# NI 43-101 Compliant Report on the Spring-2006 Diamond Drilling Program on the Torlon Hill Zinc Property

Torlon CT-148 and Orbita LEXR-905 Mining Concessions Chiantla District, Huehuetenango, Guatemala

15 Degrees 23' N Latitude, 91 Degrees 32' W Longitude 1:50,000 Sheet 1862 II

## Effective Date January 11, 2007

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## **1.0 SUMMARY**

**Property location and ownership:** The Torlon Hill zinc property is located in the Cuchumatanes Highlands of western Guatemala, Central America about 140 km northwest of Guatemala City and 12km west-northwest of the city of Huehuetenango (Figure 1). Access is by gravel road from the nearby town of Chiantla and then by horse trail for the final 1.5 km. In December, 2004 Firestone Ventures Inc. ("Firestone") (FV: TSX Venture Exchange) entered into an agreement to purchase, through option payments, a 100% interest in the 16 hectare Torlon concession (CT-148) from La Cooperativa de Producción Industrial Juventud Minera, R.L. Firestone Ventures has been granted by the Guatemalan government an additional 134 hectare concession surrounding the Torlon concession (Figure 2). The Orbita concession (LEXR-905) was granted by the Guatemalan Ministry of Energy and Mines Resolution No. 079 on May 2, 2005.

**History:** The Torlon lead-zinc mine lies within the Chiantla mining district. The area has been known as an historic mining center for silver, lead and zinc since the Spaniards discovered the area in the mid-16<sup>th</sup> century. The district lies within the Central American carbonate-hosted zinc-lead belt which is thought to be of the same generation as the large central Mexican zinc-lead districts (Roberts & Irving, 1957, pp. 84-94). Local miners with the Cooperativa have been producing lead from artisanal underground workings from the Torlon deposit since the concession (CT-148) was awarded June 28, 1901. The miners are not able to recover the zinc using their primitive local smelter. The Cooperativa produced and sold 46,000 lbs of lead in 2005 as reported in their December, 2005 tax filing. The Cooperativa sells lead ingots at the spot price to the local fishing industry for fishing weights.

**Geology and mineralization:** Zinc and associated lead-silver mineralization at Torlon Hill is hosted by a 200 meter thick unit of Permian dolostone breccia faulted onto a large serpentinite body. The formation of these breccias is both tectonic and karst in origin and related to major structural events along the nearby North American – Caribbean Plate boundary. The thorough brecciation created a favourable host rock for the later emplacement of zinc-lead sulfide mineralization. Mineralization at Torlon Hill has both similar form and pre-oxidation mineral assemblage to the classic carbonate-hosted, manto-type replacement deposits at Leadville, Colorado or Deer Trail, Utah (Beaty, et al, 1990). Subsequent supergene weathering oxidized almost all the known mineralization to secondary minerals, mainly smithsonite (zinc carbonate), limonitic iron oxides and lead oxides (cerrusite) to depths of at least 120 meters below the surface. The mineralization at Torlon has been classified as a nonsulfide zinc deposit as defined by Hitzman, et al, 2003, p. 687.

**Previous work:** Although the Torlon Hill property has historically produced lead on a small scale since the 16<sup>th</sup> century, its zinc oxide potential had never been investigated prior to a field program carried out by Redhawk Resources Inc. in 2001 (Gorzynski and Findlay, 2001). The Cooperativa had optioned the Torlon concession to ZincOx Resources of London, England which in turn had optioned the property to Redhawk. Both parties terminated their options in 2002 due to the negative market conditions for zinc. Redhawk completed a detailed topographic survey, detailed surface and underground geological mapping, surface and underground rock sampling, and a small reconnaissance magnetic survey. The field program mainly focused on a 200 meter long portion of the 700 meter long

Santa Rosa Corridor, the main zone of zinc mineralization on the property (Figure 4). Extensive surface and underground bedrock exposures allowed good access for channel sampling. Beyond this section the Corridor is marked by a series of old collapsed underground workings that extend the zinc mineralization 180 meters further north and 320 meters further south. In the central part of the Santa Rosa Corridor, Redhawk collected over 450 rock chip and channel samples and determined that zinc grades vary from 2% to 28% over true widths of 1 to 9 meters. The field work also demonstrated the potential for expansion of the known zinc mineralization at Torlon Hill to the north, west and south. The high-grade nature of the zinc mineralization, the surface exposures, and the potential for expansion suggested that there could be significant potential for an open-pit, economically mineable mineralized zone.

Firestone's Spring-2006 drilling program: Firestone Ventures, Inc. carried out the first round of diamond core drilling from January to April of 2006. Firestone drilled a total of 22 NQ-core holes to a maximum depth of 120 meters. Figure 4 shows the locations of the drill holes. All of the holes were vertical, except for hole TH06-8 which was inclined -60 degrees to the west (260 Azimuth). Firestone drilled a total of 1,442 meters for this initial program (Table 6). All of the holes drilled in the Santa Rosa Corridor (TH06-1 to 16) intersected significant zinc mineralization grading from 3% to 42.3% zinc and 0.5% to 4.5% lead. Widths of the mineralization ranged from 1.5 to 53 meters. Holes TH06-17 to 22, which were located farther south all intersected strongly anomalous amounts of zinc from 0.4% to 2%. Table 7 summarizes the significant intercepts of zinc and lead mineralization in all of the drill holes. Although the drilling completed by Firestone Ventures, Inc. confirmed the results reported by Redhawk Resources and showed that significant zinc-lead mineralization is present at Torlon, Firestone has determined that additional drilling will be completed before they release a 43-101 compliant resource estimate. Firestone has retained Watts, Griffis, and McOuat, Ltd of Toronto, Canada to compile all of the surface, underground, and drill hole data in order to complete the initial resource estimate in 2007.

**Cinco Hermanos underground workings:** A Firestone field crew mapped and sampled the previously unexplored Cinco Hermanos workings starting 7 meters southwest of drill hole TH06-7. Mapping showed a mineralized zone 1.5 to 3 meters thick which dips about 20 degrees to the south. Results from 12 chip samples cut across the zone suggest an average grade of 21% lead, 6.8% zinc, and 134 grams/tonne silver. This is different in character from the mineralization which Firestone drilled in the "Bulge" area 50 meters to the northeast, during the drilling campaign from February to April, 2006. The Cinco Hermanos is in fact a new mineralized zone which makes a valid target for the drilling campaign planned for late 2006 and early 2007. These results show that there is high grade lead-zinc-silver mineralization 50 to 65 meters west of drill holes TH06-10 and TH06-11 (Figure 4).





FIGURE 2 – Location Map, Torlon Concession

# 2.0 Introduction and Terms of Reference

Firestone Ventures, Inc. requested the author to write this report using the following terms of reference:

a) To review and describe the past work on the property, report on the results of the Spring - 2006 drilling and underground mapping campaign, determine the exploration potential, and make recommendations for further drilling and exploration.

b) To comply with the TSX-Venture Exchange regulatory requirements.

c) To follow the guidelines and framework defined in the Form 43-101-F1, pertaining to National Instrument 43-101: "Standards of Disclosure for Mineral Projects".

d) To support the technical disclosures by Firestone in its Annual Information Form.

Much of the information on the geology and previous sampling was taken from the comprehensive July 14, 2001 Report by George Gorzynski and Alastair Findlay entitled "Torlon Zinc Oxide Prospect – 2001 Phase One Field Program, Mapping and Sampling,

Summary Report, Vol. 1 and 2". Both Gorzynski and Findlay are qualified persons. This private company report was commissioned by Redhawk Resources Inc. of Vancouver, British Columbia, Canada and was supplied to Firestone by the property owners (Cooperativa). Other information was obtained from United States Geology Survey Bulletin No. 1034 (1957) by R. Roberts and E. Irving entitled "Mineral Deposits of Central America" and from various geologic maps and reports on Guatemala and on zinc oxide deposits.

**Disclaimer:** The author cannot verify the quality of sample collection, preparation, analysis, shipping and security, or of reporting of geological, geochemical, structural or any other geoscience data obtained from historical documents pertaining to the Torlon property. However, the author has collected samples from at least 10 sites sampled by Redhawk and can report that those results confirm the sample results reported by Redhawk (Table 4).

The author visited the property on May 30, 2004 and November 13, 2004 and is familiar with the geology and ore deposits of Guatemala. The author designed the Spring-2006 drilling program and directly participated in the on-site supervision of the drilling program from January through April, 2006. The author personally logged all of the drill core and directly supervised the splitting and sampling of the core and delivery of the samples to the Inspectorate sample preparation lab in Guatemala City. The author was assisted in the field by Dennis Ouellette, consulting geologist.

## **3.0 Reliance on Other Experts**

**Environmental baseline studies:** Firestone retained the services of Juan Carlos Amado Garzaro to conduct the environmental mitigation study for the Orbita concession. Mr. Amado is a registered geologist in Guatemala and a former Senior Geologist with the Ministry of Energy and Mines. This study is required by the Guatemalan Ministry of Energy and Mines to be submitted within 90 days after the concession is granted. The study was delivered to the Ministry on July 18, 2005 (Amado-Garzaro, 2005). Firestone has retained the services of Charlotte Mougeot, consulting environmental geologist of Gartner Lee Ltd., Calgary, Alberta, to conduct the environmental baseline study and the full environmental impact study for the Torlon project.

**Resource data compilation:** Firestone has also retained the services of Al Workman, mining engineer/geologist with Watts, Griffs, and McOuat of Toronto, Canada to compile the surface, underground, and drilling geologic and assay data. This data will be necessary in order to conduct a resource estimate for the Torlon project. No NI 43-101 compliant resource estimate has been conducted to date.

# 4.0 Property Description and Location

**Location:** The Torlon project encompasses two mining concessions: the original Torlon concession (CT-148); and the Orbita concession (LEXR-905) which surrounds the Torlon concession (Figure 2). The property is centered at  $15^{\circ}23$ ' N Latitude and  $91^{\circ}32$ ' W

Longitude, in western Guatemala in the Chiantla Municipal District, Department of Huehuetenango, Republic of Guatemala (Figure 2).

**Torlon lease:** The Torlon concession is 16 hectares (39.5 acres) in area. The Torlon property monument is located at UTM coordinates 657,266 mE, 1,702,783 mN (NAD27 zone15). On December 7, 2004, through its Guatemalan subsidiary, Fuego Estrella, S.A., Firestone Ventures Inc. entered into a four year option-to-purchase agreement for 100% interest in the Torlon concession from the owners, La Cooperativa de Producción Industrial Juventud Minera, R.L. Torlon is the name of the mining interest registered under file CT-148 in the General Directorate of Mining of the Republic of Guatemala.

To earn this interest, Firestone agreed to pay the Cooperativa a total of US \$385,000 according to the following schedule; US \$2,000 on signing (paid), US \$18,000 by April 30, 2005 (paid), US \$25,000 by April 30, 2006 (paid), US \$35,000 by April 30, 2007, US \$125,000 by April 30, 2008 and US \$180,000 by November 30, 2008. The option includes the surface rights. The Cooperativa will be allowed to continue small scale lead mining until the agreement is fulfilled, at which time they will cease mining activities. There are no back-in rights or other encumbrances in the Agreement pertaining to the property.

**Orbita concession:** The Orbita concession (LEXR-905) was granted to Fuego Estrella, S.A. (Firestone's wholly-owned Guatemalan subsidiary) by the Guatemalan Ministry of Energy and Mines Resolution No. 079 on May 2, 2005. The Orbita concession is 134 hectares in area. Both concession parameters are summarized in Table 1 and the UTM coordinates are listed in Table 2. Property boundaries are defined by the UTM coordinates. There are no "corner monuments" in the field.

# Table 1. Description of mining concessionsTorlon Hill Zinc Project, Firestone Ventures, Inc.

Name	Title number	Concession type	Municipality	Granting date	Expiration date	Size in hectares
Torlon	CT-148	Exploitation (mining)	San Sebastian Huehuetenango	6/28/1901	none	16
Orbita	LEXR- 905	Exploration	San Sebastian Huehuetenango	5/2/2005	2-May-08	134

Note: Firestone will have to apply for an "Exploitation (mining) License" before the expiration of the Orbita exploration license.

Exploitation licenses are granted for a period of 20 years and can be renewed thereafter.

# Table 2. Concession UTM coordinatesFirestone Ventures, Inc. Torlon Zinc Project

	License	NAD 27 Zone 15			
Name	Number	Corner	Easting	Northing	
Torlon	CT-148	1	657,760	1,702,200	
		2	657,600	1,702,100	
		3	657,100	1,702,700	
		4	657,260	1,702,820	
Orbita	LEXR-905	1	658,000	1,701,500	
		2	657,000	1,701,500	
		3	657,000	1,703,000	
		4	658,000	1,703,000	

Note: the Torlon concession lies within Orbita.

