Los Tamales Copper-Molybdenum Project
Sonora, Mexico

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Introduction

The Los Tamales copper-moly project located in northern Sonora, Mexico (Figure 1) was discovered by a joint exploration program by United States Geological Survey (USGS)- and the Mexican Consejo de Recursos Minerales CRM (now the Servicos Geologicos Mexicanos or SGM) in the late 1970's. Subsequently, the area was mapped by USGS geologists and drilled by Azufre Panamericana in the 1970's. Little additional work has been completed on the property until the recent INMET-Sundance Minerals efforts over the past few months. The 2200 ha Teocuitla 5 and part of the 1650 ha Teocuitla 8 claim blocks have been covered by a soil sampling program and well as an induced polarization survey. Mapping has focused on outlining the mineralized surface outcrops.

Geochemical results and mapping indicate a 4 km by 2 km area of anomalous copper-molybdenum levels in soils and a 1 km by 2 km area of quartz stockwork-sulfide mineralization at outcrop. Porphyry style quartz-sulfide stockwork veining occurs in a Biotite Grandiorite of unknown age, Precambrian Oracle Granite, and a Jurassic age Quartz-Mica Schist. The entire stockwork-bearing sequence of rocks is dissected by a major post-mineral granodiorite of early Miocene age (24-25 Ma) and smaller dikes of similar composition. Up to one km north of Los Tamales, blocks of copper mineralized Biotite Granodiorite and Oracle Granite occur as remnants in the post-mineral granodiorite intrusion, to the south the post-mineral granodiorite occurs more as narrow dikes.

Sulfide mineralization at outcrop presents the most obvious target for drilling however high molybdenum levels in soil geochemistry and an anomalous IP zone suggests additional drill targets to the south of the main mass of mineralized Biotite Granodiorite.

Location

The Los Tamales project is located 7 km north of the municipality of Saric, Sonora (UTM Zone 12; E 461000, N 3447650) INEGI Map sheet Saric H12A48 (Figure 2). The project is named after the ranch in the center of the prospect area which derived its name from previous owners who, according to the local legend, looked like a pair of tamales while mounted on horseback when dressed in their fine but tight clothing. Access from Hermosillo, capital of the state of Sonora, is by the four lane Mexico Highway 15 for 178 km to the town of Magdalena and then a further 82 km by paved road to Saric, with only the final 7 km of road from Saric to the property being unpaved. Alternative access from the property via Sonora Route 43 to Nogales and the US border lies over the Sierra la Esmeralda, 71 km of mainly unpaved road. Tucson, the major copper mining center in

the Southwest U.S., is a further 115 km north of the Nogales border crossing. Yet another access route is through the border crossing station at the village of Sasabe, 46 km northwest of Saric via largely paved roads and then a further 123 km on the U.S. side by paved two lane highway, Arizona Route 283, to Tucson. The Sasabe border station is open from 8am to 8 pm, whereas the Maricopa crossing at Nogales is open from 6 am to 10 pm. Travel time from either Hermosillo or Tucson varies from 2.5 to 3 hours.

