60001704

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 - Underground Drilling Survey Data
AUTHOR	J. Williams; D. Garrison; Lubr; Hansen; Winters; Colombe; George; Davis; Calvin; Butierez; Grant Haynie; Adams; Malak
DATE OF DOC(S)	1994
MULTI_DIST Y / (N?) Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; Hecla Mining Co. Faucett Diamond Drilling
COMMODITY If not obvious	gold; silver
NOTES	Survey data; traverse calculation reports; daily drilling reports ~~164~~ p. 166

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

	Initials	Date
SS:	DD	6/5/08
DB:	Mah	7/08
SCANNED:	NTBlue	

Revised: 1/22/08

UNDERGROUND DRILLING SURVEY DATA
(HOLE LOCATIONS)

60001704 4010

STATION #2 150N 60001704

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-31	2203229.489	481136.662	4787.930	4773.930
Instrument	RB-35	2203364.706	481261.824	4759.780	4746.220

Reverse Bearing : 222.4719 Reverse Distance : 184.253

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-31	0.0000			
D-1-94	268.3055			
Angles Turned	268.3055		268.3055	131.1814
Final Angles	268.3055		268.3055	131.1814

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	85.2740		4.3220

SLOPE DISTANCE :

Whole	20.620
Part	0.000
Distance	20.620

HEIGHTS :

Set Up On
Station to Instrument : -8.260 Floor to Instrument : 5.300
Foresight
Station to Target : -6.670 Floor to Target : 7.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-1-94	2203351.139	481277.265	4759.820	4746.152

Forward Bearing : 131.1814 Forward Distance : 20.555
Reverse Bearing : 311.1814

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-31	2203229.489	481136.662	4787.930	4773.930
Instrument	RB-35	2203364.706	481261.824	4759.780	4746.220

Reverse Bearing : 222.4719 Reverse Distance : 184.253

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-31	0.0000			
D-2-94	266.3800			
Angles Turned	266.3800		266.3800	129.2519
Final Angles	266.3800		266.3800	129.2519

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	88.3215		1.2745

SLOPE DISTANCE :

Whole	25.768
Part	0.000
Distance	25.768

HEIGHTS :

Set Up On
Station to Instrument : -8.260 Floor to Instrument : 5.300
Foresight
Station to Target : -6.670 Floor to Target : 7.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-2-94	2203348.348	481281.723	4758.850	4745.178

Forward Bearing : 129.2519 Forward Distance : 25.760
Reverse Bearing : 309.2519

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-31	2203229.489	481136.662	4787.930	4773.930
Instrument	RB-35	2203364.706	481261.824	4759.780	4751.510

Reverse Bearing : 222.4719 Reverse Distance : 184.253

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-31	0.0000			
D-94-94	263.1330			
Angles Turned	263.1330		263.1330	126.0049
Final Angles	263.1330		263.1330	126.0049

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	50.1510		39.4450

SLOPE DISTANCE :

Whole	13.389
Part	0.000
Distance	13.389

HEIGHTS :

Set Up On
Station to Instrument : -8.270 Floor to Instrument : 0.000
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-94-94	2203358.653	481270.151	4760.071	4760.071

Forward Bearing : 126.0049 Forward Distance : 10.294
Reverse Bearing : 306.0049

DDS#3

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-35	2203364.706	481261.824	4759.780	4746.220
Instrument	DDS3	2203391.812	481292.023	4752.690	4739.660

Reverse Bearing : 228.0524 Reverse Distance : 40.580

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-35	0.0000			
D-3-94	274.0855			
Angles Turned	274.0855		274.0855	142.1419
Final Angles	274.0855		274.0855	142.1419

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	70.2150		19.3810

SLOPE DISTANCE :

Whole	24.895
Part	0.000
Distance	24.895

HEIGHTS :

Set Up On
Station to Instrument : -7.520 Floor to Instrument : 5.510
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-3-94	2203373.276	481306.381	4753.540	4753.536

Forward Bearing : 142.1419 Forward Distance : 23.447
Reverse Bearing : 322.1419

TRAVERSE CALCULATION REPORT 3-Oct-94

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BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-35	2203364.706	481261.824	4759.780	4746.220
Instrument	DDS3	2203391.812	481292.023	4752.690	4739.660

Reverse Bearing : 228.0524 Reverse Distance : 40.580

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-35	0.0000			
D-4-94	273.3725			
Angles Turned	273.3725		273.3725	141.4249
Final Angles	273.3725		273.3725	141.4249

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	82.3136		7.2824

SLOPE DISTANCE :

Whole	27.031
Part	0.000
Distance	27.031

HEIGHTS :

