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DE FROM:
SUJET SUBJECT: Spring 1990 Drill Proposal - Lara and Mt. Sicker Projects

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1. Introduction

A 32 hole, 7000 meter drill program is proposed to test massive sulphide targets on the Lara and Mt. Sicker properties. Twenty holes (4590 m) will be drilled on the Lara property and 12 holes (2410 m) will be done on the Mt. Sicker property. Specific target areas are discussed below.

2. Lara PN 242

a. Introduction

Minnova's 1989 exploration program on the Lara property consisted primarily of diamond drilling and a limited amount of ground surveys (i.e. geology, geophysics: IP, VLF, Mag, lithogeochemistry). The main objectives were to find additional ore reserves in and around the Coronation Zone and to assess the massive sulphide potential of the rest of the property. The drilling, metallurgical work and open-pit assessment of the Coronation zone mineralization indicates that the near-surface high grade pods can be mined with anticipated good metal recoveries but the outlined tonnage is too small to be economic. In contrast, the reconnaissance drilling and ground surveys greatly enhanced the massive sulphide potential in other parts of the Lara property.

A structural study of the Sicker volcanics exposed on our Lara and Mt. Sicker properties was initiated in 1989. In spite of problems due to a lack of bedding and distinctive marker units, two major phases of deformation were recognized. An early phase I

folding event produced a pervasive vertical to steeply dipping west-northwesterly trending foliation and a shallow easterly plunging (15-20°) lineation. An intense stretching, which is believed to be in the order of at least 10:1, occurs parallel to the lineation. The second major deformation event is characterized by southwesterly directed thrust faults that dip moderately (45°) to steeply (65-70°) toward the northeast. This faulting has locally repeated both the mineralization (i.e. Coronation Zone and Hanging Wall Zone) and the stratigraphy (Figure 1).

The Coronation Zone is interpreted as a stringer zone that has been stretched parallel to the lineation during the early folding episode. At the present erosional surface, it appears that the volcanogenic massive sulphide associated with the Coronation stringer zone has been eroded away. However the easterly plunge of the mineral lineations implies that such a deposit could be preserved to the east.

The lithogeochemical surveys defined two areas of hydrothermal alteration that are characterized by Na₂O depletion and Ba, Cu and Zn enrichment (Figure 2). One of these zones is associated with the Randy Zone felsic volcanics that outcrop in the northern part of the property near the transition between Sicker volcanics and sediments. This alteration appears to be stratiform and has been traced over a strike length of approximately 12 km. → The other area of hydrothermal alteration is associated with felsic volcanics that are located a) in the structural hanging wall to the Coronation Zone: 262 Felsics and b) to the east of the Coronation and Coronation Extension zones: CZ Felsics.

Hole 89-262 which tested an IP anomaly in the 262 Felsics intersected a 1.15 meter zone of intermediate ash, chert and semi-massive pyrite that assayed 1.42% Cu, 0.12% Zn and 5.9 g/T Ag. Pyritic cherts and intermediate ashes with anomalous zinc contents (89-269: 213 ppm Zn over 7.9 m) have been traced up to 2.1 km east of the 262 intersection. These units are interpreted as distal exhalites associated with a potentially economic VMS deposit.

The Road showing occurs in altered CZ Felsics, 1.5 km east of the Coronation Extension zone mineralization. Sulphide stringer material from this occurrence have yielded assays as high as 0.2% Cu, 0.85% Pb, 3.25% Zn, 25 g/T Ag, 2.94 g/T Au and 1.84% Ba. Trenching 550 meters to the west of the showing has exposed a 15 meter thick argillite horizon which may be correlative with massive sulphide deposition. This and the presence of highly geochemically anomalous felsic volcanics (i.e. hole 84-1: 1795 ppm Zn, 3900 ppm Ba, 0.94% Na₂O over 17.7 m) indicates that the Road showing area may be near to the easterly plunging VMS deposit thought to be associated with the Coronation stringer zone.

b. Proposed Drilling

The 1990 spring drill program on the Lara property will focus on evaluating geological and geophysical targets in the hydrothermally altered 262 and CZ felsics that outcrop to the east of the Coronation zone. Drill hole locations are shown in figure 3 and specific details are presented in Table 1.