**Local mine workings and infrastructure:** All of the Torlon mine workings (except for La Canada) are within the area of Figure 4. All of the mineralized rock identified in Firestone's Spring-2006 drilling program lies within the Santa Rosa Corridor. None of the mineralization can as yet be classified as a mineral resource or reserve. The primitive smelter/oven is at UTM coordinates 657,700 mE; 1,702,455 mN, about 250 meters east of the Santa Rosa Corridor. Slag from the smelter is piled 15 meters east and downhill from the smelter. "Waste" rock from intermittent small-scale mining over the last 400 years is scattered in irregular piles downhill from the numerous mine workings within the Santa Rosa Corridor. There is no single large waste dump or tailings pile. Sampling by both Redhawk and Firestone indicates that most of the "waste" rock contains significant zinc mineralization.

**Environmental liabilities:** To the knowledge of the author, the Torlon property is not subject to any environmental liabilities.

**Required permits:** ZincOx/Redhawk, the previous lessees, were required to submit an environmental "Mitigation Study" pursuant to the mining laws of Guatemala before starting their exploration program. Firestone also submitted a "Mitigation Study" in 2005 (Amado-Garzaro, 2005), which has been approved by the Ministry of Energy and Mines. Guatemala requires a full environmental impact study prior to issuing a permit to mine. Firestone has retained an environmental consulting firm, Gartner Lee, Ltd. of Calgary, Alberta to begin the environmental baseline study and to work on the required permits.

# 5.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography

Access: The Torlon property is about 140 km northwest of Guatemala City, in the Chiantla Municipal District in the Department of Huehuetenango in western Guatemala (Figure 1). Travel time along the Pan-American Highway from Guatemala City to Huehuetenango, is about five hours. A good, all-weather gravel road leads west from Chiantla, 5 km north of Huehuetenango to the small farming community of Torlon. During the rainy season, the

final 0.5 km of road may be accessed only by foot if the Rio Chochal river crossing is impassable. The main zinc-lead workings are a distance of about 1.5 km north from Torlon village along a horse trail (Figure 2).

**Climate:** The climate is characterized by moderate, year-round temperatures with a rainy season from May to October. The maximum temperature rarely goes above 30 degrees C in the rainy summer season and the minimum temperature does not reach freezing in the winter. Although Guatemala is in the tropics, the high elevation makes it cooler so working conditions are pleasant 90% of the time.

**Vegetation:** Open pine forest is the predominant vegetation in the general area with scattered cornfields and broccoli farms. Thick oak-laurel brush with creepers and spiny agave occur locally, particularly upslope from main zinc-lead showings. Gravity flow irrigation pipes are used to distribute water to the numerous plots of broccoli and other vegetables.

**Local resources and infrastructure:** Huehuetenango, with a population of 40,000, is serviced by the Pan American Highway extending from Mexico through Guatemala. Huehuetenango has all basic services, including hotel, food and fuel supplies and charter air flights to Guatemala City. The airstrip is currently being upgraded with pavement. Members of the Torlon mining cooperative have had training and experience in sampling and other fieldwork by assisting with Redhawk's 2001 exploration program. Redhawk used a rented house in Chiantla (a 40 minute drive from the property) as a base for their exploration activities.

The Torlon property area is limited in size, and the ability to contain any future mining, milling and waste disposal areas would depend on the scale of activities. The water supply should be adequate to service any future operations. Rural electrification extends from Chiantla to the village of Torlon. Cellular telephone service is good throughout the area.

**Physiography:** Torlon Hill is located along the lower southern escarpment of the Sierra de Los Cuchumatanes, one of the highest mountain chains of Central America, with altitudes up to 4,000 m. The Torlon area ranges in elevation from 1,960 to 2,350m. Torlon Hill is a steep-sided, north-south trending ridge immediately north of the junction of the Torlon (Uva) and Chochal rivers (Figure 2). The main zinc-lead showings are on the east side of the hill (Figure 4).

# 6.0 History

**Spanish colonial period:** The Chiantla district has long been known as an historic mining center for silver, lead, and zinc. At Torlon, small scale lead mining has been carried on since the 16<sup>th</sup> century. Spanish priests from the colonial period reportedly brought the method for treatment of lead ore from Spain. The process is described by Roberts and Irving (1957). The Catholic cathedral in Chiantla has extensive wall paintings of mining scenes and a statue of the Virgin Mary clad entirely in silver. The cathedral is one of the more popular tourist sites in the Huehuetenango area.

Last 100 years: The Torlon Cooperativa has been continuously producing lead since their concession was granted in 1901. They recover residual galena nuggets, usually less than 5 cm in diameter, from surface and underground workings using pick and shovel mining methods. The galena nuggets are contained within a large oxidation envelope of lead and zinc oxide-style mineralization. The miners discard all of the zinc material (mainly smithsonite) since they are not able to recover zinc with their primitive smelting process. They haul the hand-sorted lead ore out of the mines in 50 kilo sacks on their backs. After hand crushing and concentrating the galena ore in wooden sluiceboxes (or "canoitas"), the concentrate is placed in a simple blast furnace consisting of a vertical chimney and a pressure chamber created by a column of water falling down a closed tube. When the compressed air strikes glowing charcoal, a blast flame melts the ore. Molten lead and slag run out of a small opening in the bottom of the chimney where the lead and slag are collected in basins. They produce 25 cm long lead ingots which they sell at the spot price. The Cooperativa's tax receipts indicate that they sold 46,000 lbs of lead in 2005. The Cooperativa also produces ochre pigment and high-grade earthy zinc oxides used as a fertilizer additive. The total

In 1943 Roberts and Irving (1957) mapped the Torlon workings and provided detailed descriptions and maps in their final report, including detailed descriptions of the lead material processed by the Torlon miners. They placed the known lead-zinc deposits in Guatemala in context with other lead-zinc deposits which form a belt extending from Mexico through Honduras. Roberts and Irving collected nine rock samples of the zinc-rich material which contained 4.7 to 17.4% lead, 1.8 to 36.0% zinc and up to 6 ounces of silver per ton. They noted that the local miners sought only lead ore, and ground rich in zinc was generally avoided. Gorzynski and Findlay (2001) noted that there were additional exploration adits and workings on the property not noted by Roberts and Irving (1957) that were probably excavated with mining machinery sometime after 1943.

production of the various products is estimated at less than 150 tonnes per year.

**ZincOx and Redhawk Resources program, 2001:** The first modern exploration at Torlon took place in 2001. At that time, the Torlon mineralized material was originally identified by ZincOx, a British company, as possibly being amenable to new technologies for processing. ZincOx is a British company founded in 1997 that developed a new hydrometallurgical approach to recover zinc from zinc oxide-style deposits and waste. The primary example of a low-cost zinc oxide-style mining/processing operation is the Skorpion mine in Namibia. ZincOx acquired an option on the Torlon property from the owners and then in turn optioned the property to Redhawk Resources, Inc.

The main zinc mineralized zone on the property is called the "Santa Rosa Corridor" (Figure 4). The north-northwest trending Santa Rosa Corridor has been traced for over 700m in surface outcrop and old mine workings. The Santa Rosa Corridor runs sub-parallel to the east slope of Torlon Hill and dips moderately east. Work done by Redhawk Resources in 2001 focused on a 200 meter long central portion of the Santa Rosa Corridor where surface and underground bedrock exposures allowed good access for sampling. There are old underground workings that extend 180 meters further north of the central portion of the Corridor and 320m further south. On the far west side of Torlon Hill, there are indications at the La Canada workings of at least one other undiscovered zone of zinc mineralization. Much of Torlon Hill is marked with numerous underground workings and tunnels.

Redhawk carried out an intensive surface exploration program, including a detailed topographic survey, detailed surface and underground geological mapping, surface and underground sampling and a small reconnaissance magnetometer survey. Redhawk collected a total of 498 rock samples, including duplicates and almost all were bedrock channel samples collected from surface and underground exposures. The objective was to complete a detailed initial evaluation of the zinc oxide potential of the Torlon property, prior to a drilling program. Table 3 summarizes their surface and underground sampling results. They also examined the geologic setting, distribution, and structural controls of the zinc mineralization.

The detailed sampling, fieldwork, and interpretation by Redhawk further defined the main zinc structure on the property, within the Santa Rosa Corridor. Results from the sampling of the various zinc zones within the structure are given in summary below.

Redhawk concluded that the potential for expansion of the known zinc mineralization at Torlon Hill is open to the north, west and south, and that considerable potential exists for discovering new zones on the far (west) side of the hill. Redhawk did not make an estimate of the potential resource. Both ZincOx and Redhawk suspended further work and terminated their agreements with the Cooperativa in 2002 because of the negative market conditions for zinc.

Table 3. Summary of Redhawk Resources, Inc. sample resultsshowing zones of zinc mineralization. (Gorzynski and Findlay,2001)						
Mineral Zone	Estimated Typical	Average Grade				
	True Width					
	(metres)	(%Zn)				
Zone N-1(combined)	1 to 9	20.3				
Bulge	9	28.4				
N-1a	5	13.8				
N-1b	1 to 7	10				
N-1c	2	15.2				
N-1d	3	24.2				
-						
Zone N-2	2 to 4	11.2				
Other Zones						
Zone W-1	3	8.5				
Zone E-1	1	9.7				
Zone E-2	2	0.2				
Zone F-1	1	6.2				
Corridor Breccias (combined)	17	3.5				
Upper Breccias	13	1.6				
Middle Breccias	19	2.9				
Lower Breccias	18	8.1				

## 7.0 Geologic Setting

**Plate tectonic framework:** The central part of Guatemala displays a complex geology derived from the juxtaposition of three major terranes which make up southeastern Mexico and Central America. The boundary between the North American Plate (Maya Block) and Caribbean Plate (Chortis Block) boundary bisects the country east-west along the Motagua Suture Zone. The two plates collided during the late Cretaceous to Early Cenozoic, followed by left-lateral strike-slip offset which continues today. The last major earthquake in Guatemala was a magnitude 7.5 event on the Motagua fault about 200 km east of Torlon. The Cocos Plate is subducting under the west coast of Guatemala, forming a northwest-southeast trending chain of Quaternary and Recent volcanoes parallel to the Pacific Coast. There are currently four active volcanoes in Guatemala (Anderson, et al., 1973).

**Regional structure:** The North American Plate is made up extensive marine sedimentary sequences, including abundant limestone which underlies northern Guatemala. The Torlon zinc property is situated on the southern boundary of the North American Plate (Maya Block), approximately two kilometres north of the Polochic Fault, one of three major faults within the 100 km wide Motagua Suture Zone. The Motagua Suture Zone is marked by dismembered serpentinite bodies derived from obducted ophiolite (Figure 3). Although granitic intrusive rocks are widespread south of the Polochic Fault, they are uncommon to the north of the fault. Most of the intrusive rocks north of the fault predate the amalgamation of the North American and Caribbean plates.

**Local lithology and host rocks:** The geology of the San Sebastian Huehuetenango area was mapped by Anderson (1972), and is available at 1:50,000 scale. The zinc-lead mineralization at Torlon is within a detached tectonic block or "island" of carbonate breccia approximately 1.5 square kilometres surrounded by and lying above the serpentinite (Figure 3). The carbonates are part of the Permian Esperanza Formation. The carbonates comprise a minor part of the Esperanza Formation which is mainly black shale, mudstone, and siltstone. The unit is more that 470 meters thick in the Torlon area. The serpentinite forms an east trending lenticular body 13 km in length, bordered by the Polochic Fault along part of its southern margin and bounded on the north margin by the Taluca Fault. North of Torlon the sedimentary rocks are cut by major high-angle reverse faults. Additional zinc-lead occurrences in the Chiantla area are related to these faults.

On the Torlon property there are two main rock units – carbonate breccia and serpentinite. Carbonate breccia, the most widespread rock unit, underlies the western half of the Torlon area. Dolostone breccia is predominant over limestone breccia. The dolostone breccia hosts 80% of the zinc mineralization on the Torlon property. The carbonate breccia is host to karst holes and caves on the western and upper part of Torlon Hill. Gorzinsky and Findlay (2001, pp. 10-12) describe the carbonate breccias in more detail. The northern and eastern boundaries of the carbonate rocks are in fault contact with the serpentinite. **Local Structure:** Numerous faults were mapped within the area of the Santa Rosa Workings. Five important sets of faults substantially control the distribution and geometry of the mineralization.