Set Up On
Station to Instrument : -7.520 Floor to Instrument : 5.510
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-4-94	2203370.775	481308.629	4748.690	4748.686

Forward Bearing : 141.4249 Forward Distance : 26.801
Reverse Bearing : 321.4249

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-31	2203229.489	481136.662	4787.930	4773.930
Instrument	DDS4	2203427.411	481327.192	4731.517	4726.167

Reverse Bearing : 223.5435 Reverse Distance : 274.727

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-31	0.0000			
D-9-94	356.4345			
Angles Turned	356.4345		356.4345	220.3820
Final Angles	356.4345		356.4345	220.3820

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	80.3000		9.3000

SLOPE DISTANCE :

Whole	52.805
Part	0.000
Distance	52.805

HEIGHTS :
Set Up On
Station to Instrument : -5.350 Floor to Instrument : 0.000
Foresight
Station to Target : -8.930 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-9-94	2203387.890	481293.272	4743.812	4734.882

Forward Bearing : 220.3820 Forward Distance : 52.081
Reverse Bearing : 40.3820

STATION #4

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-31	2203229.489	481136.662	4787.930	4773.930
Instrument	DDS4	2203427.411	481327.192	4731.517	4726.167

Reverse Bearing : 223.5435 Reverse Distance : 274.727

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-31	0.0000			
D-5-94	255.4025			
Angles Turned	255.4025		255.4025	119.3500
Final Angles	255.4025		255.4025	119.3500

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	77.0355		12.5605

SLOPE DISTANCE :

Whole	35.203
Part	0.000
Distance	35.203

HEIGHTS :

Set Up On
Station to Instrument : -5.350 Floor to Instrument : 0.000
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-5-94	2203410.472	481357.029	4734.047	4734.047

Forward Bearing : 119.3500 Forward Distance : 34.310
Reverse Bearing : 299.3500

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-31	2203229.489	481136.662	4787.930	4773.930
Instrument	DDS4	2203427.411	481327.192	4731.517	4726.167

Reverse Bearing : 223.5435 Reverse Distance : 274.727

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-31	0.0000			
D-6-94	256.0445			
Angles Turned	256.0445		256.0445	119.5920
Final Angles	256.0445		256.0445	119.5920

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	78.0735		11.5225

SLOPE DISTANCE :

Whole	41.962
Part	0.000
Distance	41.962

HEIGHTS :
Set Up On
Station to Instrument : -5.350 Floor to Instrument : 0.000
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-6-94	2203406.886	481362.758	4734.801	4734.801

Forward Bearing : 119.5920 Forward Distance : 41.064
Reverse Bearing : 299.5920

DDS#4

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-35	2203364.706	481261.824	4759.780	4746.220
Instrument	DDS4	2203426.155	481326.873	4746.290	4731.550

Reverse Bearing : 226.3749 Reverse Distance : 89.484

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-35	0.0000			
D-7-94	251.0005			
Angles Turned	251.0005		251.0005	117.3754
Final Angles	251.0005		251.0005	117.3754

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	85.0015		4.5945

SLOPE DISTANCE :

Whole	44.104
Part	0.000
Distance	44.104

HEIGHTS :

Set Up On
Station to Instrument : -9.240 Floor to Instrument : 5.500
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-7-94	2203405.778	481365.798	4740.890	4740.891

Forward Bearing : 117.3754 Forward Distance : 43.936
Reverse Bearing : 297.3754

DDS #5

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-35	2203364.706	481261.824	4759.780	4746.220
Instrument	RB-37	2203465.423	481355.152	4739.020	4725.480

Reverse Bearing : 222.4909 Reverse Distance : 137.310

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-35	0.0000			
D-8-94	255.4540			
Angles Turned	255.4540		255.4540	118.3449
Final Angles	255.4540		255.4540	118.3449

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	68.4855		21.1105

SLOPE DISTANCE :

Whole	25.138
Part	0.000
Distance	25.138

HEIGHTS :

Set Up On
Station to Instrument : -7.950 Floor to Instrument : 5.590
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-8-94	2203454.210	481375.735	4740.150	4740.154

Forward Bearing : 118.3449 Forward Distance : 23.439
Reverse Bearing : 298.3449

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-35	2203364.706	481261.824	4759.780	4746.220
Instrument	RB-37	2203465.423	481355.152	4739.020	4725.480

Reverse Bearing : 222.4909 Reverse Distance : 25.473

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-35	0.0000			
D-10-94	256.3940			
Angles Turned	256.3940		256.3940	119.2849
Final Angles	256.3940		256.3940	119.2849

