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Reg

1936302 - R8 SEMS

[redacted]

Hecla Mining Inc.
9025 Ironwood Pkwy
Coeur d'Alene, Id.
83814

U.S. POSTAL SERVICE
DEC 8 PM
1983

USA 20¢

Gilt Edge
Drill Logs

POSTAGE DUE 64¢

RECEIVED
DEC 1 0 1983

Mr. Ron E. Graichen
Amoco Minerals Co.
7200 So. Alton Way
P.O. Box 3986
Englewood, Colorado
80155

-45

DGE-7	595' - 610'	15'	.17
DGE-8	355' - 475'	120'	.134
DGE-9	245 - 260'	15'	.400
DGE-11	545 - 585'	40'	.101

DIAMOND DRILL HOLE LOG

Company: LACANA MINING

Property: GILT EDGE	Hole No.: DGE-1
Location: LAWRENCE Co, SOUTH DAKOTA	Bearing at Collar: S65E
	Inclination at Collar: -45°
Coord. - Collar N: 747190	
E: 1,126,560	Length: 419.5'
Elev. - Collar: 5470	Core Size: HQ
Date started: 9/11/83	
Completed: 9/21/83	Logged by: SJS

LEGEND

TERT. TRACHYTE	✓	PRECAMBRIAN	~
TERTIARY HB DIORITE	X		
DEADWOOD FM-Є SHALE			
DEADWOOD FM-Є QUARTZITE			

SURVEY

Footage	Bearing	Inclination
200'	S71°E	-48°
400'	S63°E	-49°

LITHOLOGY, ALTERATION, MISC.	FT.	GRAPHIC LOG FCT.	MINERALIZATION	RECOVERY Run	Run length	Core	RQD	ANALYTICAL Sample	Interval	SHML AU	BOX
0-21' OVERBURDEN DRILLER USED TRICONE TO 21' THEN PUT DOWN CASING; NO RECOVERY	10										
21'	20		21'								
21'-24' HORNBLENDE DIORITE 24' MD GY; FM-MED GRN; HB → CHL + PY SHP CNT @ 50°			2-5% PYRITE; DISS. REPL. HB; 25% ON FCT; FLVOR + CALC ON FCT @ 30° 24'		5	4.6		21-25	4	.015	
24'-59' SHALE DK GY TO DK GRN GY; MINOR DK BRN BANDS .5"-1" THICK; GRN BAND COLOR FROM CHL. REPL.; NARROW .1" TO .5" LT GRN BEDS (SILIC.); BEDDING IS .1" TO 5" IN THICKNESS	30		24'-45' 5-7% PYRITE; PY VARIES ERRATICALLY FROM 2-15%; HIGH PY ASSOC. W/ CHL. BEDS + CHL CLOTS FROM .2"-1" IN DIA.; ALSO 50% PY ON NW + NE ? FCT W/ QTZ, CALC., FLVOR; V. FN GRN SHALE LOWER IN PY - MINOR ON FCT		5	5	33	25-30	5	.010	
35' BEDDING @ 45°					4	4		30-35	5	.010	
24'-59' NARROW <1" HB DIO DIKES OCCAS. OBSERV. ON BDING + ON FCT.	40		24'-45' NW + NE FCT REHEAL W/ PY, QTZ, CALC MIN. SPL + MAGN		5	5	61	35-40	5	.005	
24'-59' CHL CLOTS PARE-UP TO 40% OF SOME BEDS			MINOR PYRHOTITE NOTED IN SOME CLOTS 45'		5	5	78	40-45	5	.010	
48' BEDDING @ 45° 48'-51' CORE HTLY SILICIF.	50		45'-59' 2-4% PY FEWER CHL. CLOTS + BEDS MOST PY ON REHEALED FCT; LESS INTENSE FCTING THAN ABOVE MAINLY NW W/ MIN NE FCT; LOC NARROW ZN 10%		5	5		45-50	5	.020	
52' MICRO-FAULT @ 30°; PROB NE TREND HIGHLY SILIC. 5" SOMER SIDE					5	5		50-55	5	.020	

