6000 0924

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-D 364-99
AUTHOR	Lassiter; K. Allen; K. Meyer; D. Francisco
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.
COMMODITY If not obvious	gold; silver
NOTES	Drill log; geology; assay; geochemistry; total depth 1703' receipt; handwritten notes; downhole camera images [redacted] Note: scan notes on Front of folder 131p. & 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:	DP	5/12/08
DB:	mah	
SCANNED:		

Revised: 1/22/08

[N35W; -31°]

	Film		Actual	
53	N48W	-31	N32W	-31
253	N50.5W	-32.5	N34.8W	-32.5
453	N51W	-33	N35.3W	-33
653	N51W	-34	N35.3W	-34
853	N53W	-34	N37.3W	-34
1053	N52W	-34	N36.3W	-34

364

RS-D364-99

6000 0924 4010

GEO 0924

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

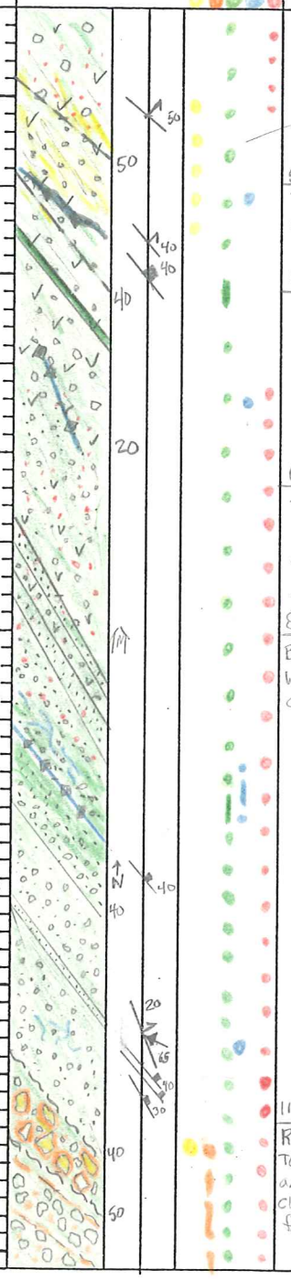
Hecla MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D364-99	LOCATION	25 Muck Bay	REMARKS	
PAGE 1 OF		NORTHING		Hung rods at bottom of hole	
DATE	10/5/99	EASTING			
LOGGED BY	LASSITER	ELEVATION			
SCALE	1 = 20"	AZIMUTH	N35W		
TOTAL DEPTH	1703'	INCLINATION	-31		

LITH	OX/RE	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	A
TOS	R	TOS Fine grained sand to conglomerate epiclastic. Clasts are angular to sub-angular, and predominately Dacer with rare ALS clasts. 46.5 to ~70' TOS- Ash fall tuff - sand to conglomerate	10 20 30 40 50	50 10 20 60 60	0-46.1 minimal fracturing, restricted to seams of increased Volcanic Clay.	0-7' Slight Chloritization 7-16' Slight Chloritization w/inc. (grading) argillization rare pyrite veinlets, <1% disseminated pyrite xtals 13-21 low level bleached zone. Some white clay, some pyrite in small veinlets. boundaries of zone are sharp may be a large clast. 36 Joint, high angle, some calcite and chlorite. 33-45 Disseminated fine grained pyrite xtals. rare pyrite veinlets 1-2 mm. 46.5 Increase in chloritization	0.0 5.0 8.0 13 19.0 26.4 35.5 43.9 46.1	5.0 8.0 13 19 26.4 35.5 43.9 46.1 53.0					

HOLE NUMBER D364-99 PAGE 2 OF

ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
TOS	R	TOS 46.5-68 Ashfall Tuff Lt Green, clasts: sand to Conglomerate. Angular to subangular. Matrix supported, Matrix is silt to Clay. Clasts are weakly orientated with flow lumination in matrix. 68-85.5 Lt Green, reworked (sedimentary) ashfall tuff. Interbedded coarse with some fine grained sands. Some moderately developed grading upward (normal) sequences. 85.5-111 Light Green, fine to coarse sands, and conglomerates, clasts are dozer variable amounts of ALS. Some poorly developed grading upward sequences.	60 70 80 90 100 110 120		Pyrite - Breccia w/ silicification in 56-63 Zone of silicification w/ some Green clay fault planes. not well defined. 65 1" fault, Slickensides 45° to core axis., Clasts in Zone are oriented and stretched. Very dark green, Clasts are stained Green. 68-82 Bedding dipping about 30° weak orientation of sand grains w/ bedding. 82-112 Bedding dipping about 40°. weak orientation of sand-Conglom. clasts, rare jointing 112-115.5 Rubble zone - fault? TOS Brecciated, some white Clay and rare xtaline qtz. No Clear fault planes. Dip inferred from weak zones.	58 Small silicified zone 60 Small calcite vein discontinuous ~1/4" wide Higher chlorite to 70' Same dk green zone seen in 365 @ 66' 73-112 rare disseminated Pyrite xtals. <1% 93-120 rare disseminated pyrite xtals <1% 115-120 Core broken along weaknesses in rock. White clay coating weak zones.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
53	57.3				
57.3	61.5				
61.5	65.				
65	73				
73	83				
83	93				
93	103				
103	112				
112	115.5				
115.5	120				

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

Hecla
MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D364-99	LOCATION	REMARKS
PAGE 3 OF		NORTHING	
DATE		EASTING	
LOGGED BY		ELEVATION	
SCALE		AZIMUTH	
TOTAL DEPTH		INCLINATION	

LITH	OX/RE	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
TOS	R	**TOS** 120-164 Epiclastic coarse sand to conglomerate, Lt Green, average to slightly hard, clasts are angular to subangular and clast supported. Clasts are predominately Dozer with occassional ALS. Very little bedding is evident in this zone. ~~%~~ unk 138-152 Ocassional areas where clasts of dozer have been altered (bleached?) to the point where borders are fading. 164-179 Lt Green reworked (sedimentary?) ashfall tuff, Sand to conglomerate in a volcanic clay. Shows moderate bedding planes. Contact with epiclastic unit grades over about 6". footwall ~~%~~ unk	130 140 150 170	30 60 20 40 40 30 30 30 50 60	115-126 Ocassional fractures along weaknesses in rock. fractures are coated with white clay 126-128 Rubble zone - fault? TOS broken to ½-3" pieces. broken surfaces are coated with white clay. 128-158 Occassional fractures. Are not distinct planes but break along a weakness oriented at 30-40° to core axis. fracture sfc. coated w/ white clay use dk Blue Label w/ blue 159-162.5 Rubble zone (fault?) TOS broken to ½-3" pieces with white clay.	120-138 Rare disseminated pyrite xtals <1% increasing to >1% at 123', larger dozer clasts have pyrite blebs (microcrystalline) in the interior shadowing borders. White clay in ocassional fractures. Rare druzy Qtz coating vugs which are < ⅛" thick Chloritization decreasing. 138-159 Chloritic alteration almost absent. Slightly less but >1% microcrystalline pyrite, disseminated and within dozer clasts as blebs. 140-177 Fracture surfaces have 2-3% Marcasite xtals to 1/16", maybe replaced by pyrite. Some blades visible in x-section in other areas <1% Rare arsenopyrite xtals

ANALYTICAL DATA

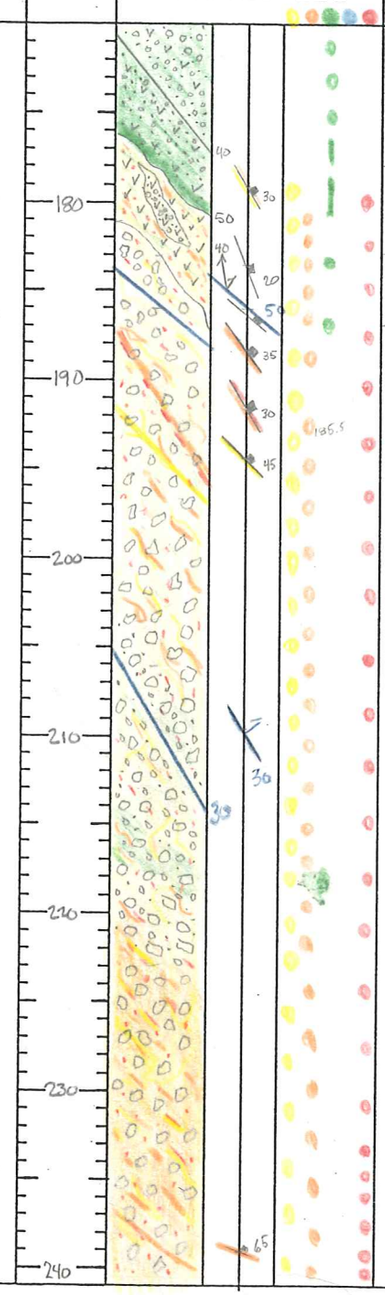
FROM	TO	W	Au	Ag	Au2	A
120	126					
126	128					
128	133					
133	138					
138	143					
143	148					
148	153					
153	159					
159	162.5					
162.5	167.5					
167.5	171.5					

HOLE NUMBER D364-99 PAGE 4 OF

LITH.	OX/RED.	LITHOLOGY
TOS	R	**TOS** 164-179 Lt Green reworked (sedimentary?) Ashfall Tuff, sand to conglomerate in volcanic clay matrix, shows moderate to well developed bedding planes (35-45°)
Dozer	R	179 **DOZER – Transitional** Contact w/ TOS, somewhat irregular but sharp (Depositional) dipping 50° to CA. 179-183 Ashfall Tuff - aphanitic, Lt Pink with some V. Lt Green zones. (may be a large dozer clast in conglomerate) 183-232 Lt Pink to Lt Green pebble to small cobble conglomerate. Clast supported with up to 10% coarse sand in matrix. Clasts up to 2-6" appear to be exclusively dozer. Bedding is absent. Some areas show a very weak clast orientation.

FT

GRAPHIC LOG

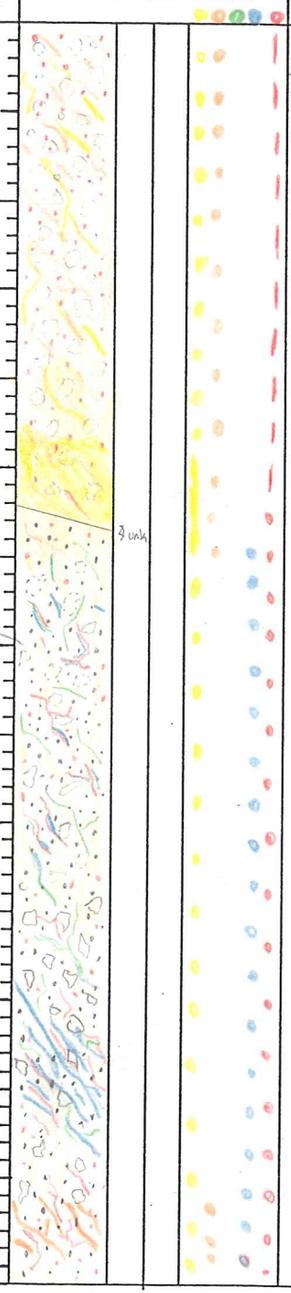


STRUCTURE	ALTERATION AND MINERALIZATION
171.5-174.5 Ashfall Tuff has none to very weak bedding - not reworked. 179-183 Poorly developed joints w/ v. small <1mm openings, Rock breaks on these with effort. ± silica ± white clay 183-185.5 Inc. joints as described above 186 Small fault - light veneer of fault gouge with slicken sides 40° to core axis. 3-5 joints parallel to flt in next 6". Some open space (vugs) to 1/8 inch. Rock on either side of fault is more bleached looking and has more white clay	176.5-179 Increasing chloritic alteration. 6" w/in DT contact is altered to soft green volcanic clay. 179-232 Weak to moderate silicification w/ weak chloritization. 1-2% disseminated microcrystalline pyrite, up to 2% v. fine Dk Grey silica veinlets. Broken surfaces have pyrite and ± marc. ± white clay. Veinlets up to 1/2 mm. Veinlets range from 1%-5% of core volume. 179-207 Rock is weakly to moderately silicified. Matrix has been replaced by SiO_2 in most of this interval. 207-217 Zone of increased chloritic alteration. disseminated microcrystalline pyrite increasing to ±5% 217-240 Chloritic alteration weak rock looks bleached and is softer but still has some silicification, microcrystalline disseminated pyrite increasing to ±5%, trace amounts of 1/2-1mm marc. xtals, disseminated. Some open fractures - not cont - inlows accross core oriented ~30-50°, ~1/16" thick, Most filled w/ white clay, ± marc blades.

ANALYTICAL DATA

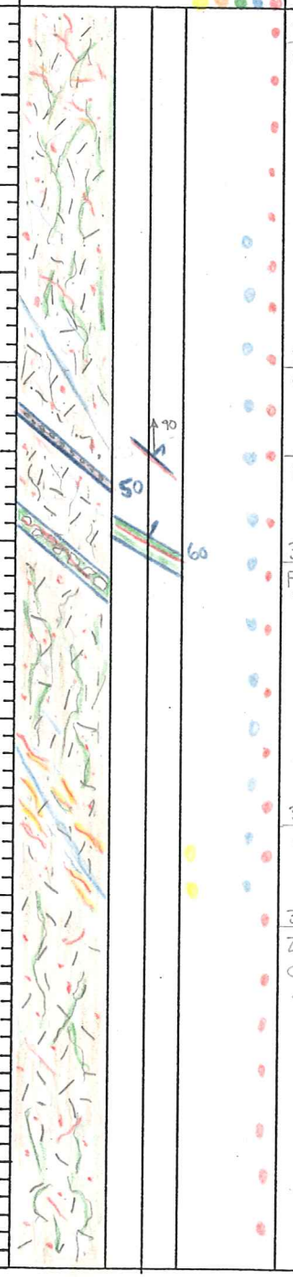
FROM	TO	W	Au	Ag	Au2
171.5	174.5				
174.5	179				
179	183				
183	185.7				
185.7	188				
188	193				
193	198				
198	203				
203	208				
208	213				
213	218				
218	223				
223	228				
228	233				
233	238				

HOLE NUMBER _____ PAGE 5 OF _____

ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
DT	R	**DOZER – TRANSITIONAL** **240 – 267** Lt Pink, Slightly hard to hard, epiclastic conglomerate. clast supported, compaction? / alteration has made clasts begin to fade. Clasts are angular to subangular 1/8" – 2". **267 - 310** **DOZER** White to slightly greenish, Average to slightly hard, aphanitic Qtz xtals ~10% visible w/microscope. Varying degrees of brecciation (auto breccia?) change symbol	250 260 270 280 290 300 310		**240 - 310** Veinlets, 30-60°, calcite and sulfides some with green clay, 1/10 - 2 mm, 2 - 5%	**240 - 252** Chloritic alteration is weak to non-existant, looks bleached and or argillized. Soft and only weakly silicified rock begins to have a "grainy" texture with qtz (relic xtals or replacement) up to 1/10 mm are pervasive – matrix appears altered to white clay, white clay filled fractures and dk grey silica veinlets continue as described above, Microcrystalline pyrite continues up to 10%. **262 - 267** Continues as described w/ increasing hardness/silicification **267 – 290** Continues – rock is slightly hard and slightly silicified, disseminated Pyr. xtals continue up to 5%, disseminated marc xtals present up to 1%. Veinlets oriented 0-40° continue, less qtz and more chloritic, Veinlets host Pyrite & marc, calcite in some veinlets **290 - 308** Continues – Brecciation increases matrix is predominantly green clay. Veinlet swarm at 297.5 oriented 30-70°, 1/10 - 2 mm, calcite + Green clay. ± Pyrite ± marc.

ANALYTICAL DATA					
FROM	TO	W	Au	Ag	Au2
238	243				
243	248				
248	253				
253	258				
258	263				
263	267.3				
267.3	272.5				
272.5	277.6				
277.6	282.6				
282.6	288				
288	293				
293	296.2				
296.	298.5				
298.5	303				
303	306				
306	308				

HOLE NUMBER D364-99 PAGE 6 OF

ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
DT	R	**DOZER** 310 – 388 White to slightly greenish, average to slightly hard, aphanitic Qtz xtals ~10% (only visible by microscope), Varying degrees of auto brecciation. Alterating degrees of crackle breccia.	320 330 340 350 360 370 380		310 – Veinlets continue as described 330 Calcite veinlet 1/8", 30° 335 Fault, 6" zone of sheared DT, Hanging wall has shear with sulfides. Slickensides 90° to CA 340 Fault, Rubble zone with green clay matrix. One shear with sulfides. 356 Calcite Veinlet 1/4" 30° with a Swarm of parallel 1/10 mm Veinlets w/ sulfides and qtz? 359-360 Zone of increased brecciation Clast supported – possibly epiclastic	308 – 318 Brecciation almost absent. Increase in pyrite + marc xtals disseminated in rock. Rock is more argillized. Rare white clay associated w/ veinlets 306-309 Veinlets – white clay 60-80° ~ 1-3 mm

ANALYTICAL DATA					
FROM	TO	W	Au	Ag	Au2
309	313				
313	318				
318	323				
323	328				
328	333				
333	334.7				
334.7	335.6				
335.6	339.1				
339.1	340.6				
340.6	343				
343	348				
348	353				
353	355.2				
355.2	358				
358	363				
363	368				
368	373				
373	378				

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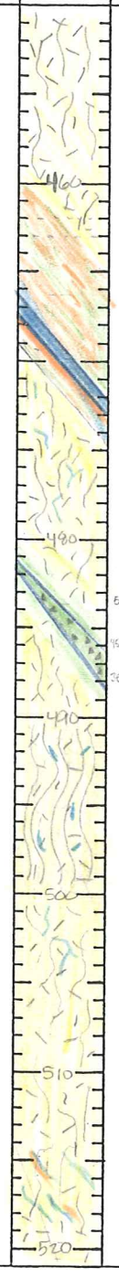
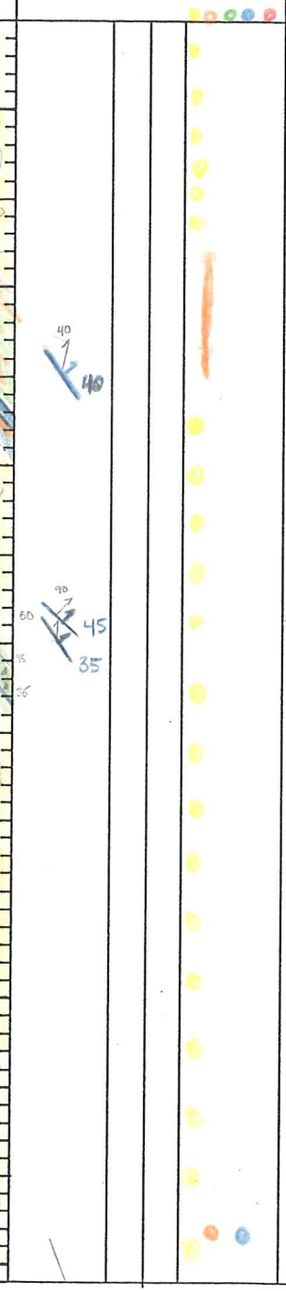
ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
DT	R	DOZER 380–450 DOZER, Slightly Greenish to pinkish, Average to slightly hard, aphanitic, qtz xtals 10-20% (visible under microscope) Varing degrees of auto brecciation and alteration Crackle to mosaic breccias. add clay veinlet Sviar m	390 400 410 420 430 440 450		388.7 - 411.6 Fault, Strongly altered to Clay, Pervasivly fractured (30-50°) filled with lime, green clay. Zones of mechanical brecciation. Some veinlets of calcite. Footwall has a 1/8 - 1/4 inch Dark grey sulfide vein. ± rare white clay coating fractures	388.7 - 411.6 Strongly argillized, Clasts and matrix altered. and soft. 411.6 - 428 Rock is bleached looking with some chloritic alteration Rock is greenish tinted, auto breccia Clasts are less chloritized 1/10 - 1mm chloritic veinlets, ± white and red stained veinlets, rare white clay 60° minor sulfides - disseminated microcrystal pyrite <2% 428 - 459 Less altered - pinkish to purplish in color, Clasts have halo of slight chloritic alteration. ± calcite veinlets have reddish staining, Some matrix in breccia zones are also stained red. Some zones of Crackle to mosaic breccia with calcite in matrix. 339 - 339.5 Zone of crackle breccia, silicified, inc w disseminated pyrite 5%, Some pyrite xtls to 1/8", Matrix has red areas (hematite?) oriented 10°

