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Ministry of Energy, Mines & Petroleum Resources Mining & Minerals Division BC Geological Survey



TYPE OF REPORT [type of survey(s)]: Geological		TOTAL COST \$22,000.00
AUTHOR(S): J. T. Shearer, M.Sc., P.Geo.	SIGNATURE(S):	J Shearen
NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):		YEAR OF WORK: 2016
STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):	5623568	
PROPERTY NAME: Le Mare	Nov 8-11-1	
CLAIM NAME(S) (on which the work was done):		
COMMODITIES SOUGHT: Cu/Au		
MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:		
MINING DIVISION: Nanaimo	NTS/BCGS: 92L/5 (92L.031)
LATITUDE: 50 ° 25 '06 " LONGITUDE: 127	° 53 '10 "	(at centre of work)
OWNER(S):		(
1) J. I. Shearer	2)	
MAILING ADDRESS: Unit 5 - 2330 Tyner Street		
Port Coquitlam, BC V3C 2Z1		
OPERATOR(S) [who paid for the work]: 1) Same as above	2)	
MAILING ADDRESS: Same as above		
PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, Mafic to felsic volcanics of the Jurassic Bonanza Group rocks ur	alteration, mineralization, s iderlie the Property which	ize and attitude): ch have been altered to clay
minerals and mineralized with copper minerals over a wide area	0.2% Cu along one roa	d over 180m
REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT R	EPORT NUMBERS:	

THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONEL (incl. support
GEOLOGICAL (scale, area)		<u>, 1</u>	d
Ground, mapping	······································	Varions	\$ 22,000
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Electromagnetic			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for)			
Soil			
Silt		₩.₩.₩.₩	
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
REPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
	·····	TATAL 444	
		TOTAL COS	\$22,000.00

BC Geological Survey Assessment Report 36477

GEOLOGICAL ASSESSMENT REPORT

on the LE MARE COPPER-GOLD PROPERTY

Nanaimo Mining Division MX-8-253 N.T.S.: 92 L/5 (092L.031 and .041) 50° 25' 06"N., 127° 53' 10" W. U.T.M.: 5585732 N., 579137 E. Event # 5623568

for

Homegold Resources Ltd. 5-2330 Tyner Street, Port Coquitlam, British Columbia, V3C 2Z1

by

J. T. Shearer; M.Sc., P.Geo. (BC & Ontario)

October 26, 2016

Fieldwork completed between April 1, 2016 and October 26, 2016

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SUMMARY

The Le Mare property comprises 12 map-staked claims covering 2,677.24 hectares in the Nanaimo Mining Division and in the Rupert Land District of western British Columbia (Figures 1 and 3). It is located on N.T.S. map sheet 92 L/5, as well as on B.C. map sheets: 092L 031and 041. All claims comprising the property are in good standing until January 5, 2012. (Additional Assessment credits are available to extend the expiry date for several years.)

The mineral claims comprising the Le Mare property are owned by J.T. Shearer; M.Sc., P.Geo.

The Le Mare hydrothermal system is located on crown land in the southwestern part of the property area. The Mah-te-nicht No. 8 Indian Reserve is located adjacent with the northeastern property boundary, about 4.5 km (2.75 mi) north-northeast of, and in a different drainage from the Le Mare hydrothermal system. However, if ocean-going barge loading facilities were to be developed on the south shore of Quatsino Sound, the Quatsino Band would become involved in the design and construction of those facilities. J.T. Shearer has been consulting with the Quatsino Band Council since February, 2007 with regard to exploration of the Le Mare property. There is no plant or equipment, inventory, mine or mill structure on these claims. Currently, an environmental bond of \$4,000 is posted under Permit No. MX-8-253 for road renovation, the development of potential drill sites and diamond drilling.

The Le Mare property is located near the northwestern end of Vancouver Island. It is bounded in part to the west by the Pacific Ocean and to the north by Quatsino Sound. A massif in the northwestern part of the property culminates in the peak of Mount Bury at an elevation of about 610 m (2,000 ft.). Another massif that hosts the Le Mare hydrothermal system occupies the property's southwestern part. Le Mare Peak is a 762-m (2,500-ft) high promontory located near the massif's centre. These steep-sided massifs are separated by the relatively flat Mahatta and Culleet creek valleys. The surface of Le Mare Lake, located in the Culleet Creek valley near the property centre, is at an elevation of about 25 m (82 ft.).

About 85% of the original west-coast rain forest in the property-area has been clear-cut during the past 40 years. Most of the slopes underlain by the Le Mare hydrothermal system are either bare, or covered with dense juvenile secondary forest growth. Little timber suitable for mining is left on the property.

The northern end of Vancouver Island is accessible by boat, barge, and by road via the Island Highway (B.C. Highway 19) which transects the town of Port McNeill on the island's northeastern coast. B.C. Highway 25, a secondary paved road, connects Port McNeill with Port Alice located near the head of Neroutsos Inlet. Access from Port Alice to the Le Mare property area is via a series of well-maintained logging roads passable by 2-wheel drive vehicles during all times of the year. Most of the property-area is covered by a system of logging roads in various states of repair. Barge and ship loading facilities to support a large scale mine could be developed on the sheltered southern shore of Quatsino Sound near the property's northern boundary.

Port McNeill and Port Alice are the nearest towns with sufficient supply and service capacity to support an exploration or drilling program. The industrialized areas of southwestern British Columbia are readily accessible via water, road, and air from Port McNeill and Port Hardy. Accommodations and basic supplies for an exploration field crew are available at Port Alice and Mahatta Camp, located 8km east of the claims.

The Quatsino Sound area experiences cool wet winters and cool, moderately wet summers. Snow falls in the property-area by December and stays on the ground very briefly at higher elevations. The current exploration target, the Le Mare hydrothermal system, is on crown land with no special restrictions on development thereon.

The Le Mare property is west of the major electrical power source at Port Alice power transmission line. Oceangoing barge transport to the property area would reduce the cost of fuel and supplies. Creeks south and east of the property area could be dammed in order to generate power for a mine-mill complex. Water for milling could be drawn from Culleet or Gooding creeks or from the outflow from a nearby generating station. An acceptable mill site and tailings storage areas could be constructed in the floors of the Gooding Creek and upper Culleet Creek valleys.

The Port McNeill-Port Hardy area has already demonstrated that it was able to attract personnel to work at the Island Copper mine located between the two towns between 1970 and 1996. That area has sufficient amenities to attract the people needed to operate a new mine near to it.

The Le Mare property hosts mostly mafic volcanic rocks of the Early to Middle Jurassic-age Bonanza Supergroup, including auto-breccias, lahars, and minor amounts of tuff and other pyroclastic beds. Rhyolitic rocks comprise a major amount of the stratigraphy in the property-area. These volcanic rocks are intruded by felsic dykes that may be equivalent to the rhyodaciteitic porphyries that are associated with mineralization at the Island Copper Cluster deposits located about 32 km (19.3mi) east-northeast of the Le Mare hydrothermal system. The volcanic rocks at the Le Mare hydrothermal system have deformed into a series of open to close outcrop-scale drape-folds related to local intrusion. Regional and contact metamorphism do not exceed lower the greenschist facies.

The Le Mare hydrothermal system appears to have been only relatively shallow unroofing by erosion. The top of the potassic alteration zone is exposed along the crests of Le Mare and Gooding ridges, located between Le Mare Lake and Gooding Cove in the southwestern part of the property. Local magnetic field gradient indicates that this system occupies a 5 X 3 km (3.05 X 1.83 mi) or 15km2 (5.6 mi2) oval-shaped area, that may be hosted by a dilational jog in a regional right-lateral fault system. The proposed fault system is similar to the one that hosts the Island Copper Cluster deposits near Port McNeill and Port Hardy, British Columbia.

At surface, copper mineralization occurs in discrete showings-areas, located preferentially in the central parts of sub-vertical hydrothermal plumes. These plumes have core-zones of orthoclase-quartz-biotite (potassic) alteration, enveloped in siliceous exteriors. Orthoclase-quartz-biotite alteration is succeeded by quartz-jasper alteration; both phases are mineralized with chalcopyrite, and minor amounts of bornite. This potassic alteration is accompanied by co-incident soil-copper and magnetic anomalies. Discovering economically viable concentrations of copper mineralization within the Le Mare hydrothermal system depends on the successful identification of zones where these hydrothermal plumes and copper occurrences coincide.

Molybdenum enrichment occurs in areas flanking phyllic alteration in a 600-m (1,968.5-ft) diameter alteration plume, covering a 0.28 km2 (0.1 mi2) area in the eastern part of system in the South Gossan zone. Another, much less extensive plume of argillic-phyllic alteration is exposed between the Culleet Creek zone and Culleet Lake in the system's northwestern part. These two plumes cover less than 2% of the total exposure area of the Le Mare hydrothermal system. Argillic-phyllic alteration post-dates and overprints potassic alteration.

Both sample results and the distribution of soil-copper and molybdenum anomalies; demonstrate that copper and molybdenum mineralization are associated with early potassic and subsequent argillic-phyllic-viialteration events respectively. They occur together in significant amounts only where molybdenum enrichment has overprinted that of copper.

Highly anomalous gold values were discovered in the central part of the Le Mare hydrothermal system mostly west and southwest of the New Destiny Showing in soil samples. Values range up to 947ppb gold on Claim 657343. The New Destiny showing was trenched with a tracked excavator and returned >0.2% copper over 200 metres (Figure 20).

Most aspects of the Le Mare hydrothermal system are similar with those of the Island Copper Cluster deposits. Geology, alteration, and mineralization at surface at the Le Mare hydrothermal system correspond with those attributes at the Island Copper mine above the main deposit. These similarities indicate that the Le Mare hydrothermal system may host a calc-alkalic porphyry copper-molybdenum deposit of the Island Copper Cluster type.

The Early Jurassic-age land surface above the Le Mare hydrothermal system and whatever near surface hot-spring environment that it may have hosted, has been lost to erosion. Only a few narrow fault controlled, advanced argillic alteration occur in the argillic-phyllic alteration plume in the South Gossan zone. They attest to the former existence of acid leaching with the alteration system.

Most exploration has been conducted in the northeastern part of the Le Mare hydrothermal system; its southeastern part remains sparsely explored to unexplored. Six BQ diamond drill holes penetrated the northeastern margin of the Le Mare system in 1992. One hole that penetrated the Culleet Creek potassic alteration plume intersected five 2-m (6.56-ft) and one 4.7-m (15.42-ft) long intersections containing from 500 to 959 ppm copper, which is similar to the tenor of copper mineralization in nearby trenches. Copper mineralization at surface is locally quite variable. Such variability should be expected in mineralization located near the top of the potassic alteration zone of a porphyry copper-molybdenum deposit. Less than 1% of the surface area of the Le Mare hydrothermal system has been drilled.

Trenching in 2011, followed by 3m wide chip sampling on the New Destiny Copper Showing (discovered in late 2009) returned a 180m continuous copper values averaging 0.25% Copper.

Sampling in 2016...

Respectfully submitted, J. T. Shearer, M.Sc., P.Geo. (BC & Ontario)

INTRODUCTION

The author, J. T. Shearer; M.Sc., P.Geo. (BC & Ontario) was commissioned by Homegold Resources Ltd. to complete an Assessment Work program on the Le Mare property.

This report was written to document the results of the Phase I Program and recommend a suitable follow-up work.

This report is based upon published records of the results of previous exploration in the Le Mare property-area, of property examinations and regional geological mapping conducted by geologists of the British Columbia Geological Survey and of the Geological Survey of Canada, the results of the 2009, and recent exploration programs. Citations of that work are in standard format (section 10.0, this report). The current (2016) exploration program of geological mapping and examination of workings was conducted or supervised by J.T. Shearer; M.Sc., P.Geo., the property owner assisted by T. Ruks, Ph.D. and his crew.

PROPERTY DESCRIPTION AND LOCATION

The Le Mare property comprises 12 map-staked claims covering 2,677.24 hectares in the Nanaimo Mining Division and in the Rupert Land District of western British Columbia (Figures 1 and 3). It is located on N.T.S. map sheet 92 L/5 as well as on B.C. map sheets: 092L 031 and 041.

The mineral claims comprising the Le Mare property are owned by J.T. Shearer; M.Sc., P.Geo. (Table 1).







CLAIM STATUS

The tenures of the eleven (12) claims comprising the Le Mare property (Figure 3) are as follow:

Map-staked Claims Comprising the Le Mare Property							
Tenure Number	Claim Name	Area: hectares	Record Date	Expiry Date	Owner		
546543	Far West 1	247.09	December 4, 2006	February 6, 2018	J.T. Shearer		
546545	Far West 2	205.90	December 5, 2006	February 6, 2018	J.T. Shearer		
546562	Far West 3	185.29	December 4, 2006	February 6, 2018	J.T. Shearer		
546563	Far West 4	514.83	December 5, 2006	February 7, 2018	J.T. Shearer		
546565	Far West 5	164.78	December 5, 2006	February 7, 2018	J.T. Shearer		
546689	Far West 6	391.44	December 6, 2006	February 7, 2018	J.T. Shearer		
563795	Far West 7	247.18	July 29, 2007	February 8, 2018	J.T. Shearer		
569849	Far West 10	20.58	November 10, 2007	February 8, 2018	J.T. Shearer		
570078	Geyserite	123.50	November 14, 2007	February 8, 2018	J.T. Shearer		
596074	Far West 13	41.20	December 14, 2008	February 5, 2018	J.T. Shearer		
657343	Far West 12	453.10	October 22, 2009	February 5, 2018	J.T. Shearer		
1043056	Bois 1	82.35	March 26, 2016	March 26, 2018	J.T. Shearer		

Table 1

Total 2,677.24ha

Cash may be paid in lieu if no work is performed. Following revisions to the Mineral Tenures Act on July 1, 2012, claims bear the burden of \$5 per hectare for the initial two years, \$10 per hectare for year three and four, \$15 per hectare for year five and six and \$20 per hectare each year thereafter.

These are map-staked claims that are located on the computer-generated provincial mineral tenure grid (<u>www.mtonline.bc.ca</u>). No posts or lines exist on the ground; thus, there is no uncertainty regarding the area covered by the claims.

Exploration damage bonds are required if exploration programs such as, line cutting for grid establishment, road building, trenching, and drilling that result in significant surficial disturbance are conducted. Currently, a bond of \$4,000 is posted under Permit No. MX-8-253 for road renovation and the development of potential drill sites. It is anticipated that the cost of bonds for the second phases of the recommended program will be about \$10,000 respectively. Applications for revisions to permit No. MX-8-253 for these potential phases of work have not been made yet.

ACCESSIBILITY

The Le Mare property is located near the northwestern end of Vancouver Island. It is bounded in part to the west by the Pacific Ocean and to the north by Quatsino Sound. A massif in the northwestern part of the property culminates in the peak of Mount Bury at an elevation of about 610 m (2,000 ft.). Another massif that hosts the Le Mare hydrothermal system occupies the property's southwestern part. Le Mare Peak is a 762-m (2,500-ft) high promontory located near the massif's centre. These steep-sided massifs are separated by the relatively flat Mahatta and Culleet Creek valleys. The surface of Le Mare Lake, located in the Culleet Creek valley near the property centre, is at an elevation of about 25 m (82 ft.) (Figure 3).

About 70% of the original west-coast rain forest in the property-area has been clear-cut during the past 20 years. Most of the slopes underlain by the Le Mare hydrothermal system are either bare or covered with dense juvenile secondary forest growth. Little timber suitable for mining is left on the property.

The northern end of Vancouver Island is accessible by boat, barge, and by road via the Island Highway (B.C. Highway 19) which transects the town of Port McNeill on the island's northeastern coast. B.C. Highway 25, a secondary paved road, connects Port McNeill with Port Alice located near the head of Neroutsos Inlet (Figure 2). Access from Port Alice to the Le Mare property area is via: Marine Drive, Teeta Main, K Main, I Main, J Main, B Main, and Restless Main roads. These logging roads are well-maintained and passable by 2-wheel drive vehicles during drier times during the year. The trip takes from 1.5 to 2 hours depending on road conditions. Most of the property-area is covered by a system of logging roads in various states of repair. Barge loading facilities to support an open-pit mine could be developed on the sheltered southern shore of Quatsino Sound near the property's northern boundary.

Port McNeill is the nearest town with sufficient supply and service capacity to support an exploration or drilling program. Accommodations and basic supplies to support an exploration field crew are available at Port Alice and Winter Harbour, located northwest of Quatsino Sound. During the 2009 exploration program, the crew stayed in the camp at Mahatta River (Figure 2).