Sixteen holes will test the CZ Felsics - a 100 meter thick sequence of interlayered ashes, crystal tuffs, cherts and argillites that dips 55° to the north. Specific targets within this unit include shallow IP/VLF anomalies, humus anomalies and the down-dip and strike extent of specific argillite horizons. Figure 4 is a vertical longitudinal of the CZ Felsic package showing the expected midpoints of the felsics in proposed holes and previously intersected mineralization.

Five holes will test the extent and significance of zinc and copper enriched pyritic ashes and cherts that have been previously intersected in the 262 felsic sequence.

TABLE 1: PROPOSED DRILLING: LARA PROPERTY(cont.)

Hole	Location	Collar		Elevation	Depth	Target	Felsic Sequence
		Azimuth	Dip				
P-11	74+00W; 109+50N	208	-59	716 m	320 m	100 m down dip of hole 85-72 that intersected 1974 ppm Zn, 0.26% Ba over 9.2 m	CZ
P-12	76+00W; 107+59N	208	-70	699 m	170 m	100 m down dip of argillites exposed in trench 83-25	CZ
P-13	77+00W; 108+50N	208	-60	720 m	250 m	Test western strike and down dip extent of argillites in trench 83-25	CZ
P-14	77+45W; 107+40N	208	-50	695 m	150 m	Test strike extent of argillites in trench 83-25	CZ
P-15	81+00W; 109+25N	208	-65	712 m	350 m	150 m and 90 m down dip of zinc stringers in 84-6 (410 ppm Zn over 20.6 m) and 85-73 (153 ppm Zn over 7.5 m) respectively	CZ
P-16	81+60W; 106+80N	208	-50	660 m	220 m	Test coincident IP and soil geochemical anomalies	CZ
P-17	83+00W; 108+80N	208	-70	675 m	300 m	Test area of Na ₂ O depletion in 262 felsics and down dip extent of IP anomalies tested in hole P-16	CZ/262
P-18	83+50W; 107+50N	208	-50	631 m	220 m	Test 110 m up dip and 50 m W of hole P-17	CZ
P-19	88+00W; 107+40N	208	-70	648 m	250 m	Test 150 m east and down dip of 262 intersection (1.42% Cu, 0.12% Zn over 1.14 m)	262
P-20	90+00W; 104+00N	208	-55	658 m	180 m	Test strong VLF anomaly and Coronation Extension Zone	CZ
Total					4690 m		

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Hole	Location	Collar			Depth	Target	Felsic Sequence
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P-1	57+35W; 110+99N	208	-53	703 m	170 m	Up dip test of hole 89-267, where both stringer mineralization (526 ppm Zn over 4.57 m) and a sequence of interbedded chert and felsic ash (227 ppm Zn over 10.80 m) were intersected	CZ
P-2	59+45W; 111+92N	208	-50	720 m	250 m	200 m step out to W from 89-267 to test the lateral extent of the interbedded sequence of chert + felsic ash	CZ
P-3	62+00W; 113+00N	208	-50	725 m	150 m	Test humus anomaly and extent of py-Zn enriched ashes intersected in 89-269 (213 ppm Zn over 7.9 m)	262
P-4	64+00W; 113+32N	208	-73	733 m	250 m	Test a strong VLF - IP anomaly	262
P-5	64+00W; 110+55N	208	-55	651 m	250 m	450 m westerly step out from P2	CZ
P-6	66+33W; 113+40N	208	-50	710 m	170 m	150 m east step out testing py-Zn enriched ashes intersected in 89-269	262
P-7	67+00W; 109+06N	208	-45	661 m	160 m	Test IP and humus anomalies 350 m east of the Road Showing	CZ
P-8	68+00W; 109+25N	208	-60	675 m	250 m	Test two IP anomalies, 250 m east of the the Road Showing	CZ
P-9	69+00W; 108+40N	208	-48	684 m	180 m	Test an IP anomaly 150 m east of the Road Showing and downdip of zinc stringers in trench 83-23	CZ
P-10	72+00W; 110+90N	208	-61	716 m	450 m	200 m down dip of hole 85-71 that intersected 1659 ppm Cu, 4384 ppm Zn over 2.6 m	CZ

