6000 0749

Mining District File Summary Sheet

DISTRICT	Rosebud
DIST_NO	4010
COUNTY If different from written on document	Pershing
TITLE If not obvious	Rosebud Drill Hole File - Hole No. RBW-16
AUTHOR	J. Viergutz; C. Muerhoff; S. King
DATE OF DOC(S)	1995-1996
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Hecla Mining Co; Rosebud Project Hecla Rosebud Mine
COMMODITY If not obvious	gold; silver
NOTES	drill logs; geology; assay; total depth 1680' handwritten notes; receipts; water 21 p.

Keep docs at about 250 pages if no oversized maps attached
(for every 1 oversized page (>11x17) with text reduce
the amount of pages by ~25)

SS: DD 4/30/08
Initials Date
DB:
Initials Date
SCANNED:
Initials Date

Revised: 1/22/08

RBW-16

60000749
4010

60600749

Hecla MINING COMPANY
ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RBW-16
PAGE 1 OF 9
DATE 4/26/96
LOGGED BY KBA
TOTAL DEPTH 1680

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

AREA WATER WELL EXPLORATION
DRILLING CO. LANG
RIG TYPE RVC
HOLE SIZE
DOWN HOLE SURVEY BY

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
		Qc	Colluvium.		
10					
20		TB	MATRIX SUPPORTED DK-REDDISH-BROWN HETEROLITHIC VOLCANIC BRECCIA. CLASTS ARE SMALL (LAPILLI) IN SIZE. MATRIX APPEARS TO BE A BROWNISH MUD. LOOKS LIKE RAILROAD FM. CLASTS ARE SUB-ROUNDED to SUBANGULAR.	MS-MH	FG/CRAN
30		TB		MS-MH	
40		TB		MS-MH	
50		TB	INCREASES matrix	MS	
60		TB		MS	
70		TB		MS	
80		TB		MS-MH	
90		TB		MS-MH	
100		TB		MS-MH	
110		TB		MS-MH	
120		TB		MS-MH	
130		TB		MS-MH	
140		TB		MS-MH	
150		TB		MS-MH	
160		TB		MS-MH	
170		TB		MS-MH	
180		TB		MS-MH	
190		TB		MS-MH	
200		TB	INCREASES MATRIX	MS	

ALTERATION																			
SILICIFICATION					ARGILLIC				PROPYLITIC %		POTASSIC %		OXIDATION			VIENING	
5%	15%	+25%	MATRIX %	CLASTS %	5%	15%	+25%	TYPE	CHLORITE	CALCITE	K-SPAR	ALUNITE	5%	15%	+25%	%	TYPE

MINERALIZATION									METALLURGY				ANALYTICAL DATA				
SULFIDES			PY	CPY	MAR	AG-SULF	STIBNITE	BARITE									
5%	15%	+25%	%	%	%	%	%	%	OXIDE	SULF	CARBON	MIXTURE	FROM	TO	W	Au	Ag

Hecla MINING COMPANY

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AREA WATER EXPLORATION PROGRAM
DRILLING CO. LANG
RIG TYPE ROC
HOLE SIZE
DOWN HOLE SURVEY BY

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION CLASTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MIXTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
210		TB	MATRIX SUPPORTED DK-REDDISH-BROWN HETEROLITHIC ? VOLCANIC BRECCIA. BADGER FM?	MS-MH	FG-CRM											TR																										
220		TB		MS-MH																																					
230		TB	MOSTLY MUD MATRIX	MS																																					
240		TB		MS-MH																																					
250		TB		MS-MH																																					
260		TB		MS-MH																																					
270		TB		MS-MH																																					
280		TB		MS-MH																																					
290		TB	MOSTLY MUD? MATRIX	MS																																					
300		TB		MS																																					
310		Tc	MONOLITHIC MATRIX SUPPORTED to CLAST SUPPORTED VOLCANIC BRECCIA. CLASTS ARE COMPOSED OF ANDESITIC to LATITIC FLOW OR ASH-FLOW. PRIMARY HEMATITE ABUNDANT.	MS-MH																																							
320		Tc		MS-MH																																					
330		Tc		MS-MH																																					
340		Tc		MS-MH																																					
350		Tc		MS-MH																																					
360		Tc	LESS BX POSSIBLE FLOW?	MS-MH																																					
370		Tc		MS-MH																																					
380		Tc		MS-MH																																					
390		Tc		MS-MH																																					
400		Tc		MS-MH																																					