The Quatsino Sound area experiences cool wet winters and cool, moderately wet summers. Snow falls in the property-area by December and stays on the ground very briefly at higher elevations.

The current exploration target, the Le Mare hydrothermal system, is on crown land with no special restrictions on development thereon (Figure 3). Upon development permitting, one normally is able to secure surface rights necessary to conduct a permitted mining operation. The writer knows of no legal impediment to New Destiny Mining Corp. being able to secure such surface rights as part of the permitting process.

Creeks south and east of the property area could be dammed in order to generate power for a mine-mill complex. Water for milling could be drawn from Culleet or Gooding creeks or from the outflow from a nearby generating station. An acceptable mill site and tailings storage areas could be constructed in the floors of the Gooding Creek and upper Culleet Creek valleys (Figure 3).

Both the mining business and the pool of professionals and skilled tradesmen who serve it are international and mobile. The Port McNeill-Port Hardy area has already demonstrated that it was able to attract personnel to work at the Island Copper mine located between the two towns. That area has sufficient amenities to attract the people needed to operate a new mine near to it.

HISTORY

Chronology of Exploration of Claims in the Le Mare Property-area from 1979 to Present

A.O. Birkeland (1991) briefly described the pre-1979 exploration throughout the area covered by the current Le Mare property as follows:

During the late 1960s and early 1970s, exploration for porphyry Cu-Mo-Au deposits similar to the Island Copper Mine operated by BHP Utah was conducted by several companies on the western portion of Vancouver Island. The earliest reference to claim staking activity in the LeMare area was during 1970 when the Cam claims were recorded along the north shore of LeMare Lake. No assessment work was filed at that time.

Birkeland, A.O.; 1991: p. 4.

- 1979: The Le Mare 1 (477) and Le Mare 2 (496) claims comprising 4 units each were staked along the northwestern shore of Le Mare Lake and along the shore road southwest of Harvey cove respectively (Figure 4). The claims were recorded on November 9 and 13, 1979.
- 1980: D.G. Leighton and Associates Ltd. conducted a prospecting program on the Le Mare claims for British Newfoundland Exploration Ltd. (BRINCO) (Bilquist, 1980) (Figure 4). A two-man crew spent four days prospecting road exposures, taking a total of 28 rock samples. Finely disseminated vein pyrite with sporadic chalcopyrite, bornite, and malachite were found in roadside exposures of felsic volcanic rocks along the northwestern shore of Le Mare Lake (Figure 4) on the Le Mare 1 (477) claim. Chip samples from the Le Mare Lake section contained from 0.13 to 0.14% copper. Grab samples contained up to 0.49% copper. Secondary potassium feldspar was noted. On the Le Mare 2 (496) claim, andesitic flows and dacitic pyroclastic rocks along the road southwest of Harvey Cove was found to contain fracture-related pyrite, chalcopyrite, azurite, and sphalerite. Samples from there contained from 0.2 to 1.4% copper (Figures 4 and 18). BRINCO was unimpressed with the find and financed no further work on it.

1981 to 1990:

No exploration work from the Le Mare property-area has been recorded.

1991: Research by Keewatin Engineering Inc. during March, 1991, revealed that a belt similar to the Island Copper Belt was located between Kyuquot Sound and Quatsino Sound. It was named the Mahatta-Kashutl belt. Upon findings from re-manipulation of regional aeromagnetic data (section 3.2.2, this report) (Figure 10), and a field examination of the Le Mare Lake area, the 216-unit LeMare property was staked by Keewatin (Birkeland, 1991). The May, 1991 LeMare property was owned by Stow Resources Ltd. of Vancouver, B.C. It covered an area similar to that covered by the current Le Mare property. Moss-mat and stream-sediment sampling conducted over the whole current Le Mare property-area resulted in definition of a primary target that extended for 6 km (3.7 mi) southeastward from Harvey Cove to east of Le Mare Lake (Figure 4). Subsequently, geological mapping, and soil sampling was conducted over a total area of 2.44 km2 (0.91 mi2) (sections 3.4, 4.2, and 5.3.2, this report) (Figures 4, 14, 17, and 21E to 22W).

Soil samples were collected at mostly 25-m (82-ft) intervals along the roads. A total of: 136 moss mat and silt, 855 soil, and 316 rock samples were collected during the 1991 program. Birkeland (1991) defined anomalous thresholds from the second positive standard deviation levels in the distributions of 1991 soil-metal concentrations and lowered them somewhat to make them more representative of hypothetical regional sampling as follows:



Geological Assessment Report on the Le Mare Copper-Gold Property
October 26, 2016

FIGURE 4

birkeland 3 1551 501-metal mileshold concentrations							
Soil-metal	Copper	opper Molybdenum Gold		Silver	Zinc		
Anomalous threshold	138.6 ppm	4.56 ppm 17 ppb		200 ppb	190.6 ppm		
2nd. Positive Standard. D.							
Selected threshold	90 ppm	4 ppm	20 ppb	200 ppb	250 ppm		

Table 2 Birkeland's 1991 Soil-metal Threshold Concentrations

The 1991 Stow soil survey resulted in the identification of 4.5-km (2.75-mi) long anomalous area along the slopes southwest of Le Mare Lake (Figures 3 and 5). Birkeland (1991) concluded that alteration and mineralization was exposed as a 6-km (3.66-mi) long linear belt of copper enrichment flanked to the northeast by belts of gold, molybdenum, and zinc enrichment, and to the southwest by a belt of zinc enrichment. That belt was postulated to have extended from Harvey Cove in the northwest to southeast of the southeastern shore of Le Mare Lake. Upon examining the property, the writer disagreed with that interpretation (sections 3.2.2, 4.2, and 5.3.2, this report).

Mineralization of several showings areas near Le Mare Lake were examined, including: the South Gossan zone, Trapper's Cabin area, Culleet Creek zone, South Lake zone, Le Mare No. 2 showing, and the North and South Lake zones (Figures 4 and 6). Roadside grab and chip samples were taken throughout the 1991 study area where disseminated and vein-hosted copper and molybdenum mineralization were encountered (Birkeland, 1991). Trenching and composite chip sampling was conducted at the Culleet Creek zone (Figures 4, 6, and 17). There, disseminated and vein-hosted copper mineralization, mostly chalcopyrite and bornite, was found to be associated with silicification and "apple green" alteration. Weighted averages of the results of the 1991 chip sampling of those trench-areas were tabulated by the writer (section 4.2.2, this report) (Table 8).

An "orientation" ground magnetometer survey comprising one line of unspecified length and location was conducted in the South Gossan zone. Readings were taken at 25-m (82-ft) intervals along the line. The results of that survey were reported as follow:

Results indicated that values within the South Gossan alteration zone were relatively constant with values ranging between 56,150 and 56,250 gammas (nanoteslas). At the alteration contact, a 7 station high to 56,650 followed by a 7 station low to 55,800 gammas encountered a magnetic cross-over of approximately 850 gammas. Within the wallrock volcanics, spiky readings fluctuating 600 to 700 gammas with means at approximately 56,200 gammas occurred.

Birkeland, A.O.; 1991: p. 20.

The writer assumes that this line was run east-west into the argillic-phyllic alteration plume and the coincident aeromagnetic low south of Dumortiorite Creek (Figures 4, 9, and 15) in the South Gossan zone.

Craig Leitch (1991) (Appendix VIII in Birkeland, 1991) conducted a petrographic study of 26 rock specimens from southwest of Le Mare Lake. Alteration types found included: potassic, propylitic, argillic, phyllic, and silicic (section 4.2.1, this report) (Figures 14 and 15).

1992: Stow Resources's LeMare property was enlarged by staking from September, 1991 to January, 1992 when Minnova Inc. optioned it from Stow. Immediately upon securing its option, Minnova commissioned Aerodat to fly airborne: magnetic, electromagnetic and gamma-ray spectrometer surveys along a total of 435 km (265.4 mi) of flight line according to Dave Heberlein (1993B). D. J. Pawliuk (1998) mentioned that a report of the survey was written by ?.?. Woolham in 1992. That report was unavailable to the writer.



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Normally, results from airborne radiometric surveys are most definitive from surveys that are conducted during warm, dry weather during the late summer months. Minnova's 1992 gamma-ray survey was conducted during a period of heavy rains and possible snow during late winter over British Columbia's westcoast rain forest. The writer suspects that the results of that survey were not very useful.

1992 Continued

The summer, 1992 program comprised at least 5 km2 (1.9 mi2) of geological mapping at 1:5,000 and 1:10,000 scales (not all was reported) (section 3.4, this report) and geochemical sampling: 1,154 rock, 39 soil, 72 moss mat and 55 silt samples were collected (Heberlein, 1993A). Moss-mat samples were collected from all of the significant drainages in the current Le Mare property-area. The focus of the 1992 soil and rock sampling program was in the northwestern part of the Le Mare hydrothermal system. Anne Thompson (1992) examined alteration and conducted an x-ray diffraction study on 9 clay samples from the South Gossan zone (section 4.2.1, this report).

During October 1 to 18, 1992, 900.5 m (2,954.4 ft.) of BQ core was drilled in six holes: one hole was drilled into the Culleet Creek zone. Three holes were drilled into a geophysical anomaly just east of it (Figures 4 and 6), and one hole was drilled in each of the South Lake and South Gossan zones (Figure 4).

Dave Heberlein (1993B) reported that, "the best targets generated by the field program were drill tested". It is assumed that Heberlein was referring to both the airborne surveys and follow-up ground work. The only hole that intersected sections containing significant copper concentrations was DDH 92-676-2:

0.0							
Drill Hole	Location	Interval		Length		Copper > 500 ppm	Molybdenum
		m.	ft.				> 50 ppm
92-676-2	Culleet Creek	11.1-13.1	36.4-43.0	2.0	6.56	684	
	zone	13.1-15.1	43.0-49.5	2.0	6.56	719	
		19.0-21.0	62.3-68.9	2.0	6.56	746	
		21.0-23.0	68.9-75.5	2.0	6.56	863	
		23.0-25.0	75.5-82.0	2.0	6.56	959	
		58.0-62.7	190.3-205.7	4.7	15.42	529	

Table 3 Significant Intersections in 1992 Minnova Diamond Drill Holes

NOTES: This table is produced by the writer from the certificates of analysis attached to the report of Heberlein, Dave; 1993B.

For locations of 1992 drill holes, see Figures 4 and 6.

Diamond drill holes 92-676-1 (lost in poor ground), 92-676-1A, 92-676-3, and 92-676-5 were drilled into a geophysical anomaly located southeast of Harvey Cove and south of Culleet Creek (Heberlein, 1993B) about 150 m (492.I ft.) east of the Culleet Creek hydrothermal plume's margin (Figures 4, 6, and 15). This could account for Heberlein's (1993B) report of weak potassic alteration and copper mineralization encountered in these holes.

Drill hole 92-676-2 was drilled on the access road about 50 m (164 ft.) east of the Gorby showing (Figure 6), well within the Culleet Creek plume. The results from that drill hole were summarized as follows:

92-676-2 ... was drilled to test the depth extent of disseminated chalcopyrite mineralization at the Gorby Zone. The hole penetrated a sequence of potassic to chlorite altered flow banded rhyolites, rhyolite breccias and felsic tuffs with rare intervals of basalt. Consistent fracture controlled chalcopyrite mineralization (to 3%) (qualitative visual estimate) occurs in the upper 26 m (85.3 ft.) of the hole.



Quartz stockworking is well developed in the mineralized section. Wall rocks are pervasively silicified and potassium feldspar alteration envelopes occur. Up to 3% (qualitative visual estimate) chalcopyrite is present throughout this interval and Cu grades (concentrations) range up to 959 ppm.

Lower in the hole chlorite-calcite-hematite alteration is prevalent. Traces of chalcopyrite occur to a depth of 252.1 m (827.1 ft.), but copper grades (concentrations) do not exceed 124 ppm.

Heberlein, Dave; 1993B: p. 13.

Drill hole 92-676-4 penetrated the South Gossan zone in the eastern part of an area that was reported to have hosted pervasive argillic and advanced argillic alteration over a mineralized potassic alteration zone. Results from that drill hole were summarized as follows:

92-676-4... was the only hole drilled into the South Gossan Zone. It penetrated a section dominated by highly vesicular rhyolite flows (silicified vesicular basalt flows?) and fragmental rocks. Alteration is moderate and consists of pervasive sericitization with minor silica flooding. Chlorite is also abundant, particularly near a basalt dyke at 91.0 m (298.6 ft.).

Heberlein, Dave; 1993B: p. 14.

The writer is of the opinion that the 1992 Minnova crew mis-identified silicified mafic volcanic rocks as rhyolitic rocks (section 3.4.1, this report); the same mis-identification during 1992 core logging is probable.

1992 Continued

Quest Canada Exploration Services conducted a ground very-low-frequency electromagnetic survey on a 6-line grid on Gooding Ridge between Gooding Cove and the Culleet Creek zone to test a distinct airborne anomaly in that area. The surface anomaly was considered to be weak and of little interest (DeLong, 1992) (Figures 4 and 7).

1992 to 1997

No exploration was recorded and the 1991-era LeMare claim group lapsed.

1997: On February 6, 1997, David J. Pawliuk recorded the LEM 1 to 6 (353575 to 353580) 2-post claims. The LEM 1 and 2 claims were located on the Culleet Creek zone and the LEM 3 to 6 claims occupied the eastern part of the Southern Gossan zone as defined by Birkeland (1991) (Figure 4). During the 1997 prospecting program conducted by Fox Geological Services Inc., 10 rock samples were taken. None were significantly mineralized with either copper or molybdenum (Pawliuk, 1998). Enough assessment credit was applied to the LEM claims to keep various claims in good standing to February 6, 2001 to February 6, 2003.

During the summer of 1997, geologists from Phelps Dodge Corp. visited the Le Mare Lake area as part of the company's project No. 207. Rob Cameron submitted grab samples 62960 to 62965 taken around the Gorby showing on the LEM 1 (353575) claim to Acme Labs. They were found to contain from 1,005.7 to 5,245.1 ppm copper and from 0.3 to 4.9 ppm molybdenum. The relation between Fox Geological Services Inc. and Phelps Dodge Corp., if any, is unknown to the writer.

1998 to 2006

No exploration was recorded and the LEM claim groups lapsed.

- 2006: From December 4 to 6, 2006, J.T. Shearer map-staked the FAR WEST 1 to 6 (546543, 546454, 546562, 546563, 546565, and 546689) claims to cover the slopes southwest of Le Mare Lake (Figure 3). Those claims formed the core-area of the current Le Mare property.
- 2007: J.T. Shearer enlarged the current Le Mare property-area by map-staking the FAR WEST 7 and 8 (563795 and 563802) claims south and southeast of the core-area respectively on July 29, 2007. The propertyarea was expanded farther to the north and east by Shearer's map-staking of the FAR WEST 9 to 11 and GEYSERITE (569848 to 569850 and 570078) claims from November 10 to 14, 2007. The property was optioned to Equus Energy Inc. of Vancouver, B.C.

Homegold Resources Ltd., a private exploration company controlled by J.T. Shearer, conducted a program of prospecting and soil sampling along several of the lower roads around Le Mare Lake focusing on previously defined anomalous areas (Shearer, 2007). A total of 131 soil and 4 rock samples were taken and analyzed by the induced plasma coupling (ICP) method for 30 elements. Gold concentrations were determined by fire assay and atomic adsorption techniques.

Upon contouring Shearer's 2007 and 2009 soil-survey data (Figures 21E to 22W) (sections 4.2.1, 5.3.2 and 7.0, this report), the writer found that Shearer's data more precisely defined soil copper and molybdenum anomalies and could be used to help define hydrothermal plumes in the northwestern part of the Le Mare hydrothermal system (Figures 15 and 21W).

2008: During the 2007 exploration program, chalky geyserite, a grey-white hydrated silicate (SiO2.nH2O), an ingredient in Portland cement, was discovered to occur in small amounts along a road south of Culleet Lake. By sometime during 2007 or 2008, J.T. Shearer had optioned the copper and molybdenum of the Le Mare property to Equus Energy Inc. and the geyserite on the same property to Electra Gold Ltd.

From October 25 to December 4, 2008, J.T. Shearer's exploration company Homegold Resources Ltd., conducted prospecting for geyserite along a disused logging road southwest of Culleet Creek and Lake, and near the South Gossan zone (Shearer, 2009). A total of 51 samples were taken from those areas. No significant concentrations of that industrial mineral were found.

On April 5, December 5 and 14, 2008, J.T. Shearer expanded the Le Mare property-area by mapstaking the MAHATTA 1, NORTHEAST LEMARE, and FAR WEST 13 (580535, 595599, and 596074) claims to the northeast and south of the established property area.

