60006791

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. MW-5
AUTHOR	C. Muerhoff; S. Faircloth; C. Roberts
DATE OF DOC(S)	1994
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
COMMODITY If not obvious	gold; silver
NOTES	drill logs; geology; assay; total depth 420' receipt; handwritten notes 12 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)

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

Revised: 1/22/08

MW-5 (#2)

60060791
4010

6000 0791

MONITORING WELL INSTALLATION SHEET

JOB NO. HECLA - ROSEBUD

CLIENT: HECLA MINING COMPANY

PIEZOMETER NO. P- MW-5

DRILLING CONTRACTOR: HUMBOLDT DRILLING

LOCATION: SE 1/4, NE 1/4, SEC 24, T34N, R29E

FIELD ENGINEER: C. MJORHOFF / G. ROBERTS

DATE OF INSTALLATION: 5/16/94

DRILLING SYSTEM: RC

TOTAL DEPTH: 420'

DRILLING TOOLS: 5 1/2" HAMMER

PIEZOMETER TYPE: 2" OBSERVATION WELL

PIPE MATERIAL: PVC O.D. 2" I.D. SCHEDULE 80

LENGTH OF SECTIONS: 20'

ELEVATION OF THE PIPE TOP: 5044.7'

JOINING METHOD: SCREW

ELEVATION OF THE TIP:

PERFORATION TYPE: 0.020 FACT SLOT

ELEVATION OF THE GROUND SURFACE: 5042.1

SIZE OF SLOTS: 0.020 NO. OF SLOTS: —

NO WATER @ COMPLETION OF WELL 5/17/94

WATER LEVEL AT ~~COMPLETION~~: June 9, 1994 (first test)
DEPTH (FT.): 158.8 @ top of casing
ELEVATION (FT.): 4885.9'

PERFORATED AREA: 20'

NON PERFORATED PIPES: FROM: +2.6' TO: -400'

FLUSHING OF THE HOLE: AIRLIFT

PERFORATED PIPES: FROM: -400' TO: -420'

GRAVEL PACK: FROM: -390' TO: -420'

PROTECTION STEEL CASING:
O. D.: 6'
FROM: -2.0'
TO: +3.0'

TYPE AND DEPTH OF SEALING: TOP OF BENTONITE PELLET SEAL @ 3.64'

HYDRO-GEO CONSULTANTS

OWNER: HECLA MINING COMPANY — C. MUERHOFF

PROJECT: ROSEBUD - PERSHING COUNTY NV

LOCATION: SE 1/4, NE 1/4, SEC 24, T34N, R29E

COORDINATES N 2203425.6 E 478534.9 ELEV. 5042.1

BORING NO. MW-5

TYPE OF DRILLING: RC

ANGLE FROM HORIZONTAL -90°

PAGE 1 OF 3

ELEVATION / DEPTH	GRAPHIC LOG	DESCRIPTION OF ROCK MATERIAL	DESCRIPTION OF ROCK DEFECTS	WELL CONSTRUCTION	RQD (%) 25 50 75	FRACTURES PER FOOT 3 9 27	WEATHERING (SEE BELOW)	STRENGTH (SEE BELOW)	OTHER DATA: INTERVAL	ANALYTICAL: Au (oz/t)	ANALYTICAL: Ag (oz/t)
		COLLUVIUM	TRI-CONE CASED TO 45'						0'-10'	.001	.03
		BADGER FM. CONGLOMERATE W/ ROUNDED RHYOLITIC CLASTS & REDDISH-BROWN SAND TO SILT.		CEMENT SEAL					10'-20'	.002	<.02
20									20'-30'	.001	<.02
									30'-40'	<.001	<.02
40		LIGHT GREY CLAY	HAMMER BIT	2" SCHEDULE 80 PVC BLANK					40'-50'	.003	.10
		LIGHT GREY CLAY MIXED W/ TUFF FROM INTERVAL BELOW.							50'-60'	.006	.12
60		BUD TUFF. GREY, VERY FINE-GRAIN TUFF W/ ≤ 1/2% VFG PYRITE.							60'-70'	.008	.09
									70'-80'	.009	.07
80		INCREASING CLAY CONTENT W/ DEPTH	TEST #1 @85', 13 gpm	2" SCHEDULE 80 BLANK CASING					80'-90'	.007	.07
									90'-100'	.007	.11
100			TEST #2 @105', 15 gpm	GRAVEL BACKFILL					100'-110'	.014	.05
									110'-120'	.003	.04
120		GREY, "STICKY", CLAYS - NO ROCK COMPONENT IN SAMPLE. (FAULT ZONE?)	TEST #3 @125', 30 gpm						120'-130'	.002	.03
140			TEST #4 @145', 35 gpm						130'-140'	.001	.03
									140'-150'	.011	.17
160									150'-160'	.002	.04