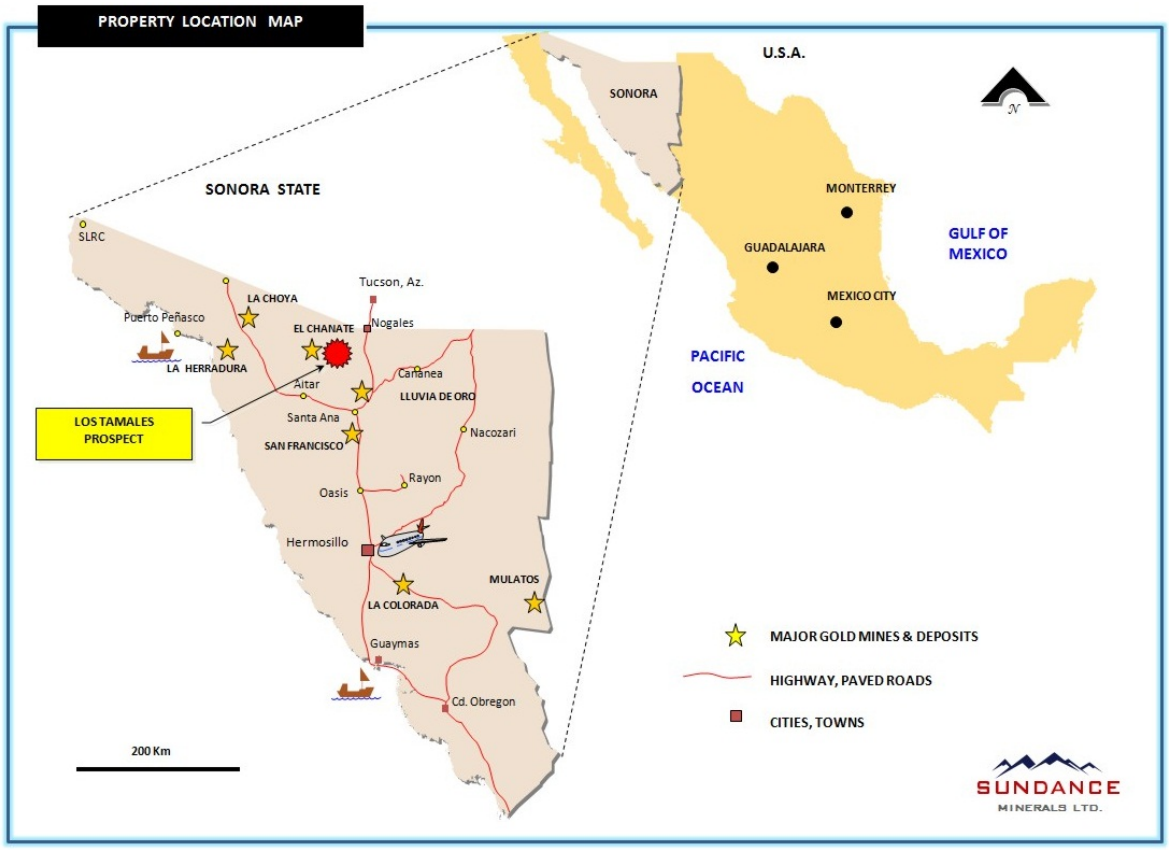


Figure 1. Los Tamales, Sonora, Mexico location map

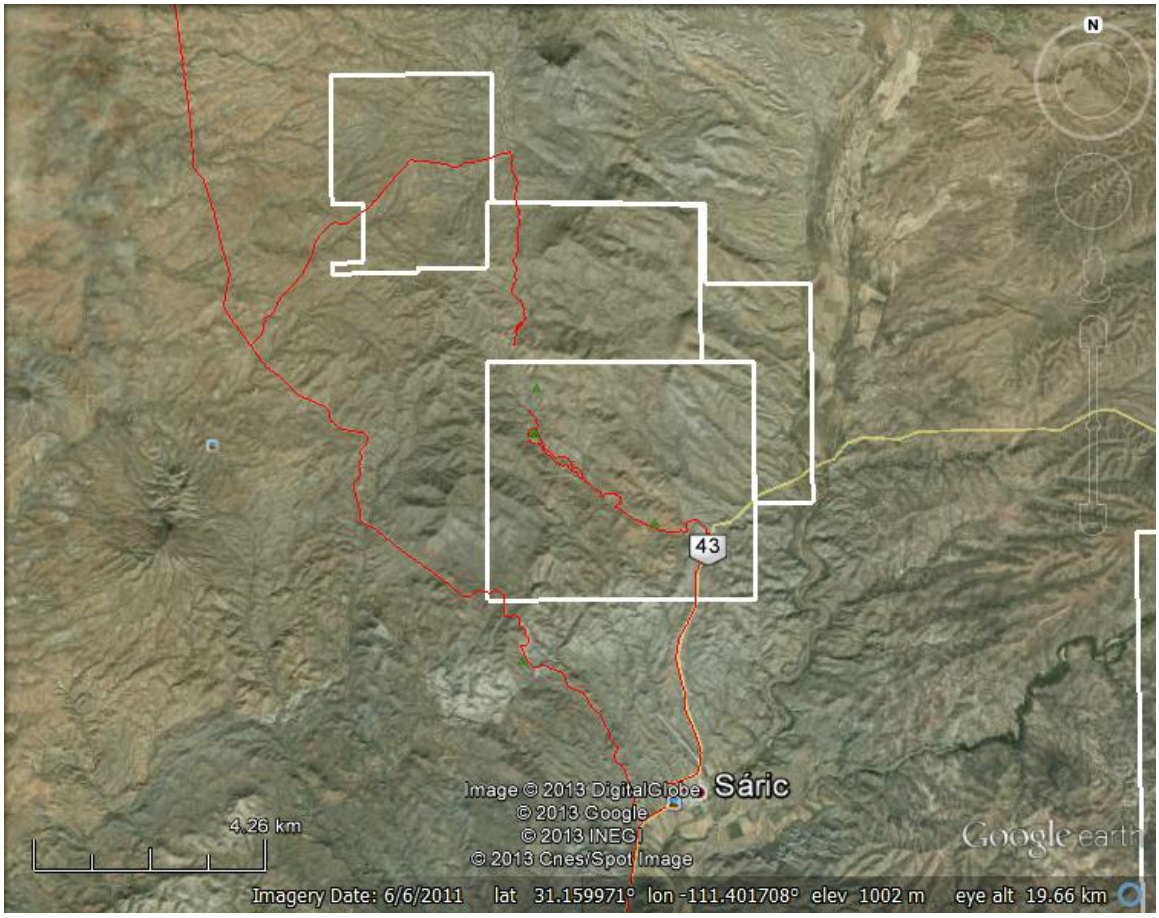


Figure 2. The Teocuitla 5 (south) and 8 (northwest and east) claim blocks, relative to Saric, Sonora

History

Eppinger and Theobald (1994) report on the history of the Los Tamales discovery (see attached map) that the initial discovery was triggered by an anomalous (Ag, Co, Cu, Mo, SO_4, and U) water well sample in the late 1970's as part of a cooperative USGS and CRM exploration program. Los Tamales was then the focus of additional stream sediment sampling as well as mesquite sampling by the USGS (Turner and others, 1984). Three diamond drill holes by a Mexican government-owned company "Azufre Panamericana" tested the property in the 1980's. The company Azufre Panamericana was eventually dissolved by the government and records were passed down to Minera Las Cuevas, and despite repeated attempts, we were unable to gain access to their archives. We have been unable to track down the drill results, but according to Pepe Bravo, the project geologist at that time, the two southern-most holes were 300 meters deep and the northern-most hole was 500 meters deep. All holes exhibited similar grades of between 0.25 and 0.35% Cu. Mr. Bravo could not remember Mo values.

By 1995, a US based junior exploration company USMX Inc had picked up the property, and I passed through the mineralized area as part of a regional copper exploration program with Magma Copper Company, a US copper producer. At the time, Los Tamales seemed a low-grade sulfide target which would not meet the grade criteria of the company. In 2006, Tumi Resources Ltd, staked the 2200 ha property and without any work conducted, wrote off the property in 2008. In 2010, Sundance Minerals Ltd. through our Mexican operating subsidiary Minera Teocuitla SA de CV then won the claim (Teocuitla 5, 2200 ha) in an expired claim lottery. Subsequently, Sundance staked the 1650 ha Teocuitla 8 claim to the east and northwest of Teocuitla 5.

In March 2013, Sundance entered into an agreement with Inmet, wherein Inmet may earn in a 70% interest in the property by a combination of work and payments. To date, a soil sampling program along the IP lines has been completed and most of a 60 line km IP program has been completed by Zonge Engineering. A two week geological mapping program has covered most of the stockwork mineralized areas.

Geology

The SGM geology map indicates a Cretaceous granodiorite intruding Jurassic sedimentary and volcanic rocks and in turn being intruded by a tertiary granite (Figure 3). In detail, four mineralized units exist at Los Tamales, the oldest a Precambrian granite common throughout the southwest, the Cretaceous biotite granodiorite, a Jurassic quartz mica schist, and a massive rhyolite porphyry of the same age.

An airborne magnetic survey by the SGM (Figure 4) shows the Los Tamales stockworked area lies on the northeast shoulder of a magnetic high with steep gradients. Surface geology shows it is largely in the Cretaceous biotite grandiorite. The magnetic high to the north of Los Tamales is likely related to a younger granite body underlying the Cerro Chile area.

Mapping has focused on the stockwork areas, overall compilation of my previous work with D. Brown's recent mapping is in progress. My map and D. Brown's field maps are appended. Additional detailed mapping of the southern area needs to be completed.

