60000921

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. RS-D358-99
AUTHOR	D. Mackerrow; K. Allen; C Ballew; D. Hansen; R. Grondin
DATE OF DOC(S)	1999
MULTI_DIST Y / (N?) Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; Rosebud Mining Co. LLC Hecla Mining Co.; Newmont Gold Co.
COMMODITY If not obvious	gold; silver
NOTES	Drill log; geology; assay; [redacted]; total depth 800' receipt; handwritten notes; downhole camera images photographs 83p. 4 down hole camera images

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	5/12/08
DB:	mch	
SCANNED:		

Revised: 1/22/08

RS-D358-99

6000 0921 4010

358

6000 0921

- quartz, chalcedony, silicification
- faults, fractures
- FeOx
- sulfide
- calcite, carbonate
- argillization, white clays
- propylitization
- potassic alteration
- chlorite, chloritic clays

Barite Intensity: ---

Hecla MINING COMPANY

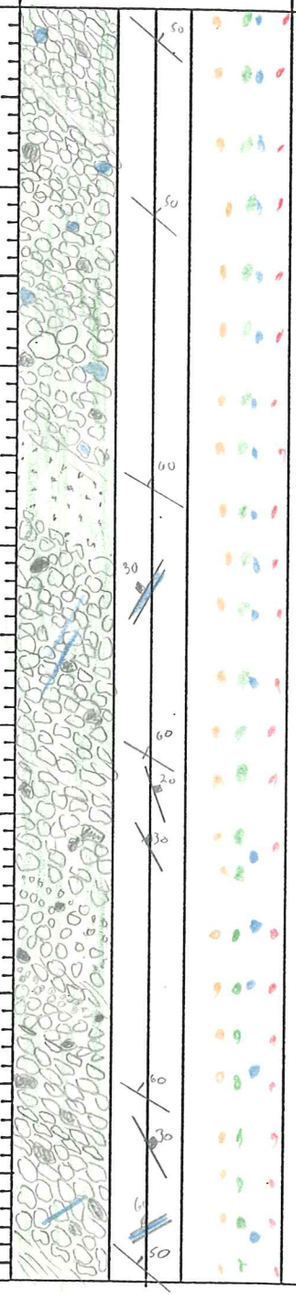
ROSEBUD PROJECT DIAMOND DRILL LOG

HOLE NUMBER	RS-D358-99	LOCATION		REMARKS	
PAGE 1 OF	12	NORTHING		OFF SET OF RS-D345-99	
DATE	6-16-99	EASTING		HQ core Reduced to	
LOGGED BY	D.G. Mackerrow	ELEVATION		NQ at 763	
SCALE	1" = 10'	AZIMUTH	N55°W		
TOTAL DEPTH	800	INCLINATION	-30		

LITH	OX/RE	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
LBT SPLAT	R	0-39.8 S.P. L.A.T. Fine grained ash Full Tuff with Planar foliation 40° to core axis. Chlorite has coat fracture surfaces and altered core green gray in color. Weak argillization has taken place 25-39.8 Autobreccia texture of Fine grain tuff minimal expansion and rotation	10 20 30 40 50	CORE LOSS CORE LOSS	PLANAR LAMINATIONS 1/4 to 1/2" apart dipping 40° to ca 25-39.8 Autobreccia texture Contact at 39.8 lost during drilling	0-39.8 Chlorite on Fractures weak argillizati that increase at the contact of the T.O.S. 2-2.5 marcasite blades in open qtz heal 1/4" wide fracture 24-34 3% Disseminated Py 35-37.4 Clay is Hydrothermally altered 30.5-31 Disseminated bladed marcasite ove 24-27 Py/marc. veinlets
TOS. Epiclastics	R	39.8-257 TOS. EPICLASTIC SANDSTONE CONGLOMERATES AND CLAYSTONE Conglomerate derived from volcanic clast and rare A.L.S. fragment Average last size 3/8" Bleach ends at 45' and core become pale green gray			39.8 clast supported conglomerate : subrounded shapped clast.	39.8-45 Decreasing Argillization and bleaching 45- Increased chloritization 39.8 Disseminated Py in T.O.S ≤ 1% and Marcasite in minimal at most

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	A
0	4.8					
4.8	9.0					
9.0	14					
14	17					
17	19	NO	SAMPLE			
19	21					
21	24	NO	SAMPLE			
24	29					
29	34					
34	37.4					
37.4	39.8					
39.8	44.0					
44.0	49.0					
49	54					

HOLE NUMBER RS-D358-99 PAGE 2 OF 12

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
T.O.S EPICLASTIC SED	R	39.8-257 T.O.S EPICLASTIC SANDSTONE CONGLOMERATE AND CLAYSTONE Fine conglomerate continues with sporatic beds grading to sandstone. Clay stones sporadically form narrow matrix supported conglomerates 71-73 High clay fraction supporting clast 119-135 Tuffaceous claystone matrix increases	50 60 70 80 90 100 110 120		minimal fracturing in the T.O.S. Rock tends to break on higher clay content planes	Chloritic altered T.O.S. continues, weak Argillic alteration continues 45.5 weakly calcareous Reaction begins in core. Occasional fragment highly calcareous 53 Calcite veins First show

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
49	54				
54	59				
59	64				
64	69				
69	74				
74	79				
79	84				
84	89				
89	94				
94	99				
99	104				
104	109				
109	114				
114	119				

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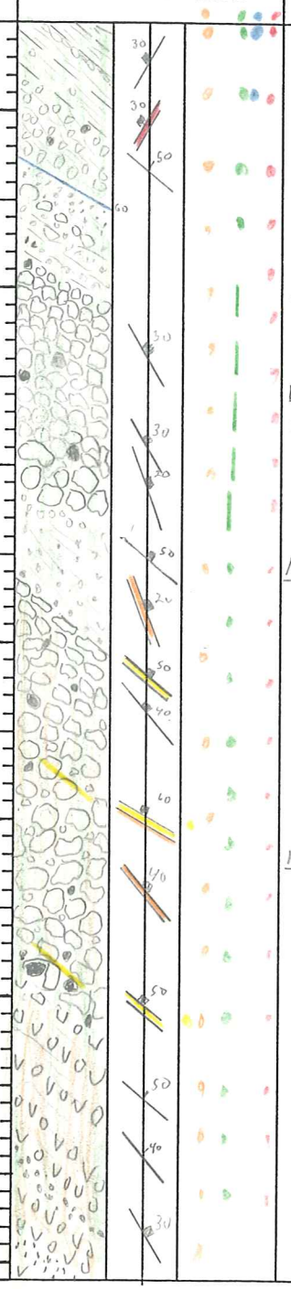
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
TOS	R	39.8-257 TOS. CONGLOMERATE SANDSTONE AND CLAYSTONE EPICLASTIC SEDIMENT Continues. Pinv 123 Wht clay 119-134 Increased clay in conglomerate and sandstone matrixes. 119-122 Tuffaceous clay beds with 10% rock clast 145.5-147.5 Very Pebble conglomerate 153.5-174 Sediments are altered around fractures that contain quartz veins and white clays. Pinv Yellow Grn clay 159.5 Weak hydrothermally altered clays present 175-176 % of A.L.S. Fragments ≈ 10% 176-207 Interbedded Coarse and lapilli tuff with coarse sandstone Epiclastic beds.	120 130 140 150 160 170 180 190		129 shear plane Dipping 60° tcu thickness loss during mislatch Not mineralized 135-139.5 Fracture Zone 145 weak fracture foliation 30° tcu 175 QTZ VEINLETS	123-134 Narrow Open fractures and Vugs include bladded marcasite 123 white clay on fracture (Pinv) 135-149 chloritic alteration at moderate levels 152.5-174 weak bleaching of sediments 153.5 white clay filled fracture 153-165 QTZ. VEINS with white clays.

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	A
119	124					
124	129					
129	134					
134	139					
139	144					
144	149					
149	154					
154	159					
159	164					
164	169					
169	174					
174	179					
179	184					
184	189					

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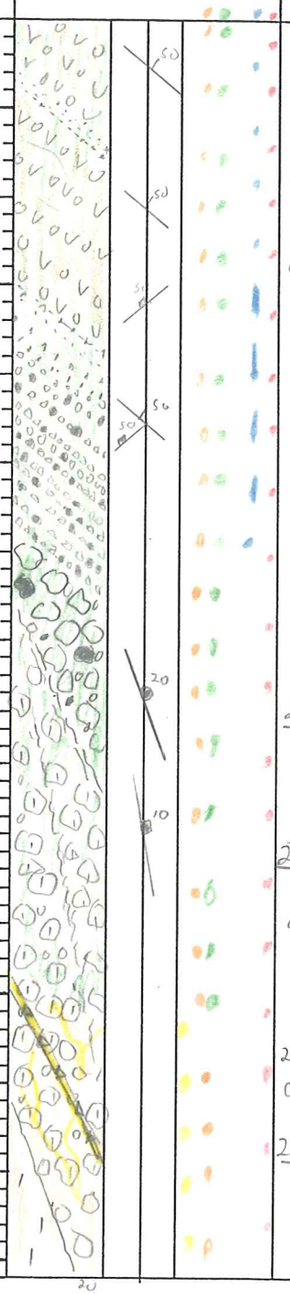
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
TOS.	R	39.8-257 TOS. EPICLASTIC SEDIMENTS AND TUFFS Interbedded interval of course and lapilli tuffs and sandstone 207 Course sandstone grades into conglomerate from 207 to 220. 228 Below 20° tca fracture Basal conglomerate of Dozer fragments begins 20° tca Depositional contact with Dozer	190 200 210 220 230 240 250 260		183-192 Fracture zone Minor shearing along clay bedding seams 228 20° tca fracture 236 10° tca fracture with thin sulfide coating on plane 248.5-249 QTZ healed crackle Bxx 257 contact 20° tca	192 Calcite veining begins and portion of tuff is calcareous 204-212 calcareous Rxn increases 234-239 Hydrothermally altered clay 239 QTZ veinlets increase in quantity 243-259 QTZ veining forms weak narrow crackle Bxx 246-248 open vugs with Druzy qtz
		257-571.6 DOZER Pinkish Gray Fine Grained Rhyolite				

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	A
189	194					
194	199					
199	204					
204	209					
209	214					
214	219					
219	224					
224	229					
229	234					
234	239					
239	244					
244	249					
249	254					
254	257					
257	262					

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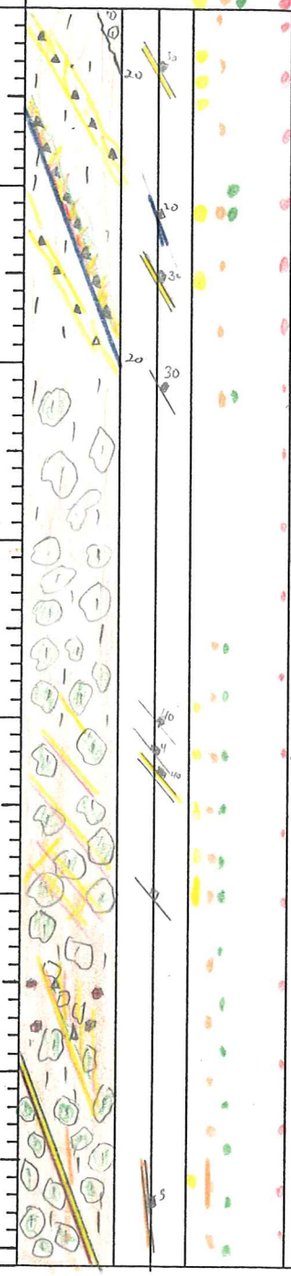
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td	R	257-571.6 DOZER Fine grained rhyolite flow Grayished white in color Very fine qtz veinlets Present. Narrow veinlets of Pyrite and Pyrite/marcasite. Dozer has low grade bleaching/argillization 267.9-272 Fault with crackle breccia hanging wall progressing to qtz and clay healed rubble breccia 2" from sharp foot wall surface, Dark sulfide foot wall film Slicks are 20° tca axis Pin @ 299.5 gouly 324.4-326 white clay filled fracture at 0-5° tca. This is in the hanging wall of 20° tca shear at 326.4-326.8. Shear is silica healed and contains dark sulfide	260 270 280 290 300 310 320 330		263-265 30° tca of qtz vein crackle to mosaic breccia 267.9-272 Fault with increasing intensity breccia toward 20° tca foot wall fault plane 282-524 Dozer Auto brecciated texture begins 299 Begining of increasing fracturing in hanging wall of shear at 326.5. 299-310 Dominate fracture 50° tca Open fracture have Druzy qtz Py and qtz vein-heal fractures	263-265 Quartz vein crackle breccia open vugs 265 very faint trace of chloritic alteration turns core pale greenish white when wet 274-279 mislatch Sample with 3.5' of loss. Interval has 30° tca quartz veins and micro. breccia. 307 1-3% Py often more blades disseminated in core blades 1-2 mm 294-307 chloritic alteration increases slightly turning core Pastel green and white 307-312.6 Quartz stockwork with associated pyrite/marc. in veins. 315-318 20° tca Qtz veins with large 3 mm Disseminated Py cubes

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	A
257	262					
262	265					
265	267.9					
267.9	272					
272	274					
274	279					
279	284					
284	289					
289	294					
294	299					
299	304					
304	307					
307	310					
310	312.6					
312.6	315					
315	318					
318	323					
323	326					
326	327.2					
327.2	332					

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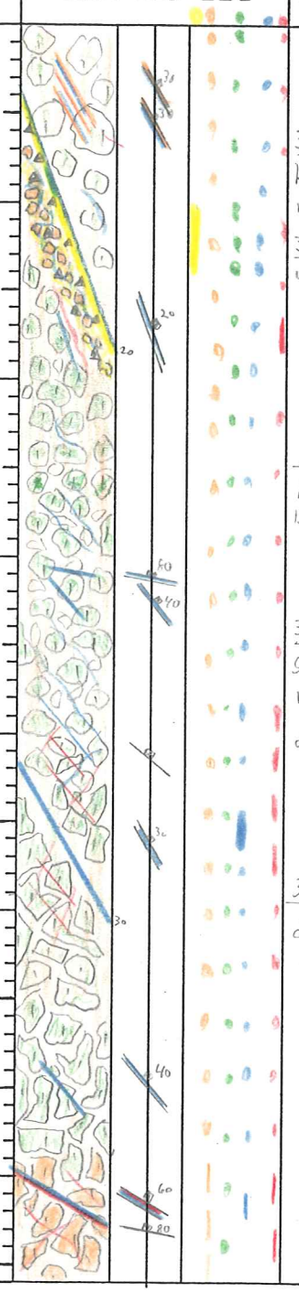
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td	R	257-571.6 DOZER Fine grained rylo/ite Continue Auto brecciated textures. Clast are generally higher in chloritic alteration than surrounding volcanic. 350-393.5 Alteration diminishes with chloritic alteration the most dominant. Argillization in strongest in auto breccia clast. 393.5 Argillization increases and clast of auto breccia become bleach and soft. 396 chloritic alteration over printed by argillization	330 340 350 360 370 380 390 400		340.9-341.3 Silica healed milled bxo with rock flour in silica 341.3-344 qtz stock work/crackle breccia 350-394 Minimal fracturing of the Dozer 364-380 weak swarm of sulfide veinlets mostly dipping 40° tca 376 Calcite vein dipping 30° tca	335-335.5 whitecaly and calcite veins with bladded Marcasite. 331 Calcite in Dozer, begins on fractures and forming veins 364-380 Pyrite Marcasite veinlets in a weak level swarm 376 1" Thick calcite calcite vein dipping 30° tca. 393.5-416 Pyrite veinlets increase around 1" vein of 396 396-397 Hydrothermally altered green clays on 80° tca Ft. 396 1" py/calcite Vein dipping 60° tca

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	A
327.2	332					
332	335.5					
335.5	340.5					
340.5	341.5					
341.5	344					
344	349					
349	354					
354	359					
359	364					
364	369					
369	374					
374	379					
379	384					
384	389					
389	394					
394	399					

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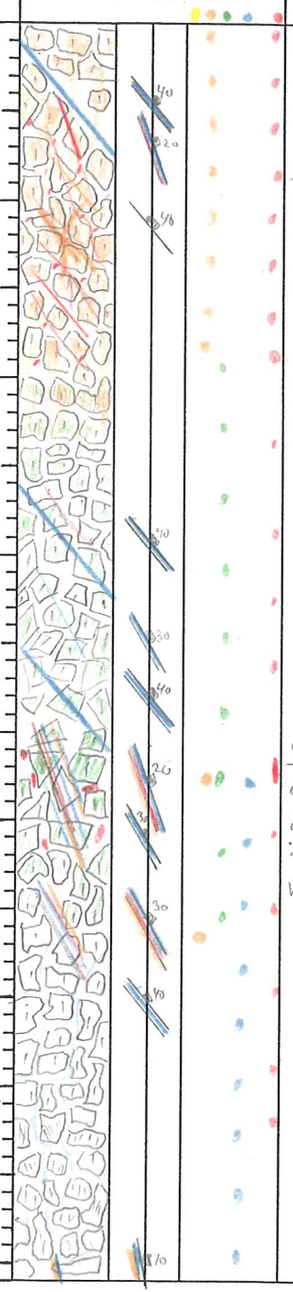
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td	R	257-571.6 DOZER Fine grained auto brecciated rhyolite continues. Colors vary with intensities of alteration 419 Alteration decreases to traces levels. Chloritic alteration as faint color in breccia clast and argillization is minimal 423 Matrix of auto breccia becomes red brown in color with greenish gray clasts. 458 matrix becoming increasingly Hematitic. By 463 Dark red brown unaltered Dozer. 465-471 Auto bxa clast have a flow banded texture to them	400 410 420 430 440 450 460 470		406-409 20° tca calcite sulfide veins 442-443 Sworm of calcite / pyrite veins dipping 20° tca. There is white clay in some veins also.	404 - calcite vein 1-2"? broken by drillers dips 40° tca 403-419 white clay on fractures. 393.5-423 Argillization is moderate 404-412 Disseminated py after marcasite blades and pyrite cubes at 2-5% 423 Decreasing sulfide mineralization restricted to dark py veinlets and occasional pyrite aggregations 450.3 - 451. Bladded marcasite in calcite and white clay veins Dozer has micro bxa along vein orientation Dip is 30° tca for veins 455.5 ½ calcite vein 40° tca 463-471 sulfides are <0.5% if any at all Traces of pyrite are back at 471

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	A
399	404					
404	409					
409	414					
414	419					
419	423					
423	428					
428	433					
433	438					
438	443					
443	448					
448	453					
453	458					
458	463					
463	468					
468	473					

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td	R	257-571.6 DOZER Fine grained Autobrecciated rhyolite continues. Breccia matrix and clast become increasingly hematitic with small specularite crystal. Core color ranges from Dark Red brown to mottled gray with hematitic clast with liesegang band in the clast 478 Hematite front with calcite vein boundary, front cuts clast producing different hematite levels across 524-527 Flow banded flow 527-546 Autobreccia texture is not as defined. Matrix and clast are similiarly altered. No dramatic difference as with Hematitic core.	470 480 490 500 510 520 530 540		Core is generally weakly to not fractured 512-513 Fault zone with mosaic breccia 40° tca. Matrix of Volcanic clay. White clay between clast 514-568 Core is minimally to not fractured only minor calcite veins for structure	472-477 10° tca calcite with clay vein 471-476.5 Less hematite. clast are stained but matrix is slate gray 476.5-490 Very sharp contact of hematitic clast and gray matrix 511-513 Altered zone around fault, moderate argillization. Hydrothermally altered clays

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	A
468	473					
473	478					
478	483					
483	488					
488	493					
493	498					
498	503					
503	508					
508	511					
511	513					
513	518					
518	523					
523	528					
528	533					
533	538					
538	543					