2009: The options of Equus Energy and Electra Gold with regard to the Le Mare property were terminated. On October 7, 2009, New Destiny Mining Corp. optioned the Le Mare property from J.T. Shearer.

Upon reviewing the exploration data, the writer became of the opinion that the Le Mare hydrothermal system occupied an area shaped like a lima bean and was not part of a linear, asymmetric, mineralized trend as assumed by previous explorationists of the area. J.T. Shearer map-staked the FARWEST 12 and 13 (657343 and 657363) claims to cover the projected southwestern extension of the hydrothermal system (Figure 3).

J.T. Shearer, Bryce Clark (President of New Destiny Mining Corp.), and John Ostler examined the Le Mare property on November 4, 2009. The 2009 exploration program was conducted from that time until December 15, 2009 by Homegold Resources Ltd. The program comprised prospecting, soil sampling, and some check-mapping in two areas: between the Culleet Creek zone and Gooding Cove and in the South Gossan zone (sections 3.4, 4.2, and 5.1 to 5.4, 6.0 and 7.0, this report) (Figures 4, and 17 to 22W). A total of 235 soil and 33 rock samples were taken. All samples were analyzed for 33 elements by induced coupled plasma (ICP) techniques; high concentrations were determined by fire assay and atomic adsorption. Soil-copper anomalies between the Culleet Creek zone and Gooding Cove confirmed

the presence of mineralized hydrothermal plumes in that area, southwest of the linear trend that had previously been thought to have hosted all significant porphyry copper mineralization.

Historical Mineral Resource and Mineral Reserve Estimates, and Production from the Le Mare Property-area

No historical estimates of mineral resources or reserves related to the Le Mare property, or historical production from the Le Mare property-area are known to the writer.

2011 Work

Background

In 2011 a series of mapping surveys were completed in the Le Mare Lake area focusing in on an area located along the western section of the Farwest claim group. More specifically, in an area roughly bounded by: west of Le Mare Lake, south of Culleet Creek and east of Gooding Cove with surveys extending from near tide water to summit of 450 meters.

Previous geophysical VLF-EM surveys (1992) and soil geochemical surveys (2009) conducted in this area have outlined copper (gold) anomalous targets. A VLF-EM conductive signature was outlined along a northeast trending ridge (summit elev. 488 m) which is coincidental with a geochemical gold high. Three separate copper soil anomalies were outlined from the 2009 surveys. One of these anomalies is coincidental and responsible for the New Destiny copper zone discovered by backhoe trenching during March-April exploration in 2011.

Access to the mapping project site was via the Restless Creek mainline logging and branch roads. For mapping control, the authored utilized a PC mapping tool referred to as the Yuma Tablet PC. The mapping tool has Windows 7 Professional operating system and installed with Microsoft Office Suite. For mapping, geospatial Arc GIS software was installed and a 1:20,000 scale topographical map, supplied by the logging company detailing all natural and man-made features, was uploaded. All geological rock outcrops encountered were entered into the Yuma, generally at 1:5000 scale. A hand-held GPS Garmin model was also utilized as backup for field mapping plus, a 1:20,000 hard copy base map was used to manually plot all the outcrops mapped. This traditional procedure was a precautionary measure taken as the author was a first time user of the Yuma. Once proficient, the author found the Yuma quite time saving.

The Yuma Tablet along with the base map were submitted to Coastal Resource Mapping Ltd., GIS specialists, where the mapping data was downloaded and computer generated geological maps produced for future field mapping surveys and updates.

Historical exploration surveys along the south end of the southeast arm of Le Mare have outlined hydrothermal alteration signatures related to porphyry mineral environment. Subsequent geochemical soil surveys have delineated a coincident copper-molybdenum anomaly, referred to as the 'South Gossan zone' that supports a porphyry type model. The copper mineralization (e.g. Gorby, New Destiny and other related showings) found in the area mapped noted-above (see Figure 1), is currently viewed in the technical report (J. Ostler, P.Geo., April 30, 2010) as at least 6 distinct 'hydrothermal-plume' copper-potential hosted systems and interpreted as been hosted in 'dilational jog' (pull-apart structure) similar to the Island Copper cluster deposits.

Based on the mapping surveys and empirical field data presented in this summary report, the author herein presents an argument that supports evidence for the potential of an epithermal and or a volcanogenic-type, massive sulphide environment – a long side the porphyry copper model discussed in the technical report. Although no massive sulphide mineralization (e.g. float, etc.) as yet has been documented (to the author's knowledge),

however the proxy to such potential mineralization can be found in the rocks mapped and interpreted as discussed below.

The regional tectonstratigraphic framework is represented by the northwest trending, Early to Middle Jurassic Bonanza volcanic arc. The Bonanza arc, evolved as part of the upper stratigraphic Bonanza Group, in a convergentmargin setting, built on basement comprising distinctive mid-Paleozoic arc volcanic rocks of Sicker and Buttle Lake groups and the Late Triassic Vancouver Group which includes, tholeiitic flood basalts of the Kurmutsen Formation and Quatsino (carbonate) Formation. Resurgence of arc magmatism in Early Jurassic time gave rise to the Bonanza arc. The arc was thought to have developed in response to eastward-directed subduction of Pacific Ocean lithosphere during Early to Middle Jurassic times.



FIGUE 8A

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The Bonanza Group also forms part of the Insular Belt, a morphological belt that defines the southern portion of the Wrangellia Terrane, underlying Vancouver Island and coastal sections of British Columbia. The accretion of the Wrangellia to the inboard terranes of the Coast and Intermontane Belts occurred as late as mid-Cretaceous or as early as Middle Jurassic. This accretionary deformational event resulted in the development of the Middle Jurassic Nassian Orogeny manifested by regional lower greenschist facies metamorphism, transpressional and tensional faulting and shallow west dipping monoclines. This was followed by uplift, erosion and unroofing caused by the Late Jurassic to Late Cretaceous Columbia Orogeny, with deposition of detritus derived from the Bonanza Group volcanic rocks to form Middle Jurassic and Early Cretaceous conglomerates.

The Bonanza Group is comprised of: Late Triassic, platformal carbonates and siliclasitic sedimentary rocks of the Parson Bay Formation; upper Late Triassic to Early Jurassic volcanic-sedimentary unit, suggested to be a nascent arc and; Early to Middle Jurassic Le Mare Lake mature arc volcanics.

The Le Mare Lake volcanics constitute thick sequences of intercalated volcanic and marine sedimentary strata and mark episode of regionally extensive subaerial volcanism in the Bonanza Group. Wide variety of rock types in the Le Mare Lake proper include: black to grey-green or reddish grey, aphanitic to plagioclase-phyric, amygdaloidal flows of basaltic to andesitic composition; siliceous apple green to purplish banded andesite; grey to creamy pink and pale buff dacitic to rhyolitic flows; rhyodacitic to rhyolitic pyro-megaclastic flows and basaltic to rhyolitic volcanic breccia.

Culleet Creek Copper-enriched Volcanic Horizon

A volcanic horizon which is cut by Culleet Creek and which makes up part of the overall Le Mare Lake volcanic suite, is herein referred to as the Culleet Creek volcanic horizon by the author (Figure 1.) in order to distinguish it from the remaining Le Mare Lake volcanco-lithostrata. This particular volcanic flow-horizon is bimodal and appears to be more enriched in copper than other volcanic horizons currently mapped in the Le Mare Lake proper to date.

The Culleet Creek volcanic andesitic horizon is temporal with rhyolitic pyroclastic flow horizons (see Figure 1). The andesite is characteristically aphanitic with alternating greyish green-maroon flow bands (Photos 1 & 2).

DEFORMATION AND METAMORPHISM:

The Le Mare Lake volcanics were subjected to regional deformation (D1) during collision and accretion of the Wrangellia Terrane to west coast Intermontane Belts of British Columbia, between Middle Jurassic to mid-Cretaceous time. During the Nassian Orogeny (D1), the volcanic rocks would also have experienced regional lower greenschist facies metamorphism. A second deformation phase (D2) would have occurred during the Late Jurassic to Late Cretaceous Columbian Orogeny as the result of on-going subduction of the Pacific Oceanic (Juan De Fuca) plate. This orogeny would have produced D2 greenschist overprinting and further tilting of the Le Mare Lake volcanic as shown in the following photos.



Photo 8 Part of New Destiny Showing

Part of a section of the New Destiny copper zone across 20 meters displaying intense shearing and brecciation (between dotted lines) probably related to transpressional deformation (D3). It is along this section that the high grade copper-gold-silver sample was collected.



Photo 9 Part of New Destiny Showing

Photo showing near the western end of the New Destiny some 130 meters west of photo 8. Fault above (marked in dashed line) is probably related to same fault-shear system in photo 8. The fault strikes northeast and dips shallow to southeast. This structure could also be interpreted as a possible thrust fault with HW riding over FW related to D3 deformation (see Figure 2).

Mineralization:

Presently, all of the copper mineralization examined by the author to date is hosted in the Le Mare Lake andesitic volcanic rocks, with the Culleet Creek volcanic horizon more copper enriched then others. Although the pyroclastic rhyolite flows can carry abundant siliceous, fine pyrite, the copper content is generally low. The copper mineralization found on all of the 4 copper zones noted above are predominately structurally controlled, occurring as thin fracture veinlets or as fracture healed, irregular quartz-chalcopyrite veins. Some disseminated or isolated blebs of copper can be found away from the structurally controlled veinlets. The copper-bearing quartz veins characteristically fill architecturally prepared structural sites such as in the case of the New Destiny zone and to a lesser extent at the Gorby. Where there is an increase in quartz veining, chalcopyrite and pyrite mineralization tend to be more abundant. This is evident in the New Destiny, especially along one narrow exposed section where there is highly siliceous quartz veining carrying abundant chalcopyrite and pyrite, as displayed by the photo below.

The copper(gold)-bearing andesite and the rhyolite and pyroclastic flows are temporal and suggest some phreatomagmatic activity. The possibility that some of this mineralization was syngenetically deposited and the possibility of defining a volcanogenic style mineralization of temporal epithermal environment on the Farwest property, is a concept that will require further mapping and prospecting.



(Schematic Cross Section not to scale)

FIGURE 8B

SOME PRELIMINARY CONTRAINTS TO THE COPPER AND GOLD MINERALIZATION

Copper and gold mineralization is hosted along an andesitic volcanic horizon temporally and spatially related to ryholitic and rhyolite pyroclastic flows. The mineralization is post deformational and appears in part, to be structurally related, and could also be considered as a volcanic-hosted orogenic style mineralization, with of some of the mineralized-bearing fluids originating from a deeper seated (mesozonal) pluton.

The New Destiny Showing was discovered in 2010. In the 2011 program the showing was trenched with a tracked excavator and sampled in 3m intervals by chip samples, Figure 20. The results show over 200m averaging over 0.2% copper with significant gold.

Gold in soil anomalies are widespread, the largest is on the knoll southwest of the New Destiny showing which is 100m long NE-SW and 400m east-west. There may be a mineralized fault zone on the top of the knoll that is the source of the gold. Gold values range up to 947 ppb gold.



FIGURE 8C New Destiny Copper Zone; Google Image

Soil Surveys

Of the three major soil surveys conducted around the Le Mare hydrothermal system, the 1991 Stow survey (Birkeland, 1991) was the most extensive and most closely resembled a regional survey. Also A. O. Birkeland (1991) made the only calculation of soil-metal thresholds using sample populations. However, he adjusted some of his thresholds downward, which enlarged anomalies (Table 4).

Contoured soil-copper and molybdenum concentrations in soils from the 1991 Stow, 2007 Equus and 2009 New Destiny surveys (Birkeland, 1991; Shearer, 2007 and 2010, respectively) (Figures 21E to 22W). The most recent data was preferentially plotted in areas of overlap.

Most high soil-copper concentrations coincide with orange-weathering, orthoclase-quartz, potassic alteration. This co-incidence facilitated identification of the hydrothermal plumes in the northwestern part of the La Mare hydrothermal system (Figures 15 and 21W). It supports the theses that copper mineralization at depth, probably is related to potassic alteration like at the Island Copper mine deposit (Section 11.1 of this report) (Figure 13). At the South Gossan zone, where argillic-phyllic alteration has overprinted on previous potassic alteration, soil-copper anomalies are small and weak (Figure 21E). This indicates that copper, previously deposited with potassic alteration, has been partly removed from the rocks of this area during this later alteration phase.

All significant soil-molybdenum anomalies are spatially associated with the lower eastern flank of the plume of argillic-phyllic alteration adjacent to an area of quartz-sericite-pyrite (phyllic) alteration (Figure 22DE) (section 10.2.1 of this report). None are associated with the earlier potassic hydrothermal plumes (Figure 22W).



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Exploration 2014

Stephen Wetherup, Mark Rein, Max Estaris and Rob Cameron completed three days of geological mapping on the LeMare Property, in northern Vancouver Island from July 22nd to July 24th, 2014. The purpose of the mapping was to determine if geology and alteration on the LeMare Property were indicative of a porphyry Cu-Au-Mo system occurring on the Property.

Access to the property was along logging roads many of which were heavily overgrown and some areas were just too far to reach on foot although most of the focus area (the South Gossan) was covered at lower elevations. A total of 16 samples were collected during the mapping for later Terraspec analysis and mapping data focused on rock types, structures, alteration minerals/type and intensity of the alteration.

The LeMare Property is largely underlain by Jurassic age, Wrangellian island arc Terrane Bonanza Group bi-modal volcanic rocks. The Bonanza group rocks are dominated by andesitic flow and volcaniclastic rocks with rare siltstone, wacke and rhyolite/dacite flows and tuffs.

Bonanza Group rocks generally strike southward and dip moderately westward which are folded locally to a SE strike and near vertical dip. A major NE trending fault is interpreted to occur along Dumortierite Creek and appears to down-drop the NW block of Bonanza Group rocks on the Property. This assumption is based on alteration in the Bonanza rocks which is distinct in each block and described below.

On the southwest corner of the Property a downthrown block of Cretaceous age, Longarm Formation basalt and shale/siltstone occurs and presumably overlies the Bonanza Group rocks. The Longarm Formation rocks are cut by numerous faults, mainly WNW striking, steep, dextral strike-slip faults, N striking steep normal block faults and NE striking oblique faults. The Longarm block is bounded by the WNW and NE faults and locally contains N striking qtz-cb-ep+/-py+/-apy veins and breccia zones.

Alteration and Mineralization

Bonanza group rocks are generally chlorite-pyrite (propyllitic) altered. In the NW block of Bonanza rocks the chlorite-pyrite alteration is overprinted by silica (locally chalcedonic)-hematite+/-jasperoid locally (Gorby showing) and silica-clay-pyrite (advanced argillic?). At the Gorby showing minor amounts of chalcopyrite occur with the silica replacement. Several zones (beds?) of advanced argillic alteration comprised mainly silica-pyrite-clay which appear to be 25-50m thick. There are also rare zones of sericite-silica-pyrite along structural zones (possibly bedding planes as well) approximately 1-2 m wide and generally along LeMare Lake on the east side of the NW block.

The SE block of the Bonanza group rocks (South Gossan Zone) is also propyllitically altered by chlorite-pyrite but on the eastern margin of the block by LeMare Lake the andesite is chlorite-epidote-pyrite-magnetite altered with abundant epidote-calcite+/-chalcopyrite (rare covellite/bornite) veins. This area coincides with a moderate magnetic high on the aeromagnetic data. Up slope from LeMare Lake the Bonanza volcanic rocks are chlorite-pyrite-epidote altered and are cut by numerous zones of sericite-pyrite-silica alteration which is generally structurally controlled but also appears along bedding planes or within permeable layers. These QSP zones contain pyrite veinlets and rare quartz (with no pyrite) veinlets locally.

North of LeMare Lake several K-feldspar altered fault zones occur within Bonanza andesite rocks and is the only observed potassic alteration on the property.

The Longarm formation is weakly chlorite-epidote alteration with local vuggy quartz-epidote-calcite-pyrite veins.

The Bonanza group rocks in the NW block on the property contains extremely few veins and any alteration more intense that the regional chlorite-pyrite propyllitic alteration is very high level in character with advanced argillic

silica-pyrite or chalcedonic silica-hematite. Chalcopyrite mineralization associated with the silica-hematite is not likely to be porphyry related. Overall, this block of rocks does not appear to have any porphyry potential.