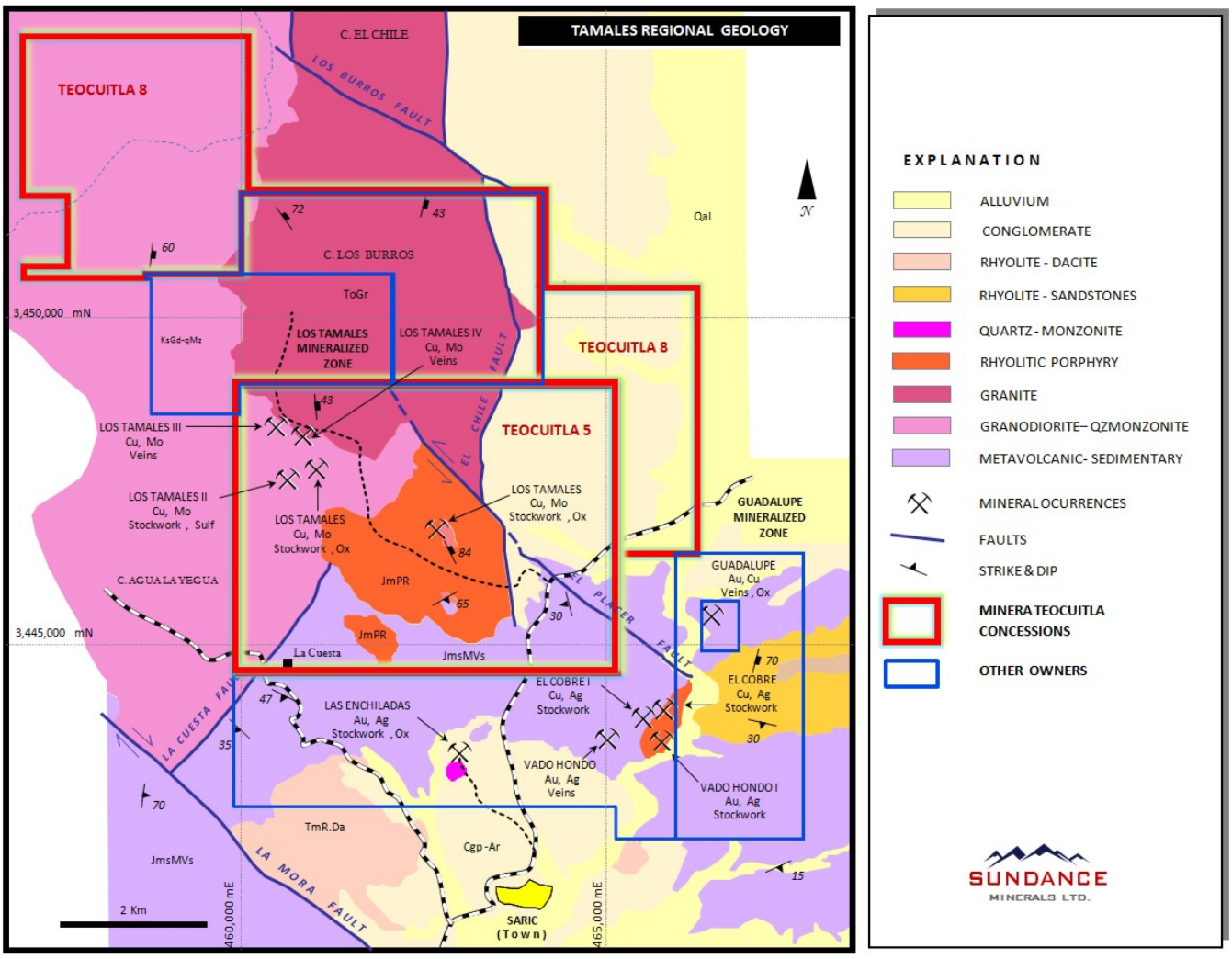


Figure 3. SGM geological map of the Los Tamales area.

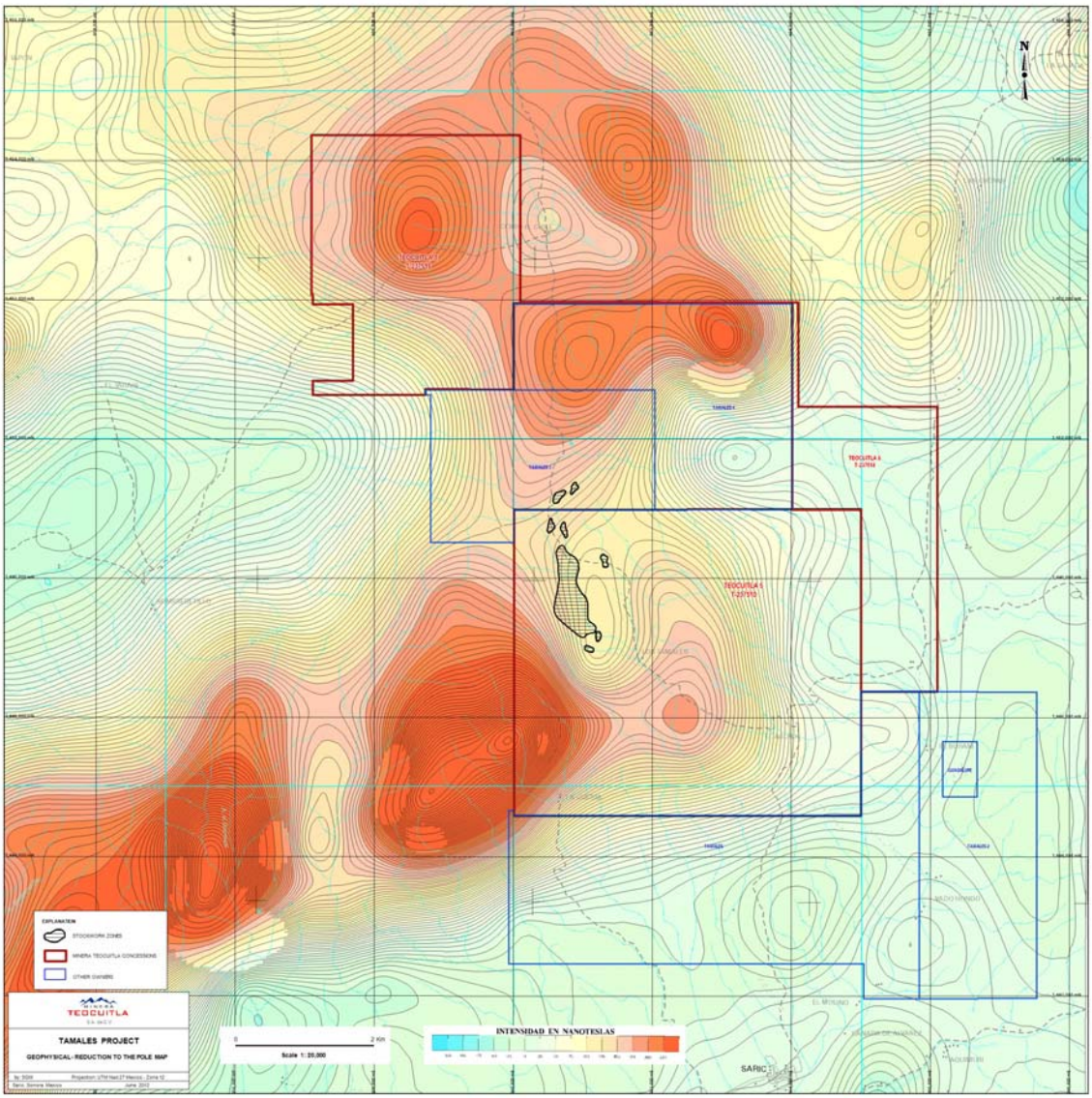


Figure 4. SGM magnetic map of the Los Tamales area, reduction to pole.

Mineralized Rocks

Oracle Granite - The oldest rock unit in the claim group is the coarse-grained "Oracle Granite" (1.4 Ga) characterized by large 2-to-3 cm potassium feldspar phenocrysts (Figure 5). The Oracle Granite constitutes a major host rock for a number of porphyry copper deposits in Arizona including Florence/Posten Butte and San Manuel/Kalamazoo. The granite is typically very broken up and a good host for quartz stockworks at Los Tamales.

Biotite Granodiorite – The Oracle Granite is intruded by a medium grained biotite granodiorite (Figure 6), which it is also mineralized and altered. Locally the biotite in this unit is shreddy and possibly recrystallized. Drill hole 2 was collared in Biotite Granodiorite. The age of the biotite granodiorite is unknown, it is presumably related to the Laramide porphyry event of the American southwest, however it may also be of Jurassic age as are the surrounding rhyolitic volcanic rocks

Quartz-Mica Schist- The biotite granodiorite intrudes a quartz-mica (or sericite) schist in the area east of the main Los Tamales arroyo. It is typically fine-grained and has a slight foliation (Figure 7a and b). Drill hole 1 was collared in this rock. To the east, the Quartz-Mica Schist is pyritic and where oxidized, more hematitic, and it does contain quartz eyes and may in fact be a different unit completely. The protolith of the Quartz-Mica schist may be the Jurassic meta-sedimentary shale, sandstone and conglomerate sequence to the south of the Los Tamales ranch. This Jurassic meta-sedimentary sequence is gray, slightly foliated, and contains minor sericite. It seems possible that porphyry style mineralization could have transformed these metasedimentary rocks into the quartz-mica schist.