ANALYTICAL DATA

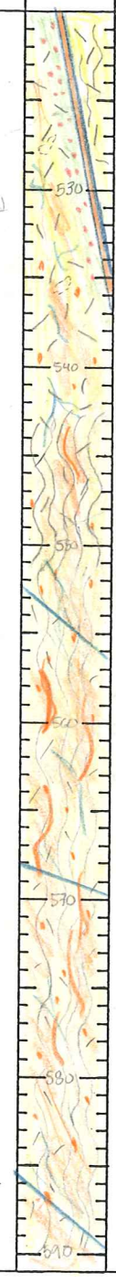
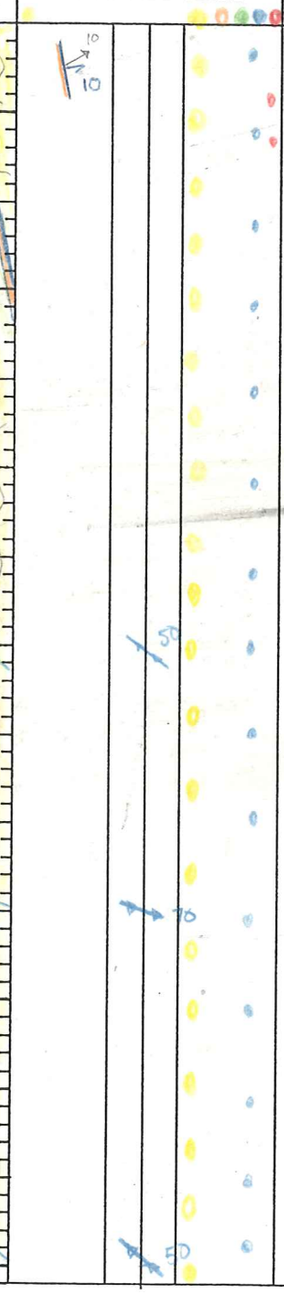
FROM	TO	W	Au	Ag	Au2
378	383				
383	388.7				
388.7	391.6				
391.6	395.6				
395.6	400				
400	404.9				
404.9	408				
408	411.6				
411.6	414.8				
414.8	418				
418	423				
423	428				
428	433				
433	438				
438	439.9				
439.9	443				
443	448				
448	—				

HOLE NUMBER D364-99 PAGE 8 OF

ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
DT	R	DOZER 453 – 520 Tuff, Mottled Purplish Gray and Lt Pink/Lt Green, average to slightly hard, aphanitic, autobrecciated, flow laminations visible from 491 – 503 roughly parallel to the core axis. not autobrecciated.			468.6 fault, 5" calcite vein in footwall, moderatly brecciated 483.9 Small fault, two fault planes with slickensides (green clay) at 50 & 90°. Zone between is not much more brecciated than other rock in this interval. Interval between planes is weakly to moderately chloritized. Minor white clay in hanging wall plane.	462 – 472 Rock strongly argillized, soft to very soft. Moderate amount of white clay. Weak to moderate chloritic alteration halo around fault. 491-503 Flow laminations parallel to axis. 506-520 Some v. small 1/10 - 1/2 mm calcite veinlets 2-6 per foot. Rare white clay

ANALYTICAL DATA					
FROM	TO	W	Au	Ag	Au2
448	453				
453	458				
458	463				
463	468				
468	470.3				
470.3	473				
473	478				
478	483				
483	485.7				
485.7	488				
488	493				
493	498				
498	503				
508	508				
508	513				
513	518				

HOLE NUMBER D364-99 PAGE 9 OF

ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
DT	R	Dozer 520-585 Dozer, Mottled purplish grey and pink or lt green average to slightly hard, aphanitic, Ash brecciated, flow lamination visible from 543-590, Not well developed			522.7 6" high angle fault w/ Green clay Slickensides and strongly brecciated abundant microcrystalline arsero- Pyrite (2-5%) and rare microcry. Sphalerite?	522.7-526 Rock within fault is strongly argillized - green clay. below footwall is weakly to moderately chloritized grading to No chloritic alteration. 520-590 Weakly Silicified, chloritic alteration only near faults as described, None to rare microcrystalline pyrite. rare 1/10 to 1/2 mm calcite Veinlets. 1-2% specular hematite xtals/staining rock almost unaltered. 543-590 578 - becomes less altered Increase in fe staining

ANALYTICAL DATA					
FROM	TO	W	Au	Ag	Au2
518	522.5				
522.5	524				
524	528				
528	532				
532	538				
538	542				
542	548				
548	552				
552	558				
558	563				
563	568				
568	573				
573	578				
578	583				
583	588				
588	593				

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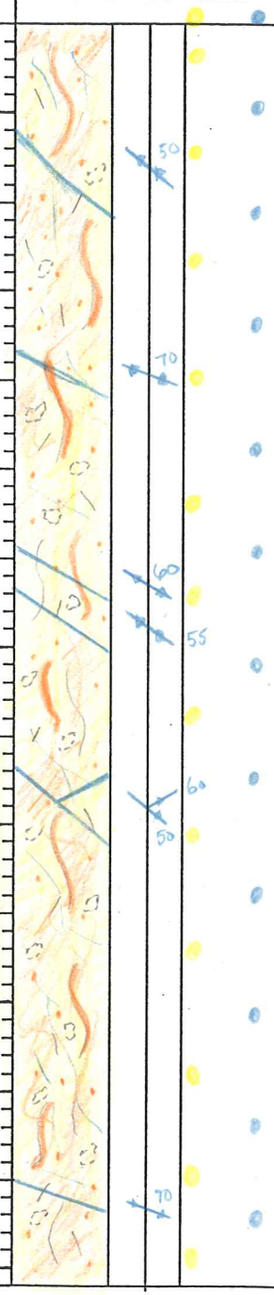
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
DT	R	DOZER 590-660 Dozer, mottled purplish grey, average to slightly hard aphanitic, weakly autobrecciated, weak flow laminations.	600 610 620 630 640 650 660		590-660 V. small calcite veinlets - 1-3/ft, 20-50°	590-660 Weakly silicified, only slight occassional chloritic alteration microcrystalline specular hematite disseminated 2-5%, Rare V. small 1/10 mm - 1/2 mm calcite veinlets, 0-1% microcrystalline disseminated calcite. Common fe staining in blebs and coincident with flow banding (weak) or autobrecciation. FeOx

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
588	593				
593	598				
598	603				
603	608				
608	613				
613	618				
618	623				
623	628				
628	633				
633	638				
638	643				
643	648				
648	653				
653	658				

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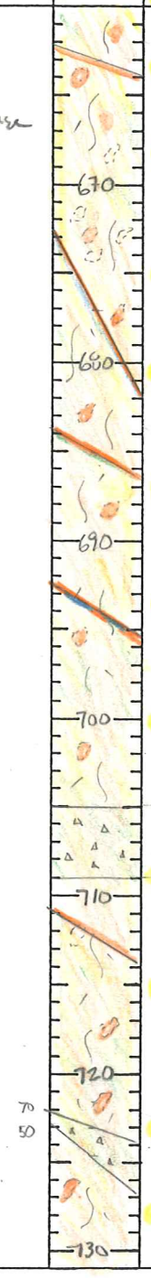
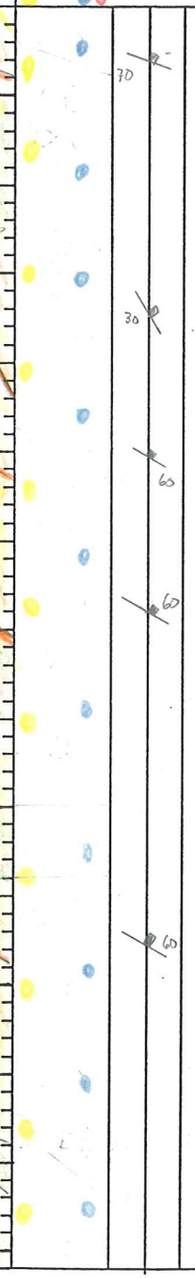
LITH.	OX/RED.	LITHOLOGY	STRUCTURE	ALTERATION AND MINERALIZATION
DT	R	**DOZER** 660-730 Mottled Greenish to purplish Grey and brown, average to slightly hard, aphanitic, weakly autobrecciated w/ zones of strong autobrecciation. Some weak flow laminations	763 Joint - Typical, Hematitic fracture coating. 685 Joint, hematitic fracture coating Some green clay coating 705 - 703.5 Crackle breccia - Clast supported w/ calcite matrix, Grades in and out of this zone w/ autobreccia 703.5 - 704.6 Crackle breccia - clast supported w/ calcite matrix, Sharp contact.	660-730 Weakly silicified, microcrystalline disseminated specular hematite ~2-5%, V. weakly calcareous w/ some <1 - 1/ft 1/10 - 1/2 mm calcite veinlets. ■ - Fe Ox

FT



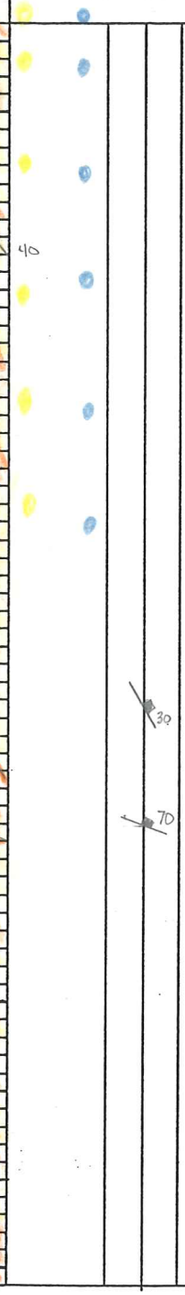
GRAPHIC LOG



ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
658	663				
663	668				
668	673				
673	678				
678	683				
683	688				
688	693				
693	698				
698	703				
703	708				
708	713				
713	718				
718	723				
723	728				

HOLE NUMBER D364-99 PAGE 12 OF

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
DT	R	**DOZER** 730-800 Mottled Greenish to purplish grey and brown, slightly hard, aphanitic, weakly autobrecciated w/zones of moderate to strong autobrecciation. Some weak flow laminations Grades to hard 750-800'			730-800 Less Jointing - 1 per 2 ft. decreasing to 1/5' near 800. Weak flow laminations 20-40°. 738-759 Breccia - mosaic Autobreccia, Some matrix supported - argillized dozer. Clasts are hematite altered grades to crackle breccia. 759-800 Autobrecciated w/6"-12" sections of mosaic breccia. Clasts are altered w/concentric patterns of FeOx. 768 Joint - Hematitic fracture coating ± calcite. 775 Same as 768	730-800 Weakly silicified, microcrystalline disseminated specular hematite ~2-5%, rare calcite veinlets

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
728	733				
733	738				
738	743				
743	748				
748	753				
753	758				
758	763				
763	768				
768	773				
773	778				
778	783				
783	788				
788	793				
793	798				
798					

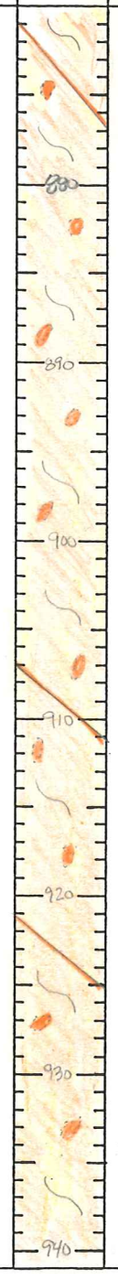
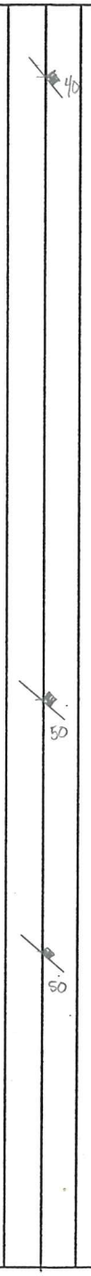
HOLE NUMBER D364-99 PAGE 13 OF

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
DT	R	DOZER 800-870 Mottled greenish to PurplishGrey and Red brown, hard aphanitic, moderately to strongly auto brecciated w/ zones of mosaic breccia. Weak flow laminations.	810 820 830 840 850 860 870	30 20 70 30	800-870 Jointing N 1/5' interval. Weak flow laminations. 30-40° 830 Joint - Hematitic fracture coating ± calcite (typical)	800-870 Silicified, microcrystalline disseminated specular hematite <1%, rare calcite veinlets. hematitic staining in concentric rings within clasts of autobreccia.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
798	803				
803	808				
808	813				
813	818				
818	823				
823	828				
828	833				
833	838				
838	843				
843	848				
848	853				
853	858				
858	863				
863	868				

HOLE NUMBER _____ PAGE 14 OF _____

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
D	R	DOZER 870-940 Mottled Greenish to purplish Grey and Red brown, hard, aphanitic, moderately to strongly autobrecciated w/ zones of 6"-12" of mosaic breccia. weak to moderately flow laminated.			870-940 Jointing ~ 1/5', weak flow laminations 30-40° 884 Joint, hematitic staining on fracture surface, ± calcite (typical)	870-940 Silicified, microcrystalline disseminated specular hematite <1%, rare calcite veinlets hematitic staining in concentric rings in clasts.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
868	873				
873	878				
878	883				
883	888				
888	893				
893	898				
898	903				
903	908				
908	913				
913	918				
918	923				
923	928				
933	933				
938	938				

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		DOZER 940-950 Mottled Greenish to purplish Grey and Red brown, 950-953 Grades to a Mottled Lt Green and Orange. 940-1010 hard, aphanitic, moderately to strongly autobrecciated w/ zones of mosaic breccia 6-12". Weak to moderate flow laminations, 960 Grades back to Greenish to purplish Grey and Red Brown	950 960 970 980 40 60 1000 1010	50 25 60 40 60	940-953 Joints, fracture coated w/hematite ± calcite 953 Joints 1/2' interval Same coating as 940 987-989 Small breccia zone - possible fault. Rock is bleached and Lt Grn colored.	940-1010 Silicified, microcrystalline Disseminated specular hematite <1%, rare calcite veinlets, hematitic staining on clasts in concentric rings 950-953 Chloritization increases in matrix, hematitic staining becomes orange. Rock appears bleached. 955-957 Some white clay in matrix <5% 987.5-991.5 Bleached, Some chlorite, Rare marcasite blades in small veinlets (discontinuous) ± calcite,

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
938	943				
943	948				
948	953				
953	955				
955	957				
957	962.4				
962.4	968				
968	973				
973	978				
978	983				
987.5	987.5				
987.5	991.5				
991.5	993				
993	998				
998	1003				
1003	1008				

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
D	R	DOZER 1010 – 1080 Mottled Greenish Grey + Orange to Red Brown, hard, aphanitic, moderately to strongly autobrecciated w/ zones of 6-12' mosaic brecciation. Weak to moderate flow laminations 1041.6 Brecciation increases, mosaic with some zones matrix supported. flow laminations not present	1020 1030 1040 1050 1060 1070		1010 – 1070 Jants – 1-2/5' interval fracture coating of hematite ± calcite	1010 – 1070 Weakly silicified, microcrystalline disseminated specular hematite 1-2%. rare calcite veinlets hematitic staining of clasts in concentric rings

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
1008	1013				
1013	1018				
1018	1023				
1023	1028				
1028	1033				
1033	1038				
1041.4	1041.8				
1041.8	1048				
1048	1053				
1053	1058				

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
D	R	DOZER 1080 - 1150 Mottled Lt Greenish Grey and red-brown, slightly hard to hard aphanitic, Mosaic autobrecciation, some flow laminations indicated by preferential alignment of Clasts.	1090 1100 1110 1120 1140 1150	30 10	1080 - 1150 Joints - ±1 per 5 feet, fracture coating of hematite, ±calcite flow banding and alignment of autobreccia clasts more pronounced - ±40° 1113 - 1118 Calcite veinlets increasing w/ ± marcasite ± Pyrite, 5-10/ft 1118 - 1021.4 Calcite veinlet swarm, 10-20/ft marcasite, ± pyrite, fine grained sulfides ± silica, Veinlets 1/10 - 1mm, Central Vein is 1-2cm. 1121.4 - 1124.3 Calcite veinlets decreasing w/ ± marc, ± Pyrite, 10-20/ft 1121.4 - 1128.5 Same 1128.5 - 1143 Calcite veinlets decreasing, Hematite fracture coated joint at 1142.	1080 - 1150 Weakly Silicified, Some Moderate Silicification in matrix of Autobreccia. <1% disseminated microcrystalline Specular hematite. Hematitic Staining in concentric rings around clasts. Rare calcite veinlets and some calcite in matrix. 1113 - 1118 Propylitized, hematite grading away ± disseminated fine grained pyrite 1118 - 1021.4 Propylitized, hematite is present but only as ghosting around auto-br. clasts., disseminated fine grained pyrite. ± fine-grained pyrite blebs. 1121.4 - 1124.3 Propylitized, ± hematite as described above, disseminated fine-grained pyrite ± fine grained pyrite blebs 1121.4 - 1128.5 Same, 1128.5 - 1143 Propylitization decreasing, hematite increasing. disseminated pyrite decreasing.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
1078	1083				
1083	1088				
1088	1093				
1093	1098				
1098	1103				
1103	1108				
1108	1113				
1113	1118				
1118	1021.4				
1124.4	1124.3				
1124.3	1128.5				
1128.5	1133				
1133	1138				
1138	1143				
1143	1148				

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
D	R	**DOZER** 1150-1220 Lt Green, slightly hard to hard, aphanitic, crackle to mosaic autobreccia w/ zones of v. weak autobreccia rare flow laminations	1160 1170 1180 1190 1210	30 30 40 20	1199 Graphitic fracture coating, some smeared pyrite 1201.7 Joint, fracture coated w/ white clay, some dark grey sulfides, ±pyrite 1208 Joint, sulfides and Green clay fracture coating. 1220 Joint, white clay fracture coating.	1153-1158 Grading from hematitic to propylitic alteration hematite alteration of breccia clasts still present but being bleached. 1158-1230 weakly to moderatly propylitized. Some areas w/ ghosts of hematite lined clasts. Weakly silicified w/ some zones of weak to moderate silicification. v. fine disseminated pyrite crystals ±2%, some blebs of v. fine pyrite xtals. 1178-1208 Zone of v. small veinlets of silica being replaced by clay. Grading from none to 5-10/ft at 1193 then 20-30/ft to 1199 where a joint crosscuts and reduces veinlets to <1/ft. to 1208.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
1148	1153				
1153	1158				
1158	1163				
1163	1168				
1168	1173				
1173	1178				
1178	1183				
1183	1188				
1188	1193				
1193	1198				
1198	1203				
1203	1208				
1208	1213				
1213	1218				

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
		Dozer 1220-1290 Same Auto brecciation nearly absent after 1230. Weakly flow banded, increasing at 1275. Rock developes flow bands & wispy - greenish clay filled voids, ~30°. (Vesicles) Lt Greenish, slightly soft., aphanitic	1230 1240 1250 1260	10 10	1221 Joint w/calcite and white clay Possible V. small breccia assoc. w/Joint 1223 White clay fracture coating on Joint 1230-1263 Auto brecciation nearly absent. Some flow banding at 40°	1230-1234 Moderately silicified Less pyrite ± calcite veinlets Slightly more hematite and less propylitization. 1234-1263 Weakly silicified, increasing pyrite and silica replaced by clay increasing, weakly to moderately propylatized.. ± calcite	1218 1223 1228 1230 1234 1238 1243 1248 1253 1258 1263 1267 1269 1272.4 1273.5 1274.6 1276.6 1278.2 1283 1286.8 1288.6 1290.5	1223 1228 1230 1234 1238 1243 1248 1253 1258 1263 1267 1269 1272.4 1273.5 1274.6 1276.6 1278.2 1283 1286.8 1288.6 1290.5				
		1269-1272.4 Hanging wall, 30°, 1/16-1/8 graphitic sulfide just below fault ± white clay, white clay/milky white clay veinlets trending 40-50° some all directions. thin to 1/8" ~5/ft, vesicles filled w/ white clay. <1% dissem. pyrite ± marc. 1272.4-1273.5 Joint @ 1272.4, 1/16th inch graphitic sulfide fracture fill. (50°) marks hanging wall of breccia zone/crush zone. white clay + Graphitic sulfides 1273.5-1274.6 Weakly to moderately argillized and propylatized, moderately aligned flattened vesicles 60°, filled w/ Green clay. ± disseminated sulfides. 1274.6-1276.6 Same as 1273.5-1274.6 and brecciated crackle grading to milled breccia at footwall. Joint at 50° w/graphitic sulfide (pyrite) ± white clay. 1276.6-1278.2 8 inches of undeformed Dozer then a crackle breccia w/ Graphitic sulfides in 2 Joints, one ~90°? and one 50°. 1278.2-1283 Same as 1273.5-1274.6, aligned at 30-40° Veinlet swarm ±15/ft, 20-50°, 1/16", Green clay and white clay ± calcite, veinlets have 5-10% sulfides. 1283-1286.8 Same w/moderate brecciation, Joint @ 1283.6 - 1/32 inch w/ graphitic sulfide fracture coating and sulfides leaching into surrounding rock, 40° Joint @ 1285, some white clay less sulfides. 1286.8-1288.6 Crackle breccia, with 70° 1/2" thick milled breccia w/ 30-40° Graphitic sulfides, at 1287.2, Rest of interval has 20% sulfides in fine grained blebs	1280 1290	30 50 70 70	1263-1269 Some Jointing at 50° ~1/ft 1269-1278.2 fault, Shears and breccia zones at 50°. Shears have Graphitic sulfides 1278-1294.5 Joints 40-70° ~1/ft Pyrite + marc?? fracture coatings, ± white clay, Some small breccia zones, Joints have evidence of some movement ie, smeared/crushed rock.	1263-1269 Weak to No silicification, devitrified silica veinlets ½-2mm, 7-15/ft and increasing, veinlets have marcasite and pyrite. Trend. 30-50° 1269-1278.2 Moderate argillization, white clay in shears and green clay filling vesicles? Graphitic sulfides in shears, fine grained sulfide blebs near shears. 1278-1294.5 Moderatly argillized and weakly propylatized, Veinlets 1/10-1mm, ~5-20/ft, milky to white clay, and ± calcite and pyrite.					