LITHOLOGY, ALTERATION, MISC.	FT.	GRAPHIC LOG (FCT)	MINERALIZATION	RECOVERY Run	Run length	Core	RQD	ANALYTICAL Sample	Interval	SHMC Au	BOX
55'-59' DARK GRN SHALE; HLY SILIC. NEAR RENEALED FCT.			2-4% PY ON FCT w/ MINOR GRN CLOTS		5	5	78	55-60	5	.010	
59' SHP CNT @ 55°			59'								
59'-71' HB DIO (MONZ?) MED GY GRN; MD GRN; HB → CHL + CALC + MAGN + PY; GRIDNESS → LT TO MOD CLAY NEAR W/	60		59'-71' 2-3% PYRITE 60% DISSEM. W/ CHL + CALC. REPL. HB; 40% ON FCT AT 30° + 70° (RENEALED) W/ CHL + CALC		5	5		60-65	5	.013	
64' 1" K-SPAR PHENO, FRESH + PE XENOL.							69				
CALC MONZONITE BEC. 2 1" KSPAR PHENS ½-1" IN LENGTH NOTED			LOCALLY MORE ABUND. OVER 1'-3" INTERVALS NEAR WIDER PY VNS.		5	5		65-70	5	.020	
59'-71' FCT @ 30° + 70° LT-MOD.											
71' SHP CNT @ 55°	70		71'								
71'-75' SHALE DK GRN TO 73'; MD GRN TO 75; MOD FCT TO 74'; BLEACHING + SILIC NEAR FCT (REVEALED)			71'-75' 1-2% PY W/ 1' @ 73' 5% PY IN CHL AREA		4	4		70-75	5	.023	
76' SL. GRAD. CNT @ 45°			76'				66				
76'-89' HB DIO (MONZ.?) LT GY - LT GY GRN; MED GRN PHENOS.; 15% HB → CHL, CALC, MAGN, PY 5% EPIDOTE; MIN. MAG., CALC.	80		2-3% PYRITE DISS. REPL HB (50%); 50% IN PY VNLTS ON RENEALED FCT; VNLTS ≤1" WIDTH;		6	6		75-80	5	.025	
78' 1' XENOL. OF SHALE 81' 1' XENOL. OF SHALE HIGHLY ALTER. 83' 6" XENOL. OF SHALE HIGHLY ALTER.			5-10% PYRITE IN XENOLITHS AS REPL. OF CHL. IRGAS + MINOR FCT					80-85	5	.020	
76-89' MOD FCT RENEALED @ 85°, 30°, 70° + IRREG. FCT.					10	10	79	85-90	5	.015	
89' SHP CNT @ 40°			89'								
89'-93' DARK BRN SHALE FCT LT @ 60°	90		89'-93' 1-2% PY ON FCT								
93'-95' DARK GRN SHALE; MED FCT NE + NW @ 30°			93'-95' 10% PY AS REPL. CHL CLOTS 95' V. MINL. PY ON FCT					90-95	5	.030	
95'-99' LT GRN, SILIC. SHALE PROB. HLY ALT. DK BRN SHALE; ROMO CORE OF DK BROWN SHALE VISIBLE; MOD-VVY FCT @ 0-5° + IRREG. INT. STOCKWORK			95'-110' 1-2% PY ON FCT		10	10	73	95-100	5	.105	
99'-104' DARK BRN. SHALE W/ MINOR LT GRN AREAS NEAR FCT + BEDS; MINOR FCT @ 30° + 60° (NW + NE)	100										
104'-111' LT GRN SHALE W/ THIN ≤6" BEDS OF DK GRN SHALE MOD-VVY FCT @ 5-10°, 30°, 50°								100-105	5	.005	
			107' 4" 5% PY IN GRN BED		10	10	86				
			109' 4" 5% PY IN GRN BED					105-110	5	.030	
111'-114' DK GRN SHALE W/ MINOR LT GRN BAND 113'-114'; FCT 0-30° W TO NW	110		111'-114' 5-7% PY AS REPL. OF CHL CLOTS; 25% ON FCT 114' @ 5°, 30°					110-115	5	.020	
114' SHP CNT @ 50'											
114'-121' HB DIO LT GY; 5-10% HB REPL BY PY; SMALL 1-2" XENOL OF SHALE? HLY ALT TO CHL.; LT FCT @ 60°			114'-121' 3-5% PY; 50% DISSEM., 40% ASSOC. W/ SMALL XENOLITHS, 10% ON FCT @ 60°		10	10	76	115-120	5	.110	
121' IRREG. CNT @ 45°	120		121'								
121'-123' SHALE DK GRN TO LT GRN; THIN BEDDED 123' CALC.; MOD FCT SHP CNT @ 40°			5% PY ON FCT ⅓; 2/3 123' REPL OF CHL AREAS		10	10	65	120-125	5	.013	