Rhyolite Porphyry – A major geologic unit throughout the area is a thick massive quartz-eye rhyolite porphyry (Figure 8). It is unknown at this point whether the rhyolite is an intrusion or a welded tuff. Clearly there are sections in the massive rhyolite that have eutaxitic textures of a welded tuff (Figure 9), whether these are roof pendants or interbeds is undetermined. Sections of the rhyolite porphyry are very pyritic or contain oxidized pyrite as well as tourmaline (Figure 10). Quartz veins are common in the unit.

Figure 5. Photograph of the Precambrian Oracle Granite at Los Tamales

Figure 6. Photograph of the biotite granodiorite at Los Tamales

Figure 7a. Photograph of quartz-mica schist

Figure 7b. Photograph of quartz-mica schist at DDH-1

Figure 8. Photograph of the quartz-eye rhyolite porphyry.

Figure 9. Photograph of eutaxitic textures in a rhyolite tuff bed.

Figure 10. Photograph of rhyolite porphyry with black tourmaline spotting.

Non-Mineralized Rocks

Younger non-mineralized intrusive rocks; granodiorite occur as massive bodies in the northern portion of the Los Tamales claims, whereas granite and dacite porphyry dikes extend to the south into the mineralized Oracle Granite and Biotite Granodiorite. The large Oligocene (24-25 Ma) granite or granodiorite intrusion at Cerro Chile, 7 km north of Los Tamales has no mineralization other than numerous 5 m to 100 m long blocks of stockworked older rocks contained as xenoliths.

Granodiorite – medium to fine grained massive hornblende, biotite granodiorite, contains euhedral 2-3 mm biotite books, often chloritized (Figure 11).

Granite – medium to fine grained dikes of hornblende granite (Figure 12).

Dacite Porphyry – occurs in the southwest portion of the map area, dark, fine grained groundmass with round quartz-eyes in dikes up to 20 m wide (Figure 13)

Metasedimentary Rocks- a sequence of slightly foliated gray-green Jurassic aged shales, sandstone and conglomerates occur in the southern portion of the Los Tamales claims. All of these rocks show mica along foliation surfaces, some very fine grained, whether all is metamorphic or whether there is a hydrothermal component is a question. Initial mapping indicates that there is more deformation and pyritization of the unit as it extends north into the contact with the Jurassic rhyolite porphyry.

Structural Features

The major Tertiary north-south basin and range fault mapped on the SGM regional geology map shows up clearly on the current IP results. There is a N45W alignment of arroyos in the stockworked areas suggesting faulting along these and the USGS open file map indicates a N20°W fault running through the stockwork area. The lack of marker units does not aid in confirming these features as faults.

There is no consistent vein or stockwork direction, however the most prominent quartz veins in the area of DDH-1 and 2 show a N60°W strike with 50° dips to the NE. The amount of faulting may be significant and may obscure original vein orientations.

Figure 11. Photograph of Oligocene medium grained biotite, hornblende granodiorite.

Figure 12. Photograph of hornblende granite dike.

Figure 13. Photograph of quartz-eye dacite porphyry dike.

Mineralization and Alteration

Mineralization at Los Tamales is characterized by quartz stockworks of varying densities and thicknesses largely hosted by the Oracle granite, biotite granodiorite, and quartz-mica schist (Figures 14a and b). The stockwork zone as currently mapped covers an area approximately 1000 m in an east-west direction by 2000 m north-south. Two distinct features observed at Los Tamales are the width and color of the quartz veinlets; some quartz veins are up to 20 cm wide and quite uniformly they are white (Figures 15a and b). Unlike other porphyry systems in the southwest U.S.A., the sulfides at Los Tamales, chalcopyrite, pyrite and molybdenite are not deposited along the length of the veinlets, but rather as discreet clots and masses from 1 to 5 cm wide, typically at the intersection of two veinlets or along a veinlet. The sulfide masses are chalcopyrite dominant with lesser pyrite. Molybdenite may occur in the same veinlet but not in the same sulfide mass as pyrite or chalcopyrite.

Alteration at Los Tamales is both veinlet controlled and pervasive. Commonly around the quartz-sulfide stockworks north of the ranch house the quartz veins are rimmed with potassium feldspar selvadges or contain coarse-grained potassium feldspar. The biotite granodiorite groundmass in most areas is pervasively chloritized. Epidote occurs on fracture surfaces. The Oracle Granite is slightly magnetitic, and the biotite granodiorite is strongly magnetic. East of the Los Tamales arroyo, around the DDH-1 drill site, the

Figure 14a. Ten cm thick quartz veins with sulfides in biotite granodiorite.

Figure 14b. Sheeted quartz veins in biotite granodiorite.

Figure 15a. Occurrence of partially oxidized sulfides in a quartz stockwork.

Figure 15b. Typical sulfide occurrence in quartz vein, biotite granodiorite.

quartz-mica schist may be interpreted as phyllic alteration although lacking pervasive silicification. The same metasedimentary protolith as seen near DDH-1 may also occur near the DDH-3 site where it dark green in color and may contain a significant amount of secondary biotite as well as chlorite.

An initial interpretation of the white quartz veins, the coarse potassium feldspar, the coarse sulfides and magnetite is that Los Tamales may be the manifestation of the deep potassic zone of a porphyry system. An alternative theory is that Los Tamales could be a Jurassic porphyry system, as at Bisbee, Arizona with alteration characteristics different to Laramide porphyry systems.

Soil Geochemical Survey

A soil sampling program was carried out at Los Tamales over the same grid lay-out as the Zonge induced polarization survey. A 6 km east-west by 4 km north-south block was covered by 11 east-west lines 400 meters apart. Each line was sampled on 150 meter intervals. A total of 451 samples were taken at a depth of 20 cm below surface. Juan and David Hernandez, contract soil samplers from Zacatecas completed the task using two local helpers from Saric. The sample was initially sieved in the field using a plastic kitchen sieve until about a 1 kg of soil was collected, ALS Chemex then further screened

the sample to -80 mesh and analyzed the sample for 35 elements. Significant values are presented in Table 1.

Table 1. Significant Soil Geochemical Values

Element	High (ppm)	Number of Samples	Above (ppm)
Ag	12		
As	20		
Bi	313		
Cd	8		
Cu	1780	6	Greater than 1000 ppm
		99	Greater than 100 ppm
		338	Greater than 30 ppm
Mo	107	29	Greater than 20 ppm
Pb	862	68	Greater than 100 ppm
Zn	1170	176	Greater than 100 ppm

Copper anomalies based on natural breaks in a cumulative histogram are illustrated in Figure 16. Molybdenum anomalies are presented in Figure 17. The greatest copper values coincide well with the known stockwork mineralization in the biotite granodiorite and the Oracle Granite. Possibly more significant are the molybdenum values which in addition to showing anomalous in the northwest quadrant, show high values in the south central part of the grid over the south end of the Jurassic rhyolite porphyry, broadly in the area of hematite stained metasedimentary rocks and the contact with the rhyolite porphyry. This area is worthy of additional investigation.