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td		257-571.6 DOZER FINE grained Autobrecciated rhyolite continues. Pale green gray in color. Tight micro fractures have a elevated concentration of chlorite on their surface. 560-571.6 Auto breccia texture graded away to a weak healed fracturing. No breccia by 563	540 550 560 570		Core is very competent. Minimal disruption approaching the S.R.F.	Pyrite content ≈ 1% below 512'. Marcasite is not apparent
ALS.	R	571.6-595.4 ALS. SHALE, SILTSTONE AND FINE GRAINED IGNEOUS INTRUSIVE Black to dark gray shales with narrow volcanically derived siltstone beds. Bed are in the millimeter range of thickness. Locally light gray white fine grained intrusive is present as irregular masses or "whispy" bedding partings	570 580 590		571.6 Contact with A.L.S. is very sharp and dips 40° to Two orientations of slip apparent: 1. 30° to dip of contact surface 2. Weather set 5° to dip of contact surface 571.6-575.8 S.R.F. 571.6-574 Dozer and A.L.S. fragment trapped in milled breccia. 575.8-595.4 Bedding is disrupted and discontinuous with 583-586 ALS. has bedding orientation of 60° to 80° to 595.4-603 Highest intensity milled breccia 596 20° to CA Fault Plane Slicks 10° to dip axis Footwall moved down	570-571.6 Very minor increase in argillization in hanging wall of fault. 571.6-575.8 High interval of silicification clast of argillized shale Trapped in silica. Silicification is not the normal intense flooding of the S.R.F. 575.8-595.4 Varible silicification of A.L.S. Pyrite in some fractures, 1-2% have platy habit of a mix with marcasite 595.4-618.5 Highly Argillized and bleached Calcite masses in irregular shapes. Pyrite forming crystal aggregates up to 3" in diameter
Td	R	595.4-618.5 DOZER Fine grained white rhyolite fault contact with A.L.S. Contact is low angle to core axis but breccia associated with 20° to orientation Contact partially ground by drilling	600 610			

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	A
538	543					
543	548					
548	553					
553	558					
558	563					
563	568					
568	571.6					
571.6	575.8					
575.8	578					
578	583					
583	588					
588	593					
593	595.4					
595.4	598					
598	603					
603	608					
608	613					

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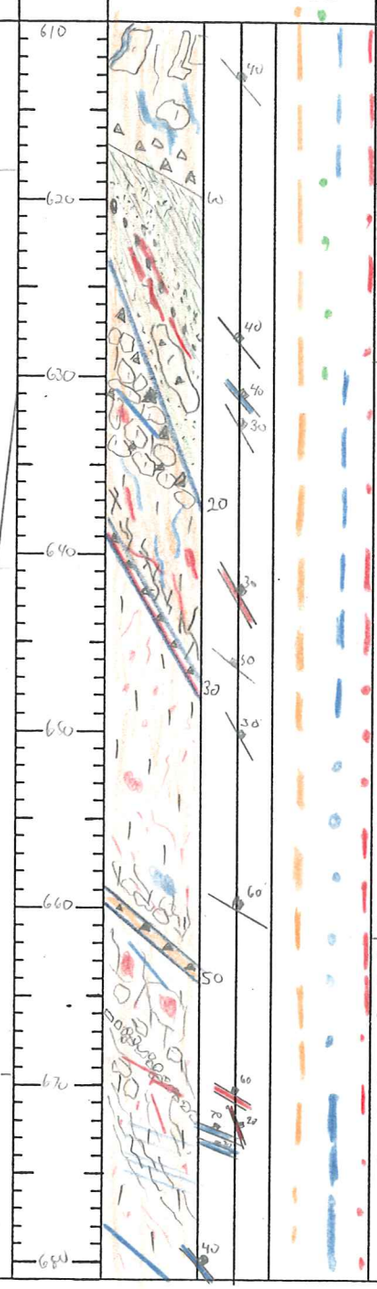
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td	R	595.4–618.5 DOZER Fine grain white rhyolite. Highly fractured to brecciated approaching contact with TCS.			617–618.5 milled breccia with rhyolite clay matrix 618.5 Contact is low angle at 60° tca. Though Dozer is brecciated Contact contains no slips	618.2 Pyrite vein Dipping 60° tca 617.7 Pyrite after marcasite blades in calcite vein
TCS		618.5–630.2 T.C.S. EPICLASTIC SEDIMENT AND FRAGMENTAL ASH FLOW Pale green gray epiclastic sandstone and fine conglomerates. Clast and grain are predominately angular or subangular. High volcanic clay and mud content. 618.5–619.7 Gray volcanic mud flow with dark gray to black lithic fragments			628 40° tca Fracture with weak Polishing between brecciated 630.2 Fault contact 20° tca sharp.	622.8–625 Pyrite forms coarse crystal masses. These could be broken vein fragments
Td		630.2–736 DOZER Fine grained white rhyolite. Argillized and bleach rhyolite. Highly fractured. This is the same rock and alterations from 595.4 to 618.5 663–668 3' of core loss from mislatch 655–673 Fracture zone with local crackle breccia Pinw white clay 649.5			661–662 Non healed crackle breccia 668–671 Narrow crushed intervals with ¼" pyrite veins at 669 at vein is "Z" folded 668.3–669 crackle BXO/crush zone 672–671 weak crackle BXO/fracture zone	642 30° tca pyrite vein on fault plane 644–688 Disseminated Pyrite after marcasite 2–3%



ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	A
608	613					
613	615.2					
615.2	618.5					
618.5	623					
623	628					
628	630.2					
630.2	633					
633	638					
638	641					
641	644.1					
644.1	648					
648	653					
653	658					
658	663					
663	668					
668	673					
673	678					
678	683					

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td	R	630.2 - 736 DOZER Fine grain white rhyolite Calcite veining present. Disseminated Pyrite after marcasite 1-3%. 716-721 FLOW Banding visible in Dozer with 400 tca dip 730-736 weak high angle py/calcite preferred orientation	680 690 700 710 720 730 740 750	40 30 40 60 10 60 30 50 50 20 30 60 CORE LOSS 40	722-723 Crushed Bxa/Fx zone related to high angle 20° tca fracture. 736-739 Bedding folded below contact with Dozer. 743-748 core loss in probable Fault Zone Breccia from 748-750	693-693.4 Crushed argillized zone with calcite 693-716 Increased sulfide/calcite veinlets with a dominant high angle orientation 716-736 Chloritic alteration increases above trace levels 748-750 QTZ vein fragments in fault gouge.
A.L.S.		736-800 ALS. SHALE, SILTSTONE PHILLITES AND TUFF Dark gray to black phillitic shales. Metamorphic graphite on bedding planes locally very calcareous. Fragments of fine grained intrusives				

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	A
678	683					
683	688					
688	693					
693	698					
698	703					
703	708					
708	713					
713	718					
718	723					
723	728					
728	733					
733	736					
736	738					
738	743					
743	748	NO	SAMPLE			
748	750					

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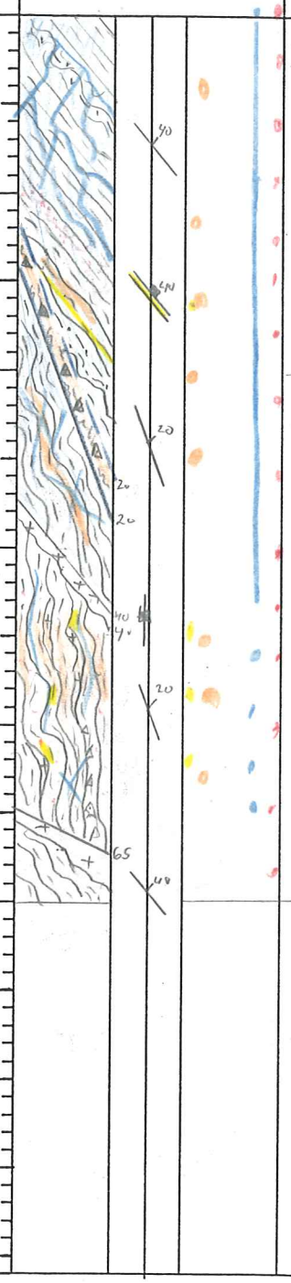
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
ALS. Shale Siltstone	R	736-800 ALS. PHILLITIC SHALE, SILTSTONE WITH MINOR FINE GRAINED TUFFS AND INTRUSIVES 754 White clay Calcareous sediment content Disseminated pyrite is about 1-2% in core. whispy discontinuous bedding Following fine grained intrusives 763 core reduced to NQ 780.6-781.2 Fine grain intrusive, Lower contacts are steeper than upper surface 796.3-797 Fine grained whitish gray intrusive upper contact is 60° to lower contact is 30° to TD 800	750 760 770 780 790 800		752-753 HIGHLY disrupted bedding 766.7-793.5 Numerous parrallel to bedding breccias	750-752 Highly Calcareous, multiple Calcite veins. Could be called Calcarenite. 754 white clays kaolinite on fracture 766.5-795 Fragments of qtz on qtz with calcite vein

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	A
750	753					
753	758					
758	763					
763	766.7					
766.7	769					
769	774					
774	779					
779	784					
784	789					
789	793.5					
793.5	797					
797	800					

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 6-16-99 LOGGED BY: D.G. Muckerron PAGE 1 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
0	2	0	100	0										
2	7	20	100	20										
7	9	0	50	0										
9	11	25	100	0										
11	14	0	65	0										
14	17	0	86	13										
17	19	0	0	0										
19	21	0	50	0										
21	24	0	0	0										
24	27	33	100	0										
27	29	30	87	25										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 6-16-99 LOGGED BY: D.G. MacKerrow PAGE 2 OF 16

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
29	34	62	106	50										
34	39	80	94	44										
39	44	84	98	36										
44	49	100	98	84										
49	54	100	100	94										
54	59	74	Mistake 78	44										
59	64	64	100	58										
64	69	100	100	74										
69	74	94	100	66										
74	79	100	102	92										
79	84	100	100	58										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 6-16-99 LOGGED BY: D.G. Mackerrow PAGE 3 OF 16

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
84	89	100	100	78										
89	94	100	104	76										
94	99	100	98	80										
99	104	100	88	80										
104	109	100	Mismatch 96	76										
109	114	86	104	70										
114	119	100	104	90										
119	124	100	102	52										
124	129	70	Mismatch 90	34										
129	134	99	102	66										
134	139	22	88	28										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 6-17-99 LOGGED BY: D.G. MacKerron PAGE 4 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
139	141	100	100	65										
141	144	90	100	60										
144	149	100	100	60										
149	154	100	100	78										
154	159	100	94	64										
159	164	100	102	46										
164	169	100	104	100										
169	174	100	100	96										
174	179	100	100	66										
179	184	82	100	50										
184	189	64	100	30										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 6-21-99 LOGGED BY: D.G. MacKerrow PAGE 5 OF 16

DRILL RUN		SOLID CORE	TOTAL CORE	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO	RECOVERY (%)	RECOVERY (%)		DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
189	194	86	96	50										
194	199	100	104	98										
199	204	100	100	82										
204	209	100	100	84										
209	214	100	100	82										
214	219	100	104	80										
219	224	100	100	52										
224	229	88	100	48										
229	234	100	102	78										
234	239	100	96	76										
239	244	98	100	60										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 6-21-99 LOGGED BY: D.G. MacKerrow PAGE 6 OF 16

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
244	249	92	100	80										
249	254	100	102	100										
254	259	100	96	100										
259	264	100	100	100										
264	269	100	98	86										
269	274	100	100	88										
274	279	100	Mislatch 66	22										
279	284	100	100	81										
284	289	100	100	88										
289	294	100	Mislatch 56	30										
294	299	27	94	62										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 6-21-99 LOGGED BY: D.G. MacKerron PAGE 7 OF 16

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
299	304	100	misfit 74	60										
304	307	100	100	100										
307	310	100	100	36										
310	315	100	100	22										
315	320	100	98	56										
324	328	100	56	40										
328	332	100	94	76										
332	334	100	100	65										
334	339	100	94	100										
339	340.5	100	113	53										
340.5	344	100	108	80										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 6-30-99 LOGGED BY: D.G. Mackerrow PAGE 8 OF 16

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
344	349	100	100	92										
349	354	100	100	96										
354	359	100	98	100										
359	364	100	106	100										
364	369	100	98	90										
369	374	100	102	76										
374	379	100	70	78										
379	384	100	98	100										
384	389	100	102	92										
389	394	100	100	96										
394	399	100	102	78										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 6-30-99 LOGGED BY: D.G. MacKerrow PAGE 9 OF 16

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
			Mistake											
399	404	100	72	64										
404	409	96	100	90										
409	414	100	104	88										
414	419	100	104	78										
419	423	100	100	77										
423	428	100	102	86										
428	433	100	102	100										
433	438	100	98	100										
438	443	100	104	100										
443	448	100	100	96										
448	453	100	100	92										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 6-30-99 LOGGED BY: D.G. MacKerron PAGE 10 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
453	458	100	100	100										
458	463	100	100	100										
463	468	100	100	90										
468	473	100	102	88										
473	478	100	100	80										
478	483	100	102	100										
483	488	100	100	92										
488	493	100	100	72										
493	498	100	102	88										
498	503	100	98	100										
503	508	100	100	83										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 6-30-99 LOGGED BY: D.G. MacKerrow PAGE 11 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
508	513	98	96	82										
513	518	100	100	68										
518	523	100	100	100										
523	528	100	100	86										
528	533	100	98	100										
533	538	100	100	80										
538	543	100	96	68										
543	548	100	100	80										
548	553	100	102	81										
553	558	100	100	90										
558	563	100	92	83										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 7-1-99 LOGGED BY: D.G. MacKerrow PAGE 12 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
563	568	100	106	98										
568	573	74	98	54										
573	578	94	104	38										
578	583	34	100	22										
583	588	98	100	64										
588	593	40	Mistatch 82	18										
593	598	64	100	12										
598	603	100	102	38										
603	608	88	100	50										
608	613	100	92	56										
613	618	98	108	60										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-0358-99 DATE: 7-1-99 LOGGED BY: D.G. MacKerrow PAGE 13 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
618	623	66	98	0										
623	628	60	100	0										
628	633	100	102	28										
633	638	100	92	36										
638	641	53	83	0										
641	643	98	130	85										
643	648	60	98	50										
648	653	100	100	26										
653	658	100	84	6.8										
658	663	82	100	54										
663	668	0	Mislatch 40	0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 7-5-99 LOGGED BY: D.G. Muckerrow PAGE 14 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	A/G. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
668	671	83	116	23										
671	678	98	98	94										
678	683	100	104	90										
683	688	100	98	90										
688	693	98	100	70										
693	698	74	100	64										
698	703	100	100	62										
703	708	92	100	90										
708	713	98	106	62										
713	718	92	101	76										
718	723	100	84	28										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 7-5-99 LOGGED BY: D.G. Mackerron PAGE 15 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
723	728	100	96	82										
728	733	100	108	76										
733	738	60	100	42										
738	743	66	102	0										
743	748	0	0	0										
748	753	46	100	14										
753	758	42	100	8										
758	763	58	100	0										
763	765	0	100	0										
765	769	70	110	32										
769	774	46	112	22										

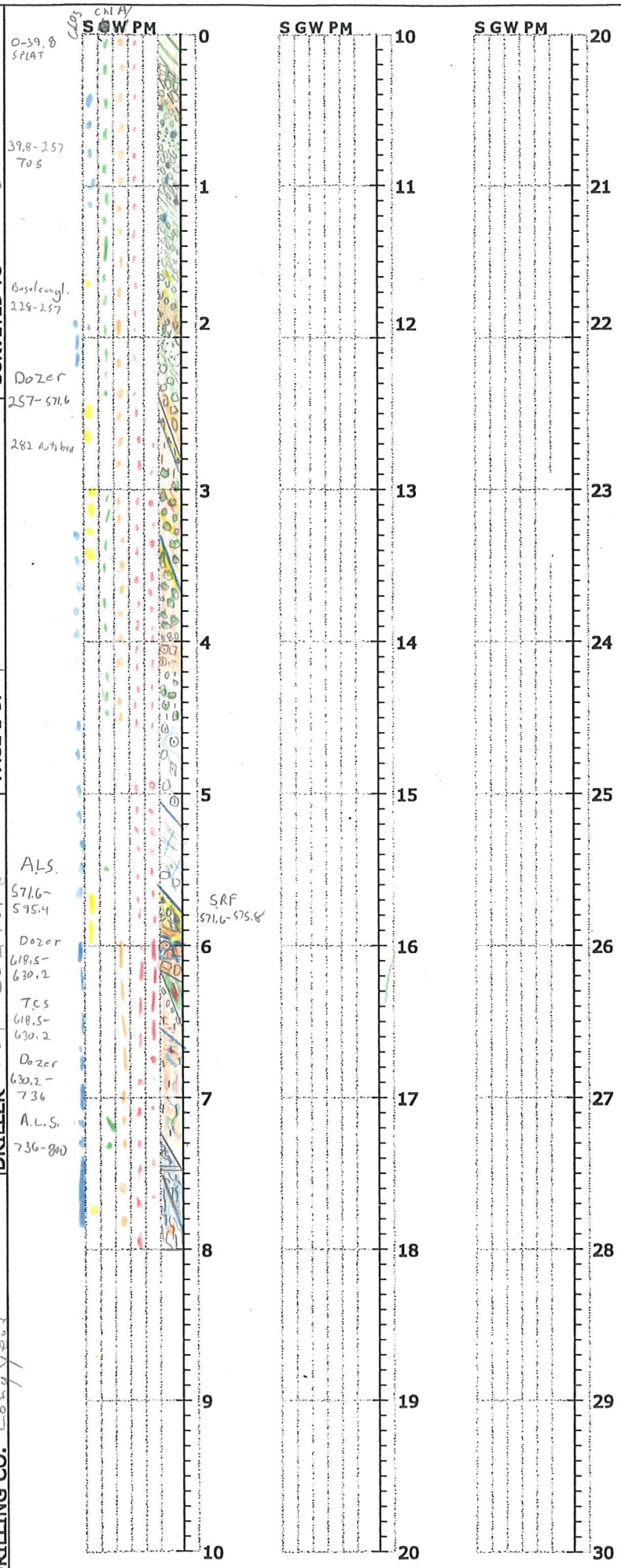
HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D358-99 DATE: 7-5-99 LOGGED BY: D.G. Mackenzie PAGE 16 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	A/G. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
779	779	100	102	26										
779	784	60	106	32										
784	789	74	100	8										
789	793.5	91	111	20										
793.5	795	0	100	0										
795	800	70	102	14										

ROSEBUD MINING COMPANY, LLC.