LITHOLOGY, ALTERATION, MISC.	FT.	GRAPHIC LOG	MINERALIZATION	RECOVERY Run	Run length	Core	RQD	ANALYTICAL Sample	Interval	SHAL Au	BOX
123'-131' HB DIO LT GY TO LT GRN; 5-10% HB → CHL; CALC MOD ABUND.; MOD FCT AT 30°, 60° W/ CHL, MIN LM, BLK OX ON FCT. CACO3 VNLTS @ 30°, WALK BLEACHED SHP CNT @ 65'	130	FCT	123'-131' 4-8% PY 60% DISSEM REPL HB; 40% ON SULF. VNLTS UP TO .05" WIDE		10	10	65	125-130	5	.015	
131'			131'								
131'-172 SHALE UNIT INTERBEDDED BRN + GRN SHALE BEDDING ½-6"; SOME CALC UNIT 131'-146' REHEAL FCT MOD TO HVY @ 0°-30° BEDDING @ 45°;			131'-146' 3-5% PY 60% GRN REPL.; 40% ON FCT NARROW ZNS 4' W/ 5-10% PY TOO SMALL TO LOG		10	10	92	130-135	5	.015	
138'			137' MINOR PYRHOTITE					135-140	5	.015	
139' 6" BX ZN @ 30° POSS FLT W/ NW TREND; MATRIX SHALE FRAGS ? W/ MIN BLK + DK BRN OX	140		141' 2' 5-7% PY INCR DUE TO ADD REPL. IN GRN BED					140-145	5	.020	
144' V. MIN FLT @ 30°, PROB NE TREND; DISPL. ½";			146'				85				
146'-152' ZN OF INTENS. REHEALE FCT; CRACKLE BX(?); TRUE BX 1' WIDE AT 150' 145' BEDDING @ 40°			5-10% PY AS FCT FILL 60%; 40% REPL ON GRN BEDS		10	10		145-150	5	.050	
151'-162' MASS BEDDED BRN SHALE HVY TO MOD REHEAL FCT @ 60°, 30°, 0-10°	150		150'								
			150'-162' 2-5% PY 90% ON FCT, 10% REPL. GRN CLOTS					150-155	5	.028	
					10	10	92				
159' 1.5' GRN SHALE, REHEALED FCT HVY @ 0°-30°; BEDDING @ 40°			158' 1.5' 10% PY IN GRN BED; SLIGHTLY CALC.					155-160	5	.040	
162' SHP CNT @ 60°	160		162'								
162'-172' HB DIO LT GY TO LT GRN GY; 5-10% HB PHENOS → CHL, MAGN, PY; REHEALED FCT MOD @ 30°, 50°, 60°; LM ON FCT W/ POSS SOME JAROSITE; CACO3 LT ASSOC W/ PROPYLITICITIC ASSEMB			162'-172' 3-5% PY; 80% DISSEM. REPL HB; 20% ON FCT; LT LM + JAROS. (?) ON FCT.		10	10	79	160-165	5	.010	
168'-172' 15% XENOL. OF PE AMPH. + POSS SHALE FRAG. (PART. ASSIMIL); 1"-4" IN SIZE SHP CNT @ 45°	170		168'-172' LOCALLY HIGHER PY IN XENOLITHS					165-170	5	.035	
172'			172'								
172'-198' SHALE DK BRN W/ RARE GRN INTERBEDS; FCT LT-MOD TO 174' 174'-178' INTENSE FCT W/ MIN BX (6" @ 174'); ALMOST CRACKLE BX			172'-198' 1-3% PY; 95% ON FCT; 5% REPL ON CHL GRN 6" LAYER @ 172'		10	10	83	170-175	5	.040	
								175-180	5	.005	
180' 2' HVYLY BKN CORE @ 10°, 20°, 30°, 60°; NO SLKS; CACO3, LM ON FCT.	180							180-185	5	Tr.	
					10	10	67				
188-190' BAND OF CHL-RICH SHALE(?) DOWN SIDE OF CORE FOR 2'-3'			187'-190' 5% PY FOR 3' NEAR CHL CLOT AS REPL + IN FCT ON EITHER SIDE					185-190	5	.040	
192' .1" HB DIO(?) DK @ 0°-10°	190						73	190-195	5	.010	