The Bonanza rocks SE of Dumortierite Creek (South Gossan Zone) are distinct as the propyllitic alteration of the lower elevation andesite units near LeMare Lake and south of the lake contain abundant epidote and magnetite which was nearly absent north of the creek. And, there are many more QSP alteration zones within the otherwise propyllitic rock. Overall, it appears that these rocks were lower in the hydrothermal system than the NW block.

The presence of numerous epidote-calcite-chalcopyrite/bornite veins in the magnetic area is encouraging in terms of porphyry potential. However, the lack of veining in the overlying rocks, lack of any appreciable intrusive rocks and the presence of the faulting that cuts the SE block 2km to the south, severely limits the exploration potential.

Furthermore, the geochemical data from historical work in the South Gossan shows very weak Cu-Au-Mo and a single drill holes located in the South Gossan also did not intersect porphyry alteration or mineralization.



Figure 11 Geology Rock Type Map



Figure 12 Alteration Type Map



Figure 13 Structural Measurements Map



Figure 14 Quest 1VC MagRes Map

GEOLOGICAL SETTING

Regional Geology

Dave Heberlein (1993A) described the geology of northwestern Vancouver Island as follows: Northwestern Vancouver Island lies within Wrangellia; a part of the Insular belt of British Columbia. Oldest rocks in the region are Upper Triassic tholeitic basalts of the Karmutsen Formation which form the basement to the overlying Jurassic and Cretaceous stratigraphy.

Middle Jurassic Bonanza Supergroup rocks outcrop over much of the western part of northern Vancouver Island. The basal part of the Bonanza Supergroup is a marine volcanic sequence consisting of amygdaloidal, pillowed basalts and andesite with interbedded tuffs and intraformational breccias. It grades upwards into a succession of andesitic to dacitic flows, tuffs, and breccias which are in turn overlain by a sub-aerial sequence of interbedded intraformational breccias and maroon subaerial basalt flows, dacites and rhyolites. Felsic rocks are abundant close to volcanic-intrusive centres and are often interbedded with volcaniclastic sediments.

The Bonanza volcanic sequence is unconformably overlain by or faulted against shallow marine clastic sedimentary rocks of the Cretaceous Long Arm Formation.

Intrusive rocks in the region are interpreted to be coeval with the Lower Jurassic Bonanza volcanic rocks. Known as the Island Intrusives, they consist mostly of granodiorites and monzonites. These intrusions are associated with porphyry and skarn mineralization throughout the central and north parts of Vancouver Island.

The LeMare claims lie within a fault bounded structural block named the Cape Scott block by Muller (1977). Brittle faulting and broad open folding are the main styles of deformation. Muller (1977) and Jeletzky (1970) attribute this to the thick, brittle section of Karmutsen basalt that forms the basement to the Jurassic rocks.

Heberlein, Dave; 1993A: pp. 4-5.

G.T. Nixon of the British Columbia Geological Survey conducted a regional mapping program throughout the northern part of Vancouver Island during the early 1990s that resulted in a regional geological map of the area (Nixon et al., 1994) (Figure 8).

The writer's tabulation of the geologic history of the region around the Le Mare property-area is as follows:



Time	Formation or Event			
Recent	Valley rejuvenation:			
0.01-0 m.y.	Down cutting of stream gullies through till, development of soil profiles.			
Pleistocene	Glacial erosion and deposition:			
1.6-0.01 my.	Removal of Tertiary-age regolith, deposition of till and related sediments at			
	lower elevations, smoothing of the Tertiary-age land surface.			
Late Miocene	Tensional faulting:			
7.6-7.9 m.y.	Deposition of the Alert Bay basaltic volcanic rocks			
Eocene to Late Oligocene	Northeasterly trending tensional faulting:			
32 - 59 my.	Emplacement of the Sooke intrusions and Metchosin volcanic rocks			
	MINERALIZATION: Emplacement of gold-bearing quartz veins			
Late Cretaceous to Paleocene	Laramide Orogeny: Mild folding and faulting, in central British Columbia.			
75.0-57.0 m.y.	Northeastward tilting on the eastern side of the Vancouver Island area.			
,	Emplacement of the Nanaimo Formation sediments			
Early to Middle Cretaceous	Deposition of the Logram and Oueen Charlotte Group clastic sedimentary			
(Valanginian to Cenomanian)	rocks on the Late Mesozoic erosional surface.			
137.0 - 93.5 m.v.				
Middle Jurassic to Farly Cretaceous	Uplift and erosion: Gentle westward tilting of the western part of the			
163-137 m.v.	Vancouver Island area resulting in partial unroofing of the early Mesozoic			
	stratigraphy			
Late Jurassic to Late Cretaceous	Columbian Orogeny:			
144-88 m v	Emplacement of the Coast Intrusions east of the Vancouver Island area			
	thrusting and transcurrent faulting deformation of Cache Creek rocks in a			
	northeastward dinning subduction zone, accretion of Nicola Group rocks to			
	North America			
Middle Iurassic	Nassian Orogeny:			
166.0-159.7 m.v.	Final emplacement of the Island Intrusions accompanied by local folding and			
	contact metamorphism in adjacent cover rocks and lower greenschist facies			
	regional metamorphism. Regional faulting and tilting resulting in			
	southwestward dipping monoclines followed by unlift and erosion			
Early to Middle Jurassic	Subduction and calc-alkaline island arc volcanism and related clastic			
(Sinemurian to Bajocian)	sedimentation.			
197.0 - 166.0 m v	Denosition of the Bonanza Supergroup mafic to felsic volcanics and Island			
157.0 100.0 m.y.	Intrusions			
	MINERALIZATION: 175 m v			
	Development of the Island Conner Complex calcalkaline pornbyry Cu-Au-Mo			
	denosits			
	Dresumed time of development of the Le Mare hydrothermal system			
Lato Triassic	Deposition of the Vancouver Group in a fore arc basin:			
(Karnian to Norian)	Ouatsing Formation reef-related limestone beneath Parcon Bay Formation			
220.7 - 209.6 m y	calcareous wacke and argillite			
Middle Triassic	Denosition of Karmutsen Group mafic valcanics on a spreading oceanic crust			
(Ladnian to Karnian)	Deposition of Karmutsen Group mane volcanics of a spreading oceanic crust.			
240.6.220.7 my				
240.0-220.7 III.y.	mu – million veges ago			
	m.y. = minion years ago			

 Table 4

 Table of Geological Events and Lithological Units in the Le Mare Property-area

NOTE: Data for this table was compiled by the writer from various sources including Muller (1977) and Douglas ed. (1970).



Regional and Property Geophysics

Regional Aeromagnetic Survey

In September, 1962, the Geological Survey of Canada conducted a fixed-wing airborne aeromagnetic survey over the northern part of Vancouver Island. Energy, Mines, and Resources Map 1733G covering N.T.S. map-area 92 L/5 was one of the aeromagnetic maps produced. The current Le Mare property-area is in the west-central part of that map-area (Figure 9).

The northeastern part of the property-area coincides with a regional northwesterly trending magnetic high that may be a reflection of mafic volcanic stratigraphy in that area. Peaks in this magnetic trend are located at the hill top east of the southern end of Le Mare Lake and near the peak of Mount Bury (Figures 3 and 9). Exposures of the Le Mare hydrothermal system are located on the southwestern flank of the aeromagnetic trend. Three local magnetic highs occur along the ridge that transects the hydrothermal system. A distinct magnetic low coincides with the phyllic-argillic alteration that covers much of the South Gossan zone (Figures 5, 9, and 15). The writer presumes that magnetic low to be an effect of magnetite destruction by that alteration.

During a preliminary investigation of the Le Mare Lake area in 1991, Keewatin Engineering manipulated data generated from E.M.R. Map 1733G to produce maps of enhanced total field and calculated gradient magnetic data (Figure 10) superimposed on the 1: 50,000-scale N.T.S. Map sheet 92 L/5 (Birkeland, 1991). The maps submitted for assessment were in colour and without legends; thus, the locations of magnetic highs and lows, and the magnetic gradient can only be assumed from the colour distribution. The writer knows of no report of how the magnetic data manipulation was accomplished.

A.O. Birkeland's (1991) conclusions regarding the results of this data were as follow:

The calculated gradient map (Figure 10) indicates the following:

- A northwest trending low magnetic trough corresponding to the major cross property LeMare alteration trend. This magnetic low in likely caused by the destruction of magnetite within the argillic alteration trend.
- Anomaly A is coincident with the South Gossan Zone and indicates that although magnetite destruction is present at a high level in the advanced argillic and phyllic zones which outcrop on surface, magnetite alteration exists at depth beneath the alteration cap.
- Anomaly B is located on the ridge west of Dumortierite Creek where the best anomalous soil geochemistry on the property occurs. It is interpreted that this area is underlain by a porphyry system with corresponding flanking magnetite alteration and associated Cu-Mo-Au mineralization.
- Anomaly C is the highest magnetic anomaly adjacent to the LeMare-Culleet alteration trend. This anomaly is on strike with east-west faults exposed in the South Gossan Zone and on trend with east-west structures and geochemical anomalies encountered on the east side of LeMare Lake (Trapper cabin area).
- Anomaly D occurs in a covered low-land in the vicinity of the gold geochem anomalies "down plunge" of the main South Gossan Zone alteration cap. This large positive anomaly within the northwest trending magnetic low indicates that a porphyry and associated magnetite-bearing Cu-Mo-Au system may be at depth beneath the valley till and has not been detected by conventional soil geochemistry completed to date.

Birkeland, A.O.; 1991: pp. 19-20.

Birkeland's "northwest trending low magnetic trough" is one of a series of such "troughs" that transect the volcanic stratigraphy in the Quatsino Sound area. It cuts through the area of soil-copper enrichment separating the North Lake zone from the main part of the zone of soil-copper enrichment (Figures 10 and 21W). The writer

interprets this magnetic feature to have been due to post-mineralization weathering along a west-northwesterly trending fault, possibly previously responsible for the location of the Le Mare hydrothermal system (Figure 11).

Anomaly 'A' as plotted on Birkeland's (1991) magnetic gradient map is 1 km (0.61 mi) north of the South Gossan zone and not coincident with it. Similarly, Anomaly 'B' is plotted 1 km (0.61 mi) north-northeast of its described location. The described locations of these two anomalies make more sense than their plotted locations. The plotted locations of anomalies 'C' and 'D' are much better matches to their descriptions.

Anomalies 'A', 'B', and 'D' are small, local magnetic features. Although quite intense, anomaly 'C' doesn't resemble any of the magnetic gradient features spatially related to the areas of alteration and soil-metal enrichment associated with the Le Mare hydrothermal system. During the 1992 field season, Minnova geologists visited the area of anomaly 'D' and could not associate it with a body of hydrothermal alteration in the Bonanza Supergroup mafic volcanic rocks. That anomaly may be related to local volcanic stratigraphy.

During the early 1990s, it was well-known that the porphyry deposits of the Island Copper Cluster located near Port McNeill were concentrated at dilational jogs along a west-northwest trending, steeply dipping regional fault (Figure 12). Birkeland (1991) seems to have focused on the regional structure and ignored the round to oval shapes of individual deposits. He became convinced that alteration and mineralization near Le Mare Lake was exposed as a 6-km (3.66-mi) long linear belt of copper enrichment flanked to the northeast by belts of gold, molybdenum, and zinc enrichment, and to the southwest by a belt of zinc enrichment. A desire to promote that interpretation may have influenced focus on small magnetic features around the southeastern arm of Le Mare Lake to the exclusion of larger ones within the area defined by the magnetic gradient between Gooding Cove and Le Mare Lake (Figures 9 and 10).

When the 1991 Stow soil-copper and molybdenum anomalies, the 1992 Minnova ground electromagnetic anomaly, the results of the 1991 Keewatin calculated gradient magnetics, and those of the 2007 and 2009 soil surveys are combined, they indicate that the Le Mare hydrothermal system covers a 5 X 3 km (3.05 X 1.83 mi) or 15 km2 (5.6 mi2) oval-shaped surface-area and not an asymmetric linear belt (Figures 10,11,15 and 21E to 22W).

Regional Silt Geochemistry

A reconnaissance regional stream sediment sampling program was conducted during 1988 throughout the northern part of Vancouver Island, through a joint federal-provincial initiative resulting in the production of Geological Survey of Canada Open File 4020 (Matysek et al., 1988).

Research by Keewatin Engineering Inc. during March, 1991, including investigation of regional geochemical survey results, revealed that a belt similar to the Island Copper Belt was located between Kyuquot Sound and Quatsino Sound. It was named the Mahatta-Kashutl belt (Birkeland, 1991). Attributes of the two areas were sufficiently similar for Keewatin to stake and explore the 1991-era LeMare property (section 2.1, this report).

J.A. Perelló et al. (1995) reported that the porphyry deposits of the Island Copper Cluster were concentrated along dilational jogs in a west-northwesterly trending, steeply dipping, right lateral, transcurrent fault (Figure 12).

Selected silt-metal concentrations of silt samples taken from locations near the Le Mare property (Figures 3 and 11) were tabulated as follows:



Sample	Water pH	Copper	Lead	Zinc	Arsenic	Moly.	Silver	Gold
Number		ppm	ppm	ppm	ppm	Ppm	ppm	ppb
883053	7.3	38	1	82	7	1	0.1	1
883082	7.1	41	13	240	10	1	0.1	1
883128	7.1	32	1	76	6	1	0.1	1
883129	7.0	44	1	86	6	1	0.1	1
883131	6.8	33	2	75	4	1	0.1	1
883237	6.7	34	3	87	12	1	0.1	107
883238	7.1	19	1	68	7	1	0.1	1
883262	7.2	34	9	230	14	1	0.1	2
883263	7.1	39	3	152	11	2	0.1	2
883264	7.0	42	5	155	11	1	0.1	18
883265	7.4	41	1	102	11	2	0.1	2
883266	7.4	43	3	135	11	1	0.1	1
883267	7.3	44	1	87	7	3	0.1	4

Table 5 Selected Regional Silt-metal Concentrations

NOTE: For sample locations, see Figure 11.

Regional silt survey results indicate that the Le Mare hydrothermal system may also occupy a dilational jog in a regional fault similar to those which controlled mineralization of the Island Copper Cluster (Figure 11).

It is proposed that a steeply dipping right-lateral fault, trending at 306° may extend from beneath Quatsino Sound southeastward to Le Mare Lake where it terminates. A parallel structure may accommodate right-lateral displacement from Gooding Cove southeastward to beyond the head of Klatskino Inlet (about 12.5 km (7.6 mi)) southeast of the southeastern corner of the Le Mare property. A dilational jog between these two west-northwesterly trending faults may be defined by two steeply dipping faults that trend at about 338°. The easterly one may underlay the south arm of Le Mare Lake and Keith River; and the westerly one may extend from Gooding Cove north-northwestward to Gillam Islands beneath Quatsino Sound. The Le Mare hydrothermal system occupies an area bounded by these proposed faults (Figure 11).

Elevated silt-gold concentrations occur in six samples in the Le Mare property-area: 883237, 883262 to 65, and 883267, all of which are within 300 m (984 ft.) the surface traces of the proposed faults. The 40ppmcopper and 10-ppm arsenic contours separate areas of comparatively low silt-copper and arsenic concentrations to the north and east of Le Mare Lake with areas of higher concentrations to the south and west of it. The two contours roughly follow the northern and eastern boundaries of the proposed dilational jog, and could be the result of comparatively copper and arsenic-rich volcanic stratigraphy having been translated west-northwestward into contact with rocks with lower copper and arsenic contents along a regional dextral transcurrent fault system.

Silt sample 883267, taken near the mouth of Dumortiorite Creek and down-stream from the South Gossan Zone soil-molybdenum anomaly, contained 3 ppm molybdenum. That concentration was determined by the writer to be sub-anomalous in soils of the area (section 5.3.2, this report) (Table 11) (Figures 22E and 22W). The only other two silt samples with elevated molybdenum contents were samples 883263 and 883265 which were taken from streams that drain the southern part of the Le Mare hydrothermal system (Figure 11).

Regional silt-silver, lead, and zinc distributions are not very diagnostic of regional structures or of mineralized locations.





Property Geology

Stratigraphy

Two mapping programs in the Le Mare property-area have been have been recorded for assessment: those of A. O. Birkeland (1991) for Stow Resources Ltd., and of J.T. Shearer (2010) for New Destiny Mining Corp., which formed part of the current (2009) work program. A third mapping program, conducted by Dave Heberlein (1993B) for Minnova during 1992, was not filed. Various aspects of all three mapping programs are somewhat deficient, and the mapping from any one of the programs is at variance with other mapping of the same area. Presently, there is no reliable comprehensive geological map of the Le Mare property-area.