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P-18	83+50W; 107+50N	208	-50	631 m	220 m	Test 110 m up dip and 50 m W of hole P-17	CZ
P-19	88+00W; 107+40N	208	-70	648 m	250 m	Test 150 m east and down dip of 262 intersection (1.42% Cu, 0.12% Zn over 1.14 m)	262
P-20	90+00W; 104+00N	208	-55	658 m	180 m	Test strong VLF anomaly and Coronation Extension Zone	CZ
				Total	4690 m		

2. Mt. Sicker

a. Introduction

Recent work on Mt. Sicker has focused on evaluating the Lenora-Tyee mineralized trend which hosts the former producers (300,000 tons @ 3.3% Cu, 7.5% Zn, 2.75 oz/T Ag, 0.13 oz/T Au). This zone has been traced over a strike length of 4.5 km. Thin but high grade massive sulphide zones (MTS-75: 0.14% Cu, 4.02% Zn, 2.61% Pb, 197 g/T Ag, 10.33 g/T Au over 0.13 m) and zinc-enriched stringer zones (MTS-72: 1.76% Zn over 3.45 m) were intersected in the Lenora-Tyee area, pyrite-chalcopyrite stringers were intersected in the Mona area and pyrite tuffs with anhydrite alteration were outlined in the Gap area (Figure 5). However, to date, no additional zones of economic mineralization have been outlined along the Lenora-Tyee trend.

Another area of anomalous geochemistry with shallow geological and geophysical targets is present on the north slope of Mt. Sicker. The Gabriel horizon which consists of interbedded argillites, cherts and rusty felsic crystal tuffs is defined by good, laterally extensive IP chargeability anomalies. The host rocks locally exhibit intense Na₂O depletion and spotty Ba and Zn enrichment.

The Postuk-Fulton horizon consists of a sequence of pyritic felsic ashes, cherty horizons and chalcopyrite stringers that occur at the contact between andesitic flows and tuffs (PF andesites) and intensely sericitic and pyritic felsic ashes and crystal tuffs (PF felsics). This favourable contact dips 70° to the north and trends in a east-southeasterly direction beneath the relatively flat-lying B.C. Tel diorite. Sixteen holes have tested this zone over a strike length of 700 meters but only seven of the holes actually hit the target horizon (Figure 6). Six holes ended in the hanging wall PF andesites, short of the contact and three holes were collared in the foot wall PF felsics. The alteration, sulphide content and thickness of cherty zones is most pronounced in the two most easterly holes (MTS-8 and MTS-26). Although no economic intersections have yet been obtained from the PF horizon,

the anomalous Ba, Cu, Zn and Na₂O lithogeochemical values and the presence of pyritic ashes and cherts indicate that conditions were favourable for the formation of a VMS deposit at the PF Andesite - PF Felsic contact.

The Northeast Copper area is another zone of anomalous lithogeochemistry (Cu, Zn, Ba enrichment, Na₂O depletion) that has only been subject to a limited amount of exploration. Dighem and weak Deepem anomalies are associated with cherty horizons that occur near the contacts between felsic tuffs and andesitic flows and tuffs. Massive sulphides (py, cp) which occur near the entrance to the Fortuna adit have yielded assays as high as 2.75% Cu.

b. Proposed Drilling

The 1990 drill program on Mt. Sicker will focus on evaluating shallow geophysical and geological targets in areas of anomalous lithogeochemistry on the north slope of Mt. Sicker. Hole locations are shown in Figure 7 and specific details are presented in Table 2.