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	77.1015		12.4945

SLOPE DISTANCE :

Whole	26.125
Part	0.000
Distance	26.125

HEIGHTS :

Set Up On
Station to Instrument : -7.950 Floor to Instrument : 5.590
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-10-94	2203452.887	481377.327	4736.870	4736.871

Forward Bearing : 119.2849 Forward Distance : 25.473
Reverse Bearing : 299.2849

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-35	2203364.706	481261.824	4759.780	4746.220
Instrument	RB-37	2203465.423	481355.152	4739.020	4725.480

Reverse Bearing : 222.4909 Reverse Distance : 137.310

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-35	0.0000			
D-11-94	256.3715			
Angles Turned	256.3715		256.3715	119.2624
Final Angles	256.3715		256.3715	119.2624

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	80.5545		9.0415

SLOPE DISTANCE :

Whole	25.818
Part	0.000
Distance	25.818

HEIGHTS :

Set Up On
Station to Instrument : -7.950 Floor to Instrument : 5.590
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-11-94	2203452.892	481377.355	4735.140	4735.140

Forward Bearing : 119.2624 Forward Distance : 25.495
Reverse Bearing : 299.2624

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-35	2203364.706	481261.824	4759.780	4746.220
Instrument	RB-37	2203465.423	481355.152	4739.020	4725.480

Reverse Bearing : 222.4909 Reverse Distance : 137.310

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-35	0.0000			
D-12-94	256.2545			
Angles Turned	256.2545		256.2545	119.1454
Final Angles	256.2545		256.2545	119.1454

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	89.0420		0.5540

SLOPE DISTANCE :

Whole	25.489
Part	0.000
Distance	25.489

HEIGHTS :

Set Up On
Station to Instrument : -7.950 Floor to Instrument : 5.590
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-12-94	2203452.971	481377.389	4731.480	4731.483

Forward Bearing : 119.1454 Forward Distance : 25.486
Reverse Bearing : 299.1454

DDSTN #6

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :-
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-37	2203465.423	481355.152	4739.020	4725.480
Instrument	DDS6	2203503.553	481393.592	4730.010	4716.520

Reverse Bearing : 225.1355 Reverse Distance : 54.144

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-37	0.0000			
D-13-94	250.4555			
Angles Turned	250.4555		250.4555	115.5950
Final Angles	250.4555		250.4555	115.5950

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	55.1310		34.4650

SLOPE DISTANCE :

Whole	15.272
Part	0.000
Distance	15.272

HEIGHTS :

Set Up On
Station to Instrument : -8.120 Floor to Instrument : 5.370
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-13-94	2203498.055	481404.867	4730.600	4730.602

Forward Bearing : 115.5950 Forward Distance : 12.544
Reverse Bearing : 295.5950

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :-
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-37	2203465.423	481355.152	4739.020	4725.480
Instrument	DDS6	2203503.553	481393.592	4730.010	4716.520

Reverse Bearing : 225.1355 Reverse Distance : 54.144

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-37	0.0000			
D-14-94	253.2805			
Angles Turned	253.2805		253.2805	118.4200
Final Angles	253.2805		253.2805	118.4200

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	58.2520		31.3440

SLOPE DISTANCE :

Whole	18.573
Part	0.000
Distance	18.573

HEIGHTS :

Set Up On
Station to Instrument : -8.120 Floor to Instrument : 5.370
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-14-94	2203495.954	481407.471	4731.620	4731.616

Forward Bearing : 118.4200 Forward Distance : 15.823
Reverse Bearing : 298.4200

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :-
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BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-37	2203465.423	481355.152	4739.020	4725.480
Instrument	DDS6	2203503.553	481393.592	4730.010	4716.740

Reverse Bearing : 225.1355 Reverse Distance : 54.144

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-37	0.0000			
D-15-94	255.0425			
Angles Turned	255.0425		255.0425	120.1820
Final Angles	255.0425		255.0425	120.1820

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	65.2415		24.3545

SLOPE DISTANCE :

Whole	20.687
Part	0.000
Distance	20.687

HEIGHTS :

Set Up On
Station to Instrument : -7.740 Floor to Instrument : 5.530
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-15-94	2203494.061	481409.832	4730.880	4730.880

Forward Bearing : 120.1820 Forward Distance : 18.810
Reverse Bearing : 300.1820

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :-
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-37	2203465.423	481355.152	4739.020	4725.480
Instrument	DDS6	2203503.553	481393.592	4730.010	4716.740