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		DOZER 1300 - 1328.4	1290 1300 1310 1320 1330 1340 1360	55 50 35 50 35 30 40 50 50 70 65 85	1288.6 - 1294.3 Milky white clay veinlets 1/32 - 1/16" ~5/ft Graphitic sulfide veinlets ~1/16 - 1/8" ~5/ft, relic vesicles w/ Green clay are less flattened. 1294.3 - 1297.3 Brecciated crackle to mosaic w/ Graphitic sulfides in fractures and blebs., Clay veinlets as described above are white clay 1297.3 - 1299.5 brecciated, 60° zones of alternating crackle to milled breccia sulfides same as 1294.3 - 1297.3 1299.5 - 1301.4 Same, 1301.4 - 1303 ~2 60° Joints, no fracture coating, 1303 - 1312.4 Joints ~5/ft 30-60° Graphitic sulfides ± 35% 1303 - 1308 and 20% 1308 - 1312.4 1312.4 - 1314.2 Breccia zone, Crackle to milled, stained w/ Graphitic sulfides. 1314.2 - 1316.9 Same as above, less brecciation ~crackle Some unbrecciated. 1316.9 - 1323 milled healed breccia, matrix supported, matrix appears to be same comp. as rock. Some sulfide blebs 1323 - 1328.4 not brecciated, possibly have autobreccia textures, Possible clay healed hydrothermal bxa at 1324.6, Green clay. brecciated at contact w/ ALS 1328.4 - 1256 Sheared along bedding planes ~5-10/ft w/ Graphite fractures, shears are 65°, Some deformation and folding. 1256 - 1257.1 fine grained intrusive,	1288.6 - 1297.3 weakly to moderally argillized and propylatized, sulfides as graphitic fracture coatings and blebs. 1297.3 - 1299.5 Same, increasing graphitic sulfides 1299.5 - 1301.4 Same, increasing graphitic sulfides in blebs. 1301.4 - 1303 More bleached appearance - propylitization decreasing, sulfides less, ~5% moderally argillized. To fine grained disseminated in blebs and aligned w/ jointing. less graphitic 1303 - 1312.4 Same w/ inc. sulfides and calcite veins up to 1/4" 30-50° ~2/ft 1312.4 - 1314.2 Same, less sulfides, ± calcite 1314.2 - 1316.9 Same 1316.9 - 1323 Inc. Propylitization to weakly to moderally. weak to moderate Argillization. ± calcite, Rock is "stained" with disseminated Graphitic sulfides in matrix of breccia 1323 - 1328.4 Same, less sulfides, some calcite ± whitclay. 1328.4 - 1256 moderally calcareous, abundant Syngenetic Qtz blebs and parallel to bedding. 1256 - 1257.1 weakly argillized, ~~tr~~ silica ± calcite Vein 2" wide ~65°, disseminated fine grained pyrite ~1%
ALS		1328.4 - ALS Phyllites, Shales + Slates Slightly hard, Dk grey to Black, fine grained, weakly to moderally calcareous, ~~dissem~~ matrix and veins to blebs.				

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
1290.5	1294.3				
1294.3	1297.3				
1297.3	1299.5				
1299.5	1301.4				
1301.4	1303				
1303	1308				
1308	1312.4				
1312.4	1314.2				
1314.2	1316.9				
1316.9	1320.5				
1320.5	1323				
1323	1326				
1326	1328.4				
1328.4	1330.5				
1330.5	1333.8				
1333.8	1338				
1338	1343				
1343	1348				
1348	1353				
1353	1356				
1356	1357.1				
1357.1	1358.9				
1358.9	1363				

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		ALS Phyllites, Shales / Slates Dark Grey to Black; Slightly hard, abundant metamorphic qtz.	1370 25 25 1390 60 55 1400 60 80 70 1420 1430 30		ALS between intr. is moderately silicified 1358.9 - 1363 Same as 1256 - 1257.1 → 11 1363 - 1364.5 Intrusive - aphanitic Pink/Beige, Some silica Mass - (mmorphic) ± calcite 1364.5 - 1380 ALS - Alternately sheared, brecciated and/or folded. Shears Parallel to bedding @ 30°. 20% brecciated intrusive (milled) 1380 - 1391.7 ALS - Same, w/o intrusive less brecciated 1391.7 - 1392.2 ALS - fractures ~1/16 - 1/8 inch apart - silica healed? but not measurably wide. 30°, appears to x-cut metamorphic qtz veins., Some silica veins are 1/16 - 3/16 wide. 1392.2 - 1396.5 ALS - Sheared along bedding ~5 to 10/ft. 1396.5 - 1408 ALS - Sheared, folded, brecciated 1408 - 1410.6 Intrusive - aphanitic Pink/beige. 1410.6 - 1414.7 ALS - Same as 1396.5 - 1408 — 11 1414.7 - 1424.7 Same as 1408 - 1410.6	1358.9 - 1363 1363 - 1364.5 Weakly to moderatly argillized. 1364.5 - 1380 Calcareous, metamorphic qtz masses / deformed veins ~20% 1380 - 1391.7 Same 1391.7 - 1392.2 Moderatly Silicified, less calcite. fine grained syngenetic Pyrite ~10% along bedding. 1392.2 - 1396.5 Calcareous, metamorphic Qtz masses and along bedding / and deformed veins 1396.5 - 1408 Calcareous, 1-2% fine-grained disseminated pyrite. 1408 - 1410.6 Weakly to moderately argillized. Some Pyrite blebs. 1410.6 - 1414.7 1414.7 - 1424.7 Weakly argillized, fine-grained disseminated pyrite blebs, minor white clay.

ANALYTICAL DATA					
FROM	TO	W	Au	Ag	Au2
1358.9	1363				
1363	1364.5				
1364.5	1368				
1368	1373				
1373	1378				
1378	1381				
1381	1386				
1386	1391.7				
1391.7	1392.2				
1392.2	1396.5				
1396.5	1397.9				
1397.9	1403				
1403	1408				
1408	1410.6				
1410.6	1414.7				
1414.7	1419.9				
1419.9	1424.7				
1424.7	1428				

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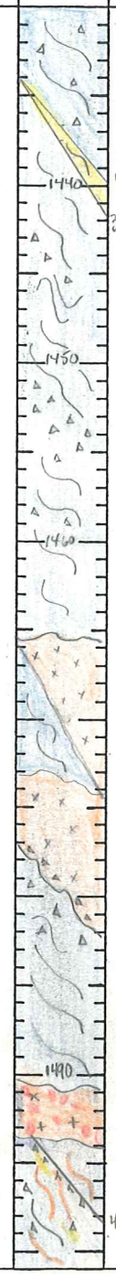
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
ALS	R	ALS Dark Grey to black, Slightly soft, Phylites, Slates, Shales. w/ metamorphic Qtz.			1424.7 - 1437.9 Same as 1396.5 - 1408 → 〃 1437.9 – 1500 ALS - sheared, folded and breccia zones., bedding where present 50°,	1424.7 - 1437.9 1437.9 – 1500 Moderatly calcareous, metamorphic Qtz veins in mass and veins parallel to bedding, ± Bar. syngenetic Pyrite.
					1465.5 - 1470 fine-grained intrusive 1/16" Veinlet swarm ~ 15-20/ft Clay w/ minor sulfides.	1465.5 - 1470 Weakly argillized, minor sulfides
					1474.5 - 1479.2 fine-grained intrusive, 1/16 - 1/8" veinlets ~2/ft at 10-20°, Clay w/ minor sulfides.	1474.5 - 1479.2 Same as 1465.5 - 1470
					1491 - 1493.7 fine-grained intrusive.	1491 - 1493.7 Weakly argillized, fine-grained disseminated pyrite 1%, ~20% pyrite blebs, minor Marcasite in white qtz veinlets
					1493.7 - 1501 2 joints at 40° w/ small milled. breccia zones ~ 1/4" thick	1493.7 - 1501 ~5% white clay filled fractures, some fine-grained pyrite blebs, moderately calcareous

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
1428	1433				
1433	1437.9				
1437.9	1438.7				
1438.7	1443				
1443	1448				
1448	1453				
1453	1458				
1458	1463				
1463	1465.5				
1465.5	1470				
1470	1474.5				
1474.5	1479.2				
1479.2	1483				
1483	1488				
1488	1491				
1491	1493.7				
1493.7	1498				
1498					

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
ALS	R	ALS Same	1510 1520 1530 1540 1550 1560 1570		1506 - 1512 Intensly sheared zone. parallel to bedding w/ boudin textures. 1519 - 1524 Rubble zone. 1524 - 1554 Sheared along bedding w/ breccia zones, bedding @ 40-60°, some folding 1554 - 1558 Open fractures 1/16" / ~ 6-10/ft Qtz crystal coating, minor white clay.	1506 - 1512 Moderately calcareous, abundant metamorphic qtz, syngenetic pyrite ~1% 1519 - 1524 Same + minor white clay. Increasing pyrite at 1522-1524 1/16" xtals up to 5% 1524 - 1554 Moderately calcareous, abundant metamorphic qtz. Minor syngenetic pyrite. 1554 - 1558 Weakly silicified

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
1498	1501				
1501	1503.8				
1503.8	1508				
1508	1512				
1512	1519				
1519	1524				
1524	1530.6				
1530.6	1533.6				
1533.6	1537.5				
1537.5	1543				
1543	1548				
1548	1553				
1553	1558				
1558	1568				

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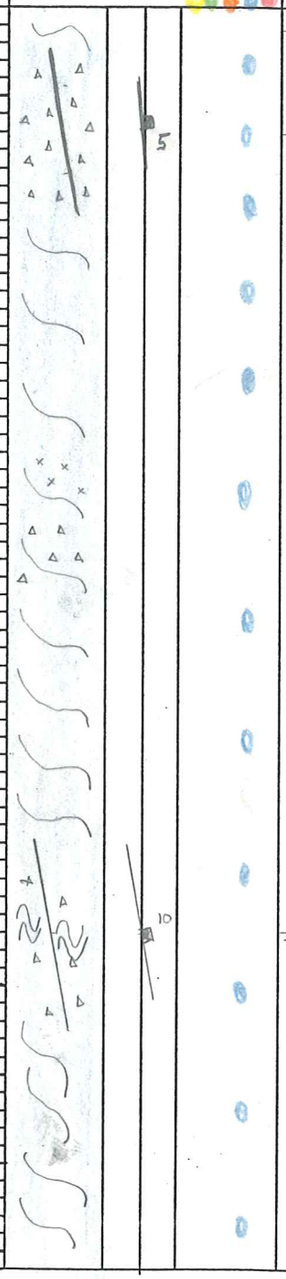
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
ALS	R	ALS Same	1580 1590 1600 1610 1620 1630 1640		1570 - 1640 Sheared and folded w/ some breccia zones, bedding 10-70° Jointing/shearing parallel to bedding bedding 60° 1577 Joint w/ assoc. mosaic to milled breccia zone. 1573.7 - 1582 bedding 50° 1622 Joint w/ parralellel bedding. Some breccia, mosaic to milled. folded bedding w/axis 20° to core bedding 10° bedding 70°	1570 - 1640 Moderately Calcareous, abundant metamorphic qtz. Some areas of weak silicification. 1577 5% v. fine grained disseminated pyrite xtals in matrix. 1% same in clasts. v. weakly silicified. 1622

ANALYTICAL DATA					
FROM	TO	W	Au	Ag	Au2
1568	1573				
1573.7	1582				
1582	1588				
1588	1597				
1597	1607.3				
1607.3	1617.5				
1617.5	1627.5				
1627.5	1638				

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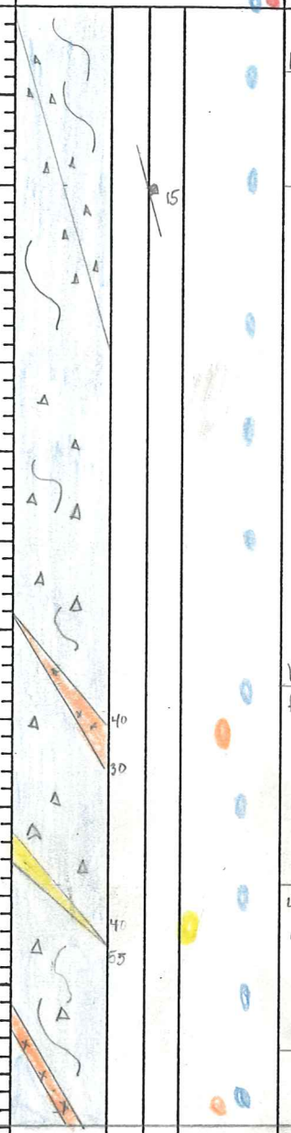
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
ALS	R	ALS Same			bedding 20° 1640 - 1703 Strongly sheared and brecciated 75%, V little bedding remains. 1650 Joint w/ assoc. breccia zone, mosaic to milled 1677 - 1678 fine-grained intrusive 1689.3 4" bounded by Joints at 40 and 50° 1702 - 1702.5 Same as 1677-78 →	1640 - 1703 Moderately calcareous, Syngenetic pyrite 1-2% 1650 5% V. fine grained disseminated pyrite xtals, V. weakly silicified 1677 - 1678 Moderately argillized. 1689.3 4" weakly to moderatly silicified zone. 1702 - 1702.5 → "	1638	1648				
							1648	1658				
							1658	1668				
							1668	1678				
							1678	1686.2				
							1686.2	1695				
							1695	1703				

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/5/99 LOGGED BY: PTL PAGE 1 OF 29

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)
0	3	2.5 83	2.6 87	1.8 60										
3	8	98	4.5 90	3.7 74										
8	13	2.6 52	2.6 52	2.6 52										
13	18	5.9 118	6 120	4.8 92										
18	23	5.1 102	5.4 108	5.1 102										
23	28	5.1 102	5.4 108	5.1 102										
28	33	2.6 52	2.6 52	2.6 52										
33	38	5 100	5 100	2.9 58										
38	43	5.8 116	5.8 116	5.5 110										
43	48	5.7 114	5.7 114	4.2 84										
48	53	2.7 54	3 60	2.1 42										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/5/99 LOGGED BY: PTL PAGE 2 OF 29

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)
53	58	3.7 74	5 100	1.5 20										
58	63	3.9 78	4.8 96	2.4 48										
63	68	5 100	5 100	3.3 66										
68	73	5 100	5 100	5 100										
73	83	100	100	100										
83	88	100	100	4.8 96										
88	93	100	100	4.8 96										
93	98	4.8 96	4.8 96	4.4 88										
98	103	100	5.1 102	4.0 80%										
103	108	100	4.9 98	3.4 68										
108	113	99	98	3.5 70										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # _____ DATE: _____ LOGGED BY: _____ PAGE 3 OF 29

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)
113	118	3.6 72	4.5 90	.9 18										
118	123	98	4.9 98	4.4 88										
123	128	4.0 80	100	2.9 58										
128	133	100	100	4.6 92										
133	138	98	4.9 98	4.9 98										
138	143	100	5 100	3.2 64										
143	148	100	5 100	4.5 90										
148	153	100	100	4.5 90										
153	158	4.4 88	4.5 90	3.2 76										
158	161.5	57	2.7 90	30										
161.5	166.5	88	4.4 88	3 80										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/8/99 LOGGED BY: PAGE 4 OF 29

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)
166.5	171.5	100	100	3.6 72										
171.5	176.5	100	100	3.4 68										
176.5	178	93	1.4 93	93										
178	183	4.9 98	4.9 98	3.2 64										
183	188	4.5 90	4.9 98	3.1 62										
188	193	96	4.8 96	3.8 78										
193	198	90	4.5 90	90										
198	203	98	5 100	2.1 42										
203	208	90	90	3.1 62										
208	213	98	100	4.1 82										
213	218	98	100	4.3 86										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D354-99 DATE: 10/8/99 LOGGED BY: PTL PAGE 5 OF 29

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)
218	223	98	4.9 98	4.3 86										
223	228	98	4.9 98	98										
228	233	98	5.2 104	100										
233	238	92	4.6 92	92										
238	243	4.8 96	102	4.3 86										
243	248	96	4.8 96	96										
248	253	96	4.8 96	4 80										
253	258	96	4.8 96	96										
258	263	94	96	3.4 68										
263	268.3	100	100	98										
268.3	272.5	111	5.2 111	5.2 100										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/10/99 LOGGED BY: PR PAGE 6 OF 29

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)
272.5	277.6	100	100	100										
277.6	282.6	104	5.2 104	100										
282.6	283	100	100	100										
283	288	100	100	100										
288	293	100	100	100										
293	303	100	100	100										
303	308	96	4.8 96	4 80										
308	313	102	5.1 102	102										
313	318	100	100	100										
318	323	102	102	102										
323	328	98	4.9 98	98										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/10/99 LOGGED BY: PTC PAGE 7 OF 29

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)
328	333	98	4.9 98	98										
333	338	96	4.8 96	4.3 86										
338	343	100	5 100	3.8 76										
343	348	98	4.9 98	98										
348	353	100	100	100										
353	358	97	97	97										
358	363	98	98	98										
363	368	102	102	100										
368	373	102	102	100										
373	378	98	98	4.4 88										
378	383	98	4.9 98	4.6 92										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/11/99 LOGGED BY: PR PAGE 8 OF 29

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)
383	388	98	4.9 98	4 80										
388	393	100	5.1 102	4.1 82										
393	398	90	4.7 94	0										
398	403	96	4.9 98	0										
403	408	90	4.7 94	0										
413	418	98	4.9 98	98										
418	423	98	98	98										
423	428	94	4.7 94	94										
428	433	102	102	100										
433	438	102	102	102										
438	443	100	5.0 100	100										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/11/99 LOGGED BY: DTL PAGE 9 OF 29

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)
443	448	98	98	98										
448	453	96	96	96										
453	458	100	100	100										
458	463	92	4.6 92	90										
463	468	96	4.8 96	3.4 68										
468	473	100	100	2.6 52										
473	478	102	5.2 102	100										
478	483	100	100	100										
483	488	92	4.6 92	3.8 76										
488	493	102	102	100										
493	498	100	100	100										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/12/99 LOGGED BY: PR PAGE 10 OF 29