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AREA WATER EXPLORATION PROGRAM
DRILLING CO. LANG
RIG TYPE RUC
HOLE SIZE
DOWN HOLE SURVEY BY

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION CLASTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MIXTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
410		Tc	LATITIC TO ANDESITIC, MATRIX SUPPORTED DK REDDISH-BROWN MONOLITHIC VOLCANIC BRECCIA.	MH-MS	FG/GRAIN																																				
420		Tc	SAME AS ABOVE ONLY NON-BRECCIATED & FLOW	MH-MS	FG																																				
430		Tc		MH-MS																																					
440		Tc		MH-MS																																					
450		Tc		MH-MS																																					
460		Tc	LATITIC TO ANDESITIC, MATRIX SUPPORTED TO CLAST SUPPORTED VOLCANIC BRECCIA, DK REDISH-BRN. CLAY ALT	MS	FG/GRAIN							X			WHITE																										
470		Tc		MS-MH								X																													
480		Tc		MH-MS							X																														
490		Tc	PROPYLITIZED + POTASSIC ALT. INCREASED SiO2 + PYRITE	MH			X									X		X						X		100								X							
500		Tc		MH			X									X		X						X										X							
510		Tc		MS-MH																																					
520		Tc		MS-MH																																					
530		Tc		MS-MH																																					
540		Tc		MS-MH																																					
550		Tc	SAME AS ABOVE ONLY NON-BRECCIATED & FLOW	MS-MH	FG																																				
560		Tc		MS-MH																																					
570		Tc	DK REDISH-BRN.	MS-MH																																					
580		Tc	LATITIC TO ANDESITIC, MATRIX SUPPORTED TO CLAST SUPPORTED MONOLITHIC VOLCANIC BRECCIA.	MS-MH	FG/GRAIN															X																					
590		Tc	MINOR FLOW BANDING	MS-MH		X																																			
600		Tc	±CARB	MS-MH		X										X						3	CLCDY																		

Hecla MINING COMPANY

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AREA WATER EXPLORATION PROGRAM
DRILLING CO. LANG
RIG TYPE RVC
HOLE SIZE
DOWN HOLE SURVEY BY

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION CLASTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AG-SUL %	STUBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MIXTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
610		Tc	LATITIC to ANDESITIC FLOW OR ASH-FLOW TUFF W/ MINOR BRECCIATION. VARYING AMOUNTS OF PROPYLITIC ALT. DK. REDDISH BROWN	MH-MS	FG/GRAN						X				X		X																								
620		Tc		MH-MS							X				X		X							X			100							X							
630		Tc		MH-MS							X				X		X							X										X							
640		Tc		MH-MS							X				X		X							X										X							
650		Tc		MH-MS							X				X		X							X										X							
660		Tc		MH-MS							X				X		X							X										X							
670		Tc		MH-MS							X				X		X																								
680		Tc		MH-MS																																					
690		Tc		MH-MS																																					
700		Tc		MH-MS																																					
710		Tc		MH-MS											X																										
720		LBud	BUD LIKE, LT to DK GREEN, SLIGHTLY PORPHYRITIC - SLIGHTLY GRANULAR, LATITIC? ASH-FLOW TUFF. SOME WOKS. EPICLASTIC?	S-MS	SP-SG				X						X										Y			100							X							
730		LBud	(TC Contamination)	MS-MH					X						X										X										X							
740		LBud		S						X					X										X										X							
750		LBud	(TC Contamination)	MS-MH					X						Y										X										X							
760		LBud		S-MS						X					Y										X										X							
770		LBud	LOOKS EPICLASTIC	MS-MH	GRAN				X						Y										X										X							
780		LBud		MS-MH					X						Y										Y										X							
790		LBud		MS-MH					X						X										X										X							
800		LBud		MS-MH					X						X										X			X							X							

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AREA WATER EXPLORATION PROGRAM
DRILLING CO. LANG
RIG TYPE RUC
HOLE SIZE
DOWN HOLE SURVEY BY

