NiMo PROJECT

PROPERTY: EL

HOLE: EL07-16

Easting	Northing	Elev.	Depth (m)
467090	7302639		149.35

Contractor: North Star
Drill: MD-001

SURVEY							
Depth (m)	Azimuth	Dip	Method	Depth (m)	Azimuth	Dip	Method
collar	040°	-70°	compass				

Core size: BTW
Casing depth: 17.37 (m) out

Drilling dates: July 1 to 4, 2007

Logged by: D. MacDonald

Target: NiMo horizon, east of EL07-15

SUMMARY				
From (m)	To (m)	Interval	Unit	Comments
0.00	21.07	21.07	OVB	
21.07	50.03	28.96	DME	
50.03	50.06	0.03	NiMo	
50.06	149.35	99.29	OSR	

SAMPLES	
Numbers:	C385490 - C385505
Total:	16
Date sent:	July 16, 2007

COMMENTS

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Struct. Type	Struct. Attitude	LITHOLOGY From (m)	LITHOLOGY To (m)	LITHOLOGY Interval (m)	LITHOLOGY Type	LITHOLOGY Unit	LITHOLOGY Texture	LITHOLOGY Modifier	Notes:	ALT.			MINERALS Ca	MINERALS Sx	MINERALS Gy	MINERALS Fe	SAMPLES From (m)	SAMPLES To (m)	SAMPLES Interval (m)	SAMPLES Sample	SAMPLES Ni (ppm)	SAMPLES Zn (ppm)	SAMPLES Mo (ppm)	Blocks From (m)	Blocks To (m)	Blocks Intvl. (m)	GEOTECHNICAL REC (m)	GEOTECHNICAL REC Percent	GEOTECHNICAL RQD (m)	GEOTECHNICAL RQD Percent	GEOTECHNICAL Weathering	GEOTECHNICAL Hardness	JOINTS Frequency	JOINTS Attitude	JOINTS Shape	JOINTS Roughness	JOINTS Infilling
		0.00	21.07	21.07	OVB																																
BD	85	21.07	50.03	28.96	SHL	DME	LA	BK	21.03 - 26.77 Highly fissile and somewhat friable black shale, increases in relative competence with depth; common high-angle fractures and veinlets with Fe-oxyhydroxides common in this interval.	f-m			+		+	+								21.07	21.34	0.27	0.27	100	0.00	0	SW	MS	20	15	3	2	Qz
																										21.34	24.38	3.04	2.87	94	0.63	21	SW	MS	20	10	2	2	Qz
																										24.38	27.43	3.05	1.90	62	0.00	0	SW	MS	20	30	3	2	Qz
					SHL	DME	Bx	BK	26.77 - 27.30m High-angle veinlet filled with gypsum, 4 - 5 mm thick. Highly brecciated zone of black shale with large (2 cm+) blocky calcite +/- gypsum matrix + highly altered shale fragments.	m			+		+																								
VT	15				SHL	DME	LA	BK	27.30 - 50.03m Fissile black shale, thinly laminated, with rare-to-common, v. thin (1mm) sulfide-rich laminae parallel to BD; rare, thin beds of grey limestone near middle of interval (2 cm thick); rare, high-angle fractures with v. thin (< 1mm) coating of white, chalky mineral that doesn't fizz with HCl; fractures almost parallel to BD are more common near bottom of interval; slight increase in hardness near 30 m+)	w			+												27.43	30.48	3.05	2.98	98	1.21	40	FR	MS	5	10	3	3	Qz
																										30.48	33.53	3.05	2.96	97	2.23	73	FR	MS	2	10	2	3	Qz
																										33.53	36.58	3.05	2.84	93	0.35	11	FR	MS	15	10	2	3	Qz
																										36.58	39.62	3.04	1.85	61	0.00	0	FR	MS	10	60	1	2	Qz
																										39.62	42.67	3.05	3.04	100	0.00	0	FR	MS	10	60	1	2	Qz
																										42.67	45.72	3.05	2.61	86	0.71	23	FR	MS	15	10	3	2	Qz
																	42.53	44.03	1.50	C385490	159.0	748	58.20														
																	44.03	45.53	1.50	C385491	245.0	888	81.30														
																	45.53	47.03	1.50	C385492	142.5	1060	49.20	45.72	48.77	3.05	3.00	98	1.12	37	FR	MS	5	85	3	2	Qz
																	47.03	48.03	1.00	C385493	177.0	964	50.80														
BD	85				SHL	DME	LA	BK	47.0 - 50.03 m Uncommon limestone-rich beds (4 - 10 cm thick) interbedded with non-calcareous black shale.	w			+				48.03	49.03	1.00	C385494	182.5	571	60.50														
																	49.03	49.53	0.50	C385495	141.0	344	50.40	48.77	51.82	3.05	3.01	99	1.46	48	FR	S	5	10	2	2	Qz
																	49.53	50.03	0.50	C385496	152.0	287	53.70														