Mappers of Birkeland's (1991) field crew offered very little lithological description on their geological map. Rocks were described mostly andesite or rhyolite with or without brecciation. Structural determinations were sparse, and when compared with the results of later mapping, many bedding-attitude determinations were revealed to be orientations of dominant cleavages.

Mappers on Heberlein's (1993B) field crew had difficulty distinguishing felsic volcanic rocks from silicified andesite and basalt. Consequently, their map depicted an unrealistic amount of felsic volcanic rocks. Almost no structural symbols were recorded on Heberlein's (1993B) geological map.

Mapping during the current (2009) work program was conducted mostly in the South Gossan zone area to check the inconsistencies and the level of reliability of previous mapping in order to determine if a subsequent, more thorough mapping program would be advantageous. Time was not spent on detailed structural and alteration studies.

The Le Mare property hosts mostly mafic volcanic rocks of the Bonanza Supergroup, including autobreccias, lahars, and minor amounts of tuff and other pyroclastic beds. Rhyolitic rocks comprise a minor amount of the stratigraphy in the property-area. A thin rock unit previously identified as quartzite, was observed by the writer to be a pyritic, rhyolitic tuff. It may be one of the most useful stratigraphic marker beds in the property-area.

A 50-m (152.4-ft) thick "dyke", occupied by a rock described on Shearer's (2010) map as aplite, was located at the divide at the head of the Dumortiorite Creek valley just south of the phyllitic-argillic alteration of the South Gossan zone. It pre-dates the Dumortiorite Creek fault and could be coeval with the development of the Le Mare hydrothermal system.

Perelló et al. (1995) described three intrusive phases responsible for emplacement of the Island Copper Cluster deposits: an "early" rhyodacite porphyry associated with potassic alteration, an "inter-mineral" rhyodacite associated with sericite-clay-chlorite alteration and molybdenum deposition, and a barren, "latemineral" rhyodacitic porphyry. The spatial association of the "aplite" with the sericite-clay-chlorite (phyllic-argillic) alteration and soil-molybdenum anomalies of the South Gossan zone indicates that it may be an equivalent of the "inter-mineral" or "late-mineral" rhyodacite identified at the Island Copper deposits (Figures 13 and 15).

A prominent topographic knob, located at U.T.M: 5,584,800 N., 578,850 E. about 400 m (1,312.4 ft.) northwest of Dumortiorite Creek, was found to host a rhyodacitic dome that was described by Shearer (2010) as follows:

... Adjacent to the road (northwest of Dumortiorite Creek) is a bench-like ridge overlooking the west arm of Le Mare Lake where a resistant weathered dome-like feature was examined. An intensely siliceous, brittle, silicified hetero-volcanic breccia is cut by numerous quartz-chalcedony-like veinlets. The breccia fragments include angular banded, lapilli rhyolite, dacite and sub-rounded altered andesite. The dome-like breccia measures roughly 200 X 200 m (656 X 656 ft.). Other than the numerous quartz-chalcedony veinlets, no alteration or sulphide minerals were noted.

Shearer, J.T.; 2010: p. 17.

This rock-unit may be a volcanic vent filling above a rhyodacite porphyry like those exposed at the Island Copper mine (Figures 13 and 15). It is curious that this dome is located adjacent to the South-Gossan zone, argillic-phyllic alteration plume.

Structure and Metamorphism

Regional mappers of the northern part of Vancouver Island have been in general agreement that folding of the Mesozoic and Cenozoic-age rocks exposed in that area has been minimal, and that block and transcurrent faulting have been the main mechanisms for stratigraphic displacement. J.E. Muller (1977) concluded that: Triassic-age rifting, westward tilting of the western part of Vancouver Island area during the Middle Jurassic-age Nassian orogeny, and eastward tilting east of the island's core area during the Late Cretaceous Laramide orogeny disrupted Vancouver Island stratigraphy into a series of tilted homoclines (Table 6). His conclusion has not been challenged.

However, there is a structural complication in the Le Mare property-area. The mostly mafic volcanic stratigraphy near the hydrothermal system has been deformed into a series of open to close outcrop-scale folds that have a wide variety of axial-plane orientations. Development of this deformation before that of the Le Mare hydrothermal system and great diversity of fold axis orientations indicate that this deformation was related to local intrusion and not to regional deformation.

V.A. Preto (1979) concluded that such folding near the southern terminus of the Nicola batholith was related to emplacement of that intrusion. Similar folding mapped by the writer in mafic Nicola Group volcanics south of Merritt, British Columbia appeared to be the result of volcanic stratigraphy draping down over the margins of local plutonic cupolas. It was assumed that radial patterns of axial-plane orientations could be used to locate the locations of apices of such plutonic cupolas.

This style of folding indicates that the volcanic rock hosting the Le Mare hydrothermal system was buried at sufficient depth and sufficiently close to an intrusive contact for local heat, confining, and differential pressures to result in plastic, rather than brittle deformation. The existence of a near-surface contact of the volcanics with either of a coeval sub-volcanic intrusion or a rhyodacitic porphyry body is also supported by the exposure of the aplite rock unit at the head of Dumortiorite Creek.

Regional metamorphism around the Le Mare property-area does not exceed prehnite-pumpellyite or zeolite facies. It is difficult to discern around the Le Mare hydrothermal system due to pervasive, lower greenschist facies, thermal "contact" metamorphism that resulted in the formation of the axial plane cleavages in the drape-folds. Subsequently this was overprinted by pro-grade propylitic, potassic, and argillic-phyllic alteration. The writer presumes that this folding, thermal metamorphism, alteration and mineralization occurred during the Middle to Late Jurassic Period at about 175 million years ago, contemporaneous with development of the Island Copper Cluster deposits.





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MINERALIZATION

Copper

At the Le Mare hydrothermal system, copper mineralization is related to an early potassic alteration event; molybdenum enrichment is related to a later argillic-phyllic event. High concentrations of copper and molybdenum occur together in significant amounts only where molybdenum enrichment has overprinted that of copper. The Le Mare hydrothermal system's potassic alteration zone has just been unroofed by erosion. At this level, copper mineralization occurs in discrete showings-areas located preferentially in the central parts of subvertical alteration plumes (previous) (Figure 15). Copper mineralization occurs mostly as chalcopyrite with minor amounts of bornite. In weathered rock, primary minerals are replaced to varying degrees by chalcocite, covellite, and black (copper-rich) limonite. In intensely weathered areas, sulphides have been oxidized to brick-red hematite and limonite; copper concentrations have been reduced to very low levels. This occurred above the Gooding Cove road in the Gooding Ridge plume where the writer's sample N4-1 contained 3 ppm copper and traces of molybdenum, gold and silver (Figure 15) (Table 9).

Of the five hydrothermal plumes located between Harvey and Gooding coves, the Culleet Creek plume is the only one that has been explored intensively during the early 1990s (Figures 4 and 15). A.O. Birkeland (1991) described copper mineralization of the Culleet Creek plume as follows:

Rocks in the vicinity of the Culleet Creek Zone exhibit a white weathering rind on surface (kaolinite after chlorite-K-spar). Numerous voids and boxwork textures with remnant secondary Cu mineralization is being leached by surface weathering and all values (concentrations) encountered near surface are likely depleted. This distinctive weathering characteristic (including chalcedonic quartz intergrowths) occurs over an area of approximately 500 m X 750 m (1,640.4 X 2,460.6 ft.) (Figure 15). Two road borrow pits (Gorby and Boris showings) have fresher rock exposed in the pitwalls and roadfill debris. All rock types exposed in the pits are silicified and mineralized to various degrees. Modes of occurrences of copper mineralization are described as follows:

- chalcopyrite, chalcocite, minor bornite, covellite, and native copper in apple green silicified (AGS) zones
- associated with chalcedonic intergrowths, jasper and quartz veinlets and fractures, amygdules or disseminated in breccia matrix overprinting all rock types
- disseminated chalcopyrite in lesser silicified dark green chloritized volcanics

The 500 m X 750 m (1,640.4 X 2,460.6 ft.) alteration zone of AGS has been trenched with 8 plugger and blast hole trenches.

Birkeland, A.O.; 1991: p. 13.

Within all of the hydrothermal plumes examined by the writer, the early phase of potassic alteration comprises veinlets and disseminations of predominantly orthoclase, minor quartz, and sparse red-brown biotite which hosts chalcopyrite, with small amounts of bornite associated with pyrite, commonly with a chalcopyrite:pyrite ratio greater than 2:1. Orthoclase-rich, alteration passes gradually to a distal phase of silicification which, as A.O. Birkeland (1991) correctly observed, was accompanied by a gradual decrease to low copper concentrations with chalcopyrite being the only significant copper-bearing sulphide.

Orthoclase-quartz alteration is post-dated by quartz-jasper veinlets, pods, and disseminations that host veinsegregations and disseminations of chalcopyrite, bornite, and pyrite. These look similar to, but can be seen to cross-cut earlier orthoclase-quartz related mineralization in fresh rock at the Gorby showing. Generally, copper mineralization seems to be more abundant in quartz-jasper alteration than in the preceding orthoclase-quartz alteration. Tabulated averages of Birkeland's (1991) sampling results weighted per linear metre, from the eight plugger and blast-hole trenches that Birkeland mentioned (previous quote). Grab samples were excluded. That tabulation is as follows:

weighted per Metre of Sampling								
Location	Analysis	Total Sa	mpling	Copper	Molybdenum	Gold	Silver	Zinc
	Number	Length		ppm	ppm	ppb	ppm	ppm
	Sequence	metres	feet					
Harvey Cove	125229-37	22.0	72.2	1043	<2	<6	<0.4	102
showing	131488-500							
Gorby showing	125357-61	30.5	100.1	315	<1	<5	<0.2	84
	125383-90							
	125403-07							
	131451-53							
Boris showing	125391-99	9.0	29.5	1134	<1	<5	0.5	30
91-T2	131457-61	5.0	16.4	93	<1	<5	<0.2	102
91-T3	131462-67	6.45	21.2	2665	4	<5	<0.4	70
91-T4	131468-70	3.0	9.8	660	<1.7	77	<0.3	77
91-T5	131471-73	3.0	9.8	577	3	17	<0.2	144
91-T6	131474-78	5.0	16.4	170	<1	<7	<0.2	167
91-T7	131479-83	4.8	15.7	687	<2.8	29	<0.2	50
91-T8	131484-87	4.3	14.1	133	<1	<5	<0.2	63
Average/m of		93.05	305.3	740	<1.5	<8.9	<4.7	87
Culleet Creek zone								
sampling								

Table 6 Results of Birkeland's1991 Sampling in the Culleet Creek Zone Weighted per Metre of Sampling

NOTES: This table is produced from the data of A.O. Birkeland, A.O., 1991. 1991 grab samples have been excluded from this tabulation. For locations of sampled areas, see Figures 4 and 6.

Average copper concentrations from the 1991 Stow Resources trenches varied from a low of 133 ppm to a high of 2,665 ppm (Table 8). Such variance is intrinsic to discontinuous copper mineralization near the top of the potassic alteration zone of any calc-alkalic porphyry system. A discussion of sample variance comprises part of section 7.0 of this report.

The Gorby occurrence is located on a spur road about 80 m (262 ft.) north of the Gooding Cove road in the southern boundary-area of the FAR WEST 3 (546562) claim (Figures 3, 4, and 6). It is near the geographic centre of the Culleet Creek plume and hosts the most extensive exposure of fresh, mineralized rock in the plume. A road borrow pit was extended into a 50-m (164-ft) long side-hill cut during the 1991 Stow Resources program (Figures 4, 6, and 17). Although Birkeland (1991) did not describe specifically the mineralization at the Gorby showing, his comments regarding copper mineralization in fresh rock of the Culleet Creek zone match what the writer observed in the cut itself.

J.T. Shearer (2010) added to a description of the Gorby showing as follows:

The Boris and Gorby copper showings were briefly examined and are well documented by (Birkeland, 1991) ... One of the key differences the writer noted at the Gorby showing was the increase (greater intensity) in quartz (and lesser calcite) veining hosted in the andesite (at that location). This was not observed in other andesitic rocks mapped - although minor (<0.05%) free chalcopyrite was occasionally noted. Also at the Gorby, quartz-filled stretched amygdaloidal andesitic flows are associated with disseminated chalcopyrite ...

J.T. Shearer; 2010: p. 17.

One of the 1992 Minnova Inc. diamond drill holes, No. 92- 676-2, penetrated the Culleet Creek potassic alteration plume at a location about 50 m (164 ft.) east of the centre of the Gorby cut (Figure 6, Table 5). That hole went through five 2-m (6.56-ft) and one 4.7-m (15.4-ft) long intersections that contained from 500 to 959 ppm copper. Those copper concentrations were similar to many of the average concentrations that the writer calculated from Birkeland's (1991) trench sampling results (Tables 5 and 8), indicating that the discontinuous style of copper mineralization recorded from the trenches is present to a depth of at least 200m (656 ft.). Sparse copper mineralization to depth in this plume may be related in part to its location at the outer edge of the hydrothermal system (Figure 15).







The No. 2 showings-area is located on the up-hill side of the Gooding Cove road in the northwestern part of the FAR WEST 1 (546543) claim (Figures 3 and 4). It is in the northwestern part of the potassic alteration zone of the No. 2 Showings-area plume (Figure 15).

During 1980, British Newfoundland Exploration Ltd. (BRINCO) conducted a prospecting program on the Le Mare No. 1 (later known as the North Lake zone) and the Le Mare No. 2 showings-areas (Figure 4). R.J. Bilquist (1980) recorded the results of BRINCO's work on the No. 2 Showings-area as follows:

Prospecting on the LE MARE NO.2 mineral claim resulted in the discovery of a zone of mineralization. This zone was traced along the road cut a distance of 600 m (1,968.5 ft.) (Figure 18). The mineralization found included chalcopyrite, malachite, azurite, sphalerite, and iron pyrites. Mineralization appears to be related to faults and fractures and in places it is abruptly cut off at the boundaries of these. The rock appears to be mainly andesite flows and tuffs cut by an occasional andesite dike. Near chip sample BRLM 20, secondary potassium feldspar was seen as fracture fillings. Samples from here assayed between 0.20% and 1.40%. The copper mineralization was noted in another parallel road approximately 400 m (1,312.3 ft.) to the southeast. No samples from here were assayed but from visual examinations it is assumed that the values (concentrations) would be similar.

Bilquist, R.J.; 1980: p. 6.

Bilquist's (1980) description of a 600-m (1,968.5 ft.) section of the Gooding Cove road has been copied in various versions by subsequent writers who all have ascribed that description to the No. 2 showings-area itself. The location of Bilquist's sample No. BRLM 20 is the actual location of the showings-area (Figures 18 and 19).

Recognition of "secondary potassium feldspar" at the BRLM 20 sample site may have encouraged the BRINCO prospectors to work the slope above the No. 2 (BRLM 20) showings-area along a road where the writer took samples N2-1 and N3-1 (Figures 18 and 19) (Table 9). Although R.J. Bilquist (1980) did not report the presence of a hydrothermal plum, he did outline the potassic alteration zone of the No. 2 Showings-area plume fairly accurately (Figures 15 and 18).

Later, when A.O. Birkeland (1991) developed his theory of the presence of a linear, 6-km (3.7-mi) long, mineralized belt from Harvey Cove to the southeastern end of Le Mare Lake, he seems to have ignored the 1980 BRINCO discoveries southwest of his preferred zone. Being outside Birkeland's trend, the No. 2 showings-area and Gooding Ridge was explored little prior to the current (2009) exploration program.

At the No. 2 showing itself, there is an old trench dug into chloritic andesite hosting orthoclase-quartz and quartzjasper (potassic) alteration similar to that in the Gorby cut. Any significant copper mineralization has been removed from the trench (Figure 19). A few metres southwest of the trench, the letters L 2 have been painted in white on the rock face, probably by either the 1991 or 1992 field crew.

There is a relatively new cut into the rock for road material about 18 m (59 ft.) south of the trench along the road. Sample SA 004 was taken along a variably weathered 10-m (32.8-ft) long section near the base of the rock face (Figure 19). Composite chip samples contained 982 ppm and 898 ppm copper respectively. A boulder berm, dug out of the cut and left beside the road in front of it, comprised clasts of andesitic flow and flow-breccia rock. Comparatively 'permeable' parts of the matrix in several flow-breccia boulders contained blebs of chalcopyrite up to 5 cm (about 2 inches) in length. Grab sample N10-3 containing 6.57% copper, was comprised of pieces hammered off some of the boulders. On the rock face itself, very little chalcopyrite remained. Most of it had been replaced by black copper-rich limonite.



