 1.22 G/L, CL 3.16 G/L, SO4 208 MG/L,

B 85 MG/L, SIO2 68 MG/L, NA 2.5 G/L, K 208 MG/L, LI 36 MG/L, CA 3.6  
 MG/L, MG 110 MG/L  
 NON-PRODUCER MAIN.....TRO  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....ALAKLINE LAKE  
 USGS MODEL .....ALKALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BM  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS AN ALKALINE LAKE WITH  
 SURFACE AREA OF 12 SQUARE KM  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....BRINES  
 AGE OF MINERALIZATION.....HOLO  
 ORE CONTROL/LOCUS.....ALKALINE LAKE  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 NON-USGS WORK.....GEOLOGICAL AND ECONOMIC EVALUATION BY  
 BALLIVIAN AND RISACHER (1981)  
 REFERENCE....BALLIVIAN AND RISACHER (1981)  
 POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
TRONA	EST	96	MT		1981	

 SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)  
 POTENTIAL RESOURCES COMMENTS.....ASSUMES AVERAGE LAKE  
 DEPTH OF 3M, 8.19 G/L TOTAL DISSOLVED SALTS, 36.4% OF WHICH IS TRONA

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MRDS RECORD NUMBER.....BL10024  
 SITE NAME.....LAGUNA KOLIPA  
 SYNONYM NAME.....COLIPA LAGUNA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO SURIPHUYO 6126-IV 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4150 M  
 LATITUDE.....22-28-20S LONGITUDE.....067-24-40W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....16 KM S10W OF ESTANCIA LACHITA  
 LOCATION COMMENTS.....SOUTHWEST OF LAGUNA HEDIONDA  
 COMMODITIES PRESENT.....TRO  
 ORE MATERIALS.....TRONA  
 GENERAL ANALYTICAL DATA.....WATER ANALYSES BY BALLIVIAN AND RISACHER  
 (1981) DENSITY 1.032 TO 1.037, PH 10.8, CO3 14 TO 16 G/L, HCO3 615 TO  
 616 MG/L, CL 5.47 TO 6.67 G/L, SO4 438 TO 466 MG/L, SIO2 132 TO 153  
 MG/L, B 75 TO 96 MG/L, P 2.2 TO 4.9 MG/L, NA 15 TO 17.1 G/L, K 1.05 TO  
 1.27 G/L, LI 0.5 MG/L, CA 6.8 TO 7.8 MG/L, MG 3.1 MG/L. WATER ANALYSIS  
 BY AHLFELD AND SCHNEIDER-SCHERBINA (1964): 6% NASCO3, 2.6% NACL 0.5%  
 ORGANIC MATTER.



MAJOR.....TRO  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....5  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....LOCAL PEASANTS HARVEST TRONA ON FROZEN  
 LAKE BED DURING WINTER  
 DEPOSIT TYPE.....BRINE  
 USGS MODEL .....ALKALINE LAKE BRINE  
 USGS MODEL NUMBER.....35BM  
 DEPOSIT FORM.....BRINE  
 DEPOSIT DESCRIPTION COMMENTS.....LAKE IS 900,000 SQUARE METERS IN  
 AREA WITH AN AVERAGE DEPTH OF 1.5 M.  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....WATER  
 AGE OF MINERALIZATION.....HOLO  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 GEOLOGY COMMENTS.....ALKALINE LAKE IS FLOORED BY IMPERMEABLE  
 LAYER OF ILLITE CLAY WITH CALCITE WITH A FRESH WATER AQUIFER UNDERNEATH.  
 NON-USGS WORK.....GEOLOGICAL STUDY BY BALLIVIAN AND RISACHER  
 (1981)  
 REFERENCE.... BALLIVIAN AND RISACHER (1981), AHLFELD AND SCHNEIDER-  
 SCHERBINA (1964), ECHENIQUE AND OTHERS (1978)

#### POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
TRONA	EST	38.5	MT		1981	

SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)  
 POTENTIAL RESOURCES COMMENTS.....ASSUMES 66% TRONA, 34%  
 IMPURITIES (28% NACL, KCL; 6% SULFATES, BICARBONATES AND BORATES OF NA,  
 K)

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MRDS RECORD NUMBER.....BL10266  
 SITE NAME.....LAGUNA LOROMAYU  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LAGUNA LOROMAYU 6126-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4650 M  
 LATITUDE.....22-24-27S      LONGITUDE.....067-01-49W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....22 KM S35E OF BARRANCAS  
 COMMODITIES PRESENT.....B      LI      NASO4  
 ORE MATERIALS.....BRINE, SODIUM SULFATE  
 OCCUR.....B      LI      NASO4  
 PRODUCTION.....U  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B

DEPOSIT TYPE.....SALINE LAKE  
USGS MODEL .....SALINE LAKE BRINE  
USGS MODEL NUMBER.....IM35BN  
HOST ROCK AGE.....HOLO  
AGE OF MINERALIZATION.....HOLO  
REFERENCE....BALLIVIAN AND RISACHER (1981)

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MRDS RECORD NUMBER.....BL10273  
SITE NAME.....**LAGUNA MAMA KHUMU**  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....LAGUNA MORREJON 6127-I 1972  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4450 M  
LATITUDE.....22-15-42S                      LONGITUDE.....067-04-30W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....10 KM S80E OF MINA UTURUNCU  
COMMODITIES PRESENT.....B  
ORE MATERIALS.....ULEXITE  
MAJOR.....B  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....SALINE LAKE  
USGS MODEL .....SALINE LAKE COMPLEX  
USGS MODEL NUMBER.....IM35BN  
DEPOSIT DESCRIPTION COMMENTS.....BORATES ARE FOUND ON THE S SHORE  
OF LAGUNA MAMA KHUMU  
DESCRIPTION OF WORKINGS.....S  
HOST ROCK AGE.....HOLO  
AGE OF MINERALIZATION.....HOLO  
SOURCE OF INFORMATION...FIELD INVESTIGATIONS BY USGS/GEOBOL, 1990

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MRDS RECORD NUMBER.....BL10038  
SITE NAME.....**LAGUNA RAMADITAS**  
SYNONYM NAME.....RAMADITAS  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CERRO ARARAL 5929-II 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4120 M  
LATITUDE.....21-38-00S                      LONGITUDE.....068-05-00W  
ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....13 KM S60W OF CAMPAMENTO MINA  
 CORINA  
 LOCATION COMMENTS.....NE OF CERRO ASCOTAN RAMADITAS  
 COMMODITIES PRESENT.....BRI GYP  
 ORE MATERIALS.....NA-CA-SO4-CL BRINE, GYPSUM  
 GENERAL ANALYTICAL DATA.....BRINE ANALYSES BY BALLIVIAN AND RISACHER  
 (1981): DENSITY 1.020, PH 8.15, CL 15 G/L, SO4 3.07 G/L, B 77 MG/L, SIO2  
 109 MG/L, NA 9 G/L, K 1.03 G/L, LI 11.7 MG/L, CA 1.375 G/L, MG 325 MG/L  
 OCCUR.....GYP LI B K  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS A SALAR 4 SQUARE KM IN  
 AREA WITH A SALINE LAKE 2 SQUARE KM IN AREA (SEASONALLY VARIABLE). LAKE  
 IS FLOORED BY GYPSUM AND CALCITE. AN ANCIENT LAKE BED EXPOSED NORTH OF  
 THE SALAR CONSISTS OF CALCITE, CLAY AND GYPSUM.  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....BRINE CALCITE GYPSUM  
 AGE OF MINERALIZATION.....HOLO  
 PERTINENT MINERALS (NOT ORE).....CALCITE  
 ORE CONTROL/LOCUS.....SALINE LAKE  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 NON-USGS WORK.....GEOLOGIC AND ECONOMIC EVALUATION BY  
 BALLIVIAN AND RISACHER (1981)  
 REFERENCE....BALLIVIAN AND RISACHER (1981)  
 POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
LI	EST	.007	MT		1981	

 SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)

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MRDS RECORD NUMBER.....BL10049  
 REPORTER AFFILIATION.....USGS  
 SITE NAME.....LAGUNA VERDE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN JURIQUES SF 19-11 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LAGUNA VERDE 6025-IV 1973  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4350 M  
 LATITUDE.....22-47-40S LONGITUDE.....067-48-20W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM N OF VOLCAN JURIQUES  
 COMMODITIES PRESENT.....BRI CAL  
 ORE MATERIALS.....NA-(CA)-CL-(SO4)-BRINES CALCITE

GENERAL ANALYTICAL DATA.....BALLIVIAN AND RISACHER (1981) ESTIMATE  
 THAT BRINES HAVE 20 TO 40 G/L DISSOLVED SALTS  
 NON-PRODUCER MAIN.....BRI CAL  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....BRINE  
 AGE OF MINERALIZATION.....HOLO  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 REFERENCE....BALLIVIAN AND RISACHER (1981)

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MRDS RECORD NUMBER.....BL10029  
 SITE NAME.....LAGUNAS PASTOS GRANDES  
 SYNONYM NAME.....PASTOS GRANDES  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA CORINA 6029-III 1979, CERRO CACHI  
 LAGUNA 6028-IV 1971, 6028-I, ESTANCIA LAS JUNTAS 6029-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4400 M  
 LATITUDE.....21-38-30S LONGITUDE.....067-47-40W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....23 KM S10W OF ESTANCIA LAS JUNTAS  
 LOCATION COMMENTS.....NE OF CERRO CACHI LAGUNA  
 COMMODITIES PRESENT.....B LI K GYP CLY LST  
 ORE MATERIALS.....BRINES, ULEXITE, GYPSUM, CLAY, CALCITE  
 GENERAL ANALYTICAL DATA.....BRINE ANALYSES BY BALLIVIAN AND RISACHER  
 (1981). BRINES: DENSITY 1.211, PH 7.20, CL 194 G/L, SO4 2.46 G/L, B 945  
 MG/L, SIO2 67 MG/L, NA 101 G/L, K 14.2 G/L, LI 1.64 G/L, CA 3.1 G/L, MG  
 3.48 G/L  
 OCCUR.....GYP CLY LST  
 NON-PRODUCER MAIN.....B LI K  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS A SALINE LAKE WITH A  
 SURFACE AREA OF 4,650,000 SQUARE METERS, AVERAGE DEPTH OF 0.15 M AND A  
 VOLUME OF 700,000 CUBIC METERS  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....NA-CA-(SO4)-CL BRINE  
 AGE OF MINERALIZATION.....HOLO

TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 NON-USGS WORK.....GEOLOGICAL AND ECONOMIC EVALUATION BY  
 BALLIVIAN AND RISACHER (1981)  
 REFERENCE....BALLIVIAN AND RISACHER (1981)

## POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ULEXITE	EST	1200	MT	1981	
LI	EST	1.1	MT	1981	
K	EST	9.8	MT	1981	
B	EST	0.63	MT	1981	

SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)

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MRDS RECORD NUMBER.....BL10072  
 SITE NAME.....LEOPLAN MINE  
 PROVINCE.....SUR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN PABLO DE LIPEZ 6228-I 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4500 M  
 LATITUDE.....21-43-54S LONGITUDE.....066-37-58W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5 KM S OF SAN PABLO DE LIPEZ  
 COMMODITIES PRESENT.....AG AU SB  
 ORE MATERIALS.....GALENA, TETRAHEDRITE, SPHALERITE, STIBNITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSIS (UNDP, 1989): 6 G/MT AG, 0.1  
 G/MT AU  
 MAJOR.....AG  
 MINOR.....AU  
 POTEN.....SB  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....COOPERATIVA MINERA  
 DEPOSIT TYPE.....LODE  
 STRIKE.....N 55 TO 60 W  
 DIP.....VERTICAL  
 DEPOSIT DESCRIPTION COMMENTS.....VEIN AVERAGES 0.13 M WIDE, VARIES  
 FROM 3 TO 15 CM WIDE.  
 DESCRIPTION OF WORKINGS.....U  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....LITHIC AND LAPILLI TUFF  
 AGE OF IGNEOUS ROCK.....EO  
 IGNEOUS ROCK TYPE.....LITHIC AND LAPILLI TUFF  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....NW TRENDING STRUCTURE

FORMATION AGE.....EO  
 FORMATION NAME.....POTOCO  
 IGNEOUS UNIT AGE.....EO  
 IGNEOUS UNIT NAME.....POTOCO  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (1989)  
 REFERENCE....UNITED NATIONS DEVELOPMENT PROGRAM (1989),  
 AHLFELD (1954)

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MRDS RECORD NUMBER.....BL10056  
 SITE NAME.....**LINARES MINE**  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA AVAROA 6129-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3950 M  
 LATITUDE.....21-37-37S                      LONGITUDE.....067-08-47W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3 KM S40W OF ESTANCIA KOLLPIRI  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE, BORNITE; MALACHITE, AZURITE  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....COOPERATIVA 25 DE JULIO  
 YEAR OF DISCOVERY.....1969  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1969  
 OWNER (PRESENT/LAST).....COOPERATIVA 25 DE JULIO  
 OPERATOR.....COOPERATIVA 25 DE JULIO  
 ECONOMIC COMMENTS.....PRODUCING ABOUT 5 MT/MONTH 30% CU  
 CONCENTRATES 1969  
 DEPOSIT TYPE.....STRATABOUND, DISSEMINATED  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 MAXIMUM LENGTH.....300                      UNITS...M  
 MAXIMUM WIDTH.....20                      UNITS...M  
 MAXIMUM THICKNESS.....15                      UNITS...CM  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N5-15E  
 DIP.....15-42E  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....94                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....3 ADITS  
 HOST ROCK AGE.....LOLIGO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 SIGNIFICANT REGIONAL STRUCTURES.....LINARES ANTICLINE

FORMATION AGE.....LOLIGO  
 FORMATION NAME.....QUEHUA INFERIOR  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971AA)

REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971AA)  
 RESERVES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	0.169	MT		1971	9.5% CU

SOURCE OF RESERVES INFORMATION.....GEOBOL (1971AA)

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MRDS RECORD NUMBER.....BL10143  
 SITE NAME.....LIPENA MINE  
 MINING DISTRICT/AREA.....CERRO BONETE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4950 M  
 LATITUDE.....21-44-01S LONGITUDE.....066-27-14W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....13 KM N22E OF GUADALUPE  
 LOCATION COMMENTS.....ON NE SIDE OF MACIZO BONETE  
 COMMODITIES PRESENT.....AG PB ZN CU BI SN  
 ORE MATERIALS.....CHALCOPYRITE, BISMUTHENITE, BISMOCLITE,  
 BISMITE; MALACHITE, AZURITE  
 GENERAL ANALYTICAL DATA.....ANALYSES BY GEOBOL (1971): 0 TO 2.5 DM/T  
 AG, 0 TO 1.0% BI, 0 TO 4.8% CU, 0.1% SN, 0.3% PB  
 MAJOR.....AG PB  
 POTEN.....ZN CU BI  
 OCCUR.....SN  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....COOPERATIVA MINERA SANTA ANA  
 EXPLORATION AND DEVELOPMENT COMMENTS.....OPERATED BY COMIBOL IN  
 1967 AND 1971, THEN BY COOPERATIVE  
 DEPOSIT TYPE.....LODE, STOCKWORK  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DEPOSIT DESCRIPTION COMMENTS.....EW AND N40W VEINS SETS 1 TO 20 CM  
 WIDE. A N88E 63S 110 CM WIDE STRUCTURE. VEINS OF SPECULARITE ARE 1 TO 5  
 CM WIDE. THERE IS A QUARTZ-FE OXIDE VEIN 5 M THICK. SEE LA MOZA MINE FOR  
 INFORMATION ON STOCKWORK MINERALIZATION.  
 DESCRIPTION OF WORKINGS.....B  
 DESCRIPTION OF WORKINGS COMMENTS.....ADITS AND SHALLOW PROSPECT PITS  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....BIOTITE DACITE, RHYOLITE

AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....BIOTITE DACITE, RHYOLITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE, LIMONITE, SPECULARITE,  
 BARITE, QUARTZ  
 ORE CONTROL/LOCUS.....FRACTURES  
 SIGNIFICANT ALTERATION.....SILICIFICATION, SERICITIZATION.  
 SILICIFICATION GRADES OUT INTO MIXED SILICIFICATION, ARGILLIZATION AND  
 PROPYLITIZATION.  
 FORMATION AGE.....TERT  
 FORMATION NAME.....CERRO BONETE  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....CERRO BONETE  
 NON-USGS WORK.....EXPLORATION WORK BY EMPRESA LIPEZ MINING  
 IN 1967  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971BB)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (1988)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971BB), MEDINA AND IBAÑEZ  
 (1988A)

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	106000	MT		1988	UNKNOWN

SOURCE OF RESERVES AND RESOURCES INFORMATION.....MEDINA AND IBAÑEZ  
 (1988A)  
 RESERVES AND RESOURCES COMMENTS.....AMOUNT OF MINERALIZED  
 ROCK ESTIMATED AT BETWEEN 35 AND 106 MILLION MT.

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MRDS RECORD NUMBER.....BL10343  
 SITE NAME.....LOA MINE  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA AVAROA 6129-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3900 M  
 LATITUDE.....21-39-44S LONGITUDE.....067-05-17W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....7.5 KM N35E OF ESTANCIA KOLLPIRI  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPTH TO TOP.....0 UNITS...M  
 HOST ROCK AGE.....LOLIGO



AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....LOLIGO  
 FORMATION NAME.....QUEHUA INFERIOR  
 REFERENCE....RODRIGUEZ AND OTHERS (1976)

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MRDS RECORD NUMBER.....BL10017  
 SITE NAME.....LOS COLORADOS DE BOLIVIA  
 SYNONYM NAME.....ROSARIO I  
 MINING DISTRICT/AREA.....CERRO BONETE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4500 M  
 LATITUDE.....21-49-06S LONGITUDE.....066-27-06W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....7 KM N65E OF GUADALUPE  
 LOCATION COMMENTS.....ON EAST FLANK OF CERRO SOMBRERITO, AT  
 ACERODOYOC  
 COMMODITIES PRESENT.....AG PB ZN BI CU SN  
 ORE MATERIALS.....GALENA, SPHALERITE, BENJAMINITE,  
 BISMUTHENITE  
 GENERAL ANALYTICAL DATA.....ASSAYS BY GEOBOL (PROYECTO LIPEZ, 1971) 20  
 TO 450 G/T AG, AVERAGE 150 G/T AG; 0.6 TO 4.4% PB, AVERAGE 1.8% PB; 0.7  
 TO 2.1% ZN, AVERAGE 1.2% ZN; TRACE BI; BY VEDIA (1960): 0 TO 1% CU, 0 TO  
 0.03% BI, 0.16% SN, 15 TO 785 G/T AG  
 MAJOR.....AG  
 POTEN.....PB ZN CU  
 OCCUR.....BI SN  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 YEAR OF LAST PRODUCTION.....1930  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....LODE  
 STRIKE.....E-W  
 DIP.....70 TO 80 N  
 DEPOSIT DESCRIPTION COMMENTS.....ONE VEIN WAS FOLLOWED FOR 70 M  
 ALONG STRIKE OF N88E DIPPING 60N WITH VARIABLE WIDTH BETWEEN 0.01 AND  
 1.42 M. ANOTHER VEIN STRIKES N88W AND DIPS 74N WITH VARIABLE WIDTH OF 20  
 TO 65 CM.  
 DESCRIPTION OF WORKINGS.....B  
 DEPTH BELOW SURFACE.....10 UNITS...M  
 LENGTH OF WORKINGS.....200+ UNITS...M  
 OVERALL DEPTH.....50 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS CONSIST OF ONE SHAFT,  
 4 ADITS, OPEN PITS AND TRENCHES

HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE, RHYODACITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE, RHYODACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE; LIMONITE  
 ORE CONTROL/LOCUS.....E-W FRACTURES  
 SIGNIFICANT ALTERATION.....PROPYLITIZATION, PYRITIZATION  
 FORMATION AGE.....TERT  
 FORMATION NAME.....CERRO BONETE  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....CERRO BONETE  
 NON-USGS WORK.....GEOLOGIC INVESTIGATIONS BY GEOBOL  
 (PROYECTO LIPEZ, 1971) AND VEDIA (1960A)  
 NON-USGS WORK.....GEOLOGIC INVESTIGATIONS BY UNDP (JIMENEZ  
 AND NUÑEZ, 1988)  
 REFERENCE....JIMENEZ AND NUÑEZ (1988), SERVICIO GEOLOGICO DE BOLIVIA  
 (1971P), VALENCIA (1973), VEDIA (1960A)

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MRDS RECORD NUMBER.....BL10075  
 SITE NAME.....LUZ MARINA MINE  
 MINING DISTRICT/AREA.....CAÑAPA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERROS DE CAÑAPA 5929-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....6000 M  
 LATITUDE.....21-29-42S                      LONGITUDE.....068-05-43W  
 ACCURACY.....ACC  
 LOCATION COMMENTS.....ON EAST FLANK CERRO CANAPA  
 COMMODITIES PRESENT.....S      AS  
 ORE MATERIALS.....NATIVE S  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY BALLON AND VARGAS (1968):  
 0.99 TO 63.3% S 0 TO .07% AS  
 MAJOR.....S  
 OCCUR.....AS  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DESCRIPTION OF WORKINGS.....U  
 HOST ROCK AGE.....PLIO  
 HOST ROCK TYPE.....VITRIC TUFF  
 AGE OF IGNEOUS ROCK.....PLIO  
 IGNEOUS ROCK TYPE.....BIOTITE HORNBLENDE ANDESITE  
 AGE OF MINERALIZATION.....PLIO  
 PERTINENT MINERALS (NOT ORE).....GYPSUM

ORE CONTROL/LOCUS.....POROUS TUFF BED  
 SIGNIFICANT ALTERATION.....SERICITE-HEMATITE-CALCITE  
 GEOLOGY COMMENTS.....HEMATITE CEMENTED BRECCIA NEARBY. ORE  
 CONSISTS OF BLOCKS OF NATIVE S IN BRECCIATED TUFF GRADING 30.5% S AND  
 DISSEMINATED S IN DETRITUS GRADING 3.46% S.  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL,  
 BALLON AND VARGAS (1968)  
 REFERENCE....BALLON AND VARGAS (1968), SANTIESTEBAN (1972)

## RESERVES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	10444	MT		1968	30% S

SOURCE OF RESERVES INFORMATION.....BALLON AND VARGAS (1968)