Au check 2552 1/3

.006

XW, HW, MW, SW, FR — VW, W, MS, S, VS

LOG OF BORING

HYDRO-GEO CONSULTANTS

OWNER: HECLA MINING COMPANY
PROJECT: ROSEBUD - PERSHING COUNTY, NV
LOCATION: SE 1/4, NE 1/4, SEC 24, T34N, R29E
COORDINATES N _____ E _____ ELEV. _____

BORING NO. MW-5
TYPE OF DRILLING RC
ANGLE FROM HORIZONTAL -90°
PAGE 2 OF 3

ELEVATION / DEPTH	GRAPHIC LOG	DESCRIPTION OF ROCK MATERIAL	DESCRIPTION OF ROCK DEFECTS	WELL CONSTRUCTION	RQD (%)	FRACTURES PER FOOT	WEATHERING (SEE BELOW)	STRENGTH (SEE BELOW)	SAMPLE INTERVAL	ANALYTICAL Au (opt)	ANALYTICAL Ag (opt)	Au check 25525
		GREY CLAYS (FAULT ZONE?) CONTINUES	TEST #5 @165', 28 gpm →						160'-170'	.002	.04	
									170'-180'	.004	.09	.004
180			TEST #6 @185, 35 gpm →						180'-190'	.002	.04	
									190'-200'	<.001	.02	
200		BUD TUFF. SAME AS ABOVE	TEST #7 @205', 26 gpm →						200'-210'	.004	.06	
		NO RECOVERY	TEST #8 @215', +100 gpm →						210'-220'	.010	.10	
220		LIGHT BROWN/TAN VFG TUFF(?) W/ ± 1% FG EUHEDRAL PYRITE, ±10% ROUNDED QUARTZ GRAINS, ±10% GREEN CLAYS (CELADONITE / CHLORITE ?)	TEST #9 @225', 57 gpm → CHANGE BACK TO TRI-CONE ↓	GRAVEL BACK FILL; 2" SCHEDULE 80 BLANK CASING					220'-230'	.005	.08	
240									230'-240'	.005	.08	.004
									240'-250'	.004	.06	
260		BECOMES MORE GREY IN COLOR W/ DEPTH							250'-260'	.001	.04	
									260'-270'	.002	.06	
280									270'-280'	.003	.05	
									280'-290'	.039	.19	
300			TEST #10 @305', 75 gpm →						290'-300'	.006	.05	
									300'-310'	.003	.03	
320		↓							310'-320'	<.001	.03	