LITHOLOGY, ALTERATION, MISC.	FT.	GRAPHIC LOG	MINERALIZATION	RECOVERY Run	Run length	Core	RQD	ANALYTICAL Sample	Interval	SHMC Au	BOX
195' 2' MOD BRN CORE @ 60°, 25° SHALE AS AT 172'		FCT	1-3% PY AS AT 172'		10	10	73	195-200	5	.013	
192' SHP CNT @ 60°			198'								
198'-251' HB DIO (MONZ ?) LT TO MED GRN	200		198'-251' 3-5% PY DISS. 60% + ON FCT 40%								
5-15% LT GY FELD PHENOS. 1mm-5mm 5-10% HB ALT → CHL, MAGN, PY, CALC 1-3 mm GRNDMASS APHAN.; FCT LT-MOD @ 0°, 28, 30, 40°, 50°, 60°; DOMIN FCT @ 0-10°, 30°-60° FCT W/ CHL, CALC ABUND.; FCT REHEALED			202'-204' .2" CALC. VNLTS W/ PY (45%); VBGS @ 201', 203' W/ CALC + PY XLS					200-205	5	.010	
			204'-205' 2' 5-10% PY IN + AROUND ZN OF INT FCT; LT-MOD ARG. ALT		10	10	96	205-210	5	.010	
204'-205' 1' INTENSE FCT; 204'-208' DIO BLEACH; REL HB PHENOS. MOSTLY DESTROYED; GRNDMASS LT ARGILLIC ALT ?	210							210-215	5	.015	
214' CLOT OF FRESH HB .2" IN DIA. W/ BIO BOOK			215'-226' SL DECR PY DUE TO LESS DISSEM.; 1-3% PY		10	10	100	215-220	5	.010	
219'-221' 3' DIO W/ LT-MOD ARGIL. ALT, CHL CONE COL. TO LT GY	220		219' TR SPEC. HM ON FCT (RD-BRN STREAK)					220-225	5	.010	
224' 1' DK GRN SHALE XENOL. UP CNT 45° LW. CNT 60°					10	10	88	225-230	5	.005	
227'-239' DIO MOD ARGILLIC ALT DUE TO INCR. IN FCT TO MOD; FCT REHEALED W/ CHL + BLK OXIDES (?) + PY; FCT. @ 0-30°, MINOR @ 60-70°, 45°	230							230-235	5	.015	
					10	10	83	235-240	5	.005	
240'-247' DECR IN GRN SIZE OF DIO TO FN GRN PHENOS ≈ 1mm-2mm	240		242'-247' 5-7% PY DUE TO INCR IN PY ON FCT					240-245	5	Tr.	
					10	10	83	245-250	5	.005	
250'-251' DECR GRN SIZE, CHLL ZN	250										
251' GRD INDISTINCT CNT			251'								
251'-253' SHALE; PART. ASSIMILATED XENOL.			251'-253' 1-2% PY ON FCT					250-255	5	Tr.	
253' FCT MOD-HVY; CALC VNLTS SHP CNT @ 40°			253'								
253'-260' HB DIO (MONZ.?) LT GRN; MED GRN 10-25% FELD PHEN.; 5% HB PHENOS; LT ARG. LT DRIVE OFF ? + REST. MOST HB PHENOS; FCT HVY @ 0-10°, 60-70°			254' HVY LM ON FCT @ 55°		10	10	80	255-260	5	Tr.	
			259'-260' 5% PY 80% DISS. 20% ON FCT								
260' SHP CNT @ 70°	260		260'								
260'-264' SHALE DK GRN + DK BRN; INT. FCT REHEALED HAIRLINE FCT AT ALL ORIENT. W/ QTZ, CALC.; BEDDING @ 55°			260'-264' 10% PY IN HIGH GRD. REPL. ALONG BEDDING 80% 20% ON FCT					260-265	5	.015	

