60000526

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-420
AUTHOR	C. Ballew, R. Vance, S. King; V. Reid; J. Welch; K. Allen; G. Langstaff
DATE OF DOC(S)	1997
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Newmont Gold Co. Newmont Exploration Ltd
COMMODITY If not obvious	gold; silver
NOTES	drill logs; assay; geology; [redacted]; geochemistry; total depth 1095'; invoices handwritten notes 45 p.

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

SS: DD 3/10/08
Initials Date

DB:
Initials Date

SCANNED:
Initials Date

Revised: 1/22/08

RS-420

60000526
4010

6600 0526

NEWMONT EXPLORATION LIMITED — DRILL HOLE SUMMARY

Project: Rosebud Location: East Ridge Drill Hole No.: RS-420

State: NV Co.: Pershing T.: R.: S.:

Purpose: find extensions of Kamma and S. Ridge faults Results: max 6ppb Au; SRF is clay not Si @ 665-680'; faulted basement contact @ 994'; no dikes below

Date Started: 10/28/97 Date Finished: 10/30/97

Grid System: NV state plane Northing: 2,204,805 Easting: 484,475 Elevation: 5419

Collar Az/Inc.: / -90 Total Depth: 1045

Geologist(s): Log Date(s): Laboratory:

HOLE CONSTRUCTION AND HISTORY

CASING (INTERVAL):

From	To	Hole Type/Size	Started	Completed	Contractor
0	1045	RC /	10/28/97	10/30/97	Ekland
		/			
		/			
		/			

LITHOLOGIC SUMMARY / ALTERATION/MINERALIZATION / SIGNIFICANT ASSAYS

From	To	Formation	Rock Type	ALTERATION/ MINERALIZATION	From	To	Width	Au oz/st	Cutoff
5	63	Chocolate?	polymict, clast- and matrix-sup congl. mudstone?						
63	72		flow/sill?	weakly porphyritic?					
72	90		same as 5-63'						
90	98		flow/sill?	weakly porphyritic?					
98	117		same as 5-63'						
117	134		flow/sill?	weakly porphyritic?					
134	220		same as 5-63'						
220	234		flow/sill?	hbl microphenos					
234	666		same as 5-63'						
666	679		clayey SRF?						
679	774	Chocolate?	monomict matrix-sup congl. mudstone?						
774	784		flow/sill?	rare laminations					
784	900		same as 679-774'						
900	985		flow/sill?	aphyric/brecciated					
985	994		clay gouge and	volcanic breccia?					
994	1045	Auld Lang Syne	phyllite						

DOWNHOLE SURVEYS

Directional Date:

Other

Depth (ft)	Azimuth	Inclination
1045	11' @ 99°	-87.9°

Water Table Depth:

Water Flow Rate:

COMMENTS

see Wehner survey

AMERICAN ASSAY LABORATORIES

AAL 01-2 ICP PACKAGE DETECTION LIMITS

ELEMENT	Ag	Al	As	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sr	Th	Ti	U	V	W	Zn
SAMPLES	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
	0.3	0.01	2	3	1	2	0.01	0.2	1	1	1	0.01	5	0.01	1	0.01	2	1	0.01	1	0.001	3	2	1	2	0.01	5	1	2	1

0.500 GRAMS OF PULP IS DIGESTED WITH HYDROCHLORIC AND NITRIC ACID AT 95 DEGREE CENTIGRADE FOR ONE HOUR.
DIGEST IS PARTIAL FOR B, Ba, Ca, Cr, Fe, La, Mg, Mn, Sr, Ti AND W.
DIGEST IS LIMITED FOR Al, K AND Na.

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431
PHONE: (702) 356-0606
FAX: (702) 356-1413

CLIENT: *NEWMONT EXLORATION*
CLIENT REF: ROSEBUD MINE
AAL REF: SP047278
METHOD: AAL 01-2

ELEMENT SAMPLES	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppb	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sr ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Zn ppm
RS-420 000-020	< .3	2.27	8	9	107	5	1.08	0.8	7	9	12	3.4	10	0.3	23	0.26	516	< 1	0.13	5	0.021	28	4	96	8	0.02	< 8	56	< 2	71
RS-420 020-040	0.3	1.45	7	4	150	< 3	1.36	0.6	5	6	9	2.78	< 10	0.18	17	0.14	993	< 1	0.05	3	0.022	16	3	81	9	0.01	< 8	35	< 2	72
RS-420 040-060	< .3	0.77	3	4	126	4	0.87	0.5	3	5	10	2.5	10	0.14	14	0.07	697	1	0.05	3	0.022	22	< 3	58	10	0.02	< 8	22	2	75
RS-420 060-080	< .3	0.6	2	3	81	< 3	0.72	0.4	2	5	7	2.41	15	0.12	14	0.06	561	1	0.04	2	0.023	19	< 3	49	10	0.02	< 8	16	2	71
RS-420 080-100	< .3	0.6	2	4	69	< 3	0.67	0.4	2	5	7	2.52	< 10	0.12	14	0.06	540	1	0.04	3	0.023	22	< 3	53	10	0.02	< 8	15	< 2	86
RS-420 100-120	< .3	0.65	2	4	73	4	1.23	0.5	2	4	7	2.49	< 10	0.12	18	0.06	891	1	0.04	2	0.027	17	< 3	67	11	0.03	< 8	16	< 2	91
RS-420 120-140	< .3	0.72	2	5	426	< 3	0.31	0.3	3	4	4	2.46	15	0.12	17	0.06	519	1	0.04	2	0.028	16	< 3	76	11	0.02	< 8	19	< 2	69
RS-420 140-160	< .3	1.57	7	3	341	< 3	0.79	0.6	6	7	8	3.23	< 10	0.16	11	0.15	575	1	0.06	4	0.028	21	4	209	10	0.01	< 8	45	< 2	72
RS-420 160-180	< .3	1.96	6	< 3	116	3	0.84	0.9	7	6	10	3.22	< 10	0.19	20	0.17	584	1	0.07	4	0.046	25	4	268	12	0.01	< 8	37	< 2	86
RS-420 180-200	< .3	1.57	5	< 3	735	< 3	0.64	0.4	6	8	6	2.93	10	0.14	17	0.11	304	1	0.07	5	0.029	20	< 3	235	12	0.01	< 8	41	< 2	81
RS-420 200-220	< .3	2.12	3	< 3	511	< 3	0.84	0.7	10	12	18	3.47	< 10	0.14	16	0.15	464	< 1	0.09	7	0.042	22	< 3	327	10	0.01	< 8	70	< 2	91
RS-420 220-240	< .3	0.85	2	< 3	82	< 3	0.51	0.3	2	6	7	2.26	15	0.11	24	0.06	442	1	0.07	3	0.008	21	< 3	140	12	0.01	< 8	16	< 2	62
RS-420 240-260	< .3	0.59	3	< 3	117	< 3	0.45	< .2	2	3	4	2.02	10	0.1	20	0.04	337	1	0.08	3	0.005	21	< 3	100	12	0.01	< 8	6	< 2	66
RS-420 260-280	0.3	2.49	4	3	134	< 3	1.28	0.9	9	8	15	3.82	< 10	0.27	32	0.25	770	1	0.13	3	0.092	106	5	424	11	0.02	< 8	35	2	146
RS-420 280-300	< .3	1.31	5	3	94	< 3	0.9	0.9	7	8	11	4.53	10	0.18	32	0.18	771	1	0.09	3	0.114	29	< 3	226	10	0.06	< 8	30	< 2	109
RS-420 300-320	0.4	2.17	6	< 3	60	< 3	1.7	1.4	8	5	10	4.48	< 10	0.26	38	0.24	1342	1	0.13	3	0.124	21	3	429	10	0.03	< 8	30	< 2	117
RS-420 320-340	0.3	2.49	6	< 3	62	< 3	2.1	1	9	5	11	4.22	15	0.38	44	0.32	1337	1	0.13	3	0.124	26	5	522	11	0.02	< 8	30	< 2	122
RS-420 340-360	< .3	1.98	5	< 3	52	< 3	2.22	1.9	8	6	13	3.95	15	0.27	41	0.24	2170	1	0.11	2	0.131	43	< 3	441	10	0.04	< 8	35	< 2	125
RS-420 360-380	< .3	2.3	5	3	91	3	2.08	1.4	8	5	18	4.12	20	0.36	42	0.24	1520	< 1	0.11	2	0.128	77	5	485	11	0.01	< 8	32	2	158
RS-420 380-400	< .3	0.72	3	3	62	< 3	0.98	0.7	3	4	7	2.88	15	0.18	24	0.07	770	1	0.07	2	0.049	43	< 3	124	10	0.02	< 8	17	2	67
RS-420 400-420	< .3	0.56	2	< 3	95	4	0.98	0.7	2	4	6	2.42	< 10	0.13	20	0.07	859	1	0.07	2	0.033	20	< 3	111	9	0.02	< 8	7	2	51
RS-420 420-440	< .3	0.59	4	3	64	< 3	0.81	0.4	2	4	6	2.5	40	0.13	20	0.09	554	< 1	0.07	2	0.033	15	3	121	9	0.02	< 8	9	2	53
RS-420 440-460	< .3	0.66	4	< 3	64	< 3	0.77	0.5	2	6	9	2.77	30	0.15	18	0.09	568	1	0.09	2	0.035	19	< 3	107	9	0.03	< 8	15	2	80
RS-420 460-480	< .3	0.6	3	< 3	72	< 3	1.02	0.5	2	4	6	2.68	< 10	0.12	18	0.1	798	1	0.08	2	0.035	17	< 3	116	9	0.03	< 8	13	2	69
RS-420 480-500	< .3	0.54	3	< 3	54	< 3	0.79	0.3	2	5	7	2.6	< 10	0.12	18	0.09	695	1	0.07	2	0.034	12	< 3	112	9	0.03	< 8	14	2	76
RS-420 500-520	0.3	0.46	3	< 3	51	3	0.65	0.3	2	6	27	2.65	< 10	0.11	18	0.09	580	2	0.07	3	0.034	175	3	98	8	0.04	< 8	12	2	129
RS-420 520-540	< .3	0.46	3	< 3	43	< 3	0.67	0.5	2	6	8	2.41	< 10	0.12	13	0.09	570	2	0.08	3	0.033	23	3	106	7	0.03	< 8	15	2	94
RS-420 540-560	< .3	0.54	3	< 3	54	< 3	0.83	1.3	2	6	9	2.61	< 10	0.13	15	0.1	694	2	0.08	3	0.034	29	< 3	122	8	0.03	< 8	15	2	117
RS-420 560-580	0.3	0.56	4	< 3	51	< 3	1.17	1.4	2	5	8	2.55	60	0.15	18	0.1	705	2	0.07	3	0.031	28	3	125	8	0.04	< 8	11	2	125
RS-420 580-600	< .3	0.74	2	3	57	3	1.01	3.3	2	5	7	2.54	10	0.24	18	0.16	678	1	0.08	2	0.038	27	4	152	8	0.03	< 8	16	3	144
RS-420 600-620	< .3	0.75	2	3	60	4	0.77	1.3	2	4	7	2.21	15	0.29	17	0.17	398	1	0.07	2	0.036	22	< 3	120	7	0.03	< 8	13	2	67
RS-420 620-640	< .3	0.93	2	3	96	3	0.62	0.8	1	3	5	2.3	< 10	0.3	27	0.13	394	1	0.07	2	0.037	34	< 3	205	9	0.03	< 8	10	3	51
RS-420 640-660	< .3	1.17	< 2	< 3	147	5	0.45	0.4	1	7	4	2.3	< 10	0.36	37	0.16	183	1	0.1	3	0.028	23	< 3	334	10	0.02	< 8	10	< 2	49
STANDARD C3	5.7	1.94	54	21	152	25	0.59	24	12	174	64	3.48	900	0.17	19	0.64	769	25	0.04	37	0.092	37	19	30	18	0.1	21	81	22	158
STANDARD G-1	< .3	1.04	< 2	< 3	257	< 3	0.62	< .2	5	101	3	2.11	< 10	0.5	8	0.67	579	2	0.06	9	0.078	4	< 3	72	5	0.15	< 8	42	< 2	46