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The New Destiny showings-area is near the western end of Le Mare Ridge in the south-central part of the FAR WEST 1 (546543) claim (Figures 3 and 4) in the potassic alteration zone of the plume (Figure 15). Dave Pawliuk, a member of the 2009 field crew and a former owner of the 1997-era LEM claims (Figure 4), discovered the showings on December 5, 2009 (Figure 20). J.T. Shearer's account of them was as follows:

The New Destiny Copper Zone ... is exposed along a new logging road hosted by rhyodacite and andesite with pervasive chlorite and hematite, locally brecciated alteration. Mineralization consists of up to 2% chalcopyrite and pyrite (Figure 20) ... , sample 51585, a chip over 0.9 m (3.0 ft.) assayed 2.34% Cu, 1.97 g/tonne (0.057 oz./ton) gold and 9.0 g/tonne (0.26 oz./ton) silver.

Shearer, J.T.; 2010: p. 22.

The western part of the showings area hosts intensely chloritized and silicified dacitic rock near the base of a Tertiary-age weathering profile. This rock contains significant amounts of chalcopyrite and pyrite that have been partly weathered to hematite and limonite. D.J. Pawliuk's samples: 51585, 51588 and 51589, taken from felsic volcanic rocks near the western end of the showings-area contained an average of 1.14% copper (Figure 20). This high concentration may have been be due in part to local copper concentration in "permeable" areas.

Rock with blebs of massive chalcopyrite-pyrite-bornite mineralization were sampled by the writer farther east in the showings-area (subsequent).

East of the dacite is medium-green silicified mafic andesite or basalt with sparse to moderately intense orthoclasequartz alteration. Black (copper-rich) limonite and traces of azurite and malachite occur on fracture surfaces. Rusty blebs throughout this rock may be the result of weathering of pyrite and chalcopyrite to hematite and limonite. Sparsely disseminated chalcopyrite is present on fresh surfaces.

Averages of D.J. Pawliuk's samples 51581A to 51583 and 51590 and 51591, from about the same locations as samples N6-1 and N7-1, contained 606 and 4482 ppm respectively (Figure 20). Like at the other copper showings that the writer has examined in this part of the Le Mare hydrothermal system, there is great local variability in copper concentrations. The molybdenum content of samples from the New Destiny showings-area is low (Figures 17 to 20) (Table 8).

Potassic alteration and accompanying copper mineralization have been overprinted by argillic-phyllic alteration in the South Gossan zone, and in a small area around the Mo Road showing west of Culleet Lake. Locally, along discrete fracture systems in the South Gossan zone, argillic-phyllic alteration is in turn, overprinted by minor amounts of advanced argillic alteration. The effects of the overprinting alteration events have been to liberate copper deposited during the previous potassic alteration event and to redistribute it, probably upward, to rock that has now been eroded away. This is indicated by the lack of distinct soil-copper anomalies in the South Gossan zone as follows:

South Gossan Zone (SGZ)

Copper mineralization flanks the (argillic, phyllic, and advanced argillic) alteration zones occurs in volcanic wallrocks. Modes of occurrences are described as follows:

- Massive fine-grained chalcopyrite and bornite/chalcocite/covellite (may be Au bearing) veinlets and fractures radiating out from beneath the northeast plunge beneath the advance alteration cap.
- Disseminated fine grained chalcopyrite associated with black chlorite-magnetite hydrobiotite? in mafic volcanic (transitional potassic-phyllic "mafic porphyry") alteration.
- East of the SGZ and across the Le Mare Lake valley (Trapper Cabin area) (Figure 4) are fault controlled chalcopyrite and bornite occurrences in siliceous pyritic volcanics.

To the west of the SGZ and in the headwaters of "Dumortiorite Creek", carbonate veins up to .3m (1 ft.) in width occur in propylitic alteration envelopes. The veins have been traced for a strike length of up to 15m (49.2 ft.).

Shearer, J.T.; 2010: p. 18.

Copper-bearing veins radiating out from subsequent alteration could describe re-mobilized copper that has been flushed outward from the sloping margin of a vertically zoned argillic-phyllic alteration plume. Shearer's description of chalcopyrite in association with "transitional potassic-phyllic" alteration could be a manifestation of local partial overprinting of early potassic by subsequent argillic-phyllic alteration as mentioned previously.

Molybdenum

The distribution of molybdenum enrichment related to the Le Mare hydrothermal system has been defined mostly by soil-molybdenum anomalies. All of the largest and most intense of these anomalies are spatially associated with quartz-sericite-pyrite (phyllic) alteration lower eastern flank of the argillic-phyllic alteration plume (Figure 22E). Molybdenum enrichment is conspicuously absent in the copper showings that are related to potassic alteration. Discussions of the relevance of molybdenum enrichment to alteration and the distribution of soil-molybdenum anomalies form part of sections 4.2.1 and 5.3.2 of this report.

A small, roadside outcrop hosting visible molybdenite was located by the 1991 Stow mapping crew (Birkeland, 1991) on the main Gooding Cove road southwest of Culleet Lake. It was described as follows:

At the Mo Road showing to the west of Culleet Lake, sparse chalcopyrite and molybdenite mineralization has been noted in the road cut associated with advanced argillic and phyllic alteration ...

The outcrop was less than 5 m (16.4 ft.) long and was composed of white to yellow sericite with subsequent and veinlets and disseminations of clay and a white chalky mineral that Shearer identified as geyserite. Traces of fine-grained molybdenite and possibly chalcopyrite were disseminated throughout the rock.

The Mo Road outcrop is located at about U.T.M. co-ordinates: 5,585,884 N., 577,209 E. (50° 25' 12" N., 127°54' 47"W.) on the FAR WEST 1 (546543) claim. It is within a small area of phyllic alteration between the road and Culleet Lake (Figure 14). The most important aspect of this outcrop is that, as at the flank of the argillic-phyllic alteration plume in the South Gossan zone and at the Island Copper mine deposit, molybdenite mineralization is demonstrated to be intimately associated with phyllic alteration in outcrop (sections 4.2.3 and 5.3.2, this report) (Table 10).

Comparison of the Island Copper and Le Mare Hydrothermal Systems

The Island Copper mine deposit covered an elongate 1,750 X 480 m (5,741 X1,575 ft.) oval-shaped area. From the mine's opening until 1994, a total of 345 million tonnes (380 million tons) of ore having average head grades of 0.41% copper, 0.017% molybdenum, 0.19 gm/mt (0.006 oz./ton) gold and 1.4 gm/mt (0.041 oz./ton) silver were produced.

The Le Mare hydrothermal system is exposed in an oval-shaped area with axes measuring about 5,000 X 3,000 m (16,404 X 9,843 ft.). There is more than sufficient area within the exposed boundaries of the Le Mare hydrothermal system to accommodate a pit the size of the one required at the Island Copper mine deposit.

Many aspects of the Le Mare hydrothermal system are quite similar to those of the Island Copper mine deposit. Similarities and differences between the two systems are tabulated by the writer as follows:

 Table 7

 Comparison of the Island Copper and Le Mare Hydrothermal Systems

Aspect	Island Copper Hydrothermal System	Le Mare Hydrothermal System
Mineral occurrence class	Calc-alkalic porphyry Cu-Au-Mo	Calc-alkalic porphyry Cu-Mo
		(Au potential is not assessed)
Age	175 m.y - Middle Jurassic Period	175 m.y - Middle Jurassic Period
	Aaelnian-Bajocian Stage	Aaelnian-Bajocian Stage
Host rocks	Bonanza Supergroup mafic to intermediate	Bonanza Supergroup mafic to intermediate meta-
	meta- volcanic and associated meta-	volcanic and associated meta-sedimentary rocks
	sedimentary rocks	
Controlling structures	End Creek Fault:	proposed west-northwest trending, right lateral,
	west-northwest trending, right-lateral, sub-	sub-vertical, regional fault
	vertical, regional fault	
Local structures	block faults, minor folds	block faults, drape folds
Localization	dilational jog along the regional structure	proposed dilational jog along a regional structure
Alteration	Early Potassic and Pro-grade Propylitic:	Early Potassic plumes surrounded by Pro-grade
	1. Inner potassic: qtz-actinolite-hb-Na.plag- =/-	Propylitic
	scapolite-apatite (low Cu + Mo contents)	1. Potassic plume: core of kspar-qtz +/-bio
	2. Outer potassic: bio-mag-albite-kspar +/-	intruded by qtz-jasper all contained in silicic
	amphiboles (>0.2% Cu)	envelope (Cu showings in core areas)
	3+4. Propylitic: chlorite-calcite-epidotepyrite	2. Outer propylitic: chlorite-calciteepidote-pyrite
	3. (<0.3% Cu) 4. (<0.1% Cu) Intermediate	(low Cu)
	phyllic-argillic: sericite kaolinite-illite-chlorite	Intermediate phyllic-argillic: sericitekaolinite-clays-
	+/- pyrite (Mo and minor Cu mineralization)	chlorite at the South Gossan zone (asst. with soil-
	Late Advanced Argillic:	Mo anomalies)
	(hosted in pyrophyllite-dumortiorite breccia)	Late advanced argillic:
	pyroph-qtz-sericite-kaoliniteclays-dumortiorite	(restricted to a few permeable faults)
		sericite-kaolinite-clays
Intrusion	1. Early mineral rhyodacite (altered and	1. Rhyodacite breccia at Culleet Creek zone with
	associated with potassic alt and most Cu	qtz-jasper (late potassic) alteration
	mineralization)	2. Altered + unaltered felsic dykes in the South
	2. Intra-mineral rhyodacite (altered and asst	Gossan zone
	with most Mo and minor Cu mineralization)	3. Rhyodacite northwest of Dumortiorite Creek-
	3. Late-mineral rhyodacite (unaltered) and	Unaltered aplite at the head of Dumortiorite Creek
	pyrophyllite breccia (post-mineral)	
Mineralization	1. Early Cu-Au+/-Mo asst with kalt	1. Cu showings + soil anomalies asst with kalt
	2. Late Mo-Cu+/-Au asst with argillicphyllic alt	2. Mo Road showing and soil anomalies asst with
		phyllic alt

NOTE: Au = gold, Cu = copper, Mo = molybdenum, bio = biotite, hb = hornblende, kspar = potassium feldspar, mag = magnetite, plag = plagioclase feldspar, qtz = quartz, alt = alteration, kalt = potassic alteration, m.y. = millions of years ago.

The deposits of the Island Copper Cluster differ from typical calc-alkalic porphyry copper-molybdenum deposits in that, for the most part, they have gold contents similar to those of alkalic porphyry copper-gold deposits (Perelló et al., 1995).

WORK PROGRAM 2016

Work in 2016 focussed on detailed geological mapping (refer to Figures 28 and 29) with geological notes in Appendix III.

Detailed mapping was mainly conducted by T. Ruks, M.Sc., Ph.D.

At the New Destiny Zone banded veins, containing quartz-magnetite-hematite-chalcopyrite were observed throughout the 180m of road-cut outcrop. These veins appear to cross-cut all lithologies including the massive mafic/intermediate unit which dominates the road-cut in addition to "felsic" units.

On the east side of the New Destiny zone, next to the logging slash are green outcrops approximately 10 m eastwest in dimensions which appear to have mixed sediments and mafic volcanic rocks. Volcanic sandstone of lapilli tuff having hematite 1-2% black clasts (mudstone rip ups (?), angular to 2-3 mm size) in medium grained, sandy matrix. Purplish, hematite altered, green (dark) mafic volcanic -> potential basalt-andesite flows with pillows. Some amoeboid clasts with rusty rinds (pillow rinds?). Chlorite-malachite in small fracture zones. Strong hematite alteration in sediment rocks. Potential bedding in places. Structure: S0: 167/80SE; (Mafic volcanic texture), (volcanic sandstone?), (chlorite-malachite in fracture zone).

In the central New Destiny showing a massive, aphanitic, dark green and purple mafic volcanic unit-dolomites. Hematite on fractures are common. Anastamosing quartz-chalcopyrite +/- bornite veins with blebby sulfides to 2-3 mm or greater are common. Most mafic volcanic is moderately magnetic with rusty outcrop. Most fracture are hematite and/or limonite coated. Vein density: 2mm/50mm; (quartz-chalcopyrite vein), (quartz-chalcopyrite+/bornite vein).

The high grade zone is characterized more by gossanous outcrop of massive fine grained mafic unit (dark green). Abundant anastamosing quartz-chalcopyrite +/- bornite stockwork forming pseudo-breccia/breccia. Quartz often cockscomb. Potential A veins occur here. These are banded quartz-magnetite/hematite +/- chaclopyrite-bornite veins, sometimes cross-cutting each other. Clearly banded! Some fractures appear to have magnetite coatings. Potassic alteration includes banded quartz-magnetite-hematite-chalcopyrite+/- bornite veins, quartzchalcopyrite+/-bornite vein, high grade zone of quartz-chalcopyrite+/- bornite veins, intense quartz-chalcopyrite +/- bornite veining, quartz-chalcopyrite +/- bornite veining.

Southwest of the New Destiny showing is a rusty fault zone next to creek. Rhyo-dacitic microporphoric is full of quartz-magnetite-hematite-chalcopyrite +/- bornite veins (banded). Back into massive mafic unit on west side. The zone is this felsic unit may be intruding faults. Nice contacts exposed in zone. Rhyodacite unit is brecciated with hematite matrix. Is cross-cut by quartz-chalcopyrite veins and banded A veins. This may be the mineralizing intrusion. Feldspar in porphyry altered to greasy green mineral (illite?). Rhyodacite unit has sub-mm QDs (trace) and some mafic fragments. If these are mafic xenoliths, this rhyodacite unit is likely intrusive, and cross cuts the massive mafic units in the road cut. E-W of N-S control? Rhyodacite breccia appears to be dyke like. If these units were controlled by E-W structures, they should occupy most of this road cut, which is E-W trending. Since they do not dominate the geology here, they are likely N-S, or oblique to the road (or pipe-like). These rhyodacite dykes may be similar to the altered dykes at the South Gossan zone.

More massive mafic units are located directly north of the New Destiny Showing (M-4). More quartz-chalcopyrite +/- bornite veins occur sporadically. Potential A veins here. Nice banded quartz-chalcopyrite-magnetite +/- bornite veins. Appear sheeted in places. Some have chalcopyrite +/- bornite centerline. Magnetite added to host rock at vein margins. The massive mafic unit is found uphill from here with quartz-chalcopyrite veins, suggesting that the zone extends uphill (south) into the slash. Good vein density here in places, but too rusty to confirm. Abundant limonite coatings on fractures. The structure here is very interesting. If one traces this flat fault down to base of outcrop, it appears to grade into rhyodacite dyke, as per station M-3. This suggests that rhyodacite dykes are intruding flat lying structures in places. Perhaps a Jurassic compressional structure formed during

accretion of Wrangellia to North America? It seems that best Cu in area seems to be proximal to these zones of potential A veins. There is a very important contact located here proximal to some old logging choker that is draping over the outcrop (Station M-4). Here, rhyodacitic porphyry occurs to west with breccia and more prominant quartz-chalcopyrite +/- bornite veining. Structure: FT: 052/52SE; Pictures: 102-3390-3393 (Banded quartz-chalcopyrite-mt +/- bornite veins), 3393 (chalcopyrite centreline in quartz-chalcopyrite vein), 3394 (fault zone with rhyodacite dyke in fault near base of outcrop; banded quartz-mt-chalcopyrite +/- bornite veins close to the intrusion).

Outroop to west of station 005 is rhyodacitic porphyry with zones of breccia and abundant quartz-chalcopyrite +/bornite veins. Quartz-chalcopyrite-bornite as veins and as matrix in breccia. Quartz-chalcopyrite-bornite as blebs in intrusion, as well (miarolitic cavities?), often with sucrosic/sugary quartz. Chalcopyrite as centrelines in some quartz veins. 0.25-0.5% quartz-feldspar phenocrysts in purple unit. Lots of hematite in matrix. Abundant mineralization occurs near the blast pit full of water. Limonite on fractures. This is a decent sized gossan.

Buff green weathering stratified units in outcrop(M-8) north west of main showing and creek area. In float, have potassium feldspar phyric, buff weathering unit full of cm scale voids lined with coarse-medium quartz. Looks like miarolitic cavities in a high level intrusion. 1-2% pink potassium feldspar phenocrysts to 1-2mm size. Intense quartz stockwork, with hairlines to 3 mm. Similar to unit on west size of ND zone. What was thought to be flow banding, upon closer inspection appears to be strong UST development. Is this an intrusion x-cutting stratified rocks in the area? If so, does this mean that some of the potential flow banding at the New Destiny zone is actually fine UST development in a high level intrusion? Is this a contact zone? Note: The miarolitic cavity-UST bearing material here may be giant float/subcrop. Outcrop here is still stratified volcaniclastic rocks, as per last station. Pictures: 102-3411 (outcrop), 3412 (miarolitic cavities), 3413 (UST), 3414 (miarolitic cavities), 3415 (miarolitic cavities and quartz veins), 3421 (float with miarolitic cavities and UST; close to source?).