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MRDS RECORD NUMBER.....BL00027  
 SITE NAME.....MAC I PROSPECT  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA KHOMA 5932-III 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4900 M  
 LATITUDE.....20-38-34S LONGITUDE.....068-25-03W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....9.5 KM S50W OF ESTANCIA EMPEXA  
 LOCATION COMMENTS.....ON CERRO CONO  
 COMMODITIES PRESENT.....UNK  
 ORE MATERIALS.....UNKNOWN  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....MARIO FLORES A.  
 OPERATOR.....MARIO FLORES A.  
 DEPOSIT DESCRIPTION COMMENTS.....MAY BE A FUMAROLIC S DEPOSIT  
 NEARBY  
 HOST ROCK AGE.....PLIO  
 AGE OF IGNEOUS ROCK.....PLIO  
 AGE OF MINERALIZATION.....PLIO  
 SOURCE OF INFORMATION....MINTEC FILES

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MRDS RECORD NUMBER.....BL10007  
 SITE NAME.....MACHU SOCAVON MINE  
 SYNONYM NAME.....SAN ANTONIO DE LIPEZ  
 MINING DISTRICT/AREA.....SAN ANTONIO DE LIPEZ  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....SAN ANTONIO DE LIPEZ 6228-III 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5000 M  
 LATITUDE.....21-52-08S                      LONGITUDE.....066-49-55W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5.5 KM EAST OF SAN ANTONIO DE LIPEZ  
 LOCATION COMMENTS.....ON S FLANK OF CERRO AMARILLO  
 COMMODITIES PRESENT.....AG    PB    ZN  
 ORE MATERIALS.....GALENA, SPHALERITE, GOLD?  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY ZUBRZYCKI (1958) (REPORTED IN FLORES, 1988): 6.2% PB, 104 G/T AU, 800 G/T AG  
 NON-PRODUCER MAIN.....AG    PB    ZN  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONIALS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....STOCKWORK, LODE  
 DEPOSIT FORM.....IRREGULAR  
 DEPTH TO BOTTOM.....200                      UNITS...M  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT CONSISTS OF TWO MAJOR VEINS PLUS STOCKWORK-DISSEMINATED ORE. VEIN A HAS AN AVERAGE THICKNESS OF 0.15 M, STRIKES N70E, DIPS 80NE TO VERTICAL, AND EXTENDS 170 M IN LENGTH. ORE ASSAYS UP TO 6.2% PB AND 8.1 DM/T AG. VEIN B CROPS OUT ON CERRO SAN MIGUEL, HAS A STRIKE OF N30W, AND CONSISTS OF VEINLETS OF LIMONITE AND JAROSITE IN A SILICIFIED ZONE 3 TO 5 M THICK OVER A LENGTH OF 200M. A STOCKWORK OF FE HYDROXIDE-JAROSITE-ALUNITE VEINLETS OCCURS BELOW BODIES OF OPAL IN A ZONE OF SILICIFICATION ON THE CERRO ESPERANZA.  
 DESCRIPTION OF WORKINGS.....B  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS CONSIST OF SHALLOW PROSPECT PITS AND ADITS.  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....BIOTITE-HORNBLLENDE DACITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....BIOTITE-HORNBLLENDE DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, BARITE, ALUNITE; FE HYDROXIDES, JAROSITE  
 ORE CONTROL/LOCUS.....POSSIBLE NW TRENDING STRUCTURE, HYDROTHERMAL BRECCIAS  
 SIGNIFICANT ALTERATION.....CORE OF SILICIC ALTERATION FLANKED BY SERICITIC (INNER) AND ARGILLIC (OUTER) ALTERATION. SILICIFIED ZONE IS CAPPED BY OPALINE BODIES IN PROPYLITIZED DACITE.  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY ZUBRZYCKI (1956)  
 NON-USGS WORK.....REGIONAL GEOLOGIC MAPPING BY GEOBOL, SAN PABLO DE LIPEZ (6228) 1:100,000 QUADRANGLE  
 NON-USGS WORK.....GEOLOGICAL STUDY BY GEOBOL PROYECTO LIPEZ (1970)  
 NON-USGS WORK.....GEOLOGICAL STUDY BY UNDP PROGRAM (FLORES, 1988)

REFERENCE...FLORES (1988), SERVICIO GEOLOGICO DE BOLIVIA (1971NN),  
 OUDEMANS AND ZUBRZYCKI (1958), ZUBRZYCKI AND BUSTOS (1958)

POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CERRO ESPERANZA						
ORE	EST	60000	MT		1988	LESS THAN 3.2 DM/T AG

SOURCE OF POTENTIAL RESOURCES INFORMATION.....FLORES (1988)  
 POTENTIAL RESOURCES COMMENTS.....AMOUNT OF DISSEMINATED  
 ORE ESTIMATED AT 30 TO 60 MILLION MT

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MRDS RECORD NUMBER.....BL10092  
 SITE NAME.....MALLCU CUEVA MINE  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....COMUNIDAD MALLCU 6128-IV 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4200 M  
 LATITUDE.....21-46-41S LONGITUDE.....067-28-48W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....4 KM S OF MALLCU CUEVA  
 COMMODITIES PRESENT.....CU  
 GENERAL ANALYTICAL DATA.....ONLY TRACE CU FOUND BY GEOBOL (1971CC)  
 OCCUR.....CU  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....LOCAL PEASANTS  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....VEINLET  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N 9 W  
 DIP.....50 TO 60NE  
 DEPOSIT DESCRIPTION COMMENTS.....MINERALIZATION IN THIN FRACTURES  
 0.5 M WIDE.  
 DESCRIPTION OF WORKINGS COMMENTS.....PROSPECTED ONLY  
 HOST ROCK AGE.....ORD  
 HOST ROCK TYPE.....SHALE  
 PERTINENT MINERALS (NOT ORE).....HEMATITE  
 ORE CONTROL/LOCUS.....FRACTURES  
 FORMATION AGE.....ORD  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971CC)  
 REFERENCE...SERVICIO GEOLOGICO DE BOLIVIA (1971CC)

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MRDS RECORD NUMBER.....BL10059  
 SITE NAME.....MANTOS BLANCOS MINE  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA AVAROA 6129-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3950 M  
 LATITUDE.....21-38-39S                      LONGITUDE.....067-03-13W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....4 KM S15W OF ABAROA MINE  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE, BORNITE, CHALCOPYRITE;  
 MALACHITE  
 GENERAL ANALYTICAL DATA.....ORE ASSAYS GEOBOL (1971): MANTOS 0.1 TO  
 14% CU VEINS 6.24 TO 11.60% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....COOPERATIVA LITORAL  
 YEAR OF DISCOVERY.....1963  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1963  
 OWNER (PRESENT/LAST).....COOPERATIVA MINERA LITORAL  
 OPERATOR.....COOPERATIVA MINERA LITORAL  
 DEPOSIT TYPE.....STRATABOUND, LODE  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR IRREGULAR  
 DEPOSIT SIZE.....SMALL  
 DEPOSIT DESCRIPTION COMMENTS.....MANTOS STRIKE N20E AND DIP 5 TO  
 8SE AVERAGE 0.5 M THICK. VEINS STRIKE N30E DIP 70 TO 75SE AND ARE UP TO  
 700 M LONG. MANTOS CONTAIN DISSEMINATED CHALCOCITE. VEINS CONSIST OF  
 QUARTZ-CHALCOCITE-BORNITE-CHALCOPYRITE.  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE..... 40                      UNITS...M  
 LENGTH OF WORKINGS.....938                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ADITS  
 HOST ROCK AGE.....LOLIGO  
 HOST ROCK TYPE.....ARKOSIC SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE  
 ORE CONTROL/LOCUS.....PREFERRED BEDS, NORMAL FAULTS  
 SIGNIFICANT REGIONAL STRUCTURES.....SYNCLINE  
 SIGNIFICANT LOCAL STRUCTURES.....N30E, 70 TO 75SE NORMAL FAULTS  
 WITH UP TO 1.8 M THROW  
 FORMATION AGE.....LOLIGO  
 FORMATION NAME.....QUEHUA INFERIOR  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971DD)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971DD)  
 RESERVES  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	8.340	MT	1971	4.66% CU
ORE	EST	6.631	MT	1971	4.19% CU
ORE	EST	5.234	MT	1971	4.50% CU

ORE EST 3.015 MT 1971 4.78% CU  
 DUMPS EST 3.633 MT 1971 2.47% CU  
 SOURCE OF RESERVES INFORMATION.....SERVICIO GEOLOGICO DE BOLIVIA  
 (1971DD)  
 RESERVES COMMENTS.....ORE RESERVES FOR DIFFERENT SECTIONS  
 OF MINE

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MRDS RECORD NUMBER.....BL10176  
 SITE NAME.....**MARIA EUGENIA MINE**  
 MINING DISTRICT/AREA.....CERRO CAYTE SULFUR DEPOSIT  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ABRA DE NAPA 5832-II 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3830 M  
 LATITUDE.....20-31-57S LONGITUDE.....068-31-45W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....900 M S40E OF EL DESIERTO  
 LOCATION COMMENTS.....MARIA EUGENIA CONCESSION EXTENDS TO  
 SOUTHEAST SHORE OF THE SALAR DE EMPEXA AND INCLUDES MANY GASEOUS HOT  
 SPRINGS AND FUMEROLES.  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 MAJOR.....S  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT FORM.....BLANKET  
 STRIKE.....E-W  
 DIP.....15 TO 20 N  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....PLIO  
 HOST ROCK TYPE.....VOLCANIC ASH  
 AGE OF IGNEOUS ROCK.....PLIO  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH  
 AGE OF MINERALIZATION.....QUAT  
 ORE CONTROL/LOCUS.....ZONE OF FUMAROLIC ACTIVITY  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10146  
 SITE NAME.....**MARTE PLACER**  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN ANTONIO DE ESMORUCO 6228-II 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4250 M  
 LATITUDE.....21-51-10S                      LONGITUDE.....066-43-49W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....16 KM N88E OF SAN ANTONIO DE  
 LIPEZ  
 COMMODITIES PRESENT.....AU  
 ORE MATERIALS.....GOLD  
 GENERAL ANALYTICAL DATA.....ASSAYS BY GEOBOL (1971EE): 0 TO 1.27 G/CU  
 M AU  
 MAJOR.....AU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....PLACER  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....QUAT  
 HOST ROCK TYPE.....SAND, GRAVEL  
 AGE OF MINERALIZATION.....QUAT  
 PERTINENT MINERALS (NOT ORE).....ILMENITE, MAGNETITE, HEMATITE,  
 TITANITE, LEUXOCENE, SPINEL, ZIRCON, TOPAZ, HORNBLLENDE, GOETHITE  
 ORE CONTROL/LOCUS.....FLUVIAL CHANNELS  
 FORMATION AGE.....QUAT  
 GEOLOGY COMMENTS.....95% OF HEAVY MINERAL FRACTION IS ILMENITE-  
 MAGNETITE-HEMATITE  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971EE)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971EE)

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MRDS RECORD NUMBER.....BL10004  
 SITE NAME.....MERCEDES MINE  
 SYNONYM NAME.....GOYA I, SANTA ROSA  
 PROVINCE.....SUR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO SANTA ISABEL 6229-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4950 M  
 LATITUDE.....21-38-41S                      LONGITUDE.....066-30-22W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....12.5 KM N20E OF SAN PABLO DE  
 LIPEZ  
 LOCATION COMMENTS.....ON EAST SLOPE OF CERRO SANTA JOANE 2 KM S  
 OF CANDELARIA MINE  
 COMMODITIES PRESENT.....AG    PB    ZN    BI    CU    SN    CD  
 ORE MATERIALS.....GALENA, SPHALERITE, NATIVE AG, STIBNITE,  
 SN OXIDE, CHALCOCITE, CHALCOPYRITE; MALACHITE



GENERAL ANALYTICAL DATA.....GEOCHEMICAL ANALYSES (PROYECTO LIPEZ-COMIBOL-70, 1971): 0 TO 34.8 DM/T AG, 0 TO 34% PB, 0 TO 52.5% ZN, 0 TO 0.02% BI, 0 TO TR SN, 0.1% CU; 0.28% CD IN SPHALERITE  
 MAJOR.....AG  
 MINOR.....PB  
 POTEN.....ZN  
 OCCUR.....BI      CU      SN      CD  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 EXPLORATION AND DEVELOPMENT COMMENTS.....MINED BY NUEVA CIA. DE LIPEZ TO 1908; BY CIA. LIPEZ MINING IN 1960S, NOW A RESERVA FISCAL  
 DEPOSIT TYPE.....LODE, STOCKWORK  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DEPOSIT FORM.....IRREGULAR  
 MAXIMUM WIDTH.....60      UNITS...CM  
 STRIKE.....N40-80E; N20-60W; N60-80W  
 DIP.....SW  
 DEPOSIT DESCRIPTION COMMENTS.....MAXIMUM WIDTH IS FOR INDIVIDUAL VEINS  
 DESCRIPTION OF WORKINGS.....B  
 DEPTH BELOW SURFACE.....75      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....SHAFTS, PITS, TRENCHES  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....BASALT, DACITE PORPHYRY  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....BASALT, DACITE PORPHYRY  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE; HEMATITE, LIMONITE, KAOLINITE, SIDERITE, MN OXIDES  
 ORE CONTROL/LOCUS.....PRIMARY N30 TO 70E, SECONDARY N20 TO 60W, TERTIARY EW FRACTURES  
 SIGNIFICANT LOCAL STRUCTURES.....DACITE PORPHYRY DOME  
 SIGNIFICANT ALTERATION.....ARGILLIC ALTERATION IN AREAS OF MOST INTENSE FRACTURING, CHLORITIC ALTERATION IN LESS FRACTURED AREAS, CENTERED UPON A DACITE DOME.  
 FORMATION AGE.....TERT  
 FORMATION NAME.....RONDAL BASALT  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....RONDAL BASALT  
 GENERAL COMMENTS.....GEOPHYSICAL SURVEY: GROUND EM 5 LINES IN 100,000 SQ M  
 NON-USGS WORK.....DEPARTAMENTO NACIONAL DE GEOLOGIA, GEOLOGICAL STUDY, 1964  
 NON-USGS WORK.....GEOBOL/COMIBOL PROYECTO LIPEZ, GEOLOGICAL AND GEOPHYSICAL STUDY, 1970-1971.  
 NON-USGS WORK.....UNITED NATIONS DEVELOPMENT PROJECT, GEOLOGICAL STUDY, 1988  
 REFERENCE...MEDINA AND IBAÑEZ (1988B), SERVICIO GEOLOGICO DE BOLIVIA (1971FF), VALENCIA (1973)

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MRDS RECORD NUMBER.....BL10148  
SITE NAME.....MESA VERDE OCCURRENCE  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....MINA ESMERALDA 6229-I 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4200 M  
LATITUDE.....21-22-17S LONGITUDE.....066-31-35W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....6.5 KM N40W OF CERRILLOS  
LOCATION COMMENTS.....AT BASE OF NW FLANK OF CERRO TANGANI  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....CHALCOCITE; MALACHITE  
GENERAL ANALYTICAL DATA.....ANALYSES BY GEOBOL (1971GG): 0 TO 0.1% CU  
OCCUR.....CU  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR  
STRIKE.....E-W  
HOST ROCK AGE.....LOLIGO  
HOST ROCK TYPE.....CONGLOMERATE  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....BASALT  
AGE OF MINERALIZATION.....TERT  
ORE CONTROL/LOCUS.....PREFERRED BEDS  
SIGNIFICANT REGIONAL STRUCTURES.....ON E FLANK OF KHELLU-KHELLU  
ANTICLINE  
SIGNIFICANT ALTERATION.....NEARBY BASALT ALTERED WITH PYRITE AND  
CHLORITE  
FORMATION AGE.....LOLIGO  
FORMATION NAME.....QUEHUA INFERIOR  
IGNEOUS UNIT AGE.....TERT  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(1971GG)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971GG)

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MRDS RECORD NUMBER.....BL10001  
SITE NAME.....MESTIZO MINE  
SYNONYM NAME.....CERRO MESTIZO. ADITS: ALCIRA, ALPAZA  
PROVINCE.....SUD LIPEZ

PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN ANTONIO DE LIPEZ 6228-III 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4800 M  
 LATITUDE.....21-54-21S LONGITUDE.....066-57-11W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....9 KM SW OF SAN ANTONIO DE LIPEZ,  
 88 KM SW OF SAN VICENTE  
 LOCATION COMMENTS.....12 KM BY ROAD FROM SAN ANTONIO DE LIPEZ,  
 160 KM BY ROAD FROM ATOCHA RAILROAD STATION.  
 COMMODITIES PRESENT.....AU AG SB ZN CU  
 ORE MATERIALS.....STIBNITE, GOLD, SILVER; SPHALERITE,  
 COVELLITE, BORNITE  
 GENERAL ANALYTICAL DATA.....ANALYSES FOR AU, AG, AND SB IN ANONYMOUS  
 (1989). AVERAGE GRADE IS ABOUT 0.14 G/MT AU, 12 G/MT AG, AND 0.2% SB.  
 NON-PRODUCER MAIN.....AU AG SB  
 NON-PRODUCER MINOR.....ZN CU  
 PRODUCTION.....U  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....COOPERATIVA MINERA  
 EXPLORATION AND DEVELOPMENT COMMENTS.....EXPLORED BY A COOPERATIVE  
 DURING THE 1960'S  
 DEPOSIT TYPE.....STOCKWORK, LOSE  
 DEPOSIT FORM.....IRREGULAR  
 MAXIMUM LENGTH.....300 UNITS...M  
 MAXIMUM WIDTH.....250 UNITS...M  
 MAXIMUM THICKNESS.....100 UNITS...M  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT DIMENSIONS REFER TO CERRO  
 MESTIZO STOCKWORK ORE ZONE. PIQUE ESPANOL MINERALIZED SHEAR ZONE STRIKES  
 N35E FOR 700 M WITH A WIDTH OF 10M. SOCAVON ALCIDA MINERALIZED SHEAR  
 ZONE STRIKES N75E FOR 900 M WITH A WIDTH OF 20M. AN AREA OF 200 BY 400 M  
 DISPLAYS VISIBLE ALTERATION.  
 DESCRIPTION OF WORKINGS.....B  
 LENGTH OF WORKINGS.....1600 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS CONSIST OF SHALLOW  
 PROSPECT PITS AND ONE ADIT (SOCAVON ALCIDE)  
 HOST ROCK AGE.....LOLIGO  
 HOST ROCK TYPE.....ARKOSIC SANDSTONE, MUDSTONE, CARBONATE,  
 TUFF AND BASALT  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....BASALT, DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, BARITE, PYRITE,  
 MARCASITE; LIMONITE, HEMATITE, CERVANTITE  
 ORE CONTROL/LOCUS.....SHEAR ZONES, FRACTURE ZONES ORIENTED N-S  
 AND N55E  
 SIGNIFICANT ALTERATION.....SILICIFICATION, DISTAL PROPYLITIZATION,  
 KAOLINIZATION

FORMATION AGE.....LOLIGO  
 FORMATION NAME.....QUEHUA INFERIOR  
 GENERAL COMMENTS.....GEOPHYSICAL SURVEY: GROUND EM 9 LINES IN  
 160,000 SQ M  
 NON-USGS WORK.....GEOPHYSICAL AND GEOLOGICAL INVESTIGATIONS  
 BY GEOBOL (1971HH)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (PINTO,  
 1988A)  
 REFERENCE....PINTO (1988A), SERVICIO GEOLOGICO DE BOLIVIA (1971HH),  
 ANONYMOUS (1989)

## POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
VEIN						
ORE	EST	13000	MT		1989	.054 OZ/MT AU
STOCKWORK						
ORE	EST	75000	MT		1989	.02 OZ/MT AU
ORE	EST	57.5	MT			0.11 G/T AU; 13 G/T AG, 0.2 TO 34% SB
SOURCE OF POTENTIAL RESOURCES INFORMATION.....ANONYMOUS (1989)						
POTENTIAL RESOURCES COMMENTS.....BETWEEN 40 AND 75 MILLION MT ORE AND 0.7 TO 1.5 MILLION TROY OZ AU.						

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MRDS RECORD NUMBER.....BL10177  
 SITE NAME.....MILLURI MINE  
 SYNONYM NAME.....OCAÑA, VOLCAN OCAÑA  
 MINING DISTRICT/AREA.....OCAÑA VOLCANO  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA KHOMA 5932-III 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4820 M  
 LATITUDE.....20-37-01S LONGITUDE.....068-25-41W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....9 KM S65W OF ESTANCIA EMPEXA  
 LOCATION COMMENTS.....ON CERRO MILLURI, E FLANK VOLCAN OCAÑA.  
 ONE OF SEVERAL S DEPOSITS ON THIS VOLCANO, MOST OF WHICH ARE IN CHILE  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 GENERAL ANALYTICAL DATA.....AVERAGE GRADE 40% S  
 MAJOR.....S  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT FORM.....BLANKET  
 DEPTH TO BOTTOM.....6 UNITS...M  
 MAXIMUM LENGTH.....500 UNITS...M

MAXIMUM WIDTH.....150           UNITS...M  
 MAXIMUM THICKNESS..... 6           UNITS...M  
 DEPOSIT DESCRIPTION COMMENTS.....MANTO LIES BENEATH A LAVA FLOW 3  
 TO 4 M THICK.  
 DESCRIPTION OF WORKINGS.....U  
 HOST ROCK AGE.....PLIO  
 HOST ROCK TYPE.....VOLCANIC ASH?  
 AGE OF IGNEOUS ROCK.....PLIO  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH?  
 AGE OF MINERALIZATION.....PLIO  
 ORE CONTROL/LOCUS.....POROUS VOLCANIC ROCK BENEATH IMPERMEABLE  
 LAVA FLOW  
 REFERENCE...AHLFELD AND SCHNEIDER-SCHERBINA (1964)

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	80	MT		1964	60% S

SOURCE OF RESERVES AND RESOURCES INFORMATION.....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10000  
 SITE NAME.....MONSERRAT MINE  
 SYNONYM NAME.....CERRO MONSERRAT; VEINS: SONISELMA,  
 SALVADORA, SAN MARTIN, MONSERRAT  
 MINING DISTRICT/AREA.....SAN VICENTE  
 PROVINCE.....SUR CHICHAS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....VENTILLAS 6330-III 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4600 M  
 LATITUDE.....21-13-40S           LONGITUDE.....066-18-57W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3.5 KM N10W OF SAN VICENTE, 45 KM  
 BY ROAD FROM RAILROAD STATION AT ATOCHA  
 COMMODITIES PRESENT.....AG   AU   PB   ZN   CU   SN   BI   SB  
 ORE MATERIALS.....AG SULPHOSALTS, GALENA, PYRARGYRITE,  
 TETRAHEDRITE, BOULANGERITE, SPHALERITE, CHALCOPYRITE, LEAD SULPHOSALTS,  
 CASSITERITE, STANNITE, BI AND SB SULPHOSALTS, BOURNONITE  
 GENERAL ANALYTICAL DATA.....ASSAYS OF ORE AND DUMPS BY COMIBOL (PINTO,  
 1988; MARSH AND ROBINSON, 1966)  
 MAJOR.....AG  
 MINOR.....AU   PB   ZN   CU  
 OCCUR.....SN   BI   SB  
 NON-PRODUCER MAIN.....AU  
 NON-PRODUCER MINOR.....PB   ZN   CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)

OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 EXPLORATION AND DEVELOPMENT COMMENTS.....DRIFTING BY COMIBOL IN THE  
 1960'S. REOPENED BY COMIBOL 1979-80, EXPLORATION/DRILLING BY JICA  
 1980'S.