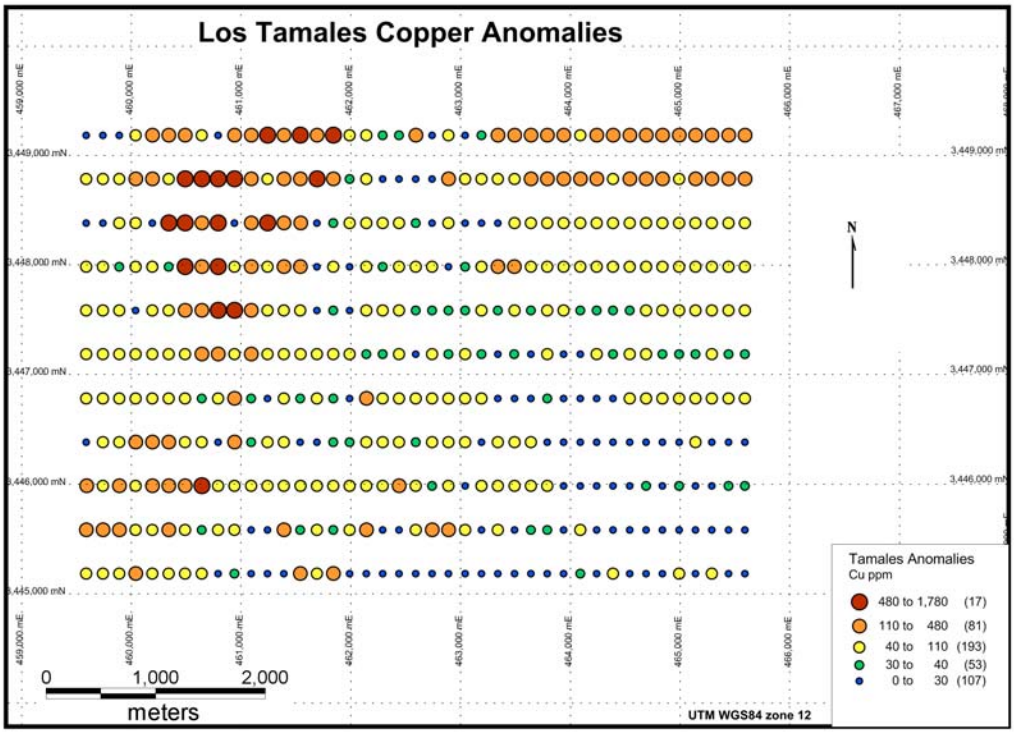


Figure 16. Copper in -80 mesh soils over the Los Tamales area

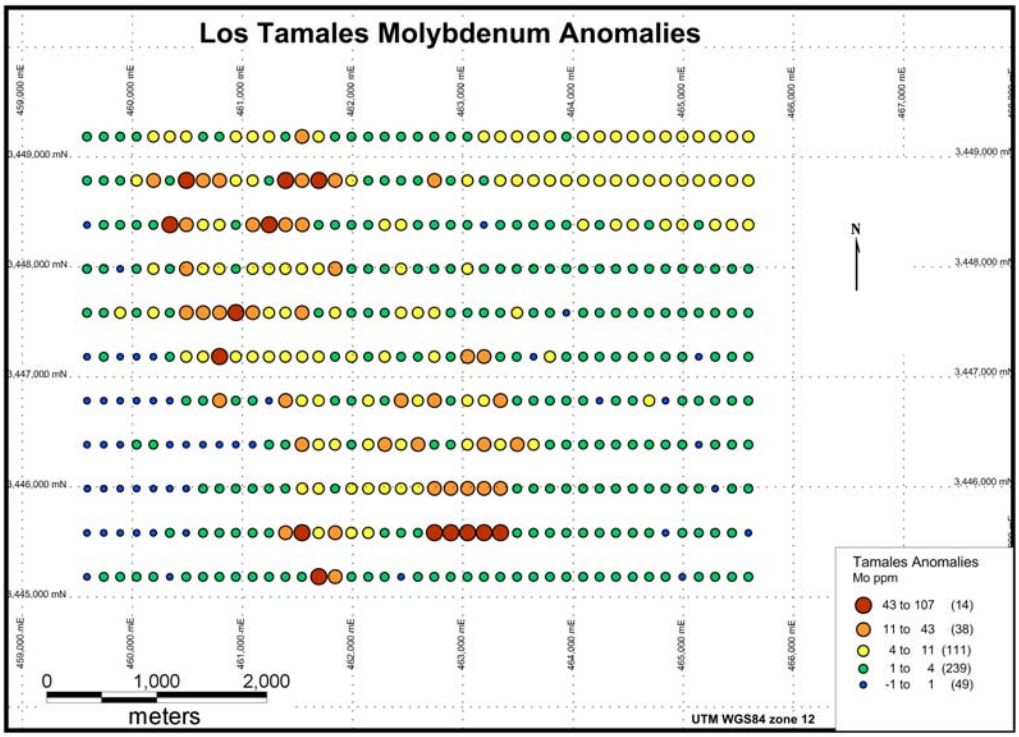


Figure 17. Molybdenum in -80 mesh soils over the Los Tamales area

Induced Polarization Survey

Zonge Engineering has completed the southernmost 8 of the 12 IP lines (Figure 18) A comprehensive review of the data has not been done with the Zonge staff, however they have submitted 100m, 200m, and 300m depth slices for review (Figures 19a,b, and c). Lacking modeling input from Zonge, notable features in the work available show a continuous 20 mrad anomaly on 100, 200, and 300 m depth slices almost 1 km wide and 1.5 km long in the southern portion of the Los Tamales claim block, roughly coincident with the high molybdenum anomaly in soils.

The IP also confirms the down faulted block to the east of Los Tamales stockwork mineralization. There appears to be a deep basin based on resistivity lows