LITHOLOGY, ALTERATION, MISC.	FT.	GRAPHIC LOG	MINERALIZATION	RECOVERY Run	Run length	Core	RQD	ANALYTICAL Sample	Interval	SHMC Au	BOX
264'-269' HB D/O MED GRN, FN GRN; 5-10% HB PHENOS. < 1mm IN SIZE; FCT LT. @ 30°, 50°, RENEALED W/ PY, BLK OX.			264'-269' 3-5% PY 50% DISS. REPL. HB; 50% ON FCT		10	10	91	265-270	5	.005	
269' SHP CNT @ 60°	270		269'								
269'-297' SHALE LT TO MED GRN; 275' 1.5' DK GRN SHALE; FCT LT-MOD @ 40°-60° + 0°-20°; INT. FRAC. @ 275' (1.5')			269'-297' 4-6% PY 60% ON FCT; 40% REPL OF DK GRN CHL. COLORED BEDS; PY V. UNEVENLY DISTRIB.; ZN. OF HI MAGN.				90	270-275	5	Tr.	
272' 2"-4" BX W/ HEAVILY CONTORTED BEDDING ADJAC.; POSS FAT BUT ORIENT. HARD TO DETER, POSS 40°			269'-273' 5-10% PYRR. AS MAINLY REPL ON BEDDING		10	10		275-280	5	.005	
277' BEDDING @ 50°	280		273'-291' 2-3% PYRRH. AS OCCAS. REPL ON BEDDING;					280-285	5	.005	
288' MICRO FCT @ 40° ½" DISSPLACEMENT			288'-297' $CaCO_3$ VNLTS W/ MAGN, PY, FLUOR. @ 0°-15°; RARE QTZ VNLTS W/ MAGN.		10	10	92	285-290	5	.055	
291' BEDDING @ 50°	290										
290'-297' MOD-INT FCT @ 0°-20°, 40°, 60° RENEALED W/ $CaCO_3$, PY, QTZ VNLTS; SHALE BLEACHED LT. GRN								290-295	5	.005	
297' SHP CNT @ 55°			297'		10	10					
297'-333' QUARTZITE LT-MED GY W/ LT BRN BANDS PAR. TO BEDDING; FN GRN.; FCT MOD TO INT. BUT RENEALED SO COMPL. BY QTZ W/ MINOR PY THAT PY ALMOST LOOKS DISSEMIN.; COMP OF LT BRN MAT UNKN, TO FN TO SEE.; BEDDING MASSIVE BUT @ 327' POSS BDING @ 40°; MOST EASILY VISIBLE FCT @ 30°-40°, RENEALED W/ PY + GRN CLAY(?)	300		297'-333' 1-2% PY PY ON FCT W/ SOME GRN CHL OR CLAY (3.0%); 70% LOOKS DISSEMIN. BUT ON RENEALED FCT THAT ARE BARELY DESERNABLE					295-300	5	.015	
								300-305	5	.010	
					10	10	81				
								305-310	5	.010	
	310										
								310-315	5	.005	
					10	10	88				
312'-333' QTZITE COLOR TO MED BRN (NOT FEOX COLOR), ALSO CHOTS OF SILI OXIDE 5-10%								315-320	5	.080	
	320										
			323' 3" VN(?) OF SECONDARY QTZ; 5% PY W/ STRINGS OF BLK OXIDE		9	9	79	320-325	5	.008	
327' BLEACHED CLOT OF INTRUS(?) W/ 5% MAGN 6" EITHER SIDE								325-330	5	.015	
	330										
333' SHP CNT @ 40°			333'		10	10	90	330-335	5	.005	