Reverse Bearing : 225.1355 Reverse Distance : 54.144

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-37	0.0000			
D-16-94	256.4225			
Angles Turned	256.4225		256.4225	121.5620
Final Angles	256.4225		256.4225	121.5620

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	73.1945		16.4015

SLOPE DISTANCE :

Whole	23.399
Part	0.000
Distance	23.399

HEIGHTS :

Set Up On
Station to Instrument : -7.740 Floor to Instrument : 5.530
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-16-94	2203491.695	481412.615	4728.980	4728.983

Forward Bearing : 121.5620 Forward Distance : 22.416
Reverse Bearing : 301.5620

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :-
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-37	2203465.423	481355.152	4739.020	4725.480
Instrument	DDS6	2203503.553	481393.592	4730.010	4716.740

Reverse Bearing : 225.1355 Reverse Distance : 54.144

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-37	0.0000			
D-17-94	257.4455			
Angles Turned	257.4455		257.4455	122.5850
Final Angles	257.4455		257.4455	122.5850

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	81.0655		8.5305

SLOPE DISTANCE :

Whole	25.489
Part	0.000
Distance	25.489

HEIGHTS :

Set Up On
Station to Instrument : -7.740 Floor to Instrument : 5.530
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-17-94	2203489.845	481414.717	4726.210	4726.207

Forward Bearing : 122.5850 Forward Distance : 25.183
Reverse Bearing : 302.5850

TRAVERSE CALCULATION REPORT 3-Oct-94

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Fieldbook :- Page Ref :

TRAVERSE CALCULATION REPORT 3-Oct-94

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TRAVERSE CALCULATION REPORT 3-Oct-94

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BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-37	2203465.423	481355.152	4739.020	4725.480
Instrument	DDS6	2203503.553	481393.592	4730.010	4716.740

Reverse Bearing : 225.1355 Reverse Distance : 54.144

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-37	0.0000			
D-18-94	257.4455			
Angles Turned	257.4455		257.4455	122.5850
Final Angles	257.4455		257.4455	122.5850

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	89.5950		0.0010

SLOPE DISTANCE :

Whole	25.800
Part	0.000
Distance	25.800

HEIGHTS :

Set Up On
Station to Instrument : -7.740 Floor to Instrument : 5.530
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-18-94	2203489.509	481415.234	4722.270	4722.271

Forward Bearing : 122.5850 Forward Distance : 25.800
Reverse Bearing : 302.5850

DD STN #7

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-37	2203465.423	481355.152	4739.020	4725.480
Instrument	RB-40	2203547.472	481431.078	4721.020	4708.680

Reverse Bearing : 222.4649 Reverse Distance : 27.200

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-37	0.0000			
D-19-94	247.3300			
Angles Turned	247.3300		247.3300	110.1949
Final Angles	247.3300		247.3300	110.1949

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	97.5025		-7.5025

SLOPE DISTANCE :

Whole	27.457
Part	0.000
Distance	27.457

HEIGHTS :

Set Up On
Station to Instrument : -6.970 Floor to Instrument : 5.370
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-19-94	2203538.022	481456.584	4710.300	4710.305

Forward Bearing : 110.1949 Forward Distance : 27.200
Reverse Bearing : 290.1949

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-37	2203465.423	481355.152	4739.020	4725.480
Instrument	RB-40	2203547.472	481431.078	4721.020	4708.680

Reverse Bearing : 222.4649 Reverse Distance : 111.789

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-37	0.0000			
D-20-94	246.4505			
Angles Turned	246.4505		246.4505	109.3154
Final Angles	246.4505		246.4505	109.3154

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	76.5720		13.0240

SLOPE DISTANCE :

Whole	26.142
Part	0.000
Distance	26.142

HEIGHTS :

Set Up On
Station to Instrument : -6.970 Floor to Instrument : 5.370
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-20-94	2203538.958	481455.080	4719.950	4719.950

Forward Bearing : 109.3154 Forward Distance : 25.467
Reverse Bearing : 289.3154

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-37	2203465.423	481355.152	4739.020	4725.480
Instrument	RB-40	2203547.472	481431.078	4721.020	4708.680

Reverse Bearing : 222.4649 Reverse Distance : 111.789

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-37	0.0000			
D-21-94	243.0905			
Angles Turned	243.0905		243.0905	105.5554
Final Angles	243.0905		243.0905	105.5554

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	60.0020		29.5940

SLOPE DISTANCE :

Whole	23.961
Part	0.000
Distance	23.961

HEIGHTS :

Set Up On
Station to Instrument : -6.970 Floor to Instrument : 5.370
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-21-94	2203541.776	481451.033	4726.030	4726.028