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION CLASTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AC-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MIXTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
810		LBUD	BUD LIKE, LT TO DK GREEN, SLIGHTLY PORPHYRITIC TO SLIGHTLY GRANULAR. LATITIC ASH-FLOW TUFF.	MS-MH	GRAN						X				X		X							X			100							X							
820		LBUD		MS-MH							X				X		X							X										X							
830		LBUD		MS-MH							X				X									X										X							
840		LBUD		MS-MH							X				X									X										X							
850		LBUD		MS-MH							X				X									X										X							
860		LBUD		MS-MH							X				X									X										X							
870		LBUD	WHITE CLAY STOCKWORK	MS-MH							X			WHITE CLAY	X							2	WHT CLAY	X										X							
880		LBUD		MS-MH							X				X		X					2		X										X							
890		LBUD		MS-MH							X				X		X					2		X										X							
900		LBUD		MS-MH							X				X		X					2		X										X							
910		LBUD		MS-MH							X				X		X					2		X										X							
920		LBUD		MS-MH							X				X		X					2		X										X							
930		LBUD		MS-MH							X				X		X					2		X										X							
940		LBUD		MS-MH							X				X									X										X							
950		LBUD		MS-MH											X									X										X							
960		LBUD		MS-MH											X									X										X							
970		LBUD.		MS-MH											X									X										X							
980		TD	FINE-GRAINED, APHANITIC, RHYOLITIC FLOW. DOZER RHYOLITE.	MH	FG						X				X									X										X							
990		TD		MH							X				X									X										X							
1000		TD		MH							X				X									X										X							

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AREA WATER EXPLORATION PROGRAM
DRILLING CO. LANG
RIG TYPE RVC
HOLE SIZE
DOWN HOLE SURVEY BY

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION CLASTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MIXTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1010		TD	FINE-GRAINED APHANITIC, RHYOLITIC FLOW - LOWER RHYOLITE.	MH	FG						X				X									X			100							X							
1020		TD		MH							X				X									X										X							
1030		TD		MH							X				X									X										X							
1040		TD		MH							X				X									X										X							
1050		TD	CHOCOLATE CONTAMINATION	MH							X				X									X										X							
1060		TD		MH							X				X									X										X							
1070		TD		MH							X				X									X										X							
1080		TDS ?	CHLORITE RICH, LATITIC? ASH-FLOW TUFF ??	MS	GRAN/FG						X					X								X										X							
1090		?		MS							X					X								X										X							
1100			FAULT ZONE ?	S	FG								X		X									X										X							
1110				S									X		X									X										X							
1120		ALS	ALCS LANG SYNE PHILLITE/GRAPHITIC	MS	FG						X													X											X						
1130		TD	FINE-GRAINED APHANITIC, RHYOLITIC FLOW - LOWER RHYOLITE	MH	FG						X				X									X										X							
1140		TD		MH							X				X									X										X							
1150		TD		MH							X				X									X										X							
1160		ALS	ALCS LANG SYNE GRAPHITIC PHYLITES	MS-MH	FG	X										X						2	WHT QAZ	X											X						
1170		ALS		MS-MH		X										X						1		X											X						
1180		ALS		MS-MH		X										X						2		X											X						
1190		ALS		MS-MH		X										X						1		X											X						
1200		ALS		MS-MH		X										X						1		X											X						

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AREA WATER EXPLORATION PROGRAM
DRILLING CO. LANG
RIG TYPE RVC
HOLE SIZE
DOWN HOLE SURVEY BY

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION CLASTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AG-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MIXTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1210		TD	FINE-GRAINED, APHANITIC, RHYOLITIC DIKE	MH	FG										X																			X							
1220		ALS	AULD LANG SYNE PHYLITE + WHITE QUARTZ VEINING 50/50	MS-MH	FG			X								X						50	WHITE QTZ	X			100								X					
1230		TD	FINE-GRAINED, APHANITIC, RHYOLITE DIKE	MH	FG										X																			X							
1240		ALS	AULD LANG SYNE PHYLITE (GRAPHITIC)	MS-MH	FG											X								X			100								X						
1250		ALS		MS-MH	FG											X								X											X						
1260		ALS		MS-MH	FG											X								X											X						
				MS-MH	FG											X								X											X						
1270		TD	FINE-GRAINED, APHANITIC, RHYOLITIC DIKE.	MH	FG										X																			X							
1280		ALS	AULD LANG SYNE PHYLITES GRAPHITIC.	MS-MH	FG											X								X			100								X						
1290		ALS		MS-MH												X								X											X						
1300		ALS		MS-MH		X										X						3	WHITE QTZ	X											X						
1310		ALS		MS-MH		X										X						1		X											X						
1320		ALS		MS-MH												X								X											X						
1330		ALS		MS-MH		X										X						1	WHITE QTZ	X											X						
1340		ALS		MS-MH		X										X						3		X											X						
1350		ALS		MS-MH		X										X						1		X											X						
1360		ALS		MS-MH		X										X						1		X											X						
1370		ALS		MS-MH		X										X						1		X											X						
1380		ALS		MS-MH		X										X						1		X											X						
1390		ALS		MS-MH		X										X						1		X											X						
1400		ALS		MS-MH												X								X											X						