- 1. The dominant zones of mineralization form large sheets that are oriented, on average,  $350^{\circ}$  and dip  $45^{\circ}$  E.
- 2. The base of the mineralization is bounded by the Canoitas Fault which forms the carbonate-serpentinite contact below the mineralization (Figure 4).
- 3. The upper (western) extension of the Santa Rosa surface mineralization is abruptly cut off by the Top Shack fault series which dip westerly at about 55°. Offset on these faults is probably a few tens of meters. The Cinco Hermanos mineralized zone shows that mineralization continues to the west and may re-emerge at the La Canada Adits on the west side of Torlon Hill. The orientation of the Top Shack fault also suggests it may be related to the large Cueva Fault described below.
- 4. The Landslide Fault is a west-southwesterly trending moderately east-dipping structure (Figure 4) that locally overrides the main mineralization with a veneer of unmineralized carbonate breccia. The relationship between the Landslide Fault and the Top Shack faults was not determined.
- 5. The contact between dolostone breccia and serpentinite to the south of Figure 4 is marked by the steep southwesterly-trending Cueva Fault. This fault is clearly exposed at survey station 236 along the main access trail, where it dips to the west-northwest at 55°. The fault plane here is underlain by strongly-sheared serpentinite intermixed with fault breccia containing rounded dolostone clasts. It is overlain by a unit of fault breccia at least 20m thick, which contains isolated serpentinite, dolostone and siltstone clasts in a highly calcareous comminuted (ground up) rock matrix. The fault can be traced north from this exposure through scattered fault breccia outcrops to a point south of Adit No. 2.



# 8.0 Deposit Types

Torlon and the other numerous lead-zinc mineralized bodies in the Chiantla area are considered to be direct replacement deposits in Permian limestone. The original primary ore minerals, galena (PbS), sphalerite (ZnS), and pyrite (FeS<sub>2</sub>) have been oxidized. Gorzynski and Findlay (2001) stated that the dolostone breccias at Torlon are likely tectonic in origin, which would account for their extensive brecciation and subsequent favorable environment for circulation of mineralizing fluids.

There are many carbonate hosted, manto-type zinc-lead deposits in southern Mexico, Guatemala and western Honduras. Large, well-known examples of this deposit type are in the western United States at Leadville, Colorado and Park City and Tintic, Utah. In central and western Guatemala, carbonate hosted zinc-lead-silver mineralization occurs in the San Miguel, Coban and Chiantla districts as sulphide bodies replacing carbonates along fault zones with favorable stratigraphic horizons (Kesler and Ascarrunz, 1973). There are numerous zinc-lead replacement bodies in the Chiantla district, particularly at the intersections between northwest and northeast-trending faults and within favorable stratigraphic horizons. Most fault zone replacements are lenticular and discontinuous along strike. Mineralization is generally most abundant within the lowermost carbonate unit in the local section, or below shale horizons interbedded with carbonates (Gorzynski and Findlay, 2001).

At Torlon and many of the other prospects, oxidation of the sulfide minerals (pyrite, sphaletite, and galena) is very extensive and very few remnants of the original sulphide minerals remain. These heavily oxidized zinc occurrences are a class of "non-sulfide zinc deposit", of which there are about forty around the world. In particular, Torlon is classified as a "supergene, direct replacement non-sulfide zinc deposit" (Hitzman, et al., 2003). Surface and underground mapping by Redhawk and Firestone indicates that the Torlon mineralization was originally a manto, Leadville-type base metal deposit (Beaty, et al., 1990) weathered in place to zinc and lead carbonate minerals.

At one time oxidized zinc material was processed in Wälz kilns to produce zinc oxide. However, until recently, oxidized zinc material was of note mainly as an indicator of a potential underlying rich zinc sulfide deposit. Tonnages of non-sulfide type of zinc deposits generally range from less than 1 million tonnes to more than 200 million tonnes with grades of 7% to more than 30% zinc. Examples include the Skorpion Mine in Namibia, Shaimerden in Kazakhstan and Jabali in Yemen (Hitzman, et al., 2003). Since commercial production began at the Skorpion Mine in Namibia, there has been renewed commercial interest for nonsulfide zinc ore deposits.

## 9.0 Mineralization

Mineralization at the Torlon property consists almost entirely of zinc and lead secondary minerals and aggregates with very rare primary galena, sphalerite, and pyrite. Gorzynski and Findlay (2001) describe four distinct types of zinc oxide-style mineralization, based on visual observation and X-ray diffraction analysis: breccia mineralization; ochre mineralization; cellular mineralization; and extremely hard, brick-red, fine-grained, mineralization referred to as "BRF". The ochre, cellular, and BRF ore types are all varieties of gossan and would be classified as "supergene direct replacement" ore by Hitzman (2003, p. 686). The breccia mineralization would be classified as "supergene wall-rock replacement" by Hitzman (2003, p. 686), because zinc carbonate minerals compose the matrix of a tectonic breccia of dolostone fragments. The predominant zinc mineral at Torlon is smithsonite (ZnCO<sub>3</sub>) with minor hemimorphite (Zn<sub>4</sub>Si<sub>2</sub>O<sub>7</sub>(OH)<sub>2.2</sub>(H<sub>2</sub>O)). The only lead oxide mineral described by Gorzynski and Findlay (2001) was cerussite (PbCO<sub>3</sub>). The lead mineralization sought-after by artisanal miners occurs in narrow lead-bearing veinlets less than 5 cm wide and as coarse crystals, typically less than 2 cm.

The oxidization level appears to extend to a depth of at least 50 meters below the surface. The main zinc mineralized structure on the property is the Santa Rosa Corridor, which runs sub-parallel to the east slope of Torlon Mountain (Figure 4). It has been mapped over a distance of 700 meters in surface outcrops and old mine workings. In the central area where the main Santa Rosa underground workings are located, the Santa Rosa Corridor is 25 to 30

meters true width and buttressed by two sheets of massive gossan and gossanous breccia zinc mineralization named Zone N-1 and Zone N-2 (Table 3). Zone N-1 contains several sheets of zinc mineralization, including a central "Bulge" with an average grade of 28.4% zinc over a true width of 9 meters (Table 3). There are other sheets to the north and south and a zone of manto-style mineralization just above the basal fault contact with the serpentinite. There are indications from Roberts and Irving (1957) that there is significant mineralization extending 180 meters further north of the area explored by Redhawk and Firestone. Roberts and Irving (1957) also recognized that new zones of mineralization may exist on the far west side of Torlon Mountain. Firestone's sample results from the La Canada workings (Figure 4) and results from the Cinco Hermanos workings (described below) confirm these conlusions.

**Geometry of the mineralization:** Although the original mapping and sampling by Redhawk indicated the mineralization is shaped like irregular sheets, the drill hole results show that the mineralized zones are shaped like irregular cylinders with sheet-like zones extending from the cylinder (Figures 5, 6, 7, & 8). This geometry is similar to the Deer Trail lead-zinc-silver deposit in Utah. Figure 9 is a north-south long section showing the general 20 degree south plunge of the mineralized zone, lying directly above the Canoitas fault. Mineralization is focused at the intersections of feeder faults and favorable dolostone breccia horizons within the detached block of Esperanza formation carbonates. The Canoitas fault, with the serpentinite in the footwall, forms the floor or lower boundary of the mineralization in all but one of the drill holes. Drill hole TH06-8 did not reach the fault. The Cinco Hermanos fault (described below in Section 10) forms an impermeable barrier with mineralization in the footwall, creating a sheet-like zone of mineralization which dips at about 30 degrees to the south.

**Extent and thickness of mineralization:** The mineralization within the Santa Rosa Corridor extends along strike (340 to 350 degrees) for at least 300 meters. The width of the zone varies from 40 to 100 meters. Thickness is quite variable. Hole TH06-14 intersected a true thickness (or more precisely diameter) of 47 meters within the main, cylinder-shaped zone. The tabular mineralized zones peripheral to the main cylindrical zone vary from 2 to 20 meters in true thickness. The main cylindrical zone varies from 20 to 47 meters in diameter, with a down-plunge length of 170 meters (Figure 9). This is considerably thicker than the mineralized zones reported by Redhawk in Table 3.



FIGURE 4 – Torlon Concession Geology, Mineralization, and Drill Hole Locations

# **10.0 Exploration by Firestone**

**Purpose and scope of work:** The objective of Firestone's exploration program for 2005 and 2006 was to continue the work that Redhawk started. Redhawk had established the presence and surface extent of zinc mineralization and defined targets ready for drill testing. Firestone's program consisted of three parts:

1. a limited program of surface rock chip sampling to confirm the results reported by Redhawk;

underground mapping extended to the west in the Cinco Hermanos workings, and;
 a phase one core-drilling program, which consisted of 22 holes to a maximum depth of 120 meters (discussed below in Section 11.0).

All of this work was carried out under the direct supervision of the author and Firestone field crews, (Table 4). The author, John Cleary, and consulting geologist Dennis Ouellette directly supervised the drilling program.

**Confirmation sampling:** Firestone's field crews collected 21 surface rock chip samples in 2005 to confirm the results reported by Redhawk in 2001 and to characterize the mineralization. Table 4 shows the locations, descriptions, and zinc-lead-silver content of these samples. Samples FE05-101 to 105 were collected from the same outcrops that were originally sampled by Redhawk in 2001, with identifiable metal tags marked with Redhawk's sample numbers. These were not duplicate samples in the strict sense, but were chipped from the outcrop as much as possible along the same channel sampled by Redhawk. Firestone's zinc and lead results are in good agreement with the results reported by Redhawk. Firestone's zinc results ranged from 19% to 31%, while Redhawk's zinc results ranged from 13% to 37%. However, Firestone's silver results ranged from 11 to 49 ppm, while Redhawk's silver results ranged from 1 to 6 ppm.

Firestone also collected grab and 1 to 2 meter chip samples from small mine workings and outcrops peripheral to the central Santa Rosa Corridor. These results are also shown in Table 4. Zinc assays ranged from 0.1% to 34% and lead assays ranged from 1.3 to 69%. The high lead assay was from a 2 meter thick zone of massive cerrusite (PbC03) taken underground in the Cinco Hermanos workings. Silver assays varied from 1 to 212 ppm. The highest silver content is associated with high lead content, suggesting that the silver was probably contained within the galena prior to oxidation of the lead minerals.

# Table 4. Geochem results from surface rock-chip samplesTorlon Zn-Pb-Ag Property, Guatemala

						Zn	Pb		
Sample	NAD 27	Zone 15	Elev.,		Width,	assay	assay	Ag	
Number	Northing	Easting	<b>m</b> .	Description	meters	(%)	(%)	ppm	
Samples collected by John G. Cleary & Dennis Ouellette, consulting geologists, May, 2005									
Bulge outcrop	)								
FE05-101	1,702,563	657,294	2,203	Cellular boxwork	2	19.2	7.1	43	
212102	Redhawk sa	ample, same	location		1.5	36.0	>1	6	
FE05-102	1,702,553	657,278	2,212	BRF, siliceous ochre	2	44.3	0.6	1	
212125	Redhawk sa	ample, same	location		1.7	37.0	0.4	2	
Lucio Tunnel									
FE05-103	1,702,560	657,296	2,200	Breccia, Massive yellow	2	19.3	2.1	12	
212098	Redhawk sa	ample, same	location		1.5	13.5	1.0	2	
FE05-104	1,702,517	657,282	2,203	Ochre,soft, red-orange	2	31.0	3.3	11	
235001	Redhawk sa	ample, same	location		1.5	30.1	0.8	2	
Adit #3									
FE05-105	1,702,636	657,236	2,235	Gossan w/ 8% gn, poss sp	2	28.1	9.3	49	
212455	Redhawk sa	ample, 7 m t	o the NE		1.4	13.6	>1	1	
Argentinita Ac	dit								
FE05-106	1,702,758	657,184	2,272	Breccia, gossan + clay-gouge	1.5	3.4	10.7	29	
FE05-107	1,702,798	657,171	2,314	bx and 20% Fe Zn gossan	2	0.9	1.3	1	
La Canada Ad	lit								
FE05-108	1,702,521	657,118	2,260	Gossan	grab	17.6	12.8	57	
Cinco Hermar	Cinco Hermanos Adit								

FE05-109	1,702,450	657,207	2,215	PbS and Gossan	0.3	5.4	50.9	212
FE05-110	1,702,450	657,207	2,214	massive, sandy, Pb Carbonate	1	0.1	68.8	178
Samples 181	51 to 18150 c	ollected by	Fornand	a Taliz, project geologist				
Dalipies for		onected by	i cinana.	o renz, project geologist				
Buige outcro	p	057 000		Casaan aalaat dumm	awa h	4.0	40.0	<u> </u>
18151	1,702,565	657,320		Gossan, select dump	grab	4.6	10.3	60
18152	1,702,562	657,322		Pb isotope sample, no assays				
Underground	Alfonso adit	t; aprox. UT	М					
				Apparent W mineralized structure, filling				
18153	1,702,525	657,280		fx-fault, red-yellow, level N2; 2m chip	2	2.1	3.7	28
				Apparent W min struct, filling fault, red				
18154	1,702,520	657,270		colour, cc/nodules, level N2, E stope	2	2.5	5.5	26
10155	1 702 505	657 257		High grade section, E structure, some	2	24.0	2.2	0
10100	1,702,505	007,207			2	34.0	3.3	0
Portal, Cinco	Hermanos a	dit						
10150	1 702 510	657 054	0.004	Eyes of Fe rich jasperoid-replacement,	2	2.7	2.0	4
18156	1,702,510	657,254	2,231	discontinuous extension	2	2.7	2.9	4
La Cañada w	orking - pit			Duran en heuden et herretitie medhitie				
19157	1 702 534	657 111		Dump or boulder, st nematitic-goetnitic	arab	16	11.0	10
	1,702,554	037,111		Undes, Zap reaction	grab	4.0	11.0	40
Pb smelting f	urnace							
18158	1,702,439	657,704	2,040	slag, first smelting, (richer grade?)	grab	0.5	67.8	73
18159	1,702,439	657,704	2,040	slag, second smelting?	grab	3.0	36.0	31
Samples colle	ected by Joh	n G. Cleary	& Dennis	Ouellette, consulting geologists, Feb., 2	006			
						ppm	ppm	ppm
	1 701 044	657 007	2 070	Esperanza LS, orange brown, weak Zn	4	676	110	-0 5
16406-1001	1,701,941	057,327	2,079	zapix	1	010	110	<0.5
TLR06-1002	1,701,941	657,327	2,079	gray dolo cem bx	grab	294	743	<0.5

**Cinco Hermanos Workings:** Firestone field crews surveyed the extent of the Cinco Hermanos underground workings on Torlon Hill. Redhawk had previously mapped and collected 2 samples within the first 15 meters of the tunnel. The entrance to the Cinco Hermanos workings is located 6 meters southwest of drill holes TH06-7 and 8 (Figure 4). The workings extend for 60 meters to the west and then 60 meters to the south and explore the area 45 to 65 meters west and south of previously drilled holes TH06-9 and TH06-10. These workings explore a previously unmapped and unexposed mineralized zone west of high-grade zinc mineralization exposed at surface in the "Bulge" area.