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)
498	503	100	50 100	100										
503	508	100	100	100										
508	513	100	100	100										
513	518	100	100	100										
518	523	100	100	96										
523	528	90	100	3 60										
528	533	100	100	100										
533	538	100	100	100										
538	543	100	100	100										
543	548	100	100	100										
548	553	98	4.9 98	98										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/12/99 LOGGED BY: PR PAGE 11 OF 29

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)
553	558	104	5.2 104	100										
558	563	100	100	100										
563	568	100	100	100										
568	573	100	100	100										
573	578	96	96	96										
578	583	98	98	98										
583	588	100	100	100										
588	593	98	98	98										
593	598	100	100	100										
598	603	96	96	96										
603	608	90	90	90										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 10364-99 DATE: 10/12/99 LOGGED BY: PR PAGE 12 OF 29

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)
608	613	100	100	100										
613	618	100	100	100										
618	623	100	100	100										
628	633	100	100	100										
633	638	98	98	98										
638	643	100	100	100										
643	648	100	100	100										
648	653	100	100	100										
653	658	72	92	92										
	663	98	98	98										
	668	96	96	96										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D634 - 99 DATE: 10/20/99 LOGGED BY: PTL PAGE 13 OF 29

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)
668	678	96	96	96										
	683	98	98	98										
	688	96	4.8 96	96										
	693	98	98	98										
	698	100	100	100										
	703	102	102	102										
	708	98	98	98										
	713	96	96	96										
	718	100	100	100										
	723	100	100	100										
	728	100	100	100										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/20/99 LOGGED BY: PR PAGE 14 OF 29

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)
728	733	96	96	96										
	738	100	100	100										
	743	100	100	100										
	748	102	102	102										
	753	96	96	96										
	758	98	102	102										
	763	100	100	100										
	768	100	100	100										
	773	98	98	98										
	778	100	100	100										
	783	98	98	98										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/21/99 LOGGED BY: PAGE 15 OF 29

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)
783	788	100	100	100										
	793	100	100	100										
	798	102	102	102										
	803	98	98	98										
	808	98	98	98										
	813	100	100	100										
	823	96	96	96										
	828	96	96	96										
	833	100	100	100										
	838	103	103	103										
	843	96	96	96										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/21 LOGGED BY: PAGE 16 OF 29

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)
843	848	102	102	102										
	853	100	100	100										
	858	100	100	100										
	863	102	102	102										
	868	96	96	96										
	873	96	96	96										
	878	100	100	100										
	883	100	100	100										
	888	98	98	98										
	893	102	102	102										
	898	100	100	100										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/21 LOGGED BY: PAGE 17 OF 29

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)
898	903	100	100	100										
	908	98	98	98										
	913	98	98	98										
	918	100	100	100										
	923	100	100	100										
	928	100	100	100										
	933	100	100	100										
	938	100	100	100										
	943	100	100	100										
	948	102	102	102										
	953	98	98	98										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/21 LOGGED BY: PTL PAGE 19 OF 29

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)
	958	100	100	100										
	963	100	4.4 100	100										
	968	104	104	104										
	973	100	100	100										
	978	98	98	98										
	983	100	100	100										
	988	98	98	98										
	993	100	100	100										
	998	100	100	100										
	1003	100	100	100										
	1008	100	100	100										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/21 LOGGED BY: DR PAGE 19 OF 29

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)
1008	1013	100	100	100										
	1018	98	98	98										
	1023	100	100	100										
	1028	100	100	100										
	1033	100	100	100										
	1038	96	96	96										
	1043	102	102	102										
	1048	100	100	100										
	1053	96	96	96										
	1058	104	104	104										
	1063	102	3.1 102	102										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # _____ DATE: 10/21 LOGGED BY: PR PAGE 20 OF 29

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)
1063	1068		98											
1068	1073		100											
1073	1078		102											
1078	1083		98											
1083	1088		100											
1088	1093		100											
1093	1098		98											
1098	1103		100											
1103	1108		100											
1108	1113		100											
1113	1118		102											

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D264-99 DATE: 10/21 LOGGED BY: PK PAGE 21 OF 29

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)
1118	1123		102											
1123	1128		100											
1128	1133		98											
1133	1138		100											
1138	1143		100											
1143	1148		100											
1148	1153		100											
1153	1158		98											

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/23 LOGGED BY: PR PAGE 20 OF 29

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)
1163	1168		98											
1168	1173		98											
1173	1178		100											
1178	1183		100											
1183	1188		98											
1188	1193		96											
1193	1198		100											
1198	1203		100											
1203	1208		100											
1208	1213		98											
1213	1218		100											

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D34-99 DATE: 10/23 LOGGED BY: PR PAGE 21 OF 29

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)
1218	1223	100	100	40										
1223	1228	98	98	98										
1228	1233	100	100	100										
1233	1238	98	98	98										
1238	1243	102	102	102										
1243	1248	94	94	94										
1248	1253	100	100	100										
1253	1258	98	100	100										
1258	1263	96	96	96										
1263	1268		100											
1268	1273	94	96	42										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/23 LOGGED BY: PAGE 22 OF 29

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)
1273	1278	90	98	16										
1278	1283	90	98	68										
1283	1288	95	98	68										
1288	1293	95	98	86										
1293	1298	96	100	64										
1298	1303	90	100	34										
1303	1308	100	100	40										
1308	1313	100	100	32										
1313	1318	96	96	48										
1318	1323	88	88	20										
1323	1328	100	100	90										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/23 LOGGED BY: _____ PAGE 23 OF 29

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)
1328	1333	90	100	0										
1333	1338	100	100	0										
1338	1343	100	100	Ø										
1343	1348	100	98	1										
1348	1353	100	96	Ø										
1353	1358	100	100	Ø										
1358	1363	100	100	72										
1363	1368	66	100	30										
1368	1373	48	96	Ø										
1373	1378	70	100	Ø										
1378	1381	30	100 3/3	0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/26 LOGGED BY: PAGE 24 OF 29

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)
1381	1386	50	100	0										
1386	1388	100	3/2 100	0										
1388	1393	98	98	42										
1393	1398	100	100	18										
1398	1403	90	100	10										
1403	1408	92	100	0										
1408	1413	70	100	50										
1413	1418	100	100	10										
1418	1423	100	100	100										
1423	1428	92	96	36										
1428	1433	80	100	0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/26 LOGGED BY: PR PAGE 25 OF 29

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)
1433	1438	75	100	0										
1438	1443	70	100	14										
1443	1448	90	96	0										
1448	1453	90	96	22										
1453	1458	90	100	0										
1458	1463	50	4.6 100	0										
1463	1468	98	98	14										
1468	1473	90	92	24										
1473	1478	90	100	68										
1478	1483	90	98	42										
1483	1488	80	92	20										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/26 LOGGED BY: PAGE 26 OF 29

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)
1488	1493	75	100	30										
1493	1498	75	90	12										
1498	1503	60	100	10										
1503	1506.5	100	100	30										
1506.5	1511.5	90	100	0										
1511.5	1517	90	5.3 98	0										
1517	1522	20	100	0										
1522	1525.5	20	3 85	0										
1525.5	1530.5	30	100	0										
1530.5	1533.6	50	100	0										
1533.6	1537.6	30	3.6 90	0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 10/26 LOGGED BY: PK PAGE 26 OF 29

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)
1537.6	1541.5	75	98	0										
1541.5	1544.5	90	100	30										
1544.5	1548	90	98	0										
1548	1553	100	104	0										
1553	1558	85	100	0										
1558	1563	60	80	0	Lost 5' or 10' addtl earlier									
1563	1568	90	100	0										
1568	1573	94	94	0										
1573	1578	95	100	0										
1578	1583	95	100	Ø										
1583	1588	95	100	Ø										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 11/2 LOGGED BY: PTR

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)
1588	1593	95	100	Ø										
1593	1597	50	80	Ø										
1597	1602	90	100	Ø										
1602	1607.3	90	100	Ø										
1607.3	1612.5	96	96	Ø										
1612.5	1617.5	92	92	Ø										
1617.5	1622.5	90	96	0										
1622.5	1627.5	90	94	Ø										
1627.5	1633	95	97	Ø										
1633	1638	95	100	20										
1638	1643	90	100	Ø										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 11/2 LOGGED BY: DM PAGE 28 OF 29

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)
1643	1648	90	100	Ø										
1648	1653	90	4.3 100	Ø										
1653	1658	90	92	0										
1658	1663	80	100	Ø										
1663	1668	50	100	Ø										
1668	1673	70	100	Ø										
1673	1678	75	100	Ø										
1678	1682.5	75	100	Ø										
1682.5	1686.5	40	95	Ø										
1686.5	1691.5	50	90	0										
1691.5	1695	10	60	Ø										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D364-99 DATE: 11/2 LOGGED BY: PTL PAGE 29 OF 29

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)
1695	1700	40	100	Ø										
1700	1703	50	100	Ø										

INSPECTORATE

ROCKY MOUNTAIN GEOCHEMICAL

A MEMBER OF THE INSPECTORATE GROUP OF COMPANIES

840 GREG STREET • SPARKS, NEVADA 89431 • PHONE (775) 359-6311 • FAX (775) 359-2944

Certificate of Analysis

DATE: Thursday, November 11, 1999

JOB NO: 99-42-06

CLIENT: Hecla (Rosebud Mine)
P.O. Box 2610
Winnecmucca, NV 89446 US

INVOICE NO: 33100105

CLIENT ORDER NO:

REPORT ON: 3 Core

SUBMITTED BY: Kurt Allen

DATE RECIEVED: Wednesday, November 10, 1999

ANALYSES: Gold, Silver

ANALYTICAL METHODS: Fire Assay, Fire/AA

REMARKS:

CC: RMG File

E-MAILED TO:

All values are reported in parts per million unless specified otherwise. A minus sign (–) is to be read "less than" and a plus sign (+) "greater than." Values in parenthesis are estimates. This analytical report is the confidential property of the above mentioned client and for the protection of this client and ourselves we reserve the right to forbid publication or reproduction of this report or any part thereof without written permission.

ND=None Detected 1 ppm=0.0001% Troy oz./ton=34.286 ppm 1 ppm=0.0292 Troy oz./ton

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 rocks or minerals collected by the prospective investor or by a qualified person selected by him.

CLIENT: Hecla (Rosebud Mine)

JOB NO.: 99-42-06

SAMPLE NO	oz/ton Gold	oz/ton Silver
RS-D364-99 61.5-65	0.001	0.006
RS-D364-99 65-73	0.001	0.009
RS-D364-99 115.5-120	0.003	0.028

Sunday, November 14, 1999

By Krista M Rice

INSPECTORATE

INSPECTORATE AMERICA CORPORATION
840 Greg Street
Sparks, Nevada 89431
Tel:775-359-6311
Fax: 775-359-2944

16-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Attn: Kurt Allen
Project: RS-D364-99

Received: 2-Nov-99 14:32
PO #: Ref:99-39-41

Job: 993717R

Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 558-563	0.000	0.022
RS-D364-99 563-568	0.000	0.008
RS-D364-99 568-573	0.000	0.009
RS-D364-99 573-578	0.000	0.005
RS-D364-99 578-583	0.000	0.017
RS-D364-99 583-588	0.000	0.006
RS-D364-99 588-593	0.001	0.019
RS-D364-99 593-598	0.000	0.009
RS-D364-99 598-603	0.001	0.009
RS-D364-99 603-608	0.001	0.051
RS-D364-99 608-613	0.001	0.012
RS-D364-99 613-618	0.001	0.015
RS-D364-99 618-623	0.001	0.016
RS-D364-99 623-628	0.000	0.012
RS-D364-99 628-633	0.001	0.008
RS-D364-99 633-638	0.000	0.009
RS-D364-99 638-643	0.000	0.007
RS-D364-99 643-648	0.002	0.023
RS-D364-99 648-653	0.000	0.037
RS-D364-99 653-658	0.000	0.005

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16-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
56 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Attn: Kurt Allen
Project: RS-D364-99

Received: 2-Nov-99 14:32
PO #: Ref:99-39-41

Job: 993717R

Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 658-663	0.000	0.009
RS-D364-99 663-668	0.000	0.008
RS-D364-99 668-673	0.000	0.009
RS-D364-99 673-678	0.000	0.018
RS-D364-99 678-683	0.000	0.010
RS-D364-99 683-688	0.000	0.008
RS-D364-99 688-693	0.000	0.014
RS-D364-99 693-698	0.000	0.009
RS-D364-99 698-703	0.001	0.008
RS-D364-99 703-708	0.000	0.021
RS-D364-99 708-713	0.000	0.017
RS-D364-99 713-718	0.000	0.045
RS-D364-99 718-723	0.000	0.026
RS-D364-99 723-728	0.000	0.017
RS-D364-99 728-733	0.000	0.012
RS-D364-99 733-738	0.000	0.013
RS-D364-99 738-743	0.000	0.010
RS-D364-99 743-748	0.001	0.036
RS-D364-99 748-753	0.003	0.022
RS-D364-99 753-758	0.000	0.040

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Job: 993717R

Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 758-763	0.001	0.034
RS-D364-99 763-768	0.036	0.145
RS-D364-99 768-773	0.001	0.017
RS-D364-99 773-778	0.000	0.079
RS-D364-99 778-783	0.001	0.033
RS-D364-99 783-788	0.002	0.046
RS-D364-99 788-793	0.000	0.037
RS-D364-99 793-798	0.000	0.265
RS-D364-99 798-803	0.000	0.023
RS-D364-99 803-808	0.000	0.021
RS-D364-99 808-813	0.000	0.013
RS-D364-99 813-818	0.000	0.390
RS-D364-99 818-823	0.000	0.014
RS-D364-99 823-828	0.000	0.011
RS-D364-99 828-833	0.001	0.077
RS-D364-99 833-838	0.000	0.038
RS-D364-99 838-843	0.000	0.014
RS-D364-99 843-848	0.000	0.032
RS-D364-99 848-853	0.000	0.011
RS-D364-99 853-858	0.000	0.012

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Certificate of Analysis

Received: 2-Nov-99 14:32

Attn: Kurt Allen
Project: RS-D364-99

PO #: Ref:99-39-41

Job: 993717R

Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 858-863	0.000	0.007
RS-D364-99 863-868	0.000	0.016
RS-D364-99 868-873	0.000	0.008
RS-D364-99 873-878	0.000	0.015
RS-D364-99 878-883	0.000	0.006
RS-D364-99 883-888	0.000	0.014
RS-D364-99 888-893	0.000	0.011
RS-D364-99 893-898	0.000	0.016
RS-D364-99 898-903	0.000	0.015
RS-D364-99 903-908	0.000	0.014
RS-D364-99 908-913	0.000	0.008
RS-D364-99 913-918	0.000	0.012
RS-D364-99 918-923	0.000	0.010
RS-D364-99 923-928	0.000	0.013
RS-D364-99 928-933	0.002	0.015
RS-D364-99 933-938	0.000	0.012
RS-D364-99 938-943	0.000	0.010
RS-D364-99 943-948	0.000	0.008
RS-D364-99 948-953	0.000	0.011
RS-D364-99 953-955	0.000	0.013

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PO #: Ref:99-39-41

Job: 993717R

Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 955-957	0.000	0.005
RS-D364-99 957-962.4	0.000	0.008
RS-D364-99 962.4-968	0.000	0.009
RS-D364-99 968-973	0.000	0.014
RS-D364-99 973-978	0.001	0.014
RS-D364-99 978-983	0.001	0.023
RS-D364-99 983-987.5	0.001	0.015
RS-D364-99 987.5-991.5	0.000	0.011
RS-D364-99 991.5-993	0.000	0.010
RS-D364-99 993-998	0.000	0.011
RS-D364-99 998-1003	0.000	0.016
RS-D364-99 1003-1008	0.002	0.018
RS-D364-99 1008-1013	0.000	0.013
RS-D364-99 1013-1018	0.001	0.010
RS-D364-99 1018-1023	0.000	0.014
RS-D364-99 1023-1028	0.000	0.014
RS-D364-99 1028-1033	0.000	0.079
RS-D364-99 1033-1038	0.000	0.008
RS-D364-99 1038-1041.8	0.000	0.013
RS-D364-99 1041.8-1048	0.000	0.011

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16-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Attn: Kurt Allen
Project: RS-D364-99

Received: 2-Nov-99 14:32
PO #: Ref:99-39-41

Job: 993717R

Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 1048-1053	0.000	0.011
RS-D364-99 1053-1058	0.000	0.015
RS-D364-99 1058-1063	0.000	0.018
RS-D364-99 1063-1068	0.010	0.122
RS-D364-99 1068-1073	0.000	0.011
RS-D364-99 1073-1076	0.000	0.017
RS-D364-99 1076-1083	0.001	0.510
RS-D364-99 1083-1088	0.000	0.024
RS-D364-99 1088-1093	0.000	0.014
RS-D364-99 1093-1098	0.000	0.013
RS-D364-99 1098-1103	0.000	0.014
RS-D364-99 1103-1108	0.001	0.012
RS-D364-99 1108-1113	0.001	0.015
RS-D364-99 1113-1118	0.001	0.013
RS-D364-99 1118-1121.4	0.008	0.065
RS-D364-99 1121.4-1124.3	0.001	0.020
RS-D364-99 1124.3-1128.5	0.001	0.015
RS-D364-99 1128.5-1133	0.000	0.009
RS-D364-99 1133-1138	0.000	0.016
RS-D364-99 1138-1143	0.000	0.009

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16-Nov-99

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Certificate of Analysis

Attn: Kurt Allen
Received: 2-Nov-99 14:32
Project: RS-D364-99
PO #: Ref:99-39-41

Job: 993717R
Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 1143-1148	0.000	0.028
RS-D364-99 1148-1153	0.000	0.012
RS-D364-99 1153-1158	0.000	0.015
RS-D364-99 1158-1163	0.000	0.010
RS-D364-99 1163-1168	0.000	0.008
RS-D364-99 1168-1173	0.000	0.011
RS-D364-99 1173-1178	0.001	0.013
RS-D364-99 1178-1183	0.001	0.016
RS-D364-99 1183-1188	0.000	0.009
RS-D364-99 1188-1193	0.001	0.016
RS-D364-99 1193-1198	0.009	0.030
RS-D364-99 1198-1203	0.009	0.036
RS-D364-99 1203-1208	0.001	0.036
RS-D364-99 1208-1213	0.000	0.011
RS-D364-99 1213-1218	0.000	0.007
RS-D364-99 1218-1223	0.000	0.015
RS-D364-99 1223-1228	0.001	0.012
RS-D364-99 1228-1230	0.000	0.011
RS-D364-99 1230-1234	0.000	0.009
RS-D364-99 1234-1238	0.000	0.016

INSPECTORATE

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16-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Attn: Kurt Allen
Received: 2-Nov-99 14:32
Project: RS-D364-99
PO #: Ref:99-39-41

Job: 993717R
Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 1238-1243	0.000	0.024
RS-D364-99 1243-1248	0.001	0.010
RS-D364-99 1248-1253	0.001	0.010
RS-D364-99 1253-1258	0.000	0.012
RS-D364-99 1258-1263	0.001	0.032
RS-D364-99 1263-1267	0.007	0.034

STLDHS.CR5 11/16/99 13:15:50

Point	Northing	Easting	Elevation	Description
1	2,204,077.9767	481,650.8979	4,474.33	T25-1BS
100	2,204,083.1875	481,613.3999	4,455.90	367
101	2,204,084.1813	481,611.0849	4,455.86	365
102	2,204,083.9791	481,608.9906	4,457.39	355
103	2,204,083.0992	481,612.2299	4,454.96	366
104	2,204,081.9211	481,612.1134	4,455.57	364

HECLA MINING COMPANY

COEUR D'ALENE, IDAHO 83815

BY	DATE	JOB TITLE	JOB NO.
CHK.	DATE	RS-D364-99	DIVISION
DWG. NO.			SHEET OF

N32W	-31	@ 53'	328°
N34.8W	-32.5	@ 253'	325.2°
N35.3W	-33	@ 453'	324.7°
N35.3W	-33	@ 653'	324.7°
N37.3W	-34	@ 853'	322.7°
N37.3W	-34	@ 1053'	322.7°

Project to 1800'