On huge outcrop at northeast side of slash, downhill and NE of New Destiny. Potassium feldspar-quartz phyric rhyodacitic porphyry loaded with miarolitic cavities (quartz-potassium feldspar lined) and intense hairline to 2-4mm quartz stockwork (often cockscomb). 5-10% potassium feldspar (pink) and quartz phenocrysts to 1-3mm size. 10-30% miarolitic cavities filled with coarse to medium grained quartz and UST (?) lining cavities. Cavities average 1-2 cm size, but up to fist size in places. Magmatic-hydrothermal transition zone? Potential greasy green illite alteration of feldspars in places. Unit is cross-cut by breccia dykes with clasts of more aphyric phase in silica matrix. Sharp contacts to this breccia dyke.


Figure 28 Station Locations



Figure 29 Geology Map

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CONCLUSIONS and RECOMMENDATIONS

The Le Mare hydrothermal system has been just barely unroofed by erosion. The top of the potassic alteration zone is exposed along the crests of Le Mare and Gooding ridges, located between Le Mare Lake and Gooding Cove in the southwestern part of the Le Mare property. Local magnetic field gradient indicates that this system occupies a 5 X 3 km (3.05 X 1.83 mi) or 15 km2 (5.6 mi2) oval-shaped area that may be hosted by a dilational jog in a regional right-lateral fault system. The proposed fault system is similar to the one that hosts the Island Copper Cluster deposits near Port McNeill, British Columbia.

At surface, copper mineralization occurs in discrete showings-areas, located preferentially in the central parts of sub-vertical hydrothermal plumes. These plumes have core-zones of orthoclase-quartz-biotite (potassic) alteration, enveloped in siliceous exteriors. The gradual decrease in the orthoclase:quartz ratio from about 4:1 in potassic core zones to less than 1:20 in siliceous envelopes, indicates that peripheral silicification is a distal phase of the core-zone potassic alteration and is not overprinted by it. Orthoclase-quartz-biotite alteration is succeeded by quartz-jasper alteration; both phases are mineralized with chalcopyrite, and minor quantities of bornite. This potassic alteration is accompanied by co-incident soil-copper and local magnetic anomalies. Discovering economically viable concentrations of copper mineralization within the Le Mare hydrothermal system depends on the successful identification of zones where these hydrothermal plumes and copper occurrences coalesce.

Molybdenum enrichment occurs in areas flanking phyllic alteration in a 600-m (1,968.5-ft) diameter argillic-phyllic alteration plume, covering a 0.28 km2 (0.1 mi2) area in the eastern part of system in the South Gossan zone. Another, much less extensive plume of argillic-phyllic alteration is exposed between the Culleet Creek zone and Culleet Lake in the system's northwestern part. These two plumes cover less than 2% of the total exposure-area of the Le Mare hydrothermal system. Argillic-phyllic alteration post-dates and overprints potassic alteration.

Both sample results and the distribution of soil-copper and molybdenum anomalies, demonstrate that copper and molybdenum mineralization are associated with early potassic and subsequent argillic-phyllic alteration events respectively. They occur together in significant amounts only where molybdenum enrichment has overprinted that of copper.

Most aspects of the Le Mare hydrothermal system are similar with those of the Island Copper Cluster deposits. Geology, alteration, and mineralization at surface at the Le Mare hydrothermal system correspond with those attributes at the Island Copper mine above the main deposit. These similarities indicate that the Le Mare hydrothermal system may host a calc-alkalic porphyry copper-molybdenum deposit of the Island Copper Cluster type.

The Early Jurassic-age land surface above the Le Mare hydrothermal system, and whatever near surface hot-spring environment that it may have hosted, has been lost to erosion. Only a few narrow roots of a late, advanced argillic alteration occur in the argillic-phyllic alteration plume in the South Gossan zone. They attest to the former existence of hot spring development above the current erosional level.

Previously, the Le Mare hydrothermal system has been investigated for geyserite (SiO2.nH2O), an industrial mineral related to hot spring deposits. The level of exposure of the Le Mare hydrothermal system is beneath that favourable for the development of near-surface clays and industrial minerals. The chance of finding a commercially viable geyserite deposit in this area is low to nil.

Most exploration has been conducted in the northeastern part of the Le Mare hydrothermal system; its southeastern part remains sparsely explored to unexplored. Six BQ diamond drill holes penetrated the northeastern margin of the Le Mare system in 1992. One hole that penetrated the Culleet Creek potassic alteration plume, intersected five 2-m (6.56-ft) and one 4.7-m (15.42-ft) long intersections that contained from 500 to 959 ppm copper, which is similar to the tenor of copper mineralization in nearby trenches. Copper mineralization at surface is locally quite variable. The writer's samples range from 3 ppm to 6.57% copper.

Generally, the reproducibility of small-scale sampling is low. Such variability should be expected in mineralization located near the top of the potassic alteration zone of a porphyry copper-molybdenum deposit. Less than 1% of the surface area of the Le Mare hydrothermal system has been drilled.

Recommendations

It is recommended that a two-phase work program be conducted on the Le Mare hydrothermal system to explore for the presence of a calc-alkalic porphyry copper-molybdenum deposit of the Island Copper Cluster type.

The first phase of the recommended work program comprises geological mapping, prospecting, and soil survey. The services of an excavator, two pick-up trucks and an all-terrain vehicle (quad) will be required to provide efficient access to the work-area.

Geological mapping and prospecting should be conducted over the whole 15 km2 (5.6 mi2) covered by the hydrothermal system. Focus of this work should be on: 1. identifying areas of mineralization that may be present, 2. recording the relationship among mineralization and the various alteration types that are known to be present in the system, 3. mapping the distribution of alteration types to determine the locations of potassic and argillic-phyllic alteration plumes which are hosts of copper and molybdenum mineralization respectively, 4. discerning both the volcanic and intrusive stratigraphy, and the pattern of drape folding.

Soil samples should be collected along traverses using the many logging roads that are present throughout the area covered by hydrothermal system. In most parts of the project-area, logging roads are sufficiently close together to enable contouring of soil data between them. Contour traverses through the bush will be necessary in locations with widely spaced roads. Soil samples should be taken at 50-m (82-ft) intervals along traverses. During the current (2009) work program, soils were surveyed over 5 km2 (1.9 mi2) of the 15 km2 (5.6 mi2) area of the hydrothermal system. If the sampling density of the 2009 soil survey is maintained, then to survey the remaining 10 km2 (3.7 mi2) will require about 580 samples to be taken along 27.6 km of line.

If reasonable encouragement is generated by the results of the first-phase program, it should be followed by a second-phase program of 3-dimensional induced polarization and ground magnetic surveys. Those surveys should be conducted over the whole 15 km2 (5.6 mi2) area of the hydrothermal system. Induced polarization surveys are conducted most efficiently along cut lines where wires of known lengths can be strung out from generators. A survey over the Le Mare hydrothermal system will require the cutting and surveying of about 75 km (45.75 mi) of line to produce a survey grid-area with lines spaced 200 m (656 ft.) apart. Cutting lines through dense second-growth rain forest over the rugged terrain on the Le Mare property will be slow work. It is estimated that a 2-man crew will be able to cut only about 0.5 km (0.31 mi) of line per day.

The results of the two phases of the recommended work program should produce a three-dimensional assessment of the rock to a depth of about 300 m (984 ft.) beneath the surface exposure of the Le Mare hydrothermal system. It is expected that this assessment will be sufficiently detailed to enable precise location of the best target-areas to drill for porphyry copper and molybdenum mineralization.

Item	Costs	Accumulated cost
Line-cutting Costs:		
75 km of line @ \$2,250/km (all-in contractor price)	\$ 168,750	
Excavator for road opening; 90 hours @ \$150/hour	\$ 13,500	
Excavator mobilization	<u>\$ 5,000</u>	
	\$ 187,250	\$ 187,250
Geophysical Survey Costs:		
75 km of 3-dimensional induced polarization and ground magnetic surveys @	\$ 240,000	\$ 240,000
\$3,200/km (all-in contractor price including data manipulation and reporting)		
Geological Support and Project Management:	¢ 47 500	
J. I. Snearer, senior geologist and project manager; 25 days @ 700/day	\$17,500	
1 geologist; 25 days @ \$650/day each including field work, data manipulation and	¢ 10 250	
reporting for assessment	<u>\$ 10,250</u> \$ 22,750	¢ 22 7F0
Transment and Craw Casta fair Casta signification d Managamants	\$ 33,750	\$ 33,750
Transport and Crew Costs for Geological Support and Management.	\$ 2,000	
Casalina	\$ 2,000 \$ 2,000	
Gasoline Hotal: 20 man days @ \$100/day	\$ 2,500	
Moals in transit: 20 man days @ \$60/day	\$ 2,000 \$ 1,800	
Niedis in transit, 20 mai-uays @ \$00/uay	<u>\$ 1,800</u> \$ 8 300	\$ 8 300
Communication Costs:	\$ 8,500	\$ 8,500
Satellite phone rental: A weeks @ \$400/week	\$ 1 600	
1 EM truck radio: 1 month @ \$750/month	\$ 750	
	\$ 2,350	\$ 2,350
Reporting Costs and Office Expenses:		
Digital Map Drafting	\$ 3,000	
Physical and Electronic Assessment Report Production Costs	<u>\$800</u>	
	\$ 3,800	\$ 3,800
Environmental and Compliance Costs:		
Top up of current environmental bond for road work and line cutting	\$ 10,000	<u>\$ 10,000</u>
Itemized Cost of Recommended Second-phase Induced Polarization and Ground		\$ 485,450
Magnetic Survey Program		
Harmonized goods and services tax (H.S.T.) (12% of previous items		<u>\$ 58,254</u>
I Key Stand Durdent		ć 5 40 704
		\$ 543,704
Contingency; 10% of itemized budget		\$ 54,370
Total Estimated cost of Recommended Second-phase Induced Polarization		\$ 598,074
and Ground Magnetic Survey Program		-

Estimated Cost of the Recommended Follow-up Exploration Program

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APPENDIX I

STATEMENT of QUALIFICATIONS

October 26, 2016

STATEMENT of QUALIFICATIONS

I J. T. (Jo) Shearer, of Unit 5 – 2330 Tyner St. Port Coquitlam, BC, V3C 2Z1, do hereby certify that:

- 1. I am an independent consulting geologist and principal of Homegold Resources Ltd.
- 2. My academic qualifications are:
 - Bachelor of Science, Honours Geology from the University of British Columbia, 1973

- Associate of the Royal School of Mines (ARSM) from the Imperial College of Science and Technology in London, England in 1977 in Mineral Exploration

- Master of Science from the University of London, 1977
- 3. My professional associations are:

- Member of the Association of Professional Engineers and Geoscientists in the Province of British Columbia, Canada, Member #19,279 and the APGO in Ontario, Member 1867.

- Fellow of the Geological Association of Canada, Fellow #F439

- 4. I am responsible for the preparation of all sections of the technical report entitled "Geochemical and Geological Assessment Report on the Le Mare Copper-Gold Property" dated October 26, 2016
- 5.
- 6. I have visited the property between April 24 and 25, 2016, February 24, 2011, May 15, 2011 and July 21-24, 2014. I have carried out mapping and sample collection and am familiar with the regional geology and geology of nearby properties. I have become familiar with the previous work conducted on the Le Mare Project by examining in detail the available reports and maps and have discussed previous work with person knowledgeable of the area.

October 26, 2016

Date

J.T. (Jo) Shearer, M.Sc., P.Geo.

Appendix II

Statement of Costs

October 26, 2016

Statement of Costs 2014

Professional Services	
Wages	Total not
	including
	HST
J.T. Shearer, M.Sc., P.Geo., 2 days @ \$700/day,	\$ 1,400.00
April 24/25, 2016	
R. Savelieff, B.Sc., P.Geo., 2 days @ \$450/day	900.00
April 24/25, 2016	
Tyler Ruks, Ph.D., P.Geo., 11 days @ \$600/day	6,600.00
April 24 to May 3, 2016	
Subtotal	\$ 8,900.00
Expenses	
Transportation:	
Truck 1, fully equipped 4x4, 2 truck days @ \$120/day	240.00
Truck 2, fully equipped 4x4, 11 truck days @ \$120/day	1,320.00
All-Terrain Vehicle, 11 days @ \$100/day	1,100.00
Gas	625.00
Camp, Trailer, 11 days x 3 men @ \$100/day	1,100.00
Ferry	400.00
Road Opening, clearing debris	500.00
Food & Meals, 37 man days @ \$45/day	1,665.00
Satellite Phone Rental	250.00
Truck Radios for Logging Roads	200.00
Brian Kornichuk, 11 days @ \$350/day; April 24 to May 3, 2016	3,850.00
Bill Ruks, 11 days @ \$250/day; April 24 to May 3, 2016	2,750.00
Data Compilation and Interpretation	700.00
Word Processing and Reproduction	350.00
Report Preparation	1,000.00
Subtotal	\$ 16,050.00
Grand Total	\$ 24,950.00

 Event #
 5623568

 Date Filed
 October 26, 2016

 Amount
 \$22,000.00

 PAC filed
 \$4,468.93

 Total Paid
 \$26,468.93

APPENDIX III

ROCK SAMPLE DESCRIPTIONS

October 26, 2016

LeMare Lake	- TR No	tes 2016	Rock and Outcrop Des	criptions
ident	lat lo	ng y_proj	x_proj	comment New Destiny zone today. Qtz-mt-hem-cpy banded veins are present in outcrop here. These appear to cross cut all lithologies including massive matic/intermediate unit that dominates the road-cut in addition to felsic units. Are massive
16TRLM001		5585119.7575900000	0 576637.57443100000	mafic units actually fine grained intrusions, or volcanic rocks? Do more detailed mapping tomorrow. East side of New Destiny zone, next to logging slash. Green outcrop approximately 10 m east-west in dimensions. Appear to have mixed seds and mafic volcanic rocks here. Volc sandstone of lap tuff? Have 1-2% black clasts (mudstone rip ups (?), angular to 2-3 mm size) in medium grained, sandy matrix. Purplish, hem altered. Also have green (dark) mafic volc -> potential bas-and flows? Potential pillows? Strange textures. Some amoeboid clasts with rusty rinds (pillow rinds?). Chl-mal in small fracture zones. Strong hematite alteration in sed rocks. Potential bedding in places. Structure: S0: 167/80; Pictures: 102-3366-68 (Mafic volcanic texture), 3369 (volcanic sandstone?), 3370 (chl-malachite
16TRLM002A		5585075.8781700000	0 576768.61413600000	in fracture zone).
16TRLM002B		5585092.280650000	0 576736.63375800000	Massive, aphanitic mafic unit. Dark green and purple. Hem on fractures. Anastamosing qtz-cpy +/- bn veins with blebby sulfides to 2-3 mm or greater. Most mafic volc is moderately magnetic. Rusty outcrop. Most fracture are hematite and/or limonite coated. Vein density: 2mm/50mm; Pictures: 102-3372 (qtz-cpy vein), 3373-3374 (qtz-cpy+/- bn vein).
16TRLM003 16TRLM004		5585101.3193200000	0 576720.86836300000 0 576702.96617400000	High grade zone. More gossanous outcrop of massive fig. mafic unit (dark green). Abundant anastamosing qtz-cpy +/- bn stockwork forming pseudobx/bx. Qtz often cockscomb. Found potential A veins here yesterday. These are banded qtz-mt/hem +/- cpy-bn veins, sometimes x-cutting each other. Clearly banded! Some fractures appear to have magnetite coatings. Potassic alteration? Pictures: 102-3375-3379 (Banded qtz-mt-hem-cpy+/- bn veins), 3380 (qtz-cpy+/-bn vein), 3381 (high grade zone of qtz-cpy+/- bn veins), 3382 (intense qtz-cpy +/- bn veining), 3383 (as per last picture), 3384 (qtz- cpy +/- bn veinining), 3385 (high grade zone of qtz-cpy +/- bn pseudo bx with hammer for scale). Rusty fault zone next to creek. Full of rhyo-dac micropoprh (?) full of qtz-met-hem-cpy +/- bn veins (banded). Back into massive mafic unit on west side of this. Is this felsic unit intruding faults? Nice contacts exposed in zone. Rhyodac unit is brecciated with hem matrix. Is x-cut by qtz-cpy veins and banded A veins. Is this the causative intrusion? Fsp in porphyry altered to greasy green mineral (illite?). Rhyodac unit has sub-mm QDs (trace) and some mafic fragments? If these are mafic xenoliths, this rhyodacite unit is likely intrusive, and cross cuts the massive mafic units in the road cut. E- W of N-S control? Rhyodac bx appears to be dyke like. If these units were controlled by E-W structures, they would occupy most of this road cut, which is E-W trending. Since they do not dominate the geology here, they are likely N-S, or oblique to the road (or pipe-like). Are these rhyodac dykes similar to the altered dykes at the South Gossan zone? Pictures: 102-3386 (contact at hammer), 3387 (banded vein in rhyodac clast (qtz-hem)); 3388 (close up of above), 3389 (rhyodac microporph bx (hem matrix) with qtz-cpy vein).
16TRLM005		5585112.5171200000	0 576662.31494000000	More massive mafic. Since last point have more qtz-cpy +/- bn veins. Potential A veins here. Nice banded qtz-cpy-mt +/- bn veins. Appear sheeted in places. Some have cpy +/- bn centerline. Mt added to host rock at vein margins? Brian found massive mafic unit uphill from here with qtz-cpy veins, suggesting that the zone extends uphill (south) into the slash. Good vein density here in places, but too rusty to confim. Abundant lim coatings on fractures. The structure here is very interesting. If one traces this flat fault down to base of outcrop, it appears to grade into rhyodac dyke, as per last station. This suggests that rhyodac dykes are intruding flat lying structures in places. Jurassic compressional stucture during accretion of Wrangellia to North America? It seems that best Cu in area seems to be promxial to these zones of potential A veins. There is a very important contact located here proximal to some old logging choker that is draping over the outcrop. Here, rhyodac porphyry occurs to west with breccia and more prominant qtz-cpy +/- bn veining. Structure: FT: 052/52; Pictures: 102-3390-3393 (Banded qtz-cpy-mt +/- bn veins), 3393 (cpy centreline in qtz-cpy vein), 3394 (faul zone with rhyodac dyke in fault near base of outcrop; banded qtz-mt-cpy +/- bn veins close to the intrusion).

