

47-20-22-1-52 (28)

<b>Project</b> Kalevala		<b>Hole No.</b> KL-4	<b>State</b> MN	<b>Co.</b> Carlton	<b>Page</b> 1 of 2	
<b>Logged by</b> JLC <b>Date</b> April 2, 1996		<b>NE ¼ SE ¼, Section</b> 15	<b>Town</b> 47N	<b>Range</b> 20W	<b>Elev.</b> 1245 msl	
<b>Coordinates</b> UTM 562910E, 5303780N		<b>Driller</b> Boart Longyear	<b>TD</b> 500 feet	<b>Bearing</b> 150°	<b>Incl.</b> -50°	
<b>Surface Owner</b> Carlton County		<b>Mineral Owner</b> State of Minnesota		<b>Started</b> 3/3/96	<b>Completed</b> 3/7/96	

Summary Drill Log		Significant Mineralization				Drill Hole Information	
Depth	Lithologic Descriptions	Depth/Thick				Bit Size	From > To
0	Glacial Overburden	None				5 1/8 in	0      119
120	Graphitic and pyritic argillite					3 in	119      500
172	Phyllite						
203	Graphitic and pyritic argillite						
214	Quartzite						
216	Siltite						
237	Argillite						
						<b>Abandonment Info.</b>	
						1.87 yd of neat cement. All casing was removed.	
						<b>Remarks</b>	
						Radiation 21 cps with Mount Sopris SC-132	

Folder: 2  
Doc #: 68

Cominco  
Minnesota Zinc  
Kalevala



Project Kalevala		Hole No. KL-4		Logged by JL Clark	Scale -----	Date April 3, 1996	Page 2 of
Depth	Interval	Lithology	Rec	Description			
0	120		0%	Glacial overburden, clay rich sand with boulders near bedrock.			
120	52		29%	Graphitic pyritic argillite, blk, minor chert, tr sph @ 152', core $\angle$ fol. $80^{\circ}@131'$ , $60^{\circ}@146'$ , and $40^{\circ}@169'$ .			
172	3			Phyllite, lt-med gry, core $\angle$ fol. $=85^{\circ}@174'$ , some gouge.			
175	28		60%	Phyllite, dk gry, very weakly dol, core $\angle$ fol $=50^{\circ}@197.5'$ .			
203	11			Graphitic-pyritic argillite, dk gry -blk, py=5-10%, minor chert, core $\angle$ fol variable, recovery form 120'-214' avg 40%			
214	2			Quartzite, fn grained, lt-med gray, tr py			
216	21			Siltite, med gry, gradual interbedded contact with argillite below, core $\angle$ fol. $45^{\circ}@220'$ .			
237	89			Argillite, med-dk gry, euhedral py porphyroblasts to 1 cm, thinly laminated bedding has been modified by foliation and is not discernable.			
326	40			Argillite, med-dk gry, more massive than above but still well foliated.			
366	6			Argillite, med-dk gry, 1 cm thick bedding is discernable were it deviates from foliation. Foliation is uniformly $45^{\circ}$ to core axis.			
372	15			Argillite, like 237'			
387	113			Argillite, like 366', tr sph in qtz vein @ 435', core $\angle$ bedding, $35^{\circ}@401'$ , $45^{\circ}@405'$ (the fol and bedding planes are $60^{\circ}$ apart), $70^{\circ}@414'$ , $75^{\circ}@420'$ , $75^{\circ}@428'$ , $65^{\circ}@435'$ , $80^{\circ}@444'$ , $80^{\circ}@460'$ , $70^{\circ}@467'$ , $70^{\circ}@482'$ , $60^{\circ}@499.5'$ , @ 492' is a small fold w/ beds $\parallel$ to the core axis, core $\angle$ foliation is $45^{\circ}$ throughout the interval			
500 EOH							