LITHOLOGY, ALTERATION, MISC.	FT.	GRAPHIC LOG (FCT)	MINERALIZATION	RECOVERY Run	Run length	Core	RQD	ANALYTICAL Sample	Interval	SHMC Au	BOX
TRACHYTE LT GY TO LT GRN TO LT BRN; 5-10% FELD PHENOS .1" DIA; 1-5% HB .05" DIA APG GRND MASS; HILY FCT W/ QTZ VNLTS @ 20°-50°			333'-339' 2-4% PY 60% ON FCT; 40% DISSEM.; TR GALENA FLUORITE		10	10					
339' SHP CNT @ 40°			340' 1 50% PY AT LOWER CNT					335-340	5	.055	
339'-375' QUARTZITE LT-MED GY; FN GRN MASSIVE BEDDING; MOD FCT @ 20°-30°, 50°-60°, REHEALED W/ PY, QTZ, BLK ox	340		340'-375' 1-2% PY 90% ON FCT @ 20°-30°, 50°; 342' 10% PY POSS DISSEM.		7	7		340-345	5	.015	
339'-341' INTENSE FCT NEAR CNT IN PART BX W/ QTZ + PY MATRIX			342' HVY LIM ON FCT 2'				54				
			344'-365' LT-MOD LIM ON FCT					345-350	5	Tr.	
	350				5	5					
								350-355	5	NF.	
357' THIN MAGN RICH BAND POSS BEDDING @ 45° 358' MAGN VNLTS @ 30°; MAGN DISS. ADJAC. TO VNLTS					10	10	86				
			358' MAGN. VNLTS (.1") @ 30° W/ PY					355-360	5	Tr.	
	360										
								360-365	5	.005	
					10	10	91				
								365-370	5	.010	
	370										
372' THIN BLK BANDS, POSS BEDDING @ 50° MAG(?)					4	4		370-375	5	NF	
375' SHP IRREG CNT			375'				84				
375'-396' PE BRECCIA; AGE UNCERTAIN: V. ANGULAR FRAG OF REL. CHERT, BIO SCHIST, THINLY BEDDED QTZ MOD(?) BIO SCHIST IN A QTZ MATRIX W/ ABUND. LOCAL MAGN AND MINOR PY; FRAG .1" TO 2' IN DIA; BRECCIA IS CUT BY LATER QTZ VNLTS 20°, 60°; SOME VNLTS HAVE ABUND MAGN.; MINOR $CaCO_3$ ON FCT.			376' MATRIX 20% MAG, 5% PY								
			375'-396' 2-3% PY 60% IN BX MATRIX W/ MAGN; 40% IN BX FRAG		6	6		375-380	5	.005	
	380										
								380-385	5	Tr.	
					8.5	8.5	81				
								385-390	5	.015	
	390										
394'-396' GRAD DECR IN AMOUNT OF FCT MOSTLY CHERT FRAG FROM UNIT BELOW			392'-395' ABUND MAGN IN MOD BX MATRIX		8	8	79	390-395	5	.010	
396' SHP CNT @ 40°			396'								
396'-398' PE CHERT HILY FCT @ 30°, 60° 398' LT GY, MEDIUM (RECRYSTALLIZED) SHP CNT @ 70°			396'-398' 1-2% PY ON FCT 397' W/ MIN. MAGN					395-400	5	NF	
398'-419.5' MAGNETIC BLACK ARGILLITE FN GRN, BLACK; FCT LT TO MOD. @ 20°-40° W/ MIN FCT @ 50°-60°	400		399' 1/10% PY ON FCT + REPL. ON BEDDING		2	2					
			398'-414' 1-2% PY EXCEPT AT INTERVALS NOTED; 80% PY ALL FCT; 20% REPL.		10	10	80	400-405	5	.005	

LITHOLOGY, ALTERATION, MISC.	FT.	GRAPHIC LOG	FCT	MINERALIZATION	RECOVERY Run	Run length	Core	RQD	ANALYTICAL Sample	Interval	SMPL Au					BOX
405' 1" CaCO3 VN w/ FRAG OF ARG. HLY ALT.; MIN. PY								80								
ARGILLITE AS AT 398'						10	10		405-410	5	.005					
	410			410' 1' 15% PYRR; 5% PY REPL. BEDDING; MIN. PY ON FCT												
									410-415	5	Tr.					
1' BLK MAGNETIC ARGILLITE INTERBEDDED W/ .5-1' QTZ FELD BANDS; AT LEAST 2 PERIODS OF FOLDING; BEDDING (POL) @ 50°				414'		10	10	82								
				414'-419.5 5-7% PY; MIN PYRR. CONC. IN REPL. BANDS PARAL. FOLIA; PY 50% FCT - 50% REPL.					415-419.5	4.5	NF					
E.O.H. @ 419.5'																