AMERICAN ASSAY LABORATORIES
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CLIENT: *NEWMONT EXLORATION*
CLIENT REF: ROSEBUD MINE
AAL REF: SP047278
METHOD: AAL 01-2

ELEMENT SAMPLES	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppb	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sr ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Zn ppm
RS-420 660-680	0.3	1.68	3	< 3	107	< 3	2.33	0.9	1	5	6	1.23	< 10	0.28	46	0.21	893	< 1	0.18	3	0.018	35	< 3	878	12	< .01	< 8	5	< 2	42
RS-420 680-700	< .3	1.02	2	< 3	309	5	1.38	0.7	1	6	4	1.28	15	0.22	65	0.11	470	1	0.11	3	0.018	23	< 3	529	15	< .01	< 8	5	3	31
RS-420 700-720	< .3	0.46	< 2	< 3	41	< 3	0.32	0.7	< 1	4	6	1.82	40	0.16	60	0.03	182	2	0.05	3	0.01	30	< 3	157	18	0.01	< 8	4	3	25
RS-420 720-740	< .3	0.43	< 2	3	36	< 3	0.21	0.3	1	3	4	1.55	135	0.16	61	0.03	130	2	0.04	1	0.009	24	< 3	156	18	0.01	< 8	4	3	37
RS-420 740-760	< .3	0.51	< 2	< 3	29	< 3	0.48	0.4	1	2	5	1.21	160	0.15	63	0.04	409	2	0.04	2	0.009	40	< 3	178	17	0.01	< 8	2	< 2	53
RS-420 760-780	< .3	0.5	3	< 3	37	3	0.56	0.2	< 1	3	4	1.49	160	0.19	65	0.04	361	2	0.06	2	0.009	35	< 3	202	19	0.01	< 8	1	2	53
RS-420 780-800	< .3	0.53	< 2	< 3	89	3	0.4	< .2	< 1	3	4	1.52	65	0.2	63	0.04	260	2	0.05	2	0.014	26	< 3	203	19	0.01	< 8	2	2	34
RS-420 800-820	< .3	0.54	< 2	< 3	67	< 3	1.04	0.3	< 1	3	5	1.68	60	0.21	58	0.05	503	1	0.06	1	0.009	23	< 3	241	18	0.01	< 8	2	2	31
RS-420 820-840	0.3	0.55	< 2	< 3	226	< 3	0.51	< .2	< 1	2	3	1.29	135	0.21	65	0.04	189	1	0.06	1	0.009	20	< 3	255	18	< .01	< 8	1	< 2	22
RS-420 840-860	0.3	0.69	8	< 3	89	< 3	0.39	0.2	1	3	4	1.62	395	0.25	69	0.07	272	1	0.06	1	0.01	25	< 3	242	19	< .01	< 8	2	2	35
RS-420 860-880	0.3	0.64	5	< 3	290	< 3	0.25	< .2	< 1	2	5	1.32	285	0.2	81	0.07	221	1	0.06	1	0.011	43	< 3	257	22	< .01	< 8	1	< 2	25
RS-420 880-900	< .3	0.54	3	< 3	296	< 3	0.27	< .2	< 1	3	6	1.96	440	0.17	72	0.07	305	1	0.05	1	0.011	31	< 3	189	20	< .01	< 8	1	2	33
RS-420 900-920	0.3	0.7	4	< 3	394	< 3	0.3	0.2	1	3	6	1.83	715	0.13	79	0.1	534	2	0.04	2	0.01	36	< 3	178	20	< .01	< 8	2	< 2	49
RS-420 920-940	< .3	0.62	3	< 3	315	< 3	0.78	< .2	< 1	2	4	1.44	420	0.11	62	0.1	867	1	0.04	1	0.008	33	< 3	212	17	< .01	< 8	1	< 2	49
RS-420 940-960	< .3	0.98	2	< 3	461	< 3	2.5	0.2	< 1	2	4	1.71	295	0.19	68	0.11	695	1	0.06	1	0.01	33	< 3	354	18	0.01	< 8	1	3	54
RS-420 960-980	< .3	0.65	3	< 3	45	< 3	1.05	0.4	< 1	2	3	1.78	595	0.1	74	0.09	291	1	0.04	1	0.011	39	< 3	184	19	< .01	< 8	1	< 2	59
RS-420 980-995	< .3	1.4	13	< 3	45	< 3	1.31	0.7	42	31	44	2.15	560	0.25	47	0.26	304	2	0.08	208	0.066	35	< 3	372	13	< .01	< 8	24	< 2	75
RS-420 995-1015 Kis	0.8	0.99	27	< 3	39	3	2.96	5.8	16	31	73	3.57	240	0.17	15	0.77	556	16	0.04	83	0.09	24	6	253	5	< .01	< 8	34	< 2	440
RS-420 1015-1045	0.3	0.44	14	4	30	< 3	7.27	2	7	7	37	2.36	175	0.17	6	0.35	361	31	0.02	51	0.089	19	< 3	359	3	< .01	< 8	10	< 2	166
STANDARD C3	5.7	1.91	54	21	153	23	0.59	23.6	12	168	64	3.46	920	0.17	18	0.64	771	25	0.04	37	0.092	33	17	30	18	0.1	23	81	21	154
STANDARD G-1	< .3	1.04	< 2	< 3	258	< 3	0.62	< .2	5	103	3	2.18	< 10	0.5	8	0.67	587	2	0.07	10	0.081	3	< 3	72	4	0.15	< 8	43	2	44

0-50 cover
50-135 Tomy
135-995 Badger

Faulted contact with ALS at 995

995-1045 ALS

0 — 5419

2,204,809 N
484,475 E

Sandy cong Tbg soft

63–72 sill or flow
sandy & mud cong
90–99 sill or flow - dike?
sandy cong
117–134 Flow or intrusion

This looks like Tc but I think it is all Tbg

soft Tbg Poorly Sorted Sandy Cong

1

2

Soft Tbg

220–234 Flow or sill

Looks like Tbg w/ 95% Tc clasts? you bet!

Soft Tbg

FLT 270-280

3

Tbg soft

Tbg hard Poorly Sorted mudy, sandy cong & vol clastic

4

No gold!

5

Tbg

Hg 60 Hg

6

Tbg

FLT 665-680

Bx 666–679 Poss Fault zone still EQI clastic + cong. (Prob SRF)

7 Tbg

7 Tbs

Poorly sorted muddy Cong

Tbs? & poss volcaniclastic

679 to could all be Bad.

Hg

Gouge

matrix silicif?

FLT 745-760

matrix

774–784 flow or boulders of flow

8

Poorly Sorted mud-sand cong & Volcaniclastic.

FLT 855-875

F

9

900

Vol flow or sill

Bx ed flow or intrusion

941

FIT 985-995

956 Poor sort mud-sand cong

Local Bx flow or sill

F Fault 985–994 clay gouge? F

10

Cu

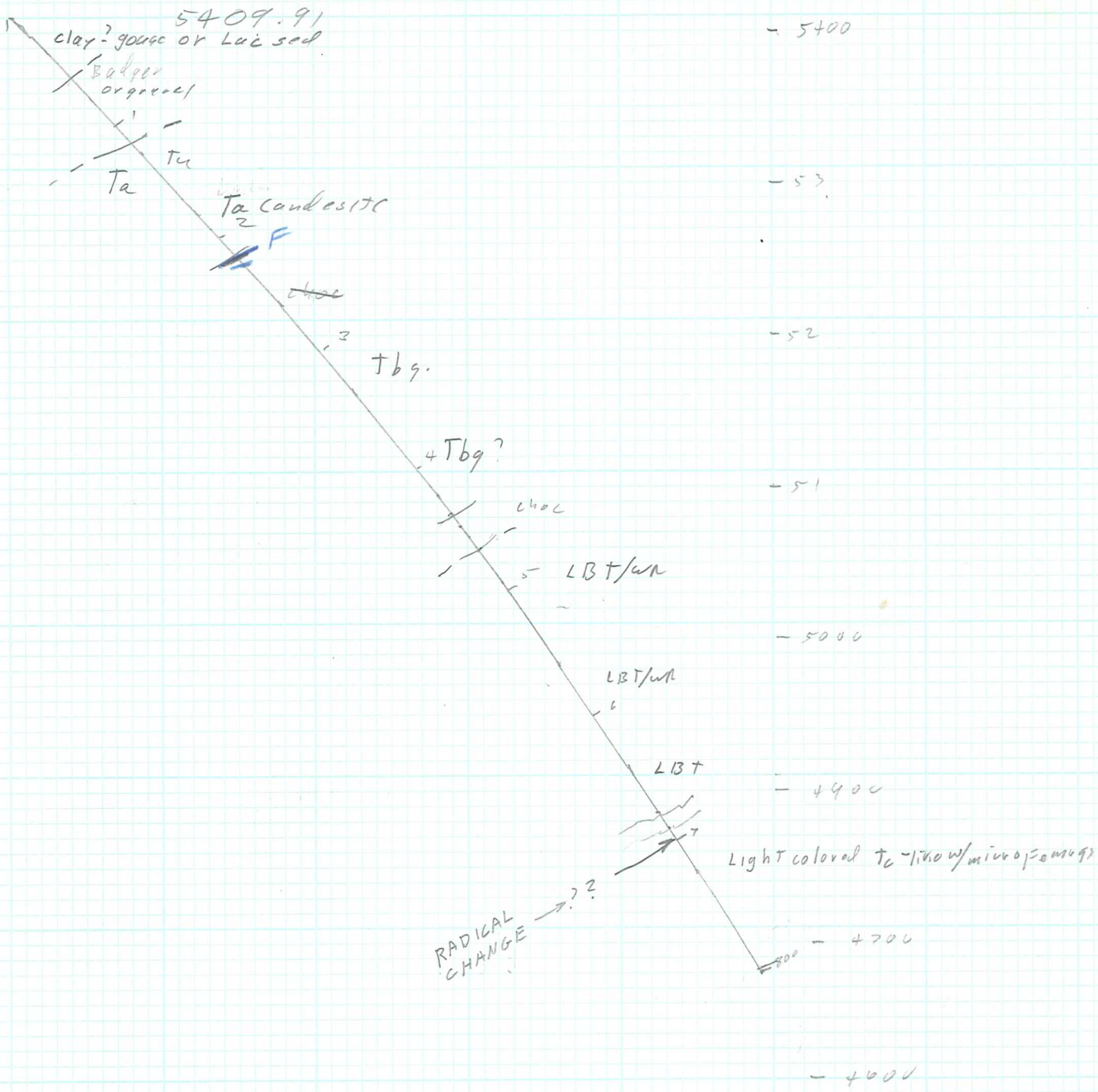
Tr Ag

ALS - carbonaceous, calcareous Phyllite

1045 TD

Rosebud
RS-420
1" = 100'

N 2,203,509.99
E 484,632.27



ROSEBUD
96-363
1"=100'

In plane of hole

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-420 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 10/30/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

WELNAV

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00
WATER CONTACT= 305'

****
****** DEPTH MEASURED IN FEET *******
****

COMMENTS: **** EKLUND ****
** JOHN WELCH **

****
****
*** THIS DIRECTIONAL SURVEY REPORT IS ****
** CORRECT TO THE BEST OF MY KNOWLEDGE ***
* AND IS SUPPORTED BY ACTUAL FIELD DATA! *
**
**
**
**
****
****

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311 WELL NAME: RS-420 / VS 035.00