16TRLM006	5585110.92633000000 576654.87632800000	Outroop to west of station 005 is rhyodac porph with zones of bx and abundant qtz-cpy +/- bn veins. Qtz-cpy-bn as veins and as matrix in bx. Qtz-cpy-bn as blebs in intrusion, as well (miarolitic cavities?), often with sucrosic/sugary quartz. Cpy as centrelines in some qtz veins. 0.25-0.5% qtz-fspar phenos. Purple unit. Lots of hem in matrix?? Nicest mineralization occurs near the blast pit full of water. Limonite on fractures. This is a decent sized gossan. Pictures: 102- 3396 (outcrop), 3397-99 (miarolitic cavities (?) with cpy-bn-qtz), 3400 (qtz-cpy vein fragment in rhyodac bx), 3401 (rhyodac bx with qtz-cpy vein clasts), 3402 (highly milled rhyodac bx with shattered xtals and rock flour, x-cut by QVs with cpy/py centrelines). Rubby west face of roadcut since last point. More rhyodac bx with hem matrix. Very rubbly face loaded with bx and
16TRLM007	5585114.11224000000 576631.73436200000	clasts. New bx here is heterolithic with angular to round, green, white and maroon clasts set in qtz-blebby cpy matrix. Definitely a hydrothermal bx. Pictures: 102-3403, 3404 (heterolithic bx with qtz-cpy matrix).
16TRLM008	5585304.1303000000 576633.83329500000	In creek above road. Have well bedded volcanosed rocks, grey-green to purple. Sitting apparently upright (normal grading). Pebble conglom (mod sorted) at base grades into hem altered siltstone/ash tuff at top. Turbidites or base surge deposits? Sorting suggests potential reworking. Most abundant clast is buff coloured, angular, 1-2mm to 2-3cm in size. Potential fiamme in places; shard-like. Angularity of clasts suggests not reworked by fluvial processes. Looks like base surge deposits? X-cut by sheeted, cockscomb qtz veins at 90 deg to bedding. Veins are a bit rusty, but could not find any cpy here. Limonite on some of the bedding planes and in some fracture zones. Float of k-spar phyric porph with miarolitic cavities uphill. Also float with potential spherulites. Structure: S0: 146/58; V1: 032/48; Pictures: 102-3405, -3407 (volcaniclastic rocks), 3408 (outcrop shot), 3409-3410 (float with miarolitic cavities uphill from station). Lunch spot. Buff green weathering stratified units in outcrop. In float, have K-spar phyric, buff weathering unit full of cm
		scale voids lined with coarse-medium qtz. Looks like miarolitic cavities. High level intrusion? 1-2% pink kspar phenos to 1-2mm size. Intense qtz stockwork, hairline to 3 mm. Similar unit on west size of ND zone. What was thought to be flow banding, upon closer inspection appears to be strong UST development. Is this an intrusion x-cutting stratified rocks in the area? If so, does this mean that some of the potential flow banding at the New Destiny zone is actually fine UST development in a high level intrusion? Is this a contact zone? Note: The miarolitic cavity-UST bearing material here may be giant float/subcrop. Outcrop here is still stratified volcaniclastic rocks, as per last station. Pictures: 102-3411 (outcrop), 3412 (miar cavities), 3413 (UST), 3414 (miar cavities), 3415 (miar cavity with qtz lining), 3420 (miar cavities)
16TRLM009	5585186.48864000000 576663.37317300000	and qtz veins), 3421 (float with miar cavities and UST; close to source?). Hill top outcrop next to creek (just to west). Have buff weathering unit. Fresh surface reveals massive mafic unit as per New Destiny zone. Well developed bx texture on weathered surface. Moderately magnetic. Lim fractures. Some strange-looking, light green fracture coatings (epidote or something else?). Some veins in outcrop appear to be a white clay (telescoped argillic or advanced argillic?). Picture: 102-3416 (breccia texture: looks milled, hydromagmatic or
16TRLM010	5585189.49607000000 576640.70787000000	volcanic?).
		Hiked across slash. On huge outcrop at northeast side of slash, downhill and NE of New Destiny. Kspar-qtz phyric rhyodac porph loaded with miar cavities (qtz-kspar lined) and intense hairline to 2-4mm qtz stockwork (often cockscomb). 5-10% skapr (pink) and qtz phenos to 1-3mm size. 10-30% miar cavities filled with coarse to medium grained qtz and UST (?) lining cavities. Very neat! Cavities average 1-2 cm size, but up to fist size in places. Magmatic-hydrothermal transition zone? Potential greasy green illite alteration of fspars in places. Unit is cross-cut by breccia dykes with clasts of more aphyric phase in silica matrix. Sharp contacts to this bx dyke. Multiphase system. Does this unit exist under New Destiny? Very close to New Destiny zone. Where is the copper here? Could not find a single sulfide mineral. This area should be scoured for potential sulfides. Potential fine grained biotite with some of the qtz veins?? In rare instances, some of the miar cavities are filled with limonite. Leached out sulfides? Note N-S orientation of breccia dyke. Structure: Dyke: 002/45; Pictures: 102-3422 (miar cav), 3423 (bx dyke x-cuts RD porph), 3424 (bx dyke cross cuts porph), 3425 (miar cav, with caver with caver are infilled with limonite. 2406 (miar cav), 2426 (miar cav), 2426 (miar cav), 3423 (bx dyke x-cuts RD porph), 3424 (bx dyke cross cuts porph), 3425 (miar cav, site caver are infilled with limonite. 2001/2001/2001/2001/2001/2001/2001/2001
	5555270.4507100000 570640.75047400000	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)

		Looking for miar cav bearing rhyodac porph along road, downhill from yesterday. Found QFP/RDPR with intense vesicle development and qtz stockwork. Vesicales are lined with qtz, similar to miar cavs uphill, but are smaller in size. Vesicles or miar cavs? Station is near contact with massive mafic volcanic rocks. Section of road is roughly N-S here. Mafic volcanic rocks on north end and QFP/RDPR on south. A fault at 175/60 is in the area of the contact. This N-S structure, although dipping to west, is broadly similar in attitude to the east dipping, N-S breccia dyke uphill from here. More evidence for N-S control? There is an intense qtz stockwork in RDPR, as per uphill in miar cav zone. Nice flat flying, sheeted qtz veins here. JB, Tom and I saw this on our first trip. Weak pyrite development in mafic volcanic rocks to north. Jasper in mafic volcanic rocks in places. Structure: FT: 175/60: Pictures: 102-3428 (miar cav or vesicles in
16TRLM012	5585576.71412000000 576807.52205100000	QFP/RDPR), 3429 (stockwork qtz veins), 3430 (stockwork qtz veins) Walked east into slash. More buff-gossanous outcrop. Here have vesicle rich RDPR with trace to 0.5% fspr and qtz phenos to 1-2 mm size, and intense qtz-hem stockwork. Prevalent hairline qtz-hem veins. Up to 30% 1-2mm vesicles in
16TRLM013	5585570.5688300000 576881.98519500000	places. Looks brecciated in places. Vescicles or qtz phenos? Pictures: 102-3431, 3432 (stockwork hairline qtz-hem veins), 3433 (intense stockwork, resistant to weathering). Bluff above road, just to west of last station. Have buff weathering cherty unit here. Looks hornfelsed. Absolutely loaded with hairline, sheeted qtz-hem veins, some containing blebby cpy. Some potential magnetite with veins. Are these porphyry related? Veins appear banded in places. Very interesting. Cm scale bx dykes cross cut this unit. Qtz-hem veins have bleached selveges, are nearly verical and are x-cut nearly at 90 deg by another set of qtz veins that aren't as prevalent. Host rock here appears to be massive mafic unit, and is moderately magnetic. Mafic dyke at the base of outcrop has contact at same orientation as veins. This dyke contains fragments of wall rock. This is massive mafic unit a pendant in a larger OEP/RDPR intrusion? Structure: V1: 320/89: Pictures: 102-3434 (Otz-hem veins sheeted) 3435
16TRLM014	5585567.25991000000 576871.13783600000	(blebby cpy), 3436 (bx dyke - cm scale). South end of road that is south of New Destiny. Trying to trace zone to south. Hiked across slash into rusty slide at end of slash. Here have aphyric rusty lim coated flow banded rby. No gtz veins seen. Trace gtz phenos to 0.5-1mm size
16TRLM015	5584338.6535900000 576967.43875000000	Structure: $S0 = 155/68$; Pictures: 102-3437 (limonite stained rhy flow); 3438 (flow banded rhy) Dark green mafic volc with 0.2% dissem chl altered phenos. Bleached zones containing qtz-ep veins at 2cm/15cm vein density (VD). Flow banded rhy of last station is proximal to this chl-ep altered mafic volcanic. Hem altered dyke with clacite amyos about 100m to porth of here. VMS potential in 200 Ma bost volcanic rocks, or propylitic alteration related to
16TRLM016	5584390.64281000000 576808.06869800000	~ 170 Ma porphyry? Structure: S0: 155/68 Picture: 102-3446 (chl-epidote/propylitic alteration). Rusty o.c. above road, RD porph or volc (?) with gtz veins. Lim on fractures. No visible sulfides. Why?? Flow banding
16TRLM017	5584555.3849200000 576626.81069900000	dipping downslope, as per last RHFL stop (dips to west). Prop altered mafic volc site below this slide. Knoll top outcrop on south side of slash. Have buff weathering outcrop with 0.5% pink fspar phenos on weathered surface. RD volc/porph. Hard to sample rounded surfaces. Fresh surface is darker coloured. Hard to discern protolith. Well developed qtz stockwork (+/- hem) with local zones of bx with qtz matrix (clasts weathered out). Upon closer investigation, this unit is a rhyodac/rhy with QEs to 1-3mm size and abundant flatted vesicles. High level intrusion or volc? With exception of vesicles, unit looks similar to OEP/RHPR at New Destiny. Pictures: 102-3447 (preccia with qtz
16TRLM018	5586585.0744300000 576924.40548600000	matrix), 3448 (pink fspar phenos), 3449 (qtz +/- hem stockwork) At water near Culleet Ck. mouth. Have well bedded volcaniclastic rocks dipping towards water.; These are juxtaposed with more massive, highly fractured pinkish lithologies (dykes?) which are contain variable concentrations of qtz-cpy +/- bn veins. Are these felsic dykes intruding along bedding planes? Dykes contain qtz-fspar phenos as per RDPR in slash to the east. Qtz veins appear to be concentrated in more massive units (dykes?). Hard to pick out contacts. Late mafic dykes are also present. Veins occur in multiple orientations. A large qtz vein with cpy is at 325/60. Pink selveges to some of the qtz veins. Potential kspar flooding, or hem alteration? Pervasive hem in all rocks here, except for the late mafic dykes. Veins appear to be concentrated in coarser grained lithologies (dykes?). Structure: S0: 174/40; V1: 325/60; Pictures: 102-3452 (bedded volcaniclastic units behind massive RDPR with stockwork), 3453 (stockwork qtz
16TRLM019	5586871.59442000000 576666.97218200000	veins), 3454-3455 (potential kspar flooding along qtz vein selvege).

16TRI M020	5586828 74979000000 576779 83883000000	End of road, and location of trail head to water and last station. Have blasted outcrop of purple coloured, kspar-qtz phyric RD/RH microporph x-cut by qtz-cpy +/- bn veins. Bornite appears to be prevalent in veins. A check must be conducted to make sure this is not just tarnished cpy. VD is 2/3mm/100-200mm. Potential secondary bt as green, fine grained aggregates in veins (need thin section to confirm). Mafic phenos (bt?) are altered to sulfide in places. Anastamosing veins. Very New Destiny like in style of mineralization. Calcite is intergrown with cpy/bn in places. This calcite-CuS association is not very porphyry like. Is this mineralized float in this area blast rock trucked in from another area? Pictures: 102-3456 (stockwork qtz-cpy/bn veins). 3457 (outcron shot)
TOTILLIMOZO	5566628.7497900000 576779.8588500000	Bill Ruks discovery outcrop. Pervasive hem altered rhyodac microporph (?). Volc or intrusive? Fractures in places coated with cpy +/- bn. Some blebs of cpy throughout unit do not appear to be vein controlled. Similar isolated blebs are present at New Destiny. Calcite filled amygs in places, suggesting volcanic origin. There is a chance that mineralization from the last station is actually rock blasted from this location. Qtz-spec hem +/- mt veins present locally. These do not appear to contain significant cpy. Cpy +/- bn in area seems to be localized to gossanous fractures/joints from last station.
16TRLM021	5586738.8600900000 576920.38862200000	Pictures: 102-3460, 3561, 3462 (blebs of cpy +/- bn in altered rhyodac). Just south of last station. Since last point, pyrite content in rhyodac is increasing. Here, have boulder of rhyodac x-cut by qtz-spec hem-mt veins. Very similar to A veins from New Destiny zone. Clots of coarse spec hem in vein and as 5 mm sized blebs in host rock. Face of outcrop appears to be rhyodac bx with qtz-hem matrix (?). Qtz vein fragments appear to be present in the bx. Pictures: 102-3463 (spec hem-mt vein), 3464 (Qtz-spec hem-mt vein), 3465 (spec hem-mt),
16TRLM022	5586689.55724000000 576958.64125100000	3466 (breccia on outcrop face), 3467 (qtz vein fragments in bx), 3468 (rhyodac clast in bx). Back in slash near western edge near treeline. Have buff weathering outcrop of what looks like pink fspar +/- qtz phyric rhyodac volcanic rocks. Appears to be volcaniclastic in places. Here, unit is cut by vein of massive spec hem. Spec hem (fine grained) contains frags of wall rock. Qtz vein spatially associated with spec hem mineralization. Potential fine grained sulfides in outcrop (py +/- cpy). Qtz-lim veins in outcrop, too. Potential fine grained cpy +-/ bn in some of these veins. Much of the rhyodac in this slash appears to be volcaniclastic in origin. Have seen bedding in float. Pictures: 102-
16TRLM023	5586611.22267000000 576848.95490100000	3469, 3470 (spec hem veining in rhyodac volcanic rocks(?)). Epidote qtz altered float north of New Destiny. Shearer 0.6% Cu is from here. Sample appears to be from float. Mineralized float contains intense silica-epidote alteration with disseminated cpy. This appears to be a different style of
16TRLM024	5585400.12264000000 576581.27731400000	Cu mineralization.