DEPOSIT TYPE.....STOCKWORK, DISSEMINATED, VEIN

USGS MODEL .....SN-POLYMETALLIC VEIN

USGS MODEL NUMBER.....20B

DEPOSIT FORM.....IRREGULAR

DEPTH TO BOTTOM..... 300 UNITS...M

MAXIMUM LENGTH.....1700 UNITS...M

MAXIMUM WIDTH..... 400 UNITS...M

MAXIMUM THICKNESS..... 300 UNITS...M

DEPOSIT DESCRIPTION COMMENTS.....DIMENSIONS ARE FOR CERRO  
 MONSERRAT STOCKWORK OREBODY. THERE ARE DISTAL VEINS SUCH AS THE VETA  
 SANISELMA.

DESCRIPTION OF WORKINGS.....B

DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS CONSIST OF SHALLOW  
 PROSPECTING PITS AND ADITS OF UNKNOWN DIMENSIONS.

HOST ROCK AGE.....OLIGO-MIO

HOST ROCK TYPE.....CONGLOMERATE

AGE OF MINERALIZATION.....TERT

PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE, MARCASITE;  
 JAROSITE, FE OXIDES

ORE CONTROL/LOCUS.....MAJOR EAST-WEST FRACTURES AND A CONJUGATE  
 FRACTURE SYSTEM ORIENTED N80E AND N60W DIPPING 40-70NW AND 60SW  
 RESPECTIVELY.

SIGNIFICANT REGIONAL STRUCTURES.....NNW FOLDS IN ORDOVICIAN SHALES  
 AND SANDSTONES UNDERLYING TERTIARY CONGLOMERATES AFFECT THICKNESS OF  
 CONGLOMERATES.

SIGNIFICANT ALTERATION.....SILICIC ALTERATION ZONE ON TOP OF CERRO  
 MONSERRAT UNDERLAIN BY MORE EXTENSIVE ZONE OF ARGILLIC ALTERATION.  
 SERICITIC ALTERATION IS NOT EXPOSED BUT IS FOUND BELOW 40 M DEPTH.

FORMATION AGE.....ÓLIGO-MIO

FORMATION NAME.....SAN VICENTE

NON-USGS WORK.....GEOLOGICAL AND GEOPHYSICAL INVESTIGATIONS  
 BY COMIBOL 1960'S

NON-USGS WORK.....GEOLOGICAL AND GEOPHYSICAL INVESTIGATIONS  
 BY JAPANESE MISSION JICA (1977, 1978, 1979) AND UNDP (PINTO 1988B, UNDP  
 1988)

REFERENCE...PINTO (1988B), JAPAN INTERNATIONAL COOPERATION AGENCY/METAL  
 MINING AGENCY OF JAPAN (1977, 1978, 1979), MALDONADO (1969), MARSH AND  
 ROBINSON (1966), UNDP (1988), RICO (1978)

#### POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	17000	MT		1987	ABOUT 0.3 G/MT AU, 151 G/MT AG

SOURCE OF POTENTIAL RESOURCES INFORMATION.....COMIBOL PROSPECTUS

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MRDS RECORD NUMBER.....BL10149

SITE NAME.....MULATO MINE

SYNONYM NAME.....VEINS: ROSICLER, MULATOS, A, C

PROVINCE.....SUD LIPEZ

PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN PABLO DE LIPEZ 6228-I 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4525 M  
 LATITUDE.....21-49-20S                      LONGITUDE.....066-34-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....11 KM N88W OF GUADALUPE  
 LOCATION COMMENTS.....ON CERRO HUAJRAYOJ  
 COMMODITIES PRESENT.....AG    PB    CU    BI  
 ORE MATERIALS.....GALENA, PYRARGYRITE, TETRAHEDRITE,  
 SPHALERITE, CHALCOPYRITE, BISMUTHINITE, PAVONITE; CERUSSITE, MALACHITE,  
 BISMUTITE, AZURITE  
 GENERAL ANALYTICAL DATA.....ANALYSES BY GEOBOL (1971III): 0 TO 160 G/T  
 AG, 0.92 TO 3.16% PB 0 TO TR BI.  
 MAJOR.....AG  
 MINOR.....PB  
 POTEN.....CU    BI  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....LODE, DISSEMINATED  
 DEPOSIT DESCRIPTION COMMENTS.....E-W ALTERATION ZONES UP TO 30M  
 WIDE, N60W 80NE VEINS 1 TO 3 CM WIDE, OTHER VEINS N30W. VETA ROSICLER IS  
 700 M LONG, VETA MULATOS 800 M LONG WITHIN A 30 M WIDE STRUCTURE, VETA A  
 IS 1000 M LONG. MULATOS FAULT, 2 KM LONG, CARRIES GALENA-PYRARGYRITE-  
 PYRITE.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....32                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT, SHAFTS  
 HOST ROCK AGE.....LTERT  
 HOST ROCK TYPE.....CRYSTAL TUFF, WELDED TUFF  
 AGE OF IGNEOUS ROCK.....LTERT  
 IGNEOUS ROCK TYPE.....CRYSTAL, TUFF WELDED TUFF  
 AGE OF MINERALIZATION.....TERT?  
 PERTINENT MINERALS (NOT ORE).....BARITE, LIMONITE, PYRITE,  
 QUARTZ, HEMATITE, SIDERITE, MARCASITE, KAOLINITE  
 ORE CONTROL/LOCUS.....FRACTURES  
 SIGNIFICANT LOCAL STRUCTURES.....STRONG E-W STRUCTURAL TREND  
 SIGNIFICANT ALTERATION.....KAOLINIZATION, SILICIFICATION  
 FORMATION AGE.....EMIO-MIO  
 FORMATION NAME.....QUEHUA SUPERIOR  
 IGNEOUS UNIT AGE.....EMIO-MMIO  
 IGNEOUS UNIT NAME.....QUEHUA SUPERIOR  
 GEOLOGY COMMENTS.....WALL ROCK CONTAINS DISSEMINATED PYRITE-  
 CHALCOPYRITE-TETRAHEDRITE.  
 GENERAL COMMENTS.....EM SURVEY OF ALTERATION ZONES COVERED  
 82,500 SQ M IN 12 LINES USING TURAM. GEOCHEMICAL SURVEY: 180 SAMPLES IN  
 236,000 SQ M AREA ANALYZED FOR PB AND ZN.

NON-USGS WORK.....GEOLOGICAL, GEOPHYSICAL AND GEOCHEMICAL  
INVESTIGATIONS BY SERVICIO GEOLOGICO DE BOLIVIA (1971II)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971II), REQUENA (1971)

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MRDS RECORD NUMBER.....BL10104  
 SITE NAME.....**NEGRA MINE**  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5930-IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3820 M  
 LATITUDE.....21-02-27S                      LONGITUDE.....068-17-51W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6.5 KM S50E OF PAJANCHA, 620 KM  
 FROM LA PAZ BY ROAD  
 LOCATION COMMENTS.....ON NE FLANK OF CHIPAPA LOMA  
 COMMODITIES PRESENT.....AG    MN  
 ORE MATERIALS.....MN OXIDES  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY SANJINES (1968): 28.55% MN  
 20 G/T AG  
 OCCUR.....AG    MN  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COOPERATIVA MINERA INDUSTRIAL EL PORVENIR  
 OPERATOR.....COOPERATIVA MINERA INDUSTRIAL EL PORVENIR  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....EPITHERMAL MN  
 USGS MODEL NUMBER.....25G  
 STRIKE.....N 55 W  
 DIP.....68?  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE 2 TO 90 CM WIDE  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....2.5                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
 HOST ROCK AGE.....PLIO  
 HOST ROCK TYPE.....VITRIC TUFF  
 AGE OF IGNEOUS ROCK.....PLIO  
 IGNEOUS ROCK TYPE.....VITRIC TUFF  
 AGE OF MINERALIZATION.....PLIO  
 PERTINENT MINERALS (NOT ORE).....FE OXIDES  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY SANJINES  
 (1968A)  
 REFERENCE....SANJINES (1968A)

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MRDS RECORD NUMBER.....BL10137  
 SITE NAME.....**NEVADO CANDELARIA OCCURRENCE**  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....BELLA VISTA 5834-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5000 M  
 LATITUDE.....19-44-46S                      LONGITUDE.....068-40-45W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....15 KM N65W OF BELLA VISTA  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 OCCUR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....LAVA  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....LAVA  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCES....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10150  
 SITE NAME.....**NUEVO MUNDO MINE**  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN ANTONIO DE LIPEZ 6228-III 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5200 M  
 LATITUDE.....21-56-22S                      LONGITUDE.....066-54-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....8 KM S15W OF SAN ANTONIO DE LIPEZ  
 LOCATION COMMENTS.....ON SE FLANK CERRO NUEVO MUNDO  
 COMMODITIES PRESENT.....CU   AG   PB   ZN  
 ORE MATERIALS.....CHALCOPYRITE, TENNANTITE, CHALCOCITE  
 GENERAL ANALYTICAL DATA.....ASSAYS BY GEOBOL (1971JJ): 0 TO 8.3% CU,  
 1.1 TO 11.1% ZN, 0.3 TO 0.7% PB, 0 TO 1.5 DM/T AG.  
 MAJOR.....AG  
 MINOR.....PB  
 POTEN.....CU    ZN  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....LODE  
 STRIKE.....N 68 TO 80 E  
 DIP.....VERTICAL

DEPOSIT DESCRIPTION COMMENTS.....VEINS UP TO 2 M WIDE  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....BIOTITE DACITE  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....BIOTITE DACITE  
AGE OF MINERALIZATION.....TERT?  
PERTINENT MINERALS (NOT ORE).....PYRITE, CALCITE, BARITE, QUARTZ,  
FE OXIDES  
ORE CONTROL/LOCUS.....FRACTURES  
SIGNIFICANT ALTERATION.....SERICITE, KAOLIN, CHLORITE, PYRITE, SILICA  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(1971JJ)  
NON-USGS WORK.....PROSPECTED BY COMIBOL 1958  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971JJ)

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MRDS RECORD NUMBER.....BL10012  
SITE NAME.....PAMPA GUADALUPE MINE  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5100 M  
LATITUDE.....21-49-00S                      LONGITUDE.....066-29-00W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....4 KM N40E OF GUADALUPE  
LOCATION COMMENTS.....ON SOUTHEAST FLANK OF CERRO PUCA SALLE  
COMMODITIES PRESENT.....AG    PB    CU  
ORE MATERIALS.....GALENA, CHRYSOCOLLA  
MAJOR.....AG    PB  
OCCUR.....CU  
PRODUCTION.....S  
DISCOVERER.....SPANISH COLONISTS  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
DEPOSIT TYPE.....LODE  
DESCRIPTION OF WORKINGS.....U  
DESCRIPTION OF WORKINGS COMMENTS.....DEPOSIT DEVELOPED BY THREE  
ADITS OVER A VERTICAL INTERVAL OF A FEW 10'S OF METERS  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....DACITE TO RHYODACITE  
AGE OF IGNEOUS ROCK.....TERT  
IGNEOUS ROCK TYPE.....DACITE TO RHYODACITE  
AGE OF MINERALIZATION.....TERTIARY  
PERTINENT MINERALS (NOT ORE).....COLLOIDAL QUARTZ, SIDERITE  
SIGNIFICANT ALTERATION.....SILICIFICATION  
FORMATION AGE.....TERTIARY  
FORMATION NAME.....CERRO BONETE  
IGNEOUS UNIT AGE.....TERT  
IGNEOUS UNIT NAME.....CERRO BONETE

NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (JIMENEZ  
AND NUÑEZ, 1988)  
REFERENCE....JIMENEZ AND NUÑEZ (1988), VALENCIA (1973)

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MRDS RECORD NUMBER.....BL10274  
SITE NAME.....**PEÑA BARROSA PLACER**  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CERRO QUETENA 6127-III 1972  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4200 M  
LATITUDE.....22-12-04S                      LONGITUDE.....067-21-22W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....2.5 KM S50W OF PEÑA BARROSA  
LOCATION COMMENTS.....ON A TRIBUTARY TO RIO QUETENA  
COMMODITIES PRESENT.....AU  
ORE MATERIALS.....GOLD  
MAJOR.....AU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....PLACER  
USGS MODEL .....PLACER AU  
USGS MODEL NUMBER.....39A  
DESCRIPTION OF WORKINGS.....S  
HOST ROCK AGE.....QUAT  
AGE OF MINERALIZATION.....QUAT  
REFERENCE....RODRIGUEZ AND OTHERS (1976)

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MRDS RECORD NUMBER.....BL10055  
SITE NAME.....**PLASMAR MINE**  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SANTIAGO DE AGENCHA 6032-II 1972  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3700 M  
LATITUDE.....20-38-58S                      LONGITUDE.....067-38-41W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....10 KM N10E OF VILLA MARTIN  
COMMODITIES PRESENT.....AG    PB  
ORE MATERIALS.....GALENA  
GENERAL ANALYTICAL DATA.....ORE ANALYSES BY BALLIVIAN AND VARGAS  
(1971): 8.6 TO 32.3% PB TR TO 410 G/T AG; CONCENTRATES: 61.9% PB 1105  
G/T AG

MAJOR.....AG PB  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COOPERATIVA AGRICOLA-MINERA ALTO DE ALIANZA  
 OPERATOR.....COOPERATIVA AGRICOLA-MINERA ALTO DE ALIANZA  
 DEPOSIT TYPE.....LODE  
 DEPOSIT FORM.....IRREGULAR  
 DEPOSIT DESCRIPTION COMMENTS.....IRREGULAR ORE SHOOT 1 TO 3 M WIDE  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....83 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....2 ADITS (INCLUDING SAN SALVADOR)  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....RHYODACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE HEMATITE  
 FORMATION AGE.....TERT  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL, BALLIVIAN AND VARGAS (1971)  
 REFERENCE....BALLIVIAN AND VARGAS (1971)

## ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	ACC	.001	MT		1969	2,065 G/MT AG

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MRDS RECORD NUMBER.....BL10330  
 SITE NAME.....PUCA MOKHO MINE  
 SYNONYM NAME.....SAN ANTONIO, CERRO CAQUILAN  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO ARARAL 5929-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4100 M  
 LATITUDE.....21-33-35S LONGITUDE.....068-01-34W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....7 KM N60W OF MINA CORINA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....NATIVE CU, CUPRITE, AZURITE, MALACHITE  
 MAJOR.....CU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 DEPOSIT FORM.....LENTICULAR  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....SANDSTONE  
 FORMATION AGE.....TERT

IGNEOUS UNIT AGE.....QUAT?

REFERENCE....RODRIGUEZ AND OTHERS (1976)

ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
CONS	ACC	.576	MT		1960	66.07% CU

SOURCE OF PRODUCTION INFORMATION.....INVENTARACION DE RECURSOS  
MINERALES DE LA MINERIA CHICA

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MRDS RECORD NUMBER.....BL10344

SITE NAME.....PULACAYITO MINE

PROVINCE.....SUD LIPEZ

PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973

QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....SAN PABLO DE LIPEZ 6228-I 1971

SECOND QUAD SCALE.....1:50,000

ELEVATION.....4600 M

LATITUDE.....21-44-18S LONGITUDE.....066-36-19W

ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....5 KM S10E OF SAN PABLO DE LIPEZ

COMMODITIES PRESENT.....SB

ORE MATERIALS.....UNKNOWN

MAJOR.....SB

PRODUCTION.....Y

STATUS AND ACTIVITY.....4

NATURE OF DISCOVERY.....B

DEPOSIT TYPE.....LODE

HOST ROCK AGE.....EMIO-MMIO

AGE OF MINERALIZATION.....TERT

FORMATION AGE.....EMIO-MMIO

FORMATION NAME.....QUEHUA SUPERIOR

REFERENCE....IBÁÑEZ AND MEDINA (1988)

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MRDS RECORD NUMBER.....BL10171

SITE NAME.....PULULUS OCCURRENCE

PROVINCE.....NOR LIPEZ

PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973

QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....CERRO SANTA ISABEL 6229-II 1970

SECOND QUAD SCALE.....1:50,000

ELEVATION.....3970 M

LATITUDE.....21-30-08S LONGITUDE.....066-40-10W

ACCURACY.....ACC

LOCATION COMMENTS.....NEAR SCHOOL AT PULULUS

COMMODITIES PRESENT.....CU U?

ORE MATERIALS.....CU OXIDES, CHRYSOCOLLA, MALACHITE

GENERAL ANALYTICAL DATA.....LESS THAN 1.0% CU, NO RADIOACTIVITY  
 DETECTED.  
 OCCUR.....CU U?  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 OWNER (PRESENT/LAST).....COMISION DE ENERGIA ATOMICA  
 OPERATOR.....COMISION DE ENERGIA ATOMICA  
 DEPOSIT TYPE.....STRATABOUND  
 DEPOSIT FORM.....LENTICULAR  
 DEPOSIT DESCRIPTION COMMENTS.....WEAKLY DISSEMINATED CU MINERALS  
 IN CONGLOMERATE OF ORDOVICIAN SHALE CLASTS IN TUFFACEOUS MATRIX.  
 DESCRIPTION OF WORKINGS.....S  
 DESCRIPTION OF WORKINGS COMMENTS.....PROSPECT PIT  
 HOST ROCK AGE.....PLEIS  
 HOST ROCK TYPE.....CONGLOMERATE  
 AGE OF MINERALIZATION.....PLEIS?  
 FORMATION AGE.....PLEIS  
 REFERENCE....MURILLO AND OTHERS (1969)

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MRDS RECORD NUMBER.....BL10046  
 SITE NAME.....PUNTILLAS MINE  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA PAKO 6130-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4850 M  
 LATITUDE.....21-03-17S LONGITUDE.....067-26-18W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....2.5 KM S40W OF SANTA ANA. 159 KM  
 BY ROAD FROM UYUNI.  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....BROCHANTITE; MALACHITE, TENORITE,  
 CHRYSOCOLLA  
 GENERAL ANALYTICAL DATA.....ORE ASSAYS BY GEOBOL (1971) 0.4 TO 28.8%  
 CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 DISCOVERER.....FLORENCIO COLQUE  
 YEAR OF DISCOVERY.....1964  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1964  
 YEAR OF LAST PRODUCTION.....UNKNOWN  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....MANTO, LODE  
 USGS MODEL .....SEDIMENT HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR, IRREGULAR

MAXIMUM LENGTH..... 50           UNITS...M  
 MAXIMUM WIDTH.....0.28           UNITS...M  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N15E TO N-S  
 DIP.....40NW  
 DEPOSIT DESCRIPTION COMMENTS.....VEIN STRIKES N60W 11SE AND IS 3  
 TO 28 CM WIDE. ONE MANTO IS 50 M LONG AND 10 CM THICK, ANOTHER 20 M LONG  
 AND 3 CM THICK  
 DESCRIPTION OF WORKINGS.....U  
 HOST ROCK AGE.....MIO  
 HOST ROCK TYPE.....CONGLOMERATE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....CHALCEDONY, AGATE, MN OXIDES  
 ORE CONTROL/LOCUS.....PREFERRED BEDS, VEINS  
 SIGNIFICANT LOCAL STRUCTURES.....FRACTURES  
 FORMATION AGE.....MIO  
 FORMATION NAME.....SAN VICENTE  
 NON-USGS WORK.....EXAMINED BY J. FUENTES FOR COMIBOL IN 1967  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971LL)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971LL)  
                   RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	1.756	MT		1971	7.72% CU

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....GEOBOL (1971LL)

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MRDS RECORD NUMBER.....BL10269  
 SITE NAME.....**QUETANA GRANDE DISTRICT**  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO QUETENA 6127-III 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4300 M  
 LATITUDE.....22-11-08S           LONGITUDE.....067-21-15W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....1.5 KM DUE W OF PEÑA BARROSA  
 COMMODITIES PRESENT.....AG   CU  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....AG  
 MINOR.....CU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....2  
 DISCOVERER.....SPANISH COLONISTS?  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 REFERENCES....CARDONA (1974), REYNALDO (1974)

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MRDS RECORD NUMBER.....BL10349  
SITE NAME.....QUILLACAS MINE  
PROVINCE.....SUD CHICHAS  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....PUEBLO VIEJO 6328-III 1971  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3800 M  
LATITUDE.....21-56-18S                      LONGITUDE.....068-19-22W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....35 KM S30E OF ESTANCIA KHUCHU  
HUASI  
COMMODITIES PRESENT.....CU    BI  
ORE MATERIALS.....UNKNOWN  
MAJOR.....CU    BI  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
HOST ROCK AGE.....LOLIGO  
AGE OF IGNEOUS ROCK.....LOLIGO  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....LOLIGO  
FORMATION NAME.....RONDAL  
IGNEOUS UNIT AGE.....LOLIGO  
IGNEOUS UNIT NAME.....RONDAL  
REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10052  
SITE NAME.....RIO SAN PABLO PLACER  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....MINA ESCALA 6229-III 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....21-32-45S                      LONGITUDE.....066-50-15W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....A FEW KM NE OF ESCALA MINE  
LOCATION COMMENTS.....EXACT LOCATION UNKNOWN  
COMMODITIES PRESENT.....AU  
ORE MATERIALS.....NATIVE AU  
MAJOR.....AU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
DISCOVERER.....LOCAL CAMPESINO  
YEAR OF DISCOVERY.....1990?  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....LOCAL CAMPESINO

OPERATOR.....LOCAL CAMPESINO  
DEPOSIT TYPE.....PLACER AU  
USGS MODEL .....AU-PGE PLACER  
USGS MODEL NUMBER.....39A  
DESCRIPTION OF WORKINGS.....S  
HOST ROCK AGE.....QUAT  
HOST ROCK TYPE.....GRAVEL  
AGE OF MINERALIZATION.....QUAT  
FORMATION AGE.....QUAT  
GENERAL COMMENTS.....USGS/GEOBOL PERSONNEL WERE SHOWN A CUP OF  
BLACK SAND WITH MORE THAN 20 FLAKES OF AU, INCLUDING A NUGGET ABOUT 2 MM  
IN DIAMETER BY OWNER OF CLAIM  
SOURCE OF INFORMATION...FIELD INVESTIGATIONS BY USGS/GEOBOL, 1990

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MRDS RECORD NUMBER.....BL10188  
SITE NAME.....RIO SANTA ISABEL PLACER  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CERRO SANTA ISABEL 6229-II 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4650 M  
LATITUDE.....21-37-00S                      LONGITUDE.....066-29-50W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....15 KM N35E OF SAN PABLO DE LIPEZ  
LOCATION COMMENTS.....JUST EAST OF CERRO SANTA ISABEL  
COMMODITIES PRESENT.....AU    SN  
ORE MATERIALS.....CASSITERITE, NATIVE GOLD  
MAJOR.....SN    AU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....PLACER  
USGS MODEL .....AU-PGE PLACER  
USGS MODEL NUMBER.....39A  
DEPOSIT SIZE.....SMALL  
DESCRIPTION OF WORKINGS.....S  
HOST ROCK AGE.....QUAT  
HOST ROCK TYPE.....GRAVEL  
AGE OF MINERALIZATION.....QUAT  
WORK DONE BY USGS.....AREA VISITED BY USGS/GEOBOL PERSONNEL 1990  
REFERENCE....AHLFELD (1954)

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MRDS RECORD NUMBER.....BL10352  
SITE NAME.....RONCAL MINE  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4050 M  
 LATITUDE.....21-47-18S                      LONGITUDE.....066-15-53W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....4 KM S75W OF ENTRE RIOS  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 HOST ROCK AGE.....DEV?  
 FORMATION AGE.....DEV?  
 SOURCE OF INFORMATION....MINE SPOTTED ON LA CIENAGA (6328-IV) 1:50,000  
 SCALE TOPOGRAPHIC MAP.