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1410		ALS	FINE-GRAINED, GRAPHITIC, AND LANG SYNE PHYLLITES	MS-MH	F6											X								X			100								X							
1420		ALS		MS-MH												X								X											X							
1430		ALS		MS-MH												X								X											X							
1440		ALS		MS-MH												X								X											X							
1450		ALS		MS-MH												X								X											X							
1460		ALS		MS-MH												X								X											X							
1470		ALS		MS-MH												X								X											X							
1480		ALS		MS-MH												X								X											X							
1490		ALS		MS-MH												X								X											X							
1500		ALS		MS-MH												X								X											X							
1510		ALS		MS-MH												X								X											X							
1520		ALS		MS-MH												X								X											X							
1530		ALS		MS-MH												X								X											X							
1540		ALS		MS-MH												X								X											X							
1550		ALS		MS-MH												X								X											X							
1560		ALS		MS-MH												X								X											X							
1570		ALS		MS-MH												X								X											X							
1580		ALS		MS-MH												X								X											X							
1590		ALS		MS-MH												X								X											X							
1600		ALS		MS-MH												X								X											X							

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HOLE SIZE
DOWN HOLE SURVEY BY

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION CLASTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MIXTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1610		ALS	FINE-GRAINED, GRAPHITIC, AULD LANG SYNE PHYLLITES.	MS-MH	FG											X								X			20%								X							
1620		ALS		MS-MH												X								X											X							
1630		ALS		MS-MH												X								X											X							
1640		ALS		MS-MH												X								X											X							
1650		TD	FINE-GRAINED, PORPHYRITIC, RHYOLITE DIKE	H-MH	PORPHYRITIC	X																												X							
1660		TD		H-MH		X																												X							
1670		ALS	FINE-GRAINED, GRAPHITIC AULD LANG SYNE PHYLLITES	MS-MH	FG											X								X			100								X							
1680		ALS		MS-MH	FG											X								X			100								X							
TD			TD=1680																																						

RBW-16

WHITE—DIVISION OF WATER RESOURCES
CANARY—CLIENT'S COPY
PINK—WELL DRILLER'S COPY

PRINT OR TYPE ONLY
DO NOT WRITE ON BACK

STATE OF NEVADA
DIVISION OF WATER RESOURCES

WELL DRILLER'S REPORT

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

OFFICE USE ONLY
Log No.
Permit No.
Basin

NOTICE OF INTENT NO. 29629

1. OWNER HECLA MINING COMPANY
MAILING ADDRESS 6500 MINEREL DR.
COEUR D'ALENE, ID 83814-8788

ADDRESS AT WELL LOCATION
HECLA ROSEBUD MINE

2. LOCATION SW ¼ NE ¼ Sec. 24 T. 34 (N) S R. 29 E. PERSHING County

PERMIT NO. N/A (Issued by Water Resources) | N/A (Parcel No.) | N/A (Subdivision Name)

3. WORK PERFORMED
[X] New Well [ ] Replace [ ] Recondition
[ ] Deepen [ ] Abandon [ ] Other

4. PROPOSED USE
[ ] Domestic [ ] Irrigation [ ] Test
[X] Municipal/Industrial [ ] Monitor [ ] Stock

5. WELL TYPE
[ ] Cable [ ] Rotary [X] RVC
[ ] Air [ ] Other

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thickness
VOLCANICS		0	820	820

Date started NOVEMBER 11, 19 95
Date completed NOVEMBER 19, 19 95

7. WELL TEST DATA

TEST METHOD: [ ] Bailer [ ] Pump [ ] Air Lift

G.P.M.	Draw Down (Feet Below Static)	Time (Hours)