The mineralized zone observed underground is from one to three metres thick and consists of galena (PbS), iron oxides, cerrusite (PbC03) and smithsonite (ZnC03). The mineralization follows the footwall of a shallow-dipping fault which generally dips 25 to 30 degrees to the south. Massive galena up to 1 meter thick was observed in places. This new underground mapping indicates that the area west and south of holes TH06-9, TH06-10 and TH06-11 is highly prospective for high-grade lead, zinc and silver mineralization. This mineral assemblage indicates that this mineralization, which is higher in lead and silver than the mineralization drilled to the east in the Santa Rosa Corridor, may be a partially leached remnant of the original sulfides. The zinc sulfides have been leached and may have been redeposited farther down dip on the same structure. This is a common situation in other supergene nonsulfide zinc deposits (Hitzman, 2003, p. 691).

Field crews cut a total of 12 one to three meter thick vertical rock chip samples across the mineralized zone in the Cinco Hermanos workings. Samples were spaced 5 to 20 metres

apart within the workings. Results from the 12 samples confirm that the mineralized zone is 1 to 3 meters thick and contains an average of 21% lead, 6.8% zinc, and 134 grams/tonne silver (Table 5). The Cinco Hermanos is an additional mineralized zone which constitutes a valid target for the drilling campaign planned for late 2006 and early 2007.

These results show that there is high grade lead-zinc-silver mineralization 50 to 65 meters west of drill holes TH06-10 and TH06-11. Results from these two holes were somewhat disappointing and initial interpretation suggested that mineralization did not continue to the west of these holes. Sample results from the Cinco Hermanos workings show that high-grade mineralization does indeed continue to the west. For example, sample CH06-6 contained 27% lead and 19.5% zinc across a vertical distance of 0.9 meters. Sample CH06-10 contained 21.3% lead and 17.3% zinc across a vertical distance of 1.2 meters.

# Table 5. Geochem results from the Cinco Hermanos underground workingsTorlon Zn-Pb-Ag Property, Guatemala

NAD 27, Zone 15 Zn Pb Sample Elev. Width Ag Northing Easting Description Number m m (%) (%) ppm all 2 kg, vertical samples cellular gossan; 80% lim; 10% CH06-1 1,702,527 657,229 2,232 2 2.6 40.0 540 an CH06-2 1,702,524 657,227 2,230 11.7 11.7 43 cellular gossan; Zn CO3 1.8 CH06-3 657,193 2.221 cellular gossan; 80% lim; 5% gn 50.5 86 1,702,505 1.3 1.6 cellular gossan; 80% lim; 10% CH06-4 2,219 0.9 2.1 43.5 1,702,480 657,197 an 104 CH06-5 1,702,480 657,197 2,218 pure PbCO3 1 1.0 77.0 111 CH06-6 657,196 2,219 massive 90% gn + PbCO3 0.9 25.5 35.5 1,702,475 90 CH06-7 1,702,471 657,202 2,217 massive gn + BRF + PbCO3 1.4 2.0 36.0 113 CH06-8 657,207 2,217 massive gn + BRF + PbCO3 8.4 43.0 1,702,459 1.1 104 CH06-9 657,208 2,216 massive gn + BRF + PbCO3 2.0 34.5 1,702,459 1.4 147 gossan; 80% lim; 5% gn; 10% CH06-10 1,702,457 657,209 2.216 14.6 19.8 PbCO3 1.2 80 gossan; 80% lim; 5% gn; 10% CH06-11 2,226 PbCO3 1.5 22.0 15.2 1,702,517 657,212 46 gossan; 80% lim; 5% gn; 10% CH06-12 657,244 2,229 13.6 1,702,507 PbCO3 1.5 1.7 20

# 11.0 Drilling

**Drill program overview:** From February to April of 2006 Firestone conducted the first-ever drilling program on the Torlon property. The objective was to test the extent, grade, and continuity of the zinc-lead-silver mineralization defined by Redhawks' surface and underground mapping and sampling program. The drilling tested the central Santa Rosa Corridor, an area roughly 150 meters by 50 meters. In addition holes 15 to 22 extended the area another 240 meters to the south-southeast, but did not test as wide an area. Results from this initial phase of drilling did indeed confirm the subsurface continuity and grade of the mineralization and significantly improved on the results reported by Redhawk in terms of both the thickness and grade of mineralization. Firestone drilled a total of 22 NQ-core holes to a maximum depth of 120 meters. The holes were spaced 15 to 25 meters apart on section, with 25 to 50 meters between sections. Figure 4 shows the locations of the drill holes. All of

the holes were vertical, except for hole TH06-8 which was inclined -60 degrees to the west (260 Azimuth). Firestone drilled a total of 1,442 meters for this initial program (Table 6). All of the holes drilled in the Santa Rosa Corridor (TH06-1 to 16) intersected significant zinc mineralization grading from 3% to 42.3% zinc and 0.5% to 4.5% lead. Thickness of the mineralization ranged from 1.5 to 53 meters. Holes TH06-17 to 22, which were located further south all intersected strongly anomalous amounts of zinc from 0.4% to 2%. Table 7 summarizes the significant intercepts of zinc and lead mineralization in all of the drill holes and Appendix 1 contains summary logs describing the lithology and mineralization in all of the drill holes. At this point in the program it is impossible to assign a "true thickness" to these intercepts. The longer intercepts are in the cylinder-shaped zone described above in Section 9. Figures 5 through 9 clearly show the cylindrical central zone and the tabular zones which extend up-dip to the west.

The most significant mineralized intersections from the 22-hole program include:

- Hole TH06-1: 28.8 m of 11.2% zinc including a 15.7 m interval of 17.4% zinc.
- Hole TH06-2: 33.0 m of 21.0% zinc including a 17.1 m interval of 31.9% zinc.
- Hole TH06-12: 24.4 m of 5.0% zinc including 6.1 m of 11.7% zinc
- Hole TH06-13: 53.3 m of 10.2% zinc including 15.5 m of 15.8% zinc and 2.6 m of 33.1% zinc.
- Hole TH06-14: 46.7 m of 12.5% zinc including 24.0 m of 17.9% zinc and 12.2 m of 10.8% zinc.
- Hole TH06-16: 7.6 m of 10.7% zinc, 3.0 m of 8.2% zinc and 3.0 m of 13.4 % zinc.

		UTM NAD 27 Zone 15		
Hole Number	Easting	Northing	Elevation, meters	Depth, meters
TH06-1	657,300.5	1,702,556.0	2,195.0	30.4
TH06-2	657,271.3	1,702,586.0	2,215.3	57.9
TH06-3	657,280.2	1,702,558.2	2,212.7	48.8
TH06-4	657,276.0	1,702,498.2	2,216.3	80.8
TH06-5	657,253.5	1,702,554.5	2,235.4	79.2
TH06-6	657,242.5	1,702,582.5	2,246.9	73.2
TH06-7	657,261.0	1,702,508.5	2,224.1	86.6
TH06-8	657,260.5	1,702,508.4	2,224.1	83.8
TH06-9	657,222.5	1,702,512.0	2,260.0	120.4
TH06-10	657,245.0	1,702,486.5	2,241.9	115.8
TH06-11	657,274.0	1,702,463.0	2,215.4	103.6
TH06-12	657,292.7	1,702,473.4	2,198.9	77.7
TH06-13	657,288.6	1,702,520.3	2,200.5	61.0
TH06-14	657,306.4	1,702,488.8	2,190.0	61.0
TH06-15	657,312.9	1,702,436.8	2,181.1	73.0
TH06-16	657,365.4	1,702,438.0	2,143.2	44.2
TH06-17	657,354.8	1,702,382.3	2,145.1	57.3
TH06-18	657,382.0	1,702,390.1	2,133.7	44.2

.....

# Table 6. Drill Hole Locations and DepthsTorlon Hill Zinc Project February to April, 2006

			total meters drilled	1442.1
TH06-22	657,469.1	1,702,258.0	2,084.2	24.4
TH06-21	657,420.8	1,702,318.0	2,111.8	27.4
TH06-20	657,391.3	1,702,359.2	2,122.9	42.7
TH06-19	657,372.1	1,702,330.6	2,127.8	48.8

Table 7. Summary of significant drill hole zinc & lead intercepts

Firestone Ventures, Inc., Torlon Hill Project, Guatemala, Spring-2006 Drilling Program

	Depth	From	То	Thickness	Zinc	Lead
Hole Number	(meters)	(meters)	(meters)	(meters)	%	%
TH06-1	33	0.0	28.8	28.8	11.2	1.9
	Including	0.0	15.7	15.7	17.4	1.6
TH06-2	57.9	0.0	33.0	33.0	21.0	1.4
	Including	7.0	11.0	4.0	39.5	2.7
	-	14.1	17.1	3.0	42.3	0.6
TH06-3	45.5	0.0	16.1	16.1	8.9	2.7
	Including	0.0	4.6	4.6	15.0	1.5
		24.1	30.0	5.9	4.7	0.2
		33.5	45.1	11.4	6.9	2.5
TH06-4	80.8	9.1	11.1	2.0	8.9	6.5
		36.6	41.9	5.3	7.0	0.9
		66.4	69.3	2.9	7.4	2.1
TH06-5	79.2	1.5	4.6	3.1	10.1	3.5
		16.0	23.0	7.0	7.6	3.4
		25.0	31.0	6.0	14.0	4.3
		33.0	35.0	2.0	10.1	0.5
TH06-6	73.2	38.1	41.1	3.0	4.0	2.7
TH06-7	86.6	3.1	4.6	1.5	14.0	4.0
		35.1	43.7	8.6	8.4	1.2
		72.1	82.8	10.7	7.2	1.6
	Including	72.1	75.6	3.5	19.2	2.2
TH06-8	83.3	13.7	38.1	24.4	2.3	1.6
		13.7	16.8	3.1	6.4	0.5
		71.4	77.7	6.3	7.2	2.5
	Including	71.4	74.6	3.2	11.0	3.4
TH06-9	120.4	93.0	96.0	3.0	6.8	2.8
		102.1	105.2	3.1	9.6	4.6
TH06-10	115.8	45.7	47.2	1.5	17.6	1.7
		89.9	91.4	1.5	5.1	1.0
TH06-11	103.6	13.7	15.2	1.5	3.6	0.6
TH06-12	77.7	44.2	48.8	4.6	5.9	0.2
		51.8	57.9	6.1	11.7	0.3
TH06-13	61.0	0.0	53.3	53.3	10.2	1.7
	Including	0.0	15.5	15.5	15.8	1.4

	Including	7.9	10.5	2.6	33.1	0.3	
	Including	19.3	25.9	6.6	14.9	2.2	
	Including	42.7	50.3	7.6	9.3	3.4	
TH06-14	61	0.0	46.7	46.7	12.5	0.4	
	Including	0.0	12.2	12.2	10.8	1.5	
	Including	22.9	46.7	24.0	17.9	0.1	
TH06-15	73.2	67.8	71.6	3.8	3.0	0.8	
TH06-16	44.2	16.8	19.8	3.0	13.4	5.4	
		22.9	25.9	3.0	8.2	1.6	
		27.4	35.0	7.6	10.7	1.3	
TH06-17	57.3	Zinc values gene	erally less thar	n .01%, highest	t is 0.48%		
TH06-18	44.2	Zinc values gene	erally higher th	nan TH06-17, h	ighest is 0.54%		
TH06-19	48.8	Zinc values gene	erally less thar	n.005%, highes	it is 0.14%		
TH06-20	42.7	Variable zinc up	to 1.25%, 18.2	2 gms/tonne si	lver, up to 4.15%	lead	
TH06-21	27.4	Variable zinc up to 2.02%, 28.5 gms/tonne silver, up to 1.49% lead					
TH06-22	24.4	Most zinc values between 0.13% to 0.42% and up to 10.6 g/t silver					

**Sample boundaries and intervals:** More than 90% of the drill core was split and sampled. Sample boundaries were generally chosen to coincide with contacts between breccia-type mineralization and gossan-type mineralization. Sample lengths were usually 1.5 meters, but varied, based on structure and mineralization type. Core was not sampled when it was obviously unaltered and unmineralized.