Forward Bearing : 105.5554 Forward Distance : 20.752
Reverse Bearing : 285.5554

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-37	2203465.423	481355.152	4739.020	4725.480
Instrument	RB-40	2203547.472	481431.078	4721.020	4708.680

Reverse Bearing : 222.4649 Reverse Distance : 111.789

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-37	0.0000			
D-22-94	237.3120			
Angles Turned	237.3120		237.3120	100.1809
Final Angles	237.3120		237.3120	100.1809

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	59.3510		30.2450

SLOPE DISTANCE :

Whole	18.192
Part	0.000
Distance	18.192

HEIGHTS :

Set Up On
Station to Instrument : -6.970 Floor to Instrument : 5.370
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-22-94	2203544.666	481446.514	4723.260	4723.260

Forward Bearing : 100.1809 Forward Distance : 15.689
Reverse Bearing : 280.1809

STATION #7

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-37	2203465.423	481355.152	4739.020	4725.480
Instrument	RB-40	2203547.472	481431.078	4721.020	4715.740

Reverse Bearing : 222.4649 Reverse Distance : 111.789

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-37	0.0000			
D-93-94	265.3020			
Angles Turned	265.3020		265.3020	128.1709
Final Angles	265.3020		265.3020	128.1709

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	50.3455		39.2505

SLOPE DISTANCE :

Whole	16.568
Part	0.000
Distance	16.568

HEIGHTS :

Set Up On
Station to Instrument : -5.280 Floor to Instrument : 0.000
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-93-94	2203539.542	481441.124	4726.260	4726.260

Forward Bearing : 128.1709 Forward Distance : 12.799
Reverse Bearing : 308.1709

DD STN #8

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DD8	2203574.629	481458.958	4711.230	4700.350

Reverse Bearing : 225.4509 Reverse Distance : 38.920

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-23-94	249.5715			
Angles Turned	249.5715		249.5715	115.4224
Final Angles	249.5715		249.5715	115.4224

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	90.5430		-.5430

SLOPE DISTANCE :

Whole	24.885
Part	0.000
Distance	24.885

HEIGHTS :

Set Up On
Station to Instrument : -5.380 Floor to Instrument : 5.500
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-23-94	2203563.836	481481.377	4705.460	4705.456

Forward Bearing : 115.4224 Forward Distance : 24.882
Reverse Bearing : 295.4224

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DD8	2203574.629	481458.958	4711.230	4700.350

Reverse Bearing : 225.4509 Reverse Distance : 38.920

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-24-94	250.1805			
Angles Turned	250.1805		250.1805	116.0314
Final Angles	250.1805		250.1805	116.0314

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	83.3605		6.2355

SLOPE DISTANCE :

Whole	25.095
Part	0.000
Distance	25.095

HEIGHTS :

Set Up On
Station to Instrument : -5.380 Floor to Instrument : 5.500
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-24-94	2203563.675	481481.363	4708.650	4708.647

Forward Bearing : 116.0314 Forward Distance : 24.939
Reverse Bearing : 296.0314

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DD8	2203574.629	481458.958	4711.230	4700.350

Reverse Bearing : 225.4509 Reverse Distance : 38.920

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-25-94	250.2130			
Angles Turned	250.2130		250.2130	116.0639
Final Angles	250.2130		250.2130	116.0639

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	80.2610		9.3350

SLOPE DISTANCE :

Whole	25.587
Part	0.000
Distance	25.587

HEIGHTS :

Set Up On
Station to Instrument : -5.380 Floor to Instrument : 5.500
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-25-94	2203563.525	481481.614	4710.100	4710.101

Forward Bearing : 116.0639 Forward Distance : 25.231
Reverse Bearing : 296.0639

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DD8	2203574.629	481458.958	4711.230	4700.350

Reverse Bearing : 225.4509 Reverse Distance : 38.920

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-26-94	250.2350			
Angles Turned	250.2350		250.2350	116.0859
Final Angles	250.2350		250.2350	116.0859

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	64.4055		25.1905

SLOPE DISTANCE :

Whole	26.375
Part	0.000
Distance	26.375

HEIGHTS :

Set Up On
Station to Instrument : -5.380 Floor to Instrument : 5.500
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-26-94	2203564.121	481480.360	4717.130	4717.129

Forward Bearing : 116.0859 Forward Distance : 23.842
Reverse Bearing : 296.0859

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DD8	2203574.629	481458.958	4711.230	4700.350

Reverse Bearing : 225.4509 Reverse Distance : 38.920

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-27-94	245.0205			
Angles Turned	245.0205		245.0205	110.4714
Final Angles	245.0205		245.0205	110.4714