8. WELL CONSTRUCTION
Depth Drilled 820 Feet Depth Cased 770 Feet

HOLE DIAMETER (BIT SIZE)

		From		To	
20-1/2	Inches	0	Feet	19	Feet
15	Inches	19	Feet	820	Feet
	Inches		Feet		Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
16	62.58	.375	0	19
8-5/8	28.55	.322	+2	770

Perforations:
Type perforation LOUVERED & SLOTTED
Size perforation .100
From 540 LOUVERED feet to 560 feet
From 730 LOUVERED feet to 750 feet
From 260 SLOTTED feet to 320 feet
From 580 SLOTTED feet to 620 feet
From 640 SLOTTED feet to 690 feet

Surface Seal: [X] Yes [ ] No
Depth of Seal 50
Placement Method: [X] Pumped [ ] Poured

Seal Type: [X] Neat Cement [ ] Cement Grout [ ] Concrete Grout

Gravel Packed: [ ] Yes [ ] No
From 820 feet to 50 feet

9. WATER LEVEL
Static water level 148 feet below land surface
Artesian flow G.P.M. P.S.I.
Water temperature °F Quality GOOD

10. DRILLER'S CERTIFICATION
This well was drilled under my supervision and the report is true to the best of my knowledge.
Name LANG EXPLORATORY DRILLING (Contractor)
Address 2286 WEST 1500 SOUTH (Contractor)
SALT LAKE CITY, UTAH 84104
Nevada contractor's license number issued by the State Contractor's Board 0021976
Nevada driller's license number issued by the Division of Water Resources, the on-site driller 1410
Signed JOHN VIERGUTZ
By driller performing actual drilling on site or contractor
Date JANUARY 4, 1996

(Rev. 3-91) USE ADDITIONAL SHEETS IF NECESSARY (O)-627

RBW-16

WHITE—DIVISION OF WATER RESOURCES
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PINK—WELL DRILLER'S COPY

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DIVISION OF WATER RESOURCES

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Permit No.
Basin

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1. OWNER HECLA MINING COMPANY
MAILING ADDRESS 6500 MINERAL DR.
COEUR D'ALENE, ID 83814-8788

ADDRESS AT WELL LOCATION
HECLA ROSEBUD MINE

2. LOCATION SW ¼ NE ¼ Sec. 24 T. 34 (N) S R. 29 E. PERSHING County

PERMIT NO. N/A (Issued by Water Resources) | N/A (Parcel No.) | N/A (Subdivision Name)

3. WORK PERFORMED
[X] New Well [ ] Replace [ ] Recondition
[ ] Deepen [ ] Abandon [ ] Other

4. PROPOSED USE
[ ] Domestic [ ] Irrigation [ ] Test
[X] Municipal/Industrial [ ] Monitor [ ] Stock

5. WELL TYPE
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[ ] Air [ ] Other

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thickness
VOLCANICS		0	820	820

8. WELL CONSTRUCTION
Depth Drilled 820 Feet Depth Cased 770 Feet

HOLE DIAMETER (BIT SIZE)

		From	To
20-1/2	Inches	0 Feet	19 Feet
15	Inches	19 Feet	820 Feet
	Inches	Feet	Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
16	62.58	.375	0	19
8-5/8	28.55	.322	+2	770

Perforations:
Type perforation LOUVERED & SLOTTED
Size perforation .100
From 540 LOUVERED feet to 560 feet
From 730 LOUVERED feet to 750 feet
From 260 SLOTTED feet to 320 feet
From 580 SLOTTED feet to 620 feet
From 640 SLOTTED feet to 690 feet

Surface Seal: [X] Yes [ ] No
Depth of Seal 50
Placement Method: [X] Pumped [ ] Poured
Seal Type: [X] Neat Cement [ ] Cement Grout [ ] Concrete Grout

Gravel Packed: [ ] Yes [ ] No
From 820 feet to 50 feet

9. WATER LEVEL
Static water level 148 feet below land surface
Artesian flow G.P.M. P.S.I.
Water temperature °F Quality GOOD

Date started NOVEMBER 11, 19 95
Date completed NOVEMBER 19, 19 95

7. WELL TEST DATA
TEST METHOD: [ ] Bailer [ ] Pump [ ] Air Lift

G.P.M.	Draw Down (Feet Below Static)	Time (Hours)