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R PROP.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION	TEMP. DEG F
50.0	50.00	0.29	0.025	-89.34	129.95	0.18 S	0.22 E	1.32	0.66	0.29	AT 129.95	075.49
100.0	100.00	0.43	0.182	-89.55	262.62	0.40 S	0.25 E	2.04	1.02	0.47	AT 148.00	075.54
150.0	149.99	-0.04	0.471	-89.18	279.05	0.36 S	0.30 W	0.82	0.41	0.47	AT 219.61	074.67
200.0	199.99	-0.68	0.810	-89.16	275.20	0.27 S	1.02 W	0.12	0.06	1.06	AT 254.93	072.98
250.0	249.99	-1.19	1.048	-89.54	288.83	0.18 S	1.57 W	0.82	0.41	1.58	AT 263.60	069.85
300.0	299.98	-1.65	0.919	-89.26	339.86	0.19 N	1.88 W	1.15	0.58	1.89	AT 275.83	063.21
350.0	349.98	-1.98	0.613	-89.68	005.91	0.63 N	1.97 W	0.95	0.47	2.07	AT 287.80	063.13
400.0	399.98	-1.86	0.300	-89.39	079.27	0.82 N	1.70 W	1.20	0.60	1.89	AT 295.85	064.30
450.0	449.98	-1.34	-0.147	-89.03	087.66	0.89 N	1.01 W	0.75	0.38	1.35	AT 311.28	065.41
500.0	499.97	-0.68	-0.562	-89.17	099.07	0.85 N	0.23 W	0.45	0.23	0.88	AT 344.73	066.24
550.0	549.96	-0.04	-0.944	-89.13	089.02	0.80 N	0.51 E	0.31	0.15	0.94	AT 032.34	067.19
600.0	599.96	0.45	-1.413	-89.29	072.34	0.90 N	1.18 E	0.56	0.28	1.48	AT 052.71	067.84
650.0	649.96	0.83	-1.707	-89.55	110.83	0.92 N	1.66 E	0.91	0.45	1.90	AT 060.91	068.73
700.0	699.95	1.24	-1.850	-89.46	101.33	0.81 N	2.07 E	0.24	0.12	2.22	AT 068.74	069.64
750.0	749.95	1.79	-2.233	-88.98	084.62	0.80 N	2.75 E	1.05	0.53	2.86	AT 073.73	070.69
800.0	799.94	2.53	-2.697	-88.99	101.47	0.76 N	3.62 E	0.60	0.30	3.70	AT 078.21	071.74
850.0	849.93	3.61	-3.060	-88.41	109.36	0.44 N	4.71 E	1.21	0.61	4.73	AT 084.68	072.60
900.0	899.91	4.97	-3.447	-88.33	109.11	0.03 S	6.05 E	0.16	0.08	6.05	AT 090.28	073.60
950.0	949.88	6.52	-3.827	-88.03	112.84	0.60 S	7.53 E	0.64	0.32	7.56	AT 094.57	074.52
1000.0	999.85	8.22	-4.258	-87.94	108.89	1.23 S	9.17 E	0.33	0.17	9.26	AT 097.61	076.26
1045.0	1044.82	9.77	-4.815	-87.86	101.67	1.66 S	10.76 E	0.61	0.28	10.89	AT 098.76	076.96

```
*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*  1045.0 FEET EQUALS     10.89    FEET AT   098.76         *
*                          ********                         *
*************************************************************
```

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-420 / VERTICAL

LOCATION: ROSEBUD MINE

SURVEY DATE: 10/30/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

WATER CONTACT= 305'

WELNAV

****
****** DEPTH MEASURED IN FEET *******
****

COMMENTS: **** EKLUND ****
** JOHN WELCH **

****
****
*** THIS DIRECTIONAL SURVEY REPORT IS ****
** CORRECT TO THE BEST OF MY KNOWLEDGE ***
* AND IS SUPPORTED BY ACTUAL FIELD DATA! *
**
**
**
**
****
****

****
COMPANY REPRESENTATIVE

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311 WELL NAME: RS-420 / VERTICAL

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R CLOS.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION	TEMP. DEG F
50.0	50.00	0.25	0.149	-89.34	129.95	0.18 S	0.22 E	1.32	0.66	0.29	AT 129.95	075.49
100.0	100.00	0.30	0.353	-89.55	262.62	0.40 S	0.25 E	2.04	1.02	0.47	AT 148.00	075.54
150.0	149.99	-0.24	0.406	-89.18	279.05	0.36 S	0.30 W	0.82	0.41	0.47	AT 219.61	074.67
200.0	199.99	-0.97	0.427	-89.16	275.20	0.27 S	1.02 W	0.12	0.06	1.06	AT 254.93	072.98
250.0	249.99	-1.53	0.414	-89.54	288.83	0.18 S	1.57 W	0.82	0.41	1.58	AT 263.60	069.85
300.0	299.98	-1.88	0.096	-89.26	339.86	0.19 N	1.88 W	1.15	0.58	1.89	AT 275.83	063.21
350.0	349.98	-2.05	-0.326	-89.68	005.91	0.63 N	1.97 W	0.95	0.47	2.07	AT 287.80	063.13
400.0	399.98	-1.80	-0.554	-89.39	079.27	0.82 N	1.70 W	1.20	0.60	1.89	AT 295.85	064.30
450.0	449.98	-1.14	-0.724	-89.03	087.66	0.89 N	1.01 W	0.75	0.38	1.35	AT 311.28	065.41
500.0	499.97	-0.36	-0.804	-89.17	099.07	0.85 N	0.23 W	0.45	0.23	0.88	AT 344.73	066.24
550.0	549.96	0.38	-0.866	-89.13	089.02	0.80 N	0.51 E	0.31	0.15	0.94	AT 032.34	067.19
600.0	599.96	1.03	-1.068	-89.29	072.34	0.90 N	1.18 E	0.56	0.28	1.48	AT 052.71	067.84
650.0	649.96	1.50	-1.165	-89.55	110.83	0.92 N	1.66 E	0.91	0.45	1.90	AT 060.91	068.73
700.0	699.95	1.93	-1.113	-89.46	101.33	0.81 N	2.07 E	0.24	0.12	2.22	AT 068.74	069.64
750.0	749.95	2.59	-1.211	-88.98	084.62	0.80 N	2.75 E	1.05	0.53	2.86	AT 073.73	070.69
800.0	799.94	3.46	-1.299	-88.99	101.47	0.76 N	3.62 E	0.60	0.30	3.70	AT 078.21	071.74
850.0	849.93	4.59	-1.151	-88.41	109.36	0.44 N	4.71 E	1.21	0.61	4.73	AT 084.68	072.60
900.0	899.91	5.99	-0.892	-88.33	109.11	0.03 S	6.05 E	0.16	0.08	6.05	AT 090.28	073.60
950.0	949.88	7.54	-0.552	-88.03	112.84	0.60 S	7.53 E	0.64	0.32	7.56	AT 094.57	074.52
1000.0	999.85	9.25	-0.185	-87.94	108.89	1.23 S	9.17 E	0.33	0.17	9.26	AT 097.61	076.26
1045.0	1044.82	10.89	-0.000	-87.86	101.67	1.66 S	10.76 E	0.61	0.28	10.89	AT 098.76	076.96

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*************************************************************
*                         ********                          *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                         ********                          *
*  1045.0 FEET EQUALS     10.89    FEET AT   098.76         *
*                         ********                          *
*************************************************************
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-420 / VS 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 10/30/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 035.00
WATER CONTACT= 305'

****
****** DEPTH MEASURED IN FEET *******
****

COMMENTS: **** EKLUND ****
** JOHN WELCH **

****
****
*** THIS DIRECTIONAL SURVEY REPORT IS ****
** CORRECT TO THE BEST OF MY KNOWLEDGE ***
* AND IS SUPPORTED BY ACTUAL FIELD DATA! *
**
**
**
**
****
****

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311

WELL NAME: RS-420 / VS 305.00

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R PROP.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISPLACEMENT DISP.	STATION DISPLACEMENT DIRECTION	TEMP. DEG F
50.0	50.00	-0.02	0.287	-89.34	129.95	0.18 S	0.22 E	1.32	0.66	0.29	AT 129.95	075.49
100.0	100.00	-0.18	0.429	-89.55	262.62	0.40 S	0.25 E	2.04	1.02	0.47	AT 148.00	075.54
150.0	149.99	-0.47	-0.038	-89.18	279.05	0.36 S	0.30 W	0.82	0.41	0.47	AT 219.61	074.67
200.0	199.99	-0.81	-0.678	-89.16	275.20	0.27 S	1.02 W	0.12	0.06	1.06	AT 254.93	072.98
250.0	249.99	-1.05	-1.189	-89.54	288.83	0.18 S	1.57 W	0.82	0.41	1.58	AT 263.60	069.85
300.0	299.98	-0.92	-1.646	-89.26	339.86	0.19 N	1.88 W	1.15	0.58	1.89	AT 275.83	063.21
350.0	349.98	-0.61	-1.979	-89.68	005.91	0.63 N	1.97 W	0.95	0.47	2.07	AT 287.80	063.13
400.0	399.98	-0.30	-1.861	-89.39	079.27	0.82 N	1.70 W	1.20	0.60	1.89	AT 295.85	064.30
450.0	449.98	0.15	-1.339	-89.03	087.66	0.89 N	1.01 W	0.75	0.38	1.35	AT 311.28	065.41
500.0	499.97	0.56	-0.677	-89.17	099.07	0.85 N	0.23 W	0.45	0.23	0.88	AT 344.73	066.24
550.0	549.96	0.94	-0.044	-89.13	089.02	0.80 N	0.51 E	0.31	0.15	0.94	AT 032.34	067.19
600.0	599.96	1.41	0.451	-89.29	072.34	0.90 N	1.18 E	0.56	0.28	1.48	AT 052.71	067.84
650.0	649.96	1.71	0.830	-89.55	110.83	0.92 N	1.66 E	0.91	0.45	1.90	AT 060.91	068.73
700.0	699.95	1.85	1.236	-89.46	101.33	0.81 N	2.07 E	0.24	0.12	2.22	AT 068.74	069.64
750.0	749.95	2.23	1.791	-88.98	084.62	0.80 N	2.75 E	1.05	0.53	2.86	AT 073.73	070.69
800.0	799.94	2.70	2.534	-88.99	101.47	0.76 N	3.62 E	0.60	0.30	3.70	AT 078.21	071.74
850.0	849.93	3.06	3.606	-88.41	109.36	0.44 N	4.71 E	1.21	0.61	4.73	AT 084.68	072.60
900.0	899.91	3.45	4.974	-88.33	109.11	0.03 S	6.05 E	0.16	0.08	6.05	AT 090.28	073.60
950.0	949.88	3.83	6.515	-88.03	112.84	0.60 S	7.53 E	0.64	0.32	7.56	AT 094.57	074.52
1000.0	999.85	4.26	8.219	-87.94	108.89	1.23 S	9.17 E	0.33	0.17	9.26	AT 097.61	076.26
1045.0	1044.82	4.81	9.767	-87.86	101.67	1.66 S	10.76 E	0.61	0.28	10.89	AT 098.76	076.96