HOLE #	RS-D358-99
FINISH HOLE	7/2/99
LOGGED BY	D.G. MacKerron
ANGLE	-30
T.D	800
SURVEYED TO	800
START HOLE	6/4/99
HOLE TYPE	Core
BEARING	N S 0 W
PAGE 1 OF	1
COLLAR COORDINATES	
NORTH	
EAST	
ELEV	
DRILLER	Pat Bamford
DRILLING CO.	Longyear



ALTERATION INTENSITY

1 WEAK	2 MODERATE	3 STRONG

VERITHIN COLOR

737	SILICIFICATION
751	GREEN CLAY
747½	WHITE CLAY
755	PYRITE
757	MARCASITE

GRAPHIC LOG

VERITHIN COLOR

	BRECCIA
741	FAULT 741
	CONTACT
737	QUARTZ VEIN
741½	CALCITE VEIN
747½	CLAY VEIN
755	PYRITE VEIN

Argillization
chloritization
Silicification
Calcareous/calcite VN
Sulfides

NDHS7-6.CR5 07/07/99 13:43:38

Point	Northing	Easting	Elevation	Description
1	2,204,459.4030	482,047.8630	4,335.09	nbs2
2	2,204,447.8390	482,028.6020	4,336.95	
3	2,204,487.9690	482,082.8697	4,324.04	D358
4	2,204,533.9691	482,187.1994	4,324.18	D357
5	2,204,560.7399	482,231.2480	4,325.37	D344
6	2,204,561.3731	482,232.1784	4,325.90	D356

Newmont Gold Core Form

Hole# RS-D358-99 **Az/Incl** N55W / -30 **Page** 1 of 1

Logged by D.G. MacKerrow **Area** North Zone X-cut sect 1550 **Total Depth**

Date 6-17-99 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
			LAT SPLAT	A.F. Tuff	Green Gray									0-39.8 S.P.L.A.T. Fine grain planar laminated tuff	0	1	0	0	0	1	0	0	0	1	1	0	0
20																											
40			TOS	EPIC SEDS	Grn Gray									39.8 - 257 T.O.S. EPICLASTIC SEDIMENTS Conglomerate and Sandstone minor Clay stone								1			0	1	
60																											
80																											
100																						0				0	
120																									1	0	
																								1	0		
140														153.5-174 White clay in Fx Slightly bleached core						2							
																				1							1
160																											0
180														176-207 Coarse to lappilli ash fall Tuff 207-228.6 Coarsening epiclastic to conglomerate													1	
200																											

Newmont Gold Core Form

Hole# RS-D 358-99 **Az/Incl** N55W / -30 **Page** 2 of 2

Logged by D.G. MacHerron **Area** **Total Depth**

Date 6-21-99 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
200			TOS	S.S.	Gra									TOS Epiclastic Seds and Tuffs	0	1	0	0	0	0	0	0	0	1	0	1	0
																						1					
220																						0				0	
					Tun									228 Basal Dozer Conglomerate of TOS		0											
240									20							1											
														244 silica in qtz veins	1												
260			Td	Rhy	Pale Gra Tan									257-271.6 DOZER Depositional contact 20° tca													
									20											1							
															0					0					1		
280									20					Fault 267.9-272													
300															1					1							
																				Tr							
																				1							
320															0												
														331 calcite begins in Dozer	3 0											1 0	
														326.4-326.8 silica healed shear												1	1
340									20					340.9-341.3 silica healed 20° tca shear	3 1 0												0
									20					341.3-344 qtz stock work / crackle bxa													
360																									1		
380																									0		
																									1		
400																				0							

Newmont Gold Core Form

Hole# RS-D358-99 **Az/Incl** N55W / -30 **Page** 3 of 3

Logged by D.G. Mackerron **Area** **Total Depth**

Date 7-1-99 **Coords** **Contractor** Long year

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Alteration:	Met.: FEOX	Met.: CO3	Mineralogy: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
400			Td	Rhy	Tan-gy									257-571.4 Dozer Auto bxx	0	1	0	0	0	0		0	0	0	1	1	1	0 / 1
														399-417 slightly elevated argillization and sulfides												0		0
420																0				1		1						
														423 Auto breccia matrix becomes weakly sticed by hematite														
440																											2 / 0	1 / 0
																											2 / 1	
460																						2			0			
																						1			Tr / 0		2	1
480																						2					1	0
																						1						
																									1		2	1
500																									0		1	
														512-513 Fun H zon. 40° tcu								2 / 1						
									40							2 / 0									1			1 / 0
520																						Tr						
540																						0						
560																												
			ALS	Shale S/H	Blk									571.6 · A.L.S. SHALE	3											Tr	0	
									40					595.4 SILTSTONE AND FINE GRAINED INTRUSIVE	2													
580																												
															1	1												
																											1	
600			Td	Rhy	White				70					595.5-618.5 DOZER	0	3									2		2	

20

Newmont Gold Core Form

Hole# RS-D358-99 **Az/Incl** NSSW / -30 **Page** 4 of 4

Logged by D.G. Mackerron **Area** **Total Depth** 800

Date 7-1-99 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
600			Td	Rhy	white				20					595.5-618.5 DOZER	0	3	0	0	0	0	0	0	0	2 / 1	Tr	2	0
620			TCS	Epi. c. Seds	Pale Grn Gray				60					618.5-630.2 T.C.S. Epiclastic Sediments and Mud flow		2				1				2 / 1		1 / 0	
			Td	Rhy	white				20 / 30					630.2-736 DOZER						0						1	
640																1								2		2	
660																2								1			
680																1									1		
																									Tr		
																								2			
700																											
720																								1			
740			ALS	Shale Siltst	Black				30					736-800 ALS		0						1				1 / 2	
								Core Loss						Phyllitic shale siltstone minor Fine grain intrusion		2 / 0 / 1 / 0						3 / 1				3	
760														763 Reduced to NQ								3 / 1 / 3 / 1 / 3				1	
780														Intrusives 780.6-781.2, 796.3-797		1 / 0						2					
														Wispy bedding Int present		1						6					
800														TD 800		0										6	

BARRINGER LABORATORIES, INC.

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BARRINGER LABORATORIOS de MEXICO, S.A.de C.V.
Carretera Panamericana, KM 10445
Durango, Durango, Mexico C.P. 34030
TEL/FAX (52)(18) 12-00-52

BARRINGER LABORATORIES del PERU S.A.
Avenida Domingo Orué 489
Surquillo, Lima 34, Peru
TEL (011-51-1) 222-2801
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BARRINGER de COLOMBIA
Calle 80 Sur N. 47D-65, L-106
Sabaneta, Colombia
TEL (574) 301-0704

BARRINGER LABORATORIOS de MEXICO, S.A. de C.V.
Blvd. García Morales 829-A, Bodega #2
Colonia La Manga
Hermosillo, Sonora, Mexico C.P. 83210
TEL/FAX (011-52-6) 261-0415

BARRINGER LABORATORIES NICARAGUA
COMPLEJO OCAL
Km 7.5 Carretera Norte
Managua, Nicaragua
TEL (011-50-5) 883-0778

McCLELLAND/BARRINGER LABORATORIOS HONDURAS
Kilometro 5,
Boulevard Suyapa
Tegucigalpa, M.D.C., Honduras
TEL (011-50-4) 231-1841

Work Order # _____
Date Received _____
Purchase Order # _____
Project # _____
Date Shipped 7-5-99
Shipped Via _____
# of Cartons _____
# of Samples 120 + 2 Pulps

Geochemical Laboratory Instruction Sheet

Copy of Results:	Results And Invoice To:
Fax to:	
Kurt Allen Rosebud Mine	Charlotte Bullen
623-6967	Newmont Gold
Randy Vance Newmont Gold	861 W. 6th St. Winnemucca NV 89445
625-5655	
	AUTHORITY:

No. of Samples	Sample Type	List of Sample Numbers	Elements Requested
120	core	RS-D358-99 See attachment	Au, Ag
			Use Rosebud Mine
			development protocol
2	Pulps	310.0B , 410.0B	Au, Ag Only

PEEL HERE

RS-D358-99
G03-176
G03-176
310.0B

RS-D358-99
MS-3
(RMG1)
410.0B

COARSE REJECT (Free storage for 30 days)
- [x] Return/collect after analysis
- [ ] Return/collect after 30 days
- [ ] Discard after 30 days

IF NOT MARKED, REJECT DISCARDED AFTER 30 DAYS

PULP (Free storage for 6 months)
- [x] Return/collect after analysis
- [ ] Return/collect at 6 months
- [ ] Discard at 6 months

IF NOT MARKED, PULP IS DISCARDED AFTER 6 MONTHS

COARSE REJECTS/PULPS WILL BE DISCARDED UNLESS OTHERWISE REQUESTED

Au - GOLD METHOD
- [x] Fire Assay/A.A.
- [ ] Fire Assay/Gravimetric
- [ ] NaCN/A.A.

RESULTS REPORTED IN:
- [ ] ppb
- [ ] PPM
- [x] oz/T
- [ ] grams/T

TRACE ELEMENT METHOD
- [ ] Wet Chem./A.A.
- [ ] Wet Chem./ICP

RESULTS REPORTED IN:
- [x] ppm
- [ ] Percent %
- [ ] oz/T
- [ ] grams/T

ADDITIONAL INSTRUCTIONS: _____

RS-D358-99 **LAB COPY**

Depth From	To	Interval	Au	Ag	Sample Number	Pulps
0	4.8	4.8	x	x	1	
4.8	9	4.2	x	x	2	
9	14	5	x	x	3	
14	17	3	x	x	4	
17	19	2	NO SAMPLE			
19	21	2	x	x	5	
21	24	3	NO SAMPLE			
24	29	5	x	x	6	
29	34	5	x	x	7	
34	37.4	3.4	x	x	8	
37.4	39.8	2.4	x	x	9	
39.8	44	4.2	x	x	10	
44	49	5	x	x	11	
49	54	5	x	x	12	
54	59	5	x	x	13	
59	64	5	x	x	14	
64	69	5	x	x	15	
69	74	5	x	x	16	
74	79	5	x	x	17	
79	84	5	x	x	18	
84	89	5	x	x	19	
89	94	5	x	x	20	
94	99	5	x	x	21	
99	104	5	x	x	22	
104	109	5	x	x	23	
109	114	5	x	x	24	
114	119	5	x	x	25	
119	124	5	x	x	26	
124	129	5	x	x	27	
129	134	5	x	x	28	
134	139	5	x	x	29	
139	144	5	x	x	30	
144	149	5	x	x	31	
149	154	5	x	x	32	
154	159	5	x	x	33	
159	164	5	x	x	34	
164	169	5	x	x	35	
169	174	5	x	x	36	
174	179	5	x	x	37	

179	184	5	x	x	38	
184	189	5	x	x	39	
189	194	5	x	x	40	
194	199	5	x	x	41	
199	204	5	x	x	42	
204	209	5	x	x	43	
209	214	5	x	x	44	
214	219	5	x	x	45	
219	224	5	x	x	46	
224	229	5	x	x	47	
229	234	5	x	x	48	
234	239	5	x	x	49	
239	244	5	x	x	50	
244	249	5	x	x	51	
249	254	5	x	x	52	
254	257	3	x	x	53	
257	262	5	x	x	54	
262	265	3	x	x	55	
265	267.9	2.9	x	x	56	
267.9	272	4.1	x	x	57	
272	274	2	x	x	58	
274	279	5	x	x	59	
279	284	5	x	x	60	
284	289	5	x	x	61	
289	294	5	x	x	62	
294	299	5	x	x	63	
299	304	5	x	x	64	
304	307	3	x	x	65	
307	310	3	x	x	66	310.0B
310	312.6	2.6	x	x	67	
312.6	315	2.4	x	x	68	
315	318	3	x	x	69	
318	323	5	x	x	70	
323	326	3	x	x	71	
326	327.2	1.2	x	x	72	
327.2	332	4.8	x	x	73	
332	335.5	3.5	x	x	74	
335.5	340.5	5	x	x	75	
340.5	341.5	1	x	x	76	
341.5	344	2.5	x	x	77	
344	349	5	x	x	78	
349	354	5	x	x	79	

354	359	5	x	x	80	
359	364	5	x	x	81	
364	369	5	x	x	82	
369	374	5	x	x	83	
374	379	5	x	x	84	
379	384	5	x	x	85	
384	389	5	x	x	86	
389	394	5	x	x	87	
394	399	5	x	x	88	
399	404	5	x	x	89	
404	409	5	x	x	90	
409	414	5	x	x	91	410.0B
414	419	5	x	x	92	
419	423	4	x	x	93	
423	428	5	x	x	94	
428	433	5	x	x	95	
433	438	5	x	x	96	
438	443	5	x	x	97	
443	448	5	x	x	98	
448	453	5	x	x	99	
453	458	5	x	x	100	
458	463	5	x	x	101	
463	468	5	x	x	102	
468	473	5	x	x	103	
473	478	5	x	x	104	
478	483	5	x	x	105	
483	488	5	x	x	106	
488	493	5	x	x	107	
493	498	5	x	x	108	
498	503	5	x	x	109	
503	508	5	x	x	110	
508	511	3	x	x	111	
511	513	2	x	x	112	
513	518	5	x	x	113	
518	523	5	x	x	114	
523	528	5	x	x	115	
528	533	5	x	x	116	
533	538	5	x	x	117	
538	543	5	x	x	118	
543	548	5	x	x	119	
548	553	5	x	x	120	

BARRINGER LABORATORIES INC.

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PHONE: (775) 828-1158

15-Jul-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

Attn: Charlotte Ballew
Project: RS-D358-99
PO #:

Received: 6-Jul-99 10:42

Job: 992772R

Status: Final

Drill Core

Sample Id	Au FA oz/ton	Au_Chk1 FA oz/ton	Au_Chk2 FA oz/ton	Ag FA oz/ton	Ag_Chk FA oz/ton
RS-D358-99 0-4.8	0.017	0.017	NA	<0.10	0.13
RS-D358-99 4.8-9	<0.005	NA	NA	<0.10	NA
RS-D358-99 9-14	<0.005	NA	NA	<0.10	NA
RS-D358-99 14-17	<0.005	NA	NA	<0.10	NA
RS-D358-99 17-19	MS	MS	NA	MS	MS
RS-D358-99 19-21	0.010	0.009	NA	<0.10	<0.10
RS-D358-99 21-24	MS	MS	NA	MS	MS
RS-D358-99 24-29	<0.005	NA	NA	<0.10	NA
RS-D358-99 29-34	<0.005	NA	NA	<0.10	NA
RS-D358-99 34-37.4	<0.005	<0.005	NA	<0.10	0.10
RS-D358-99 37.4-39.8	<0.005	NA	NA	<0.10	NA
RS-D358-99 39.8-44	<0.005	NA	NA	<0.10	NA
RS-D358-99 44-49	<0.005	NA	NA	<0.10	NA
RS-D358-99 49-54	0.020	NA	NA	0.18	<0.10
RS-D358-99 54-59	0.273	0.254	0.329	0.45	NA
RS-D358-99 59-64	<0.005	NA	NA	<0.10	NA
STD#-68670	0.582	NA	NA	5.92	NA
RS-D358-99 64-69	0.011	NA	NA	0.40	NA
RS-D358-99 69-74	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 74-79	<0.005	NA	NA	<0.10	NA
RS-D358-99 79-84	<0.005	NA	NA	0.15	NA
RS-D358-99 84-89	<0.005	NA	NA	0.32	NA
RS-D358-99 89-94	0.006	NA	NA	0.40	NA
RS-D358-99 94-99	<0.005	<0.005	NA	0.37	<0.10
RS-D358-99 99-104	<0.005	NA	NA	0.39	NA
RS-D358-99 104-109	<0.005	NA	NA	0.54	NA
RS-D358-99 109-114	<0.005	NA	NA	0.31	NA
RS-D358-99 114-119	<0.005	<0.005	NA	0.63	0.10
RS-D358-99 119-124	<0.005	NA	NA	0.41	NA
RS-D358-99 124-129	<0.005	NA	NA	0.14	NA

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15-Jul-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

Attn: Charlotte Ballew
Project: RS-D358-99
PO #:

Received: 6-Jul-99 10:42

Job: 992772R

Status: Final

Drill Core

Sample Id	Au FA oz/ton	Au_Chk1 FA oz/ton	Au_Chk2 FA oz/ton	Ag FA oz/ton	Ag_Chk FA oz/ton
RS-D358-99 129-134	<0.005	NA	NA	<0.10	NA
RS-D358-99 134-139	<0.005	NA	NA	<0.10	NA
STD#-68671	0.527	0.512	NA	2.93	3.03
RS-D358-99 139-144	<0.005	NA	NA	0.14	NA
RS-D358-99 144-149	<0.005	NA	NA	<0.10	NA
RS-D358-99 149-154	<0.005	NA	NA	<0.10	NA
RS-D358-99 154-159	0.025	0.024	NA	0.23	<0.10
RS-D358-99 159-164	0.006	NA	NA	0.25	NA
RS-D358-99 164-169	0.059	0.020	NA	0.20	<0.10
RS-D358-99 169-174	<0.005	NA	NA	<0.10	NA
RS-D358-99 174-179	<0.005	NA	NA	0.36	NA
RS-D358-99 179-184	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 184-189	<0.005	NA	NA	<0.10	NA
RS-D358-99 189-194	<0.005	NA	NA	0.19	NA
RS-D358-99 194-199	<0.005	NA	NA	0.25	NA
RS-D358-99 199-204	<0.005	<0.005	NA	0.13	<0.10
RS-D358-99 204-209	<0.005	NA	NA	0.14	NA
RS-D358-99 209-214	<0.005	NA	NA	<0.10	NA
STD#-68672	0.580	NA	NA	3.21	NA
RS-D358-99 214-219	<0.005	NA	NA	<0.10	NA
RS-D358-99 219-224	0.006	<0.005	NA	0.11	0.10
RS-D358-99 224-229	<0.005	NA	NA	0.21	NA
RS-D358-99 229-234	<0.005	NA	NA	0.50	NA
RS-D358-99 234-239	0.017	NA	NA	0.24	NA
RS-D358-99 239-244	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 244-249	0.009	NA	NA	0.28	NA
RS-D358-99 249-254	<0.005	NA	NA	0.25	NA
RS-D358-99 254-257	<0.005	NA	NA	0.32	NA
RS-D358-99 257-262	<0.005	NA	NA	0.16	NA
RS-D358-99 262-265	<0.005	<0.005	NA	0.11	0.38

BARRINGER LABORATORIES INC.

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15-Jul-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

Attn: Charlotte Ballew
Project: RS-D358-99
PO #:

Received: 6-Jul-99 10:42

Job: 992772R

Status: Final

Drill Core

Sample Id	Au FA oz/ton	Au_Chk1 FA oz/ton	Au_Chk2 FA oz/ton	Ag FA oz/ton	Ag_Chk FA oz/ton
RS-D358-99 265-267.9	<0.005	NA	NA	<0.10	NA
RS-D358-99 267.9-272	<0.005	NA	NA	<0.10	NA
RS-D358-99 272-274	<0.005	NA	NA	<0.10	NA
RS-D358-99 274-279	<0.005	0.005	NA	<0.10	0.23
STD#-68673	0.518	NA	NA	2.93	NA
RS-D358-99 279-284	<0.005	NA	NA	<0.10	NA
RS-D358-99 284-289	<0.005	NA	NA	<0.10	NA
RS-D358-99 289-294	<0.005	NA	NA	<0.10	NA
RS-D358-99 294-299	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 299-304	<0.005	NA	NA	<0.10	NA
RS-D358-99 304-307	<0.005	NA	NA	0.37	NA
RS-D358-99 307-310	<0.005	NA	NA	<0.10	NA
RS-D358-99 310B	0.188	0.200	0.172	<0.10	0.40
RS-D358-99 310-312.6	<0.005	NA	NA	<0.10	NA
RS-D358-99 312.6-315	<0.005	NA	NA	<0.10	NA
RS-D358-99 315-318	0.006	NA	NA	<0.10	NA
RS-D358-99 318-323	<0.005	NA	NA	<0.10	NA
RS-D358-99 323-326	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 326-327.2	<0.005	NA	NA	<0.10	NA
RS-D358-99 327.2-332	<0.005	NA	NA	<0.10	NA
STD#-68674	0.528	NA	NA	2.52	NA
RS-D358-99 332-335.5	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 335.5-340.5	<0.005	NA	NA	<0.10	NA
RS-D358-99 340.5-341.5	<0.005	NA	NA	<0.10	NA
RS-D358-99 341.5-344	<0.005	NA	NA	<0.10	NA
RS-D358-99 344-349	<0.005	NA	NA	<0.10	NA
RS-D358-99 349-354	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 354-359	0.005	NA	NA	0.18	NA
RS-D358-99 359-364	0.006	NA	NA	<0.10	NA
RS-D358-99 364-369	<0.005	NA	NA	0.13	NA

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15-Jul-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

Attn: Charlotte Ballew
Project: RS-D358-99
PO #:

Received: 6-Jul-99 10:42

Job: 992772R

Status: Final

Drill Core

Sample Id	Au FA oz/ton	Au_Chk1 FA oz/ton	Au_Chk2 FA oz/ton	Ag FA oz/ton	Ag_Chk FA oz/ton
RS-D358-99 369-374	<0.005	<0.005	NA	0.26	<0.10
RS-D358-99 374-379	<0.005	NA	NA	<0.10	NA
RS-D358-99 379-384	<0.005	NA	NA	0.47	NA
RS-D358-99 384-389	<0.005	NA	NA	0.14	NA
RS-D358-99 389-394	<0.005	NA	NA	0.29	NA
RS-D358-99 394-399	<0.005	<0.005	NA	0.12	<0.10
RS-D358-99 399-404	<0.005	NA	NA	<0.10	NA
STD#-68675	0.550	NA	NA	3.25	NA
RS-D358-99 404-409	<0.005	NA	NA	0.18	NA
RS-D358-99 409-414	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 410.0B	0.030	0.030	NA	0.51	0.50
RS-D358-99 414-419	<0.005	NA	NA	<0.10	NA
RS-D358-99 419-423	<0.005	NA	NA	0.22	NA
RS-D358-99 423-428	<0.005	NA	NA	<0.10	NA
RS-D358-99 428-433	<0.005	<0.005	NA	0.11	0.14
RS-D358-99 433-438	<0.005	NA	NA	<0.10	NA
RS-D358-99 438-443	<0.005	<0.005	NA	<0.10	NA
RS-D358-99 443-448	<0.005	NA	NA	0.42	NA
RS-D358-99 448-453	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 453-458	<0.005	NA	NA	<0.10	NA
RS-D358-99 458-463	<0.005	NA	NA	<0.10	NA
RS-D358-99 463-468	<0.005	NA	NA	<0.10	NA
RS-D358-99 468-473	0.032	NA	NA	0.19	NA
STD#-68676	0.496	0.562	0.543	4.02	2.88
RS-D358-99 473-478	<0.005	NA	NA	<0.10	NA
RS-D358-99 478-483	<0.005	NA	NA	<0.10	NA
RS-D358-99 483-488	<0.005	NA	NA	<0.10	NA
RS-D358-99 488-493	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 493-498	<0.005	NA	NA	<0.10	NA
RS-D358-99 498-503	<0.005	NA	NA	<0.10	NA