WEATHERING: FW, FW, MW, SW, FR
STRENGTH: VW, W, MS, S, VS

LOG OF BORING

HYDRO-GEO CONSULTANTS

OWNER: HECLA MINING COMPANY

PROJECT: ROSEBUD - PERSHING COUNTY, NV

LOCATION: SE 1/4, NE 1/4, SEC 24, T34N, R29E

COORDINATES N _____ E _____ ELEV. _____

BORING NO. MW-5

TYPE OF DRILLING RC

ANGLE FROM HORIZONTAL -90°

PAGE 3 OF 3

ELEVATION / DEPTH	GRAPHIC LOG	DESCRIPTION OF ROCK MATERIAL	DESCRIPTION OF ROCK DEFECTS	WELL CONSTRUCTION	RQD (%) 25 50 75	FRACTURES PER FOOT 3 9 27	WEATHERING (SEE BELOW)	STRENGTH (SEE BELOW)	OTHER DATA: SAMPLE INTERVAL	ANALYTICAL Au (oz/t)	ANALYTICAL Ag
									320' - 330'	<.001	.03
									330' - 340'	<.001	.06
340		PURPLE / GREY EXTREMELY FINE-GRAIN TUFF(?) ≈ 1% EUHEDRAL PYRITE ~2-3% QUARTZ GRAINS (DERIVED FROM STOCKWORK VEINING?)	TEST #11 @340', 75gpm → CONSISTENT TO END OF HOLE	GRAVEL BACKFILL					340' - 350'	<.001	<.02
				2" SCHEDULE 80 PVC BLANK					350' - 360'	<.001	.04
360									360' - 370'	<.001	.02
			BENTONITE PELLET SEAL						370' - 380'	<.001	<.02
380			SILICA SAND PACK						380' - 390'	.001	<.02
									390' - 400'	<.001	<.02
400				2" SCHEDULE 80 0.02 SLOTTED SCREEN					400' - 410'	<.001	<.02
			GRAVEL PACK						410' - 420'	<.001	<.02
420		T.D. 420'									

Au check 255848 <.001

LOG OF BORING

VW — VW
HW — W
MW — MS
SW — S
FR — VS

HYDRO-GEO CONSULTANTS

FIELD PERMEABILITY TEST

Falling/Rising Head

Project HECLA MINING COMPANY Tested By C.M. Date 5/17/94
Project No. ROSEBUD PROJECT Calculated By ___ Date ___
Boring No. MW-5 Checked By ___ Date ___
Type of Test (Falling/Rising) ___
Diameter of Boring 5 1/2" Permeability, K ___
Diameter of Casing 2" SCHEDULE 80
Height of Casing (Ref. Level)
Above Ground Surface 2.6' Filling/Pumping From: ___ To: ___
Perforated Casing From: 400' To: 420'
Type of Perforation 0.020
Depth to Ground Water From
Top of Casing Ø Filling/Pumping Rate ___ gpm

	Date and Time	Elapsed Time (Min.)	Depth to Water (ft.)	S.W.L. - Depth to Water (ft.) H	H/Ho
5/17/94	9:45 am	began to develop well → blew hole dry			
	10:20 am	probe too short (250') could not detect water level			
		pressured up well again →	very light spray (<< 1gpm)		
		continued to 10:35 am.			
	10:35 am	no return - turned off	downhole pressure		
	11:00 am	pressured up again → NO RETURN of water.			
	11:04 am	under pressure, well made 1-2 gpm			
	11:07 am	water return << 1gpm			
	11:20 am	injected light pressure into	screened interval - ±1gpm		
	11:40 am	under pressure << 1/2 gpm			
		Stopped Test.			
5/18/94	probe could not reach	water level			
5/20/94	probe could not reach	water level			
5/21/94	probe	could not reach water level			
6/9/94	11:00 am		158.8' from top of 2" casing		

COMMENTS: After pumping or addition of water, water level measurements should be recorded as follows: t = 0, t = 30 sec/5 min, t = 1 min/10 min, t= 5 min/15 min, t = 30 min/ 1-1/2 hr, t = 1 hr/until WL = +/- 90% SWL

HISTORY OF HOLE

Sheet ____ of ____

Job # ____

Boring # MW-5

Date 5/15/94

Geologist J.F., L.R., C.M.

Weather ____ Temperature ____ °F

Driller Steve

Surface Elevation ____ Depth ____ to ____

Contractor ____

Drill Fluid ____ Type of Barrel ____ Casing Size ____ Core Size ____

Location Rockford

BEGINNING OF SHIFT	END OF SHIFT
Time ____ Depth of Hole ____	Time ____ Hrs. Productive ____ Hrs. Delayed ____
Depth to WL ____ Depth to Casing ____	Depth of Hole ____ Depth of Casing ____ Depth to WL ____

MW-5 - 5/15/94 70° windy, RC.