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	59.3145		30.2815

SLOPE DISTANCE :

Whole	15.945
Part	0.000
Distance	15.945

HEIGHTS :

Set Up On
Station to Instrument : -5.380 Floor to Instrument : 5.500
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-27-94	2203569.752	481471.806	4713.940	4713.936

Forward Bearing : 110.4714 Forward Distance : 13.743
Reverse Bearing : 290.4714

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS8	2203574.629	481458.958	4711.230	4705.980

Reverse Bearing : 225.4509 Reverse Distance : 38.920

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-28-94	245.0350			
Angles Turned	245.0350		245.0350	110.4859
Final Angles	245.0350		245.0350	110.4859

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	60.2640		29.3320

SLOPE DISTANCE :

Whole	16.122
Part	0.000
Distance	16.122

HEIGHTS :
Set Up On
Station to Instrument : -5.250 Floor to Instrument : 0.000
Foresight
Station to Target : -.280 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-28-94	2203569.645	481472.067	4714.212	4713.932

Forward Bearing : 110.4859 Forward Distance : 14.024
Reverse Bearing : 290.4859

DD STN # 9

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	RB-41	2203617.689	481496.058	4706.500	4692.970

Reverse Bearing : 222.4654 Reverse Distance : 95.670

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-29-94	262.0850			
Angles Turned	262.0850		262.0850	124.5544
Final Angles	262.0850		262.0850	124.5544

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	84.1555		5.4405

SLOPE DISTANCE :

Whole	26.240
Part	0.000
Distance	26.240

HEIGHTS :

Set Up On
Station to Instrument : -8.080 Floor to Instrument : 5.450
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-29-94	2203602.740	481517.464	4701.040	4701.042

Forward Bearing : 124.5544 Forward Distance : 26.109
Reverse Bearing : 304.5544

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	RB-41	2203617.689	481496.058	4706.500	4692.970

Reverse Bearing : 222.4654 Reverse Distance : 95.670

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-30-94	262.1510			
Angles Turned	262.1510		262.1510	125.0204
Final Angles	262.1510		262.1510	125.0204

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	78.0137		11.5823

SLOPE DISTANCE :

Whole	26.795
Part	0.000
Distance	26.795

HEIGHTS :

Set Up On
Station to Instrument : -8.080 Floor to Instrument : 5.450
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-30-94	2203602.642	481517.521	4703.980	4703.979

Forward Bearing : 125.0204 Forward Distance : 26.212
Reverse Bearing : 305.0204

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	RB-41	2203617.689	481496.058	4706.500	4692.970

Reverse Bearing : 222.4654 Reverse Distance : 95.670

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-31-94	261.3505			
Angles Turned	261.3505		261.3505	124.2159
Final Angles	261.3505		261.3505	124.2159

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	62.3650		27.2310

SLOPE DISTANCE :

Whole	27.595
Part	0.000
Distance	27.595

HEIGHTS :

Set Up On
Station to Instrument : -8.080 Floor to Instrument : 5.450
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-31-94	2203603.858	481516.283	4711.110	4711.113

Forward Bearing : 124.2159 Forward Distance : 24.502
Reverse Bearing : 304.2159

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	RB-41	2203617.689	481496.058	4706.500	4692.970

Reverse Bearing : 222.4654 Reverse Distance : 95.670

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-32-94	260.3050			
Angles Turned	260.3050		260.3050	123.1744
Final Angles	260.3050		260.3050	123.1744

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	48.0635		41.5325

SLOPE DISTANCE :

Whole	16.066
Part	0.000
Distance	16.066

HEIGHTS :

Set Up On
Station to Instrument : -8.080 Floor to Instrument : 5.450
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-32-94	2203611.123	481506.055	4709.150	4709.147

Forward Bearing : 123.1744 Forward Distance : 11.960
Reverse Bearing : 303.1744

DD STN # 10

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS10	2203649.137	481526.607	4699.920	4686.580

Reverse Bearing : 223.1304 Reverse Distance : 139.505

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-33-94	262.0300			
Angles Turned	262.0300		262.0300	125.1604
Final Angles	262.0300		262.0300	125.1604

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	87.0430		2.5530

SLOPE DISTANCE :

Whole	25.945
Part	0.000
Distance	25.945

HEIGHTS :

Set Up On
Station to Instrument : -7.920 Floor to Instrument : 5.420
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-33-94	2203634.176	481547.762	4693.320	4693.324

Forward Bearing : 125.1604 Forward Distance : 25.911
Reverse Bearing : 305.1604

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS10	2203649.137	481526.607	4699.920	4686.580