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15-Jul-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

Attn: Charlotte Ballew
Project: RS-D358-99
PO #:

Received: 6-Jul-99 10:42

Job: 992772R

Status: Final

Drill Core

Sample Id	Au FA oz/ton	Au_Chk1 FA oz/ton	Au_Chk2 FA oz/ton	Ag FA oz/ton	Ag_Chk FA oz/ton
RS-D358-99 503-508	<0.005	NA	NA	<0.10	NA
RS-D358-99 508-511	<0.005	NA	NA	<0.10	NA
RS-D358-99 511-513	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 513-~~523~~ 518	<0.005	NA	NA	<0.10	NA
RS-D358-99 518-523	<0.005	NA	NA	<0.10	NA
RS-D358-99 523-528	<0.005	NA	NA	<0.10	NA
RS-D358-99 528-533	<0.005	<0.005	NA	<0.10	<0.10
RS-D358-99 533-538	<0.005	NA	NA	<0.10	NA
RS-D358-99 538-543	<0.005	NA	NA	<0.10	NA
STD#-68677	0.534	NA	NA	3.17	NA
RS-D358-99 543-548	<0.005	NA	NA	<0.10	NA
RS-D358-99 548-553	<0.005	<0.005	NA	<0.10	<0.10
Blk 11-20	<0.005	NA	NA	<0.10	NA
Blk 31-40	<0.005	NA	NA	<0.10	NA
Blk 51-60	NA	NA	NA	NA	NA
Blk 71-80	<0.005	NA	NA	0.13	NA
Blk 91-100	<0.005	NA	NA	<0.10	NA
Blk 111-120	<0.005	NA	NA	<0.10	NA
Blk 131-140	<0.005	NA	NA	0.11	NA
Std 1-10	0.104	NA	NA	<0.10	NA
Std 21-30	0.096	NA	NA	1.46	NA
Std 41-50	0.096	NA	NA	0.41	NA
Std 61-70	0.098	NA	NA	0.93	NA
Std 81-90	0.100	NA	NA	<0.10	NA
Std 101-110	0.102	NA	NA	1.00	NA
Std 121-130	0.094	NA	NA	<0.10	NA

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GOLDEN, COLORADO 80401
PHONE: (303) 277-1687

5301 LONGLEY LANE
BUILDING E, SUITE 178
RENO, NEVADA 89511
PHONE: (775) 828-1158

15-Jul-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

Attn: Charlotte Ballew
Project: RS-D358-99
PO #:

Received: 6-Jul-99 10:42

Job: 992772R

Status: Final

Abbreviations:

Parameters:

Au	: Gold
Au_Chk1	: Gold Check 1
Au_Chk2	: Gold Check 2
Ag	: Silver
Ag_Chk	: Silver Check

Methods:

FA	: Fire Assay/Gravimetric Finish

Units:

oz/ton	: ounces per ton

Quality codes:

<	: Less than
MS	: Missing
NA	: Not Analyzed

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
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15-Jul-99

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Page: 7
Copy: 3 of 3

Attn: Charlotte Ballew
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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 geologic 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.

Job approved by:

Signed:

.....
Douglas B. Hensen
Richard Grondin

BARRINGER LABORATORIES INC.

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23-Jul-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

Attn: Charlotte Ballew
Project: RS-D 358-99
PO #:

Received: 13-Jul-99 19:40

Job: 992851R

Status: Final

Drill Core

Sample Id	Au FA oz/ton	Au_Chk1 FA oz/ton	Au_Chk2 FA oz/ton	Ag FA oz/ton	Ag_Chk FA oz/ton
RS-D358 553-558	<0.005	<0.005	NA	<0.10	<0.10
RS-D358 558-563	<0.005	NA	NA	<0.10	NA
RS-D358 563-568	<0.005	NA	NA	<0.10	NA
RS-D358 568-571.6	<0.005	NA	NA	0.66	NA
RS-D358 571.6-575.8	<0.005	NA	NA	0.19	NA
Pulp					
RS-D358 575.8 B	0.183	0.192	NA	0.36	<0.10
Drill Core					
RS-D358 575.8-578	0.007	NA	NA	0.16	NA
RS-D358 578-583	0.008	NA	NA	0.19	NA
RS-D358 583-588	<0.005	NA	NA	0.44	NA
RS-D358 588-593	0.007	0.192	NA	0.20	NA
RS-D358 593-595.4	<0.005	NA	NA	0.56	NA
RS-D358 595.4-598	<0.005	NA	NA	0.41	NA
RS-D358 598-603	0.008	NA	NA	<0.10	NA
RS-D358 603-608	<0.005	NA	NA	0.20	NA
RS-D358 608-613	<0.005	<0.005	NA	0.21	<0.10
RS-D358 613-615.2	<0.005	NA	NA	<0.10	NA
RS-D358 615.2-618.5	<0.005	NA	NA	0.12	NA
RS-D358 618.5-623	<0.005	NA	NA	0.15	NA
RS-D358 623-628	<0.005	<0.005	NA	1.35	<0.10
RS-D358 628-630.2	<0.005	NA	NA	0.11	NA
RS-D358 630.2-633	<0.005	NA	NA	<0.10	NA
RS-D358 633-638	<0.005	NA	NA	<0.10	NA
RS-D358 638-641	<0.005	NA	NA	<0.10	NA
RS-D358 641-644.1	<0.005	<0.005	NA	<0.10	0.10

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Project: RS-D 358-99
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Drill Core

Sample Id	Au FA oz/ton	Au_Chk1 FA oz/ton	Au_Chk2 FA oz/ton	Ag FA oz/ton	Ag_Chk FA oz/ton
RS-D358 644.1-648	<0.005	NA	NA	<0.10	NA
RS-D358 648-653	<0.005	NA	NA	0.26	NA
RS-D358 653-658	<0.005	NA	NA	0.15	NA
RS-D358 658-663	<0.005	<0.005	NA	0.15	0.10
RS-D358 663-668	<0.005	NA	NA	0.16	NA
RS-D358 668-673	<0.005	NA	NA	0.16	NA
RS-D358 673-678	<0.005	NA	NA	<0.10	NA
RS-D358 678-683	<0.005	NA	NA	<0.10	NA
RS-D358 683-688	<0.005	<0.005	NA	31.00	<0.10
RS-D358 688-693	<0.005	NA	NA	<0.10	NA
RS-D358 693-698	<0.005	NA	NA	<0.10	NA
RS-D358 698-703	<0.005	NA	NA	<0.10	NA
RS-D358 703-708	<0.005	<0.005	NA	<0.10	<0.10
RS-D358 708-713	<0.005	NA	NA	0.12	NA
RS-D358 713-718	<0.005	NA	NA	0.10	NA
RS-D358 718-723	<0.005	NA	NA	<0.10	NA
RS-D358 723-728	<0.005	NA	NA	0.21	NA
RS-D358 728-733	<0.005	<0.005	NA	<0.10	0.20
RS-D358 733-736	<0.005	NA	NA	<0.10	NA
RS-D358 736-738	<0.005	NA	NA	0.12	NA
RS-D358 738-743	<0.005	NA	NA	0.11	NA
RS-D358 743-748	NA	NA	NA	NA	NA
RS-D358 748-750	<0.005	<0.005	NA	<0.10	<0.10
RS-D358 750-753	0.025	NA	NA	<0.10	NA
RS-D358 753-758	<0.005	NA	NA	<0.10	NA
RS-D358 758-763	<0.005	NA	NA	<0.10	NA
RS-D358 763-766.7	<0.005	<0.005	NA	<0.10	<0.10
RS-D358 766.7-769	<0.005	NA	NA	<0.10	NA
RS-D358 769-774	<0.005	NA	NA	<0.10	NA
RS-D358 774-779	<0.005	NA	NA	<0.10	NA

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23-Jul-99

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P O BOX 2610
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Page: 3
Copy: 3 of 3
Set : 1

Attn: Charlotte Ballew
Project: RS-D 358-99
PO #:

Received: 13-Jul-99 19:40

Job: 992851R

Status: Final

Drill Core

Sample Id	Au FA oz/ton	Au_Chk1 FA oz/ton	Au_Chk2 FA oz/ton	Ag FA oz/ton	Ag_Chk FA oz/ton
RS-D358 779-784	<0.005	<0.005	NA	<0.10	<0.10
RS-D358 784-789	<0.005	NA	NA	<0.10	NA
RS-D358 789-793.5	<0.005	NA	NA	0.36	NA
RS-D358 793.5-797	<0.005	NA	NA	<0.10	NA
RS-D358 797-800	<0.005	NA	NA	<0.10	NA

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Abbreviations:

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Units:

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Job approved by:

Signed: .....
Douglas B. Hensen
Richard Grondin

Down Hole Survey Data
RS-D358-99

Footage	Measured Bearing	Corrected Azimuth	Measured Inclination	Calculated Dip
		-15.66		
40	67.5	308.2	60.8	-29.2
200	68	307.7	60.8	-29.2
450	70	305.7	59.5	-30.5
800	71.75	303.9	56.7	-33.4

BARRINGER LABORATORIES, INC.

RENO, NEVADA, U.S.A., 5301 Longley Lane, Bldg. E, Reno, NV, 89511, TEL: 702-828-1158, FAX: 702-828-1263

BARRINGER LABORATORIOS de MEXICO, S.A.de C.V.
Carretera Panamericana, KM 10445
Durango, Durango, Mexico C.P. 34030
TEL/FAX (52)(18) 12-00-52

BARRINGER LABORATORIES del PERU S.A.
Avenida Domingo Orué 489
Surquillo, Lima 34, Peru
TEL (011-51-1) 222-2801
FAX (011-51-1) 442-7195

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Calle 80 Sur N. 47D-65, L-106
Sabaneta, Colombia
TEL (574) 301-0704

BARRINGER LABORATORIOS de MEXICO, S.A. de C.V.
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Km 7.5 Carretera Norte
Managua, Nicaragua
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McCLELLAND/BARRINGER LABORATORIOS HONDURAS
Kilometro 5,
Boulevard Suyapa
Tegucigalpa, M.D.C., Honduras
TEL (011-50-4) 231-1841

Work Order # _____
Date Received _____
Purchase Order # _____
Project # _____
Date Shipped _____
Shipped Via _____
# of Cartons _____
# of Samples 57 + 1 pulp

Geochemical Laboratory Instruction Sheet

Copy of Results:	Results And Invoice To:
Fax to: Kurt Allen Rosebud Mine	Charlotte Ballew Newmont Gold
623-6967	861 West 6th st.
Randy Vance Newmont Gold	Winnemucca NV. 89445
Winnemucca 625-5655	
	AUTHORITY:

No. of Samples	Sample Type	List of Sample Numbers	Elements Requested
57	core	RS-D358-99	Au, Ag
		See attachment	Use Rosebud Mine
			Development PROTOCOL
1	Pulp	575.8B	Au, Ag, only

PEEL HERE
RS-D358-99
G03 - 176
575.8B
G03 - 176

COARSE REJECT (Free storage for 30 days)
- ☐ Return/collect after analysis
- ☐ Return/collect after 30 days
- ☐ Discard after 30 days

IF NOT MARKED, REJECT DISCARDED AFTER 30 DAYS

PULP (Free storage for 6 months)
- ☒ Return/collect after analysis
- ☐ Return/collect at 6 months
- ☐ Discard at 6 months

IF NOT MARKED, PULP IS DISCARDED AFTER 6 MONTHS

COARSE REJECTS/PULPS WILL BE DISCARDED UNLESS OTHERWISE REQUESTED

Au - GOLD METHOD
- ☒ Fire Assay/A.A.
- ☐ Fire Assay/Gravimetric
- ☐ NaCN/A.A.

RESULTS REPORTED IN:
☐ ppb ☐ PPM
☒ oz/T ☐ grams/T

TRACE ELEMENT METHOD
- ☐ Wet Chem./A.A.
- ☐ Wet Chem./ICP

RESULTS REPORTED IN:
☐ ppm ☐ Percent %
☐ oz/T ☐ grams/T

ADDITIONAL INSTRUCTIONS: _____

RS-D358-99 **LAB COPY**

Depth From	Depth To	Interval	Au	Ag	Sample Number	Pulps
553	558	5	x	x	1	
558	563	5	x	x	2	
563	568	5	x	x	3	
568	571.6	3.6	x	x	4	
571.6	575.8	4.2	x	x	5	575.8B
575.8	578	2.2	x	x	6	
578	583	5	x	x	7	
583	588	5	x	x	8	
588	593	5	x	x	9	
593	595.4	2.4	x	x	10	
595.4	598	2.6	x	x	11	
598	603	5	x	x	12	
603	608	5	x	x	13	
608	613	5	x	x	14	
613	615.2	2.2	x	x	15	
615.2	618.5	3.3	x	x	16	
618.5	623	4.5	x	x	17	
623	628	5	x	x	18	
628	630.2	2.2	x	x	19	
630.2	633	2.8	x	x	20	
633	638	5	x	x	21	
638	641	3	x	x	22	
641	644.1	3.1	x	x	23	
644.1	648	3.9	x	x	24	
648	653	5	x	x	25	
653	658	5	x	x	26	
658	663	5	x	x	27	
663	668	5	x	x	28	
668	673	5	x	x	29	
673	678	5	x	x	30	
678	683	5	x	x	31	
683	688	5	x	x	32	
688	693	5	x	x	33	
693	698	5	x	x	34	
698	703	5	x	x	35	
703	708	5	x	x	36	
708	713	5	x	x	37	
713	718	5	x	x	38	
718	723	5	x	x	39	
723	728	5	x	x	40	
728	733	5	x	x	41	

733	736	3	x	x	42
736	738	2	x	x	43
738	743	5	x	x	44
743	748	5		NO SAMPLE	
748	750	2	x	x	45
750	753	3	x	x	46
753	758	5	x	x	47
758	763	5	x	x	48
763	766.7	3.7	x	x	49
766.7	769	2.3	x	x	50
769	774	5	x	x	51
774	779	5	x	x	52
779	784	5	x	x	53
784	789	5	x	x	54
789	793.5	4.5	x	x	55
793.5	797	3.5	x	x	56
797	800	3	x	x	57

RS-D358-99

Depth From	To	Interval	Au	Ag	Sample Number	Pulps
0	4.8	4.8	x	x	1	
4.8	9	4.2	x	x	2	
9	14	5	x	x	3	
14	17	3	x	x	4	
17	19	2	NO SAMPLE			
19	21	2	x	x	5	
21	24	3	NO SAMPLE			
24	29	5	x	x	6	
29	34	5	x	x	7	
34	37.4	3.4	x	x	8	
37.4	39.8	2.4	x	x	9	
39.8	44	4.2	x	x	10	
44	49	5	x	x	11	
49	54	5	x	x	12	
54	59	5	x	x	13	
59	64	5	x	x	14	
64	69	5	x	x	15	
69	74	5	x	x	16	
74	79	5	x	x	17	
79	84	5	x	x	18	
84	89	5	x	x	19	
89	94	5	x	x	20	
94	99	5	x	x	21	
99	104	5	x	x	22	
104	109	5	x	x	23	
109	114	5	x	x	24	
114	119	5	x	x	25	
119	124	5	x	x	26	
124	129	5	x	x	27	
129	134	5	x	x	28	
134	139	5	x	x	29	
139	144	5	x	x	30	
144	149	5	x	x	31	
149	154	5	x	x	32	
154	159	5	x	x	33	
159	164	5	x	x	34	
164	169	5	x	x	35	
169	174	5	x	x	36	
174	179	5	x	x	37	
179	184	5	x	x	38	
184	189	5	x	x	39	

189	194	5	x	x	40	
194	199	5	x	x	41	
199	204	5	x	x	42	
204	209	5	x	x	43	
209	214	5	x	x	44	
214	219	5	x	x	45	
219	224	5	x	x	46	
224	229	5	x	x	47	
229	234	5	x	x	48	
234	239	5	x	x	49	
239	244	5	x	x	50	
244	249	5	x	x	51	
249	254	5	x	x	52	
254	257	3	x	x	53	
257	262	5	x	x	54	
262	265	3	x	x	55	
265	267.9	2.9	x	x	56	
267.9	272	4.1	x	x	57	
272	274	2	x	x	58	
274	279	5	x	x	59	
279	284	5	x	x	60	
284	289	5	x	x	61	
289	294	5	x	x	62	
294	299	5	x	x	63	
299	304	5	x	x	64	
304	307	3	x	x	65	
307	310	3	x	x	66	310.0B
310	312.6	2.6	x	x	67	
312.6	315	2.4	x	x	68	
315	318	3	x	x	69	
318	323	5	x	x	70	
323	326	3	x	x	71	
326	327.2	1.2	x	x	72	
327.2	332	4.8	x	x	73	
332	335.5	3.5	x	x	74	
335.5	340.5	5	x	x	75	
340.5	341.5	1	x	x	76	
341.5	344	2.5	x	x	77	
344	349	5	x	x	78	
349	354	5	x	x	79	
354	359	5	x	x	80	
359	364	5	x	x	81	
364	369	5	x	x	82	
369	374	5	x	x	83	

374	379	5	x	x	84	
379	384	5	x	x	85	
384	389	5	x	x	86	
389	394	5	x	x	87	
394	399	5	x	x	88	
399	404	5	x	x	89	
404	409	5	x	x	90	
409	414	5	x	x	91	410.0B
414	419	5	x	x	92	
419	423	4	x	x	93	
423	428	5	x	x	94	
428	433	5	x	x	95	
433	438	5	x	x	96	
438	443	5	x	x	97	
443	448	5	x	x	98	
448	453	5	x	x	99	
453	458	5	x	x	100	
458	463	5	x	x	101	
463	468	5	x	x	102	
468	473	5	x	x	103	
473	478	5	x	x	104	
478	483	5	x	x	105	
483	488	5	x	x	106	
488	493	5	x	x	107	
493	498	5	x	x	108	
498	503	5	x	x	109	
503	508	5	x	x	110	
508	511	3	x	x	111	
511	513	2	x	x	112	
513	518	5	x	x	113	
518	523	5	x	x	114	
523	528	5	x	x	115	
528	533	5	x	x	116	
533	538	5	x	x	117	
538	543	5	x	x	118	
543	548	5	x	x	119	
548	553	5	x	x	120	
553	558	5	x	x	121	
558	563	5	x	x	122	
563	568	5	x	x	123	
568	571.6	3.6	x	x	124	
571.6	575.8	4.2	x	x	125	575.8B
575.8	578	2.2	x	x	126	
578	583	5	x	x	127	