7:40A - start drilling (RC)

8:15A hit bedrock at 45' - pull RC rods - start reaming w/ 8½" bit for casing

11:30A casing installed start drilling. (45')

12:20 hit water ± 85' 13 gpm

12:52 2nd discharge test 105' 15 gpm.

1:20 3rd test 30 gpm 125'

1:45 4th test 34½ gpm 145

2:06 5th test. 28 gpm - 165

2:30 6th test 34½ gpm > 185

2:56 7th test 26.2 gpm 205

3:00 215' Hit major water +100 gpm

3:10 8th test. 57 gpm 225'

3:15 trip out to change to tricone bits

↓ Go underground w/ Loren.

6:00 test 75 gpm 305'

6:30 330' - hit maroon fm w/ clay plugged bit

6:45 340' 75 gpm

End shift

5-16-94 55° windy, RC

7:00A start drilling. WT already 20'

9:15 400' - stopped by driller. No change in flow. Trip out.

10:15 Tripped out. Start installation (screen, two centralizers, cap)

11:15 Install gravel pack

12:30 Install gravel pack

1:10 Install bentonite.

2:14 Seated top of bentonite seal (364'). Start gravel fill.

3:30 Gravel at 300'. Lost sounding tool at bottom of casing. Bridge at bottom of casing. Blow out

4:00 Resume gravel fill.

4:35 Driller [illegible] ± two inches home for the day.

6:00 Stop for day (120')

5/17/94

1:00 pm Finish gravel to 50' from collar & consolidate top (50')

2:30 pm [illegible] & begin developing well

[illegible] pm [illegible]

[illegible] pm black [illegible] → developed - very minor H_2O return (<< 1 gpm)

[illegible] pm no return to very light return → no return @ 10:35 am

10:45 am [illegible] → NO RETURN

[illegible] pm [illegible] → NO RETURN

11:04 am begin working well 1-2 gpm → reduced to light spray by 11:07 am → 10' off bottom → light spray

[illegible] → ±1 gpm

[illegible]

11:40 am [illegible] 45' STUCK WELL - REGRIP LENGTH

Checked by:

OWNER: HECLA MINING COMPANY — C. MUERHOFF

PROJECT: ROSEBUD - PERSHING COUNTY, NV

LOCATION: SE 1/4, NE 1/4, SEC 24, T34N, R20E

COORDINATES: N 2203425.6 E 478534.9 ELEV. 5042.1

BORING NO. MW-3

TYPE OF DRILLING: RC

ANGLE FROM HORIZONTAL: -90°

PAGE 1 OF 3

ELEVATION / DEPTH	GRAPHIC LOG	DESCRIPTION OF ROCK MATERIAL	DESCRIPTION OF ROCK DEFECTS
		COLLUVIUM	TRI-CONE CASED TO 45'
20		BADGER FM. CONGLOMERATE W/ ROUNDED RHYOLITIC CLASTS & REDDISH-BROWN SAND TO SILT.	
40		LIGHT GREY CLAY	HAMMER BIT
		LIGHT GREY CLAY MIXED W/ TUFF FROM INTERVAL BELOW.	
60		BUD TUFF. GREY, VERY FINE-GRAIN TUFF W/ ≤ 1/2% VFG PYRITE.	
80		INCREASING CLAY CONTENT W/ DEPTH	TEST #1 @85', 13 gpm
100			TEST #2 @105', 15 gpm
120		GREY, 'STICKY', CLAYS - NO ROCK CONTAMINANT IN SAMPLE. (FAULT ZONE?)	TEST #3 @125', 30 gpm
140			TEST #4 @145', 35 gpm
160			

WELL CONSTRUCTION: CEMENT SEAL; 2" SCHEDULE 80 PVC BLANK; 2" SCHEDULE 80 BLANK CASING; GRAVEL BACKFILL

RQD (%): 25 50 75

FRACTURES PER FOOT: 3 9 27

WEATHERING (SEE BELOW)