Holes P-1 to P-4 (680 m) will test the Gabriel horizon which is reflected by IP anomalies that occur near andesite-felsic volcanic contacts. All holes are being drilled in areas of anomalous geochemistry - intensely depleted Na₂O and spotty Zn and Ba enrichment.

The easterly extension of the Postuk-Fulton horizon will be tested by three holes (P-5 to P-7: 800 meters) (Figure 6). The alteration and sulphide content of the zone is as good as any area outside of that around the former Lenora and Tyee mines.

Five holes (P-8 to P-12: 930 m) will test the significance of cherts and copper stringer mineralization that are associated with Dighem and weak Deepem anomalies in the Northeast Copper area.

TABLE 2: PROPOSED DRILLING: MT. SICKER PROPERTY

Hole	Location	Collar		Depth	Target
		Azimuth	Dip		
<u>1. Gabriel Horizon</u>					
P-1	6+70E; 8+00N	180	-45	150 m	IP charge high/resistivity low at Andesite/Felsic contact; coincident Ba, Zn, Na ₂ O litho anomalies
P-2	5+75E; 7+25N	180	-45	150 m	IP charge high at Andesite/Felsic contact; Na ₂ O depletion
P-3	9+50E; 7+60N	180	-45	180 m	IP anomaly in Felsics; Na ₂ O depletion
P-4	11+50E; 5+50N	180	-50	200 m	Test 2 IP anomalies that occur at Andesite/Felsic contacts; Na ₂ O depletion, Zn enrichment
			subtotal	680 m	
<u>2. Postuk-Fulton</u>					
P-5	6+00E; 1+50N	180	-60	300 m	250 m easterly stepout from MTS-26 test PF horizon
P-6	8+00E; 1+00N	180	-62	300 m	Test PF horizon beneath B.C. Tel diorite
P-7	2+25E; 2+10N	180	-57	200 m	Test PF horizon 150 m up dip of MTS-9
			subtotal	800 m	

TABLE 2: PROPOSED DRILLING: MT. SICKER PROPERTY(cont.)

Hole	Location	Collar		Depth	Target
		Azimuth	Dip		
3. Northeast Copper					
P-8	26+70E; 1+83S	200	-45	200 m	Chert horizon 300 m east of Tom's shaft py stringer zone; Cu, Ba anomaly in underlying felsics
P-9	24+00E; 1+20S	200	-50	150 m	Chert horizon, andesite/felsic contact Dighem/ Deepem anomaly and extent of Tom's shaft py stringers; Cu, Ba, Na2O anomaly
P-10	22+50E; 0+70S	200	-60	200 m	Chert horizon, andesite/felsic contact Dighem/ Deepem anomaly in area of Cu enrichment, Na2O depletion
P-11	21+00E; 0+45S	200	-50	180 m	Cherts, andesite/felsic contact, and Dighem/Deepem anomaly in area of Zn enrichment, Na2O depletion
P-12	18+00E; 1+00N	180	-60	200 m	Cherts and massive sulphides at Fortuna adit; also test CSAMT anomaly
			subtotal	930 m	
			TOTAL	2140 m	

4. Conclusions

A 32 hole, 7000 meter drill program is proposed to test shallow targets in areas of anomalous lithogeochemistry on both the Lara and Mt. Sicker properties. Drilling on the Lara property will focus largely on geophysical (IP/VLF), geochemical (humus) and geological targets in a thin band of hydrothermally altered felsic volcanics that are the easterly strike equivalent of the rocks that host the Coronation Zone mineralization. The Mt. Sicker drilling will evaluate specific horizons on the north slope of Mt. Sicker

The estimated all-inclusive cost of this program is \$455,000 (\$65/m). Drilling is scheduled to start on April 9th on the Mt. Sicker property.