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MRDS RECORD NUMBER.....BL10065  
 SITE NAME.....RONDAL MINE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4150 M  
 LATITUDE.....21-48-52S                      LONGITUDE.....066-18-26W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3.75 KM S45E OF LA CIENAGA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE, NATIVE CU, CUPRITE, MALACHITE,  
 AZURITE, CHRYSOCOLLA  
 GENERAL ANALYTICAL DATA.....ORE ASSAYS BY VARGAS AND BALLIVIAN (1972):  
 15.5% AND 31.5% CU  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....EMPRESA MINERA SAN JUAN LTDA.  
 OPERATOR.....EMPRESA MINERA SAN JUAN LTDA.  
 DEPOSIT TYPE.....LODE, DISSEMINATED  
 DEPOSIT FORM.....IRREGULAR  
 MAXIMUM LENGTH.....100                      UNITS...M  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....E-W N70W AND N85E  
 DIP.....VERTICAL  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....130                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....2 ADITS

HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....FRACTURES  
 GEOLOGY COMMENTS.....MINERALIZATION CONSISTS OF VEINLETS  
 FILLING FRACTURES AND "LOCAL CONCENTRATIONS"  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL,  
 VARGAS AND BALLIVIAN (1972)  
 REFERENCE....VARGAS AND BALLIVIAN (1972)

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MRDS RECORD NUMBER.....BL10073  
 SITE NAME.....ROSARIO DEL REY MINE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN DE JURIQUES SF 19-11 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO PANIZO 6027-II 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5310 M  
 LATITUDE.....22-15-00S      LONGITUDE.....067-33-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....825 KM FROM LA PAZ  
 LOCATION COMMENTS.....ON CERRO ROSARIO DEL REY  
 COMMODITIES PRESENT.....S      AS  
 ORE MATERIALS.....NATIVE S  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY CORDERO ET.AL. (1968) 0.33  
 TO 75.57% S, 0 TO 0.34% AS  
 MAJOR.....S  
 OCCUR.....AS  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....EMPRESA AZUFREIRA BARRERO  
 OPERATOR.....EMPRESA AZUFREIRA BARRERO  
 DEPOSIT TYPE.....DISSEMINATED STOCKWORK  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 STRIKE.....N40 TO 80W  
 DIP.....45 SW  
 DESCRIPTION OF WORKINGS.....S  
 DEPTH BELOW SURFACE.....5      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....SHALLOW PROSPECT PITS ONLY  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....VITRIC TUFF  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....BIOTITE DACITE, VITRIC TUFF  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 ORE CONTROL/LOCUS.....POROUS PYROCLASTICS  
 SIGNIFICANT ALTERATION.....CHALCEDONY

GEOLOGY COMMENTS.....DEPOSIT CONSISTS OF ALTERED VITRIC TUFF  
GRADING 4% S, IMPREGNATIONS IN VITRIC TUFF GRADING 30 TO 70% S AND RICH  
POCKETS 90% S

NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL,  
CORDERO ET.AL. (1968)

REFERENCE....CORDERO AND OTHERS (1968)

# RESERVES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	5115.1	MT		1968	51.5% S

SOURCE OF RESERVES INFORMATION.....CORDERO AND OTHERS (1968)

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MRDS RECORD NUMBER.....BL10013

SITE NAME.....ROSARIO II MINE

PROVINCE.....SUD LIPEZ

PHYSIOGRAPHIC PROVINCE.....ALTIPLANO

DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973

QUADRANGLE SCALE.....1:250,000

SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971

SECOND QUAD SCALE.....1:50,000

ELEVATION.....4800 M

LATITUDE.....21-49-00S LONGITUDE.....066-29-00W

ACCURACY.....EST

POSITION FROM NEAREST LOCALITY.....4.5 KM N40E OF GUADALUPE

LOCATION COMMENTS.....EAST FLANK OF CERRO PUCA SALLE

COMMODITIES PRESENT.....AG PB

ORE MATERIALS.....GALENA

MAJOR.....AG

MINOR.....PB

PRODUCTION.....S

NATURE OF DISCOVERY.....B

OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA

EXPLORATION AND DEVELOPMENT COMMENTS.....PROBABLY DISCOVERED AND

PROSPECTED IN THE LAST FEW DECADES

DEPOSIT TYPE.....LODE

DEPTH TO TOP.....O UNITS...M

DESCRIPTION OF WORKINGS.....U

DESCRIPTION OF WORKINGS COMMENTS.....MINE DEVELOPED BY TWO ADITS,  
ONLY THE UPPER ONE OF WHICH INTERSECTED MINERALIZATION

HOST ROCK AGE.....TERT

HOST ROCK TYPE.....DACITE, RHYODACITE

AGE OF IGNEOUS ROCK.....TERT

IGNEOUS ROCK TYPE.....DACITE, RHYODACITE

AGE OF MINERALIZATION.....TERT

PERTINENT MINERALS (NOT ORE).....QUARTZ

SIGNIFICANT ALTERATION.....SILICIFICATION, PROPYLITIZATION

FORMATION AGE.....TERT

FORMATION NAME.....CERRO BONETE

IGNEOUS UNIT AGE.....TERT

IGNEOUS UNIT NAME.....CERRO BONETE

NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (JIMENEZ  
AND NUÑEZ, 1988)

REFERENCE....JIMENEZ AND NUÑEZ (1988), VALENCIA (1973).

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MRDS RECORD NUMBER.....BL10304  
 SITE NAME.....ROSARIO MINE  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA ESCALA 6229-III 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4050 M  
 LATITUDE.....21-33-00S LONGITUDE.....066-53-00W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....5 KM NE OF ESTANCIA ESCALA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHRYSOCOLLA, BROCHANTHITE  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....LODE  
 DEPOSIT FORM.....IRREGULAR  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....8 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....SINGLE SHAFT INCLINED 40 DEG  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....BASALTIC ANDESITE  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....BASALTIC ANDESITE  
 AGE OF MINERALIZATION.....TERT?  
 PERTINENT MINERALS (NOT ORE).....JASPER, AGATE  
 ORE CONTROL/LOCUS.....BRECCIATED ANDESITE  
 FORMATION AGE.....TERT  
 IGNEOUS UNIT AGE.....TERT  
 WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL 1990  
 SOURCE OF INFORMATION...FIELD INVESTIGATIONS BY USGS/GEOBOL, 1990

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MRDS RECORD NUMBER.....BL10157  
 SITE NAME.....ROSARIO PROSPECT  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO SANTA ISABEL 6229-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4300 M

LATITUDE.....21-32-00S                      LONGITUDE.....066-43-16W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6.5 KM S55W OF PULULUS  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CHALCOCITE; MALACHITE  
 GENERAL ANALYTICAL DATA.....ASSAYS BY GEOBOL (1971MM): 0.57 TO 2.7% CU  
 MAJOR.....CU  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE, STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENSOID  
 MAXIMUM LENGTH.....150                      UNITS...M  
 MAXIMUM WIDTH.....25                      UNITS...M  
 MAXIMUM THICKNESS.....2                      UNITS...M  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....2.5                      UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....HEMATITE  
 ORE CONTROL/LOCUS.....FRACTURES PREFERRED BEDS  
 SIGNIFICANT REGIONAL STRUCTURES.....ON E FLANK OF SYNCLINE  
 FORMATION AGE.....EO  
 FORMATION NAME.....POTOCO  
 GEOLOGY COMMENTS.....HEMATITE CONCRETIONS CORED BY MALACHITE  
 FOUND IN STRATABOUND MINERALIZATION. CHALCOCITE OCCURS IN A 13 CM WIDE  
 VEIN NEARBY.  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971MM)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971MM)

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MRDS RECORD NUMBER.....BL10281  
 SITE NAME.....ROSITA MINE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN JURIQUE SF 19-11 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....VOLCAN PUTANA 6026-III 1973  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5500 M  
 LATITUDE.....22-35-14S                      LONGITUDE.....067-49-11W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5.5 KM N2.5W OF RIO BLANCO  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 MAJOR.....S  
 PRODUCTION.....Y

STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCES....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10047  
 SITE NAME.....SALAR DE CHALLVIRI  
 SYNONYM NAME.....LAGO SALADA, BORATERA DE CHALLVIRI  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN JURQUES SF 19-11 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO LAGUNITAS 6026-I 1972, CERRO  
 BORATERA DE CHALLVIRI 6026-II 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4400 M  
 LATITUDE....22-31-00S                      LONGITUDE....067-34-20W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM N OF CERRO BORATERA DE  
 CHALLVIRI  
 COMMODITIES PRESENT.....B  
 ORE MATERIALS.....ULEXITE, BORAX, COLEMANITE  
 MAJOR.....B  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 OPERATOR.....A CHILEAN CONCERN  
 DEPOSIT TYPE.....STRATABOUND, SALAR  
 USGS MODEL .....LACUSTRINE EVAPORITE COMPLEX  
 USGS MODEL NUMBER.....IM35BN  
 DEPOSIT FORM.....LENSOID  
 DEPOSIT DESCRIPTION COMMENTS.....BORAX IS FOUND IN LENSES OR  
 "PAQUETES" OF VARIABLE THICKNESS.  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....HOLO  
 AGE OF MINERALIZATION.....HOLO  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT....EVAPORATION  
 NON-USGS WORK.....EXPLORATION BY GEOBOL 1960'S  
 REFERENCE....CADIMA AND LAFUENTE (1969), BALLIVIAN AND RISACHER (1981)  
 RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	3082.676	MT	1969	62.21% BORAX

 POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ULEXITE	EST	2400	MT	1981	



SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
(1981)

POTENTIAL RESOURCES COMMENTS.....ESTIMATE FOR A CONCESSION  
OF 10 SQUARE KM WITHIN THE BORATE DEPOSIT

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MRDS RECORD NUMBER.....BL10044  
SITE NAME.....SALAR DE CHIGUANA  
SYNONYM NAME.....BORATERA LA CARRILLANA  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....ESTANCIA LAGUNA VERDE 5930-I 1970, VOLCAN  
OLLAGUE 5930-II 1970, 6030-IV  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3650 M  
LATITUDE.....21-08-00S LONGITUDE.....068-02-45W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....AT CHIGUANA  
LOCATION COMMENTS.....NE OF VOLCAN OLLAGUE  
COMMODITIES PRESENT.....HAL B  
ORE MATERIALS.....HALITE, ULEXITE?  
MAJOR.....B  
OCCUR.....HAL  
PRODUCTION.....S  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....SALAR, SALINE LAKE  
USGS MODEL .....SALINE LAKE BRINE  
USGS MODEL NUMBER.....IM35BN  
DEPOSIT DESCRIPTION COMMENTS.....BORATE DEPOSIT IS 1 SQ KM IN AREA  
AND 30 CM THICK.  
DESCRIPTION OF WORKINGS.....S  
DESCRIPTION OF WORKINGS COMMENTS.....OLD DUMPS STILL EXIST.  
HOST ROCK AGE.....HOLO  
AGE OF MINERALIZATION.....HOLO  
TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
REFERENCE....BALLIVIAN AND RISACHER (1981)

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MRDS RECORD NUMBER.....BL10041  
SITE NAME.....SALAR DE EMPEXA  
SYNONYM NAME.....LAQUECA, ISMA  
PROVINCE.....DANIEL CAMPOS  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5832-I, -II; 5932-IV; 5833-II; 5933-III, -IV

SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3717 M  
 LATITUDE.....20-19-46S LONGITUDE.....068-28-33W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....SOUTHERN SHORE IS JUST NORTH OF  
 ABRA DE NAPA AND EL DESIERTO  
 LOCATION COMMENTS.....GEODETIC COORDINATES ARE FOR APPROXIMATE  
 CENTER OF THE LI-BRINE BEARING SALITRE DEPOSIT IN UPPER PART OF THE  
 SALAR  
 COMMODITIES PRESENT.....BRI GYP HAL  
 ORE MATERIALS.....NA-(CA)-CL-(SO4)-BRINES GYPSUM HALITE  
 GENERAL ANALYTICAL DATA.....SEDIMENT ANALYSES BY BALLIVIAN AND  
 RISACHER (1981): LI 40 TO 185 PPM, K 150 TO 4000 PPM, B 10 TO 300 PPM.  
 BRINE ANALYSES BY ERICKSEN AND OTHERS (1977): 210 TO 580 PPM LI, 5.6 TO  
 7.9% NACL, 0.77 TO 2.0% K, 170 TO 260 PPM CA, 0.85 TO 2.3% MG, 16.2 TO  
 16.9% CL.  
 NON-PRODUCER MAIN.....BRI GYP HAL  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....AROUND 1900  
 YEAR OF LAST PRODUCTION.....1941  
 EXPLORATION AND DEVELOPMENT COMMENTS.....BORATERA LAQUECA WAS  
 EXPLOITED BY AN ENGLISH FIRM FOR 40 YEARS PRIOR TO 1941.  
 DEPOSIT TYPE.....SALAR, SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 DEPOSIT DESCRIPTION COMMENTS.....BORATERA LAQUECA IS 1 SQ KM IN  
 AREA AND 30 CM THICK. BORATERA ISMA IS 4 SQ KM IN AREA AND 30 TO 40 CM  
 THICK. SALT CRUST IS 400 MILLION SQ M IN AREA, 0.2 M THICK.  
 DESCRIPTION OF WORKINGS COMMENTS.....BORATERA LAQUECA MINED TO 80 CM  
 DEPTH. BORATERA ISMA HAS ONLY MINOR WORKINGS.  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....CLAYS, CALCITE, GYPSUM, HALITE  
 AGE OF MINERALIZATION.....HOLO  
 PERTINENT MINERALS (NOT ORE).....CLAYS CALCITE  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 WORK DONE BY USGS.....GEOLOGICAL RECONNAISSANCE BY ERICKSEN AND  
 OTHERS (1978)  
 NON-USGS WORK.....SOME 70 EXPLORATION WELLS DRILLED BY  
 GEOBOL IN EARLY 1960'S FOR BORATES. NO BORATES ENCOUNTERED.  
 NON-USGS WORK.....GEOLOGIC EVALUATION BY BALLIVIAN AND  
 RISACHER (1981)  
 REFERENCE....ERICKSEN AND OTHERS (1978), CADIMA AND LAFUENTE (1969),  
 BALLIVIAN AND RISACHER (1981), ERICKSEN AND OTHERS (1977)  
 RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
SALT	EST	100000	MT		1969	

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MRDS RECORD NUMBER.....BL10042  
 SITE NAME.....SALAR DE LA LAGUNA

SYNONYM NAME.....BORATERA LA LAGUNA  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN (SF 19-3)  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5931-III, 5931-IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3950 M  
 LATITUDE.....20-50-17S                      LONGITUDE.....068-27-34W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....10 KM S15W OF CANA  
 LOCATION COMMENTS.....GEODETIC COORDINATES ARE FOR APPROXIMATE  
 CENTER OF SALAR  
 COMMODITIES PRESENT.....NASO4                      HAL  
 ORE MATERIALS.....SODIUM SULFATE, NATRON, HALITE  
 MAJOR.....NASO4  
 OCCUR.....HAL  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 EXPLORATION AND DEVELOPMENT COMMENTS.....DEPOSIT IS INTERMITTENTLY  
 WORKED BY PEASANTS FROM SAN PEDRO QUEMEZ  
 DEPOSIT TYPE.....SALAR, SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....HOLO  
 AGE OF MINERALIZATION.....HOLO  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 REFERENCE....BALLIVIAN AND RISACHER (1981)

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MRDS RECORD NUMBER.....BL10005  
 SITE NAME.....SALAR DE UYUNI  
 SYNONYM NAME.....COSTRA DE SAL DEL SALAR DE UYUNI  
 PROVINCE.....DANIEL CAMPOS/NOR LIPEZ/LADISLAO CABRERA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SF 19-3, SF 19-4, SE 19-15, SE 19-16  
 QUADRANGLE SCALE.....1:250,000  
 ELEVATION.....3653 M  
 LATITUDE.....20-00-00S                      LONGITUDE.....068-00-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....EASTERN EDGE OF THE SALAR DE  
 UYUNI IS 4 KM WEST OF UYUNI  
 LOCATION COMMENTS.....LOCATION IS APPROXIMATE CENTER OF THE  
 SALAR DE UYUNI, A DRY LAKE 9000 SQUARE KILOMETERS IN EXTENT, THE LARGEST  
 DRY LAKE IN THE WORLD.  
 COMMODITIES PRESENT.....HAL    SYL    GYP  
 ORE MATERIALS.....HALITE, SYLVITE, GYPSUM

GENERAL ANALYTICAL DATA.....SEE RETTIG AND OTHERS, 1980; BALLIVIAN AND  
 RISACHER, 1981 FOR BRINE ANALYSES  
 OCCUR.....SYL GYP  
 NON-PRODUCER MAIN.....HAL  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....NATIVE AMERICANS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COMPLEJO INDUSTRIAL DE LOS RECURSOS  
 EVAPORITICOS DEL SALAR DE UYUNI  
 OPERATOR.....COMPLEJO INDUSTRIAL DE LOS RECURSOS  
 EVAPORITICOS DEL SALAR DE UYUNI  
 DEPOSIT TYPE.....EVAPORITE  
 USGS MODEL .....LACUSTRINE EVAPORITE  
 USGS MODEL NUMBER.....IM35BN  
 DEPOSIT FORM.....DRY LAKE BED  
 DEPTH TO BOTTOM..... 10           UNITS...M  
 MAXIMUM LENGTH.....150           UNITS...KM  
 MAXIMUM WIDTH.....140           UNITS...KM  
 MAXIMUM THICKNESS..... 10       UNITS...M  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS FLAT LYING CONSISTING  
 OF A POROUS SALT CRUST UP TO 10 M THICK. A DIAMOND DRILL HOLE NEAR ISLA  
 DE PESCADA PENETRATED 15 M OF SALT CRUST AND BOTTOMED IN BRINE SATURATED  
 LACUSTRINE SEDIMENTS AT 150 M. IN THE SOUTHERN PART OF THE SALAR THE  
 CRUST CAN BE A THIN AS 50 CM.  
 DESCRIPTION OF WORKINGS.....S  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS WOULD BE OPEN PIT  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....EVAPORITE  
 AGE OF MINERALIZATION.....HOLO  
 PERTINENT MINERALS (NOT ORE).....CALCITE, CLAYS  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....SOLAR EVAPORATION  
 GEOLOGY COMMENTS.....LAKE BED CONSISTS OF A CRUST OF HALITE UP  
 TO 10 M THICK OVERLYING A LAYER OF IMPERMEABLE MUD. ADDITIONAL SALT  
 LAYERS ARE KNOWN TO EXIST BELOW THE EXPOSED SALT CRUST. BRINES ARE FOUND  
 10 TO 20 CM BELOW  
 REFERENCES....BALLIVIAN AND RISACHER (1981), ERICKSEN AND OTHERS (1978),  
 RISACHER AND MIRANDA (1976), RISACHER AND OTHERS (1976), RETTIG AND  
 OTHERS (1980), ARMENDIA (1978), DAVIS AND OTHERS (1982)

## POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
SALT	EST	64000000	MT		1981	

SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)  
 POTENTIAL RESOURCES COMMENTS.....TONNAGE OF SALT IN  
 EXPOSED SALT CRUST. VOLUME OF CRUST IS 45 CUBIC KM WITH 30% POROSITY.  
 MINOR IMPURITIES OF SYLVITE AND GYPSUM ARE NOT ACCOUNTED FOR.