STRENGTH (SEE BELOW)

OTHER DATA: INTERVAL	ANALYTICAL: Lead	ANALYTICAL: Arsenic
0'-10'	.001	.03
10'-20'	.002	<.02
20'-30'	.001	<.02
30'-40'	<.001	<.02
40'-50'	.003	.10
50'-60'	.006	.12
60'-70'	.008	.09
70'-80'	.009	.07
80'-90'	.007	.07
90'-100'	.007	.11
100'-110'	.014	.05
110'-120'	.003	.04
120'-130'	.002	.03
130'-140'	.001	.03
140'-150'	.011	.17
150'-160'	.002	.06

Au check 25524's

.006

LOG OF BORING

HW — VW; FW — W; MW — MS; SW — S; FR — VS

HYDRO-GEO CONSULTANTS

OWNER: HECLA MINING COMPANY

PROJECT: ROSEBUD - PERSHING COUNTY NV

LOCATION: SE 1/4, NE 1/4, SEC 24, T34N R30E

COORDINATES N _____ E _____ ELEV. _____

BORING NO. MW-3

TYPE OF DRILLING: RC

ANGLE FROM HORIZONTAL: -90°

PAGE 2 OF 3

ELEVATION / DEPTH	GRAPHIC LOG	DESCRIPTION OF ROCK MATERIAL	DESCRIPTION OF ROCK DEFECTS	WELL CONSTRUCTION	SAMPLE INTERVAL	ANALYSIS Au (opt)	ANALYSIS Ag (opt)	Au check 233275
		GREY CLAYS (FAULT ZONE?) CONTINUES	TEST #5 @165', 28 gpm →	GRAVEL BACKFILL	160' - 170'	.002	.04	
					170' - 180'	.004	.09	.004
180			TEST #6 @185, 35 gpm →		180' - 190'	.002	.04	
					190' - 200'	<.001	.02	
200		BUD TUFF. SAME AS ABOVE	TEST #7 @205', 26 gpm →		200' - 210'	.004	.06	
		NO RECOVERY	TEST #8 @215', +100 gpm →	2" PVC SCREEN 80 BLANK CASING	210' - 220'	.010	.10	
220		LIGHT BROWN/TAN VFG TUFF?? W/ ± 1% FG EUHEDRAL PYRITE, ± 10% ROUNDED QUARTZ GRAINS, ± 10% GREEN CLAYS (CELADONITE / CHLORITE ?)	TEST #9 @225', 57 gpm → CHANGE BACK TO TRI-CONE ↓		220' - 230'	.005	.03	
240					230' - 240'	.005	.03	.004
					240' - 250'	.004	.06	
260		BECOMES MORE GREY IN COLOR W/ DEPTH			250' - 260'	.001	.04	
					260' - 270'	.002	.06	
280					270' - 280'	.003	.05	
					280' - 290'	.039	.19	
300					290' - 300'	.006	.05	
			TEST #10 @305', 75 gpm →		300' - 310'	.003	.03	
320					310' - 320'	<.001	.03	