10. DRILLER'S CERTIFICATION
This well was drilled under my supervision and the report is true to the best of my knowledge.
Name LANG EXPLORATORY DRILLING (Contractor)
Address 2286 WEST 1500 SOUTH (Contractor)
SALT LAKE CITY, UTAH 84104
Nevada contractor's license number issued by the State Contractor's Board 0021976
Nevada driller's license number issued by the Division of Water Resources, the on-site driller 1410
Signed JOHN VIERGUTZ
By driller performing actual drilling on site or contractor
Date JANUARY 4, 1996

(Rev. 3-91) USE ADDITIONAL SHEETS IF NECESSARY (O)-627

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP036434

American Assay Laboratories

P.O. BOX 11530
RENO, NV,,USA
Ph.1-702-356-0606, Fax.1-702-356-1413

HECLA MINING CO.

COPIES TO : CHARLIE MUERHOFF
:
:
:

CLIENT REFERENCE No: RBW-16 RECEIVED : 10 NOV 1995

No. SAMPLES : 168 REPORTED : 8 DEC 1995

MAIN SAMPLE TYPE : DRILL CUTTINGS

NEVADA LEGISLATIVE DISCLAIMER :-
The results of this assay were based solely upon the content of the sample submitted. Any decision to invest should be made only after the potential investment value of the claim or deposit has been determined based on the results of assays of multiple samples of geological materials collected by the prospective investor or by a qualified person selected by him and based on an evaluation of all engineering data which is available concerning any proposed project.

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au	FA60	15%	ppb	5
Au(R)	FA60	15%	ppb	5
Ag	D210	10%	ppm	0.5

SIGNATORY : Sue King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP036434

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : RBW-16

REPORTED : 8 DEC 1995

SAMPLES	Au FA60 ppb	Au(R) FA60 ppb	Ag D210 ppm
RBW-16 0000-0010	<5		<0.5
RBW-16 0010-0020	<5		<0.5
RBW-16 0020-0030	<5	<5	<0.5
RBW-16 0030-0040	<5		<0.5
RBW-16 0040-0050	<5		<0.5
RBW-16 0050-0060	<5		<0.5
RBW-16 0060-0070	<5		<0.5
RBW-16 0070-0080	<5		<0.5
RBW-16 0080-0090	<5		<0.5
RBW-16 0090-0100	<5		<0.5
RBW-16 0100-0110	7		<0.5
RBW-16 0110-0120	<5	<5	<0.5
RBW-16 0120-0130	<5		<0.5
RBW-16 0130-0140	<5		<0.5
RBW-16 0140-0150	<5		<0.5
RBW-16 0150-0160	<5		<0.5
RBW-16 0160-0170	<5		<0.5
RBW-16 0170-0180	<5		<0.5
RBW-16 0180-0190	<5		<0.5
RBW-16 0190-0200	<5		<0.5
RBW-16 0200-0210	<5		<0.5
RBW-16 0210-0220	43	50	<0.5
RBW-16 0220-0230	<5		<0.5
RBW-16 0230-0240	<5		<0.5
RBW-16 0240-0250	<5		<0.5

AMERICAN ASSAY LABORATORIES

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REPORTED : 8 DEC 1995

SAMPLES	Au FA60 ppb	Au(R) FA60 ppb	Ag D210 ppm
RBW-16 0250-0260	<5		<0.5
RBW-16 0260-0270	<5		<0.5
RBW-16 0270-0280	<5		<0.5
RBW-16 0280-0290	<5		<0.5
RBW-16 0290-0300	<5	<5	<0.5
RBW-16 0300-0310	<5		<0.5
RBW-16 0310-0320	<5		<0.5
RBW-16 0320-0330	<5		<0.5
RBW-16 0330-0340	<5		<0.5
RBW-16 0340-0350	<5		<0.5
RBW-16 0350-0360	<5		<0.5
RBW-16 0360-0370	<5		<0.5
RBW-16 0370-0380	<5		<0.5
RBW-16 0380-0390	<5	<5	<0.5
RBW-16 0390-0400	<5		<0.5
RBW-16 0400-0410	<5		<0.5
RBW-16 0410-0420	<5		<0.5
RBW-16 0420-0430	<5		<0.5
RBW-16 0430-0440	<5		<0.5
RBW-16 0440-0450	<5		<0.5
RBW-16 0450-0460	<5		<0.5
RBW-16 0460-0470	<5		<0.5
RBW-16 0470-0480	<5		<0.5
RBW-16 0480-0490	<5		<0.5
RBW-16 0490-0500	<5	<5	<0.5