Reverse Bearing : 223.1304 Reverse Distance : 139.505

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-34-94	262.1955			
Angles Turned	262.1955		262.1955	125.3259
Final Angles	262.1955		262.1955	125.3259

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	82.1935		7.4025

SLOPE DISTANCE :

Whole	25.994
Part	0.000
Distance	25.994

HEIGHTS :

Set Up On
Station to Instrument : -7.920 Floor to Instrument : 5.420
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-34-94	2203634.159	481547.566	4695.470	4695.471

Forward Bearing : 125.3259 Forward Distance : 25.761
Reverse Bearing : 305.3259

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS10	2203649.137	481526.607	4699.920	4686.580

Reverse Bearing : 223.1304 Reverse Distance : 139.505

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-35-94	262.2620			
Angles Turned	262.2620		262.2620	125.3924
Final Angles	262.2620		262.2620	125.3924

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	72.0815		17.5145

SLOPE DISTANCE :

Whole	26.401
Part	0.000
Distance	26.401

HEIGHTS :

Set Up On
Station to Instrument : -7.920 Floor to Instrument : 5.420
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-35-94	2203634.489	481547.024	4700.100	4700.098

Forward Bearing : 125.3924 Forward Distance : 25.128
Reverse Bearing : 305.3924

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS10	2203649.137	481526.607	4699.920	4686.580

Reverse Bearing : 223.1304 Reverse Distance : 21.181

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-36-94	261.0500			
Angles Turned	261.0500		261.0500	124.1804
Final Angles	261.0500		261.0500	124.1804

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	58.5215		31.0745

SLOPE DISTANCE :

Whole	24.744
Part	0.000
Distance	24.744

HEIGHTS :

Set Up On
Station to Instrument : -7.920 Floor to Instrument : 5.420
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-36-94	2203637.201	481544.104	4704.790	4704.792

Forward Bearing : 124.1804 Forward Distance : 21.181
Reverse Bearing : 304.1804

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS10	2203649.137	481526.607	4699.920	4686.580

Reverse Bearing : 223.1304 Reverse Distance : 139.505

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-37-94	258.4950			
Angles Turned	258.4950		258.4950	122.0254
Final Angles	258.4950		258.4950	122.0254

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	55.1640		34.4320

SLOPE DISTANCE :

Whole	20.436
Part	0.000
Distance	20.436

HEIGHTS :

Set Up On
Station to Instrument : -7.920 Floor to Instrument : 5.420
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-37-94	2203640.224	481540.844	4703.640	4703.640

Forward Bearing : 122.0254 Forward Distance : 16.797
Reverse Bearing : 302.0254

STATION #11

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	RB-44	2203701.156	481573.279	4691.810	4676.500

Reverse Bearing : 222.4639 Reverse Distance : 209.380

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-38-94	264.3115			
Angles Turned	264.3115		264.3115	127.1754
Final Angles	264.3115		264.3115	127.1754

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	91.3305		-1.3305

SLOPE DISTANCE :

Whole	45.896
Part	0.000
Distance	45.896

HEIGHTS :

Set Up On
Station to Instrument : -9.600 Floor to Instrument : 5.710
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-38-94	2203673.355	481609.775	4680.970	4680.967

Forward Bearing : 127.1754 Forward Distance : 45.879
Reverse Bearing : 307.1754

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	RB-44	2203701.156	481573.279	4691.810	4676.500

Reverse Bearing : 222.4639 Reverse Distance : 209.380

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-39-94	264.3825			
Angles Turned	264.3825		264.3825	127.2504
Final Angles	264.3825		264.3825	127.2504

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	89.4805		0.1155

SLOPE DISTANCE :

Whole	46.207
Part	0.000
Distance	46.207

HEIGHTS :

Set Up On
Station to Instrument : -9.600 Floor to Instrument : 5.710
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-39-94	2203673.080	481609.978	4682.370	4682.370

Forward Bearing : 127.2504 Forward Distance : 46.207
Reverse Bearing : 307.2504

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	RB-44	2203701.156	481573.279	4691.810	4676.500

Reverse Bearing : 222.4639 Reverse Distance : 209.380

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-40-94	264.4105			
Angles Turned	264.4105		264.4105	127.2744
Final Angles	264.4105		264.4105	127.2744

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	87.4435		2.1525

SLOPE DISTANCE :

Whole	46.027
Part	0.000
Distance	46.027

HEIGHTS :

Set Up On
Station to Instrument : -9.600 Floor to Instrument : 5.710
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-40-94	2203673.183	481609.785	4684.020	4684.023