**Core recovery:** Recovery levels were generally near 100%. Poor recoveries were encountered when the drill holes intersected old underground mine workings. Firestone was careful to locate drill holes so as not to encounter old workings where they had been mapped, but the extent of the unmapped workings made it impossible to avoid them all. Recoveries and rock quality determination (RQD) were continuously calculated and noted in all the drill hole logs. Recovery also suffered somewhat in hole TH06-8, which was inclined 60 degrees to the west. This hole had to be abandoned at 84 meters due to instability and hole caving. Firestone then made the decision to make all of the holes vertical.

**Sample results:** All sample intervals and associated zinc, lead, silver, and trace element values were tabulated in "Excel" spreadsheet format. Complete drill hole sample results are presented in Appendix 2.

# 12.0 Sampling Method and Approach

All the sampled drill intervals were split using a diamond blade masonry saw, with one half of the core replaced in the core box as originally oriented and stored in a locked shipping container with 24 hour security. None of the remaining half-core or unsplit portions were allowed to be shipped, guaranteeing availability of core for re-sampling and additional study, if necessary. Detailed and accurate records of sample lengths were retained, as were records of box intervals. Core recoveries were noted for all intervals, with 100% recovery

representing a reasonable maximum length of core when placed in the core box, rather than the actual measured interval (recoveries for measured intervals shorter than drilled intervals are thus automatically less than 100%). All sample intervals were laid out prior to sampling, with sample numbers marked with aluminum tags, and intervals carefully documented. An aluminum tag with a specific identification number supplied by Firestone Ventures, Inc. for each sample taken was stapled into the core tray at the start of each respective sample interval. The sample carriage, including the groove underlying the diamond blade, was thoroughly cleaned after each sample. The splitting area, including tables and floors, was swept clean at the end of each day.

## **13.0** Sample Preparation, Analyses, and Security

All core samples were placed in thick cloth industry-standard Hubco sample bags, and sent in zip-tie sealed rice bags to Inspectorate Precious Metals, a certified sample preparation facility, in Guatemala City. Firestone Ventures personnel hauled the sealed rice bags to Guatemala City by company truck and delivered the samples to the Inspectorate site manager. The remaining core boxes are all stored in a secure, locked metal container on private property with 24 hour security in Huehuetenango, Guatemala.

The author (John Cleary, CPG, RG) and Al Workman, qualified person from WGM audited the Inspectorate sample preparation facility and were satisfied that its equipment was suitable and that procedures met CIM best practices guidelines. Following sample preparation, 200 to 250 grams of pulverized sample (pulp) was shipped by air courier directly to ALS Chemex, North Vancouver, British Columbia, Canada for analysis.

ALS Chemex is an ISO 9002 registered laboratory. Samples are subject to four acid digestions and are analyzed for 27 elements by ICP-AES. Over the limit zinc and lead analyses are further analyzed by atomic absorption methods. The upper limit for zinc is 30%. Samples which contain in excess of 30% zinc are re-analysed using titration. This multistage analytical procedure, while more costly, ensures that an appropriate lab method is used to produce reliable data at each lead or zinc concentration level. It also offers repeat analyses to protect against gross analytical error.

Industrial Standards were not inserted by Firestone at this initial stage of the project. ALS Chemex and Firestone are both routinely inserting blank samples for quality control purposes. Selected coarse rejects from high grade samples will be re-analyzed at a later date by another laboratory as part of the compositing process to produce material for metallurgical testing.

## 14.0 Data Verification

Results in general show a high degree of uniformity and good agreement between surface samples, underground samples, and nearby drill sample results. There is thus a high degree of reliability of results at the Torlon Hill project. Confirmation sampling by Firestone in the central Santa Rosa Corridor showed good agreement between 5 samples collected by

Firestone on the same outcrops originally sampled by Redhawk as shown in Table 4 and described above in Section 10 (Exploration by Firestone, Confirmation Sampling).

ALS Chemex provides comprehensive in-house quality-control, using numerous blanks to test for any potential contamination, confirming that no detectable contamination has occurred. Firestone geologists inserted a blank sample of fresh, unmineralized limestone at the end of each drill hole. Results from hole to hole showed good agreement between the results for the blank samples. All due diligence work was supervised by John G. Cleary, MS, CPG, RG, the qualified person for the project.

# **15.0 Adjacent Properties**

The ground immediately surrounding the Orbita concession is a larger concession, Saturno (LEXR-023), owned by Montana Exploration, S.A. (Glamis Gold LMT, GLG on the NYSE). Montana is not currently exploring in the area, and is primarily interested in precious metals, not zinc. The author is not aware of any base metal occurrences on the Saturno concession.

Roberts and Irving (1957) described several other zinc-lead occurrences and small mines within 5 to 20 kilometers to the north and east of Torlon. All of these properties are owned by small Guatemalan companies or individuals and none of the properties are currently being explored to the knowledge of the author.

# 16.0 Mineral Processing and Metallurgical Testing

No metallurgical testing has yet been performed on mineralized material from the Torlon Hill project.

# 17.0 Mineral Resource and Mineral Reserve Estimates

No NI 43-101 compliant mineral resource or mineral reserve estimates have been performed on the Torlon Hill project to date.

# **18.0** Other Relevant Data and Information

The author is not aware of any additional relevant data and information.

# **19.0 Interpretation and Conclusions**

Firestone Venture's 2006 exploration program has met the objectives set forth in Items 2 and 10. The program has:

1. confirmed that the geologic mapping and surface and underground sampling results reported by Redhawk in 2001 were reasonable and valid (Table 4);

2. identified additional significant high-grade lead-zinc-silver mineralization continuing to the south and west of the Santa Rosa Corridor described by Redhawk (Table 3); and 3. confirmed by drilling in the Santa Rosa Corridor the geometry, thickness, and grade of zinc and lead mineralization. The drilling has also confirmed that the zinc mineralization consists mainly of smithsonite, which will make recovery less difficult than a deposit with several zinc oxide or carbonate minerals.

Drill results confirm that the zinc-lead mineralization within the Santa Rosa Corridor extends along strike (340 to 350 degrees) for at least 300 meters. The width of the zone varies from 40 to 100 meters. Drill hole TH06-14 intersected a true thickness (or more precisely diameter) of 47 meters within the main, cylinder-shaped zone. The tabular mineralized zones peripheral to the main cylindrical zone vary from 2 to 20 meters in true thickness. The main cylindrical zone varies from 20 to 47 meters in diameter, with a down-plunge length of 170 meters. Zinc grades within the mineralized zones vary from 6% to 33%. The density and spacing of the drill holes is not sufficient at this point to calculate an average grade for the zones. These positive results strongly indicate that significant further drilling is appropriate.

The data density for the surface and underground sampling by Redhawk was more than adequate to establish the general grade and tenor of the zinc and lead mineralization. They collected 498 samples in a 200 x 75 meter area. Results from the 5 samples which Firestone collected from the same outcrops were in agreement with the results reported by Redhawk (Table 4). This first phase of drilling was designed to meet the objectives described above, not to establish a measured or inferred resource. For the first phase the holes were spaced 15 to 25 meters apart on section, with 25 to 50 meters between sections. The next phase of drilling will be at a closer spacing, designed to establish a measured resource.

# **20.0 Recommendations**

**Phase 2 Drilling:** The positive results from the first round of drilling justify additional drilling to:

1. define a measured resource within the Santa Rosa Corridor, in the area of initial drilling; and

2. step-out drilling onto the Orbita concession to the south and west to test the zinc-leadsilver mineralization discovered in the Cinco Hermanos workings.

The drilling program should consist of 20 to 25 additional holes to an average depth of 100 meters, totalling 2,000 to 2,500 meters. The drilling portion of the program will require about four months.

**Geologic Mapping and Sampling:** Firestone should carry out some additional geologic mapping/prospecting in the area of the La Canada workings, west and south of the Santa Rosa Corridor to identify any additional alteration related to underlying zinc-lead mineralization. This portion of the program should require about a month to complete.

**Metallurgical Testing:** Preliminary metallurgical work on the Torlon mineralized material is needed to determine the average recovery and nature of zinc and other metals, such as silver and to determine the minor metal content. For example, significant quantities of

germanium are associated with zinc-lead mineralization at the Tres Marias project in Mexico. In addition, samples of drill core from each type of mineralization should be tested for specific gravity.

**Environmental Studies:** Firestone should build on the environmental baseline work already completed and begin the necessary environmental impact study. This should include initial contacts with affected parties in the Torlon area and the associated sociological impact study. The budget for this program is below in Table 8. The entire program should take seven to nine months to complete.

# Table 8.Budget for the October, 06 to April, 07 Torlon Drilling Program

		\$ US
Diamond Core Drilling (2200m @ \$125/m)		275,000
mob/demob		10,000
Project Geologist - Qualified Person (150 days @ \$500/day)	)	75,000
Assistant geologist (120 days & \$450/day)		54,000
Assistant geologist (30 days & \$450/day)		15,000
Local liason, logistics, security, driver (150 days@\$70/day)		10,500
Drill site construction; moving the drill		25,000
Road building & repair		15,000
Surface access fees for the road		10,000
Surface access fees for the Orbita concession		5,000
Camp: 7 months house rental & utilities at Chiantla		11,000
Furniture, utensils, & appliances		3,000
Maid/cook		5,000
Food (4 people @ \$25/day each)		15,000
Hotel		5,000
Vehicle expense: rental for 1 truck; 6mo@\$1,200/mo		8,000
Fuel & maintenance for 2 trucks		6,000
Field supplies: saw blades, sample bags, communications,		
shipping		20,000
Core storage 6 months		3,000
Air fare		15,000
Core assay (1,700 samples @ \$25/sample)		42,500
Preliminary specific gravity & metallurgical testing		5,000
Baseline Environmental Monitoring & PR (Gartner Lee)		35,000
Professional Fees (WGM)		20,000
Report writing, data processing, GIS/drafting		30,000
	Total	718,000

## **21.0 References**

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## **AUTHOR'S CERTIFICATE**

I, John G. Cleary, CPG #7420, RG #5321 do hereby certify:

(1) I am a consulting geologist for Firestone Ventures Inc., #220 17010 103rd Street, Edmonton, Alberta, T5S 1K7

(2) I am Registered Geologist No. 5321 with the State of California since 1991 and Certified Professional Geologist No. 7420 with the American Institute of Professional Geologists since 1986. I am a Fellow of the Society of Economic Geologists since 1986, a member of the Society of Economic Geologists since 1974, and a Member of the Society of Mining Engineers since 1974.

(3) I am a graduate of Dartmouth College with a B.A. (Honours) in Geology (1974) and of the University of Montana with an M.S. in Economic Geology (1976).

(4) I have continuously practiced my profession in North, Central, and South America and overseas for 32 years.

(5) I have read the definition of "qualified person" set out in National Instrument 43-101 and certify that by reason of my education, affiliation with professional associations and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

(6) I am responsible for the preparation of the technical report entitled "NI 43-101 Compliant Report on the Spring-2006 Diamond Drilling Program on the the Torlon Hill Zinc Property, Guatemala", dated September 30, 2006. I visited the Torlon property on May 30, 2004, on November 13, 2004, and supervised the drilling program on-site from January 10 to April 23, 2006. I also directly participated in underground mapping on June 15 to 16, 2006.

(7) I have not had prior involvement with the Torlon property.

(8) I am not aware of any material fact or material change with respect to the subject matter of the technical report that is not reflected in the technical report, the omission to disclose which makes the technical report misleading.

(9) I am independent of the issuer applying all tests in section 1.5 of national Instrument 43-101.

(10) I have read National Instrument 43-101 and Form 43-101F1, and the technical report has been prepared in compliance with that instrument and form.

(11) I consent to the filing of the technical report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the technical report.

(12) The effective date of this report is January 11, 2007

Dated this 11th day of January, 2007, in Reno, Nevada, USA.