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MRDS RECORD NUMBER.....BL10043  
 SITE NAME.....SALAR LAGUANI  
 SYNONYM NAME.....SALAR DE LAGUANI, BORATERA PAJONCHA

PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA SECCICHA 5931-III 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3750 M  
 LATITUDE.....20-56-31S                      LONGITUDE.....068-18-10W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....9 KM S10E OF CANA  
 LOCATION COMMENTS.....GEODETIC COORDINATES FOR APPROXIMATE  
 CENTER OF SALAR  
 COMMODITIES PRESENT.....B            HAL  
 ORE MATERIALS.....ULEXITE, HALITE  
 NON-PRODUCER MAIN.....B  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 EXPLORATION AND DEVELOPMENT COMMENTS.....EXPLORED BY GEOBOL EARLY  
 1960'S; 8 DRILL HOLES AVERAGE 0.99 M DEEP. 4 SAMPLES TAKEN.  
 DEPOSIT TYPE.....SALAR, SALINE LAKE  
 USGS MODEL .....SALINE LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 DEPOSIT FORM.....LENSE  
 DEPOSIT DESCRIPTION COMMENTS.....BORATE DEPOSIT HAS A SURFACE AREA  
 OF 5 SQUARE KM AND AN AVERAGE THICKNESS OF 5 CM  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....LAKE SEDIMENTS  
 AGE OF MINERALIZATION.....HOLO  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 NON-USGS WORK.....EXPLORATION BY GEOBOL EARLY 1960'S  
 REFERENCE....BALLIVIAN AND RISACHER (1981), CADIMA AND LAFUENTE (1969)  
                   RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	752.264	MT	1969	74.28% BORAX

POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ULEXITE	EST	480	MT	1969	
ULEXITE	EST	300	MT	1981	

SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)  
 POTENTIAL RESOURCES COMMENTS.....FIRST ESTIMATE IS FROM  
 CADIMA AND LAFUENTE (1969) FOR A CONCESSION OF 2 SQUARE KM. THE SECOND  
 ESTIMATE IS BY BALLIVIAN AND RISACHER (1981) FOR THE ENTIRE DEPOSIT

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MRDS RECORD NUMBER.....BL10022  
 SITE NAME.....SALMUERA DEL RIO GRANDE  
 SYNONYM NAME.....SALAR DE UYUNI  
 MINING DISTRICT/AREA.....SALAR DE UYUNI  
 PROVINCE.....D. CAMPOS, NOR LIPEZ

PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....UYUNI SF 19-4 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....6131-IV, 6132-III  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3653 M  
 LATITUDE.....20-39-00S                      LONGITUDE.....067-19-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....58 KM SW OF UYUNI  
 LOCATION COMMENTS.....ZONE OF HIGH BRINE CONCENTRATION WHERE THE  
 RIO GRANDE DE LIPEZ FLOWS INTO THE SALAR DE UYUNI  
 COMMODITIES PRESENT.....LI    K    B  
 ORE MATERIALS.....MG-(LI)-(K)-(NA)-CL-SO4 BRINE  
 GENERAL ANALYTICAL DATA.....BRINE ANALYSES (RETTIG AND OTHERS, 1980):  
 PH 5.99 TO 8.07; DENSITY 1.000 TO 1.279 G/CM3; HCO3 225 TO 1,100 MG/KG;  
 SO4 300 TO 46,500 MG/KG; CL 875 TO 160,000 MG/KG; F 1.0 TO 26 MG/KG; BR  
 UP TO 291 MG/KG; CA 80 TO 2,340 MG/KG; MG 45 TO 41,300 MG/KG; NA 515 TO  
 83,000 MG/KG; K 27 TO 27,400 MG/ KG; SR 0.5 TO 37 MG/KG; LI 3.1 TO 2,060  
 MG/KG; B 3.1 TO 1,090 MG/KG; PO4 0.51 TO 8 MG/KG; SIO2 1.8 TO 61 MG/KG.  
 NON-PRODUCER MAIN.....LI    K    B  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....U.S. GEOLOGICAL SURVEY  
 YEAR OF DISCOVERY.....1976  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COMPLEJO INDUSTRIAL DE LOS RECURSOS  
 EVAPORITICOS DEL SALAR DE UYUNI  
 OPERATOR.....COMPLEJO INDUSTRIAL DE LOS RECURSOS  
 EVAPORITICOS DEL SALAR DE UYUNI  
 DEPOSIT TYPE.....SALINE LAKE BRINE  
 USGS MODEL .....SALINE-LAKE BRINE  
 USGS MODEL NUMBER.....IM35BM  
 DEPTH TO BOTTOM.....10                      UNITS...M  
 MAXIMUM LENGTH.....15                      UNITS...KM  
 MAXIMUM WIDTH.....12                      UNITS...KM  
 MAXIMUM THICKNESS.....10                      UNITS...M  
 DEPOSIT SIZE.....LARGE  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS FLAT LYING  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS WOULD BE BY BRINE  
 PRODUCTION FROM WELLS  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....HALITE  
 AGE OF MINERALIZATION.....HOLO  
 PERTINENT MINERALS (NOT ORE).....HALITE  
 ORE CONTROL/LOCUS.....FLUVIAL-DELTAIC COMPLEX  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 WORK DONE BY USGS.....BRINE ANALYSES AND GEOLOGICAL STUDIES BY  
 ERICKSON AND OTHERS, 1978  
 NON-USGS WORK.....GEOLOGICAL AND ECONOMIC EVALUATION BY  
 BALLIVIAN AND RISACHER (1981)  
 REFERENCE....BALLIVIAN AND RISACHER (1981), ERICKSON AND OTHERS (1978).  
                     POTENTIAL RESOURCES  
 ITEM    ACCURACY                      AMOUNT    THOUS UNITS    YEAR    GRADE

LI	EST	600	MT	1981
K	EST	4500	MT	1981
B	EST	390	MT	1981

SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER (1981)

POTENTIAL RESOURCES COMMENTS.....ASSUMES 10 M THICKNESS OF HALITE WITH 30% POROSITY AND BRINE CONCENTRATIONS OF 0.5 TO 2 G/L LI, 5 TO 15 G/L K, AND 0.3 TO 1.5 G/L B.

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MRDS RECORD NUMBER.....BL10021  
 SITE NAME.....SALMUERAS DEL SALAR DE UYUNI  
 SYNONYM NAME.....SALAR DEL UYUNI  
 MINING DISTRICT/AREA.....SALAR DEL UYUNI  
 PROVINCE.....D. CAMPOS/NOR LIPEZ/L. CABRERA  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SE 19-15, SE 19-16, SF 19-3, SF 19-4  
 QUADRANGLE SCALE.....1:250,000  
 ELEVATION.....3653 M  
 LATITUDE.....20-00-00S LONGITUDE.....068-00-00W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....EASTERN EDGE IS 10 KM W OF UYUNI  
 COMMODITIES PRESENT.....LI K MG B NACL  
 ORE MATERIALS.....MG-(LI)-(K)-(NA)-CL-S04 BRINE  
 GENERAL ANALYTICAL DATA.....BRINE ANALYSES BY RETTIG AND OTHERS (1980), ERICKSEN AND OTHERS (1978) AND DAVIS AND OTHERS (1982).. BRINES HAVE 325 G/L TDS AND PH OF 7.25.  
 NON-PRODUCER MAIN.....LI K MG B  
 NON-PRODUCER MINOR.....NACL  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 DISCOVERER.....U.S. GEOLOGICAL SURVEY/SERVICIO GEOLOGICO DE BOLIVIA  
 YEAR OF DISCOVERY.....1976  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COMPLEJO INDUSTRIAL DE LOS RECURSOS EVAPORITICOS DEL SALAR DE UYUNI  
 OPERATOR.....COMPLEJO INDUSTRIAL DE LOS RECURSOS EVAPORITICOS DEL SALAR DE UYUNI  
 TOTAL INVESTMENT M\$.....80000  
 MILL CAPACITY PER YR. (THOUS. UNITS)...400  
 YR APPLICABLE.....1989  
 ECONOMIC COMMENTS.....ESTIMATES FOR PLANNED 400,000 MT/Y LITHIUM CARBONATE PROJECT BY LITHCO CORP. PROPOSAL WAS REJECTED BY BOLIVIAN GOVERNMENT 4/90 AND PROJECT WILL BE PUT UP FOR INTERNATIONAL BID.  
 EXPLORATION AND DEVELOPMENT COMMENTS.....SALAR DE UYUNI RECOGNIZED TO BE FAVORABLE FOR ACCUMULATION OF LI-RICH BRINES BY ERICKSON AND OTHERS (1977), CONFIRMED BY BRINE ANALYSES IN THAT YEAR.  
 DEPOSIT TYPE.....SALINE LAKE BRINE  
 USGS MODEL .....SALINE-LAKE BRINE  
 USGS MODEL NUMBER.....IM35BN  
 DEPOSIT FORM.....SALINE LAKE

DEPTH TO TOP.....O           UNITS...M  
 DEPOSIT SIZE.....LARGE  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT IS FLAT LYING WITHIN A  
 POROUS SALT CRUST UP TO 10 M THICK. HIGHEST BRINE CONCENTRATIONS ARE IN  
 EAST-CENTRAL AND SOUTHEAST (SALMUERAS DEL RIO GRANDE) PORTIONS OF THE  
 SALAR. THERE IS EVIDENCE OF DEEPER, DENSER BRINES, SOME OF WHICH MAY  
 REACH THE NEAR SURFACE THROUGH FRACTURES IN SALT RELATED TO PRE-EXISTING  
 NORTH TRENDING FAULTS.  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS WOULD BE BRINE  
 EXTRACTION THROUGH WELLS  
 HOST ROCK AGE.....HOLO  
 HOST ROCK TYPE.....HALITE (SYLVITE, GYPSUM) CRUST  
 AGE OF MINERALIZATION.....HOLO  
 ORE CONTROL/LOCUS.....HIGHEST BRINE CONCENTRATIONS NEAR POINTS  
 OF INFLUX FROM RIO GRANDE RIVER AND POSSIBLE UPWELLING BRINES THROUGH  
 PRE-EXISTING FAULTS.  
 TECTONIC SETTING.....INTERNAL DRAINAGE BASIN  
 SIGNIFICANT LOCAL STRUCTURES.....POSSIBLE N TRENDING FAULTS AND  
 FRACTURES  
 PROCESS OF CONCENTRATION/ENRICHMENT.....EVAPORATION  
 GEOLOGY COMMENTS.....SOURCE OF LI IN BRINES WOULD APPEAR TO BE  
 IGNIMBRITES WITHIN THE RIO GRANDE DRAINAGE BASIN.  
 WORK DONE BY USGS.....FIELD AND LABORATORY INVESTIGATIONS BY  
 USGS/GEOBOL IN 1976 (ERICKSEN AND OTHERS, 1977) AND IN 1978 (DAVIS AND  
 OTHERS, 1982)  
 NON-USGS WORK.....FIELD AND LABORATORY INVESTIGATIONS BY  
 ORSTOM (BALLIVIAN AND RISACHER, 1981)  
 REFERENCE....BALLIVIAN AND RISACHER (1981), ERICKSEN AND OTHERS (1977,  
 1978), RETTIG AND OTHERS (1980), DAVIS AND OTHERS (1982)  
     POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
LI	EST	5500	MT		1981	
K	EST	110000	MT		1981	
B	EST	3200	MT		1981	
HALITE	EST	3000000	MT		1981	

 SOURCE OF POTENTIAL RESOURCES INFORMATION.....BALLIVIAN AND RISACHER  
 (1981)  
 POTENTIAL RESOURCES COMMENTS.....ESTIMATE ASSUMING 13.5  
 CUBIC KILOMETERS OF BRINE WITH AVERAGE COMPOSITION 106 G/L NA, 8.7 G/L  
 K, 0.423 G/L LI, 0.561 G/L CA, 7.86 G/L MG, 190 G/L CL, 10.3 G/L SO4,  
 0.247 G/L B, 0.009 G/L SIO2

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MRDS RECORD NUMBER.....W044245  
 SITE NAME.....SAN ANTONIO MINE  
 SYNONYM NAME.....SAN ANTONIO DEL NUEVO MUNDO, SAN ANTONIO  
 DE LIPEZ, MESA DE PLATA, BLANCA. ADITS: QUIROZ  
 MINING DISTRICT/AREA.....SAN ANTONIO DE LIPEZ  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1972  
 QUADRANGLE SCALE.....1:250,000



SECOND QUADRANGLE NAME.....SAN ANTONIO DE LIPEZ 6228-III 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4550 M  
 LATITUDE.....21-51-38S                      LONGITUDE.....066-51-53W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....AT SAN ANTONIO DE LIPEZ  
 LOCATION COMMENTS.....LAT LONG IS FOR MESA DE PLATA SECTION, 1.5  
 KM NE OF SAN ANTONIA DE LIPEZ  
 COMMODITIES PRESENT.....AG    SN    PB    ZN    AU    BI    SB  
 ORE MATERIALS.....CASSITERITE, ARGENTIFEROUS GALENA,  
 SPHALERITE; CHALCOPYRITE, TETRAHEDRITE, GREENOCKITE, AIKINITE, NATIVE  
 AG, ARGENTITE, POLYBASITE, PYRRARGYRITE, STEPHANITE  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971): .001 TO  
 .197% AG, TRACE TO 2.45% PB, TRACE TO 2.48% ZN, TRACE BI, TRACE TO 0.1%  
 SN. ONE SAMPLE 4 GPT AU, 1.4% SB, 0.926% AG. ORE GRADES (SUGAKI AND  
 OTHERS, 1986) 200 TO 240 G/MT AG, 1.2 TO 2.6% PB, 0.5 TO 3.4% ZN;  
 ANALYSES BY FLORES (1988): AROUND 290 G/MT AG, 1.2 TO 5.0% PB, 0.5 TO  
 5.45% ZN, 0.1% SN OVER 10 M WIDTH  
 MAJOR.....AG  
 MINOR.....SN    PB    ZN  
 POTEN.....AU  
 OCCUR.....BI    SB  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 YEAR OF DISCOVERY.....1560  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1560  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 ECONOMIC COMMENTS.....SAN ANTONIO DE LIPEZ WAS THE FIRST MAJOR  
 SITE OF SPANISH SILVER PRODUCTION IN BOLIVIA BUT WAS ABANDONED AFTER THE  
 DISCOVERY OF CERRO RICO DE POTOSI. MINE WAS REOPENED BY A BRITISH  
 CONCERN 1866-1874  
 DEPOSIT TYPE.....LODE, STOCKWORK  
 DEPOSIT FORM.....TABULAR  
 DEPTH TO BOTTOM.....150                      UNITS...M  
 MAXIMUM LENGTH.....120                      UNITS...M  
 MAXIMUM WIDTH.....0.3                      UNITS...M  
 MAXIMUM THICKNESS.....500                      UNITS...M  
 DEPOSIT SIZE.....MEDIUM  
 STRIKE.....E-W  
 DIP.....N  
 DEPOSIT DESCRIPTION COMMENTS.....IN ZONE SE OF SAN ANTONIO DE  
 LIPEZ ARE 4 MAJOR VEINS OXIDIZED TO 50 M DEPTH, 50 TO 60 M LONG, 2 CM TO  
 1 M WIDE, WITHIN A 3 KM ALTERED ZONE. SYSTEM 1 VEIN STRIKES N80 TO 90E,  
 DIPS 60-70S, IS 200 M LONG AND 0.5 TO 3 M WIDE. SYSTEM 2 VEIN STRIKES  
 N70 TO 90E, DIPS 60-65S AND IS 0.3 TO 1 M WIDE. MESA DE PLATA SECTION  
 ARE FOUR MAJOR BONANZA VEIN SYSTEMS (VEINS I, II, III, AND IV) AND  
 RELATED DISSEMINATED ORE. VEIN I IS 650 M LONG, UP TO 10 M WIDE AND 170  
 M IN VERTICAL EXTENT. VEIN II IS MORE THAN 600 M LONG, UP TO 10 M WIDE,  
 AND HAS A VERTICAL EXTENT OF 200 M. VEIN III IS A LINEAR SYSTEM OF  
 STOCKWORK VEINLETS.  
 DESCRIPTION OF WORKINGS.....U

DEPTH BELOW SURFACE.....60           UNITS...M  
 LENGTH OF WORKINGS.....4260+           UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....5 ADITS; QUIROZ CROSS CUT,  
 DRIVEN IN THE EARLY 1870'S, IS 1000 M LONG WITH 150 M OF DROP.  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....BIOTITE DACITE, PYROCLASTICS, SILTSTONE,  
 SANDSTONE  
 AGE OF IGNEOUS ROCK.....MIO  
 IGNEOUS ROCK TYPE.....BIOTITE DACITE, PYROCLASTICS  
 AGE OF MINERALIZATION.....MIO  
 PERTINENT MINERALS (NOT ORE).....PYRITE, CHALCOPYRITE,  
 ARSENOPYRITE, LIMONITE, HEMATITE, MAGNETITE, BARITE, QUARTZ,  
 RHODOCROSITE, MN OXIDES, MARCASITE, SIDERITE, CHLORITE, KAOLINITE,  
 SERICITE, SAPONITE, ANKERITE  
 ORE CONTROL/LOCUS.....E-W FRACTURE ZONES  
 SIGNIFICANT ALTERATION.....SILICIFICATION, CALCITE-CHLORITE-CLAY  
 ALTERATION OF DACITE; ADVANCED ARGILLIC ALTERATION AROUND VEINS, ZONING  
 OUTWARD INTO FELDSPATHIC ALTERATION (JAROSITE-ILLITIC MICA-KAOLINITE)  
 WITH DISTAL REPLACEMENT OF PLAGIOCLASE BY CALCITE, SMECTITE, AND  
 KAOLINITE. SERICITIC ALTERATION AT DEPTH. OXIDATION EXTENDS TO A DEPTH  
 OF 30M.  
 IGNEOUS UNIT AGE.....EMIO-MMIO  
 IGNEOUS UNIT AGE.....LOLIGO  
 IGNEOUS UNIT AGE.....LMIO  
 IGNEOUS UNIT NAME.....U QUEHUA  
 IGNEOUS UNIT NAME.....RONDAL LAVAS  
 IGNEOUS UNIT NAME.....JULACA LAVAS  
 GEOLOGY COMMENTS.....FLUID INCLUSIONS YIELD (UNCORRECTED)  
 HOMOGENIZATION TEMPERATURES OF 157 TO 317 DEGREES CENTIGRADE AND  
 SALINITIES OF 0 TO 18.9 WT% NaCl (SUGAKI AND OTHERS, 1986)  
 GENERAL COMMENTS.....GEOCHEMICAL SOIL SAMPLING: 383 SAMPLES IN  
 638,000 SQ M AREA FOR PB AND ZN. GEOPHYSICAL EXPLORATION: TURAM EM 44  
 LINES IN 1,297,000 SQ METER AREA. GEOCHEMICAL SURVEY BY APPLETON AND  
 OTHERS (1988) WAS A STREAM ROCK SAMPLE SURVEY ANALYZED FOR AG, PB, AS,  
 S, SB, ZN, MAJOR ELEMENTS, AND NH4+.  
 NON-USGS WORK.....GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL  
 EXPLORATION BY GEOBOL (1971)  
 NON-USGS WORK.....GEOCHEMICAL SURVEY BY APPLETON AND OTHERS  
 (1988)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY JICA/MMAJ  
 1981-1990 (SUGAKI AND OTHERS, 1986)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY COMIBOL,  
 1975-1980  
 NON-USGS WORK.....GEOLOGICAL STUDY BY UNDP, 1988  
 REFERENCE...AHLFELD AND SCHNEIDER-SCHERBINA (1964), SERVICIO GEOLOGICO  
 DE BOLIVIA (1971NN), APPLETON AND OTHERS (1988), SUGAKI AND OTHERS  
 (1986), FLORES (1988), JAPAN INTERNATIONAL COOPERATION AGENCY/METAL  
 MINING AGENCY OF JAPAN (1983C, 1984, 1985), RIVAS (1971), TAVERA (1972),  
 ZAMBRANA (1971)  
     POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
VEIN						
ORE	EST	1580	MT		1985	290 G/T AG, 3.6% PB, 3.75% ZN, 0.34% SN

## DISSEMINATED

ORE EST 30000 MT 1985 UNKNOWN  
 SOURCE OF POTENTIAL RESOURCES INFORMATION.....FLORES (1988)  
 POTENTIAL RESOURCES COMMENTS.....DISSEMINATED ORE HAS AN  
 ESTIMATED VOLUME OF 14 TO 30 MILLION METRIC TONS

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MRDS RECORD NUMBER.....BL10086  
 SITE NAME.....SAN FRANCISCO MINE  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA SAN FRANCISCO 6129-IV 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3950 M  
 LATITUDE.....21-26-42S LONGITUDE.....067-28-42W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....2.5 KM N80W OF ESTANCIA SAN  
 FRANCISCO  
 COMMODITIES PRESENT.....AG CU  
 ORE MATERIALS.....MALACHITE, CHRYSOCOLLA  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971): 3.41 TO  
 20.48% CU  
 MAJOR.....AG  
 MINOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 EXPLORATION AND DEVELOPMENT COMMENTS.....MINE IS AN OLD SPANISH AG  
 PROSPECT  
 DEPOSIT TYPE.....LODE  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N56 TO 86E N30 TO 78W  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS IN FRACTURES WITH HIGHLY  
 VARIABLE ORIENTATIONS UP TO 54 CM WIDE BUT GENERALLY LESS THAN 10 CM  
 WIDE.  
 DESCRIPTION OF WORKINGS.....S  
 DEPTH BELOW SURFACE.....20 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....WORKINGS CONSIST OF SHALLOW  
 SHAFTS AND PROSPECT PITS WITHIN A 125 M BY 25 M ARE. SLAG FROM A SMELTER  
 IS SCATTERED THROUGHOUT THE SITE.  
 HOST ROCK AGE.....MIO  
 HOST ROCK TYPE.....BIOTITE LITHIC TUFF  
 AGE OF IGNEOUS ROCK.....MIO  
 IGNEOUS ROCK TYPE.....BIOTITE LITHIC TUFF  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....HEMATITE, LIMONITE  
 ORE CONTROL/LOCUS.....FRACTURES  
 SIGNIFICANT LOCAL STRUCTURES.....BIOTITE DACITE DIKE JUST SOUTH  
 OF WORKINGS

SIGNIFICANT ALTERATION.....PYRITE-CHLORITE-HEMATITE IN TUFF;  
KAOLINIZATION  
FORMATION AGE.....MIO  
FORMATION NAME.....QUEHUA SUPERIOR  
IGNEOUS UNIT AGE.....MIO  
IGNEOUS UNIT NAME.....QUEHUA SUPERIOR  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(197100)  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY SCHULTZE  
(1968)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (197100), SCHULTZE (1968).