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REPORTED : 8 DEC 1995

SAMPLES	Au FA60 ppb	Au(R) FA60 ppb	Ag D210 ppm
RBW-16 0500-0510	<5		<0.5
RBW-16 0510-0520	<5		<0.5
RBW-16 0520-0530	<5		<0.5
RBW-16 0530-0540	<5		<0.5
RBW-16 0540-0550	<5		<0.5
RBW-16 0550-0560	<5		<0.5
RBW-16 0560-0570	<5	<5	<0.5
RBW-16 0570-0580	<5		<0.5
RBW-16 0580-0590	<5		<0.5
RBW-16 0590-0600	<5		<0.5
RBW-16 0600-0610	<5		<0.5
RBW-16 0610-0620	<5		<0.5
RBW-16 0620-0630	<5		<0.5
RBW-16 0630-0640	<5		<0.5
RBW-16 0640-0650	<5		<0.5
RBW-16 0650-0660	<5		<0.5
RBW-16 0660-0670	<5		<0.5
RBW-16 0670-0680	<5		<0.5
RBW-16 0680-0690	<5		<0.5
RBW-16 0690-0700	<5		<0.5
RBW-16 0700-0710	<5		<0.5
RBW-16 0710-0720	<5	<5	<0.5
RBW-16 0720-0730	<5		<0.5
RBW-16 0730-0740	<5		<0.5
RBW-16 0740-0750	<5		<0.5

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SAMPLES	Au FA60 ppb	Au(R) FA60 ppb	Ag D210 ppm
RBW-16 0750-0760	<5		<0.5
RBW-16 0760-0770	<5		<0.5
RBW-16 0770-0780	<5		<0.5
RBW-16 0780-0790	<5		<0.5
RBW-16 0790-0800	<5		<0.5
RBW-16 0800-0810	<5		<0.5
RBW-16 0810-0820	<5		<0.5
RBW-16 0820-0830	<5		<0.5
RBW-16 0830-0840	<5	<5	<0.5
RBW-16 0840-0850	<5		<0.5
RBW-16 0850-0860	<5		<0.5
RBW-16 0860-0870	<5		<0.5
RBW-16 0870-0880	<5		<0.5
RBW-16 0880-0890	<5		<0.5
RBW-16 0890-0900	<5	<5	<0.5
RBW-16 0900-0910	<5		<0.5
RBW-16 0910-0920	<5		<0.5
RBW-16 0920-0930	8		<0.5
RBW-16 0930-0940	14		<0.5
RBW-16 0940-0950	72		1.0
RBW-16 0950-0960	46		0.6
RBW-16 0960-0970	16		<0.5
RBW-16 0970-0980	6		<0.5
RBW-16 0980-0990	<5		<0.5
RBW-16 0990-1000	8		<0.5

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SAMPLES	Au FA60 ppb	Au(R) FA60 ppb	Ag D210 ppm
RBW-16 1000-1010	<5		<0.5
RBW-16 1010-1020	<5		<0.5
RBW-16 1020-1030	<5		<0.5
RBW-16 1030-1040	<5		<0.5
RBW-16 1040-1050	<5		<0.5
RBW-16 1050-1060	<5		<0.5
RBW-16 1060-1070	<5		<0.5
RBW-16 1070-1080	<5	<5	<0.5
RBW-16 1080-1090	<5		<0.5
RBW-16 1090-1100	<5		<0.5
RBW-16 1100-1110	<5		<0.5
RBW-16 1110-1120	<5		<0.5
RBW-16 1120-1130	<5		<0.5
RBW-16 1130-1140	<5		<0.5
RBW-16 1140-1150	<5		<0.5
RBW-16 1150-1160	<5		<0.5
RBW-16 1160-1170	<5		<0.5
RBW-16 1170-1180	<5		<0.5
RBW-16 1180-1190	<5	<5	<0.5
RBW-16 1190-1200	6		<0.5
RBW-16 1200-1210	5		<0.5
RBW-16 1210-1220	<5	<5	<0.5
RBW-16 1220-1230	<5		<0.5
RBW-16 1230-1240	<5		<0.5
RBW-16 1240-1250	<5		<0.5