4,455' ELEVATION

481600 E

2,204,080 N

950

@ 1" = 200'

N53W - 15.7 = N37.3W -35° @ 1453

INSPECTORATE

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840 Greg Street
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Tel:775-359-6311
Fax: 775-359-2944

11-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Received: 24-Oct-99 15:25

Attn: Kurt Allen
Project: RS-D364-99

PO #: Ref:99-37-15

Job: 993680R

Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-D364-99 0-5	0.004	0.006
RS-D364-99 5-8	0.000	0.012
RS-D364-99 8-13	0.022	0.035
RS-D364-99 13-19	0.001	0.015
RS-D364-99 19-26.4	0.002	0.050
RS-D364-99 26.4-35.5	0.002	0.023
RS-D364-99 35.5-43.9	0.007	0.035
RS-D364-99 43.9-46.1	0.002	0.026
RS-D364-99 46.1-53	0.001	0.231
RS-D364-99 53-57.3	0.000	0.009
RS-D364-99 57.3-61.5	0.000	0.003
RS-D364-99 61.5-65	MS	MS
RS-D364-99 65-73	MS	MS
RS-D364-99 73-83	0.000	0.003
RS-D364-99 83-93	0.000	0.003
RS-D364-99 93-103	0.000	0.006
RS-D364-99 103-112	0.000	0.012
RS-D364-99 112-115.5	0.001	0.032
RS-D364-99 115.5-120	MS	MS
RS-D364-99 120-126	0.001	0.015

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Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-D364-99 126-128	0.001	0.023
RS-D364-99 128-133	0.001	0.018
RS-D364-99 133-138	0.002	0.015
RS-D364-99 138-143	0.001	0.009
RS-D364-99 143-148	0.000	0.009
RS-D364-99 148-153	0.000	0.018
RS-D364-99 153-159	0.000	0.018
RS-D364-99 159-162.5	0.001	0.029
RS-D364-99 162.5-167.5	0.000	0.015
RS-D364-99 167.5-171.5	0.000	0.009
RS-D364-99 171.5-174.5	0.000	0.012
RS-D364-99 174.5-179	0.000	0.003
RS-D364-99 179-183	0.000	0.006
RS-D364-99 183-185.7	0.002	0.015
RS-D364-99 185.7-188	0.001	0.023
RS-D364-99 188-193	0.013	0.020
RS-D364-99 193-198	0.002	0.009
RS-D364-99 198-203	0.002	0.020
RS-D364-99 203-208	0.003	0.026
RS-D364-99 208-213	0.001	0.020

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Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-D364-99 213-218	0.002	0.055
RS-D364-99 218-223	0.000	0.012
RS-D364-99 223-228	0.001	0.018
RS-D364-99 228-233	0.003	0.035
RS-D364-99 233-238	0.003	0.023
RS-D364-99 238-243	0.003	0.038
RS-D364-99 243-248	0.002	0.023
RS-D364-99 248-253	0.002	0.015
RS-D364-99 253-258	0.002	0.029
RS-D364-99 258-263	0.002	0.035
RS-D364-99 263-267.3	0.002	0.041
RS-D364-99 267.3-272.5	0.001	0.020
RS-D364-99 272.5-277.6	0.001	0.012
RS-D364-99 277.6-282.6	0.001	0.009
RS-D364-99 282.6-288	0.001	0.015
RS-D364-99 288-293	0.000	0.015
RS-D364-99 293-296.2	0.001	0.012
RS-D364-99 296.2-298.5	0.001	0.015
RS-D364-99 298.5-303	0.001	0.009
RS-D364-99 303-306	0.001	0.009

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Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-D364-99 306-308	0.000	0.009
RS-D364-99 328-333	0.001	0.012
RS-D364-99 308-313	0.001	0.009
RS-D364-99 313-318	0.001	0.012
RS-D364-99 318-323	0.004	0.015
RS-D364-99 323-328	0.001	0.009
RS-D364-99 328-333	0.000	0.012
RS-D364-99 333-334.7	0.001	0.012
RS-D364-99 334.7-335.6	0.000	0.015
RS-D364-99 335.6-339.1	0.001	0.015
RS-D364-99 339.1-340.6	0.001	0.015
RS-D364-99 340.6-343	0.001	0.009
RS-D364-99 343-348	0.000	0.020
RS-D364-99 348-353	0.000	0.015
RS-D364-99 353-355.2	0.001	0.026
RS-D364-99 355.2-358	0.001	0.009
RS-D364-99 358-363	0.001	0.020
RS-D364-99 363-368	0.002	0.020
RS-D364-99 368-373	0.002	0.018
RS-D364-99 373-378	0.003	0.029

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Job: 993680R

Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-D364-99 378-383	0.001	0.020
RS-D364-99 383-388.7	0.001	0.023
RS-D364-99 388.7-391.6	0.001	0.015
RS-D364-99 391.6-395.6	0.004	0.032
RS-D364-99 395.6-400	0.001	0.018
RS-D364-99 400-404.9	0.003	0.023
RS-D364-99 404.9-408	0.001	0.015
RS-D364-99 408-411.6	0.001	0.015
RS-D364-99 411.6-414.8	0.000	0.003
RS-D364-99 414.8-418	0.001	0.006
RS-D364-99 418-423	0.000	0.006
RS-D364-99 423-428	0.000	0.009
RS-D364-99 428-433	0.000	0.003
RS-D364-99 433-438	0.000	0.006
RS-D364-99 438-439.9	0.000	0.003
RS-D364-99 439.9-443	0.000	0.003
RS-D364-99 443-448	0.000	0.003
RS-D364-99 448-453	0.000	0.003
RS-D364-99 453-458	0.000	0.009
RS-D364-99 458-463	0.000	0.009

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Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-D364-99 463-468	0.000	0.009
RS-D364-99 468-470.3	0.000	0.006
RS-D364-99 470.3-473	0.000	0.003
RS-D364-99 473-478	0.000	0.003
RS-D364-99 478-483	0.001	0.009
RS-D364-99 483-485.7	0.000	0.003
RS-D364-99 485.7-488	0.000	0.006
RS-D364-99 488-493	0.000	0.003
RS-D364-99 493-498	0.000	0.003
RS-D364-99 498-503	0.001	0.003
RS-D364-99 503-508	0.000	0.003
RS-D364-99 508-513	0.000	0.006
RS-D364-99 513-518	0.000	0.006
RS-D364-99 518-522.5	0.000	0.006
RS-D364-99 522.5-524	0.000	0.003
RS-D364-99 524-528	0.000	0.003
RS-D364-99 528-532	0.000	0.003
RS-D364-99 532-538	0.000	0.003
RS-D364-99 538-542	0.000	0.003
RS-D364-99 542-548	0.000	0.006

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Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-D364-99 548-552	0.000	0.003
RS-D364-99 552-558	0.000	0.003

Pulp

STD 75245	0.029	1.048

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Drill Core

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-D364-99 0-53	0.5	0.21	18	17	49	<1	0.55	0.7	1	25
RS-D364-99 53-103	0.2	0.33	<2	13	69	3	0.99	0.6	1	17
RS-D364-99 103-143	0.2	0.43	140	29	89	4	0.19	1.0	5	40
RS-D364-99 143-179	0.2	0.58	54	29	80	7	0.30	2.9	4	43
RS-D364-99 179-218	0.3	0.24	106	21	30	5	0.06	1.2	<1	51
RS-D364-99 218-243	0.7	0.24	159	23	27	1	0.12	1.7	<1	37
RS-D364-99 243-267.3	0.8	0.20	188	23	52	2	0.16	0.9	<1	40
RS-D364-99 267.3-293	0.3	0.29	46	22	15	<1	0.49	1.1	<1	25
RS-D364-99 293-308	0.2	0.33	33	22	18	<1	0.55	1.0	<1	29
RS-D364-99 308-333	0.1	0.29	35	21	32	<1	0.43	0.9	<1	31
RS-D364-99 333-358	0.4	0.33	38	25	19	<1	0.72	0.9	<1	35
RS-D364-99 358-388.7	0.6	0.37	103	26	19	<1	0.81	1.0	<1	35
RS-D364-99 388.7-411.6	3.6	0.44	69	21	120	3	0.87	1.1	<1	30
RS-D364-99 411.6-428	<0.1	0.43	34	20	27	1	0.70	0.9	<1	27
RS-D364-99 428-470.3	0.3	0.33	23	23	40	<1	1.36	1.2	<1	22
RS-D364-99 470.3-522.5	<0.1	0.19	2	18	16	<1	0.72	0.7	<1	11
RS-D364-99 522.5-558	<0.1	0.28	3	15	14	1	0.52	0.6	<1	11

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Drill Core

Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-D364-99 0-53	7	1.41	47	0.22	11	0.02	238	<1	1.09	2
RS-D364-99 53-103	6	1.14	120	0.36	19	0.05	536	<1	1.68	4
RS-D364-99 103-143	13	2.36	163	0.23	19	0.06	264	9	2.36	18
RS-D364-99 143-179	12	2.66	87	0.26	21	0.10	425	5	3.90	14
RS-D364-99 179-218	5	1.63	65	0.22	21	0.03	100	3	1.20	3
RS-D364-99 218-243	6	2.14	116	0.25	17	0.02	144	3	2.84	2
RS-D364-99 243-267.3	5	2.15	65	0.22	18	0.02	155	<1	1.84	2
RS-D364-99 267.3-293	4	2.04	76	0.27	25	0.02	453	<1	2.48	1
RS-D364-99 293-308	5	2.18	36	0.28	26	0.02	496	<1	2.13	1
RS-D364-99 308-333	4	1.98	36	0.29	25	0.02	363	<1	1.38	1
RS-D364-99 333-358	4	2.21	47	0.32	23	0.02	506	<1	1.56	1
RS-D364-99 358-388.7	4	2.63	51	0.32	19	0.03	531	<1	1.53	1
RS-D364-99 388.7-411.6	11	2.15	69	0.36	28	0.08	604	4	1.65	2
RS-D364-99 411.6-428	3	2.02	54	0.41	37	0.03	720	1	1.43	1
RS-D364-99 428-470.3	2	2.38	51	0.37	35	0.03	1215	<1	1.22	1
RS-D364-99 470.3-522.5	1	1.83	33	0.38	39	0.02	504	<1	0.26	<1
RS-D364-99 522.5-558	1	1.42	33	0.46	46	0.02	257	2	0.27	<1

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Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-D364-99 0-53	167	22	<2	<0.5	117	<0.01	<0.5	<2	<1	63
RS-D364-99 53-103	229	24	<2	<0.5	214	<0.01	<0.5	<2	<1	81
RS-D364-99 103-143	268	28	<2	<0.5	83	<0.01	<0.5	5	<1	104
RS-D364-99 143-179	262	36	<2	<0.5	130	<0.01	<0.5	6	<1	153
RS-D364-99 179-218	68	34	<2	4.0	68	<0.01	<0.5	<2	<1	64
RS-D364-99 218-243	56	46	<2	3.2	101	<0.01	<0.5	<2	<1	118
RS-D364-99 243-267.3	68	35	2	3.6	88	<0.01	<0.5	<2	<1	85
RS-D364-99 267.3-293	71	37	<2	<0.5	99	<0.01	<0.5	<2	<1	107
RS-D364-99 293-308	73	37	<2	<0.5	102	<0.01	<0.5	<2	<1	100
RS-D364-99 308-333	69	28	<2	<0.5	95	<0.01	<0.5	<2	<1	73
RS-D364-99 333-358	66	30	<2	<0.5	160	<0.01	<0.5	<2	<1	77
RS-D364-99 358-388.7	49	28	<2	<0.5	185	<0.01	<0.5	<2	<1	73
RS-D364-99 388.7-411.6	66	35	<2	<0.5	260	<0.01	<0.5	<2	<1	74
RS-D364-99 411.6-428	65	33	<2	<0.5	184	<0.01	<0.5	<2	<1	70
RS-D364-99 428-470.3	80	26	<2	<0.5	195	<0.01	<0.5	<2	<1	66
RS-D364-99 470.3-522.5	72	16	<2	<0.5	117	<0.01	<0.5	<2	<1	33
RS-D364-99 522.5-558	72	22	<2	<0.5	111	<0.01	<0.5	<2	<1	36

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Job: 993680R

Status: Final

Abbreviations:

Parameters:

Au	: Gold
Ag	: Silver
Al	: Aluminum
As	: Arsenic
B	: Boron
Ba	: Barium
Bi	: Bismuth
Ca	: Calcium
Cd	: Cadmium
Co	: Cobalt
Cr	: Chromium
Cu	: Copper
Fe	: Iron
Hg	: Mercury
K	: Potassium
La	: Lanthanum
Mg	: Magnesium
Mn	: Manganese
Mo	: Molybdenum
Na	: Sodium
Ni	: Nickel
P	: Phosporus
Pb	: Lead

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Status: Final

Sb	: Antimony
Se	: Selenium
Sr	: Strontium
Ti	: Titanium
Tl	: Thallium
V	: Vanadium
W	: Tungsten
Zn	: Zinc

Methods:

FA/AA	: Fire Assay/Atomic Absorption Finish
AA	: Atomic Absorption
ICP	: Inductively Coupled Plasma
HYG	: Hydride Generation

Units:

oz/ton	: ounces per ton
ppm	: Parts per million
%	: percent
ppb	: Parts per billion

Quality codes:

<	: Less than

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MS : Missing

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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: .....
Dave Francisco
Laboratory Manager

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16-Nov-99

ROSEBUD MINING COMPANY
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Certificate of Analysis

Attn: Kurt Allen
Received: 2-Nov-99 14:32
Project: RS-D364-99
PO #: Ref:99-39-41

Job: 993717R
Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 558-563	0.000	0.022
RS-D364-99 563-568	0.000	0.008
RS-D364-99 568-573	0.000	0.009
RS-D364-99 573-578	0.000	0.005
RS-D364-99 578-583	0.000	0.017
RS-D364-99 583-588	0.000	0.006
RS-D364-99 588-593	0.001	0.019
RS-D364-99 593-598	0.000	0.009
RS-D364-99 598-603	0.001	0.009
RS-D364-99 603-608	0.001	0.051
RS-D364-99 608-613	0.001	0.012
RS-D364-99 613-618	0.001	0.015
RS-D364-99 618-623	0.001	0.016
RS-D364-99 623-628	0.000	0.012
RS-D364-99 628-633	0.001	0.008
RS-D364-99 633-638	0.000	0.009
RS-D364-99 638-643	0.000	0.007
RS-D364-99 643-648	0.002	0.023
RS-D364-99 648-653	0.000	0.037
RS-D364-99 653-658	0.000	0.005

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16-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Attn: Kurt Allen
Received: 2-Nov-99 14:32
Project: RS-D364-99
PO #: Ref:99-39-41

Job: 993717R
Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 658-663	0.000	0.009
RS-D364-99 663-668	0.000	0.008
RS-D364-99 668-673	0.000	0.009
RS-D364-99 673-678	0.000	0.018
RS-D364-99 678-683	0.000	0.010
RS-D364-99 683-688	0.000	0.008
RS-D364-99 688-693	0.000	0.014
RS-D364-99 693-698	0.000	0.009
RS-D364-99 698-703	0.001	0.008
RS-D364-99 703-708	0.000	0.021
RS-D364-99 708-713	0.000	0.017
RS-D364-99 713-718	0.000	0.045
RS-D364-99 718-723	0.000	0.026
RS-D364-99 723-728	0.000	0.017
RS-D364-99 728-733	0.000	0.012
RS-D364-99 733-738	0.000	0.013
RS-D364-99 738-743	0.000	0.010
RS-D364-99 743-748	0.001	0.036
RS-D364-99 748-753	0.003	0.022
RS-D364-99 753-758	0.000	0.040

INSPECTORATE

INSPECTORATE AMERICA CORPORATION
840 Greg Street
Sparks, Nevada 89431
Tel:775-359-6311
Fax: 775-359-2944

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Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 758-763	0.001	0.034
RS-D364-99 763-768	0.036	0.145
RS-D364-99 768-773	0.001	0.017
RS-D364-99 773-778	0.000	0.079
RS-D364-99 778-783	0.001	0.033
RS-D364-99 783-788	0.002	0.046
RS-D364-99 788-793	0.000	0.037
RS-D364-99 793-798	0.000	0.265
RS-D364-99 798-803	0.000	0.023
RS-D364-99 803-808	0.000	0.021
RS-D364-99 808-813	0.000	0.013
RS-D364-99 813-818	0.000	0.390
RS-D364-99 818-823	0.000	0.014
RS-D364-99 823-828	0.000	0.011
RS-D364-99 828-833	0.001	0.077
RS-D364-99 833-838	0.000	0.038
RS-D364-99 838-843	0.000	0.014
RS-D364-99 843-848	0.000	0.032
RS-D364-99 848-853	0.000	0.011
RS-D364-99 853-858	0.000	0.012

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Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 858-863	0.000	0.007
RS-D364-99 863-868	0.000	0.016
RS-D364-99 868-873	0.000	0.008
RS-D364-99 873-878	0.000	0.015
RS-D364-99 878-883	0.000	0.006
RS-D364-99 883-888	0.000	0.014
RS-D364-99 888-893	0.000	0.011
RS-D364-99 893-898	0.000	0.016
RS-D364-99 898-903	0.000	0.015
RS-D364-99 903-908	0.000	0.014
RS-D364-99 908-913	0.000	0.008
RS-D364-99 913-918	0.000	0.012
RS-D364-99 918-923	0.000	0.010
RS-D364-99 923-928	0.000	0.013
RS-D364-99 928-933	0.002	0.015
RS-D364-99 933-938	0.000	0.012
RS-D364-99 938-943	0.000	0.010
RS-D364-99 943-948	0.000	0.008
RS-D364-99 948-953	0.000	0.011
RS-D364-99 953-955	0.000	0.013

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Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 955-957	0.000	0.005
RS-D364-99 957-962.4	0.000	0.008
RS-D364-99 962.4-968	0.000	0.009
RS-D364-99 968-973	0.000	0.014
RS-D364-99 973-978	0.001	0.014
RS-D364-99 978-983	0.001	0.023
RS-D364-99 983-987.5	0.001	0.015
RS-D364-99 987.5-991.5	0.000	0.011
RS-D364-99 991.5-993	0.000	0.010
RS-D364-99 993-998	0.000	0.011
RS-D364-99 998-1003	0.000	0.016
RS-D364-99 1003-1008	0.002	0.018
RS-D364-99 1008-1013	0.000	0.013
RS-D364-99 1013-1018	0.001	0.010
RS-D364-99 1018-1023	0.000	0.014
RS-D364-99 1023-1028	0.000	0.014
RS-D364-99 1028-1033	0.000	0.079
RS-D364-99 1033-1038	0.000	0.008
RS-D364-99 1038-1041.8	0.000	0.013
RS-D364-99 1041.8-1048	0.000	0.011

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Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 1048-1053	0.000	0.011
RS-D364-99 1053-1058	0.000	0.015
RS-D364-99 1058-1063	0.000	0.018
RS-D364-99 1063-1068	0.010	0.122
RS-D364-99 1068-1073	0.000	0.011
RS-D364-99 1073-1076	0.000	0.017
RS-D364-99 1076-1083	0.001	0.510
RS-D364-99 1083-1088	0.000	0.024
RS-D364-99 1088-1093	0.000	0.014
RS-D364-99 1093-1098	0.000	0.013
RS-D364-99 1098-1103	0.000	0.014
RS-D364-99 1103-1108	0.001	0.012
RS-D364-99 1108-1113	0.001	0.015
RS-D364-99 1113-1118	0.001	0.013
RS-D364-99 1118-1121.4	0.008	0.065
RS-D364-99 1121.4-1124.3	0.001	0.020
RS-D364-99 1124.3-1128.5	0.001	0.015
RS-D364-99 1128.5-1133	0.000	0.009
RS-D364-99 1133-1138	0.000	0.016
RS-D364-99 1138-1143	0.000	0.009