John G. Cleary, Consulting Geologist California Registered Geologist No. 5321 Certified Professional Geologist No. 7420











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## <u>Appendix 1. Drill hole summary logs, Torlon Hill Zinc Project, Spring 2006 Drilling</u> (drill holes TH06-1 through TH06-22)

## **Drill Log Abbreviations**

- BRF Brownish-red, fine-grained mineralization: massive, hard, typically occurs with galena
- CM Cellular mineralization: dark brown, box-work texture, typically occurs with hydrozincite.
- DBM Dolomite breccia mineralization: dolomite breccia cemented with 5 to 40% CaCO3 + ZnCO3 +/- limonite.
- G Ochre (gossan) mineralization: limonite + ZnCO3; typically orange and earthy.
- MS Massive sulfide: mainly fine-grained pyrite with lesser amounts of galena (5-15%), sphalerite (3-5%), and chalcopyrite (1-2%).
- Zz rx Zinc zap reaction: weak, moderate, or strong as noted.

### <u>TH06-1</u>

Azimuth:0°Dip:-90°Elevation:2195mEasting:657,300.5mNorthing:1,202,556.0mUTM Datum:NAD 27, Zone 15Core Size:NQTotal Depth:30.4m

0-1.5m: Mine dump material from Lucio tunnel: dolostone breccia/gossan; Poor recovery (13%).

## <u>1.5 – 27.4</u>: DBM

Interval includes:

ai meraaco.	
1.5 – 10.0m:	Poor recovery $(3 - 67\%)$
6.1 – 6.7m:	BRF of 100% Fe/Zn oxides
6.7 – 10.1m:	DBM with 50-80% Fe/Zn oxides locally
10.0 – 10.4m:	Fault breccia at 80° to core axis (CA)
10.4 – 15.8m:	DBM with 40-60% Fe/Zn oxides
15.7 – 16.1m:	Fault breccia at 90° to CA
15.8 – 21.8m:	Same as 10.4 – 15.8m
19.8 – 21.8m:	Poor recovery (58%)
20.6 – 20.9m:	BRF of Fe/Zn oxide
21.8 – 22.9m:	G mineralization of Fe oxide and clay

<u>27.4 – 28.8m</u>: Thrust fault/breccia zone at 90° to CA; Poor recovery (64%)

<u>28.8 – 30.4m</u>: Serpentine

<u>30.4m</u>: End of hole.

### TH06-2

Azimuth: 0° Dip: -90° Easting: 657,271m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 57.9m Elevation: 2215.3m Northing: 1,702,586m

0-30.5m: DBM; medium to strong zz reaction, locally very strong. Interval includes:

0-4.6n	n:	Poor recovery (43 – 53%)
4.6 - 8.0	)m:	G of 100% limonite and ZnCO3; massive box work texture; very strong zz reaction
8.0 - 10	.2m:	CM with coarse cellular box-work texture; white hydrozincite; 1-5% galena; very
strong z	z reactior	1
12.2 - 1	7.3m:	G same as 4.6 – 8.0m
14.3 - 1	4.6m:	BRF at 45° to CA; Zn-rich
19.0 – 21.0m	n:	G same as $4.6 - 8.0m$ ; upper contact 55° to CA, lower contact 60° to CA
23.6 - 2	4.0m:	CM at 55° to CA
<u>30.5 – 31.5m</u> :	BRF sar	ne as 14.3 – 14.6m; very strong zz reaction
<u>31.5 – 32.5m</u> :	Serpenti	ne: sheared, medium to strong zz reaction
<u>32.5 – 33.0m</u> :	Fault at	70° to CA: sheared serpentine
<u>33.0 – 57.9m</u> :	Serpenti	ne: unmineralized
<u>57.9m</u> :	End of H	Iole.

#### **TH06-3**

Azimuth: 0°Dip: -90°Elevation: 2212.7mEasting: 657,280.2mNorthing: 1,702,558.2mUTM Datum: NAD 27, Zone 15Core Size: NQTotal Depth: 48.8mFor the second se

0-11.3m: DBM: high grade with 30-40% breccia cement of limonite and ZnCO3; very strong zz reaction.

Interval includes:

0 – 10.7m:	Poor recovery $(20 - 79\%)$
7.6 – 10.7m:	Poor recovery (39 – 69%)
5.8 – 9.0m:	BRF with very strong zz reaction; upper contact at 55° to CA
9.0 – 9.6m:	G

11.3 - 27.4m: DBM: low to medium grade; weak to moderate zz reaction. Interval includes:

 13.7 – 15.2m:
 Poor recovery (77%)

 23.4 – 24.4m:
 G

 25.9 – 24.7m:
 Poor recovery (57%): vug

 $\frac{27.4 - 30.0\text{m}}{27.4 - 36.6\text{m}}$  DBM: high grade; 30 – 50% breccia cement of limonite and ZnCO3; very strong zz reaction. Poor recovery (7-75%).

<u>30.0 - 33.5m</u>: DBM: low grade; very strong breccia zone from 32.0 - 33.5m.

<u>33.5 - 40.9m</u>: DBM: medium to high grade with up to 30 - 50% breccia cement of limonite and ZnCO3; strong zz reaction locally.

38.0 - 42.7m: Poor recovery (40 - 75%).

40.9 - 41.9m: CM.

40.9 - 43.4m: G with galena blebs; shear foliation at 50° to CA at 42.2m.

<u>43.4 – 44.3m</u>: Sulfide breccia with 25% galena + pyrite cement and 5% sphalerite.

<u>44.3 – 45.0m</u>: MS with 25% galena, 75% later brassy pyrite; upper contact at 55° to CA, lower faulted contact at 60° to CA.

<u>45.0 - 46.0m</u>: Fault zone of sheared serpentine.

<u>46.0 – 48.8m</u>: Serpentine.

<u>48.8m</u>: End of hole.

#### **TH06-4**

Azimuth: 0° Dip: -90° Easting: 657,276m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 80.8m Elevation: 2216.3m Northing: 1,702,498.2m

 $\frac{0-1.5m}{1.5-28.0m}$ : No recovery.  $\frac{1.5-28.0m}{1.5-28.0m}$ : DBM: low grade with 5 – 10% limonite cement; weak to moderate zz reaction. Interval includes:

1.5 - 9.1 m:	Poor recovery $(20 - 6/\%)$
9.4 – 9.9m:	CM with 3% galena
10.7 – 15.24m:	Poor recovery $(47 - 73\%)$
18.2 – 19.8m:	Poor recovery (40%)
22.9 – 24.4m:	Poor recovery (67%)

<u>28.0 - 43.5m</u>: DBM: medium grade with 10 - 15% limonite, goethite and ZnCO3 cement. Interval includes:

32.0 – 35.0m:	Poor recovery (67%)
38.5 - 39.0m:	CM with hydrozincite and goethite
39.0 – 39.6m:	G

<u>43.5 – 53.3m</u>: DBM: high grade with 40 – 60% limonite, ZnCO3 and CaCO3 cement; strong zz reaction; interval intensely brecciated; poor recovery from 48.8 - 50.3m (22%), and from 51.8 - 53.3m (73%). <u>53.3 – 60.4m</u>: DBM: low to medium grade; weak to moderate zz reaction; poor recovery from 57.9 - 60.6m (60 – 73%). 60.6 – 66.4m: DBM: high grade with strong zz reaction; poor recovery from 60.6 - 64.0 m 958 - 60%). <u>66.4 – 67.0m</u>: MS breccia with 5% galena, 3% sphalerite and 90% pyrite; irregular banding at 50° to CA; upper contact at 90° to CA. <u>67.0 – 77.6m</u>: DBM: low grade; up to 30% sheared CaCO3 cement; weak to moderate zz reaction; poor recovery from 68.6 – 69.3m (57%); No recovery from 70.3 – 73.2m. <u>77.6 – 78.3m</u>: Fault zone of sheared dolomite breccia and sheared serpentine; upper and lower contacts at 90° to CA. <u>78.3 – 80.8m</u>: Serpentine.

Elevation: 2235.4m

Northing: 1,702,554.5m

<u>80.8m</u>: End of hole.

#### TH06-5

Azimuth: 0° Dip: -90° Easting: 657,253.5m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 79.2m

 $\begin{array}{ccc} \underline{0-40.8m}; & \text{DBM.} \\ \text{Interval includes:} & \\ 0-1.5m; & \text{Poor recovery (17\%)} \\ 1.8-3.8m; & \text{G} \end{array}$ 

4.6 – 6.1m:	No recovery
6.1 – 10.7m;	Poor recovery (56-67%)
15.0 – 19.9m:	CM with massive Fe/Zn gossan and white hydrozincite vug coatings; poor recovery
from 15.2 - 19.8	(31 – 33%)
21.6 – 22.0m:	G
25.7 – 26.9m:	G: lower contact with DBM at 30° to CA
27.9 – 30.7m:	BRF: lower contact with DBM at45° to CA
33.8 – 34.0m:	СМ

<u>40.8 – 51.8m</u>: DBM with dusky-brown breccia cement; moderate zz reaction; dusky-brown, MnO2 + Fe/Zn oxide gossan locally; contact with underlying DBM at 90° to CA.

<u>51.8 – 66.6m</u> :	DBM: strongly brecciated.
Interval includes	
62.5 - 6	5.5m: Poor recovery $(60 - 73\%)$
62.8 - 6	6.6m: Fault breccia of milled dolomite and Fe/Zn oxides (looks post mineral
<u>66.6 – 68.8m</u> :	Fault zone of sheared serpentine with 20% sub-horizontal CaCO3 veins.
$\frac{07.0 - 08.0111}{66.9}$	Poor recovery (45%)
00.0 - 00.110	serpennie.

80.1m: End of hole.

## TH06-6

Azimuth: 0°	Dip: -90°	Elevation:	2246.9m
Easting: 657,2	242.5m	Northing:	1,702,582.5m
UTM Datum:	NAD 27, Zone 15		
Core Size: NO	2		
Total Depth: 7	73.2m		
<u>0 – 1.5m</u> :	Caliche; poor recovery (13%).		

<u>1.5 – 3.1m</u> :	No reco	very.
<u>3.1 – 4.6m</u> :	Dolomi	e with spotty CaCO3 veins; poor recovery (13%).
<u>4.6 – 7.6m</u> :	No reco	very.
<u>7.6 – 23.0m</u> :	DBM:	weakly mineralized; cement composed of CaCO3 + ZnCO3; weak zz reaction.
Interval includes:		
7.6 - 10	.4m:	Poor recovery $(30 - 66\%)$
13.8 - 1	5.1m:	BRF: Fe/Zn oxide/carbonate
21.8 - 2	3.0m:	Breccia zone: strong post mineral breccia
<u>23.0 – 27.1m</u> :	DBM ce	emented with dark brown Zn oxide/carbonate; moderate zz reaction.
<u>27.1 – 55.8m</u> :	DBM: 1	moderate to strong zz reaction.
Interval includes:		
27.5 - 2	8.4m:	CM with 20% remnant dolomite clasts
39.2 - 3	9.4m:	CM
44.5m:		5cm Fe/Zn oxide vein
<u>55.8 – 63.2m</u> :	DBM ce	emented with dark brown ZnCO3/Fe oxide; strong zz reaction.
<u>63.2 – 67.6m</u> :	DBM:	70 – 80% ZnCO3/Fe oxide matrix; strong zz reaction.
Interval includes:		-
65.0m:		Redox boundary with 50% pyrite immediately below boundary
66.0 - 6	7.6m:	Up to 10% pyrite/galena breccia matrix

 $\underline{67.6 - 68.7m}$ : Fault zone: upper contact at 70° to CA, lower contact at 60° to CA; 20cm of massive pyritegalena at upper contact with 30cm of clay gouge below.

<u>68.7 – 73.2m</u>: Serpentine.

<u>73.2m</u>: End of hole.

#### TH06-7

Azimuth: 0° Dip: -90° Easting: 657,261m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 86.6m Elevation: 2224.1m Northing: 1,702,508.5m

0-37.8m: DBM: weak to moderate zz reaction; dark brown, yellowish orange, and light yellow Fe/Zn oxides on fractures locally.

Interval includes:

0-4.6m: Gravel with poor recovery from 0-1.5m (13%) and from 3.1-4.6m (13%)

4.6 – 6.1m:	No recovery
6.1 – 18.3m:	Gravel
18.9 – 19.8m:	No recovery (cave)
19.8 – 24.4m:	Gravel with poor recovery from $19.8 - 22.9m (25 - 33\%)$
24.4 – 25.9m:	Poor recovery (33%)
33.5 – 37.8m:	Poor recovery $(43 - 70\%)$

<u>37.8 - 40.3m</u>: CM: 100% limonite + ZnCO3 with hydrozincite on fractures; very strong zz reaction; poor recovery from 38.1 - 40.0m (32%).

40.3 - 46.8m: DBM: medium grade with 20 – 30% matrix of Fe/Zn oxide; strong zz reaction; poor recovery from 41.1 - 43.7 (69%).

<u>46.8 – 49.7m</u>: DBM: high grade with 40 - 70% Fe/Zn oxides; very strong zz reaction.