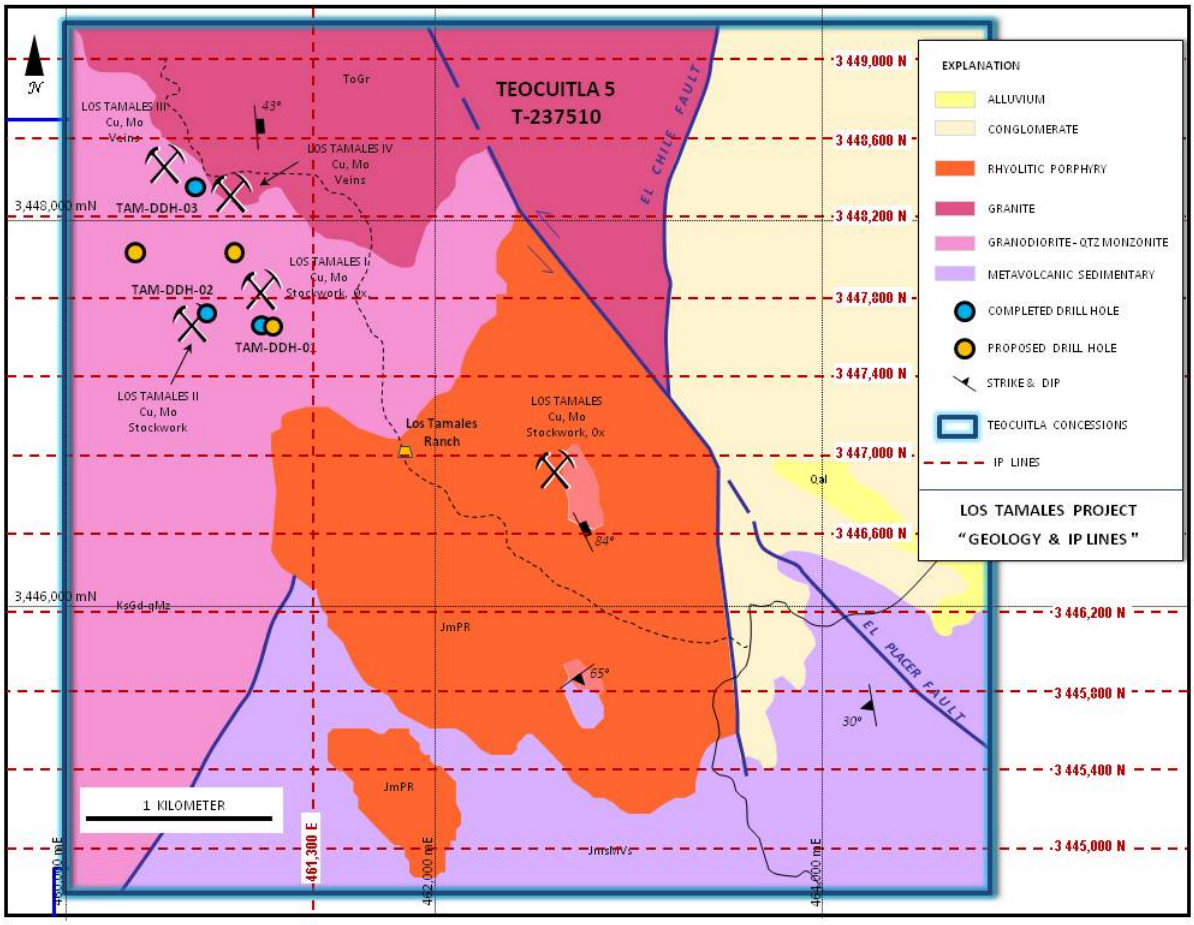


Figure 18. Zonge IP lines

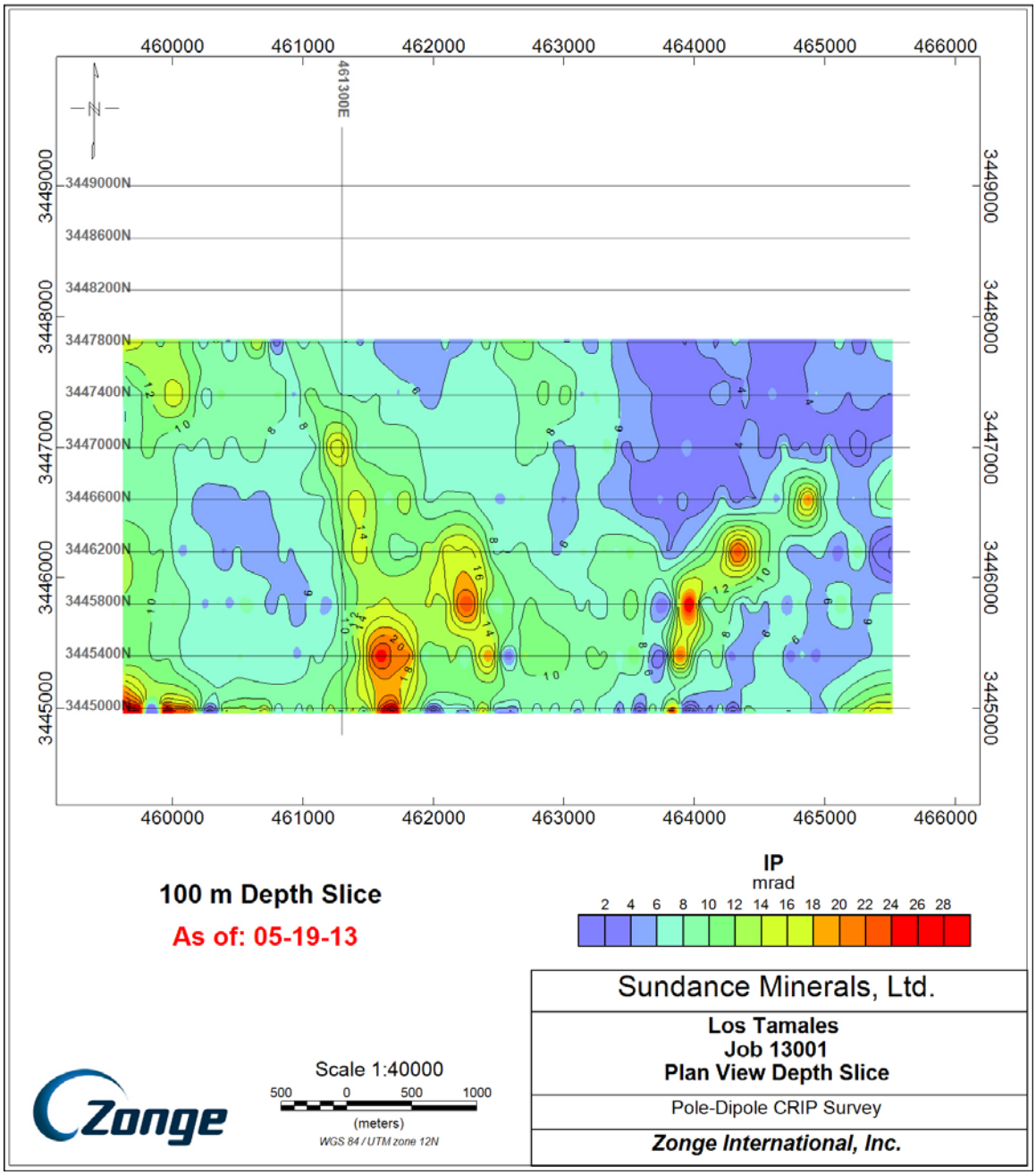


Figure 19a. IP 100m depth slice

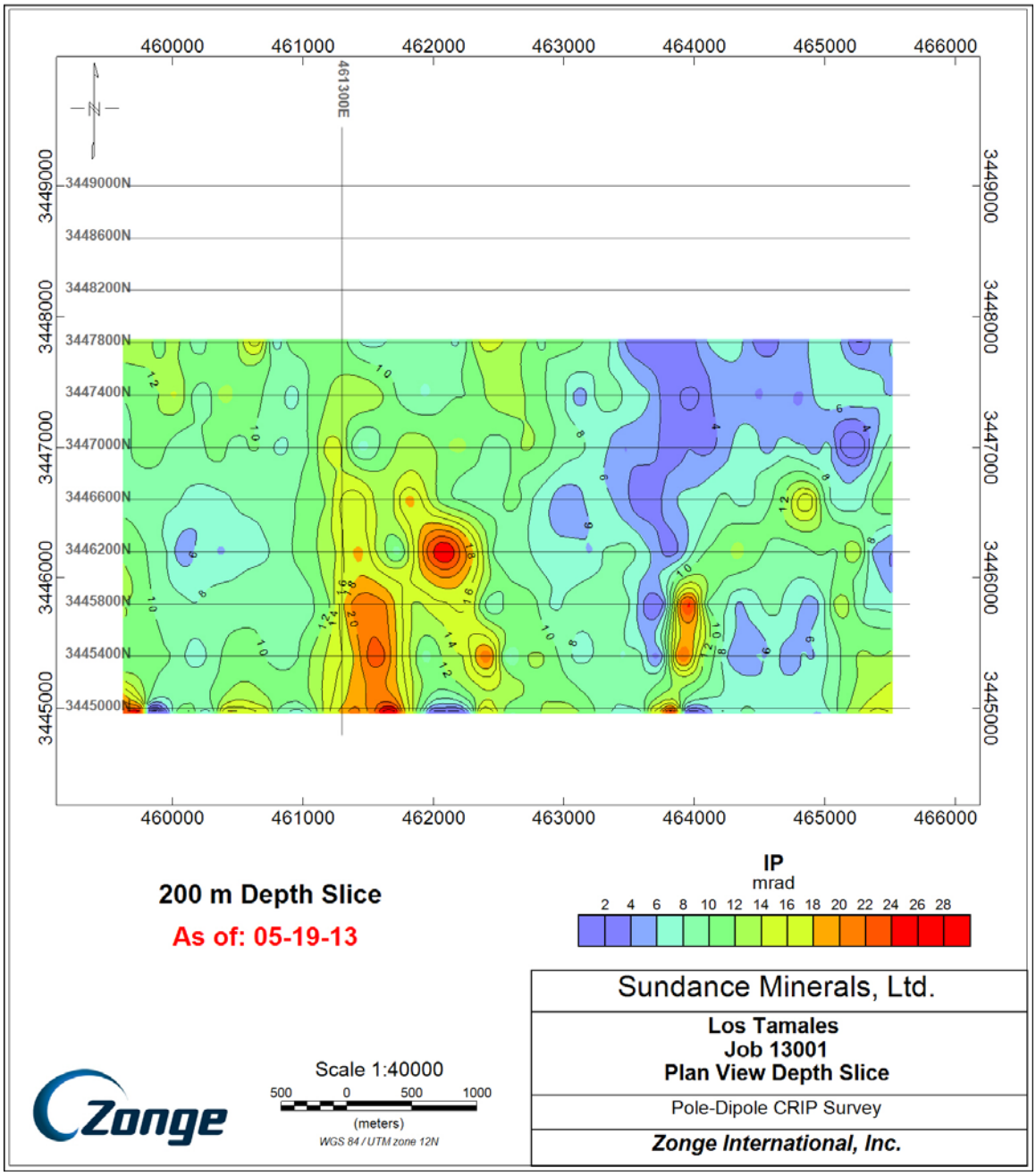


Figure 19b. IP 200 m depth slice.

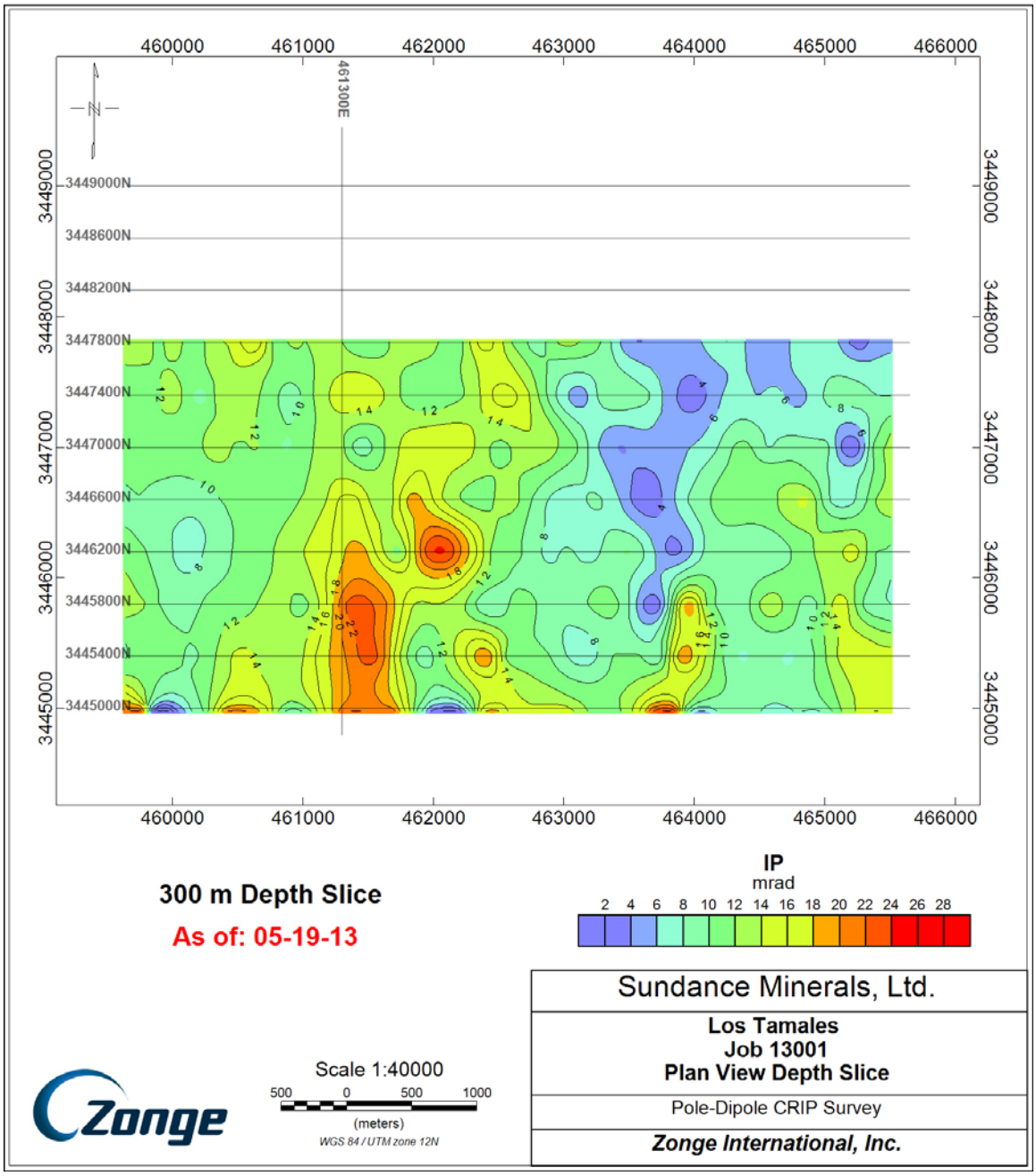


Figure 19c. IP 300 m depth slice.

Drilling Recommendations

It may be preferable to wait on the final IP survey results for positioning holes, but the first hole in a drilling campaign would be the twin of one of the Azufre Panamericana holes, possibly DDH-2, in the biotite granodiorite, to confirm mineralization and grades, once confirmed, subsequent holes could step out to the north and south. A potential target based on current IP results and the soil geochemistry would be the roughly coincident molybdenum soil anomaly in the south of the claim block and the 20 mrad IP anomaly.

Reference

Eppinger, Robert G. and Theobald, Paul K., 1994, Geologic Map of the Los Tamales Chalcopyrite-Molybdenite Stockwork, Northern Sonora, Mexico, USGS Open File report 94-685.