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Job: 993717R

Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 1143-1148	0.000	0.028
RS-D364-99 1148-1153	0.000	0.012
RS-D364-99 1153-1158	0.000	0.015
RS-D364-99 1158-1163	0.000	0.010
RS-D364-99 1163-1168	0.000	0.008
RS-D364-99 1168-1173	0.000	0.011
RS-D364-99 1173-1178	0.001	0.013
RS-D364-99 1178-1183	0.001	0.016
RS-D364-99 1183-1188	0.000	0.009
RS-D364-99 1188-1193	0.001	0.016
RS-D364-99 1193-1198	0.009	0.030
RS-D364-99 1198-1203	0.009	0.036
RS-D364-99 1203-1208	0.001	0.036
RS-D364-99 1208-1213	0.000	0.011
RS-D364-99 1213-1218	0.000	0.007
RS-D364-99 1218-1223	0.000	0.015
RS-D364-99 1223-1228	0.001	0.012
RS-D364-99 1228-1230	0.000	0.011
RS-D364-99 1230-1234	0.000	0.009
RS-D364-99 1234-1238	0.000	0.016

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Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 1238-1243	0.000	0.024
RS-D364-99 1243-1248	0.001	0.010
RS-D364-99 1248-1253	0.001	0.010
RS-D364-99 1253-1258	0.000	0.012
RS-D364-99 1258-1263	0.001	0.032
RS-D364-99 1263-1267	0.007	0.034

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Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-D364-99 558-608	0.4	0.27	2	25	35	1	0.48	0.8	<1	22
RS-D364-99 608-663	1.4	0.32	<2	24	52	<1	0.36	<0.5	<1	17
RS-D364-99 663-713	1.7	0.36	<2	25	46	<1	0.42	<0.5	<1	18
RS-D364-99 713-763	2.5	0.35	<2	26	47	<1	0.42	<0.5	<1	16
RS-D364-99 763-813	2.0	0.26	<2	29	40	1	0.29	<0.5	<1	21
RS-D364-99 813-863	2.2	0.27	<2	30	28	<1	0.28	<0.5	<1	18
RS-D364-99 863-913	2.3	0.25	<2	30	25	<1	0.25	<0.5	<1	28
RS-D364-99 913-957	2.0	0.29	<2	31	26	<1	0.27	<0.5	<1	14
RS-D364-99 957-1008	2.0	0.29	<2	26	31	<1	0.37	<0.5	<1	19
RS-D364-99 1008-1058	1.9	0.25	2	25	28	<1	0.42	<0.5	<1	13
RS-D364-99 1058-1103	4.2	0.27	<2	23	62	<1	0.39	<0.5	<1	20
RS-D364-99 1103-1153	2.3	0.47	6	28	33	1	0.55	<0.5	<1	14
RS-D364-99 1153-1213	2.1	0.51	9	27	26	3	0.35	<0.5	<1	14
RS-D364-99 1213-1267	2.3	0.48	2	23	68	4	0.61	<0.5	<1	10

Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-D364-99 558-608	4	1.33	108	0.54	75	0.01	113	2	0.21	<1

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Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-D364-99 608-663	6	1.29	37	0.42	50	0.01	257	2	0.25	1
RS-D364-99 663-713	3	1.45	34	0.40	49	0.01	587	3	0.46	<1
RS-D364-99 713-763	3	1.60	67	0.41	52	0.01	586	4	0.51	1
RS-D364-99 763-813	4	1.63	63	0.37	51	0.02	129	5	0.48	<1
RS-D364-99 813-863	4	1.73	60	0.34	52	0.03	220	5	0.40	1
RS-D364-99 863-913	4	1.81	56	0.31	50	0.03	237	5	0.49	<1
RS-D364-99 913-957	3	1.79	37	0.37	51	0.03	135	5	0.45	1
RS-D364-99 957-1008	4	1.50	82	0.39	50	0.02	141	5	0.46	<1
RS-D364-99 1008-1058	2	1.39	116	0.38	50	0.02	99	4	0.30	<1
RS-D364-99 1058-1103	3	1.22	60	0.38	48	0.02	138	3	0.27	<1
RS-D364-99 1103-1153	3	1.74	49	0.39	45	0.03	348	7	0.60	<1
RS-D364-99 1153-1213	3	1.60	52	0.41	43	0.03	174	4	0.59	<1
RS-D364-99 1213-1267	8	1.45	138	0.45	42	0.03	214	3	0.64	<1

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-D364-99 558-608	69	25	<2	<0.5	71	0.01	<0.5	<2	<1	58
RS-D364-99 608-663	52	21	<2	<0.5	71	0.01	<0.5	<2	<1	56

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Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-D364-99 663-713	57	23	<2	<0.5	69	0.01	<0.5	<2	<1	70
RS-D364-99 713-763	55	21	<2	<0.5	66	0.02	<0.5	<2	<1	74
RS-D364-99 763-813	60	14	<2	<0.5	56	0.02	<0.5	<2	<1	75
RS-D364-99 813-863	58	15	<2	<0.5	62	0.02	<0.5	<2	<1	71
RS-D364-99 863-913	51	15	<2	<0.5	64	0.02	<0.5	<2	<1	78
RS-D364-99 913-957	55	18	<2	<0.5	73	0.02	<0.5	<2	<1	77
RS-D364-99 957-1008	52	18	<2	<0.5	73	0.01	<0.5	<2	<1	73
RS-D364-99 1008-1058	52	14	<2	<0.5	97	0.02	<0.5	<2	<1	59
RS-D364-99 1058-1103	53	16	<2	<0.5	82	0.01	<0.5	<2	<1	56
RS-D364-99 1103-1153	42	24	<2	<0.5	97	0.01	<0.5	<2	<1	79
RS-D364-99 1153-1213	51	24	<2	<0.5	79	<0.01	<0.5	<2	<1	79
RS-D364-99 1213-1267	51	24	<2	<0.5	122	<0.01	<0.5	<2	<1	82

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PO #: Ref:99-39-41

Job: 993717R
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Abbreviations:

Parameters:

Au	: Gold
Ag	: Silver
Al	: Aluminum
As	: Arsenic
B	: Boron
Ba	: Barium
Bi	: Bismuth
Ca	: Calcium
Cd	: Cadmium
Co	: Cobalt
Cr	: Chromium
Cu	: Copper
Fe	: Iron
Hg	: Mercury
K	: Potassium
La	: Lanthanum
Mg	: Magnesium
Mn	: Manganese
Mo	: Molybdenum
Na	: Sodium
Ni	: Nickel
P	: Phosporus
Pb	: Lead

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Sb	: Antimony
Se	: Selenium
Sr	: Strontium
Ti	: Titanium
Tl	: Thallium
V	: Vanadium
W	: Tungsten
Zn	: Zinc

Methods:

FA/AA/AAS	: Fire Assay/Atomic Absorption Finish
AA	: Atomic Absorption
ICP	: Inductively Coupled Plasma
HYG	: Hydride Generation

Units:

oz/ton	: ounces per ton
ppm	: Parts per million
%	: percent
ppb	: Parts per billion

Quality codes:

<	: Less than

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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:

.....

Dave Francisco
Laboratory Manager

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4-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Attn: Kurt Allen
Project: RS-D364-99

Received: 26-Oct-99 14:45
PO #: Ref: 99-39-02

Job: 993695R

Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA ppm	Ag AA oz/ton
RS-D364-99 1267-1269	0.011	1.7	0.050
RS-D364-99 1269-1272.4	0.013	1.5	0.044
RS-D364-99 1272.4-1273.5	<0.005	1.3	0.038
RS-D364-99 1273.5-1274.6	<0.005	0.6	0.018
RS-D364-99 1274.6-1276.6	<0.005	1.0	0.029
RS-D364-99 1276.6-1278.2	<0.005	1.2	0.035
RS-D364-99 1278.2-1283	<0.005	0.7	0.020
RS-D364-99 1283-1286.6	0.010	1.2	0.035
RS-D364-99 1286.6-1288.6	<0.005	1.2	0.035
RS-D364-99 1288.6-1290.5	<0.005	1.1	0.032
RS-D364-99 1290.5-1294.3	<0.005	0.8	0.023
RS-D364-99 1294.3-1297.3	<0.005	0.8	0.023
RS-D364-99 1297.3-1299.5	<0.005	0.7	0.020
RS-D364-99 1299.5-1301.4	<0.005	0.9	0.026
RS-D364-99 1301.4-1303	<0.005	0.5	0.015
RS-D364-99 1303-1308	<0.005	2.8	0.082
RS-D364-99 1308-1312.4	<0.005	2.9	0.085
RS-D364-99 1312.4-1314.2	<0.005	3.1	0.091
RS-D364-99 1314.2-1316.9	<0.005	1.8	0.053
RS-D364-99 1316.9-1320.5	<0.005	0.5	0.015

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PO #: Ref: 99-39-02

Job: 993695R
Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA ppm	Ag AA oz/ton
RS-D364-99 1320.5-1323	<0.005	0.8	0.023
RS-D364-99 1323-1326	<0.005	0.6	0.018
RS-D364-99 1326-1328.4	<0.005	0.2	0.006
RS-D364-99 1328.4-1330.5	<0.005	1.6	0.047
RS-D364-99 1330.5-1333.8	0.034	1.5	0.044

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INSPECTORATE AMERICA CORPORATION
840 Greg Street
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Fax: 775-359-2944

4-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Attn: Kurt Allen
Project: RS-D364-99

Received: 26-Oct-99 14:45
PO #: Ref: 99-39-02

Job: 993695R

Status: Final

Drill Core

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-D364-99 1267-1278.2	1.0	0.59	86	18	32	1	0.77	<0.5	<1	30
RS-D364-99 1278.2-1297.3	0.8	0.49	53	20	126	<1	1.12	<0.5	<1	10
RS-D364-99 1297.3-1314.2	1.7	0.47	20	19	139	<1	1.35	0.5	<1	11
RS-D364-99 1314.2-1328.4	0.4	0.42	34	14	217	<1	0.82	<0.5	<1	12
RS-D364-99 1328.4-1333.8	1.8	0.21	43	25	97	2	2.83	3.7	6	23

Sample Id	Cu ICP ppm	Fe ICP %	Hg ICP ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-D364-99 1267-1278.2	18	1.17	30	0.37	19	0.04	480	5	3.12	1
RS-D364-99 1278.2-1297.3	34	1.60	19	0.36	17	0.05	647	8	3.00	1
RS-D364-99 1297.3-1314.2	3	1.55	19	0.35	14	0.04	417	96	2.81	<1
RS-D364-99 1314.2-1328.4	4	0.97	30	0.38	25	0.04	251	11	1.89	3
RS-D364-99 1328.4-1333.8	33	2.10	42	0.15	2	0.16	288	35	12.34	44

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-D364-99 1267-1278.2	41	28	2	<0.5	232	<0.01	<0.5	<2	<1	88

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Project: RS-D364-99

Received: 26-Oct-99 14:45
PO #: Ref: 99-39-02

Job: 993695R

Status: Final

Drill Core

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-D364-99 1278.2-1297.3	51	33	3	<0.5	289	<0.01	<0.5	<2	<1	88
RS-D364-99 1297.3-1314.2	29	20	4	<0.5	405	<0.01	<0.5	<2	<1	79
RS-D364-99 1314.2-1328.4	47	19	2	1.2	317	<0.01	<0.5	<2	<1	63
RS-D364-99 1328.4-1333.8	798	26	12	<0.5	398	<0.01	<0.5	8	<1	243

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Certificate of Analysis

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Project: RS-D364-99

Received: 26-Oct-99 14:45
PO #: Ref: 99-39-02

Job: 993695R

Status: Final

Abbreviations:

Parameters:

Ag	: Silver
Al	: Aluminum
As	: Arsenic
B	: Boron
Ba	: Barium
Bi	: Bismuth
Ca	: Calcium
Cd	: Cadmium
Co	: Cobalt
Cr	: Chromium
Cu	: Copper
Fe	: Iron
Hg	: Mercury
K	: Potassium
La	: Lanthanum
Mg	: Magnesium
Mn	: Manganese
Mo	: Molybdenum
Na	: Sodium
Ni	: Nickel
P	: Phosporus
Pb	: Lead
Sb	: Antimony

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Project: RS-D364-99
PO #: Ref: 99-39-02

Job: 993695R
Status: Final

Se	: Selenium
Sr	: Strontium
Ti	: Titanium
Tl	: Thallium
V	: Vanadium
W	: Tungsten
Zn	: Zinc
Au	: Gold

Methods:

ICP	: Inductively Coupled Plasma
FA/AA	: Fire Assay/Atomic Absorption Finish
AA	: Atomic Absorption

Units:

ppm	: Parts per million
%	: percent
ppb	: Parts per billion
oz/ton	: ounces per ton

Quality codes:

<	: Less than

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PO #: Ref: 99-39-02

Job: 993695R
Status: Final

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:

.....
Dave Francisco
Laboratory Manager

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22-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Attn: Kurt Allen
Received: 12-Nov-99 15:51
Project: RS-D364-99
PO #: Ref:99-42-34

Job: 993763R
Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 1333.8-1338	0.001	0.017
RS-D364-99 1338-1343	0.001	0.035
RS-D364-99 1343-1348	0.001	0.011
RS-D364-99 1348-1353	0.001	0.021
RS-D364-99 1353-1356	0.000	0.019
RS-D364-99 1356-1357.1	0.000	0.015
RS-D364-99 1357.1-1358.9	0.000	0.014
RS-D364-99 1358.9-1363	0.000	0.006
RS-D364-99 1363-1364.5	0.000	0.012
RS-D364-99 1364.5-1368	0.001	0.032
RS-D364-99 1368-1373	0.001	0.025
RS-D364-99 1373-1378	0.001	0.051
RS-D364-99 1378-1381	0.001	0.049
RS-D364-99 1381-1386	0.000	0.047
RS-D364-99 1386-1391.7	0.000	0.031
RS-D364-99 1391.7-1392.2	0.000	0.034
RS-D364-99 1392.2-1396.5	0.002	0.109
RS-D364-99 1396.5-1397.9	0.003	0.025
RS-D364-99 1397.9-1403	0.001	0.042
RS-D364-99 1403-1408	0.001	0.056

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Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 1408-1410.6	0.002	0.022
RS-D364-99 1410.6-1414.7	0.000	0.074
RS-D364-99 1414.7-1419.9	0.000	0.030
RS-D364-99 1419.9-1424.7	0.000	0.011
RS-D364-99 1424.7-1428	0.000	0.036
RS-D364-99 1428-1433	0.001	0.033
RS-D364-99 1433-1437.9	0.000	0.040
RS-D364-99 1437.9-1438.7	0.000	0.005
RS-D364-99 1438.7-1443	0.000	0.027
RS-D364-99 1443-1448	0.001	0.042
RS-D364-99 1448-1453	0.003	0.038
RS-D364-99 1453-1458	0.001	0.042
RS-D364-99 1458-1463	0.000	0.056
RS-D364-99 1463-1465.5	0.000	0.039
RS-D364-99 1465.5-1470	0.002	0.018
RS-D364-99 1470-1475.5	0.000	0.048
RS-D364-99 1475.5-1479.2	0.004	0.037
RS-D364-99 1479.2-1483	0.002	0.025
RS-D364-99 1483-1488	0.000	0.047
RS-D364-99 1488-1491	0.001	0.064

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Job: 993763R
Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 1491-1493.7	0.010	0.027
RS-D364-99 1493.7-1498	0.002	0.032
RS-D364-99 1498-1501	0.001	0.025
RS-D364-99 1501-1503.8	0.001	0.006
RS-D364-99 1503.8-1508	0.000	0.048
RS-D364-99 1508-1512	0.000	0.017
RS-D364-99 1512-1519	0.001	0.011
RS-D364-99 1519-1524	0.001	0.016
RS-D364-99 1524-1530.6	0.002	0.027
RS-D364-99 1530.6-1533.6	0.003	0.078
RS-D364-99 1533.6-1537.5	0.000	0.024
RS-D364-99 1537.5-1543	0.001	0.033
RS-D364-99 1543-1548	0.000	0.018
RS-D364-99 1548-1553	0.000	0.078
RS-D364-99 1553-1558	0.004	0.046
RS-D364-99 1558-1568	0.002	0.051
RS-D364-99 1568-1573	0.001	0.060
RS-D364-99 1573-1582	0.001	0.035
RS-D364-99 1582-1588	0.000	0.037
RS-D364-99 1588-1597	0.001	0.028

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Project: RS-D364-99
PO #: Ref:99-42-34

Job: 993763R
Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Ag AA oz/ton
RS-D364-99 1597-1607.3	0.000	0.009
RS-D364-99 1607.3-1617.5	0.000	0.006
RS-D364-99 1617.5-1627.5	0.000	0.011
RS-D364-99 1627.5-1638	0.000	0.017
RS-D364-99 1638-1648	0.000	0.028
RS-D364-99 1648-1658	0.001	0.051
RS-D364-99 1658-1668	0.000	0.011
RS-D364-99 1668-1678	0.000	0.012
RS-D364-99 1678-1686.2	0.000	0.006
RS-D364-99 1686.2-1695	0.000	0.011
RS-D364-99 1695-1703	0.001	0.024

Pulp

STD # 75225	0.116	2.160

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Job: 993763R
Status: Final

Drill Core

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-D364-99 1333.8-1392.2	1.0	0.20	39	27	171	<1	6.14	7.4	8	19
RS-D364-99 1392.2-1443	1.6	0.25	80	26	190	<1	5.79	7.4	5	17
RS-D364-99 1443-1493.7	1.5	0.32	157	36	136	<1	2.22	10.1	7	66
RS-D364-99 1493.7-1548	1.2	0.23	85	30	186	<1	5.03	7.2	7	53
RS-D364-99 1548-1597	1.9	0.20	101	31	135	3	6.81	1.3	10	40
RS-D364-99 1597-1658	1.2	0.14	42	31	147	<1	7.48	1.6	9	17
RS-D364-99 1658-1703	0.6	0.35	34	38	140	<1	4.72	1.5	13	32

Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-D364-99 1333.8-1392.2	33	1.86	55	0.13	2	1.15	225	27	4.79	47
RS-D364-99 1392.2-1443	33	1.82	55	0.19	3	0.83	270	28	5.51	38
RS-D364-99 1443-1493.7	48	2.53	76	0.24	3	0.27	297	29	6.71	44
RS-D364-99 1493.7-1548	36	1.89	45	0.21	3	0.41	233	31	4.84	41
RS-D364-99 1548-1597	28	2.12	28	0.19	4	0.78	163	40	0.91	42
RS-D364-99 1597-1658	30	2.07	31	0.13	2	1.09	185	36	1.21	50
RS-D364-99 1658-1703	39	2.73	28	0.14	3	0.93	403	10	0.90	35

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Job: 993763R
Status: Final

Drill Core

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-D364-99 1333.8-1392.2	714	21	8	1.5	640	<0.01	<0.5	14	<1	418
RS-D364-99 1392.2-1443	626	24	7	1.4	0	<0.01	<0.5	13	<1	488
RS-D364-99 1443-1493.7	634	34	12	7.2	362	<0.01	<0.5	12	<1	603
RS-D364-99 1493.7-1548	731	27	7	4.2	612	<0.01	<0.5	8	<1	435
RS-D364-99 1548-1597	899	22	5	<0.5	659	<0.01	<0.5	6	<1	96
RS-D364-99 1597-1658	937	24	7	<0.5	703	<0.01	<0.5	7	<1	116
RS-D364-99 1658-1703	993	31	5	<0.5	542	<0.01	<0.5	8	<1	91

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PO #: Ref:99-42-34

Job: 993763R
Status: Final

Abbreviations:

Parameters:

Au	: Gold
Ag	: Silver
Al	: Aluminum
As	: Arsenic
B	: Boron
Ba	: Barium
Bi	: Bismuth
Ca	: Calcium
Cd	: Cadmium
Co	: Cobalt
Cr	: Chromium
Cu	: Copper
Fe	: Iron
Hg	: Mercury
K	: Potassium
La	: Lanthanum
Mg	: Magnesium
Mn	: Manganese
Mo	: Molybdenum
Na	: Sodium
Ni	: Nickel
P	: Phosporus
Pb	: Lead

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PO #: Ref:99-42-34

Job: 993763R
Status: Final

Sb	: Antimony
Se	: Selenium
Sr	: Strontium
Ti	: Titanium
Tl	: Thallium
V	: Vanadium
W	: Tungsten
Zn	: Zinc

Methods:

FA/AA/AAS	: Fire Assay/Atomic Absorption Finish
AA	: Atomic Absorption
ICP	: Inductively Coupled Plasma
HYG	: Hydride Generation

Units:

oz/ton	: ounces per ton
ppm	: Parts per million
%	: percent
ppb	: Parts per billion

Quality codes:

<	: Less than

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Certificate of Analysis

Attn: Kurt Allen
Received: 12-Nov-99 15:51
Project: RS-D364-99
PO #: Ref:99-42-34

Job: 993763R
Status: Final

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:

.....