<u>49.7 – 71.5m</u> :	DBM: $10 - 20\%$ CaCO3 + ZnCO3 cement; weak to moderate	e zz reaction;
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Interval includes:

49.7 – 51.8m:	Poor recovery (42%)
54.4 – 54.9m:	40cm band of 80% Zn/Fe oxide cement with 20% relict dolomite
59.4 – 60.9m: 66.3 – 71.5m:	Gravel moderate zz reaction

<u>71.5 – 72.1m</u>: DBM: high grade with 40% Fe oxide + ZnCO3 cement; strong zz reaction.

<u>71.5 – 74.3m</u>: MS: 90% massive, fine-grained pyrite, 5% 2mm dolomite fragments, 5% 1-2mm galena blebs, tr-2% sphalerite?; weakly banded at 70-80° to CA.

<u>74.3 – 75.6m</u>: Sulfide-cemented breccia with 85% pyrite cement, 10% 2-4mm relict dolomite fragments, 5% galena?

 $\frac{75.6 - 82.8m}{2000}$  Calcite/sulfide cemented breccia (unoxidized equivalent of DBM) with 60-80% white calcite matrix, 20-30% relict dolomite clasts, 5-20% fine-grained pyrite as matrix, 1-5% fine-grained galena. Only 10% oxidized from 78.4 – 82.4m. Mylonitic breccia from 82.5 – 82.5m.

- <u>82.8 83.3m</u>: Fault zone: upper contact at 80° to CA.
- <u>83.3 86.6m</u>: Serpentine.

86.6m: End of hole.

#### **TH06-8**

Azimuth: 260° Dip: -60° Easting: 657,260.5m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 83.8m

Elevation: 2224.1m Northing: 1,702,508.4m

0-71.4m: DBM: pervasive crackle breccia with CaCO3-ZnCO3 veining and breccia filling; weak to moderate zz reaction. Interval includes:

0 – 1.52m:	Poor recovery (27%)
6.1 – 7.6m:	Poor recovery (47%)
10 7 – 15.2m:	Poor recovery (47 – 67%)
10.7 - 15.2 m.	Poor recovery $(73\%)$
18.3 - 19.8 m.	20 m Equation (73%)
20.8m: 32.5 – 33.5m:	CM consisting of 100% gossan with Fe oxide and hydrozincite
41.2m:	25cm Fe oxide-ZnCO3-galena vein; strong zz reaction
54.6 – 56.2m:	Strong breccia with 70% Fe oxide-ZnCO3-galena cement; very strong zz reaction;

upper contact at 50° to CA, lower contact at 30° to CA

<u>71.4 – 73.7m</u>: CM

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<u>73.7 – 83.8m</u>: DBM: high grade with 50% Fe oxide-ZnCO3-galena cement; very strong zz reaction.
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Interval includes:

79.2 – 82.3m: Poor recovery (65%)

82.4 – 82.9m: CM

83.8m: End of hole.

Note: This hole was abandoned early as the pipe got hung in the hole. Eventually the core barrel had to be cut. Hole TH06-9 tests the same ground below 83.8m.

#### TH06-9

Dip: -90° Azimuth: 0° Elevation: 2260.0m Easting: 657,222.5m Northing: 1,702,512.0m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 120.4m 0 - 1.0m: Dolomite, unaltered. Calcite-siderite "Leached Cap" rock: 10 – 30% vugs, weakly banded, completely 1.0 - 10.1m: recrystallized and leached; 20-60% siderite, 5-20% limonite/goethite, 20-50% weakly banded, vuggy CaCO3. Includes a fault/breccia zone at 3.7 – 4.6m. Dolomite: weak to moderately recrystallized. 10.0 – 14.2m: <u>14.2 – 35.8m</u>: Calcite-siderite rock with goethite-siderite gossan locally. Fault-gouge zone with 20% limonite and 30% clay: upper contact at 75° to CA. 35.8 – 36.4m: <u>36.4 – 42.7m</u>: Dolomite breccia: unmineralized to very weak zz reaction; poor recovery from 41.0 - 42.7m (59%). <u>42.7 – 43.8m</u>: CM: very strong zz reaction. <u>43.8 – 57.8m</u>: DBM: 10-30% breccia cement of CaCO3 + ZnCO3 + limonite; weak to moderate zz reaction. Interval includes: 44.2 - 45.7m: Poor recovery (67%) 47.5 - 46.4m: Fault breccia at 60° to CA 57.8 – 58.1m: CM: 60° to CA; strong zz reaction. DBM: high grade with 10 - 30% breccia cement of CaCO3 + ZnCO3 cement, and spotty <u>58.1 – 72.1m</u>: galena blebs; strong zz reaction. Fault zone at 50° to CA: 30% clay-gouge, 20% limonite, moderate zz reaction. 73.1 – 73.1m: 73.1 – 115.8m: DBM: 20% breccia cement of CaCO3 + ZnCO3; moderate to strong zz reaction. Interval includes: 81.9 – 82.3m: BRF 92.9 – 94.3m: DBM high grade zone with two 30cm bands of ochre-type mineralization; 30-40% limonite + clay + ZnCO3; very strong zz reaction

101.6m: 30cm of sheeted CaCO3/ZnCO3 veins at 55-65° to CA

103.0 – 103.6m: G at 60° to CA

103.6 - 104m:MS at 60° to CA; 85% pyrite, 5-10% galena, 3-5% sphalerite115.8 - 118m:Sulfide cemented breccia: 50-60% sulfide, 40-50% relict dolomite and calcite.118 - 18.9m:Fault zone of sheared serpentine at 65° to CA.

<u>118.9 – 120.4m</u>: Serpentine.

120.4m: End of hole.

#### TH06-10

Azimuth: 0° Dip: -90° Easting: 657,245.0m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 115.8m Elevation: 2241.9m Northing: 1,702,486.5m

<u>0 – 16.2m</u>: Dolomite: fine-grained, 5-10% white calcite veinlets; unmineralized; includes a karst breccia from 11.1 - 12.7m.

<u>16.2 - 39.8m</u>: DBM: weak to moderate zz reaction becoming stronger with depth; very strongly broken with up to 40% goethite-limonite-ZnCO3-clay matrix. Interval includes:

22.1 – 23.0m: G with 2-5% galena blebs; very strong zz reaction; lower contact at 65° to CA
30.5 – 31.6m: G with very strong zz reaction
35.8 – 36.1m: G

39.8 - 45.3m: DBM: medium to high grade with 20–40% breccia cement of CaCO3 + ZnCO3; moderate to strong zz reaction.

45.3 - 46.5m: CM with hydrozincite.

<u>46.5 - 67.0m</u>: DBM: low grade with 5-15% breccia cement of CaCO3 + ZnCO3; weak to moderate zz reaction. Includes zone of karst-fill mud/breccia from 53.9 - 54.2m.

67.0 - 74.0m: DBM: medium grade with 15-30% breccia cement of CaCO3 + ZnCO3 + minor clay; moderate to strong zz reaction on matrix.

74.0 - 86.6m: DBM: low grade. Includes zone of high grade DBM stockwork with 30% limonite and ZnCO3 from 86.6 to 87.2m.

<u>86.8 - 105.3m</u>: DBM: low to medium grade with 10-30% breccia fill of CaCO3 + ZnCO3; moderate zz reaction. Includes G zone from 90.1 – 90.6m.

<u>105.3 – 108.8m</u>: DBM: high grade with 40-60% breccia cement of limonite and ZnCO3; strong zz reaction; very broken – possible post-mineral movement?

<u>108.8 - 112.9m</u>: Sulfide cemented breccia: 65 - 75% fine-grained sulfide cement and 25-35% relict dolomite clasts.

<u>112.9 - 113.9m</u>: Fault zone with sheared clasts of dolomite and serpentine; 70° to CA.

<u>113.9 – 115.8m</u>: Serpentine.

<u>115.8m</u>: End of hole.

#### TH06-11

Azimuth: 0° Dip: -90° Easting: 657,274.0m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 103.6m Elevation: 2215.4m Northing: 1,702,463.0m

<u>0 – 7.1m</u>: Unaltered Dolomite (Permian Esperanza Fm): fine-grained, equi-granular; 3% 2mm crinoid stems and shell fragments; 45% dark gray mud, 45% light gray crystalline dolomite; poor recovery from 6.1 - 7.1 (50%).

7.1 - 9.5m: Fault zone at 60° to CA (Top Shack Fault?): 80% clay/gouge, 20% milled dolomite fragments; no zz reaction (may be post-mineral).

<u>9.5 – 91.6m</u>: DBM: low grade with up to 15-30% breccia cement of ZnCO3 + CaCO3. Interval includes: 13.7 – 15.5m: Two 10cm zones of G

15.7 - 15.5 m wo rocm zones of G 15.5 - 17.3m: Stronger breccia zone cemented with limonite + clay + ZnCO3 35.1 - 36.2m: G with 80% limonite + clay + CaCO3, 20% dolomite fragments; fracturing within zone at 60° to CA

47.2 – 54.9m: DBM low to medium grade with moderate to strong zz reaction; limonite +/- CaCO3 +/- clay veining locally; 3cm galena vein at 48.8m

74.0 – 76.2m: G with 30% dolomite fragments in a matrix of limonite + goethite + ZnCO3; moderate zz reaction

1.6 - 93.0m: Fault breccia of milled dolomite; very weak zz reaction.

<u>93.0 – 98.8m</u>: Carbonate/Sulfide Breccia: 50% recrystallized dolomite fragments, 20-30% recrystallized CaCO3 and veins, 5-10% pyrite matrix.

<u>98.8 - 99.1m</u>: Fault gauge and carbonate breccia at 70° to CA.

<u>99.1 – 103.6m</u>: Serpentine

103.6m: End of hole.

#### TH06-12

Azimuth: 0° Dip: -90° Easting: 657,292.7m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 77.7m Elevation: 2198.9m Northing: 1,702,473.4m

<u>0 – 18.3m</u>: DBM: low grade with 5-20% breccia cement and veining of limonite + ZnCO3 + CaCO3 +/goethite; strongly fractured, broken, and friable; weak to moderate zz reaction. Poor recovery from 0 – 3.1m (11%), 4.6 – 6.1 (33%), and from 7.6 – 10,7 (30 – 40%).

<u>18.3 – 33.6m</u>: DBM: low to moderate grade; 15-30% breccia cement of limonite + ZnCO3 (locally 20-40%); moderate zz reaction.

<u>33.6 – 37.8m</u>: Unmineralized dolomite (no zz reaction).

<u>37.8 – 39.6m</u>: DBM: medium grade with 30% limonite + ZnCO3 breccia cement; strong zz reaction.

<u>39.6 – 45.0m</u>: DBM: low grade; very weak zz reaction.

<u>45.0 – 55.0m</u>: DBM: medium to high grade with 20-30% limonite + ZnCO3 breccia cement; dark brown goethite-limonite-ZnCO3 cement locally; moderate to strong zz reaction. 20cm G zone at 45.8m and 10cm G zone at 46.4m. Possible workings at 52.8 - 52.4m (cave-in).

55.0 - 56.1m: G with 50-70% limonite + ZnCO3.

56.1 - 60.6m: DBM: high grade with 25-40% limonite + ZnCO3 breccia cement; strong zz reaction. Interval includes:

57.6m	8cm CM at 30 - 40° to CA
60.1 – 60.6m:	red hematite? + ZnCO3 breccia cement

60.0 - 67.2m: Fault Breccia: 50% clay/gouge/breccia, 30% limonite + ZnCO3, 25% dolomite fragments; strong zz reaction. Lower contact with karst breccia is at 65° to CA. Cave-in or old workings (possibly karst?) at 65.2 - 66.7m; poor recovery from 62.5 - 67.1m (21-63%).

67.2 - 71.1m Karst Breccia?: 70% clay matrix, 30% dolomite fragments; no zz reaction. Poor recovery from 69.2 - 71m (28%).

71.1 - 71.6m: Dolomite: bleached, recrystallized; no zz reaction.

<u>71.6 – 74.7m</u>: Black carbonaceous shale/dolomite: 5-20% very fine-grained pyrite; no zz reaction.

- <u>74.7 75.1m</u>: Fault zone: sheared serpentine at  $60^{\circ}$  to CA.
- <u>75.1 77.7m</u>: Serpentine.

<u>77.7m</u>: End of hole.