TAMALES 3

TEOCUITLA 5
E-82/33985

RANCHO LOS TAMALES

TAMALES

SAMPLE	Au_grT	Ag_grT	Cu_ppm	Mo_ppm	Pb_ppm	Zn_ppm
32,030	-0.005	4.4	12	11	1,260	74
32,031	-0.005	1.5	11	5	24	8
32,032	-0.005	1.0	4	1	30	5
32,033	-0.005	0.4	4	4	21	30
32,034	-0.005	0.4	19	5	7	42
32,035	-0.005	1.1	34	9	18	32
32,036	-0.005	4.4	48	142	130	222
32,037	-0.005	0.2	33	1	19	59
32,038	0.774	534.0	1,020	9	5,940	55
32,039	-0.005	0.9	22	1	27	106
32,040	0.005	1.6	89	2	62	183
32,041	-0.005	1.5	50	30	156	80
32,042	-0.005	3.0	48	3	971	240
32,043	-0.005	12.4	11	61	301	29
32,044	-0.005	0.4	66	69	40	16
32,045	-0.005	-0.2	13	1	9	36
32,046	-0.005	0.8	24	19	36	16
32,047	-0.005	0.6	66	14	8	9
32,048	-0.005	0.2	54	108	10	14
32,049	-0.005	-0.2	99	4	5	184
32,050	-0.005	0.4	170	11	12	120
32,051	0.006	1.7	6	2	51	8
32,052	0.037	3.0	9	3	249	7
32,053	-0.005	0.3	20	4	183	29
32,054	-0.005	0.4	8	3	14	7
32,055	-0.005	-0.2	38	1	7	53
32,056	-0.005	0.4	23	6	18	22
32,057	-0.005	-0.2	8	-1	6	50
32,058	-0.005	0.2	8	3	19	11
32,059	-0.005	0.6	6	9	74	18
32,060	-0.005	0.6	7	6	37	45
32,061	-0.005	0.5	6	3	20	3
32,062	-0.005	0.2	8	11	8	16
32,063	-0.005	-0.2	9	10	10	35
32,064	-0.005	-0.2	7	16	4	7
32,065	-0.005	0.3	40	12	10	59
32,066	0.028	1.4	5	10	17	8
32,067	-0.005	-0.2	3	8	9	8
32,068	-0.005	-0.2	16	2	12	78
32,069	-0.005	0.2	10	24	7	12
32,070	-0.005	0.2	18	7	22	13
32,071	-0.005	-0.2	15	8	4	8
32,072	-0.005	0.5	17	11	12	8
32,073	0.010	0.5	5	7	36	7
32,074	0.017	0.7	3	4	15	9
32,075	-0.005	0.9	22	2	175	13
32,076	0.104	11.4	21	2	720	39
32,077	-0.005	-0.2	33	2	8	59
32,078	-0.005	0.3	34	3	17	77
32,079	-0.005	-0.2	15	9	16	32
32,080	-0.005	-0.2	5	2	20	67
32,081	-0.005	-0.2	13	1	16	70
32,082	-0.005	0.4	22	84	323	576
32,083	-0.005	0.2	32	35	6	10
32,084	-0.005	1.6	1,300	32	8	96
32,085	-0.005	-0.2	9	-1	6	45
32,086	-0.005	0.2	51	14	12	72
32,087	-0.005	3.0	1,200	6	35	724
32,088	-0.005	-0.2	69	4	5	94
32,089	-0.005	0.3	101	6	7	31
32,090	-0.005	0.2	183	3	9	96
32,091	-0.005	0.8	81	2	25	39
32,092	-0.005	2.0	385	2	25	320
32,093	0.019	1.6	57	128	16	83
32,094	-0.005	3.1	1,230	2	9	372
32,095	0.010	1.1	47	453	157	111
32,096	0.045	14.6	7,840	29	655	63
32,097	-0.005	3.0	459	4	148	26
32,098	-0.005	0.9	151	1	49	81
32,099	0.470	79.6	5,120	191	1,150	10
20,818	-0.005	1.9	219	4	796	463
20,819	-0.005	1.1	78	3	125	140
20,820	-0.005	0.6	34	2	41	101
20,821	-0.005	1.0	52	3	128	231
20,822	-0.005	0.7	89	15	20	27
20,823	-0.005	0.8	215	13	13	20
20,824	-0.005	1.8	653	24	11	10
20,825	0.035	12.5	5,870	291	39	55
20,826	-0.005	1.1	951	38	21	121
20,827	0.009	13.3	4,000	1,510	30	91

EXPLANATION

- ALLUVIUM
- DACITE PORPHYRY
- RHYOLITIC SCHIST / TUFF ± MUSCOVITE
- MONZONITE
- RHYOLITE PORPHYRY w/ FeOx
- GRANODIORITE CHLORITIC
- STOCKWORK GRANODIORITE w/ ABUNDANT BIOTITE.
- ANDESITIC DIKES
- DIABASE DIKES
- FAULT ZONE
- COMPLETED DRILL HOLE (TAM-DDH-03)
- SAMPLE LOCATION (32079)
- STRIKE & DIP (40°)
- MINERA TEOCUITLA CONCESSIONS
- OTHER OWNERS

MINERA TEOCUITLA S.A. de C.V.

0 500 m
SCALE 1: 5,000

LOS TAMALES PROJECT
LOCAL SURFACE GEOLOGY MAP

By: Chris Osterman
Victor Vargas G.
Projection: NAD 27 for Mex zone 12
Saric, Sonora Mexico
April, 2012

1:1,500 Scale
Detail Geologic Map
East of DDH-01

NOT MAPPED

NOT MAPPED

NOT MAPPED

imagery indicates alteration

466500
461000
461500
462000
3448000
3447500
3447000

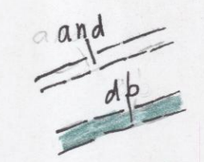
Los Tamales Project, Sonora Mexico
Reconnaissance Geologic Map of Central Stockwork Porphyry Area

ROCK UNITS

- Qal — Alluvium
- dac — Dacite Porphyry
- hb gd — Hornblende Granodiorite
- gd — Biotite Granodiorite
- aqp — Aplitic Quartz Porphyry
- rp — Rhyolite Porphyry/Tuffs
- sch — Sericite Schist
- pCg — Precambrian Oracle Granite
- pCp? — Precambrian Pinal Schist ?*

ALTERATION ASSEMBLAGES

- weak limonite or chlorite
- pervasive quartz-sericite-pyrite with possible tourmaline and minor quartz stockwork veining in schist, rhyolite, and aplitic quartz porphyry units
- pervasive strong quartz-sericite-limonite alteration in granodiorite associated with abundant stockwork quartz veins
- less pervasive quartz-sericite-limonite alteration in granodiorite associated with minor stockwork quartz veins
- K feldspar-biotite alteration and stockwork quartz-pyrite-chalcopyrite veins *plus local secondary magnetite*



- andesite dikes
- diabase dikes
- fault or interpreted fault
- shear zone
- quartz veins
- A_{60} — strike and dip of foliation
- X — prospect
- 70 — dip of geologic contact

* May be equivalent to sch unit (sericite schist) and could be lumped together

Geology By: David M. Brown

Map Base Sources: Global Mapper Worldwide High Resolution Satellite Imagery and Garmin handheld GPS

Projection: WGS 84, Zone 12

Date: May, 2013

SCALE 1:5,000