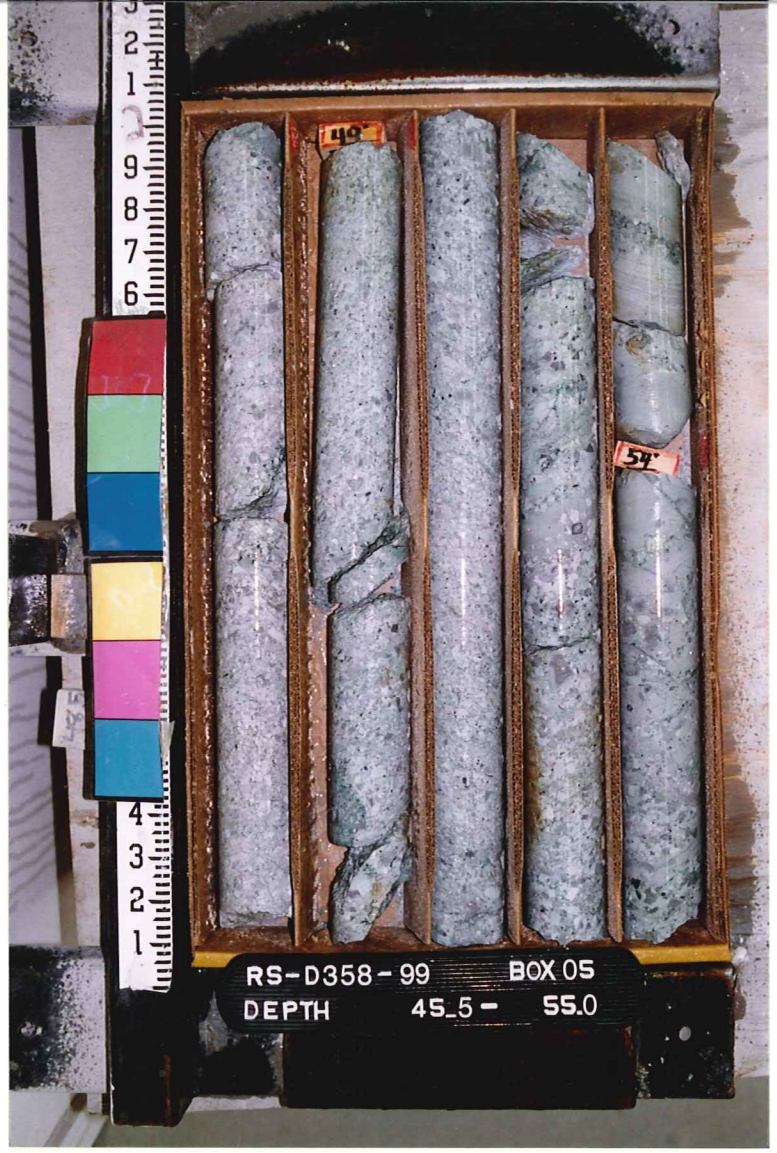
583	588	5	x	x	128
588	593	5	x	x	129
593	595.4	2.4	x	x	130
595.4	598	2.6	x	x	131
598	603	5	x	x	132
603	608	5	x	x	133
608	613	5	x	x	134
613	615.2	2.2	x	x	135
615.2	618.5	3.3	x	x	136
618.5	623	4.5	x	x	137
623	628	5	x	x	138
628	630.2	2.2	x	x	139
630.2	633	2.8	x	x	140
633	638	5	x	x	141
638	641	3	x	x	142
641	644.1	3.1	x	x	143
644.1	648	3.9	x	x	144
648	653	5	x	x	145
653	658	5	x	x	146
658	663	5	x	x	147
663	668	5	x	x	148
668	673	5	x	x	149
673	678	5	x	x	150
678	683	5	x	x	151
683	688	5	x	x	152
688	693	5	x	x	153
693	698	5	x	x	154
698	703	5	x	x	155
703	708	5	x	x	156
708	713	5	x	x	157
713	718	5	x	x	158
718	723	5	x	x	159
723	728	5	x	x	160
728	733	5	x	x	161
733	736	3	x	x	162
736	738	2	x	x	163
738	743	5	x	x	164
743	748	5	NO SAMPLE		
748	750	2	x	x	165
750	753	3	x	x	166
753	758	5	x	x	167
758	763	5	x	x	168
763	766.7	3.7	x	x	169
766.7	769	2.3	x	x	170

769	774	5	x	x	171
774	779	5	x	x	172
779	784	5	x	x	173
784	789	5	x	x	174
789	793.5	4.5	x	x	175
793.5	797	3.5	x	x	176
797	800	3	x	x	177

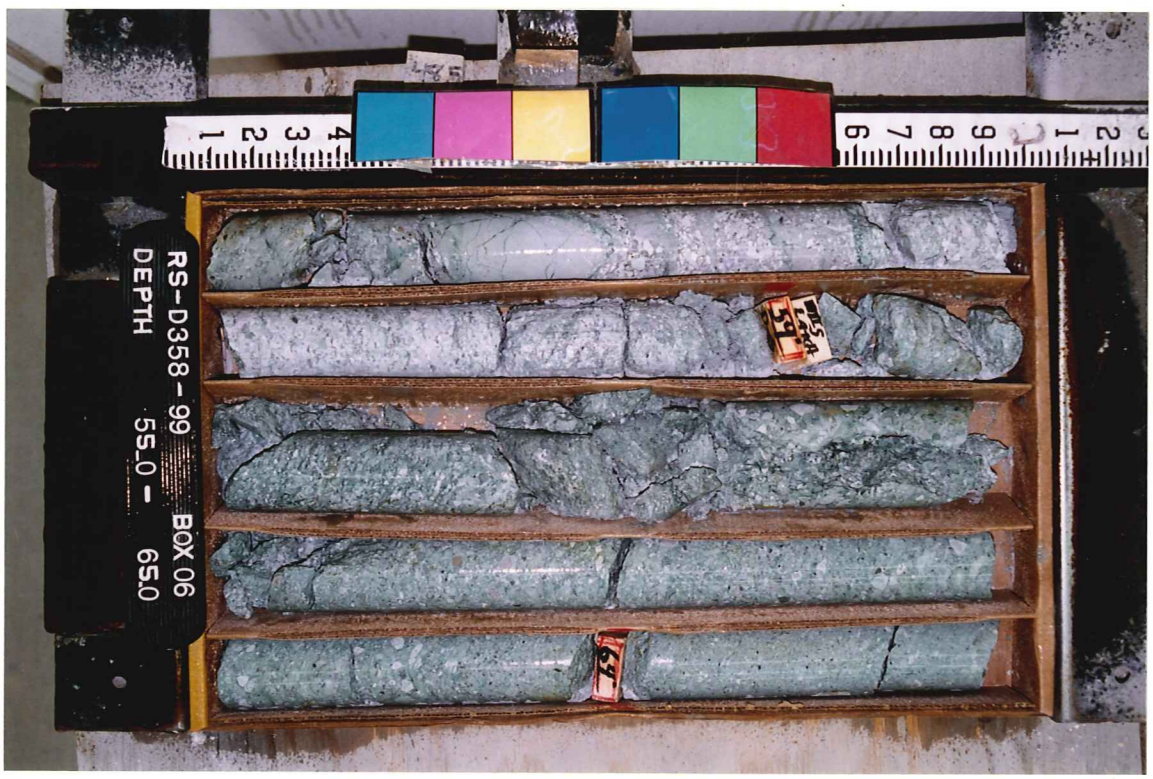
RS-D358-99 BOX 02
DEPTH 10.5- 27.0

RS-D358-99 BOX 01
DEPTH 0.0- 10.5

RS-D358-99 BOX 03
DEPTH 27.0- 36.0

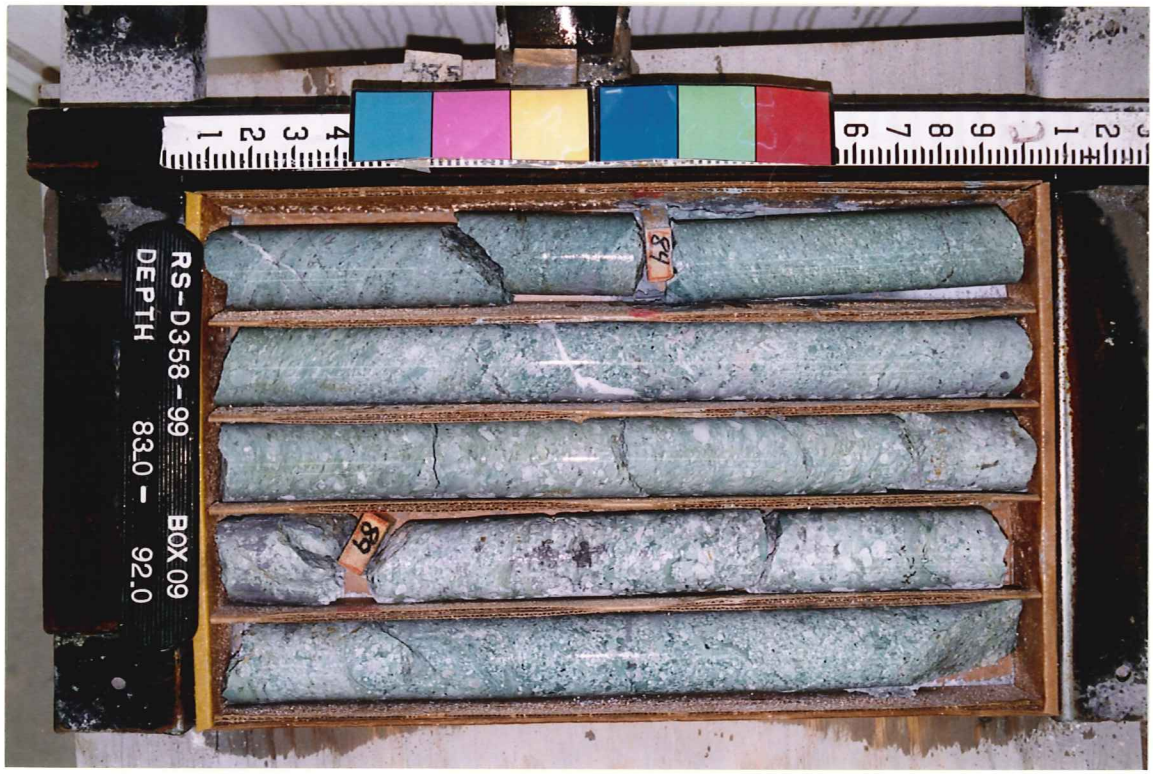

RS-D358-99 BOX 05
DEPTH 45_5 - 55.0

37.4
39.8
RS-D358-99 BOX 04
DEPTH 36_0 - 45.5


RS-D358-99 BOX 06
DEPTH 55_0 - 65.0

RS-D358-99 BOX 07
DEPTH 74.0 - 83.0
79

RS-D358-99 BOX 07
DEPTH 65.0 - 74.0
69
74


RS-D358-99 BOX 09
DEPTH 83.0 - 92.0
84
89

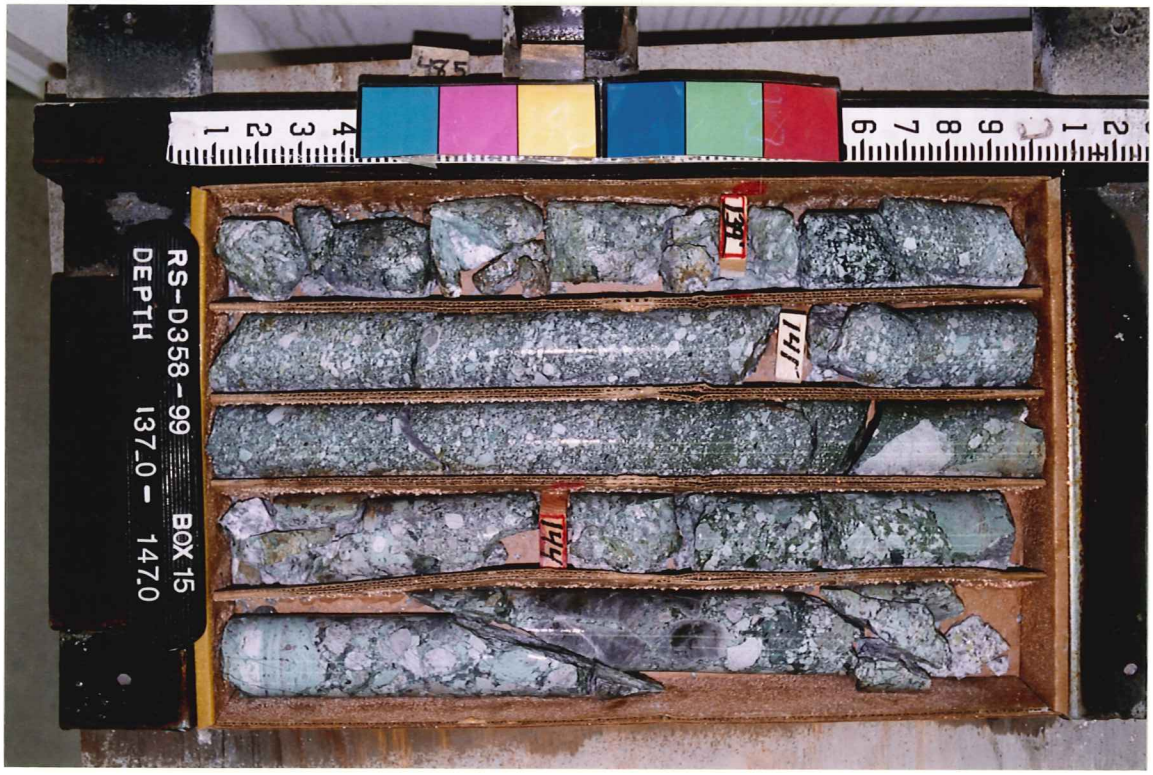
104
Match
109
RS-D358-99 BOX 11
DEPTH 102.0 - 110.0

99
94
RS-D358-99 BOX 10
DEPTH 92.0 - 102.0

RS-D358-99 BOX 12
DEPTH 110.0 - 119.5
119
119

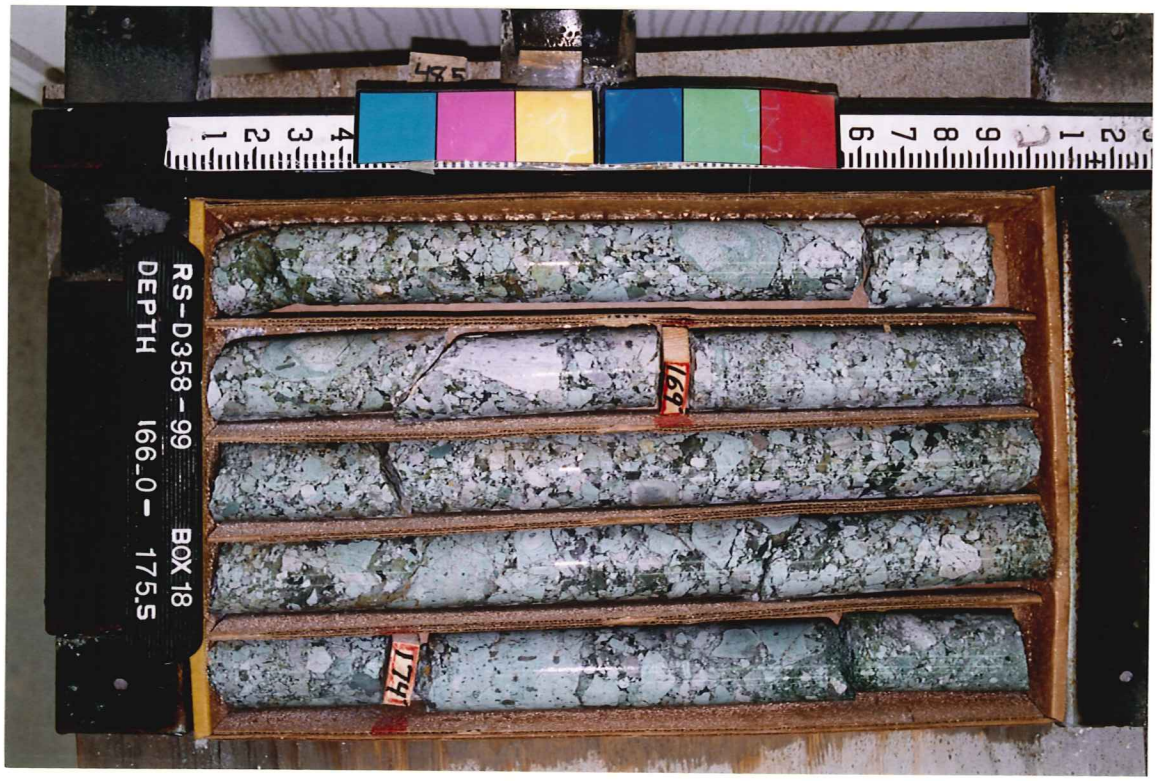
RS-D358-99 BOX 14
DEPTH 128.0 - 137.0
129
134

RS-D358-99 BOX 13
DEPTH 119.5 - 128.0
129


RS-D358-99 BOX 15
DEPTH 137.0 - 147.0
137
142
147

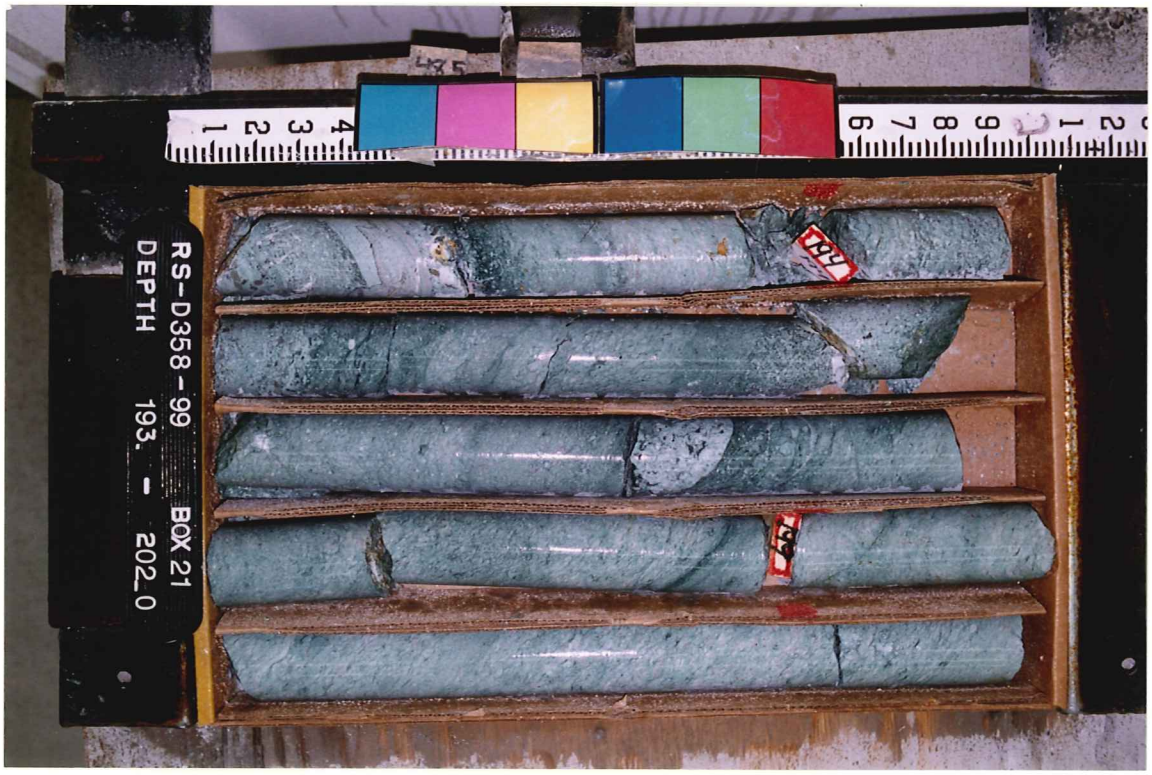
164
159
RS-D358-99 BOX 17
DEPTH 156.5 - 166.0