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*************************************************************
*                        ********                           *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                        ********                           *
*  1045.0 FEET EQUALS     10.89   FEET AT   098.76          *
*                        ********                           *
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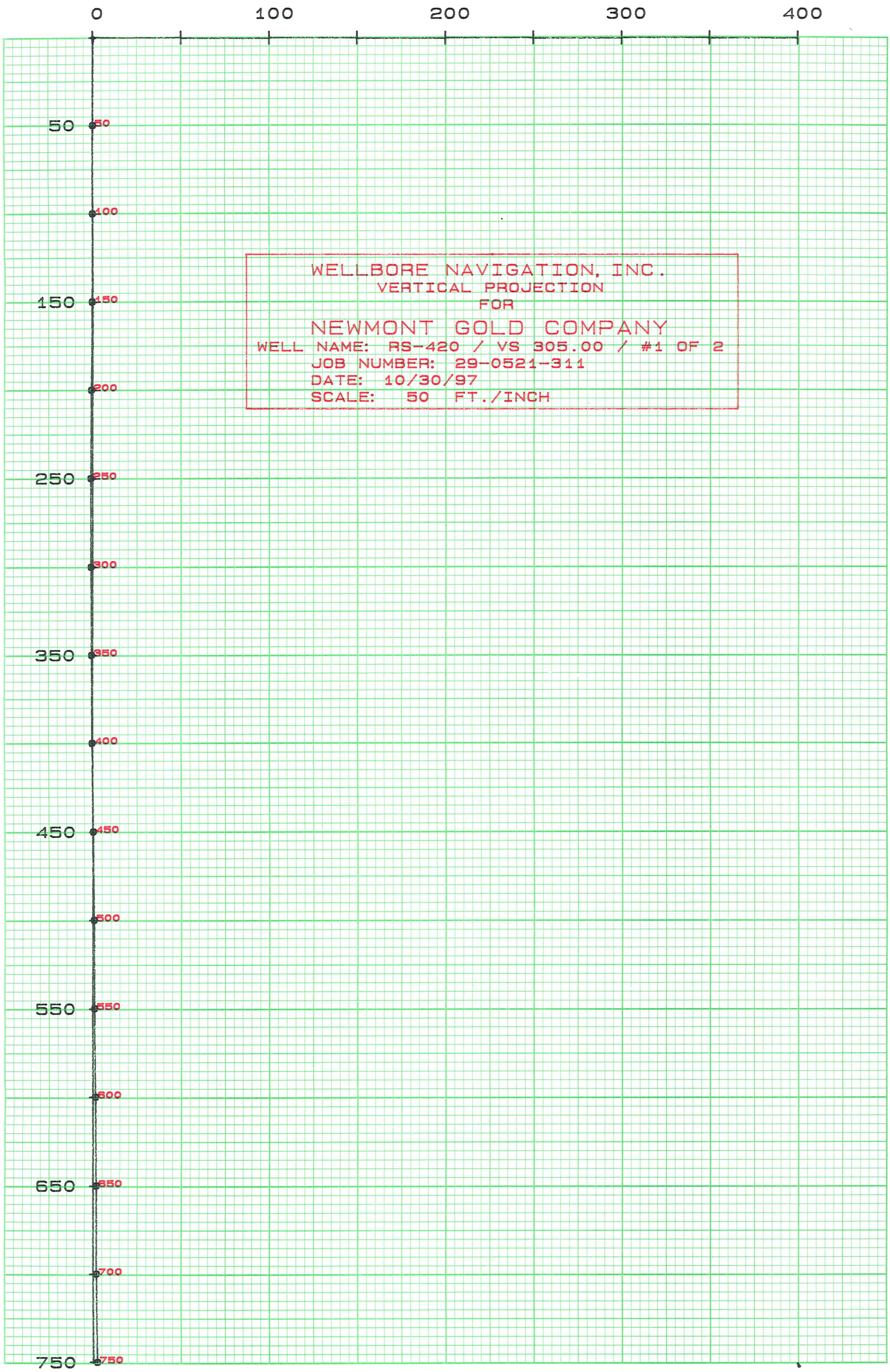
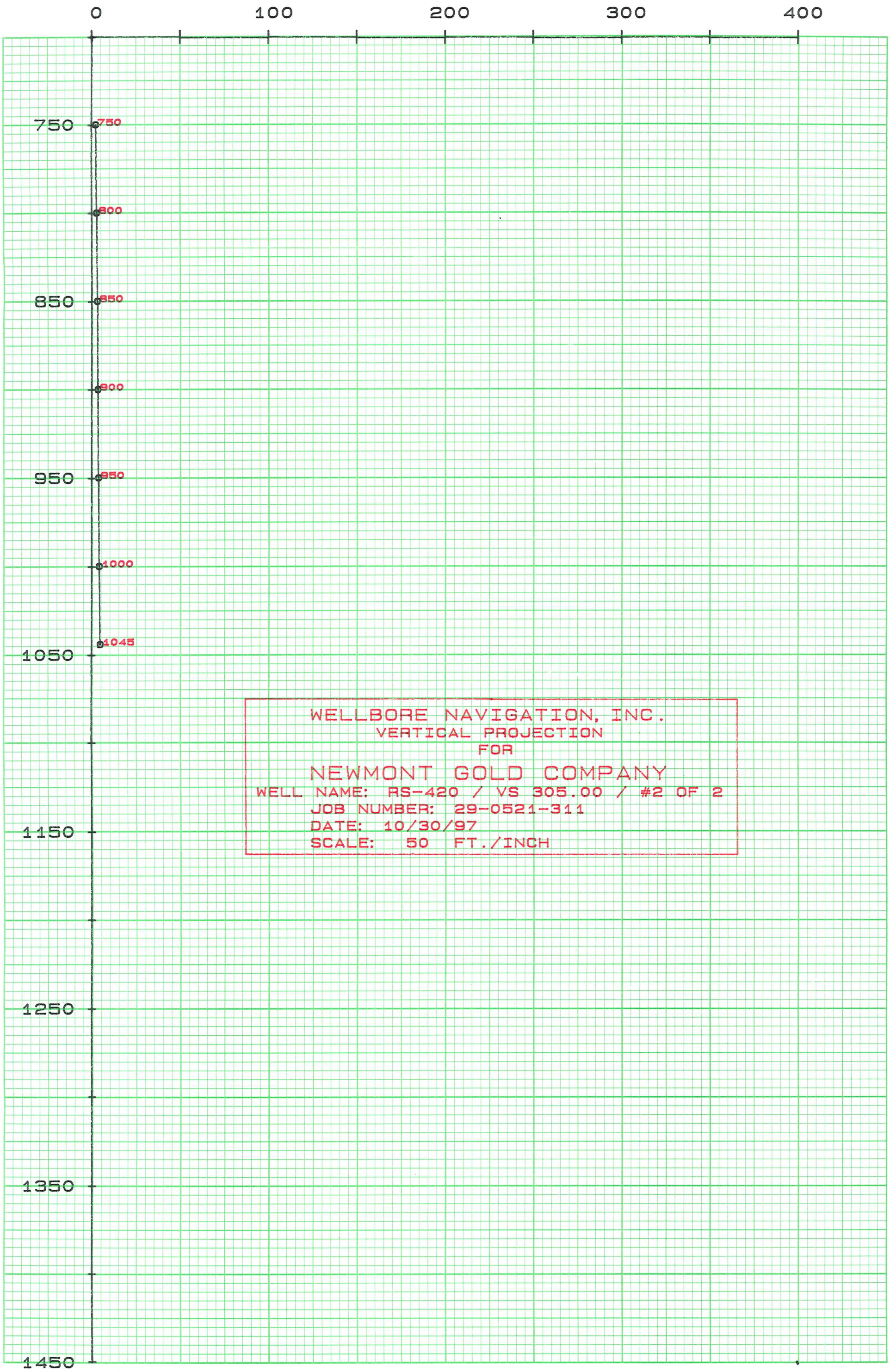


STARLIGHT PRINTING (801) 467-2841



American Assay Laboratories

INVOICE

Remit To: P.O. Box11530
Reno, Nevada 89510
Phone NO.: 702-356-0606
Fax No.: 702-356-1413

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431

(702) 356-0606

INVOICE NO: SP 0047278-IN
INVOICE DATE: 12/17/97

INVOICE TO:
NEWMONT EXPLORATION LTD.

861 W. 6TH STREET
WINNEMUCCA NV 89445

NEWMONT EXPLORATION LTD.

861 W. 6TH STREET
WINNEMUCCA NV 89445

CUSTOMER P.O.	PROJECT	TERMS
RS-420	ROSEBUD EXPLOR.	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
209	SAMPLES RECEIVED	.00	.00
3	NO PREPARATION REQUIRED	.00	.00
206	DRYING	1.00	206.00
206	JAW CRUSHING CHARGE	1.30	267.80
206	SPLITTING CHARGE	1.20	247.20
206	FINE MILLING CHARGE	2.00	412.00
168	COMPOSITE CHARGE	1.00	168.00
86	Au (1 A.T. FIRE ASSAY)	8.00	688.00
86	HYDROCHLORIC/NITRIC DIGESTION	2.00	172.00
86	Ag ANALYSES	1.00	86.00
52	MULTI-ELEMENT ICP PACKAGE	9.80	509.60

COPY

NET INVOICE:	2,756.60
LESS DISCOUNT:	551.32
FREIGHT:	.00
INVOICE TOTAL:	2,205.28

CENTRAL BUSINESS FORMS — RENO — (702) 329-6405

SP

SUBMITTAL FORM

American Assay Laboratories

Geochemical • Environmental • Metallurgical

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 11530
Reno, NV 89510
Telephone
(702) 356-0606
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(702) 356-1413

Tucson Office
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Tucson, AZ 85706
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Fax
(520) 294-6352

Elko Office
2320 Last Chance Rd.
Nevada 89801
Box 2908
Elko, NV 89801
Telephone
(702) 738-9100
Fax
(702) 738-2594

Mazatlan Office
Telephone/Fax
011-52-69-170035

Other Offices
Lima, Peru
Santiago, Chile
Mendoza, Argentina

Company: Newmont Exploration

Address: 861 W. 6th Street

City Winnemucca State NV Zip 89445

Telephone Number: (702) 623-3493 Fax Number: (702) 623-1052

Project Name: Rosebud Exploration Purchase Order Number:

Date Submitted: 11/14/97 Number of Samples: ~~84 samples~~ 209

RESULTS REPORTED IN: ppm [ ] ppb [ ] opt [ ]

SAMPLE IDENTIFICATION	TYPE	ELEMENTS REQUIRED
RS-420		
0-840' 42 samples @ 20' composites	RC	Au/Ag by FA/AA and Hg by AA and
dry-crush-split-composite 4		ICP package on 4-sample composites
5' samples - save coarse reject		
for each 5' sample separately		
845-1045' T.D. 42 5' samples	RC	Au/Ag by FA/AA on each 5' sample
split pulverized sample - composite		
4 5' samples through 980', then		
composite 985 + 990 + 995,		
1000 + 1005 + 1010 + 1015,		
1020 + 1025 + 1030 + 1035 + 1040 + 1045		
for 10 samples @ 20±' composites		ICP package and Hg by AA on
		20±' composites (exclude 875B
		from composites)

COARSE REJECTS (Normally Discarded After 60 Days)

[ ] Return COD after analysis complete

PULPS (Normally Stored Free For One Month)

[ ] Discard after one month
[ ] Return COD after one month

RESULTS AND INVOICES TO BE SENT TO:

Invoice to:

Charlotte Ballew
Newmont Exploration
Winnemucca

Results to:

Randy Vance
Newmont Exploration
861 W. 6th Street
Winnemucca, NV 89445

0-840' Newmont Composite Prep
845-1045' Standard Prep

Comments:

0-840' 230 (only sample not "B")
G 0 3 - 157

845-10 605 (only sample, not "B")
G 0 3 - 157

G 0 3 - 157

G 0 3 - 157

MS-1
(RMG1)
875B

PEEL HERE

PEEL HERE

CLIENT FILE COPY

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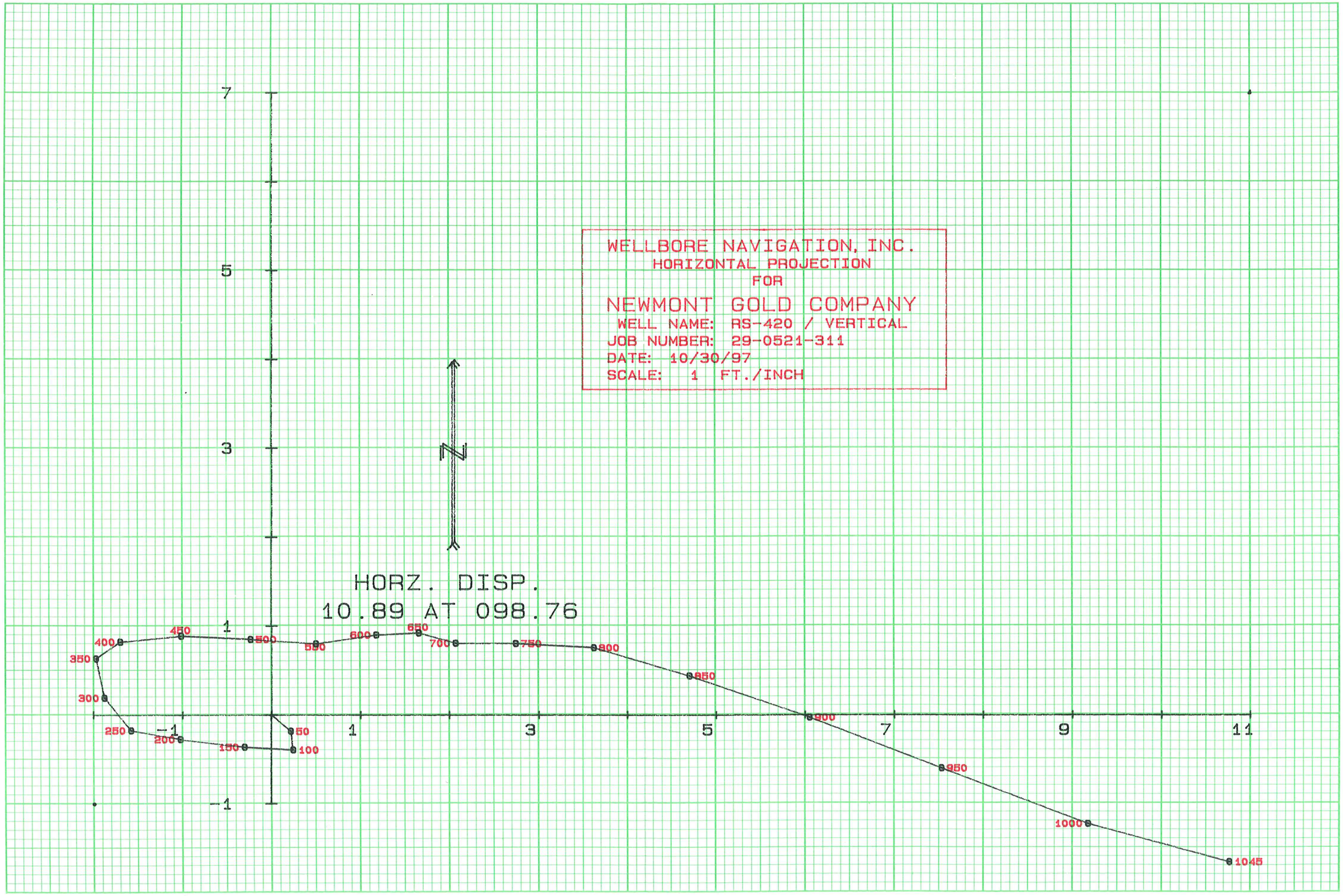
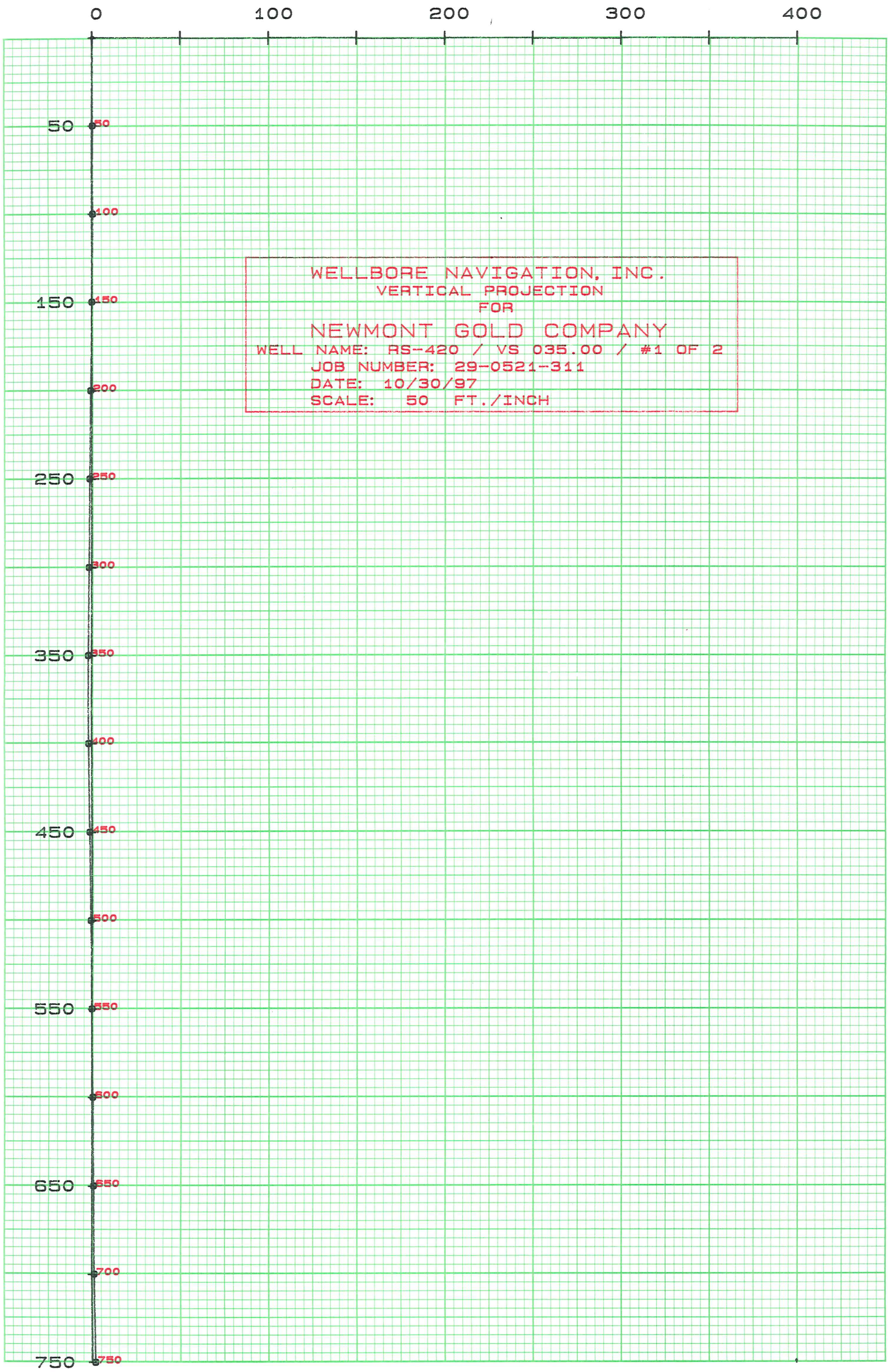
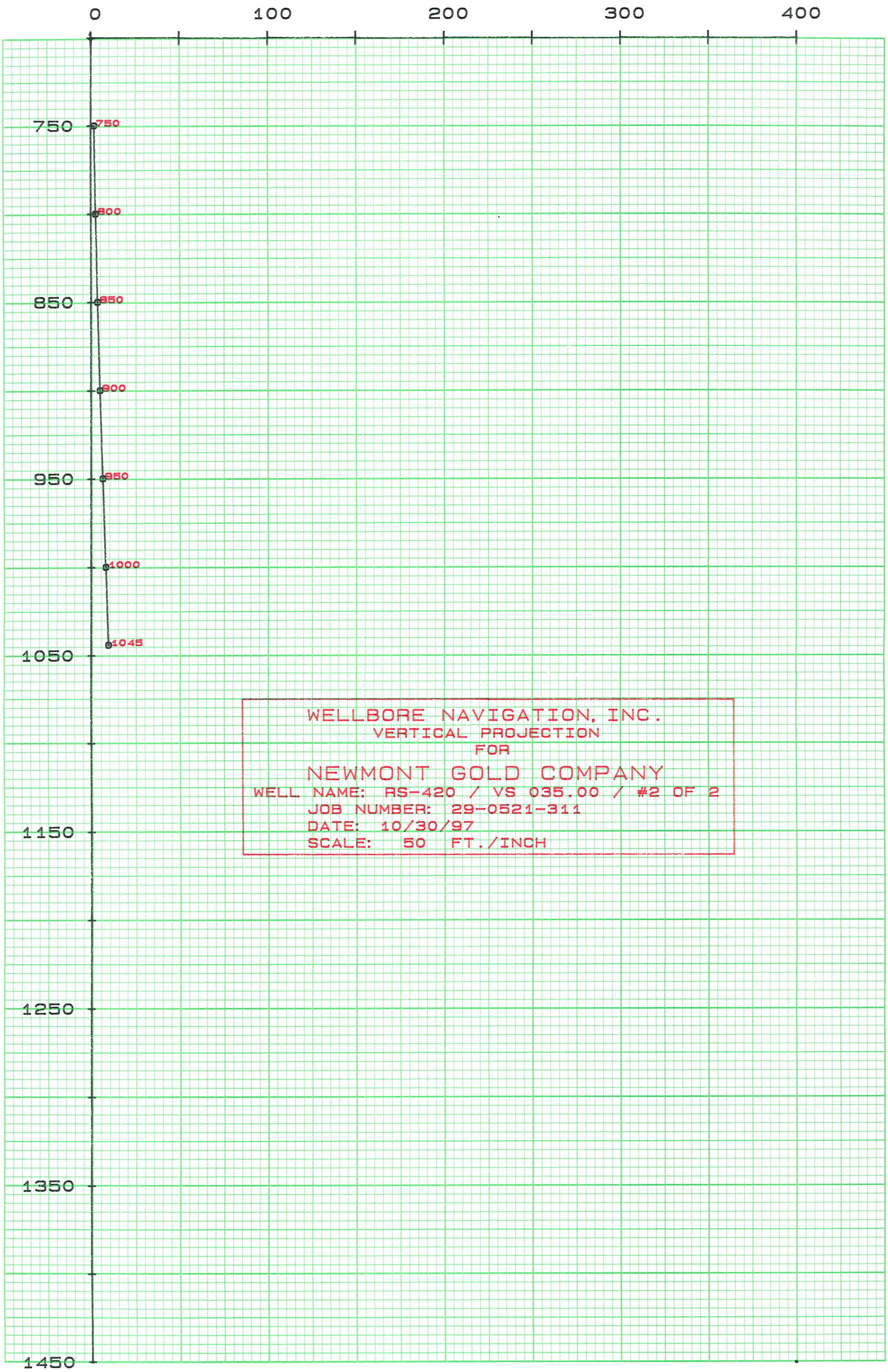


STARLIGHT PRINTING (801) 467-2841



STARLIGHT PRINTING (801) 467-2841



xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047278

American Assay Laboratories

PO BOX 11530
RENO NV,USA
Ph.(702) 356-0606, Fax.(702) 356-1413

NEWMONT GOLD COMPANY

COPIES TO : RANDY VANCE

: KURT ALLEN

:

:

CLIENT REFERENCE No: RS-420 RECEIVED : 17 NOV 1997

No. SAMPLES : 86 REPORTED : 18 NOV 1997

MAIN SAMPLE TYPE : DRILL CUTTINGS

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

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au	FA30	15%	ppb	5
Au(R)	FA30	15%	ppb	5
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
Ag	D210	10%	ppm	0.5
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047278

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-420

REPORTED : 18 NOV 1997

SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-420 000-020	<5		<0.001		<0.5	<0.02
RS-420 020-040	<5		<0.001		<0.5	<0.02
RS-420 040-060	<5		<0.001		<0.5	<0.02
RS-420 060-080	<5		<0.001		<0.5	<0.02
RS-420 080-100	5		<0.001		<0.5	<0.02
RS-420 100-120	<5		<0.001		<0.5	<0.02
RS-420 120-140	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-420 140-160	<5		<0.001		<0.5	<0.02
RS-420 160-180	<5		<0.001		<0.5	<0.02
RS-420 180-200	<5		<0.001		<0.5	<0.02
RS-420 200-220	<5		<0.001		<0.5	<0.02
RS-420 225-230B	6027		0.176		1.6	0.05
RS-420 220-240	<5		<0.001		<0.5	<0.02
RS-420 240-260	<5		<0.001		<0.5	<0.02
RS-420 260-280	<5		<0.001		<0.5	<0.02
RS-420 280-300	<5		<0.001		<0.5	<0.02
RS-420 300-320	<5		<0.001		<0.5	<0.02
RS-420 320-340	<5		<0.001		<0.5	<0.02
RS-420 340-360	<5		<0.001		<0.5	<0.02
RS-420 360-380	<5		<0.001		<0.5	<0.02
RS-420 380-400	<5		<0.001		<0.5	<0.02
RS-420 400-420	<5		<0.001		<0.5	<0.02
RS-420 420-440	<5		<0.001		<0.5	<0.02
RS-420 440-460	<5		<0.001		<0.5	<0.02
RS-420 460-480	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047278