Dave Francisco
Laboratory Manager

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16-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Page: 9
Copy: 1 of 2
Set : 2

Certificate of Analysis

Attn: Kurt Allen
Project: RS-D364-99

Received: 2-Nov-99 14:32
PO #: Ref:99-39-41

Job: 993717R

Status: Final

Drill Core

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-D364-99 558-608	0.4	0.27	2	25	35	1	0.48	0.8	<1	22
RS-D364-99 608-663	1.4	0.32	<2	24	52	<1	0.36	<0.5	<1	17
RS-D364-99 663-713	1.7	0.36	<2	25	46	<1	0.42	<0.5	<1	18
RS-D364-99 713-763	2.5	0.35	<2	26	47	<1	0.42	<0.5	<1	16
RS-D364-99 763-813	2.0	0.26	<2	29	40	1	0.29	<0.5	<1	21
RS-D364-99 813-863	2.2	0.27	<2	30	28	<1	0.28	<0.5	<1	18
RS-D364-99 863-913	2.3	0.25	<2	30	25	<1	0.25	<0.5	<1	28
RS-D364-99 913-957	2.0	0.29	<2	31	26	<1	0.27	<0.5	<1	14
RS-D364-99 957-1008	2.0	0.29	<2	26	31	<1	0.37	<0.5	<1	19
RS-D364-99 1008-1058	1.9	0.25	2	25	28	<1	0.42	<0.5	<1	13
RS-D364-99 1058-1103	4.2	0.27	<2	23	62	<1	0.39	<0.5	<1	20
RS-D364-99 1103-1153	2.3	0.47	6	28	33	1	0.55	<0.5	<1	14
RS-D364-99 1153-1213	2.1	0.51	9	27	26	3	0.35	<0.5	<1	14
RS-D364-99 1213-1267	2.3	0.48	2	23	68	4	0.61	<0.5	<1	10

Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-D364-99 558-608	4	1.33	108	0.54	75	0.01	113	2	0.21	<1

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16-Nov-99

ROSEBUD MINING COMPANY
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58 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Attn: Kurt Allen
Received: 2-Nov-99 14:32
Project: RS-D364-99
PO #: Ref:99-39-41

Job: 993717R
Status: Final

Drill Core

Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-D364-99 608-663	6	1.29	37	0.42	50	0.01	257	2	0.25	1
RS-D364-99 663-713	3	1.45	34	0.40	49	0.01	587	3	0.46	<1
RS-D364-99 713-763	3	1.60	67	0.41	52	0.01	586	4	0.51	1
RS-D364-99 763-813	4	1.63	63	0.37	51	0.02	129	5	0.48	<1
RS-D364-99 813-863	4	1.73	60	0.34	52	0.03	220	5	0.40	1
RS-D364-99 863-913	4	1.81	56	0.31	50	0.03	237	5	0.49	<1
RS-D364-99 913-957	3	1.79	37	0.37	51	0.03	135	5	0.45	1
RS-D364-99 957-1008	4	1.50	82	0.39	50	0.02	141	5	0.46	<1
RS-D364-99 1008-1058	2	1.39	116	0.38	50	0.02	99	4	0.30	<1
RS-D364-99 1058-1103	3	1.22	60	0.38	48	0.02	138	3	0.27	<1
RS-D364-99 1103-1153	3	1.74	49	0.39	45	0.03	348	7	0.60	<1
RS-D364-99 1153-1213	3	1.60	52	0.41	43	0.03	174	4	0.59	<1
RS-D364-99 1213-1267	8	1.45	138	0.45	42	0.03	214	3	0.64	<1

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-D364-99 558-608	69	25	<2	<0.5	71	0.01	<0.5	<2	<1	58
RS-D364-99 608-663	52	21	<2	<0.5	71	0.01	<0.5	<2	<1	56

INSPECTORATE

INSPECTORATE AMERICA CORPORATION
840 Greg Street
Sparks, Nevada 89431
Tel:775-359-6311
Fax: 775-359-2944

16-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Attn: Kurt Allen
Project: RS-D364-99

Received: 2-Nov-99 14:32
PO #: Ref:99-39-41

Job: 993717R

Status: Final

Drill Core

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-D364-99 663-713	57	23	<2	<0.5	69	0.01	<0.5	<2	<1	70
RS-D364-99 713-763	55	21	<2	<0.5	66	0.02	<0.5	<2	<1	74
RS-D364-99 763-813	60	14	<2	<0.5	56	0.02	<0.5	<2	<1	75
RS-D364-99 813-863	58	15	<2	<0.5	62	0.02	<0.5	<2	<1	71
RS-D364-99 863-913	51	15	<2	<0.5	64	0.02	<0.5	<2	<1	78
RS-D364-99 913-957	55	18	<2	<0.5	73	0.02	<0.5	<2	<1	77
RS-D364-99 957-1008	52	18	<2	<0.5	73	0.01	<0.5	<2	<1	73
RS-D364-99 1008-1058	52	14	<2	<0.5	97	0.02	<0.5	<2	<1	59
RS-D364-99 1058-1103	53	16	<2	<0.5	82	0.01	<0.5	<2	<1	56
RS-D364-99 1103-1153	42	24	<2	<0.5	97	0.01	<0.5	<2	<1	79
RS-D364-99 1153-1213	51	24	<2	<0.5	79	<0.01	<0.5	<2	<1	79
RS-D364-99 1213-1267	51	24	<2	<0.5	122	<0.01	<0.5	<2	<1	82

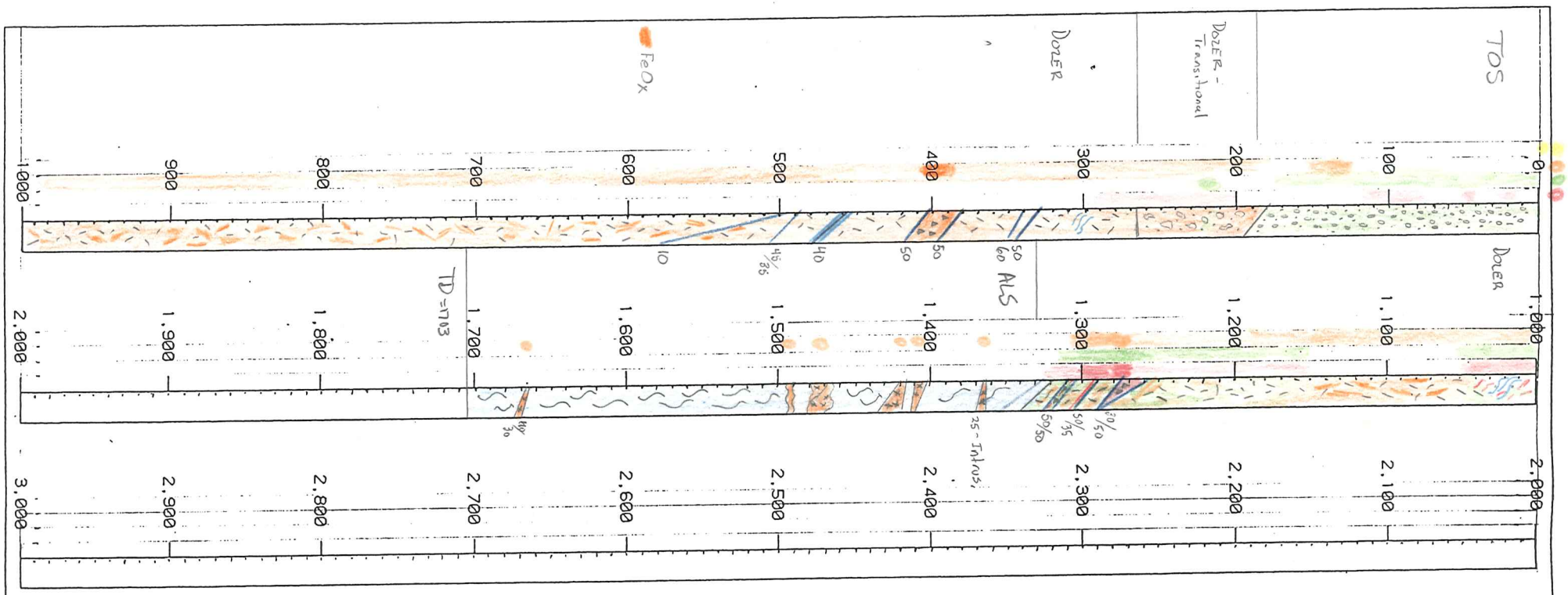
SURPAC2000 DRILL HOLE LISTING

Database : rosebud_paradox D

hole_id	y	x	z	max_depth
RS_D364_99	2204081.921	481612.113	4455.570	1703.000

Table: survey

hole_id	depth	dip	azimuth
RS_D364_99	0.00	-31.00	328.00
RS_D364_99	53.00	-30.90	327.70
RS_D364_99	253.00	-32.50	325.20
RS_D364_99	453.00	-33.00	324.70
RS_D364_99	653.00	-34.00	323.70
RS_D364_99	853.00	-34.00	322.70
RS_D364_99	1053.00	-34.00	322.70
RS_D364_99	1253.00	-33.50	322.70
RS_D364_99	1453.00	-34.80	322.70



LITHOLOGY

- PLAT/FLOW
- MASSIVE AT/FLOW
- LST-
- PMBX -
- TOS/Bud Epiclastics
- BMB - Rhyolitic Porphyry
- RHYOLITE - DOZER
- ALS - PHYLLITES

TEXTURES

- LITHIC FRAGMENTS
- CRYSTALS
- LAPILLI
- AMYGDULES
- SPHERULITE
- SHARDS

STRUCTURES

- BRECCIA
- FAULT
- CLAY OR GOUGE
- FRACTURE ZONE
- VEINS Qtz
- VEINLETS
- VEINS CALC

CONTACTS

- LOST, GRADATIONAL OR INFERRED
- 80 SHARP (WITH ANGLE TO CORE)
- WAVY
- ROUGH OR JAGGED

PYRITIZATION
CHLORITIZATION
ARGILLIZATION
SILICIFICATION
GRAPHIC LOG

LOCATION ON GRID: R5 - D364-99	FINAL COLLAR COORDINATES	START	FINISH	LOGGED BY LASSITER
LAB	NORTH	HOLE TYPE Core		SURVEYED TO
JOB #	EAST	BEARING N35W	ANGLE -31	T. D. 1703
DRILLING COMPANY	ELEV / DRILLER			

The Rosebud Mining Company LLC

PAGE 1 OF 1

HOLE # D364-99

INSPECTORATE

ROCKY MOUNTAIN GEOCHEMICAL

A MEMBER OF THE INSPECTORATE GROUP OF COMPANIES
840 GREG STREET • SPARKS, NEVADA 89431 • PHONE (775) 359-6311 • FAX (775) 359-2944

Fax Cover Sheet

DATE: 11/4

TO: ROSEBUD

ATTENTION: KURT

FROM: Rocky Mountain Geochemical of Nevada

Message:

WE HAVE EXTRA SAMPLES FOR HOLE D365-99. THERE ARE SAMPLES FOR 61.5-65, 65-73 + 115.5-120. LET ME KNOW WHAT YOU WANT US TO DO.

FRED

Number of pages including cover sheet

D365

RS-D365-99

Depth From	To	Interval	Au	Ag	ICP	Composite Interval	Sample Number
0	7	7	x	x			1
7	12	5	x	x			2
12	17	5	x	x			3
17	20.7	3.7	x	x			4
20.7	21.7	1	x	x			5
21.7	23	1.3	x	x			6
23	27	4	x	x			7
27	32	5	x	x			8
32	37	5	x	x			9
37	42.7	5.7	x	x			10
42.7	44.5	1.8	x	x			11
44.5	46.4	1.9	x	x			12
46.4	47.6	1.2	x	x			13
47.6	50.7	3.1	x	x	x	50.7	14
50.7	57	6.3	x	x			15
57	62	5	x	x			16
62	67	5	x	x			17
67	72	5	x	x			18
72	77	5	x	x			19
77	82	5	x	x			20
82	87	5	x	x			21
87	92	5	x	x			22
92	97.3	5.3	x	x			23
97.3	102	4.7	x	x	x	51.3	24
102	107	5	x	x			25
107	112	5	x	x			26
112	117	5	x	x			27
117	122	5	x	x			28
122	126.4	4.4	x	x			29
126.4	127.7	1.3	x	x			30
127.7	132	4.3	x	x			31
132	137	5	x	x			32
137	142	5	x	x			33
142	148.1	6.1	x	x			34
148.1	152	3.9	x	x	x	50	35
152	155	3	x	x			36
155	160.4	5.4	x	x			37
160.4	163.5	3.1	x	x			38
163.5	167	3.5	x	x			39
167	172	5	x	x			40
172	177	5	x	x			41

5-73
1.5-65

15.5-
120

RMGN Job Number:

Date Received:

Rocky Mountain Geochemical of Nevada

840 GREG STREET

SPARKS, NEVADA 89431

Phone: (702) 359-6311, Fax: (702) 359-2944

SAMPLE SUBMITTAL SHEET

Address Report To:
Fax Results to Kurt Allen

Phone/Fax: (775) 623-6912 / 775 623 6967

Send Invoice To: Kurt Allen
Rosebud Mining Co
P.O. Box 2610
Winnemucca NV 89446

Client's Project No.

Shipment No.

Date Shipped: 10/31/99

No. of Cartons:

No. of Samples: 146

Copy of Report To:
Kurt Allen Only

List Sample Numbers	Material Description	List Elements To Be Determined	Indicate Method Fire/Grav.	Fire/AA	Geochem
RSD364-99	Core	Au Ag : Use Rosebud			
See attachment		Mine development protocol			
for sample list					
		NGC 30 element ICP			
		Partial Digestion			
		Composite as shown			
		on attachment			
1	Pulp	Rosebud Production standard			
		at end of hole			

NOT RESPONSIBLE FOR LOSS OF SAMPLES DUE TO FIRE OR THEFT.

Pulp & Reject Disposition: Pulps and Rejects will be discarded unless otherwise noted.

	Bulk Rejects	Pulp
Return at Customer's Expense	X	X
via:		
Store at $1.00 per 100 lbs/month		
Discard immediately		

White Copy: Send to RMGN
Yellow Copy: Customer's Copy
Pink Copy: Enclose with Samples

THE ABOVE WORK IS AUTHORIZED BY: D.R. MacKenna DATE: 10/31/99

RS-D364-99

Depth From	To	Interval	Au	Ag	ICP	Composite Interval	Sample Number
558	563	5	x	x			1
563	568	5	x	x			2
568	573	5	x	x			3
573	578	5	x	x			4
578	583	5	x	x			5
583	588	5	x	x			6
588	593	5	x	x			7
593	598	5	x	x			8
598	603	5	x	x			9
603	608	5	x	x	x	50	10
608	613	5	x	x			11
613	618	5	x	x			12
618	623	5	x	x			13
623	628	5	x	x			14
628	633	5	x	x			15
633	638	5	x	x			16
638	643	5	x	x			17
643	648	5	x	x			18
648	653	5	x	x			19
653	658	5	x	x			20
658	663	5	x	x	x	50	21
663	668	5	x	x			22
668	673	5	x	x			23
673	678	5	x	x			24
678	683	5	x	x			25
683	688	5	x	x			26
688	693	5	x	x			27
693	698	5	x	x			28
698	703	5	x	x			29
703	708	5	x	x			30
708	713	5	x	x	x	50	31
713	718	5	x	x			32
718	723	5	x	x			33
723	728	5	x	x			34
728	733	5	x	x			35
733	738	5	x	x			36
738	743	5	x	x			37
743	748	5	x	x			38
748	753	5	x	x			39
753	758	5	x	x			40
758	763	5	x	x	x	50	41

763	768	5	x	x			42
768	773	5	x	x			43
773	778	5	x	x			44
778	783	5	x	x			45
783	788	5	x	x			46
788	793	5	x	x			47
793	798	5	x	x			48
798	803	5	x	x			49
803	808	5	x	x			50
808	813	5	x	x	x	50	51
813	818	5	x	x			52
818	823	5	x	x			53
823	828	5	x	x			54
828	833	5	x	x			55
833	838	5	x	x			56
838	843	5	x	x			57
843	848	5	x	x			58
848	853	5	x	x			59
853	858	5	x	x			60
858	863	5	x	x	x	50	61
863	868	5	x	x			62
868	873	5	x	x			63
873	878	5	x	x			64
878	883	5	x	x			65
883	888	5	x	x			66
888	893	5	x	x			67
893	898	5	x	x			68
898	903	5	x	x			69
903	908	5	x	x			70
908	913	5	x	x	x	50	71
913	918	5	x	x			72
918	923	5	x	x			73
923	928	5	x	x			74
928	933	5	x	x			75
933	938	5	x	x			76
938	943	5	x	x			77
943	948	5	x	x			78
948	953	5	x	x			79
953	955	2	x	x			80
955	957	2	x	x	x	50	81

957	962.4	5.4	x	x			82
962.4	968	5.6	x	x			83
968	973	5	x	x			84
973	978	5	x	x			85
978	983	5	x	x			86
983	987.5	4.5	x	x			87
987.5	991.5	4	x	x			88
991.5	993	1.5	x	x			89
993	998	5	x	x			90
998	1003	5	x	x			91
1003	1008	5	x	x	x	50	92
1008	1013	5	x	x			93
1013	1018	5	x	x			94
1018	1023	5	x	x			95
1023	1028	5	x	x			96
1028	1033	5	x	x			97
1033	1038	5	x	x			98
1038	1041.8	3.8	x	x			99
1041.8	1048	6.2	x	x			100
1048	1053	5	x	x			101
1053	1058	5	x	x	x	50	102
1058	1063	5	x	x			103
1063	1068	5	x	x			104
1068	1073	5	x	x			105
1073	1076	3	x	x			106
1076	1083	7	x	x			107
1083	1088	5	x	x			108
1088	1093	5	x	x			109
1093	1098	5	x	x			110
1098	1103	5	x	x	x	50	111
1103	1108	5	x	x			112
1108	1113	5	x	x			113
1113	1118	5	x	x			114
1118	1121.4	3.4	x	x			115
1121.4	1124.3	2.9	x	x			116
1124.3	1128.5	4.2	x	x			117
1128.5	1133	4.5	x	x			118
1133	1138	5	x	x			119
1138	1143	5	x	x			120
1143	1148	5	x	x			121
1148	1153	5	x	x	x	50	122

1153	1158	5	x	x			123
1158	1163	5	x	x			124
1163	1168	5	x	x			125
1168	1173	5	x	x			126
1173	1178	5	x	x			127
1178	1183	5	x	x			128
1183	1188	5	x	x			129
1188	1193	5	x	x			130
1193	1198	5	x	x			131
1198	1203	5	x	x			132
1203	1208	5	x	x			133
1208	1213	5	x	x	x	55	134
1213	1218	5	x	x			135
1218	1223	5	x	x			136
1223	1228	5	x	x			137
1228	1230	2	x	x			138
1230	1234	4	x	x			139
1234	1238	4	x	x			140
1238	1243	5	x	x			141
1243	1248	5	x	x			142
1248	1253	5	x	x			143
1253	1258	5	x	x			144
1258	1263	5	x	x			145
1263	1267	4	x	x	x	54	146

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

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 10/25/99
Shipped Via _____
# of Cartons _____
# of Samples 25

Geochemical Laboratory Instruction Sheet

Copy of Results:	Results And Invoice To:
Kurt Allen	Kurt Allen
Fax # 775-623-6967	Rosebud Mine
	P.O. Box 2610
	Winnemucca NV 89446
	AUTHORITY:

No. of Samples	Sample Type	List of Sample Numbers	Elements Requested
25	Core	RS-D364-99	Au Ag Use Rosebud
		See attached sheet for	Mine development
		sample intervals	Protocol
			NGC 30 element ICP
			Initial position
			Composites as shown
			on attachment
1	Pulp	Rosebud Production standard	
		at end of hole	

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

ADDITIONAL INSTRUCTIONS:
Rush Au Ag 24hr Turnaround
Results to Kurt Allen
Only

NOV96:PM5:RENO3:GEOCHEM

RS-D364-99

Depth From	To	Interval	Au	Ag	ICP	Composite Interval	Sample Number
1267	1269	2	x	x			1
1269	1272.4	3.4	x	x			2
1272.4	1273.5	1.1	x	x			3
1273.5	1274.6	1.1	x	x			4
1274.6	1276.6	2	x	x			5
1276.6	1278.2	1.6	x	x	x	11.2	6
1278.2	1283	4.8	x	x			7
1283	1286.6	3.6	x	x			8
1286.6	1288.6	2	x	x			9
1288.6	1290.5	1.9	x	x			10
1290.5	1294.3	3.8	x	x			11
1294.3	1297.3	3	x	x	x	19.1	12
1297.3	1299.5	2.2	x	x			13
1299.5	1301.4	1.9	x	x			14
1301.4	1303	1.6	x	x			15
1303	1308	5	x	x			16
1308	1312.4	4.4	x	x			17
1312.4	1314.2	1.8	x	x	x	16.9	18
1314.2	1316.9	2.7	x	x			19
1316.9	1320.5	3.6	x	x			20
1320.5	1323	2.5	x	x			21
1323	1326	3	x	x			22
1326	1328.4	2.4	x	x	x	14.2	23
1328.4	1330.5	2.1	x	x			24
1330.5	1333.8	3.3	x	x			25

RMGN Job Number:

Date Received:

Rocky Mountain Geochemical of Nevada

840 GREG STREET

SPARKS, NEVADA 89431

Phone: (702) 359-6311, Fax: (702) 359-2944

SAMPLE SUBMITTAL SHEET

Address Report To:
Fax results to Kurt Allen

Phone/Fax: 775-623-6912 / 775 623 6967

Send Invoice To: Kurt Allen
Rosebud Mining Co.
P.O. Box 2610
Winca, NV. 89446

Client's Project No.