LOG OF BORING

HYDRO-GEO CONSULTANTS

OWNER: HECLA MINING COMPANY

PROJECT: ROSEBUD - PERSHING COUNTY, NV

LOCATION: SE 1/4, NE 1/4, SEC 24, T34N, R29E

COORDINATES N _____ E _____ ELEV. _____

BORING NO. MW-3

TYPE OF DRILLING: RC

ANGLE FROM HORIZONTAL: -90°

PAGE 3 OF 3

ELEVATION / DEPTH	GRAPHIC LOG	DESCRIPTION OF ROCK MATERIAL	DESCRIPTION OF ROCK DEFECTS	WELL CONSTRUCTION	SAMPLE INTERVAL	ANALYSIS Au (oz/t)	ANALYSIS Ag
					320' - 330'	<.001	.03
					330' - 340'	<.001	.06
340		PURPLE / GREY EXTREMELY FINE-GRAIN TUFF(?) ~ 1% EUHEDRAL PYRITE ~ 2-3% QUARTZ GRAINS (DERIVED FROM STOCKWORK VEINING?)	TEST #11 @340', 75gpm → CONSISTENT TO END OF HOLE	GRAVEL BACKFILL	340' - 350'	<.001	<.02
					350' - 360'	<.001	.04
360				2" SCHEDULE 80 PVC BLANK	360' - 370'	<.001	.02
				BENTONITE PELLET SEAL	370' - 380'	<.001	<.02
380				SILICA SAND PACK	380' - 390'	.001	<.02
					390' - 400'	<.001	<.02
400				2" SCHEDULE 80 .007 SLOTTED SCREEN	400' - 410'	<.001	<.02
				GRAVEL PACK	410' - 420'	<.001	<.02
420		T.D. 420'					

Au check 255275 <.001

OTHER DATA

LOG OF BORING

HYDRO-GEO CONSULTANTS

ANALYSIS REPORT

American Assay Laboratories Inc.

RENO: 1500 Glendale Ave,SPARKS 89431
P.O. Box 71060, RENO 89570
Ph (702)356 0606 Fax 3561413

HECLA MINING CO.

REPORT : SP 029240 2 Page(s) Date : 06/08/94

Client reference : #2 MW-5 Project : ROSEBUD

Cost code :

Copies to : CHARLIE MUERHOFF

Samples : Type Preparation code
Received : 05/25/94

Analysis	Code	Quality Parameter	Detection	Units
Au(OZ)	FA30	Acc. 15 %	0.001	OZ/TON
Au(RZ)	FA30	Acc. 15 %	0.001	OZ/TON
Ag(OZ)	D210	Prec.10 %	0.02	OZ/TON

QA Manager : Sue Faircloth M.S.

ANALYSIS REPORT

American Assay Laboratories Inc.

REPORT : SP 029240

Sample	Au(OZ) OZ/TON	Au(RZ) OZ/TON	Ag(OZ) OZ/TON
#2 0-10	0.001	MW-5	0.03
#2 10-20	0.002		<0.02
#2 20-30	0.001		<0.02
#2 30-40	<0.001		<0.02
#2 40-50	0.003		0.10
#2 50-60	0.006		0.12
#2 60-70	0.008		0.09
#2 70-80	0.009		0.07
#2 80-90	0.007	0.006	0.07
#2 90-100	0.007		0.11
#2 100-110	0.014		0.05
#2 110-120	0.003		0.04
#2 120-130	0.002		0.03
#2 130-140	0.001		0.03
#2 140-150	0.011		0.17
#2 150-160	0.002		0.04
#2 160-170	0.002		0.04
#2 170-180	0.004	0.004	0.09
#2 180-190	0.002		0.04
#2 190-200	<0.001		0.02
#2 200-210	0.004		0.06
#2 210-220	0.010		0.10
#2 220-230	0.005		0.08
#2 230-240	0.004	0.005	0.08
#2 240-250	0.004		0.06

Please refer to the cover sheet for further analysis details.

ANALYSIS REPORT

American Assay Laboratories Inc.

REPORT : SP 029240

Sample	Au(OZ) OZ/TON	Au(RZ) OZ/TON	Ag(OZ) OZ/TON
#2 250-260	0.001	MW-5	0.04
#2 260-270	0.002		0.06
#2 270-280	0.003		0.05
#2 280-290	0.039		0.19
#2 290-300	0.006		0.05
#2 300-310	0.003		0.03
#2 310-320	<0.001		0.03
#2 320-330	<0.001		0.03
#2 330-340	<0.001		0.06
#2 340-350	<0.001		<0.02
#2 350-360	<0.001		0.04
#2 360-370	<0.001	<0.001	0.02
#2 370-380	<0.001		<0.02
#2 380-390	0.001		<0.02
#2 390-400	<0.001		<0.02
#2 400-410	<0.001		<0.02
#2 410-420	<0.001		<0.02

Please refer to the cover sheet for further analysis details.