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-420

REPORTED : 18 NOV 1997

SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-420 480-500	<5		<0.001		<0.5	<0.02
RS-420 500-520	<5		<0.001		<0.5	<0.02
RS-420 520-540	<5		<0.001		<0.5	<0.02
RS-420 540-560	<5		<0.001		<0.5	<0.02
RS-420 560-580	<5		<0.001		<0.5	<0.02
RS-420 580-600	<5		<0.001		<0.5	<0.02
RS-420 600-605B	6346		0.185		1.4	0.04
RS-420 600-620	<5		<0.001		<0.5	<0.02
RS-420 620-640	<5		<0.001		<0.5	<0.02
RS-420 640-660	<5		<0.001		<0.5	<0.02
RS-420 660-680	<5		<0.001		<0.5	<0.02
RS-420 680-700	<5		<0.001		<0.5	<0.02
RS-420 700-720	<5		<0.001		<0.5	<0.02
RS-420 720-740	<5		<0.001		<0.5	<0.02
RS-420 740-760	<5		<0.001		<0.5	<0.02
RS-420 760-780	<5		<0.001		<0.5	<0.02
RS-420 780-800	<5		<0.001		<0.5	<0.02
RS-420 800-820	<5		<0.001		<0.5	<0.02
RS-420 820-840	<5		<0.001		<0.5	<0.02
RS-420 840-845	6		<0.001		<0.5	<0.02
RS-420 845-850	<5		<0.001		<0.5	<0.02
RS-420 850-855	<5		<0.001		<0.5	<0.02
RS-420 855-860	<5		<0.001		<0.5	<0.02
RS-420 860-865	<5		<0.001		<0.5	<0.02
RS-420 865-870	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

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American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
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REFERENCE : RS-420

REPORTED : 18 NOV 1997

SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-420 870-875A	<5		<0.001		<0.5	<0.02
RS-420 870-875B	111		0.003		<0.5	<0.02
RS-420 875-880	<5		<0.001		<0.5	<0.02
RS-420 880-885	<5		<0.001		<0.5	<0.02
RS-420 885-890	<5		<0.001		<0.5	<0.02
RS-420 890-895	<5		<0.001		<0.5	<0.02
RS-420 895-900	<5		<0.001		<0.5	<0.02
RS-420 900-905	<5		<0.001		<0.5	<0.02
RS-420 905-910	<5		<0.001		<0.5	<0.02
RS-420 910-915	<5		<0.001		<0.5	<0.02
RS-420 915-920	<5		<0.001		<0.5	<0.02
RS-420 920-925	<5		<0.001		<0.5	<0.02
RS-420 925-930	<5		<0.001		<0.5	<0.02
RS-420 930-935	<5		<0.001		<0.5	<0.02
RS-420 935-940	<5		<0.001		<0.5	<0.02
RS-420 940-945	<5		<0.001		<0.5	<0.02
RS-420 945-950	<5		<0.001		<0.5	<0.02
RS-420 950-955	<5		<0.001		<0.5	<0.02
RS-420 955-960	<5		<0.001		<0.5	<0.02
RS-420 960-965	<5		<0.001		<0.5	<0.02
RS-420 965-970	<5		<0.001		<0.5	<0.02
RS-420 970-975	<5		<0.001		<0.5	<0.02
RS-420 975-980	<5		<0.001		<0.5	<0.02
RS-420 980-985	<5		<0.001		<0.5	<0.02
RS-420 985-990	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047278

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-420

REPORTED : 18 NOV 1997

SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-420 990-995	<5		<0.001		<0.5	<0.02
RS-420 995-1000	<5		<0.001		<0.5	<0.02
RS-420 1000-1005	<5		<0.001		1.6	0.05
RS-420 1005-1010	<5		<0.001		0.9	0.03
RS-420 1010-1015	<5		<0.001		0.8	0.02
RS-420 1015-1020	<5		<0.001		<0.5	<0.02
RS-420 1020-1025	<5		<0.001		<0.5	<0.02
RS-420 1025-1030	<5		<0.001		<0.5	<0.02
RS-420 1030-1035	<5		<0.001		<0.5	<0.02
RS-420 1035-1040	<5		<0.001		0.6	<0.02
RS-420 1040-1045	<5		<0.001		<0.5	<0.02

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 1 of 21
Log'd by: G. Langstaff Date: 11/2/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-1045'	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
																				colluvium?		weakly calcareous to 50'		
5																				↓				
			10R3/6?	Sed.	<vf-	massive,	25	f-c	subang	white	volc?									poorly sorted		soft, dark reddish brown chips of		
			dk reddish		>1cm?	matrix-			plate	black	bi									sandy-cgl		muddy sandstone(cgl)? down to 35' may		
			brown			sup.			subrnd	dark	volc?									mudstone		be from epiclastic unit near surface or		
10			↓					in dk	reddish	brown	clayey matrix											interbedded somewhere with massive flows		
			10R7/2				<1	.5mm	chunk	grey/wht	fel?											weird soft chips mottled white & dk grey		
			dark rd				<1	<1mm	chunk prism	black	hb?	in massive volcanic chips										of unknown origin		
			brown+																					
15			5YR3/1																					
			dk brn-					various but generally dark massive volcanic clasts (?)														more weird white & dk grey chips		
			grey					up to 2cm (or possibly interbedded flows)																
20																								
																						some sandy mudstone chips have grey		
																						as well as reddish brown clayey matrix		
25																								
			mostly				<1	<1mm	plate	brn black	biotite	-	in massive volcanic chip									dark grey chips commonly have irregular		
			N3-dark																			black markings of uncertain origin		
			grey																			rare weakly magnetic chips		
30			chips																					
			but still																					
			reddish																					
			brown																					
35			clay matrix																					
							<1	1.5mm	plate	brn-black	biotite											weird white and dk grey chips		
																						clayey matrix is more strongly lithified		
40																								
								still mostly dark grey aphanitic volcanic chips														pale grey chip with 3mm wide zone		
																						of fine laminations		
45																								
50																								

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 2 of 21
Log'd by: G. Langstaff Date: 11/2/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-1045'	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
55			mostly N3-dk grey chips but	Sed	<vf-7lcm?	massive	mostly chips of dk grey, aphanitic volc. w/ sparse mafic phenos but reddish brown chips of sandy mudstone also common some paler grey massive to finely laminated chips, too													poorly sorted, sandy-cgl mudstone		weakly to slightly calcareous to 100'		
60			common rd-brown to brn-black, too																			white clay veinlets/fractures filling on some chips		
65			N4 grey w/ some red stain	Volc	aph	massive	<1	≤2mm	prism	reddish-brn to black	hbl									weakly porph. massive flow or intrusion				
70																								
75			5YR2/1 brn-black 5YR3/2	Sed	<vf-7lcm?	massive, matrix-sup	mostly dk grey volc chips w/ sparse mafic phenos but other varieties, too													poorly sorted, muddy-sandy conglomerate?				
80			dk brn & some paler grey or reddish																					
85			brown chips																					
90																						some white clay in fractures and amygdales?		
95			N3 dk grey with some brn tints	Volc	aph	massive	<1	≤2mm	prism	black	hbl									weakly porph. massive flow or intrusion				
100				see	next	page for	description																	

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 3 of 21
Log'd by: G. Langstaff Date: 11/2/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-1045'	

Depth (ft.)	GRAPHIC: Rock	GRAPHIC: Alt/Vn	ROCK: Color	ROCK: Rock Type	ROCK: Grain Size	ROCK: Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS: %	PHENOS/LAPILLI/CLASTS: Size	PHENOS/LAPILLI/CLASTS: Shape	PHENOS/LAPILLI/CLASTS: Color	PHENOS/LAPILLI/CLASTS: Mineral/ Type	ALTERATION: Int.	ALTERATION: Distrib.	ALTERATION: Type	ALTERATION: Minerals	VEINS: Thick.	VEINS: Abund.	VEINS: Selvedge	VEINS: Minerals	INTERPRETATION: Rock Name/ Composition	INTERPRETATION: Formation	Comments	Recovery	Assay
			mostly	Sed	<vf-	massive		mottled	grey &	white chips with	.5mm biotite	flakes								poorly sorted,		slightly calcareous to 115'		
			N4 dk grey		>1cm?			mostly	grey,	aphanitic	volc w/	sparse mafic	phenos							muddy-sandy		a few chips of sandy mudstone suggest		
			but also					rare	pale,	clay altered?	chips									conglomerate?		this is epiclastic even though most chips		
105			reddish																			are similar grey volc.		
			brown &													<1mm	rare	none	white cat clay			chip of coarse calcite		
			some pale																					
			chips																					
110																								
																						chip of coarse calcite (vein or amygd?)		
115																								
			N4 dark	Volc	aph	massive,														weakly porph.				
120			grey w/			locally														massive flow				
			reddish			brecciated	<1	1.5mm	long	brn-black	hbl									or intrusion				
			brn in																					
			fract. &																					
125			breccia																					
			matrix				<1	<3mm	stubby	brn-black	hbl													
130																								
							<1	<1mm	plate	brn-black	bi													
							<1	2mm	long	brown	hbl→Feox													
135			5YR3/4	Sed	<vf-	massive		pale,	ang clasts	and biotite flakes	in mudstone chips									poorly sorted				
			10R3/6		>1cm?			white,	clay-altered	chips					more red clay					sandy-cong?		slightly calcareous to 150'		
			reddish					pale	volc. w/	local fine laminations					clast composition different					mudstone		more red clay so almost certainly		
			brown					some	dk grey	volcanic					than sedimentary beds							epiclastic bed rather than lithic		
140			lat w/					lots of	soft	chips of	reddish brown	muddy sandstone			above							tuff or bx flow		
			dk grey,																					
			pale grey,																					
			pale brn																					
145			chips																					
150																								

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 4 of 21
Log'd by: G. Langstaff Date: 11/2/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-1045'	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
155			average 5YR2/1 dk brown but also grey grey-brn red-brn	Sed	<vf >lam?	massive		relatively clay-rich samples continue to 200' dark chips w/ 1mm white, oblong feldspar or <1mm biotite or no phenos mottled pale and dark grey chips with 1.5mm biotite grey aphanitic chips with 1-1.5mm xbl many reddish brown muddy sandstone chips with variety mostly pale, subangular, f-c sand and rare biotite											poorly sorted sandy-cgl mudstone		very slightly calcareous to 200' some chips are magnetic clast composition may vary from sample to sample		
160																								
165																								
170																								
175																								
180																						calcite vein? some of muddy matrix is grey rather than red		
185																						more grey matrix		
190																						some muddy sandstone chips with common biotite		
195																								
200																								

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 5 of 21
Log'd by: G. Langstaff Date: 11/3/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): chips 0 - 1045'	