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MRDS RECORD NUMBER.....BL10346  
SITE NAME.....**SAN JOSE MINE**  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4600 M  
LATITUDE.....21-47-01S                      LONGITUDE.....066-28-09W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....6 KM N55E OF ESTANCIA SANTA ROSA  
COMMODITIES PRESENT.....AG    PB  
ORE MATERIALS.....GALENA  
MAJOR.....AG  
MINOR.....PB  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
DEPOSIT TYPE.....LODE  
HOST ROCK AGE.....TERT  
AGE OF IGNEOUS ROCK.....TERT  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....TERT  
FORMATION NAME.....CERRO BONETE  
IGNEOUS UNIT AGE.....TERT  
IGNEOUS UNIT NAME.....CERRO BONETE  
REFERENCE....JIMENEZ AND NUÑEZ (1988)

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MRDS RECORD NUMBER.....BL10115  
SITE NAME.....**SAN JUAN MINE**  
MINING DISTRICT/AREA.....CHINCHILLAHUAY  
PROVINCE.....DANIEL CAMPOS  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....SALINAS DE GARCÍ MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CAHUANA CHICA 5934-III 1973  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4100 M  
 LATITUDE.....19-59-17S                      LONGITUDE.....068-21-25W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6 KM S85W OF CAHUANA CHICA  
 LOCATION COMMENTS.....ON SE FLANK OF CERRO CHINCHILHUMA  
 COMMODITIES PRESENT.....AG    PB    ZN  
 ORE MATERIALS.....GALENA, SPHALERITE; CERUSSITE  
 MAJOR.....AG  
 MINOR.....PB  
 POTEN.....ZN  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....LAVA  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....LAVA, DIKES  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCES....SANJINES (1968B), MCNAMEE (1985A)

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MRDS RECORD NUMBER.....BL10066  
 SITE NAME.....**SAN JULIAN MINE**  
 MINING DISTRICT/AREA.....CERRO BONETE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4800 M  
 LATITUDE.....21-45-21S                      LONGITUDE.....066-26-27W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5.5 KM S65W OF ESTANCIA GRANDE  
 COMMODITIES PRESENT.....PB    AG  
 ORE MATERIALS.....GALENA  
 MAJOR.....AG  
 MINOR.....PB  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....LODE  
 STRIKE.....E-W  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE

AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, MN OXIDES, FE OXIDES  
 SIGNIFICANT ALTERATION.....SILICIFICATION  
 FORMATION AGE.....TERT  
 FORMATION NAME.....CERRO BONETE  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....CERRO BONETE  
 REFERENCE....JIMENEZ AND NUÑEZ (1968)

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MRDS RECORD NUMBER.....BL10348  
 SITE NAME.....**SAN MATEO MINE**  
 MINING DISTRICT/AREA.....SAN VICENTE  
 PROVINCE.....SUD CHICHAS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....VENTILLAS 6330-III 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 M  
 LATITUDE.....21-14-29S      LONGITUDE.....066-17-19W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....2 KM S60W OF VENTILLAS  
 COMMODITIES PRESENT.....SN  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....SN  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 HOST ROCK AGE.....OLIGO-MIO  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....OLIGO-MIO  
 FORMATION NAME.....SAN VICENTE  
 REFERENCES....AHLFELD AND SCHNEIDER-SCHERBINA (1964), PINTO (1988C)

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MRDS RECORD NUMBER.....BL10161  
 SITE NAME.....**SAN PABLITO MINE**  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA ESMERALDA 6229-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4200 M

LATITUDE.....21-22-00S                      LONGITUDE.....066-31-00W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....NE OF MESA VERDE MINE  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....NATIVE CU, CHALCOCITE; MALACHITE  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 HOST ROCK AGE.....LOLIGO  
 HOST ROCK TYPE.....CONGLOMERATE  
 AGE OF MINERALIZATION.....TERT  
 SIGNIFICANT REGIONAL STRUCTURES.....ON E FLANK KHELLU-KHELLU  
 ANTICLINE  
 FORMATION AGE.....LOLIGO  
 FORMATION NAME.....QUEHUA INFERIOR  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971GG)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971GG)

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MRDS RECORD NUMBER.....BL10172  
 SITE NAME.....SAN PABLO DE NAPA MINE  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ABRA DE NAPA 5832-II 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3785 M  
 LATITUDE.....20-31-04S                      LONGITUDE.....068-35-45W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....2.3 KM N30W OF ABRA DE NAPA, 136  
 KM BY ROAD FROM RR STATION AT CHIGUANI.  
 COMMODITIES PRESENT.....S      AS      SE  
 ORE MATERIALS.....NATIVE S  
 GENERAL ANALYTICAL DATA.....AHLFELD AND SCHNEIDER-SCHERBINA (1964)  
 GIVE GRADES FROM 55 TO 65% S  
 MAJOR.....S  
 OCCUR.....AS      SE  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....7  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (CIMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 EXPLORATION AND DEVELOPMENT COMMENTS.....WAS OWNED BY CIA. AZUFREIRA  
 SAN PABLO DE NAPA PRIOR TO NATIONALIZATION

DEPOSIT TYPE.....IMPREGNATION  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25B  
 DEPOSIT FORM.....BLANKET  
 DEPTH TO BOTTOM..... 6+ UNITS...M  
 MAXIMUM LENGTH.....1300 UNITS...M  
 MAXIMUM WIDTH..... 600 UNITS...M  
 MAXIMUM THICKNESS..... .6 UNITS...M+  
 STRIKE.....FLAT LYING  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....PLIO  
 HOST ROCK TYPE.....VOLCANIC ASH  
 AGE OF IGNEOUS ROCK.....PLIO  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH  
 AGE OF MINERALIZATION.....PLIO  
 ORE CONTROL/LOCUS.....POROUS VOLCANIC ASH BED  
 NON-USGS WORK.....THESIS BY ECHENIQUE (1972)  
 REFERENCE.... AHLFELD AND SCHNEIDER-SCHERBINA (1964), ECHENIQUE (1972)  
 PRODUCTION COMMENTS.....PRODUCTION WAS 200 MT/MO 99.5%  
 REFINED S BY CIA AZUFREIRA SAN PABLO DE NAPA

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	5847	MT		1964	70% S
ORE	EST	1200	MT		1964	60% S
ORE	EST	6240	MT		1964	55% S
ORE	EST	1500	MT		1974	40% S

SOURCE OF RESERVES AND RESOURCES INFORMATION.....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

RESERVES AND RESOURCES COMMENTS.....(1) HIGHER GRADE  
 RESERVES TO NO MORE THAN 6 M DEPTH. (2) POSITIVE ORE. (3) POSITIVE AND PROBABLE ORE.

## POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	20000	MT		1974	ABOUT 40% S

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MRDS RECORD NUMBER.....BL10122  
 SITE NAME.....**SAN PEDRO MINE**  
 SYNONYM NAME.....DON PIOT MINE  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1970  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA ESMERALDA 6229-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4140 M  
 LATITUDE.....21-24-08S LONGITUDE.....066-34-09W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....NEAR ESMERALDA MINE  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....CU OXIDES



GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1969): 4.03% CU  
OVER 15 CM 12.91% CU OVER 4 CM  
MAJOR.....CU  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....PIOTR ZUBRZYCKY  
OPERATOR.....PIOTR ZUBRZYCKY  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT DESCRIPTION COMMENTS.....MANTOS ARE N25W 50 TO 55W, 1 TO  
25 CM THICK  
DESCRIPTION OF WORKINGS.....U  
LENGTH OF WORKINGS.....20           UNITS...M  
DESCRIPTION OF WORKINGS COMMENTS.....3 ADITS  
HOST ROCK AGE.....EO  
AGE OF MINERALIZATION.....TERT  
SIGNIFICANT REGIONAL STRUCTURES.....ON NW FLANK KELLU KELLU  
ANTICLINE  
FORMATION AGE.....EO  
FORMATION NAME.....POTOCO  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL (1969)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1969)

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MRDS RECORD NUMBER.....BL10101  
SITE NAME.....**SAN SALVADOR MINE**  
SYNONYM NAME.....SALVADOR, HIPOLITO, ESPAÑOL  
PROVINCE.....DANIEL CAMPOS  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....CAHUANA CHICA 5934-III 1973  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4500 M  
LATITUDE.....19-58-00S           LONGITUDE.....068-22-00W  
ACCURACY.....EST  
POSITION FROM NEAREST LOCALITY.....9 KM S50W OF LLICA, 620 KM BY  
ROAD FROM LA PAZ  
LOCATION COMMENTS.....NE FLANK CERRO CHINCHILLWAY  
COMMODITIES PRESENT.....AG   PB   ZN   CU   SN  
ORE MATERIALS.....GALENA, SPHALERITE, CUPRITE, JACOBSITE,  
CASSITERITE, CERUSSITE  
GENERAL ANALYTICAL DATA.....ORE ANALYSES BY SANJINES (1968): 0.49% PB  
85 G/T AG, 0.68% PB 135 G/T AG, 18.37% PB 260 G/T AG, 0.68% PB 135 G/T  
AG  
MAJOR.....AG   PB  
POTEN.....ZN  
OCCUR.....CU   SN  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8

DISCOVERER.....SPANISH COLONISITS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....COOPERATIVA MINERA EL PORVENIR  
 OPERATOR.....COOPERATIVA MINERA EL PORVENIR  
 EXPLORATION AND DEVELOPMENT COMMENTS.....UNDER DEVELOPMENT BY  
 COOPERATIVA EL PORVENIR IN 1968  
 DEPOSIT TYPE.....LODE  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 STRIKE.....N20W N35W N45W N30E  
 DIP.....32SW 65SW 63SW 65NW  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS STRIKE N-S WITH VARIABLE  
 DIPS E-W  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....127.5        UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....4 ADITS  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....VITRIC TUFF  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....VITRIC TUFF  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 PERTINENT MINERALS (NOT ORE).....SPECULARITE LIMONITE  
 ORE CONTROL/LOCUS.....N-S ZONES OF WEAKNESS  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY SANJINES  
 (1969B)  
 REFERENCE....SANJINES (1968B), MCNAMEE (1985A)

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MRDS RECORD NUMBER.....BL10350  
 SITE NAME.....**SAN SALVADOR MINE**  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA AVAROA 6129-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4000 M  
 LATITUDE.....21-38-14S        LONGITUDE.....067-05-44W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....5 KM S45E OF ESTANCIA KOLLPIRI  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 HOST ROCK AGE.....TERT  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....TERT

REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971I)

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MRDS RECORD NUMBER.....BL10050  
SITE NAME.....SAN VICENTE MINE  
SYNONYM NAME.....TAJOS, SAN FRANCISCO, JESUS MARIA,  
CONFIANZA, PELAYO, GUERNICA  
MINING DISTRICT/AREA.....SAN VICENTE DISTRICT  
PROVINCE.....SUD CHICHAS  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....VENTILLAS 6330-III 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4600 M  
LATITUDE.....21-16-17S                      LONGITUDE.....066-19-05W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....JUST SW OF TOWN OF SAN VICENTE,  
120 KM W OF TUPIZA  
LOCATION COMMENTS.....950 KM BY ROAD FROM LA PAZ, 45 KM BY ROAD  
FROM RAILROAD STATION AT ATOCHA  
COMMODITIES PRESENT.....AG    AU    ZN    PB    CU    SN    BI    CD  
ORE MATERIALS.....GALENA, TETRAHEDRITE, SPHALERITE;  
STROMEYERITE, GALENOBISMUTHITE, CHALCOCITE, COVELLITE, CHALCOPYRITE,  
STANNITE, CASSITERITE, ELECTRUM, LUZONITE, ROQUESITE, AIKINITE,  
PYRARGYRITE, BORNITE, JAMESONITE, FREIBERGITE  
GENERAL ANALYTICAL DATA.....ORE ANALYSES AND AGE DATES BY JICA (1978):  
1.91 TO 41.61% ZN, 0.10 TO 1.72% PB, 0.11 TO 0.85% CU, 0.005 TO 0.558%  
AG, 0.01 TO 1.38% SN.  
MAJOR.....AG    ZN  
MINOR.....PB    CU  
POTEN.....AU    SN  
OCCUR.....BI    CD  
PRODUCTION.....S  
STATUS AND ACTIVITY.....6  
DISCOVERER.....SPANISH COLONISTS  
YEAR OF DISCOVERY.....1500'S  
NATURE OF DISCOVERY.....B  
YEAR OF FIRST PRODUCTION.....1500'S  
OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA  
OPERATOR.....EMPRESA MINERA QUECHISLA (COMIBOL)  
MILL CAPACITY PER YR. (THOUS. UNITS)...145  
YR APPLICABLE.....1989  
EXPLORATION AND DEVELOPMENT COMMENTS.....DEPOSIT WORKED BY CIA.  
MINERA SAN VICENTE (1880-1901), CIA. MINERA DE GUERNICA, CIA.  
BENEFICIADORA SAN VICENTE DE BOLIVIA, AND CIA. MINERA SAN VICENTE (1920-  
1929). NATIONALIZED 1952. EXPLORED BY PROSPECTION, LTD. FOR COMIBOL IN  
EARLY 1960'S, BY COMIBOL IN LATE 1960'S AND EARLY 1970'S, BY JICA 1976-  
1979, WITH DRILLING AND IP EXPLORATION. CURRENTLY UNDER PRODUCTION BY  
COMIBOL AT 450 MT/D SINCE 1972.  
DEPOSIT TYPE.....LODE  
USGS MODEL .....SN-POLYMETALLIC VEIN

USGS MODEL NUMBER.....20B  
 DEPOSIT FORM.....IRREGULAR  
 DEPTH TO BOTTOM.....600           UNITS...M  
 MAXIMUM LENGTH.....4.6           UNITS...KM  
 MAXIMUM WIDTH.....2.8           UNITS...KM  
 DEPOSIT SIZE.....MEDIUM  
 STRIKE.....EW  
 DIP.....S  
 DEPOSIT DESCRIPTION COMMENTS.....DIMENSIONS REFER TO SIZE OF  
 DISTRICT. IN THE SAN VICENTE SECTION, SOME 2 KM BY 0.8KM IN AREAL  
 EXTENT, VEINS OCCUR SOME 100 TO 200 M APART ORIENTED IN FOUR SETS: N 50  
 TO 60 W 60 TO 70NE OR 60 TO 65SW (INCA, ADELA, SAN JOSE, CANTERA,  
 ARTURO), N 70 TO 80 W 65 TO 85NE OR 60 TO 80SW (GUERNICA I, GUERNICA II,  
 JESUS MARIA, DISPUTADA, 6 DE AGOSTO, SAN LORENZO, DESEADA, EPSPERANZA),  
 N 50 TO 60 E 75SE OR 60NW (INCA, FERELYS, SAN JUAN), AND N65 TO 75 E  
 70SE OR 60 TO 80NW (ARTOLA, RAMO 6 DE AGOSTO, LITORAL, PERITAS,  
 PORVENIR, RAMO ARTURO). THESE VEINS RANGE FROM 150M TO 1300M IN LENGTH,  
 0.1 TO 1.75 M IN WIDTH, WITH ORE SHOOTS OCCURRING AT THE INTERSECTION OF  
 VEINS UP TO 15 M IN WIDTH. THE TAJOS SECTION HAS SUBVERTICAL (60 TO 90 N  
 OR S) N60 TO 80W, E-W, AND N60 TO 80E VEINS THAT EXTEND UP TO 700 M IN  
 LENGTH AND 0.9 M IN WIDTH. THE SAN FRANCISCO ZONE CONSISTS OF THE SAN  
 FRANCISCO VEIN (N 75 W 80NE, 300 M LONG, 0.3 TO 1.5 M WIDE) AND SEVERAL  
 SMALLER VEINS. VEINS NORTH OF THE MAJOR E-W DIKE CUTTING THE DISTRICT  
 ARE PB-AG RICH, THOSE SOUTH OF THE DIKE ZN RICH. VEINS ARE RICHER IN PB-  
 AG IN THEIR UPPER PORTIONS, GIVING WAY TO ZN AT DEPTH. PARAGENESIS IS  
 (STAGE I) QUARTZ CASSITERITE, (STAGE II) FRACTURED PYRITE-SPHALERITE,  
 (STAGE III) PYRITE, (STAGE IV) SPHALERITE, (STAGE V) SPHALERITE-  
 STANNITE-TETRAHEDRITE-STROMEYERITE-CHALCOPYRITE-GALENOBISMUTITE-GALENA,  
 (STAGE VI) PYRITE-BARITE, (STAGE VII) MARCASITE-CHALCOCITE-COVELLITE.  
 DISTRICT IS ZONED, SN-AG-PB ORE AT SAN FRANCISCO MINE TO SOUTH TO ZN-PB-  
 AG-AU IN TAJOS SECTION TO NORTH.  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....150           UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....COLONIAL WORKINGS DID NOT  
 EXCEED 50 M DEPTH. 19TH CENTURY WORKINGS DID NOT EXCEED 60 M.  
 HOST ROCK AGE.....OLIGO-MIO  
 HOST ROCK TYPE.....CONGLOMERATE  
 AGE OF IGNEOUS ROCK.....MMIO      13.4 MA K/AR  
 IGNEOUS ROCK TYPE.....DACITE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, PYRITE, MARCASITE,  
 BARITE, SIDERITE; LIMONITE, MN OXIDES, PHOSPHOPHYLLITE  
 ORE CONTROL/LOCUS.....E-W, N80E AND N60W SUBVERTICAL FRACTURES  
 SIGNIFICANT REGIONAL STRUCTURES.....E-W ORIENTED DIKE SETS; NNW  
 ORIENTED FOLDS IN UNDERLYING ORDOVICIAN SEDIMENTS; INVERSE FAULT  
 SEPARATING CONGLOMERATE FROM ORDOVICIAN  
 SIGNIFICANT LOCAL STRUCTURES.....E-W FRACTURE INTRUDED BY DACITE  
 DIKE  
 SIGNIFICANT ALTERATION.....SILICIFICATION HALOS AROUND VEINS EXTEND  
 FROM 10 TO 30 M FOR LARGER VEINS AND 2 TO 6 M FOR SMALLER VEINS.  
 SILICIFICATION CONSISTS OF RECRYSTALLIZATION OF SILICA IN CLASTS AND  
 CEMENT OF HOST CONGLOMERATE. SERICITIC ALTERATION INCREASES WITH DEPTH  
 AND CONSISTS OF PYRITE-SERICITE ZONES ENVELOPING SILICIC ALTERATION,  
 EXTENDING 4 TO 12 M BEYOND THE SILICIC ALTERATION.

FORMATION AGE.....OLIGO-MIO  
 FORMATION NAME.....SAN VICENTE  
 GEOLOGY COMMENTS.....SAN VICENTE FORMATION (HOST ROCK) IS A  
 POLYMICT CONGLOMERATE CONTAINING ANGULAR TO SUBANGULAR CLASTS OF  
 ORDOVICIAN QUARTZITE AND SLATE, CRETACEOUS RED SANDSTONE AND SHALE, AND  
 MILKEY QUARTZ IN A MATRIX OF FINE GRAINED SAND CEMENTED BY FE OXIDES.  
 THE DACITE DIKES ARE WHITISH GREY, PORPHYRITIC WITH PHENOCRYSTS OF  
 QUARTZ, OLIGOCLEASE, SANADINE AND BIOTITE IN A MATRIX OF ALKALINE  
 FELDSPAR, GLASS, PLAGIOCLASE AND MAFICS DATED AT 13.4 MA K/AR (JICA,  
 1978).  
 NON-USGS WORK.....DETAILED MINE STUDY BY PREM (1929) FOR  
 CIA. MINERA SAN VICENTE.  
 NON-USGS WORK.....TECHNICAL STUDY BY DOUGLAS (1920) FOR  
 MINERAL DE GUERNICA  
 NON-USGS WORK.....GEOLOGICAL STUDIES FOR COMIBOL BY MARSH  
 AND ROBINSON (1966)  
 NON-USGS WORK.....GEOLOGICAL STUDY, GEOPHYSICAL EXPLORATION,  
 DRILLING BY JICA (1979)  
 NON-USGS WORK.....GEOLOGICAL STUDY AND ECONOMIC EVALUATION  
 BY UNDP (PINTO, 1988)  
 NON-USGS WORK.....GEOLOGICAL STUDY BY MALDONADO (1969) FOR  
 COMIBOL  
 NON-USGS WORK.....DETAILED GEOLOGICAL SURVEY BY COMIBOL IN  
 1974, GUTIERREZ (1975)  
 NON-USGS WORK.....EXPLORATION BY COMIBOL LATE 1980'S, URIBE  
 AND MATTHEWS (1987)  
 REFERENCE....BERNSTEIN (1987), GUTIERREZ (1975), JAPANESE INTERNATIONAL  
 COOPERATION AGENCY/METAL MINING AGENCY OF JAPAN (1977, 1978, 1979, 1988,  
 1989), MALDONADO (1969), MARSH AND ROBINSON (1966), URIBE AND MATTHEWS  
 (1987), PREM (1929), DOUGLAS (1920), PINTO (1988C), AHLFELD (1954), RICO  
 (1978)

## ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	ACC	115.862	MT	1989	3.17% ZN 354 G/T AG

PRODUCTION COMMENTS.....PRODUCED 29 MT CD IN 1989 FROM ZN  
 CONCENTRATE

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
DEVELOPED RESERVES					
ORE	ACC	331.519	MT	1987	7.4% ZN 567 G/T AG
UNDEVELOPED RESERVES					
ORE	ACC	332.642	MT	1987	8.8% ZN 724 G/T AG
DUMPS					
TAILS	ACC	119.434	MT	1987	3.7% ZN 190 G/T AG

SOURCE OF RESERVES AND RESOURCES INFORMATION.....BERNSTEIN (1987),  
 PINTO (1988C)

## RESERVES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	ACC	863	MT	1987	8.4% ZN 645 G/T AG
DUMPS	ACC	119.434	MT	1987	3.7% ZN 190 G/T AG
ORE	EST	995.344	MT	1989	8.42% ZN 397 G/T AG
ORE	EST	867.878	MT	1989	2.85% ZN 156 G/T AG

SOURCE OF RESERVES INFORMATION.....PINTO (1988C), BERNSTEIN (1987)

RESERVES COMMENTS.....ITEM 3 IS COMIBOL RESERVES FOR SAN VICENTE MINE PROPER; ITEM 4 IS LOW GRADE RESERVES

POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	20000	MT		1988	

SOURCE OF POTENTIAL RESOURCES INFORMATION.....PINTO (1988C)

POTENTIAL RESOURCES COMMENTS.....POTENTIAL TONNAGE FROM FUTURE EXPLORATION

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MRDS RECORD NUMBER.....BL10282  
 SITE NAME.....**SAN VICENTE MINE**  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN JURIQUEZ SF 19-11 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....VOLCAN PUTANA 6026-III 1973  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5500 M  
 LATITUDE.....22-35-51S LONGITUDE.....067-51-09W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....6.5 KM N OF RIO BLANCO  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 MAJOR.....S  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 HOST ROCK AGE.....LMIO-QUAT  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCES....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10014  
 SITE NAME.....**SANTA ROSA MINE**  
 SYNONYM NAME.....ADITS: ELSA, PPAL  
 MINING DISTRICT/AREA.....CERRO BONETE  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....LA CIENAGA 6328-IV 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4800 M  
 LATITUDE.....21-47-23S LONGITUDE.....066-29-38W  
 ACCURACY.....ACC

POSITION FROM NEAREST LOCALITY.....7 KM N25E OF GUADALUPE, 207 KM BY  
 ROAD FROM UYUNI  
 LOCATION COMMENTS.....ON NORTH FLANK OF CERRO SANTA ROSA  
 COMMODITIES PRESENT.....AG PB CU ZN CD  
 ORE MATERIALS.....GALENA, SPHALERITE; TETRAHEDRITE,  
 CHALCOPYRITE; (MALACHITE, AZURITE, ANGLESITE)  
 GENERAL ANALYTICAL DATA.....ORE ASSAYS BY GEOBOL (1971PP). 0.51 TO  
 15.2% PB, UP TO 1720 G/T AG; AVERAGE 1.7% PB AND 211 G/T AG. ORE ASSAY  
 BY CARO (1964): 0.18% CD, 12.35% PB, 61.7% ZN, 960 G/T AG. ORE MINED  
 GRADED 1.1% PB AND 400 G/MT AG (SUGAKI AND OTHERS, 1986)  
 MAJOR.....AG PB  
 OCCUR.....CU ZN CD  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 EXPLORATION AND DEVELOPMENT COMMENTS.....MINED BY NUEVA CIA. DE  
 LIPEZ TO 1908. OWNED BY WALTER HUARACHI IN 1961. NOW A RESERVA FISCAL  
 DEPOSIT TYPE.....LODE  
 STRIKE.....N 55 W; N 76 E  
 DIP.....SW; NW  
 DEPOSIT DESCRIPTION COMMENTS.....LARGEST VEINS STRIKE N55W AND DIP  
 SW AND ARE UP TO 14 CM WIDE. A LESSER SET STRIKES N76E AND DIPS 84NW  
 WITH WIDTHS OF 0.1 TO 1.6 M.  
 DESCRIPTION OF WORKINGS.....B  
 LENGTH OF WORKINGS.....847 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....THERE ARE 7 ADITS, INCLUDING  
 THE SOCAVONES ELSA AND PPAL, AND SEVERAL PROSPECT PITS.  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....DACITE BRECCIA  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....DACITE BRECCIA  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....QUARTZ, BARITE, PYRITE,  
 KAOLINITE; FE OXIDES, LIMONITE  
 ORE CONTROL/LOCUS.....FRACTURES  
 SIGNIFICANT ALTERATION.....SERICITIC, PROPYLITIC  
 FORMATION AGE.....TERTIARY  
 FORMATION NAME.....CERRO BONETE  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....CERRO BONETE  
 GENERAL COMMENTS.....GEOPHYSICAL SURVEY: EM IN 459,000 SQ M  
 AREA  
 NON-USGS WORK.....GEOLOGICAL AND GEOPHYSICAL INVESTIGATIONS  
 BY GEOBOL (1971PP)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (JIMENEZ  
 AND NUÑEZ, 1988)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY CARO (1964B)  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY JICA/MMAJ  
 (SUGAKI AND OTHERS, 1986)  
 REFERENCE.....JIMENEZ AND NUÑEZ (1988), VALENCIA (1973), SERVICIO  
 GEOLOGICO DE BOLIVIA (1971PP), CARO (1964B), SUGAKI AND OTHERS (1986)

## CUMULATIVE PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEARS	GRADE
COLONIAL PRODUCTION					
ORE	EST	8.8	MT		UNKNOWN
SOURCE OF PRODUCTION INFORMATION.....JIMENEZ AND NUÑEZ (1988)					
PRODUCTION COMMENTS.....PRODUCTION ESTIMATE BASED ON SIZE OF WORKINGS AND DUMPS.					

## POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
DUMPS	EST	14	CUBIC M	1988	0 TO 250 G/T AG, 0.82 TO 7.24% PB
SOURCE OF POTENTIAL RESOURCES INFORMATION.....JIMENEZ AND NUNEZ (1988)					
POTENTIAL RESOURCES COMMENTS.....DUMPS MAY CONTAIN 13,000 TO 14,000 CUBIC METERS TAILS					

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MRDS RECORD NUMBER.....BL10182  
 SITE NAME.....SILLAJGUAY OCCURRENCE  
 SYNONYM NAME.....CORDILLERA SILLAYHUAY, CORDILLERA SILLAJGUAY  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....BELLA VISTA 5834-I 1973  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5200 M  
 LATITUDE.....19-45-27S LONGITUDE.....068-40-16W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....13 KM NW OF BELLA VISTA  
 LOCATION COMMENTS.....SEVERAL S OCCURRENCES IN THE CORDILLERA SILLAJGUAY  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 OCCUR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT FORM.....BLANKET  
 DEPOSIT DESCRIPTION COMMENTS.....POCKETS AND VEINLETS OF S IN ASH BEDS 1.2 M THICK  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....VOLCANIC ASH  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	1228.7	MT	1964	69.5% S



SOURCE OF RESERVES AND RESOURCES INFORMATION.....AHLFELD AND SCHNEIDER-SCHERBINA (1964) P. 334.

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MRDS RECORD NUMBER.....BL10090  
SITE NAME.....SOLUCION MINE  
SYNONYM NAME.....MALIL  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....ESTANCIA JARUMA 6032-III 1972  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....3820 M  
LATITUDE.....20-39-52S LONGITUDE.....067-45-01W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....10 KM N50W OF VILLA MARTIN  
LOCATION COMMENTS.....ON SW FLANK CERRO KOLLIGI  
COMMODITIES PRESENT.....AG ZN PB  
ORE MATERIALS.....GALENA, SPHALERITE  
GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971): 0 TO 2.40  
DM/T AG, 0.5 TO 18.5% ZN, 0.3 TO 10. % PB. AVERAGE 6.20% ZN, 6% PB, 1.18  
DM/T AG  
MAJOR.....AG PB  
POTEN.....ZN  
PRODUCTION.....S  
STATUS AND ACTIVITY.....8  
DISCOVERER.....A SPANISH CONCERN  
YEAR OF DISCOVERY.....1865  
NATURE OF DISCOVERY.....B  
YEAR OF FIRST PRODUCTION.....1865  
OWNER (PRESENT/LAST).....COOPERATIVA MINERA LITORAL  
OPERATOR.....COOPERATIVA MINERA LITORAL  
EXPLORATION AND DEVELOPMENT COMMENTS.....SPANISH CONCERN WORKED  
MINE FROM 1865 TO 1867. COOPERATIVA MINERA LITORAL ACQUIRED PROPERTY IN  
1968.  
DEPOSIT TYPE.....LODE  
MAXIMUM WIDTH.....30 UNITS...CM  
DEPOSIT SIZE.....SMALL  
STRIKE.....N 10 W  
DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT CONSISTS OF ONE VEIN 20  
TO 30 CM WIDE.  
DESCRIPTION OF WORKINGS.....U  
DESCRIPTION OF WORKINGS COMMENTS.....ADITS  
HOST ROCK AGE.....TERT  
HOST ROCK TYPE.....DACITE  
AGE OF MINERALIZATION.....TERT  
PERTINENT MINERALS (NOT ORE).....LIMONITE HEMATITE  
ORE CONTROL/LOCUS.....FAULT  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(1971QQ)  
REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971QQ)

SOURCE OF PRODUCTION INFORMATION.....GEOBOL (1971QQ)  
 PRODUCTION COMMENTS.....COOPERATIVA LITORAL WAS PRODUCING  
 1 MT/MO 40% PB CONS 1968-1969.

## RESERVES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	3.004	MT		1971	1.38% PB 1.42% ZN

SOURCE OF RESERVES INFORMATION.....GEOBOL (1971QQ)

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MRDS RECORD NUMBER.....BL10096  
 SITE NAME.....SUCRE MINE  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....COMUNIDAD TODOS SANTOS 6128-I 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4050 M  
 LATITUDE.....21-44-19S LONGITUDE.....067-06-25W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....1.5 KM S10E OF ESTANCIA SALARIOS,  
 172 KM FROM UYUNI BY ROAD  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....MALACHITE, CHRYSOCOLLA  
 GENERAL ANALYTICAL DATA.....ORE ANALYSES BY GEOBOL (1971RR): 3.3 TO  
 15.5% CU OVER 0.1 TO 0.45M  
 MAJOR.....CU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 EXPLORATION AND DEVELOPMENT COMMENTS.....SMALL SCALE MINING IN 1970  
 DEPOSIT TYPE.....STRATABOUND, LODE  
 USGS MODEL .....SEDIMENT-HOSTED CU  
 USGS MODEL NUMBER.....30B  
 DEPOSIT FORM.....LENTICULAR  
 DEPOSIT SIZE.....SMALL  
 STRIKE.....N65 TO 70W  
 DIP.....41 TO 43NE  
 DEPOSIT DESCRIPTION COMMENTS.....VEINS ARE MINOR FRACTURE  
 FILLINGS. MANTOS IN CONGLOMERATE ARE UP TO 50 CM THICK, IN SANDSTONE UP  
 TO 15 CM THICK.  
 DESCRIPTION OF WORKINGS.....U  
 LENGTH OF WORKINGS.....15 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....ADITS  
 HOST ROCK AGE.....OLIGO-MIO  
 HOST ROCK TYPE.....CONGLOMERATE, SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 SIGNIFICANT REGIONAL STRUCTURES.....N13E ANTICLINE  
 FORMATION AGE.....OLIGO-MIO  
 FORMATION NAME.....SAN VICENTE  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (1971RR)

REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971RR)  
 ANNUAL PRODUCTION  
 ITEM ACCURACY AMOUNT THOUS UNITS YEAR GRADE  
 CONS ACC .004 MT 1970 10% CU  
 SOURCE OF PRODUCTION INFORMATION.....GEOBOL (1971RR)

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MRDS RECORD NUMBER.....BL10076  
 SITE NAME.....**SUSANA MINE**  
 SYNONYM NAME.....NELSON, SUCEIVA SUSANA, SUCEIVA PAMPA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN JURIKES.SF 19-11 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....MINA HORSU 6025-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5300 M  
 LATITUDE.....22-44-58S LONGITUDE.....067-34-19W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....7 KM E OF CAMPAMENTO MINA HORSU  
 LOCATION COMMENTS.....SUSANA IS ON W FLANK OF CERRO RIO AMARGO,  
 NELSON ON THE E FLANK  
 COMMODITIES PRESENT.....S AS  
 ORE MATERIALS.....NATIVE S REALGAR ORPIMENT  
 GENERAL ANALYTICAL DATA.....SIX SHALLOW DRILL HOLES AT NELSON AVERAGE  
 8.02% S, 0.45% AS  
 MAJOR.....S  
 OCCUR.....AS  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....EMPRESA MINERA BARRERO  
 OPERATOR.....EMPRESA MINERA BARRERO  
 MILL CAPACITY PER YR. (THOUS. UNITS)...21.6  
 YR APPLICABLE.....1974  
 ECONOMIC COMMENTS.....PRODUCES 1,800 MT S PER MO.  
 EXPLORATION AND DEVELOPMENT COMMENTS.....CONCESSION IS 32 SQ KM IN  
 AREA  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT DESCRIPTION COMMENTS.....SUSANA ZONE IS 0.6 KM WIDE. ORE  
 CONSISTS OF DISSEMINATED S AND POCKETS OF MASSIVE S.  
 DESCRIPTION OF WORKINGS.....S  
 DESCRIPTION OF WORKINGS COMMENTS.....OPEN PITS  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....PYROCLASTICS  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....PYROCLASTICS  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 ORE CONTROL/LOCUS.....POROUS VOLCANIC ROCK

NON-USGS WORK.....DRILLING BY GEO RESOURCES INC. SUSANA: 5  
 DRILL HOLES; NELSON: 6 DRILL HOLES  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL,  
 BALLIVIAN AND BARRIOS (1969)  
 REFERENCE....BALLIVIAN AND BARRIOS (1969)

## RESERVES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	819.45	MT		1969	9.66% S
S	POS	1751.693	MT		1974	
S	PRO	1687.164	MT		1974	
S	PSS	1986.087	MT		1974	

SOURCE OF RESERVES INFORMATION.....BALLIVIAN AND BARRIOS (1969)

## POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	3000000	MT			

POTENTIAL RESOURCES COMMENTS.....DUBIOUS FIGURE FROM  
 CONSEJO NACIONAL MARATIMO REPORT

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MRDS RECORD NUMBER.....BL10082  
 SITE NAME.....TESORERA MINE  
 MINING DISTRICT/AREA.....SAN CRISTOBAL  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN CRISTOBAL 6330-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4275 M  
 LATITUDE.....21-06-00S LONGITUDE.....067-12-38W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....0.7 KM SW OF SAN CRISTOBAL  
 COMMODITIES PRESENT.....AG PB  
 ORE MATERIALS.....GALENA  
 MAJOR.....AG  
 POTEN.....PB  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 DEPOSIT FORM.....IRREGULAR  
 STRIKE.....N 55 E  
 DIP.....85 SE  
 DESCRIPTION OF WORKINGS.....U  
 DESCRIPTION OF WORKINGS COMMENTS.....ONE ADIT  
 HOST ROCK AGE.....TERT  
 HOST ROCK TYPE.....AGGLOMERATE, DACITE PORPHYRY  
 AGE OF IGNEOUS ROCK.....TERT  
 IGNEOUS ROCK TYPE.....AGGLOMERATE, DACITE PORPHYRY  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....PYRITE

ORE CONTROL/LOCUS.....NE FAULT, CONTACT DACITE PORPHYRY AND  
 AGGLOMERATE  
 SIGNIFICANT REGIONAL STRUCTURES.....N10W ANTICLINE  
 SIGNIFICANT ALTERATION.....CLAYS SILICIFICATION  
 FORMATION AGE.....TERT  
 FORMATION NAME.....QUEHUA SUPERIOR  
 IGNEOUS UNIT AGE.....TERT  
 IGNEOUS UNIT NAME.....QUEHUA SUPERIOR  
 WORK DONE BY USGS.....GEOLOGICAL AND GEOCHEMICAL INVESTIGATIONS  
 BY JACOBSON AND OTHERS (1969)  
 NON-USGS WORK.....THESIS BY TORRICO (1966)  
 REFERENCE....JACOBSON AND OTHERS (1969), TORRICO (1966), AHLFELD (1944)

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MRDS RECORD NUMBER.....W031641  
 SITE NAME.....TOLDOS MINE  
 MINING DISTRICT/AREA.....SAN CRISTOBAL  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN CRISTOBAL 6130-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4100 M  
 LATITUDE.....21-06-44S                      LONGITUDE.....067-12-10W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....2 KM S OF SAN CRISTOBAL  
 LOCATION COMMENTS.....PRESENT OPEN PIT AT HEAD OF QUEBRADA ABOVE  
 MAIN TOLDOS UNDERGROUND WORKINGS. PIT EXTENDS TO SE EDGE OF UNDERGROUND  
 INCA MINE WORKINGS.  
 COMMODITIES PRESENT.....AG    PB    ZN    AS    SB    CU  
 ORE MATERIALS.....NATIVE SILVER, STROMEYERITE, GALENA,  
 SPHALERITE, TETRAHEDRITE; CHALCOPYRITE, PYRARGYRITE, POLYBASITE  
 GENERAL ANALYTICAL DATA.....RUN OF MINE ORE IN MAY 1990 ASSAYED 100  
 G/T AG, 50 PPM CU, 3000 PPM PB, 150 PPM SB, 1000 PPM ZN, <2 PPB AU, <10  
 PPM SN, <200 PPM AG, <10 PPM BI  
 MAJOR.....AG    PB  
 POTEN.....ZN  
 OCCUR.....AS    SB    CU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....7  
 DISCOVERER.....SPANISH COLONISTS  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1870  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DEL SUR (COMSUR)  
 OPERATOR.....EMPRESA MINERA YAUJA MALLCU  
 MILL CAPACITY PER YR. (THOUS. UNITS)...375  
 YR APPLICABLE.....1990  
 ECONOMIC COMMENTS.....ORE CRUSHED TO -1", CONVEYOR TO ORE PILE,  
 TRUCKED TO LEACH FACILITY, CYANIDE HEAP LEACH WITH 60 TO 70% AU RECOVERY

EXPLORATION AND DEVELOPMENT COMMENTS.....WAS OWNED BY EMUSA IN 1975. MINE OPERATED FROM 1870 TO 1921 BY CIA MINERA DE SAN CRISTOBAL. EXPLORED BY LIPEZ MINING CO. 1966.

DEPOSIT TYPE.....LODE, STOCKWORK

USGS MODEL .....SN-POLYMETALLIC VEIN

DEPOSIT FORM.....IRREGULAR BRANCHING TABULAR VEINS

DEPTH TO BOTTOM.....LT 100           UNITS...M

MAXIMUM LENGTH.....400           UNITS...M

MAXIMUM WIDTH.....350           UNITS...M

DEPOSIT SIZE.....SMALL

STRIKE.....N 35 TO 40 E

DIP.....55NW TO VERTICAL

DEPOSIT DESCRIPTION COMMENTS.....MAJOR VEINS ARE THE BONANZA AND CUARESMA; BARBA VEIN IS INTERMEDIATE IN SIZE. DEPOSIT CONSISTS OF 0.5 TO 1.0 M VEINS WHICH WERE EXPLOITED IN COLONIAL TIMES AND 1 TO 30 CM VEINLETS WHICH MAKE UP THE CURRENTLY EXPLOITED ORE.

DESCRIPTION OF WORKINGS.....B

DEPTH BELOW SURFACE.....70           UNITS...M

OVERALL LENGTH.....250           UNITS...M

OVERALL WIDTH.....150           UNITS...M

DESCRIPTION OF WORKINGS COMMENTS.....ORIGINAL UNDERGROUND WORKINGS CONSISTS OF ONE ADIT WITH MANY CROSS-CUTS, DRIFTS, A MAIN LEVEL AND LESSER LOWER LEVELS. CURRENT OPERATION IS BY OPEN PIT.

HOST ROCK AGE.....LMIO

HOST ROCK TYPE.....BIOTITE (AMPHIBOLE) RHYODACITE PORPHYRY

AGE OF IGNEOUS ROCK.....LMIO

IGNEOUS ROCK TYPE.....BIOTITE (AMPHIBOLE) RHYODACITE PORPHYRY

AGE OF MINERALIZATION.....LMIO

PERTINENT MINERALS (NOT ORE).....PYRITE, BARITE, SIDERITE, HEMATITE, QUARTZ, MAGNETITE, CALCITE

ORE CONTROL/LOCUS.....N 30 TO 40E TRENDING FAULT SET

SIGNIFICANT REGIONAL STRUCTURES.....SEDIMENTARY ROCKS FOLDED INTO ANTICLINE, TRENDING N 10 W

SIGNIFICANT ALTERATION.....RHYODACITE PORPHYRY IS SERICITIZED

FORMATION AGE.....EMIO-MMIO

FORMATION AGE.....EOCENE

FORMATION NAME.....UPPER QUEHUA

FORMATION NAME.....POTOCO

SUBVOLCANIC STOCK

GENERAL COMMENTS.....GEOPHYSICAL SURVEY: GROUND MAGNETICS, 276,000 CU M AREA, 13 LINES SEPARATED BY 50 M, 20 M POINT SPACING ALONG LINES.

WORK DONE BY USGS.....GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL INVESTIGATIONS BY JACOBSON AND OTHERS (1969)

WORK DONE BY USGS.....VISITED BY USGS/GEOBOL PERSONNEL MAY 1990

NON-USGS WORK.....THESIS BY TORRICO (1966)

NON-USGS WORK.....GEOPHYSICAL INVESTIGATIONS BY GEOBOL (DELGADILLO, 1967)

REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964), GAMARRA (1968), TORRICO (1966), DELGADILLO (1967), JACOBSON AND OTHERS (1969), AHLFELD (1944), AVILA-SALINAS AND OTHERS (1975)

ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
AG	ACC	9.3	KG	1987	

AG ACC 5.6 KG 1988  
 SOURCE OF PRODUCTION INFORMATION.....STATE DEPARTMENT MINERALS REPORT  
 BOLIVIA 1988, P. 42

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	ACC	3000	MT		1990	150 G/T AG
ORE	EST	4000	MT		1990	

SOURCE OF RESERVES AND RESOURCES INFORMATION.....CORNELIO BARRIOS H.,  
 MINE GEOLOGIST, PERS. COMM.