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LITHOLOGY										ALT.			MINERALS				SAMPLES								Blocks			GEOTECHNICAL						JOINTS					
Struct.																												REC		RQD									
Type	Attitude	From (m)	To (m)	Interval (m)	Type	Unit	Texture	Modifier	Notes:				Ca	Sx	Gy	Fe	From (m)	To (m)	Interval (m)	Sample	Ni (ppm)	Zn (ppm)	Mo (ppm)	From (m)	To (m)	Intvl. (m)	(m)	Percent	(m)	Percent	Weathering	Hardness	Frequency	Attitude	Shape	Roughness	Infilling		
BD	80	50.03	50.06	0.03	SHL	NIMO	Bt	BK	NiMo Horizon Thin, wavy laminar vfg gold-bronze sulfides in BK SHL host; mild-to-moderate bioturbation; strong H2S smell even without HCl; very sharp (<1 mm) contacts at top and bottom of NiMo unit.	w				+			50.03	50.06	0.03	C385497	3.52%	0.80%	2730															
BD	85	50.06	52.11	2.05	SHL	OSR	LA	BK	Black, non-calcareous, laminar shale increases in competence relative to overlying BK SHL; rare, thin (< 1mm) fractures almost parallel to BD; gradational contact over last 15 cm of interval into calcareous black shale; uncommon sulfide bands (1 mm thick)	w			+	+			50.06	50.56	0.50	C385499	232.0	608	62.60	51.82	54.87	3.05	3.11	102	2.63	86	FR	MS	3	85	2	2	Cb		
BD	85	52.11	96.64	44.53	SHL	OSR	LA	BK	52.11 - 57.15 m laminar, black, calcareous shale that fizzes with HCl, with rare, calcite-rich veinlets parallel to BD. Grey limestone laminae and beds (non-bioclastic) up to 3 - 4 cm thick, with grey limestone beds becoming more common near the end f this interval.	w			+	+			50.56	51.06	0.50	C385500	222.0	787	45.40																	
LS					LST	OSR	Ba	GY	57.03 - 57.15 m Light grey limestone 'ball' or concretion that is internally brecciated, with calcite-rich matrix supporting angular fragments up to 1 cm diam (unsure whether this is a ball or concretion). Sharp contacts on top and bottom.	w			+				51.06	52.06	1.00	C385501	198.5	545	46.30															
																	52.06	53.06	1.00	C385502	265.0	506	48.10	54.87	57.91	3.04	2.92	96	2.47	81	FR	MS	3	85	2	2	Qz		
																	53.06	54.56	1.50	C385503	126.5	265	31.80															
																	54.56	56.06	1.50	C385504	156.6	276	43.70															
BD	85				SHL	OSR	LA	BK	57.15 - 60.20 m Wavy to lumpy laminated black, calcareous shale with only rare veinlets and fractures, mostly parallel to BD, when present; very competent BK SHL interbedded with common GY LST beds up to 10 cm thick; GY LST beds more common in middle of this interval, with thin laminae becoming more common towards the end of the interval; GY LST laminae show mild-to-moderate bioturbation; discrete sulfide bands and lenses up to 3 - 4 mm thick are more abundant towards the end of the interval.	w			+	+			56.06	57.56	1.50	C385505	204.0	386	50.60	57.91	60.93	3.02	3.02	100	2.29	76	FR	MS	3	85	1	2	Fe		
																	BLANK			C385498	2.1	21	0.65															
																								60.93	64.01	3.08	3.13	102	3.08	100	FR	MS	1	85	2	2	Cb		
																								64.01	67.06	3.05	3.03	99	2.20	72	FR	MS	2	5	3	2	Cb		
																								67.06	70.10	3.04	3.03	100	2.79	92	FR	MS	2	5	2	3	Cb		
																								70.10	73.15	3.05	3.05	100	2.68	88	FR	MS	2	85	1	2	Cb		
																								73.15	76.20	3.05	3.11	102	2.98	98	FR	MS	1	85	1	3	Cb		
																								76.20	79.25	3.05	3.01	99	3.00	98	FR	MS	0						
																								79.25	82.30	3.05	3.07	101	2.93	96	FR	MS	1	85	1	2	Cb		