Depth (ft.)	GRAPHIC Rock	Alt/Vn	ROCK Color	Rock Type	Grain Size	Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	Size	Shape	Color	Mineral/ Type	ALTERATION Int.	Distrib.	Type	Minerals	VEINS Thick.	Abund.	Selvedge	Minerals	INTERPRETATION Rock Name/ Composition	Formation	Comments	Recovery	Assay
205			10R 2/4-10R3/2 dkreddish brown	Sed	<vf-?/cm?	massive		chips of sandy mudstone with clasts of volc (some argillically altered?) sparse magnetite grams, medium grey, aphanitic volc chips	subangular, generally pale and flakes of biotite, some qtz. and possibly feldspar grams											poorly sorted sandy-rgl mudstone		slightly calcareous lump of yellow & grey clay with pyrite		
210								dark grey aphanitic volc chips white, clayey chips of argillically altered volc? mottled pale and dark grey chips																
215																						very slightly calcareous		
220																								
225			5YR4/1-N5 brownish grey	Volc	aph	massive local micro-porphyr., rare breccia	<1 <1 <1	<.2mm <.5mm <.1mm	prisms round irreg specks	black bin-black black	hbl mafic dots? ?									weakly micro-porphyritic, weakly brecc. flow or intrusion		rare calcareous chips to 250' 1 chip w/ possible breccia texture, matrix slightly darker than clasts"		
230							<1	<1mm	irreg	white	amygd?											chip with whiter clasts in darker matrix		
235			mostly	Sed?	<vf-	massive,	50?	.2-3mm	subang blocky	white	volc clasts?											a couple of sandy mudstone chips chip of coarse qtz		
240			N4 grey with some paler and some browner		5mm or 7?	matrix-sup		possibly some chip-size clasts of grey volc like 220'-234' in hard, grey matrix (locally red locally soft & clayey)												resed.? volcaniclastic sandy mudstone				
245																								
250																								

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 6 of 21
Log'd by: G. Langstaff Date: 11/3/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-1045'	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
255			5YR4/2-5YR3/2	Sed.	<uf -3mm ls??	matrix-sup	30	.3-3mm in brown matrix of fine sed & clay w/sparse mafic minerals; larger monolithic chips may also be clasts: grey volc, pale altered(?) volc	blocky subang	white & grey	volc.									resed.? volcaniclastic sandy-cgl? mudstone				
260																						pale grey volc clast >1cm ? distinct dk grey and pale grey volc. clasts in mudstone chip		
265			5YR2/2 dk brown																			more soft clay some individual chips		
270			5YR3/2 5YR3/1 grey brown																			some calcite in red to orange clay		
275																						weakly calcareous to 245' (associated with clay) pyrite in grey clay lumps, which are numerous		
280																						more mottled grey & brown clay lumps		
285			5YR2/2 dk brown																			much less clay		
290																						coarse calcite in amygdale? more clay		
295																								
300																						hard chips with very little clay few pale clasts, more fine sand		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 7 of 21
Log'd by: G. Langstaff Date: 11/3/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-1045'	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
305			5YR2/1-5YR3/1 brownish black to grey	Sed	<vf-?1cm?	matrix-sup.	?	.3-5mm?	subround/subang	dk grey	vole clast									resed.? volcaniclastic sandy-cgl? mudstone		chip of coarse calcite few chips with distinct coarse sand grains sparse magnetic chips to 350'		
								soft pale grey lumps may also be vole clasts (more weathered?)																
							?	.2-1mm	subang	white	vole clast?	in grey matrix of fine sand & clay												
								some dark grey vole clasts have sparse mafic phenos or clots of qtz± ca(?) amygdales, some with euhedral white feldspar phenos up to 2mm long																
310																								
315																						weakly calcareous, particularly phenos in volcanic clasts		
320																								
325								more pale grey than dark grey clasts														some weakly calcareous chips		
330																						weakly calcareous to 350', particularly phenos possibly glomeroporphyritic clot of white feldspar up to 1.5mm in grey vole clast		
335								few dark grey vole clasts																
340								feldspar-phyric vole clasts more common soft chips w/abundant feldspar could be vole clasts or mudstone																
345								both grey and dark grey vole clasts														feldspar up to 2x2 mm		
350																						chip of coarse calcite amygdale? irreg bright green mineral in big chip with feldspar phenos/clasts		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 8 of 21
Log'd by: G. Langstaff Date: 11/6/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-1045	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
355			5R2/2 and N6 dk reddish brown &	Sed	<vf- >1cm	matrix- sup	? <1	2-5mm <1mm	subroun-subang tabular chunk	grey white	aphanitic volc. clast fold in brown	w/sparse mafic phenos volc clasts				?	rare	?	calcite	resed.? volcaniclastic sandy-egl? mudstone		calcareous samples to 365' individual magnetite grains and clay lumps with enough magnetite to be lifted by magnet		
								balls of pale grey clay w/embedded magnetite, biotite, bright green things																
								some chips w/subhedral feldspar but round volc. clasts (brown or grey)																
360			grey					individual, angular bright green grains up to 2mm														calcite veins inferred from monomhedic chips-could be clasts		
365																								
370																						weakly calcareous samples		
375																						slightly calcareous samples to 400'		
			10R2/2-	Sed	<vf-	matrix-	?	1-3mm	sub-roun	pale grey	aphanitic volc. clast	w/sparse mafic?, rare feldspar phenos								volcaniclastic				
			10R2/1 dk brown		5?mm	sup	rare ?	1-2mm <1mm	flat-round subang	white gray-white	clay ? feldspar									sandy mudstone less clay than above 375'				
380			10R2/2-	Sed	<vf-	matrix-	20-	<1m-	angular-	white	altered volc									polymict		several chips magnetic enough to be lifted by magnet		
385			10R2/4 dk reddish brown w/minor		5?mm	sup	50	5mm	subround	pale grey brown	aph. volc aph. volc?									poorly sorted sandy-egl? mudstone				
								>2mm	angular sub-ang	black mottled grey & red	mafic minerals aph volc.													
390			5YR6/1- N6 grey locally very pale																					
395			grey/white clasts)																					
400								some clasts with wavy laminated texture																

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 9 of 21
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Depth (ft.)	GRAPHIC: Rock	GRAPHIC: Alt/Vn	ROCK: Color	ROCK: Rock Type	ROCK: Grain Size	ROCK: Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS: %	PHENOS/LAPILLI/CLASTS: Size	PHENOS/LAPILLI/CLASTS: Shape	PHENOS/LAPILLI/CLASTS: Color	PHENOS/LAPILLI/CLASTS: Mineral/ Type	ALTERATION: Int.	ALTERATION: Distrib.	ALTERATION: Type	ALTERATION: Minerals	VEINS: Thick.	VEINS: Abund.	VEINS: Selvedge	VEINS: Minerals	INTERPRETATION: Rock Name/ Composition	INTERPRETATION: Formation	Comments	Recovery	Assay
405			10R2/4- 5YR2/1 dk reddish brown w/varying proportions white clasts	Sed	<vf- 5?mm	clast-and matrix-sup	~30	.2-5mm " 2-10?mm	angular subrounded " angular	white pale grey mottled brown & white	altered? aph. volc devit/altered? aph volc	volc								polymict, poorly sorted sandy-cgl? mudstone or muddy conglomerate		weakly calcareous to 450' very weakly magnetic to 450' "		
410																						abundance of wavy-laminated, mottled red & white (flow-banded?) chips seems to increase with depth		
415																								
420																								
425																								
430																								
435																								
440																								
445																								
450																								

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Depth (ft.)	GRAPHIC: Rock	GRAPHIC: Alt/Vn	ROCK: Color	ROCK: Rock Type	ROCK: Grain Size	ROCK: Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS: %	PHENOS/LAPILLI/CLASTS: Size	PHENOS/LAPILLI/CLASTS: Shape	PHENOS/LAPILLI/CLASTS: Color	PHENOS/LAPILLI/CLASTS: Mineral/ Type	ALTERATION: Int.	ALTERATION: Distrib.	ALTERATION: Type	ALTERATION: Minerals	VEINS: Thick.	VEINS: Abund.	VEINS: Selvedge	VEINS: Minerals	INTERPRETATION: Rock Name/ Composition	INTERPRETATION: Formation	Comments	Recovery	Assay
			mostly	Sed	<vf-	clast-and	750	.2-5mm	subang-	white	altered?	vole.				<2mm	v. rare	?	calcite	polymict,		weakly calcareous to 500'		
			10R2/2		lem?	matrix-			subroun	pale grey	aph vole.									poorly sorted,		weakly magnetic to 500'		
			dkred-			sup				brown	aph vole or mudstone									sandy-cgl?		some clasts have hematitic rims		
455			brown					<1mm	subhed.	black	mafic minerals									mudstone		or fractures		
			with					2-10mm	subang?	mottled	wavy laminated (devitri.?) vole									or muddy				
			some							red &										conglomerate				
			N3 dk							white														
460			grey,																					
			white																					
			clasts																					
465																								
470																								
475																								
480																								
485																								
490																								
495																								
500																								

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 11 of 21
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Depth (ft.)	GRAPHIC: Rock	GRAPHIC: Alt/Vn	ROCK: Color	ROCK: Rock Type	ROCK: Grain Size	ROCK: Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS: %	PHENOS/LAPILLI/CLASTS: Size	PHENOS/LAPILLI/CLASTS: Shape	PHENOS/LAPILLI/CLASTS: Color	PHENOS/LAPILLI/CLASTS: Mineral/ Type	ALTERATION: Int.	ALTERATION: Distrib.	ALTERATION: Type	ALTERATION: Minerals	VEINS: Thick.	VEINS: Abund.	VEINS: Selvedge	VEINS: Minerals	INTERPRETATION: Rock Name/ Composition	INTERPRETATION: Formation	Comments	Recovery	Assay
			mostly	Sed	<vf-	clast-sol		most clasts	within chips are coarse-very coarse sand and granules											polymict,		slightly calcareous to 515'		
			10R2/2		5f?mm	matrix-	>50	.2-3mm	angular subroun	white	altered volc?					<2mm	v.rare	?	calcite	poorly sorted		weakly magnetic to 550', perhaps		
			dk red-			supported				dk brown pale grey	aph volc	w/ rare mafic		phenos	(hbl, bi)					sandy-cgl?		stronger with depth		
505			brown							dk grey	aph volc w/	rare biotite	phenos							mudstone		individual clasts may have hematite		
			with some				?	>2mm	ang?	grey w/ red mottling	volc with	black hbl(?)	specks							or muddy		fractures - some look brecciated		
			N3 dark																	conglomerate				
			grey to				?	>2mm	ang?	mottled	wavy laminated (devitr?)													
510			white							red & grey														
			clasts							or white														
515																								
																						weakly calcareous to 550'		
520																								
525																								
																						chunk of coarse calcite in		
																						brecciated volc. with biotite phenos		
530																								
535																								
540																								
545																								
550																								

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Depth (ft.)	GRAPHIC: Rock	GRAPHIC: Alt/Vn	ROCK: Color	ROCK: Rock Type	ROCK: Grain Size	ROCK: Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS: %	PHENOS/LAPILLI/CLASTS: Size	PHENOS/LAPILLI/CLASTS: Shape	PHENOS/LAPILLI/CLASTS: Color	PHENOS/LAPILLI/CLASTS: Mineral/ Type	ALTERATION: Int.	ALTERATION: Distrib.	ALTERATION: Type	ALTERATION: Minerals	VEINS: Thick.	VEINS: Abund.	VEINS: Selvedge	VEINS: Minerals	INTERPRETATION: Rock Name/ Composition	INTERPRETATION: Formation	Comments	Recovery	Assay
555			mostly 10R 2/2 dk red-brown w/some N5 grey or paler clasts but not white like above	Sed	<vf-5mm	clast-and matrix-sup	250	.2-3mm	subang?	pale grey dk grey mottled red & pale grey	aph volc w/ aph volc w/ wavy-laminated (devitr?)	rare rare	bi ± hbl bi, hbl	phenos volc ±	w/variable red stain fine hbl phenos					polymict? poorly sorted sandy-cgl? mudstone or muddy conglomerate, clasts could conceivably be from one volc. unit		weakly calcareous to 600' weakly magnetic to 600' rare chips of calcite hbl rarely up to 1.5mm		
560																								
565																								
570																								
575																								
580																								
585																								
590																								
595																								
600																								