Shipment No.

Date Shipped:

No. of Cartons: 11/2/99

No. of Samples: 71

Copy of Report To:
Kurt Allen only

List Sample Numbers	Material Description	List Elements To Be Determined	Indicate Method Fire/Grav.	Fire/AA	Geochem
	Core	Au, Ag, Use rosebud			
RS-D364-99		Mine development Protocol			
See attachment for sample list					
		NGC 30 element ICP			
		Partial digestion			
		Composite as shown on			
		attachment			
1	Pulp	Rosebud production standard			
		at end of hole			

NOT RESPONSIBLE FOR LOSS OF SAMPLES DUE TO FIRE OR THEFT.

Pulp & Reject Disposition: Pulps and Rejects will be discarded unless otherwise noted.

	Bulk Rejects	Pulp
Return at Customer's Expense	X	X
via:		
Store at $1.00 per 100 lbs/month		
Discard immediately		

White Copy: Send to RMGN
Yellow Copy: Customer's Copy
Pink Copy: Enclose with Samples

THE ABOVE WORK IS AUTHORIZED BY: DATE:

RS-D364-99

Depth From	To	Interval	Au	Ag	ICP	Composite Interval	Sample Number
1333.8	1338	4.2	x	x			1
1338	1343	5	x	x			2
1343	1348	5	x	x			3
1348	1353	5	x	x			4
1353	1356	3	x	x			5
1356	1357.1	1.1	x	x			6
1357.1	1358.9	1.8	x	x			7
1358.9	1363	4.1	x	x			8
1363	1364.5	1.5	x	x			9
1364.5	1368	3.5	x	x			10
1368	1373	5	x	x			11
1373	1378	5	x	x			12
1378	1381	3	x	x			13
1381	1386	5	x	x			14
1386	1391.7	5.7	x	x			15
1391.7	1392.2	0.5	x	x	x	58.4	16
1392.2	1396.5	4.3	x	x			17
1396.5	1397.9	1.4	x	x			18
1397.9	1403	5.1	x	x			19
1403	1408	5	x	x			20
1408	1410.6	2.6	x	x			21
1410.6	1414.7	4.1	x	x			22
1414.7	1419.9	5.2	x	x			23
1419.9	1424.7	4.8	x	x			24
1424.7	1428	3.3	x	x			25
1428	1433	5	x	x			26
1433	1437.9	4.9	x	x			27
1437.9	1438.7	0.8	x	x			28
1438.7	1443	4.3	x	x	x	50.8	29
1443	1448	5	x	x			30
1448	1453	5	x	x			31
1453	1458	5	x	x			32
1458	1463	5	x	x			33
1463	1465.5	2.5	x	x			34
1465.5	1470	4.5	x	x			35
1470	1474.5	4.5	x	x			36
1474.5	1479.2	4.7	x	x			37
1479.2	1483	3.8	x	x			38
1483	1488	5	x	x			39
1488	1491	3	x	x			40
1491	1493.7	2.7	x	x	x	50.7	41

1493.7	1498	4.3	x	x			42
1498	1501	3	x	x			43
1501	1503.8	2.8	x	x			44
1503.8	1508	4.2	x	x			45
1508	1512	4	x	x			46
1512	1519	7	x	x			47
1519	1524	5	x	x			48
1524	1530.6	6.6	x	x			49
1530.6	1533.6	3	x	x			50
1533.6	1537.5	3.9	x	x			51
1537.5	1543	5.5	x	x			52
1543	1548	5	x	x	x	54.3	53
1548	1553	5	x	x			54
1553	1558	5	x	x			55
1558	1568	10	x	x			56
1568	1573	5	x	x			57
1573	1582	9	x	x			58
1582	1588	6	x	x			59
1588	1597	9	x	x	x	49	60
1597	1607.3	10.3	x	x			61
1607.3	1617.5	10.2	x	x			62
1617.5	1627.5	10	x	x			63
1627.5	1638	10.5	x	x			64
1638	1648	10	x	x			65
1648	1658	10	x	x	x	61	66
1658	1668	10	x	x			67
1668	1678	10	x	x			68
1678	1686.2	8.2	x	x			69
1686.2	1695	8.8	x	x			70
1695	1703	8	x	x	x	45	71

BARRINGER LABORATORIES, INC.

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Durango, Durango, Mexico C.P. 34030
TEL/FAX (52)(18) 12-00-52

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Avenida Domingo Orué 489
Surquillo, Lima 34, Peru
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Sabaneta, Colombia
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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
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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 10/19/99
Shipped Via _____
# of Cartons _____
# of Samples 121

Geochemical Laboratory Instruction Sheet

Copy of Results:	Results And Invoice To:
Fax to: Kurt Allen	Kurt Allen
Rosebud Mining Co	Rosebud Mining Co
Fax # 775 623 6927	P.O. Box 2610
	Winnemucca
	AUTHORITY:

No. of Samples	Sample Type	List of Sample Numbers	Elements Requested
121	Core	RS-D364-99	Au, Ag - Use Rosebud
			mine development protocol
			NGC 30 element ICP
			as shown on attachment
1	Pulp	Rosebud Production standard @ end of hole	Au, Ag - No ICP

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

ADDITIONAL INSTRUCTIONS:
Results go only to Kurt Allen

NOV96:PM5:RENO3:GEOCHEM

RS-D364-99

Depth From	To	Interval	Au	Ag	ICP	Composite Interval	Sample Number
0	5	5	x	x			1
3	8	5	x	x			2
7	13	6	x	x			3
13	19	6	x	x			4
19	26.4	7.4	x	x			5
26.4	35.5	9.1	x	x			6
35.5	43.9	8.4	x	x			7
43.9	46.1	2.2	x	x			8
46.1	53	6.9	x	x	x	53	9
53	57.3	4.3	x	x			10
57.3	61.5	4.2	x	x			11
61.5	65	3.5	x	x			12
65	73	8	x	x			13
73	83	10	x	x			14
83	93	10	x	x			15
93	103	10	x	x	x	50	16
103	112	9	x	x			17
112	115.5	3.5	x	x			18
115.5	120	4.5	x	x			19
120	126	6	x	x			20
126	128	2	x	x			21
128	133	5	x	x			22
133	138	5	x	x			23
138	143	5	x	x	x	40	24
143	148	5	x	x			25
148	153	5	x	x			26
153	159	6	x	x			27
159	162.5	3.5	x	x			28
162.5	167.5	5	x	x			29
167.5	171.5	4	x	x			30
171.5	174.5	3	x	x			31
174.5	179	4.5	x	x	x	36	32
179	183	4	x	x			33
183	185.7	2.7	x	x			34
185.7	188	2.3	x	x			35
188	193	5	x	x			36
193	198	5	x	x			37
198	203	5	x	x			38
203	208	5	x	x			39
208	213	5	x	x			40
213	218	5	x	x	x	39	41

218	223	5	x	x			42
223	228	5	x	x			43
228	233	5	x	x			44
233	238	5	x	x			45
238	243	5	x	x	x	25	46
243	248	5	x	x			47
248	253	5	x	x			48
253	258	5	x	x			49
258	263	5	x	x			50
263	267.3	4.3	x	x	x	24.3	51
267.3	272.5	5.2	x	x			52
272.5	277.6	5.1	x	x			53
277.6	282.6	5	x	x			54
282.6	288	5.4	x	x			55
288	293	5	x	x	x	25.7	56
293	296.2	3.2	x	x			57
296.2	298.5	2.3	x	x			58
298.5	303	4.5	x	x			59
303	306	3	x	x			60
306	308	2	x	x	x	15	61
308	313	5	x	x			62
313	318	5	x	x			63
318	323	5	x	x			64
323	328	5	x	x			65
328	333	5	x	x	x	25	66
333	334.7	1.7	x	x			67
334.7	335.6	0.9	x	x			68
335.6	339.1	3.5	x	x			69
339.1	340.6	1.5	x	x			70
340.6	343	2.4	x	x			71
343	348	5	x	x			72
348	353	5	x	x			73
353	355.2	2.2	x	x			74
355.2	358	2.8	x	x	x	25	75
358	363	5	x	x			76
363	368	5	x	x			77
368	373	5	x	x			78
373	378	5	x	x			79
378	383	5	x	x			80
383	388.7	5.7	x	x	x	30.7	81
388.7	391.6	2.9	x	x			82
391.6	395.6	4	x	x			83
395.6	400	4.4	x	x			84
400	404.9	4.9	x	x			85

404.9	408	3.1	x	x			86
408	411.6	3.6	x	x	x	22.9	87
411.6	414.8	3.2	x	x			88
414.8	418	3.2	x	x			89
418	423	5	x	x			90
423	428	5	x	x	x	16.4	91
428	433	5	x	x			92
433	438	5	x	x			93
438	439.9	1.9	x	x			94
439.9	443	3.1	x	x			95
443	448	5	x	x			96
448	453	5	x	x			97
453	458	5	x	x			98
458	463	5	x	x			99
463	468	5	x	x			100
468	470.3	2.3	x	x	x	42.3	101
470.3	473	2.7	x	x			102
473	478	5	x	x			103
478	483	5	x	x			104
483	485.7	2.7	x	x			105
485.7	488	2.3	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	513	5	x	x			111
513	518	5	x	x			112
518	522.5	4.5	x	x	x	52.2	113
522.5	524	1.5	x	x			114
524	528	4	x	x			115
528	532	4	x	x			116
532	538	6	x	x			117
538	542	4	x	x			118
542	548	6	x	x			119
548	552	4	x	x			120
552	558	6	x	x	x	35.5	121

WELL D364-99

DEPTH 53'

PICTURE NO. one

INCLINATION -30°

OBS. DIR.

COR. DIR.

TOOL FACE

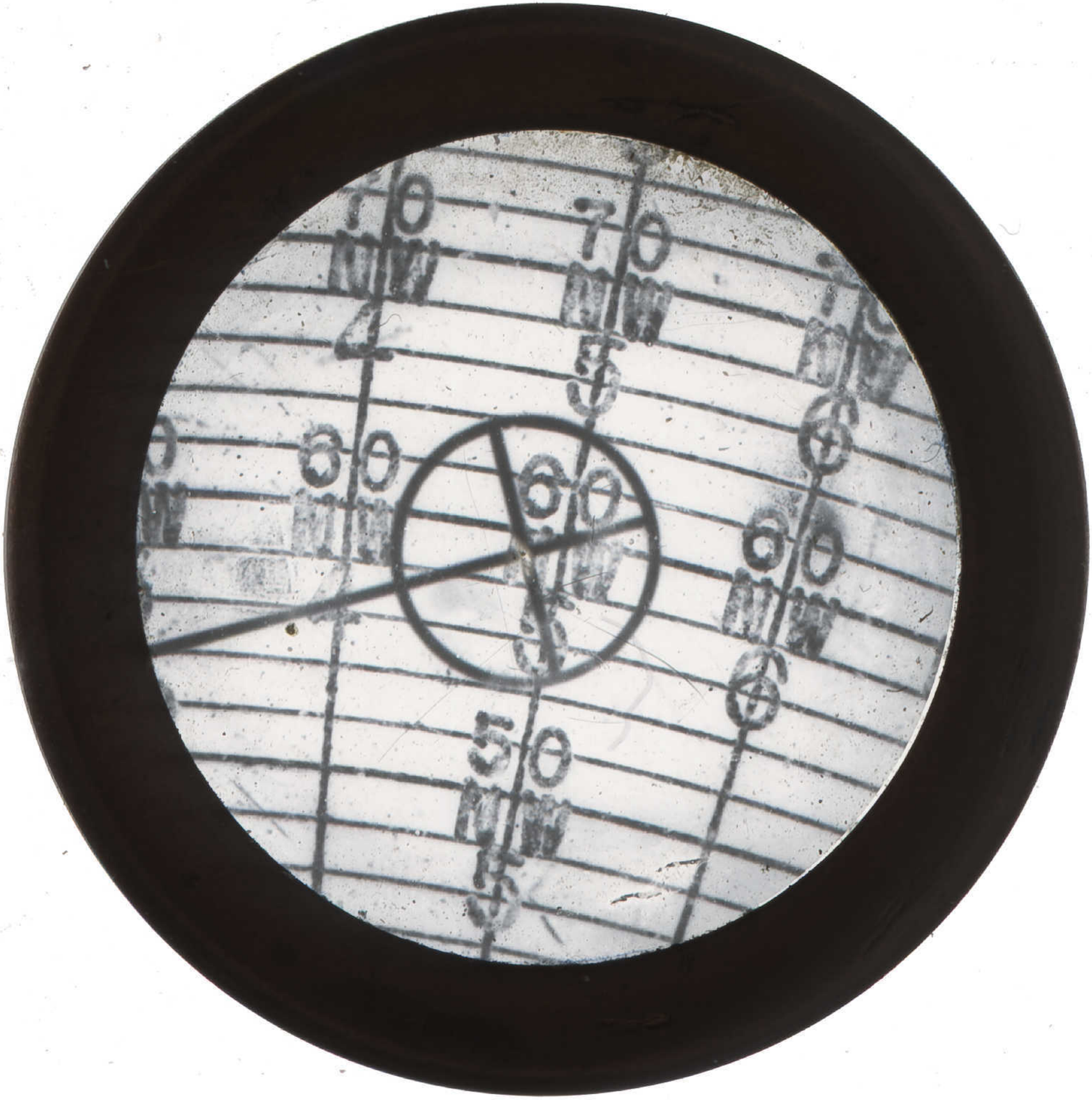
RUN BY Joe L

DATE 9.14.99

CHECKED BY

sperry-sun

DRILLING SERVICES


70 MM
70 MM
70 MM
60 MM
60 MM
60 MM
50 MM
50 MM

WELL RS-A364

DEPTH 253'

PICTURE NO.

INCLINATION -31

OBS. DIR.

COR. DIR.

TOOL FACE

RUN BY G. GADDIE

DATE 9-15-99

CHECKED BY

sperry-sun

DRILLING SERVICES

WELL RS-A364-99

DEPTH 453'

PICTURE NO.

INCLINATION -31°

OBS. DIR.

COR. DIR.

TOOL FACE

RUN BY G. GADDIE

DATE 9-16-99

CHECKED BY

sperry-sun

DRILLING SERVICES

WELL RS-D364

DEPTH 653'

PICTURE NO.

INCLINATION .31°

OBS. DIR.

COR. DIR.

TOOL FACE

RUN BY G. GADDIE

DATE 9-17-99

CHECKED BY

sperry-sun

DRILLING SERVICES

WELL RS-D364

DEPTH 853'

PICTURE NO.

INCLINATION -31°

OBS. DIR.

COR. DIR.

TOOL FACE

RUN BY G. GADDIE

DATE 9-18-99

CHECKED BY

sperry-sun

DRILLING SERVICES

WELL D364-99

DEPTH 1053

PICTURE NO. six

INCLINATION -3/0

OBS. DIR.

COR. DIR.

TOOL FACE

RUN BY Joe L

DATE 9·19·99

CHECKED BY

sperry-sun

DRILLING SERVICES

WELL BS-D364-99

DEPTH 1253

PICTURE NO.

INCLINATION -31°

OBS. DIR.

COR. DIR.

TOOL FACE

RUN BY Joe L

DATE 9.20.99

CHECKED BY

sperry-sun

DRILLING SERVICES

WELL RS-D364-99

DEPTH 1453

PICTURE NO.

INCLINATION -310

OBS. DIR.

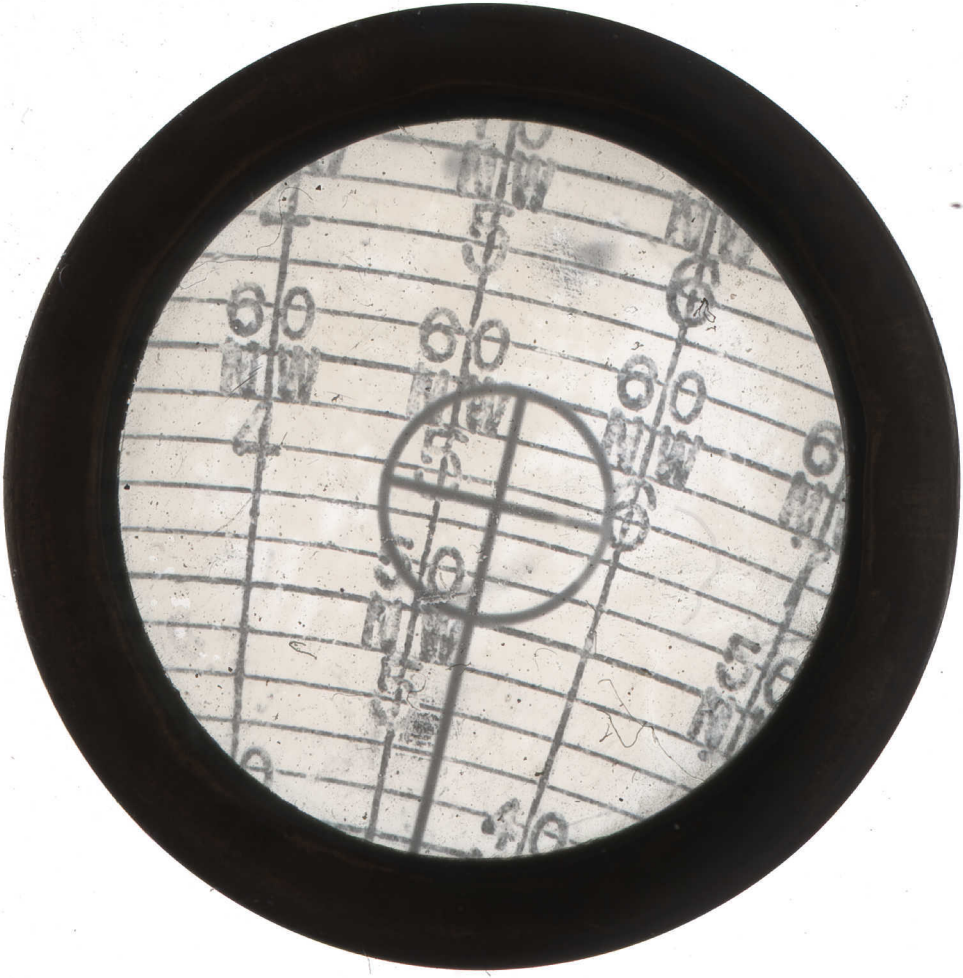
COR. DIR.

TOOL FACE

RUN BY Joe L

DATE 9.23.99

CHECKED BY

sperry-sun

DRILLING SERVICES