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BD	85				SHL	OSR	LA	BK	80.26 - 83.81 m Laminar, black, calcareous shale (as in previous interval but with a change in character, but not a new lithology per se), very competent with almost no fractures, interbedded with [grey limestone/micritic mud +/- grey bioclastic limestone (crinoid stem fragments)] packages up to 10 - 15 cm thick; common laminae (2 mm thick) and beds of micritic mud (GY LST) interbedded with black shale, with no fossiliferous beds; most commonly [micrite + bioclastic LST] packages have the micrite over top of the bioclastic beds, i.e., fining-upwards in general; uncommonly bioclastic beds coarsen-upwards; LST beds become more pinched and swollen (lensoid) towards end of interval; calcareous black shale with uncommon bioclastic grey limestone beds dominates the last 2 - 2.5 m of the interval; very sharp bottom contact (< 2mm)	w			+	+																										
LS	var																							82.30	85.34	3.04	3.09	102	3.09	102	FR	MS	0				
BD	var	83.81	83.81+	1 mm	SHL	NIMO	LA	BK	NiMo Horizon (?) Possible 2nd NiMo horizon - vfg thin (1mm), distinctive, bronze-coloured lamina conformable to a banded LST lens, hosted in black shale.	w				+																								
BD	85				SHL	OSR	LA	BK	83.81 - 96.64 Shale described in interval	w			+	+																								
									80.26 - 83.81 m continued.															85.34	88.39	3.05	3.06	100	2.94	96	FR	MS	1	5	2	1	Cb
																								88.39	91.44	3.05	3.04	100	2.88	94	FR	MS	1	5	2	1	Cb
																								91.44	94.49	3.05	3.05	100	2.67	88	FR	S	1	5	3	2	Cb
																								94.49	97.54	3.05	2.97	97	2.64	87	FR	MS	1	5	3	2	Cb
																																					Fe
BD	85	96.64	#####	4.27	LST	OSR	FS	GY	Grey, coarse-grained, coarsely bedded bioclastic limestone, comprising fining-upwards cycles of finely interbedded GY LST mud (micrite) and bioclastic layers (beds up to 25 cm thick); overall, bioclastic layers (grainstone) coarsen-upwards (c.g. crinoid-stem fragments); bottom of unit is vcg, and the basal contact is fairly sharp, but slightly erosional (over 1 cm) with the underlying calcareous black shale.	w			+																											
																								97.54	100.58	3.04	3.03	100	3.03	100	FR	MS	0				
																								100.58	103.63	3.05	3.08	101	3.07	101	FR	MS	1	85	2	3	Cb

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Struct. Type	Struct. Attitude	LITHOLOGY From (m)	To (m)	Interval (m)	Type	Unit	Texture	Modifier	Notes:	ALT.			MINERALS Ca	Sx	Gy	Fe	SAMPLES From (m)	To (m)	Interval (m)	Sample	Ni (ppm)	Zn (ppm)	Mo (ppm)	Blocks From (m)	To (m)	Intvl. (m)	GEOTECHNICAL REC (m)	REC Percent	RQD (m)	RQD Percent	Weathering	Hardness	JOINTS Frequency	Attitude	Shape	Roughness	Infilling
BD	85	#####	#####	48.44	SHL	OSR	LA	BK	calcareous shale interbedded with both grey, micritic limestone beds (about 15% of beds, up to 5 cm thick) and grey bioclastic limestone beds (about 85% of beds, up to 40 cm thick; crinoid-stem-fragment-rich, and generally fining upwards), respectively; interval ends with grey, bioclastic limestone bed fining upwards into grey micritic limestone and forming an abrupt/sharp contact with the underlying calcareous, black shale; minor sulfide banding observed in this interval.	w			+	+																													
																								103.63	106.68	3.05	3.02	99	2.99	98	FR	MS	1	80	3	1	Cb
																								106.68	109.73	3.05	3.02	99	3.02	99	FR	MS	0				Cb
																								109.73	112.78	3.05	3.09	101	3.09	101	FR	MS	0				Cb
																								112.78	115.83	3.05	2.84	93	2.81	92	FR	MS	1	80	2	2	Cb
																								115.83	118.87	3.04	3.11	102	3.08	101	FR	MS	1	80	1	2	Cb
BD	85				SHL	OSR	LA	BK	117.24 - 132.00 m Finely laminar, black, calcareous shale with common bands of vfg sulfide up to 2 mm thick and conformable to BD; very competent and almost no fractures; common f.g. grey limestone laminae and beds up to 5 cm tick; grey limestone beds commonly show bioturbation and soft-sediment slumping, and very rarely show offsetting of thin beds by about 3 mm.	w			+	+																													
																								118.87	121.92	3.05	3.09	101	3.09	101	FR	MS	0				Cb
																								121.92	124.97	3.05	3.08	101	3.07	101	FR	MS	1	85	1	2	Cb
																								124.97	128.17	3.20	2.96	93	2.96	93	FR	MS	0				Cb
																								128.01	131.06	3.05	2.98	98	2.98	98	FR	MS	0				Cb
																								131.06	134.12	3.06	3.02	99	2.90	95	FR	MS	1	15	5	2	Cb
BD	85				SHL	OSR	LA	BK	shale continues, with grey limestone beds and laminae becoming increasingly less common, and finely laminar, calcareous, black shale dominates until the end of the hole; rare, thin sulfide bands occur every 2 m or so, and core fizzes with HCl to yield strong H2S odour.	w			+	+																													
																								134.12	137.16	3.04	3.09	102	2.88	95	FR	MS	1	5	1	2	Cb
																								137.16	140.21	3.05	3.02	99	2.92	96	FR	MS	1	30	5	2	Cb
																								140.21	143.26	3.05	3.05	100	2.97	97	FR	MS	1	10	5	2	Cb
																								143.26	146.30	3.04	2.95	97	2.95	97	FR	MS	0				
																								146.30	149.35	3.05	3.02	99	3.02	99	FR	MS	0				
		#####							END OF HOLE																												