#### TH06-13

Azimuth: 0°Dip: -90°Elevation: 2200.5mEasting: 657,288.6mNorthing: 1,702,520.3mUTM Datum: NAD 27, Zone 15Core Size: NQTotal Depth: 61.0mTotal Depth: 61.0m

0-50.6m: DBM: medium to high grade with 10-40% (higher where noted) ZnCO3 + CaCO3 breccia cement; moderate to strong zz reaction. Interval includes:

0 - 3.0m: U	The to 50% ZnCO3 + CaCO3 breccia cement; poor recovery (10%)
3.0 - 4.6m: C	M with hydrozincite on vugs
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	cm wide vuggy CaCO3 + ZnCO3 vein BRF: 100% limonite + ZnCO3; spotty hydrozincite on fractures DBM with 70% limonite + ZnCO3 breccia cement dimonite + ZnCO3 sheeted fractures BRF/G of 100% limonite + ZnCO3 CM with hydrozincite; 5% galena as veins (up to 4cm thick (at 80° to CA CM with 5-10% galena pods dimonite + ZnCO3, 20% dolomite fragments, 5% galena; very strong zz

37.8 – 47.8m: DBM with galena veining throughout; veins typically 80-90° to CA, 1-5cm thick; 20cm vein at 46.3m

38.1 – 41.1m: Poor recovery (72-73%)

44.5 – 44.8m: CM

47.8 - 50.3m: G of 100% earthy, friable limonite + goethite + ZnCO3; upper contact at 70° to CA; includes MS with 85% pyrite and 15% galena from 48.1 - 48.3m

50.3 – 51.8: Poor recovery (46%)

<u>50.6 - 53.3m</u>: Fault zone of sheared serpentine, 70° to CA.

53.3 - 61.0m: Serpentine.

61.0m: End of hole.

#### TH06-14

Azimuth: 0° Dip: -90° Easting: 657,306.4m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 61.0m Elevation: 2190.0m Northing: 1,702,488.8m

0 - 3.2m: DBM: low grade with 50% limonite + ZnCO3 breccia cement; weak zz reaction; poor recovery (60-73%). <u>3.2 – 11.0m</u>: DBM: medium to high grade with 40-60% limonite + ZnCO3 breccia cement; strong to very strong zz reaction. 11.0 - 22.6m: DBM: low grade with weak to moderate zz reaction. 22.6 – 46.4m: DBM: high grade with up to 50% limonite + ZnCO3 breccia cement; very strong zz reaction. Interval includes: BRF of 100% limonite + ZnCO3 27.8 – 29.8m: 33.5 – 32.0m: Poor recovery (40%) 31.6 – 32.2m: G 33.4 – 33.6m: BRF with 80% limonite + hematite + ZnCO3 and 20% dolomite fragments; upper contact at 50° to CA 37.6 – 38.3m: BRF: upper contact 90° to CA 39.0 – 39.3m: BRF 39.9 – 40.5m: BRF 43.4 – 45.4m: G of 100% limonite + ZnCO3; lower contact 30° to CA

<u>46.4 – 49.5m</u>: Karst Breccia: dolomite fragments in a mud matrix.

<u>49.5 – 53.0m</u>: Carbonaceous/graphitic shale; upper contact 90° to CA; intense shearing 30-60° to CA, but shears are +/- horizontal, across the 30° face.

<u>53.0 – 55.4m</u> :	Karst Breccia
<u>55.4 – 56.4m</u> :	Fault breccia of sheared dolomite and clay/gouge; upper contact 85° to CA.
<u>56.4 – 57.</u> 9m:	Sheared serpentine, $65^{\circ}$ to CA.
57.9 – 61.0m:	Serpentine.
61.0m:	End of hole.

#### TH06-15

Azimuth: 0° Dip: -90° Easting: 657,312.9m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 73.0m Elevation: 2181.1m Northing: 1,702,436.8m

<u>0 – 1.9m</u> :	Dolomi	te Karst Breccia, Esperanza Fm: 40% dolomite fragments in a mud/CaCO3 matrix.
<u>1.9 – 3.1m</u> :	G with	50-80% limonite + ZnCO3, 20-40% milled dolomite fragments; weak zz reaction.
<u>3.1 – 25.6m</u> :	DBM:	low grade with 5-25% CaCO3 + ZnCO3 breccia cement and vein fillings; very weak
zz reaction.		
Interval include	s:	
9.1 – 1	0.2m:	Poor recovery (73%)
23.1 -	23.4m:	G of 80% limonite + ZnCO3 + clay?
24.4 -	25.6m:	Poor recovery (67%)

25.6 - 61.3m: DBM: low to medium grade with 10-50% CaCO3 + ZnCO3 breccia cement; weak to moderate zz reaction. Interval includes;

34.4 – 3 58.8m:	0.0m: ZnCO3 + CaCO3 vein at 80° to CA ZnCO3 + CaCO3 veins at 60° to CA	
<u>61.3 – 67.6m</u> : <u>67.6 – 69.6m</u> : <u>69.6 – 73.0m</u> :	DBM: very low grade; very weak to no zz reaction. Fault gouge: 80% dark brown clay; upper contact 50° to CA, lower contact 70° to Sheared serpentine.	) CA

<u>73.0m</u>: End of hole.

### TH06-16

Azimuth: 0° Dip: -90° Easting: 657,365.4m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 44.2m Elevation: 2143.2m Northing: 1,702,438.0m

<u>0 – 6.9m</u>: Soil.

<u>6.9-16.8m</u>: Dolomite and Karst-fill breccia: blocks of dolomite and muddy breccia-fill with 25% angular dolomite clasts; unmineralized. Poor recovery from 9.1 - 10.7m (73%), and from 15.2 - 16.8m (67%).

<u>16.8 – 23.6m</u> : (3-67%).	Mineralized Karst breccia: 80% G, 20% dolomite clasts. Poor recovery from 16.8 – 22.9m
<u>23.6 – 26.0m</u> :	G with 80% limonite, 20% dolomite clasts.
<u>26.0 – 28.3m</u> :	DBM: low grade; weak to moderate zz reaction.
<u>28.3 – 28.9m</u> :	G
<u>28.9 – 29.1m</u> :	DBM: medium grade.
<u>29.1 – 29.7m</u> :	BRF with hydrozincite on fractures; lower contact 60° to CA.
<u>29.0 – 36.6m</u> :	Poor recovery (7-69%).
<u>29.7 – 35.1m</u> :	DBM: medium grade with 15% G clasts.
<u>35.1 – 36.6m</u> :	Fault breccia/gouge; upper and lower contacts 70° to CA.
<u>36.6 – 40.1m</u> :	Sheared serpentine.

40.1 - 44.2m: Serpentine.

44.2m: End of hole.

#### **TH06-17**

Azimuth: 0° Dip: -90° Easting: 657,354.8m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 57.3m Elevation: 2145.1m Northing: 1,702,382.3m

0 - 1.1m: Soil/overburden.

1.1 - 7.6m: Dolomite and Karst Breccia: Karst Breccia with 80% brown mud and 20% dolomite fragments; no zz reaction.

<u>6.1 - 12.1m</u>: Poor recovery (17-73%).

<u>7.6 – 49.3m</u>: Dolomite Breccia and Dolomite Karst Breccia: 15-20% karst mud-matrix breccia, 85% dolomite breccia; unmineralized – no zz reaction; dolomite is brecciated and recrystallized with CaCO3. Interval includes:

16.8 – 24.4m:	Poor recovery (0-63%)
39.6 –41.1m:	Poor recovery (50%)
42.7 – 44.2m:	Poor recovery (60%)
45.7 – 47.2m:	Poor recovery (53%)

<u>49.3 – 56.3m</u>: Fault/Karst Breccia: 80% clay/sheared muddy matrix, 20% dolomite clasts; lower contact  $70^{\circ}$  to CA; no zz reaction. Poor recovery from 53.9 – 57.3 (34-46%).

<u>56.3 – 57.3m</u>: Serpentine.

57.3m: End of hole.

### TH06-18

Azimuth: 0° Dip: -90° Easting: 657,382.0m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 44.2m Elevation: 2133.7m Northing: 1,702,390.1m

0 – 4.1m: Soil.

4.1 - 13.0m: Dolomite/Karst Breccia: 50% dolomite clasts, 50% brown mud, karst-fill breccia; unmineralized – no zz reaction.

<u>13.0 – 34.6m</u>: Dolomite Breccia: strong breccia – milled to 2-10cm clasts; 30% CaCO3 recrystallized; CaCO3 flooding and veining; very weak zz reaction. Interval includes:

19.8 – 21.3m: Poor recovery (37%). 22.9 – 25.9m: Poor recovery (67%).

<u>34.6 - 35.5m</u>: Fault zone of sheared serpentine and dolomite at 70° to CA.

<u>35.5 – 44.2m</u>: Serpentine.

 $\underline{44.2m}$ : End of hole.

#### TH06-19

Dip: -90° Azimuth: 0° Elevation: 2127.8m Northing: 1,702,330.6m Easting: 657,372.1m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 48.8m <u>0 – 1.5m</u>: Soil. 1.5 - 20.0m: Dolomite - Karst Breccia. Interval includes: 4.6 - 6.1m: Poor recovery (67%) 5.1 - 6.0m: Recrystallized Dolomite: 50-70% recrystallized with CaCO3 flooding and veins; vuggy, permeable; no zz reaction

 7.6 - 19.8m:
 Poor recovery (10-79%)

 16.9 - 18.2m:
 Recrystallized Dolomite (same as 5.1 - 6.0m)

<u>20.0 - 33.6m</u>: Recrystallized Dolomite (same as 5.1 - 6.0m). Poor recovery from 30.5 - 32.0m (73%).

33.6 - 36.6m: Mud, clay – Karst fill: 90% mud matrix, 10% dolomite clasts; poor recovery from 33.5 - 33.6m (60-73%).

<u>36.6 – 38.1m</u>: Recrystallized Dolomite.

<u>38.1 - 38.7m</u>: Fault breccia/clay gouge at 55° to CA.

<u>38.7 – 40.1m</u>: Dolomite: very fine-grained, massive, with crinoid stem fossils.

<u>40.1 – 42.2m</u>: Fault zone at 85° to CA; 20% dolomite fragments in clay/dolimite-breccia matrix.

42.2 - 48.8m: Sheared serpentine: numerous CaCO3 veins up to 1cm thick; 20% clasts of relic orangebrown pyroxenite up to 4cm diameter.

<u>48.8m</u>: End of hole.

### TH06-20

Azimuth: 0° Dip: -90° Easting: 657,391.3m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 42.7m Elevation: 2122.9m Northing: 1,702,359.2m

<u>0 – 3.2m</u>: Soil.

<u>3.2 – 19.5m</u>: Dolomite-Karst Breccia: 60% mud-fill matrix, 40% dolomite fragments; 5-20% recrystallization of dolomite clasts locally; no zz reaction. Interval includes:

4.6 – 7.1m:	Poor recovery (73%)
7.6 – 8.8m:	Poor recovery (33%)
10.7 – 11.5m:	Karst mud-fill; trace ZnCO3; very weak zz reaction
18.3 – 19.5m:	G: replaces karst-fill mud; moderate to strong zz reaction.

<u>19.5 – 30.5m</u>: Recrystallized dolomite breccia: vuggy, broken, friable; 2% CaCO3 veining and flooding; very weak to no zz reaction.

Interval	inc	ludes.
inter vui	me	uuco.

25.5 – 27.3m:	Fault breccia: milled dolomite fragments in mud/clay/gouge matrix
25.9 – 27.3m:	Poor recovery (60%)

<u>30.5 – 39.9m</u>: Dolomite and Serpentine breccia: 40% clay-CaCO3-mud matrix and gouge, 30% sheared serpentine, 30% dolomite breccia; lower contact at 80° to CA; no zz reaction.

<u>39.9 – 42.7m</u>: Serpentine.

 $\underline{42.7m}$ : End of hole.

### TH06-21

Azimuth: 0° Dip: -90° Easting: 657,420.8m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 27.4m Elevation: 2111.8m Northing: 1,702,318.0m

<u>0 - 1.0m</u>: Soil.

<u>1.0-6.0m</u>: Clay/Dolomite Breccia: 50% dolomite fragments, 50% clay/silt matrix; very friable and broken; no zz reaction; poor recovery from 4.6 - 6.1 (77%).

6.0 - 6.9m: Recrystallized Dolomite Breccia: 60% matrix of CaCO3 and mud, 40% dolomite fragments; no zz reaction.

<u><math>6.9 - 7.9m</math></u> : G with 80% limonite-goethi	ite gossan; weak zz reaction.
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<u>7.9 – 8.2m</u>: Fault breccia at 90° to CA.

<u>8.2 - 27.4m</u>: Serpentine.

27.4m: End of hole.

### TH06-22

Azimuth: 0° Dip: -90° Easting: 657,469.1m UTM Datum: NAD 27, Zone 15 Core Size: NQ Total Depth: 24.4m Elevation: 2084.2m Northing: 1,702,258.0m

0 - 1.5m: No recovery.

<u>8.8 - 14.0m</u>: G: 80% dark brown goethite + limonite + ZnCO3, 20% dolomite fragments; weak zz reaction; poor recovery from 10.7 - 12.2m (73%).

<u>13.7 – 16.8m</u> :	Poor recovery $(50 - 67\%)$ .
<u>14.0 – 15.3m</u> :	Serpentine: blocks and fragments.
<u>15.3 – 16.8m</u> : 90° to CA.	Fault/shear zone: 80% clay/gouge with dolomite and serpentine fragments; upper contact at
<u>16.8 – 24.4m</u> :	Serpentine; poor recovery from 21.3 – 22.9m (73%).
<u>24.4m</u> :	End of hole.