154
149
RS-D358-99 BOX 16
DEPTH 147.0 - 156.5


169
174
RS-D358-99 BOX 18
DEPTH 166.0 - 175.5

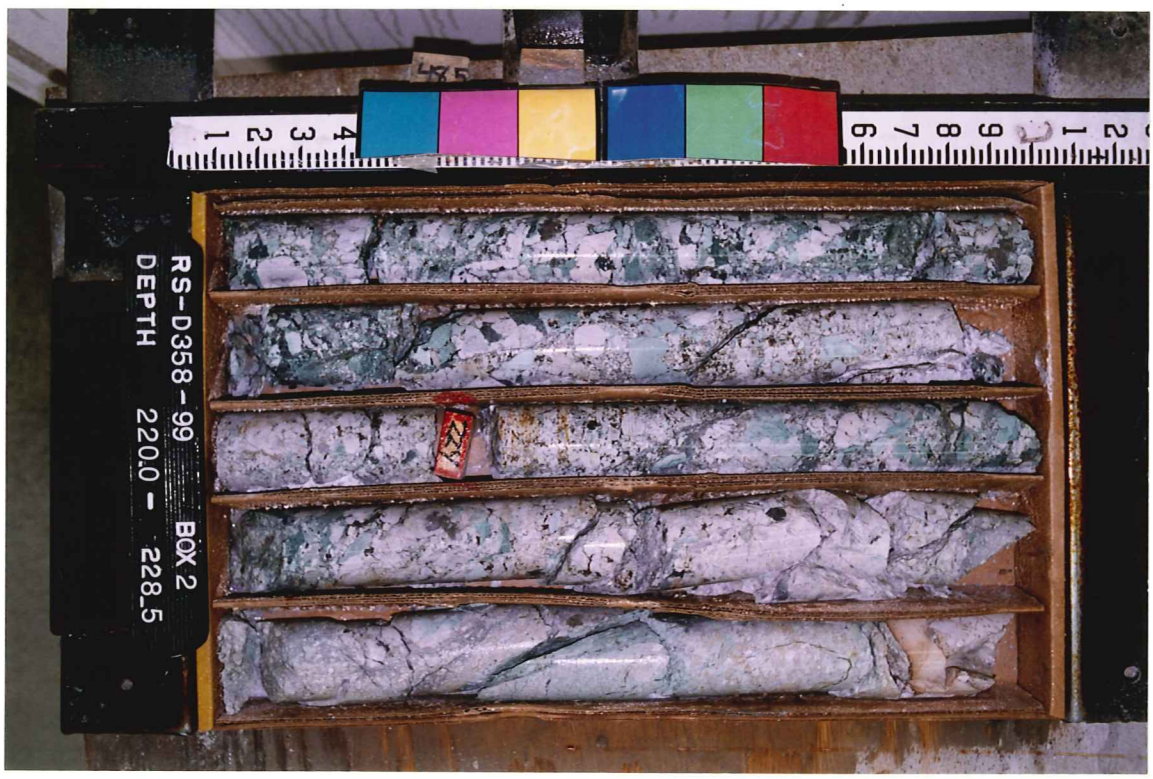
RS-D358-99 BOX 20
DEPTH 184.5- 193.0

RS-D358-99 BOX 19
DEPTH 175.5- 184.5


RS-D358-99 BOX 21
DEPTH 193. - 202.0

RS-D358-99 BOX 23
DEPTH 211.0 - 220.0

RS-D358-99 BOX 22
DEPTH 202.0 - 211.0


RS-D358-99 BOX 2
DEPTH 220.0 - 228.5

RS-D358-99 BOX 26
DEPTH 238.0 - 247.5

RS-D358-99 BOX 25
DEPTH 228.5 - 238.0

RS-D358-99 BOX 27
DEPTH 247.5 - 256.5

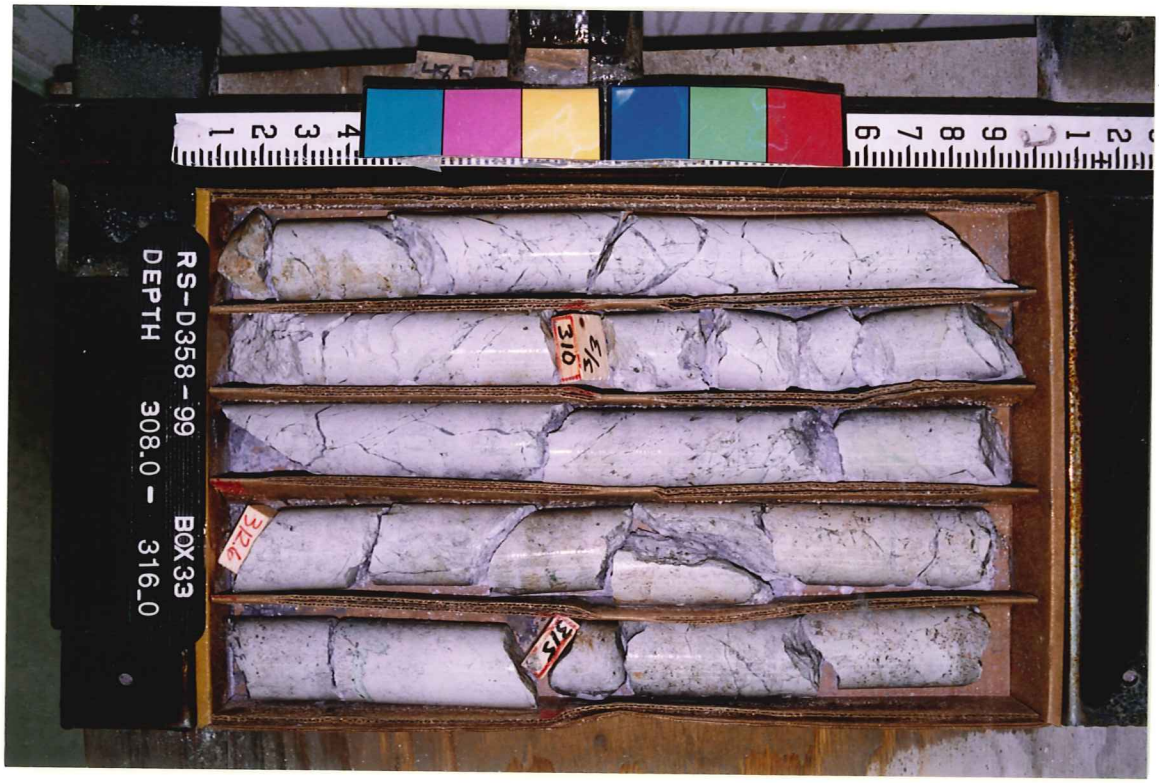
RS-D358-99 BOX 29
DEPTH 266.0 - 275.5

RS-D358-99 BOX 28
DEPTH 256.5 - 266.0

RS-D358-99 BOX 30
DEPTH 275.5 - 286.0

RS-D358-99 BOX 32
DEPTH 297.0 - 308.0
299
307

RS-D358-99 BOX 31
DEPTH 286.0 - 297.0
289
294


RS-D358-99 BOX 33
DEPTH 308.0 - 316.0
310
312
315

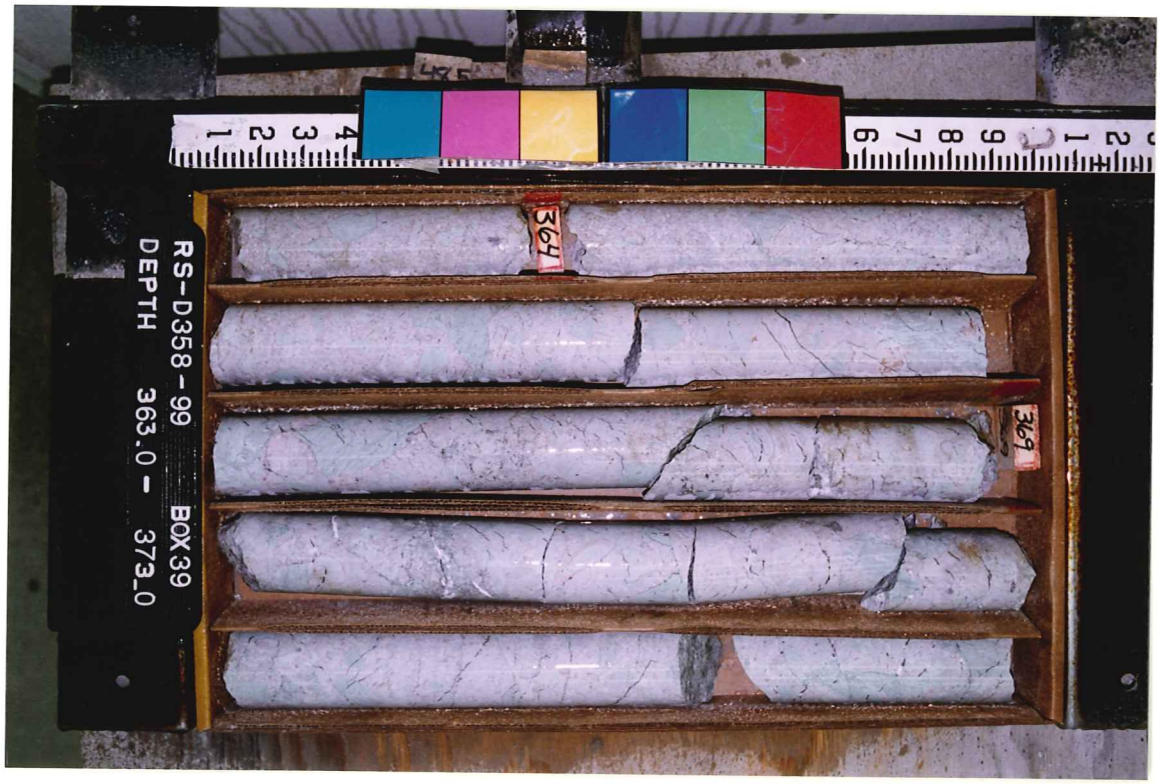
327.2
335.5
334
328
332
RS-D358-99 BOX 35
DEPTH 327.0 - 336.0

326
324
318
323
320
RS-D358-99 BOX 34
DEPTH 316.0 - 327.0

334
340.3
341
344
RS-D358-99 BOX 36
DEPTH 336.0 - 345.0

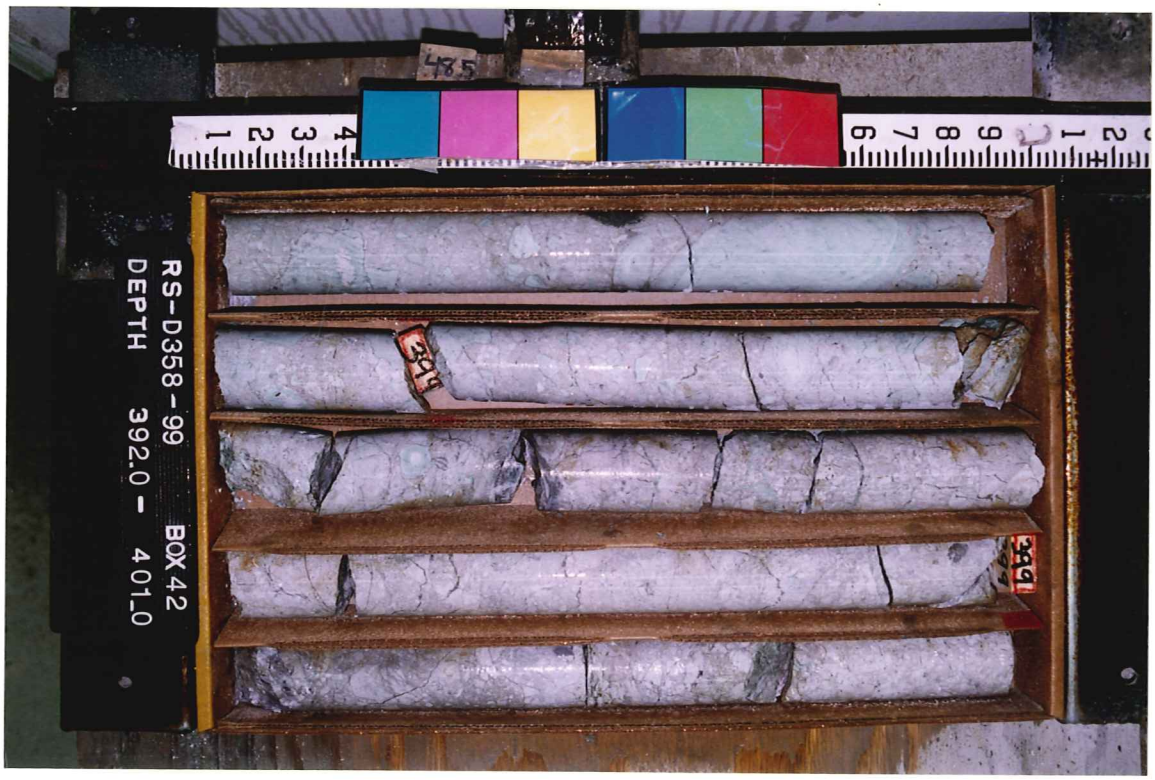
RS-D358-99 BOX38
DEPTH 354.0 - 363_0
359

RS-D358-99 BOX37
DEPTH 345.0 - 354_0
354
349


RS-D358-99 BOX39
DEPTH 363.0 - 373_0
364
369

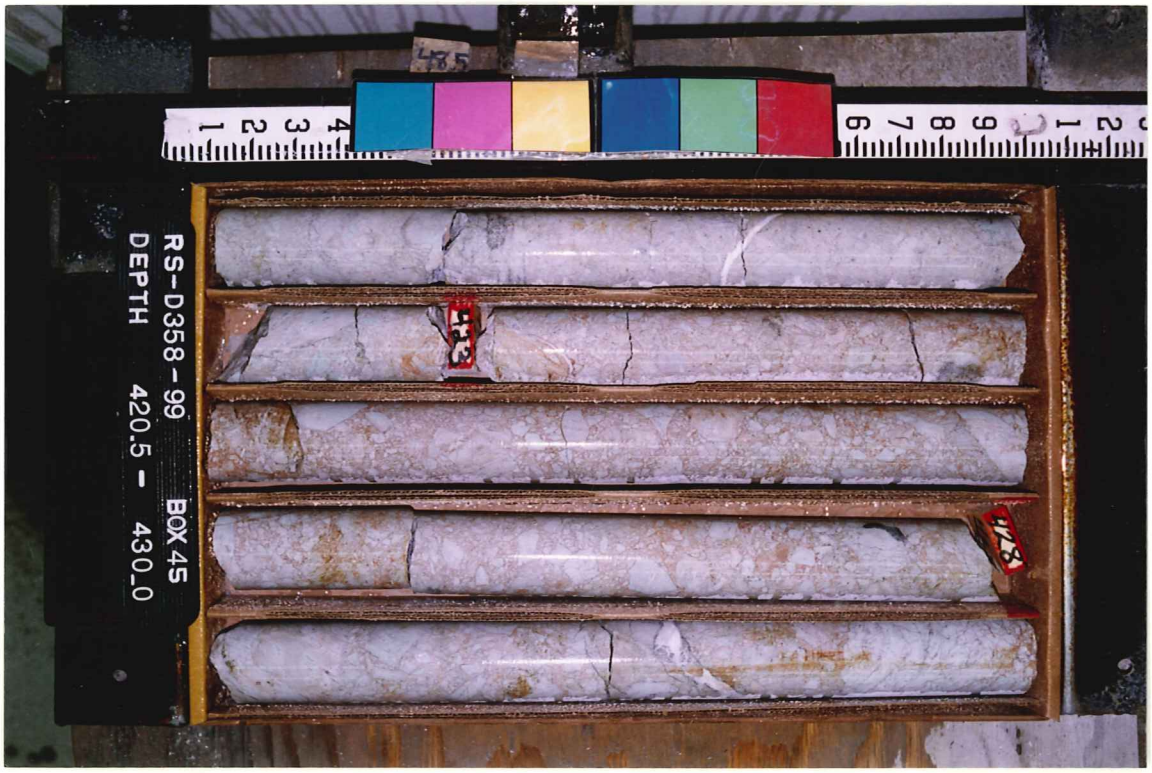
384
389
RS-D358-99 BOX 41
DEPTH 383.0 - 392.0