RESERVES AND RESOURCES COMMENTS.....OPEN PIT RESERVES;  
 ITEM 2 IS INDICATED ORE

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MRDS RECORD NUMBER.....BL10083  
 SITE NAME.....**TRAPICHE MINE**  
 MINING DISTRICT/AREA.....SAN CRISTOBAL  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....SAN CRISTOBAL 6130-I 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4220 M  
 LATITUDE.....21-05-47S LONGITUDE.....067-12-15W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....60 M SOUTH OF SAN CRISTOBAL  
 COMMODITIES PRESENT.....UNK  
 ORE MATERIALS.....NONE FOUND  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....LODE  
 DEPOSIT SIZE.....SMALL  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT CONSISTS OF THE ROOTS OF  
 VEINS MINERALIZED ABOVE THE MINE WORKINGS  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....305 UNITS...M  
 DESCRIPTION OF WORKINGS COMMENTS.....DRIFTS AND CROSSCUTS THAT  
 EXPLORE AREA BENEATH PREVIOUSLY WORKED VEINS WEST OF MINE ENTRANCE. NO  
 MINERALIZATION ENCOUNTERED.  
 HOST ROCK AGE.....TERT  
 AGE OF MINERALIZATION.....TERT  
 ORE CONTROL/LOCUS.....FAULTS  
 SIGNIFICANT REGIONAL STRUCTURES.....N10W ANTICLINE  
 FORMATION AGE.....TERT  
 FORMATION NAME.....QUEHUA  
 WORK DONE BY USGS.....GEOLOGICAL AND GEOCHEMICAL INVESTIGATIONS  
 BY JACOBSON AND OTHERS (1969)  
 NON-USGS WORK.....THESIS BY TORRICO (1966)  
 REFERENCE....JACOBSON AND OTHERS (1969), TORRICO (1966), AHLFELD (1944)

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MRDS RECORD NUMBER.....BL10351  
SITE NAME.....**TRAPICHE MINE**  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....SAN ANTONIO DE ESMORUCO 6228-II 1971  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4350 M  
LATITUDE.....21-53-26S                      LONGITUDE.....066-41-48W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....5 KM N85 E OF ESTANCIA PIEDRA LUZ  
COMMODITIES PRESENT.....SB  
ORE MATERIALS.....UNKNOWN  
MAJOR.....SB  
PRODUCTION.....Y  
STATUS AND ACTIVITY.....4  
NATURE OF DISCOVERY.....B  
HOST ROCK AGE.....EMIO-MMIO  
AGE OF MINERALIZATION.....TERT  
FORMATION AGE.....EMIO-MMIO  
FORMATION NAME.....QUEHUA SUPERIOR  
REFERENCE....RODRIGUEZ AND OTHERS (1976)

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MRDS RECORD NUMBER.....BL10164  
SITE NAME.....**UCRANIA PROSPECT**  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....MINA ESMERALDA 6229-1 1970  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4200 M  
LATITUDE.....21-25-00S                      LONGITUDE.....066-32-19W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....5.5 KM W OF CERRILLOS  
COMMODITIES PRESENT.....CU  
ORE MATERIALS.....MALACHITE, AZURITE, CHRYSOCOLLA  
GENERAL ANALYTICAL DATA.....ANALYSES BY GEOBOL (1971SS): 0 TO 0.2% CU  
OCCUR.....CU  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
OPERATOR.....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
DEPOSIT TYPE.....STRATABOUND  
USGS MODEL .....SEDIMENT-HOSTED CU  
USGS MODEL NUMBER.....30B  
DEPOSIT FORM.....LENTICULAR



STRIKE.....N 35 W  
 HOST ROCK AGE.....EO  
 HOST ROCK TYPE.....SANDSTONE  
 AGE OF MINERALIZATION.....TERT  
 PERTINENT MINERALS (NOT ORE).....HEMATITE  
 ORE CONTROL/LOCUS.....PREFERRED BEDS  
 FORMATION AGE.....EO  
 FORMATION NAME.....POTOCO  
 GENERAL COMMENTS.....GEOCHEMICAL SURVEY CONSISTS OF 278 SAMPLES  
 FROM A 436,000 SQ M AREA ANALYZED FOR PB ZN CU  
 NON-USGS WORK.....GEOLOGICAL AND GEOCHEMICAL INVESTIGATIONS  
 BY GEOBOL (1971SS)  
 REFERENCE....SERVICIO GEOLOGICO DE BOLIVIA (1971SS)

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MRDS RECORD NUMBER.....BL10181  
 SITE NAME.....**UTURUNCU MINE**  
 SYNONYM NAME.....CERRO UTURUNCU  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....CERRO ZAPALERI SF 19-12 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO UTURUNCU 6127-II 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5700 M  
 LATITUDE.....22-14-50S                      LONGITUDE.....067-10-53W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....16 KM E OF BARRANCAS  
 LOCATION COMMENTS.....ON NE FLANK CERRO UTURUNCU  
 COMMODITIES PRESENT.....S                      AS  
 ORE MATERIALS.....NATIVE S, REALGAR  
 MAJOR.....S  
 POTEN.....AS  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....EMPRESA SAIBOL  
 OPERATOR.....EMPRESA SAIBOL  
 EXPLORATION AND DEVELOPMENT COMMENTS.....ATTEMPT TO MINE DEPOSIT BY  
 A CHILEAN CONCERN IN 1954 FAILED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT FORM.....BLANKET  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....VOLCANIC ASH  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 ORE CONTROL/LOCUS.....POROUS ASH BEDS  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10168  
 SITE NAME.....UYUNI SILICA DEPOSIT  
 PROVINCE.....QUIJARRO  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....UYUNI SF 19-4 1981  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....6232-III  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3669 M  
 LATITUDE.....20-28-10S LONGITUDE.....066-49-40W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....0.5 KM SW OF UYUNI.  
 LOCATION COMMENTS.....ALONG RR SW OF UYUNI.  
 COMMODITIES PRESENT.....SAND  
 ORE MATERIALS.....SILICA SAND  
 GENERAL ANALYTICAL DATA.....SILICA SAND AVERAGES 90.44% SiO<sub>2</sub>, 4.16%  
 FEO (CADIMA AND OTHERS, 1969)  
 NON-PRODUCER MAIN.....SAND  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....STRATABOUND  
 USGS MODEL .....SILICA SAND  
 DEPOSIT FORM.....LENTICULAR  
 HOST ROCK AGE.....QUAT  
 HOST ROCK TYPE.....SAND  
 AGE OF MINERALIZATION.....QUAT  
 FORMATION AGE.....QUAT  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
 (CADIMA AND OTHERS, 1969)  
 REFERENCE....CADIMA AND OTHERS (1969)

## RESERVES AND POTENTIAL RESOURCES

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
AREA A BED U5						
ORE	EST	1338.424	MT		1969	90.43% SiO <sub>2</sub>
AREA A BED U7						
ORE	EST	4758.840	MT		1969	91.88% SiO <sub>2</sub>
AREA B BED U5						
ORE	EST	1267.904	MT		1969	83.82% SiO <sub>2</sub>
AREA B BED U7						
ORE	EST	1539.599	MT		1969	85.85% SiO <sub>2</sub>
SOURCE OF RESERVES AND RESOURCES INFORMATION.....CADIMA AND OTHERS (1969)						
RESERVES AND RESOURCES COMMENTS.....BASED ON HOLES DRILLED ON 250 M CENTERS AVERAGING 1.65 M DEEP.						

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MRDS RECORD NUMBER.....W031640  
 SITE NAME.....VENTILLAS MINE  
 MINING DISTRICT/AREA.....SAN VICENTE

PROVINCE.....SUD CHICHAS  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO - TIHUANACU RIVER  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....6329-IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4620 M  
 LATITUDE.....21-22- S                      LONGITUDE.....066-16- W  
 POSITION FROM NEAREST LOCALITY.....22 KM S OF SAN VICENTE  
 COMMODITIES PRESENT.....SB    SN    PB    ZN  
 ORE MATERIALS.....STIBNITE, SPHALERITE, GALENA, CASSITERITE  
 MAJOR.....SB  
 MINOR.....SN    PB    ZN  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....7  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....EMUSA  
 OPERATOR.....EMUSA  
 DEPOSIT TYPE.....VEINS  
 USGS MODEL .....SN-POLYMETALLIC VEIN  
 USGS MODEL NUMBER.....20B  
 DEPOSIT FORM.....TABULAR  
 DEPTH TO BOTTOM.....150                      UNITS...M  
 MAXIMUM LENGTH.....100                      UNITS...M  
 MAXIMUM WIDTH.....0.6                      UNITS...M  
 DEPOSIT SIZE.....MEDIUM  
 STRIKE.....E-W  
 DIP.....S  
 DESCRIPTION OF WORKINGS.....U  
 DEPTH BELOW SURFACE.....150                      UNITS...M  
 HOST ROCK AGE.....ORD  
 HOST ROCK TYPE.....UNDIFFERENTIATED SEDIMENTS  
 AGE OF IGNEOUS ROCK.....MIO  
 IGNEOUS ROCK TYPE.....DACITIC INTRUSIVES  
 AGE OF MINERALIZATION.....MIO  
 PERTINENT MINERALS (NOT ORE).....PYRITE, QUARTZ, CHALCOPYRITE  
 ORE CONTROL/LOCUS.....E-W TRENDING TENSION FISSURES AND FAULTS.  
 SAN VICENTE - COROCORO FAULT.  
 FORMATION AGE.....ORD  
 FORMATION NAME.....SAN VICENTE CONGLOMERATES  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10292  
 SITE NAME.....**VETA KKOLLU MINE**  
 MINING DISTRICT/AREA.....YONZA  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....CERRO PABELLON 6033-III 1972

SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....3655 M  
 LATITUDE.....20-19-15S                      LONGITUDE.....067-55-34W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....16 KM N5E OF ESTANCIA PALLCANTA  
 COMMODITIES PRESENT.....CU  
 ORE MATERIALS.....UNKNOWN  
 MAJOR.....CU  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 HOST ROCK AGE.....TERT  
 AGE OF MINERALIZATION.....TERT  
 FORMATION AGE.....TERT  
 IGNEOUS UNIT AGE.....YONZA  
 SOURCE OF INFORMATION...MINE SPOTTED ON CERRO PABELLON (6033-III)  
 1:50,000 SCALE TOPOGRAPHIC MAP.

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MRDS RECORD NUMBER.....BL10068  
 SITE NAME.....**VICTORIA MINE**  
 MINING DISTRICT/AREA.....CAÑAPA  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....5929-IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5300 M  
 LATITUDE.....21-29-42S                      LONGITUDE.....068-05-37W  
 ACCURACY.....EST  
 POSITION FROM NEAREST LOCALITY.....200 KM BY ROAD FROM UYUNI  
 LOCATION COMMENTS.....IN SERRANIA DE CANAPA  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE SULFUR  
 MAJOR.....S  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 YEAR OF FIRST PRODUCTION.....1958  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT FORM.....LENTICULAR  
 DEPTH TO TOP.....0                      UNITS...M  
 DEPOSIT SIZE.....SMALL  
 DEPOSIT DESCRIPTION COMMENTS.....DEPOSIT CONSISTS OF  
 IMPREGNATIONS, FISSURE FILLINGS AND DRUSE IN VOLCANIC ASH OF NATIVE  
 SULFUR AS VEINLETS AND MANTOS.  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....PLIO  
 HOST ROCK TYPE.....VOLCANIC ASH

AGE OF IGNEOUS ROCK.....PLIO  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH  
 AGE OF MINERALIZATION.....PLIO  
 ORE CONTROL/LOCUS.....FRACTURES FISSURES POROUS ASH BEDS  
 PROCESS OF CONCENTRATION/ENRICHMENT.....SUBLIMATION  
 NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL, PONCE  
 (1967), SANTIESTEBAN (1972)  
 REFERENCE....PONCE (1967), AHLFELD AND SCHNEIDER-SCHERBINA (1964),  
 SANTIESTEBAN (1972)

## ANNUAL PRODUCTION

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
CONS	ACC	.08	MT	1958	99.5% S FROM 50 TO 55% S

ORE

SOURCE OF PRODUCTION INFORMATION.....PONCE (1967)

## RESERVES

ITEM	ACCURACY	AMOUNT	THOUS UNITS	YEAR	GRADE
ORE	EST	232	MT	1967	55 TO 60% S
ORE	EST	205	MT	1967	37 TO 45% S
ORE	EST	232	MT	1964	52% S

SOURCE OF RESERVES INFORMATION.....PONCE (1967), AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10173  
 SITE NAME.....VICTORIA MINE  
 SYNONYM NAME.....SANTA VICTORIA  
 MINING DISTRICT/AREA.....CERRO CAYTE SULFUR DEPOSIT  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1974  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ABRA DE NAPA 5832-II 1971  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4320 M  
 LATITUDE.....20-33-12S LONGITUDE.....068-31-54W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....3 KM S10E OF EL DESIERTO  
 LOCATION COMMENTS.....SOUTHERNMOST OF MINE WORKINGS ON CERRO  
 CAYTE S DEPOSIT, ON SW FLANK OF CERRO COYA COYANI  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 GENERAL ANALYTICAL DATA.....ORE GRADES UP TO 40% S  
 MAJOR.....S  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....8  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DEPOSIT FORM.....BLANKET  
 MAXIMUM THICKNESS.....5 UNITS...M

DEPOSIT DESCRIPTION COMMENTS.....MANTO IS 3 TO 5 M THICK AND  
 UNDERLIES A BASALT FLOW  
 DESCRIPTION OF WORKINGS.....S  
 HOST ROCK AGE.....PLIO  
 HOST ROCK TYPE.....VOLCANIC ASH  
 AGE OF IGNEOUS ROCK.....PLIO  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH  
 AGE OF MINERALIZATION.....PLIO  
 ORE CONTROL/LOCUS.....POROUS VOLCANIC ASH BEDS  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10008  
 SITE NAME.....**VILADEL PLACER**  
 SYNONYM NAME.....SAN ANTONIO DE LIPEZ PLACER  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....ALTIPLANO  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SAN PABLO DE LIPEZ SF 19-8 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....6228-IV  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....4200 M  
 LATITUDE.....21-45-23S                      LONGITUDE.....066-50-23W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....13 KM N20E OF SAN ANTONIO DE  
 LIPEZ  
 COMMODITIES PRESENT.....AU  
 ORE MATERIALS.....NATIVE AU  
 GENERAL ANALYTICAL DATA.....ESTIMATED GRADE OF 0.2 G/CU M AU. AU  
 PARTICLES GREATER THAN 1 MM IN SIZE.  
 MAJOR.....AU  
 PRODUCTION.....S  
 STATUS AND ACTIVITY.....4  
 NATURE OF DISCOVERY.....B  
 OWNER (PRESENT/LAST).....CORPORACION MINERA DE BOLIVIA (COMIBOL)  
 OPERATOR.....COOPERATIVA AURIFERA SAN JOSE  
 ECONOMIC COMMENTS.....PRODUCED SINCE 1987 BY COOPERATIVA  
 AURIFERA SAN JOSE  
 DEPOSIT TYPE.....PLACER  
 USGS MODEL .....AU-PGE PLACER  
 USGS MODEL NUMBER.....39A  
 DEPTH TO BOTTOM.....0.5                      UNITS...M  
 DESCRIPTION OF WORKINGS.....S  
 DESCRIPTION OF WORKINGS COMMENTS.....SIMPLE PLACER DIGGINGS  
 HOST ROCK AGE.....QUAT  
 HOST ROCK TYPE.....SAND, GRAVEL  
 AGE OF MINERALIZATION.....QUAT  
 ORE CONTROL/LOCUS.....FOUND ON ANCIENT TERRACES WITHIN  
 ORDOVICIAN METASEDIMENTS  
 SIGNIFICANT REGIONAL STRUCTURES.....FOLDED METASEDIMENTS,  
 FLUVIALGLACIAL VALLEY  
 FORMATION AGE.....QUAT

GEOLOGY COMMENTS.....VEINLETS OF QUARTZ-JAROSITE FOUND IN  
COUNTRY ROCK. PLACERS ARE VERY CLOSE TO SOURCE.  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY UNDP (1989)  
NON-USGS WORK.....EXAMINED BY CANADIAN CONSULTING FIRM OF  
ROCHE FOR COMIBOL, 1990  
REFERENCE....UNITED NATIONS DEVELOPMENT PROGRAM (1989), COMIBOL (1990)

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MRDS RECORD NUMBER.....BL10178  
SITE NAME.....VOLCAN IRU PUTUNCU OCCURRENCE  
SYNONYM NAME.....IRUPUTUNCU  
PROVINCE.....NOR LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1973  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....5931-I  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5000 M  
LATITUDE.....20-43-39S LONGITUDE.....068-32-58W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....23 KM N70W OF CANA  
LOCATION COMMENTS.....ON SE FLANK OF VOLCAN IRU PUTUNCU  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
NON-PRODUCER MAIN.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
EXPLORATION AND DEVELOPMENT COMMENTS.....ACCORDING TO AHLFELD AND  
SCHNEIDER-SCHERBINA (1964) AN ATTEMPT TO RECOVER SUBLIMATED S FROM  
FUMAROLIC GASES WAS A FAILURE.  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
DEPOSIT DESCRIPTION COMMENTS.....MAIN S DEPOSIT IS IN CRATER ON  
CHILEAN SIDE OF THE BORDER  
HOST ROCK AGE.....PLEIS  
AGE OF IGNEOUS ROCK.....PLEIS  
AGE OF MINERALIZATION.....HOLO  
ORE CONTROL/LOCUS.....ZONES OF FUMAROLIC ACTIVITY  
GEOLOGY COMMENTS.....VOLCANO HAS ACTIVE FUMAROLES  
REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10283  
SITE NAME.....VOLCAN JURIQUE OCCURRENCE  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VOLCAN JURIQUE SF 19-11 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....VOLCAN JURIQUE 6025-III 1972

SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5700 M  
LATITUDE.....22-50-29S            LONGITUDE.....067-49-12W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....21 KM S60W OF MINA HORSU  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
OCCUR.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....QUAT  
AGE OF IGNEOUS ROCK.....QUAT  
AGE OF MINERALIZATION.....QUAT  
REFERENCES....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10284  
SITE NAME.....**VOLCAN LLICANCAHUR OCCURRENCE**  
PROVINCE.....SUD LIPEZ  
PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
DRAINAGE AREA.....ALTIPLANO  
QUADRANGLE NAME.....VOLCAN JURIQUES SF 19-11 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....LAGUNA VERDE 6025-IV 1973  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....5800 M  
LATITUDE.....22-49-49S            LONGITUDE.....067-52-33W  
ACCURACY.....ACC  
POSITION FROM NEAREST LOCALITY.....26 KM S65W OF MINA HORSU  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
OCCUR.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
HOST ROCK AGE.....QUAT  
HOST ROCK TYPE.....LAVA  
AGE OF IGNEOUS ROCK.....QUAT  
IGNEOUS ROCK TYPE.....LAVA  
AGE OF MINERALIZATION.....QUAT  
REFERENCES....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10179  
SITE NAME.....**VOLCAN OLCA MINES**



SYNONYM NAME.....TRES RAYAS, CANDELARIA, CARLOTA  
 PROVINCE.....NOR LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VILLA MARTIN SF 19-3 1973  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....ESTANCIA SECCICHA 5931-III 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5320 M  
 LATITUDE.....20-56-27S                      LONGITUDE.....068-28-18W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....25 KM S40W OF CANA  
 LOCATION COMMENTS.....GEODETIC COORDINATES ARE FOR TRES RAYAS  
 MINE, CARLOTA MINE IS AT 20-56-17S 68-27-30W, 1.4 KM N75E  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 MAJOR.....S  
 PRODUCTION.....Y  
 STATUS AND ACTIVITY.....2  
 NATURE OF DISCOVERY.....B  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 DESCRIPTION OF WORKINGS.....U  
 HOST ROCK AGE.....PLIO  
 AGE OF IGNEOUS ROCK.....PLIO  
 AGE OF MINERALIZATION.....QUAT  
 ORE CONTROL/LOCUS.....ZONES OF FUMAROLIC ACTIVITY  
 GEOLOGY COMMENTS.....ACTIVE FUMAROLIC ACTIVITY IN AREA  
 REFERENCE....AHLFELD AND SCHNEIDER-SCHERBINA (1964)  
     RESERVES AND POTENTIAL RESOURCES  

ITEM	ACCURACY	AMOUNT	THOUS	UNITS	YEAR	GRADE
ORE	EST	200	MT		1964	55% S

 SOURCE OF RESERVES AND RESOURCES INFORMATION.....AHLFELD AND SCHNEIDER-SCHERBINA (1964)

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MRDS RECORD NUMBER.....BL10189  
 SITE NAME.....VOLCAN OLLAGUE MINES  
 SYNONYM NAME.....SANTA ROSA  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....VOLCAN OLLAGUE SF 19-7 1972  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....VOLCAN OLLAGUE 5930-II 1970  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5800 M  
 LATITUDE.....21-18-09S                      LONGITUDE.....068-10-19W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....12 KM S15E OF ESTACION ABAROA  
 LOCATION COMMENTS.....ON SE FLANK OF VOLCAN OLLAGUE  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S

NON-PRODUCER MAIN.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 HOST ROCK AGE.....LPLIO-PLEIS  
 HOST ROCK TYPE.....VOLCANIC ASH  
 AGE OF IGNEOUS ROCK.....LPLIO-PLEIS  
 IGNEOUS ROCK TYPE.....VOLCANIC ASH  
 AGE OF MINERALIZATION.....PLEIS?  
 GEOLOGY COMMENTS.....ACTIVE FUMUROSLES IN CHILEAN PART OF  
 VOLCANO  
 REFERENCES....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10166  
 SITE NAME.....**VOLCAN SILLILLICA OCCURRENCE**  
 PROVINCE.....DANIEL CAMPOS  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO  
 QUADRANGLE NAME.....SALINAS DE GARCI MENDOZA SE 19-15 1975  
 QUADRANGLE SCALE.....1:250,000  
 SECOND QUADRANGLE NAME.....BELLA VISTA 5834-I 1972  
 SECOND QUAD SCALE.....1:50,000  
 ELEVATION.....5000 M  
 LATITUDE.....19-43-26S                      LONGITUDE.....068-40-31W  
 ACCURACY.....ACC  
 POSITION FROM NEAREST LOCALITY.....15.5 KM N45W OF BELLA VISTA  
 COMMODITIES PRESENT.....S  
 ORE MATERIALS.....NATIVE S  
 OCCUR.....S  
 PRODUCTION.....N  
 STATUS AND ACTIVITY.....1  
 NATURE OF DISCOVERY.....B  
 DEPOSIT TYPE.....DISSEMINATED  
 USGS MODEL .....FUMAROLIC S  
 USGS MODEL NUMBER.....IM25M  
 HOST ROCK AGE.....LMIO-QUAT  
 HOST ROCK TYPE.....LAVA  
 AGE OF IGNEOUS ROCK.....LMIO-QUAT  
 IGNEOUS ROCK TYPE.....LAVA  
 AGE OF MINERALIZATION.....LMIO-QUAT  
 REFERENCES....RODRIGUEZ AND OTHERS (1976), MCVEY (1989)

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MRDS RECORD NUMBER.....BL10079  
 SITE NAME.....**WILMA PROSPECT**  
 SYNONYM NAME.....AZUFREIRA WILMA, NELLY  
 PROVINCE.....SUD LIPEZ  
 PHYSIOGRAPHIC PROVINCE.....WESTERN VOLCANIC ZONE  
 DRAINAGE AREA.....ALTIPLANO

QUADRANGLE NAME.....VOLCAN JURIQUES SF 19-11 1974  
QUADRANGLE SCALE.....1:250,000  
SECOND QUADRANGLE NAME.....MINA HORSU 6025-I 1972  
SECOND QUAD SCALE.....1:50,000  
ELEVATION.....4000 M  
LATITUDE.....22-42-49S                LONGITUDE.....067-44-17W  
ACCURACY.....ACC  
LOCATION COMMENTS.....LAT LONG FOR NELLY MINE  
COMMODITIES PRESENT.....S  
ORE MATERIALS.....NATIVE S  
GENERAL ANALYTICAL DATA.....ORE ASSAYS BY BALLIVIAN AND CORDERO  
(1969): AVERAGE 13.53% S, RANGE 7.06 TO 31.22% S  
NON-PRODUCER MAIN.....S  
PRODUCTION.....N  
STATUS AND ACTIVITY.....1  
NATURE OF DISCOVERY.....B  
DEPOSIT TYPE.....DISSEMINATED  
USGS MODEL .....FUMAROLIC S  
USGS MODEL NUMBER.....IM25M  
DEPOSIT DESCRIPTION COMMENTS.....SULFUR OUTCROPS OVER AN AREA OF  
185,000 SQUARE M.  
DESCRIPTION OF WORKINGS COMMENTS.....NO WORKINGS  
HOST ROCK AGE.....LMIO-QUAT  
HOST ROCK TYPE.....LAVA  
AGE OF IGNEOUS ROCK.....LMIO-QUAT  
IGNEOUS ROCK TYPE.....LAVA  
AGE OF MINERALIZATION.....LMIO-QUAT  
ORE CONTROL/LOCUS.....POROUS VOLCANIC ROCK  
NON-USGS WORK.....GEOLOGICAL INVESTIGATIONS BY GEOBOL  
(BALLIVIAN AND CORDERO, 1969)  
REFERENCE....BALLIVIAN AND CORDERO (1969)

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