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 13 of 21
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Depth (ft.)	GRAPHIC: Rock	GRAPHIC: Alt/Vn	ROCK: Color	ROCK: Rock Type	ROCK: Grain Size	ROCK: Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS: %	PHENOS/LAPILLI/CLASTS: Size	PHENOS/LAPILLI/CLASTS: Shape	PHENOS/LAPILLI/CLASTS: Color	PHENOS/LAPILLI/CLASTS: Mineral/ Type	ALTERATION: Int.	ALTERATION: Distrib.	ALTERATION: Type	ALTERATION: Minerals	VEINS: Thick.	VEINS: Abund.	VEINS: Selvedge	VEINS: Minerals	INTERPRETATION: Rock Name/ Composition	INTERPRETATION: Formation	Comments	Recovery	Assay
605			mostly 10R2/2 dk red-brown	Sed	<vf-1+?cm	clast-and matrix-sup		.2-10mm	angular subroun subhed	pale grey white med grey black	aph volc altered? volc aph volc hbl	w/rare hbl w/rare hbl, bi								polymict?, poorly sorted sandy-cgl? mudstone		weakly calcareous to 635' weakly magnetic gradation in some clasts from pale grey to paler cream		
610			w/some N3-N4 grey and rare						subhed	black pale grey	biotite aph volc w/black specks and hbl									or muddy conglomerate		no more? wavy laminated (devitr?) clasts from 600' down		
615			paler clasts																					
620																								
625																								
630																								
635																<1cm	rare	?	calcite					
640																						very slightly calcareous		
645																								
650																								

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Depth (ft)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
655			5YR2/1-N2-dark brownish grey	Sed	<vf-5?mm	matrix- and clast-supported	>50	.2-3mm	angular-subroun	cream	altered	volc?								polymict, poorly sorted sandy-cgl? mudstone or		weakly magnetic to 665', not below weakly calcareous to 665' white chip		
									lumps	pale grey	aph volc													
										pale grey-grey-green	aph volc w/ altered?	sparse hbl, bi phenos volc clasts (becomes more abundant with depth)												
660																				muddy conglomerate		mostly red but some grey matrix		
665																								
670			5G7/1 pale grn-grey clay w/ N3	Sed?	<vf-?	none preserved	?	2-10mm	subroun	med grey	clast?	mod	pervasive	arg	grn-white clay	<2mm	rare	?	calcite	?		strongly calcareous possibly a fault zone but clastic textures preserved in some chips		
							?	.2-3mm	subroun	pale-med grey	clast	mod	pervasive	cal	calcite									
675			dk grey chips																					
680				Sed?	<vf-	matrix-	>65	.2-5mm	angular-subroun	white	altered?	volc								monomict?, poorly sorted, muddy conglomerate (resed. volcaniclastic?)		weakly calcareous to 700'		
685			mottled 5YR2/2 dk brown and		5?mm	and clast-sup				pale grey	aph volc w/	black specks										greater proportion of clasts than above or some of matrix is white		
690			paler																					
695																						rare green granules (from above?)		
700			5YR3/2-10YR6/2 brown-tan																					

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Depth (ft.)	GRAPHIC: Rock	GRAPHIC: Alt/Vn	ROCK: Color	ROCK: Rock Type	ROCK: Grain Size	ROCK: Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS: %	PHENOS/LAPILLI/CLASTS: Size	PHENOS/LAPILLI/CLASTS: Shape	PHENOS/LAPILLI/CLASTS: Color	PHENOS/LAPILLI/CLASTS: Mineral/ Type	ALTERATION: Int.	ALTERATION: Distrib.	ALTERATION: Type	ALTERATION: Minerals	VEINS: Thick.	VEINS: Abund.	VEINS: Selvedge	VEINS: Minerals	INTERPRETATION: Rock Name/ Composition	INTERPRETATION: Formation	Comments	Recovery	Assay
705			5YR3/2-5YR2/2 dark brown w/very pale grey to yellowish clasts rarely reddish brown matrix	Sed?	vf-75mm?	clast- and matrix-supported	750: <5	<.5-4mm >2mm	subang ?	pale grey med grey	aph volcanic aph volcanic clast	clast, some with black specks				<3mm	rare	none	white clay	monomict? poorly sorted muddy conglomerate (resed. volcaniclastic?)		rare weakly magnetic chips to 750' slightly calcareous to 720'		
710																								
715																								
720																								
725																						weakly calcareous rare wavy laminated (dentr.?) clasts rare green chips (from above?)		
730																						very slightly calcareous to 745' rare greenish-yellow matrix		
735			[more pale grey chips (from larger? clasts]																					
740		?		Sed?	vf-7cm?	matrix-supported		<.5-3mm	subang subrain clasts	pale grey to white indistinct	aph volc clast, possibly altered on some chips w/paler matrix				feldspar					monomict? poorly sorted muddy ungl. or sandy-cgl? mudstone		more clay in sample; green and orange clay may indicate fault-rock below is similar to that above but fewer and finer clasts		
745																						chip of pyrite		
750			mostly N4-N6 chips																			not calcareous a few big chips		

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Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
755			5YR3/2-5YR2/2-dk brown matrix	Sed?	<vf-5?mm	generally matrix-support	30-50	<.5-5mm	subang-subroun	pale grey	aph vole									monomict, poorly sorted sandy-cgl mudstone (resed. volcaniclastic?)		several big chips suggest fractured rock-with both brown and pale matrix weakly magnetic chips to 800' weakly calcareous to 765'		
760			N4-N6 greydcsts																					
765																<1mm	rare	none	white clay					
770																						slightly calcareous to 780' chip of wavy laminated volc.-dust or from above?		
775			generally N6 grey w/band brown staining	Volc	aph	rare wavy lamination and breccia										<3mm	rare	none	white clay	vole flow or boulders thereof				
780																								
785			5YR3/2-	Sed?	<vf-	generally?	40-50	<.5-5mm	subang-subroun	pale grey	aph vole									monomict, poorly sorted sandy-cgl mudstone or muddy cgl (resed volcaniclastic?)		weakly calcareous to 800'		
790			5YR2/2 dk brown matrix N5-N6		5?mm	matrix-sup										<2mm <2mm	rare rare	none none	calcite white-grey clay					
795			grey dcsts																					
800																								

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Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
805			5YR 3/2- 5YR 2/2 dk brown matrix	Sed	<vf- 5?mm	matrix- and clast?- support	30-50	<5-4mm	subang subrnd	pale grey	aphyde					<3mm	rare	?	calcite	monomict? poorly sorted sandy-cgl? mudstone (resed. volcaniclastic?)		weakly magnetic chips to 650' weakly calcareous to 820'		
810			N4- 5YR 6/2 pale brn grey																			rare chips with wavy lamination or irregular lamination		
815																						rare chips with irregular lamination		
820																								
825																<1mm	rare	none	white clay			slightly calcareous		
830																<2mm	rare	none	calcite			weakly calcareous to 835'		
835																								
840																						slightly calcareous to 845'		
845			(many 5GY 8/1 pale grn grey chips)																			pale chips have green in fractures		
850																<1mm	rare	none	calcite			weakly calcareous		

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Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
855			10R3/6 dk brown (paler than above)	Sed?	<vf-1+?cm	matrix- and possibly some clast-support	>30	<.5mm-1cm?	subang-subrnd	white-pale grey	aph vdc	W	clasts	arg?	white clay					monomict? poorly sorted sandy arg mudstone		weakly magnetic chips rare or absent; much paler than sample above; big very pale grey chip with green wisps and possibly 1.5mm feldspar pheno		
860			matrix 5GY6/1-5GY7/1 pale grn-grey					seems like fewer but larger (single chips) clasts than section above								<1mm	rare	?	white clay	(resed. volcaniclastic?)		several soft dk grey (4/rold green) chips look out of place		
865			grey clasts									W W	clasts vein	arg chl?	white clay chl?							slightly calcareous to 870'; smaller dk grey chips		
870												m	patchy?	arg	white clay							lots of white clay in sample		
875																								
880			more dk reddish brown									W	vein	arg?	grn clay?	<1mm	rare	none?	white clay			rare chips with irregular red laminations		
885			5R2/2-10R3/4 dk red brn matrix	could be volc		more breccia than clastic textures														?				
890			4N4-5GY8/1 clasts pale-med grey									W	clasts?	arg	white clay							lots of very pale chips with trace pyrite could be clasts?		
895																						rare chips with irregular red laminations		
900																<1mm	rare	?	grn clay			vein calcite or amygdale; rare chip with irregular red laminations		

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Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
905	Δ?		10R2/2 dk red-brown	Volc	aph	massive or breccia?														volcanic flow or sill		not calcareous to 930' some pale chips and chips with clastic textures from above?		
910	Δ ∴ Δ		mottled 5YR4/4 brown & 5GY6/1	Volc	aph-vf	generally massive with brn prob in veinlets or breccia matrix; commonly granular						W	dissem	arg	white clay					brecciated flow or intrusion		lots of clay in sample		
915	Δ ∴ Δ		pale grn-grey																					
920	Δ ∴ Δ																					trace pyrite		
925	Δ ∴ Δ	□														<2mm	rare	?	pyrite			possibly some rare dissem pyrite		
930	∴ Δ ∴ Δ	□														<3mm	rare	none?	calcite					
935	Δ ∴ ∴ Δ	□	more grn less brn													<1mm	pres	none?	dark grn-grey clay			weakly calcareous to 950'		
940	Δ ∴ Δ	□																						
945	∴ ∴		10R3/4 dk red brn matrix	Sed?	<vf-5+?mm	matrix sup	130	<5-4mm	subrnd-subang	pale grey	aph volc.	w/ black specks							white clay	monomict, poorly sorted, sandy red mudstone (resed. volcaniclastic?)				
950	∴ Δ		w/ N6 grey clasts																					

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Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
955			10R4/2 dk red-brn matrix w/N7	Sed	<vf-4+?mm	matrix sup	20-30	<.5mm-3+?mm	subroun subang	pale grey-white	aph volc w/ black specks								calcite whiteclay	monomict? poorly sorted sandy-cgl? mudstone		weakly calcareous to 1000'		
960			pale grey clasts mostly 10YR6/2	Volc	aph-vf	massive granular						W	dissem	arg	whiteclay	<3mm <4mm	rare pres	? none?	pyrite calcite	locally brecciated				
965			yellowish brown w/some N3-N4			w/rare breccia (w/brn matrix)														flow or sill?				
970			dk grey chips																			lots of clay in samples to 975'		
975			paler yellowish brn than at 965'					numerous soft, dk grey (w/grn, red) chips apparently unrelated to pale rock and may be thin intercalation of volcanic rock(?) or chips from higher in hole (e.g. 860' and vicinity)														rare dissem pyrite		
980																						rare dissem pyrite		
985																								
990			generally N7-pale grey	?	?	gouge?						S	pervasive	arg	grey clay					clay gouge				
995			5G6/1 grn-grey	Volc?	aph	massive?	<1	<.5mm in mottled incipient devitr. matrix?	ang cuspate	grn-black	ash shards?		chips of massive or banded chert-like rock			grn-grey with pyrite					volcanic?		several types of chips; most not of place?		
1000			N1-N2 black w/ N3-N5 grey altered chips	Met	<vf	v. strong foliation (planar)						W	local	ox	paler color	<10mm	pres	none?	quartz ± py	carbonaceous calcareous phyllite		rare, sparse dissem pyrite		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth: 1045'	Hole No. RS-420	Page 21 of 21
Log'd by: G. Langstaff Date: 11/12/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-1045'	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
1005			N1-N2 black w/rare paler altered chips	Met	<vf	v. strong foliation (planar)						W	local, rare	ox	paler color	<5mm	pres	* paler grey (oxidized)	calcite quartz pyrite in various combinations (one is qtz+py+clay)	carbonaceous calcareous phyllite		progressively more calcareous to 1045' oxidation may be accompanied by sericite after metamorphic phyllosilicate and possibly by decalcification rare, sparse diasem pyrite throughout		
1010																								
1015																								
1020																								
1025																								
1030																								
1035																								
1040																								
1045																								
																						T.D. 1045'		