379
379
RS-D358-99 BOX 40
DEPTH 373.0 - 383.0


RS-D358-99 BOX 42
DEPTH 392.0 - 401.0

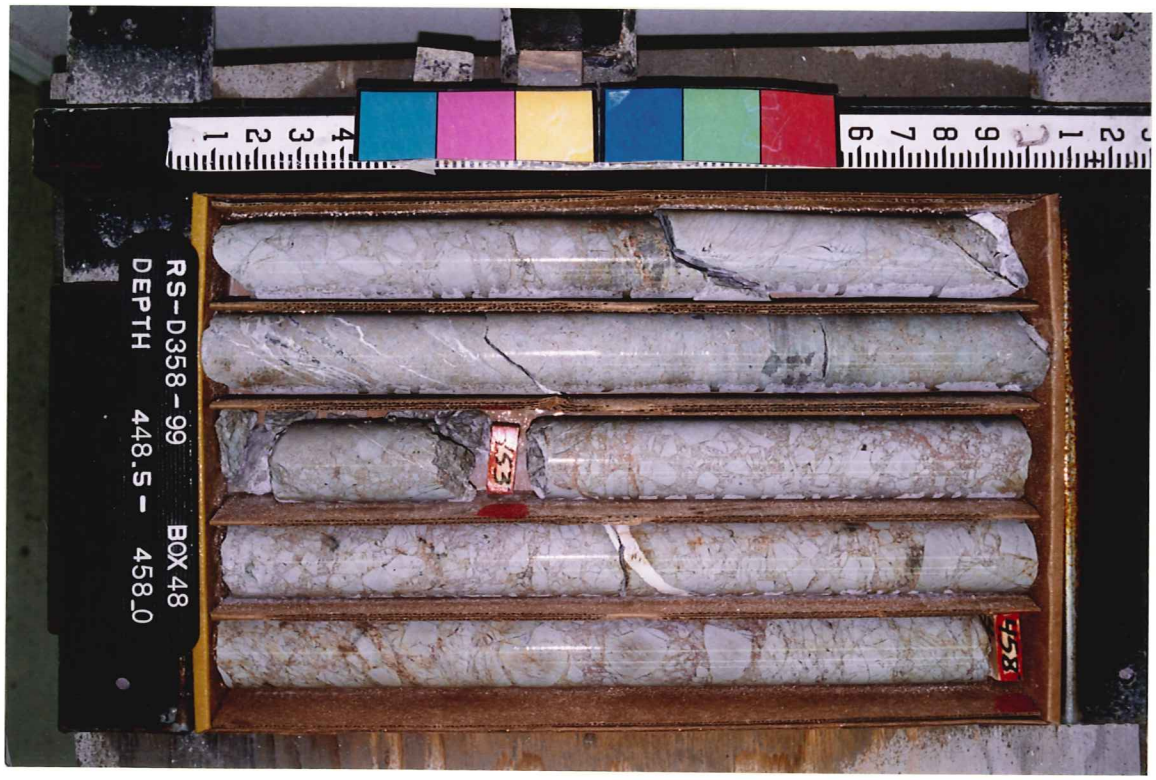
RS-D358-99 BOX 44
DEPTH 412.0 - 420_5

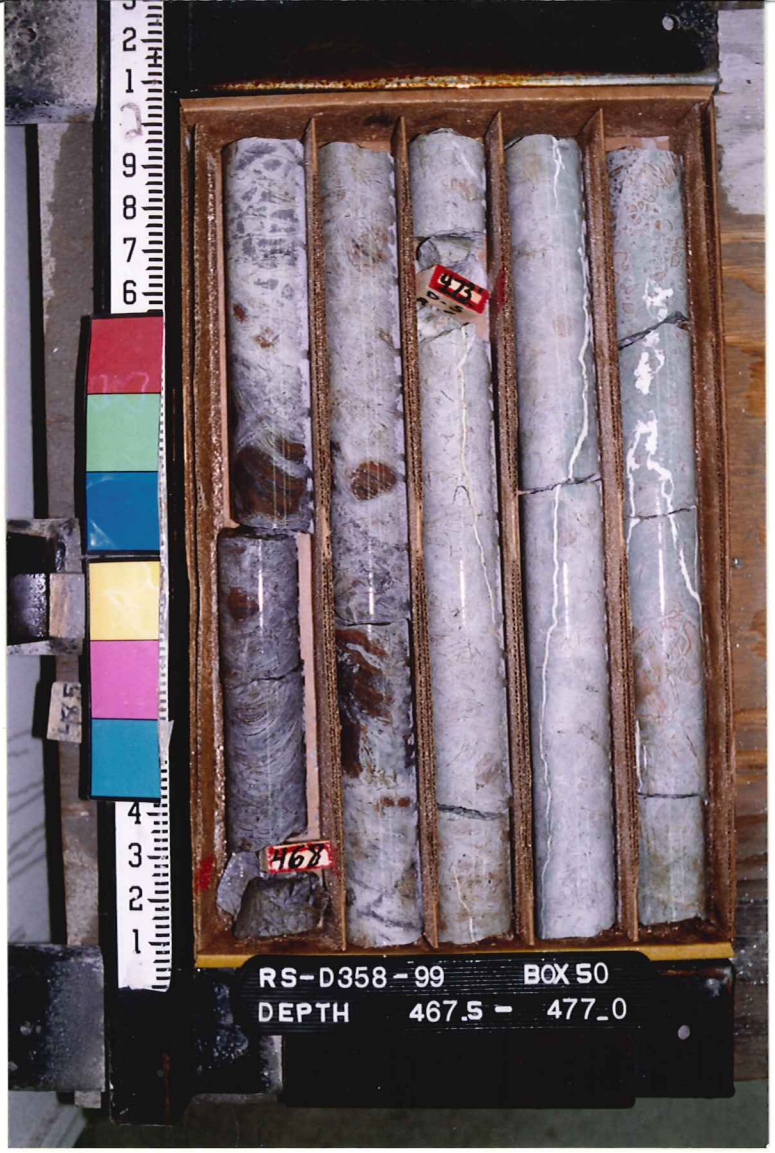
RS-D358-99 BOX 43
DEPTH 401.0 - 412_0


RS-D358-99 BOX 45
DEPTH 420.5 - 430_0

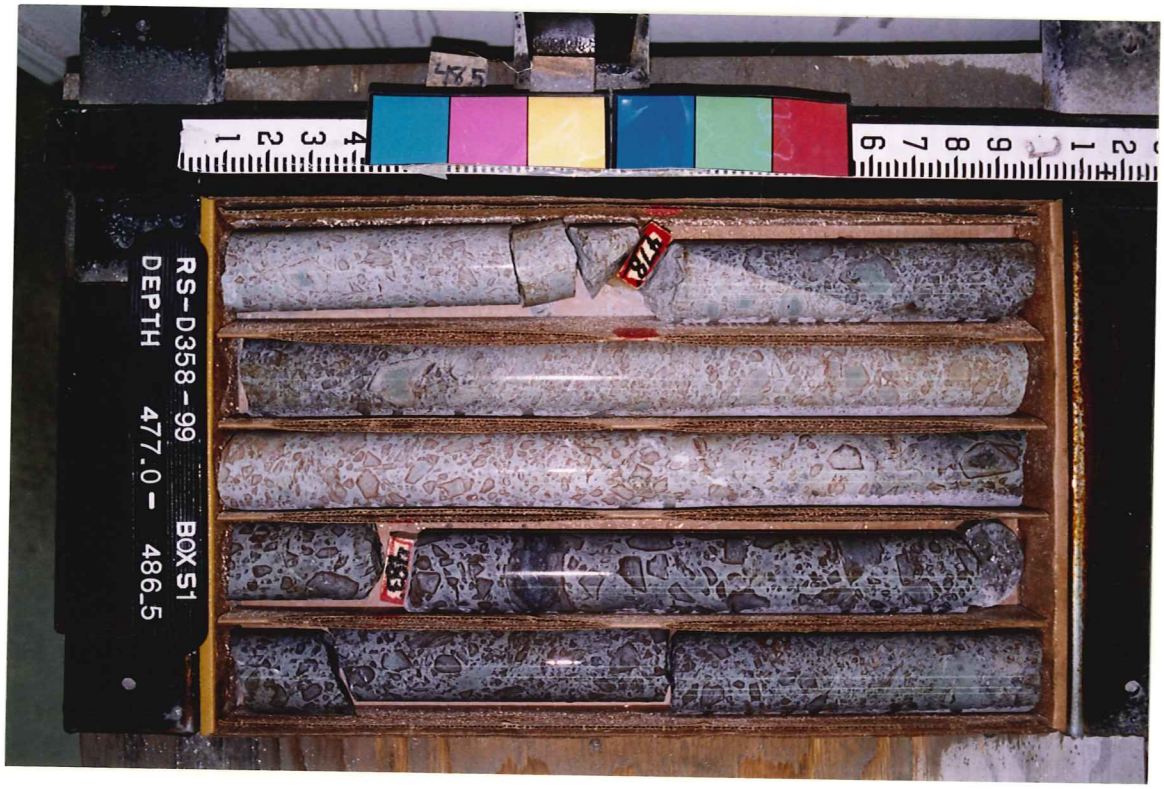
RS-D358-99 BOX 47
DEPTH 439.5 - 448_5

RS-D358-99 BOX 46
DEPTH 430.0 - 439_5


RS-D358-99 BOX 48
DEPTH 448.5 - 458_0


RS-D358-99 BOX 50
DEPTH 467.5 - 477.0

RS-D358-99 BOX 49
DEPTH 458.0 - 467.5


RS-D358-99 BOX 51
DEPTH 477.0 - 486.5

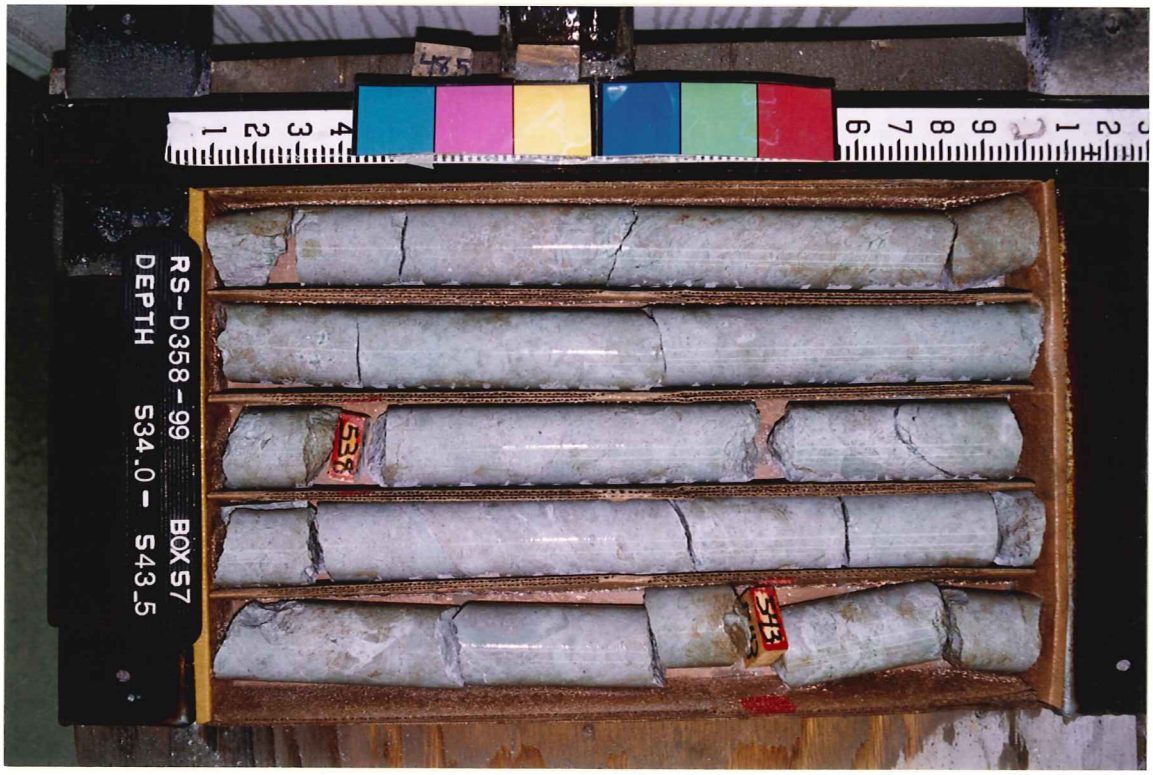
RS-D358-99 BOX 53
DEPTH 496.0 - 505.5

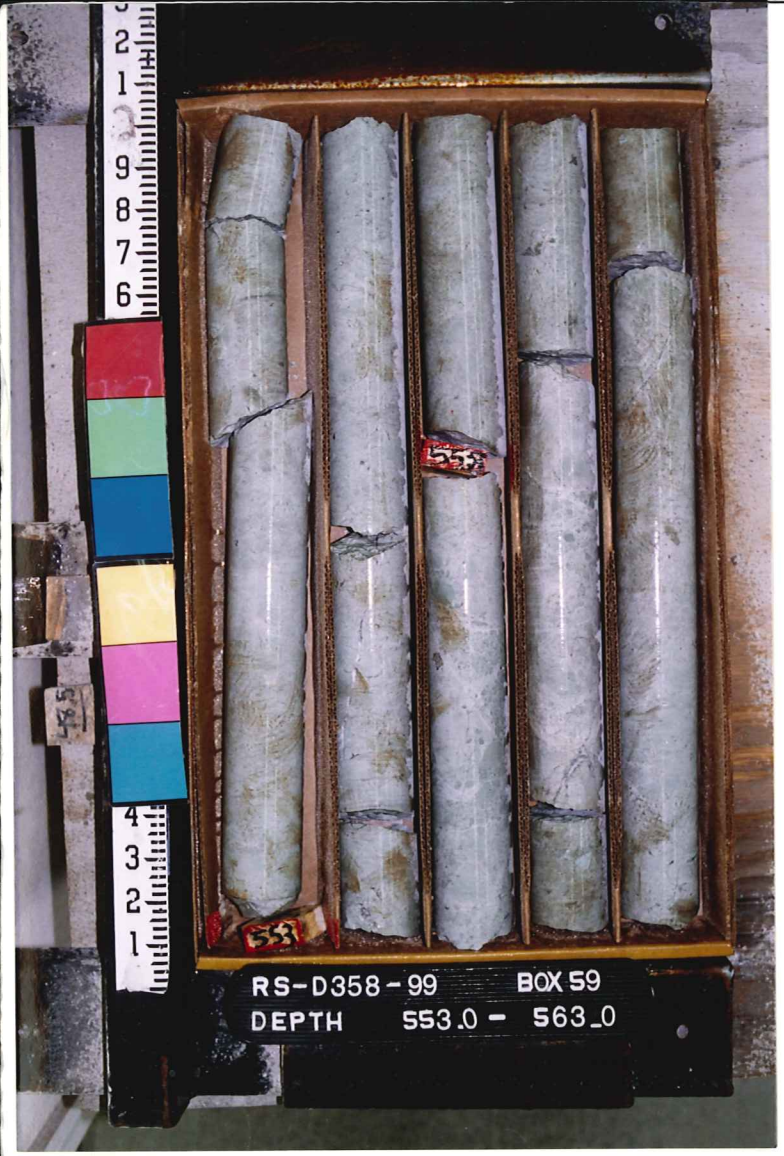
RS-D358-99 BOX 52
DEPTH 486.5 - 496.0

RS-D358-99 BOX 54
DEPTH 505.5 - 515.0

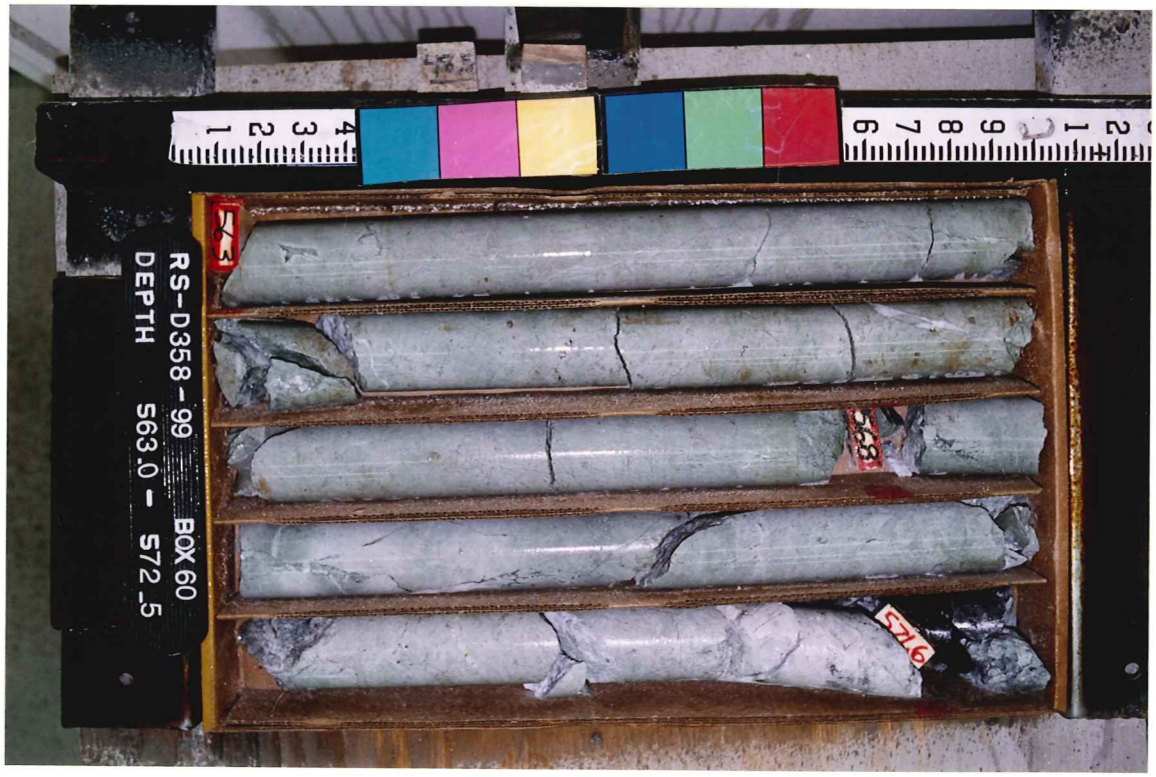
RS-D358-99 BOX 56
DEPTH 524.5 - 534.0

RS-D358-99 BOX 55
DEPTH 515.0 - 524.5

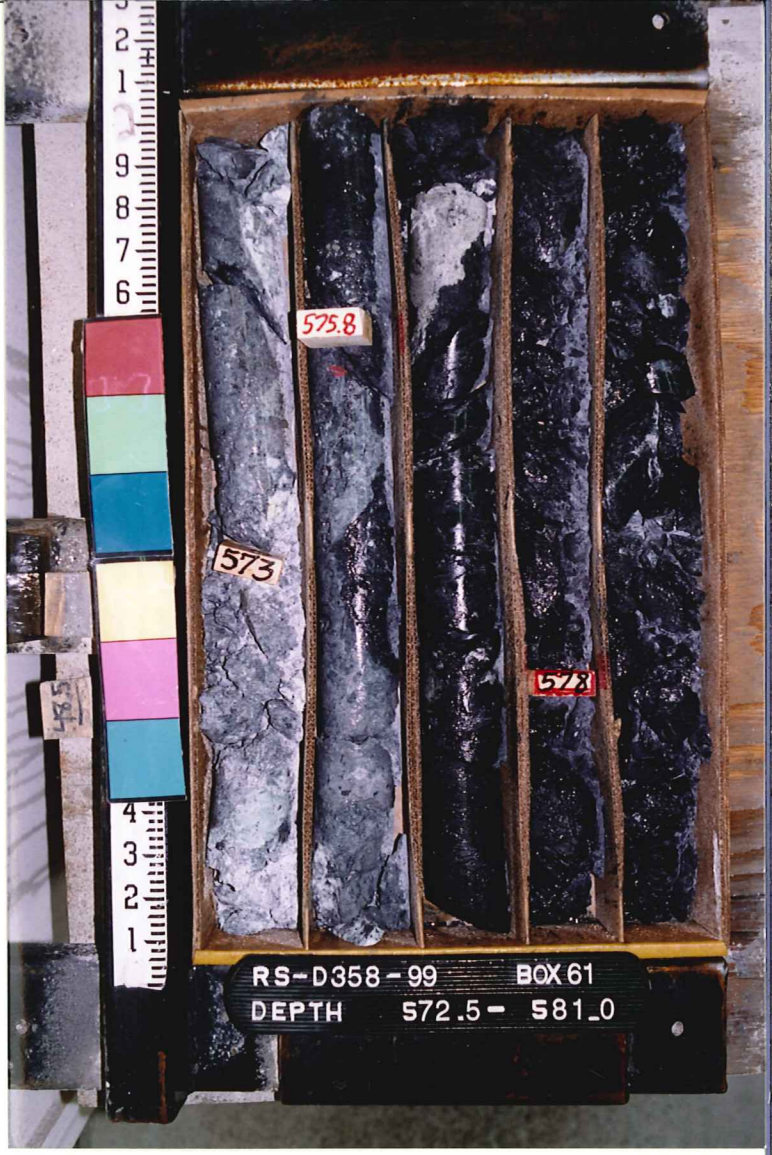

RS-D358-99 BOX 57
DEPTH 534.0 - 543.5

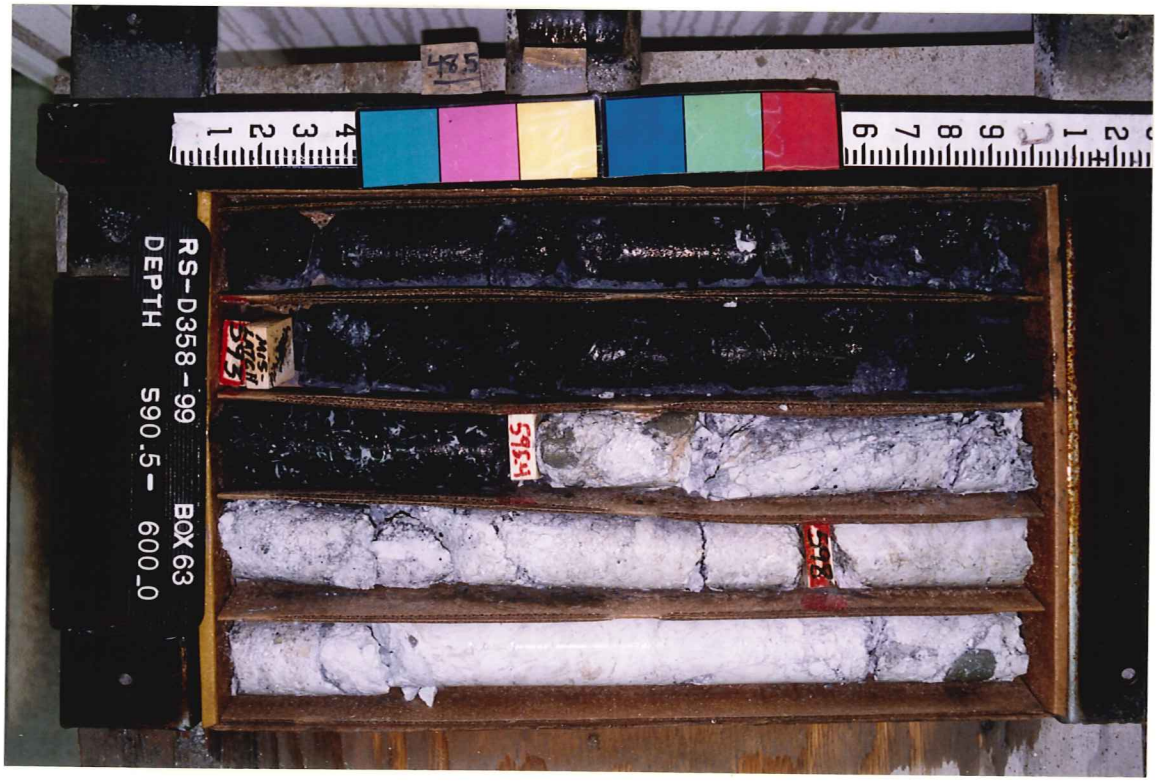

RS-D358-99 BOX 59
DEPTH 553.0 - 563.0

RS-D358-99 BOX 58
DEPTH 543.5 - 553.0


RS-D358-99 BOX 60
DEPTH 563.0 - 572.5

RS-D358-99 BOX 62
DEPTH 581.0 - 590.5
582
583


RS-D358-99 BOX 61
DEPTH 572.5 - 581.0
575.8
573
578


RS-D358-99 BOX 63
DEPTH 590.5 - 600.0
573
583.4
588

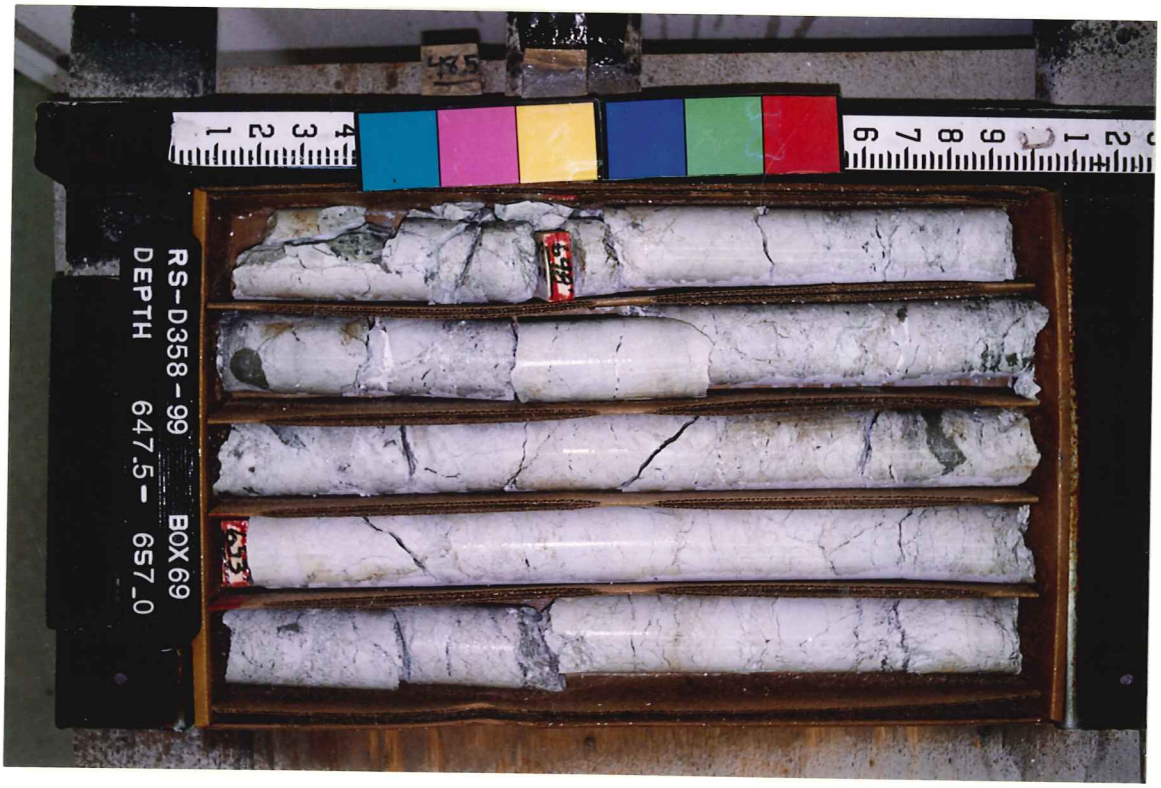