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SAMPLES	Au FA60 ppb	Au(R) FA60 ppb	Ag D210 ppm
RBW-16 1250-1260	<5		<0.5
RBW-16 1260-1270	<5		<0.5
RBW-16 1270-1280	<5		<0.5
RBW-16 1280-1290	<5		<0.5
RBW-16 1290-1300	<5		<0.5
RBW-16 1300-1310	<5		<0.5
RBW-16 1310-1320	<5		<0.5
RBW-16 1320-1330	<5		<0.5
RBW-16 1330-1340	<5		<0.5
RBW-16 1340-1350	<5		<0.5
RBW-16 1350-1360	<5		<0.5
RBW-16 1360-1370	<5		<0.5
RBW-16 1370-1380	<5		<0.5
RBW-16 1380-1390	<5		<0.5
RBW-16 1390-1400	<5		<0.5
RBW-16 1400-1410	<5		<0.5
RBW-16 1410-1420	<5	<5	<0.5
RBW-16 1420-1430	<5		<0.5
RBW-16 1430-1440	<5		<0.5
RBW-16 1440-1450	<5		<0.5
RBW-16 1450-1460	<5		<0.5
RBW-16 1460-1470	<5		<0.5
RBW-16 1470-1480	<5		<0.5
RBW-16 1480-1490	<5		<0.5
RBW-16 1490-1500	<5	<5	<0.5

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SAMPLES	Au FA60 ppb	Au(R) FA60 ppb	Ag D210 ppm
RBW-16 1500-1510	<5		<0.5
RBW-16 1510-1520	<5		<0.5
RBW-16 1520-1530	<5		<0.5
RBW-16 1530-1540	<5		<0.5
RBW-16 1540-1550	<5		<0.5
RBW-16 1550-1560	<5		<0.5
RBW-16 1560-1570	<5		<0.5
RBW-16 1570-1580	<5		<0.5
RBW-16 1580-1590	<5		<0.5
RBW-16 1590-1600	<5		<0.5
RBW-16 1600-1610	<5		<0.5
RBW-16 1610-1620	<5		<0.5
RBW-16 1620-1630	<5		<0.5
RBW-16 1630-1640	<5		<0.5
RBW-16 1640-1650	<5		<0.5
RBW-16 1650-1660	<5		<0.5
RBW-16 1660-1670	<5		<0.5
RBW-16 1670-1680	<5		<0.5

N- 2,202,436.0
E- 476,455.4

-5000

0 OB 4998.0

4 Tbg

-49 14 Tbg

4 Tbg

? +/- Tbg Rhyo?

-48 24 Tbg

grn Ta clasts? or ?

Tbg w/ Tcr + Ta clasts

upper, soft Tbg

-47 3

Lower hard Tbg ?

-46 4

L Tbg

-45 5

L Tbg

RBgl ? No Qtz eyes

-44 6

Porp.

-43 7

Bud? Turns green + strongly clayalt

-42 (Not Clearly Bud) 8

710 to 1010
mix of many rock types
Could be Bud or Tcs
Has a lot of Alt. Ande.
Suspect Tcs (No dozer clasts)

PPB Au
PPM Ag

41 9 <5/<0.5
<5/<5
8/<0.5
14/<0.5
72/1.0
46/0.6
16/<.5
6/<.5
<5/<5

dis cubic Py w/ silica

mix of several

40

4000 1000 mix

?F? →

Td? Not positive this is Td

Td? (Not clearly Td could be same as dikes down in ALS)

Ta (andesite) oscur

39 F 11 F

ALS

td like

phyric dike Andesite?

mix ALS + Dozer Like dike

ALS

38 12 Phyric Andesite like

Not seen Before

Td like dike (Aphyric)

Td like dike (Aphyric)

37 13

36 14

35 15

34 16

ALS

Prob dike Doz matrix w Qtz eyes + sour temag ?? @ TI?

Not seen before

AU 1680 TD

3300 EI

ROSEBUD
RBW-16
1" = 100'

Rclog Apr 99 Rogowski

RBJ-16
Fossils/Lithologies
silt.
arg.
Green
Calcite
microcrystalline
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
T.D. 1680