RS-D358-99 BOX 65
DEPTH 610.0- 619.5

RS-D358-99 BOX 64
DEPTH 600.0- 610.0

RS-D358-99 BOX 66
DEPTH 619.5- 629.0

RS-D358-99 BOX 68
DEPTH 638.5- 647.5

RS-D358-99 BOX 67
DEPTH 629.0- 638.5


RS-D358-99 BOX 69
DEPTH 647.5- 657.0

RS-D358-99 BOX 70
DEPTH 657.0- 669.5
658
663
669

WELL RSP 358-99

DEPTH 40

PICTURE NO.

INCLINATION 30 -60.8

OBS. DIR. N67.5 W

COR. DIR.

TOOL FACE

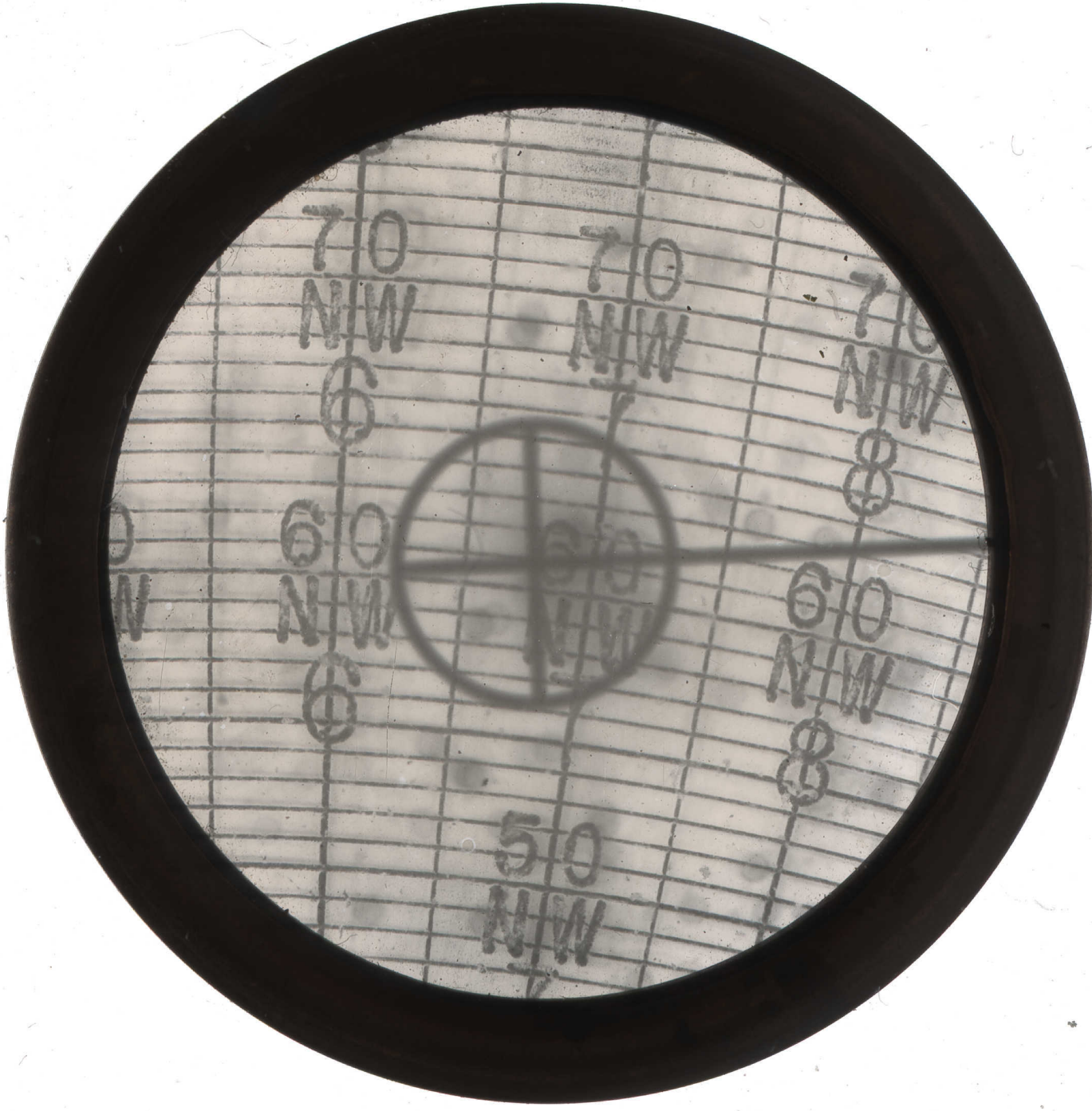
RUN BY

DATE 2-5-99

CHECKED BY

sperry-sun

DRILLING SERVICES


70
NW
6
70
NW
7
70
NW
8
60
NW
6
60
NW
7
60
NW
8
50
NW

WELL RSD 358-99

DEPTH 200

PICTURE NO.

INCLINATION -30 60.8

OBS. DIR. N68W

COR. DIR.

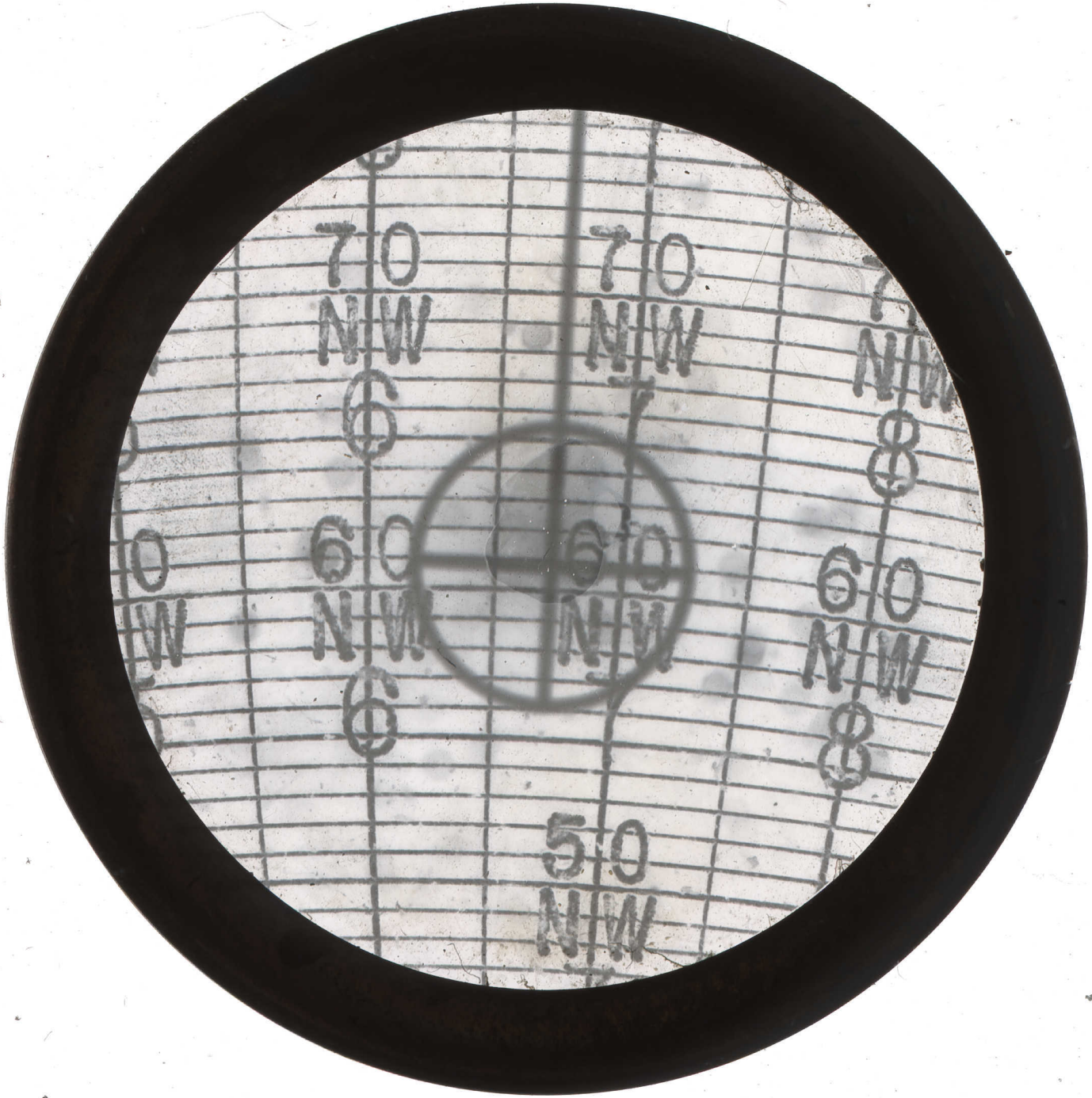
TOOL FACE

RUN BY

DATE 7-5-99

CHECKED BY

sperry-sun
DRILLING SERVICES


70
NW
6
60
NW
6
70
NW
7
60
NW
7
70
NW
8
60
NW
8
50
NW

WELL RSD358-99

DEPTH 450

PICTURE NO.

INCLINATION -30 S1.5

OBS. DIR. N70W

COR. DIR.

TOOL FACE

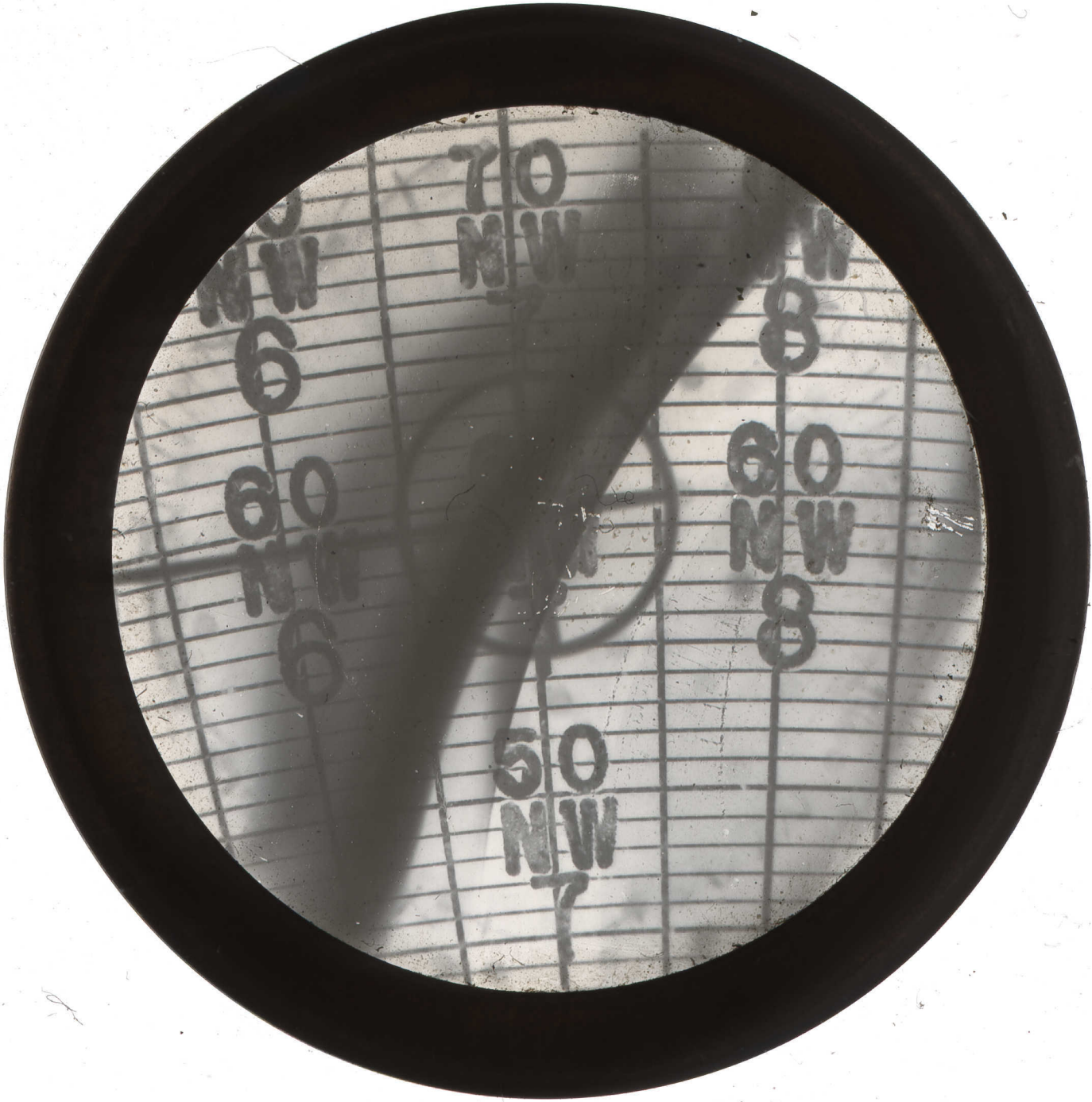
RUN BY

DATE 7-5-99

CHECKED BY

sperry-sun

DRILLING SERVICES


70
NW
6
60
NW
6
50
NW
7
8
60
NW
8

WELL RS-D358-99

DEPTH 800'

PICTURE NO.

INCLINATION 56.5 56.8

OBS. DIR. N71.5W N72W

COR. DIR.

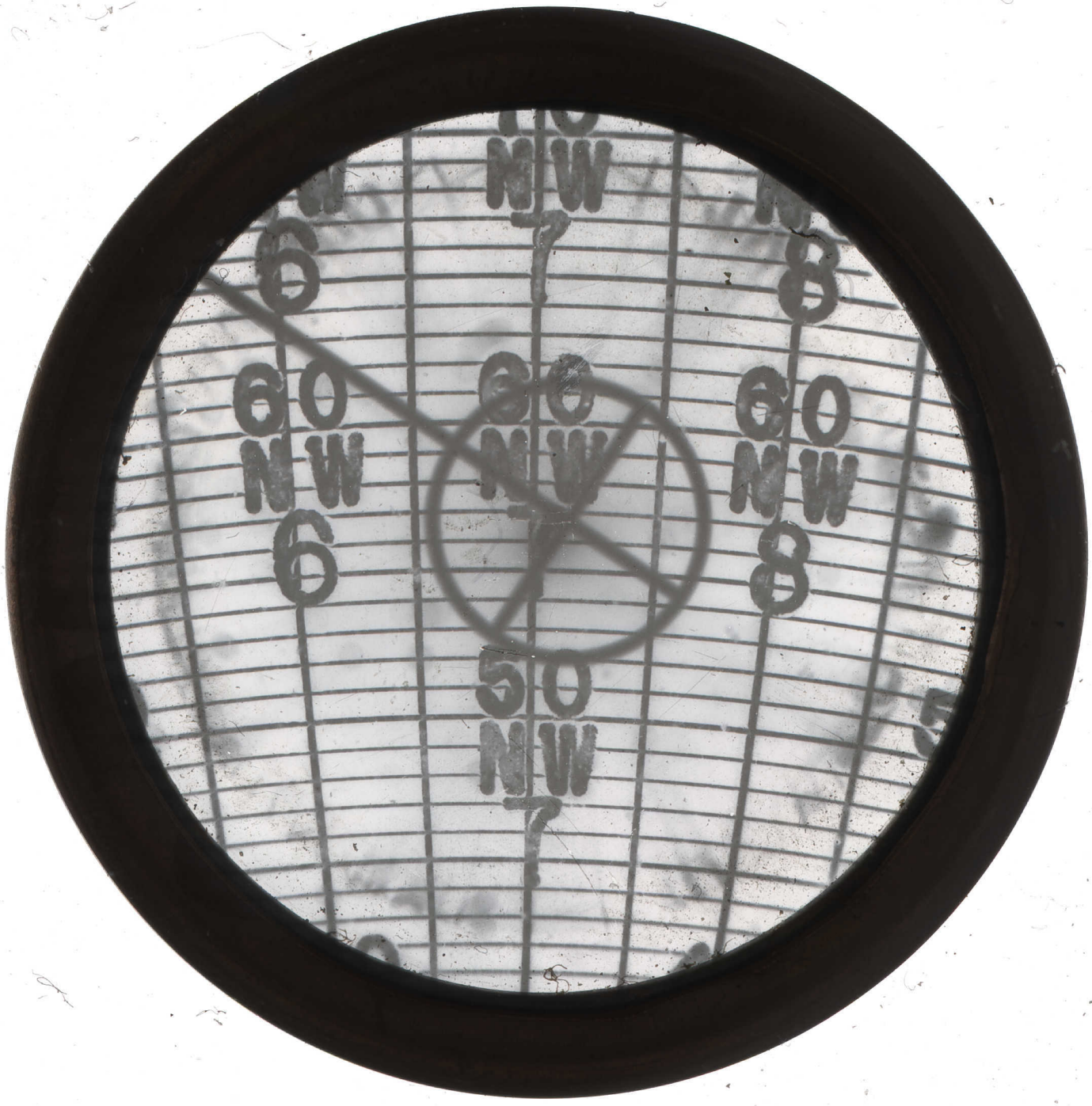
TOOL FACE

RUN BY ROGERS

DATE 7-2-99

CHECKED BY

sperry-sun
DRILLING SERVICES


NW
7
6
8
60
NW
6
60
NW
7
60
NW
8
50
NW
7

BOTH TAKEN in
Same place.