Forward Bearing : 127.2744 Forward Distance : 45.991
Reverse Bearing : 307.2744

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	RB-44	2203701.156	481573.279	4691.810	4676.500

Reverse Bearing : 222.4639 Reverse Distance : 209.380

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-41-94	264.4835			
Angles Turned	264.4835		264.4835	127.3514
Final Angles	264.4835		264.4835	127.3514

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	81.3325		8.2635

SLOPE DISTANCE :

Whole	46.968
Part	0.000
Distance	46.968

HEIGHTS :

Set Up On
Station to Instrument : -9.600 Floor to Instrument : 5.710
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-41-94	2203672.817	481610.094	4689.110	4689.106

Forward Bearing : 127.3514 Forward Distance : 46.459
Reverse Bearing : 307.3514

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	RB-44	2203701.156	481573.279	4691.810	4676.500

Reverse Bearing : 222.4639 Reverse Distance : 209.380

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-42-94	265.0045			
Angles Turned	265.0045		265.0045	127.4724
Final Angles	265.0045		265.0045	127.4724

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	77.2525		12.3435

SLOPE DISTANCE :

Whole	42.772
Part	0.000
Distance	42.772

HEIGHTS :
Set Up On
Station to Instrument : -9.600 Floor to Instrument : 5.710
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-42-94	2203675.575	481606.269	4691.520	4691.523

Forward Bearing : 127.4724 Forward Distance : 41.746
Reverse Bearing : 307.4724

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	RB-44	2203701.156	481573.279	4691.810	4676.500

Reverse Bearing : 222.4639 Reverse Distance : 209.380

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-43-94	265.4635			
Angles Turned	265.4635		265.4635	128.3314
Final Angles	265.4635		265.4635	128.3314

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	75.0025		14.5935

SLOPE DISTANCE :

Whole	38.875
Part	0.000
Distance	38.875

HEIGHTS :

Set Up On
Station to Instrument : -9.600 Floor to Instrument : 5.710
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-43-94	2203677.752	481602.646	4692.270	4692.267

Forward Bearing : 128.3314 Forward Distance : 37.552
Reverse Bearing : 308.3314

DD STN #12

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS12	2203720.571	481598.350	4685.330	4671.820

Reverse Bearing : 224.0109 Reverse Distance : 240.714

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-43-94	246.0625			
Angles Turned	246.0625		246.0625	110.0734
Final Angles	246.0625		246.0625	110.0734

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	90.4425		-.4425

SLOPE DISTANCE :

Whole	22.734
Part	0.000
Distance	22.734

HEIGHTS :

Set Up On
Station to Instrument : -8.130 Floor to Instrument : 5.380
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
?	D-43-94	2203712.749	481619.694	4676.910	4676.906

Forward Bearing : 110.0734 Forward Distance : 22.732
Reverse Bearing : 290.0734

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS12	2203720.571	481598.350	4685.330	4671.820

Reverse Bearing : 224.0109 Reverse Distance : 22.466

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-44-94	245.5600			
Angles Turned	245.5600		245.5600	109.5709
Final Angles	245.5600		245.5600	109.5709

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	85.2235		4.3725

SLOPE DISTANCE :

Whole	22.539
Part	0.000
Distance	22.539

HEIGHTS :

Set Up On
Station to Instrument : -8.130 Floor to Instrument : 5.380
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-44-94	2203712.905	481619.467	4679.020	4679.017

Forward Bearing : 109.5709 Forward Distance : 22.466
Reverse Bearing : 289.5709

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS12	2203720.571	481598.350	4685.330	4671.820

Reverse Bearing : 224.0109 Reverse Distance : 240.714

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-45-94	244.4550			
Angles Turned	244.4550		244.4550	108.4659
Final Angles	244.4550		244.4550	108.4659

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	69.0100		20.5900

SLOPE DISTANCE :

Whole	22.162
Part	0.000
Distance	22.162

HEIGHTS :

Set Up On
Station to Instrument : -8.130 Floor to Instrument : 5.380
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-45-94	2203713.908	481617.940	4685.140	4685.136

Forward Bearing : 108.4659 Forward Distance : 20.692
Reverse Bearing : 288.4659

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS12	2203720.571	481598.350	4685.330	4671.820

Reverse Bearing : 224.0109 Reverse Distance : 240.714

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-46-94	237.1545			
Angles Turned	237.1545		237.1545	101.1654
Final Angles	237.1545		237.1545	101.1654

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	54.0525		35.5435

SLOPE DISTANCE :

Whole	16.276
Part	0.000
Distance	16.276

HEIGHTS :

Set Up On
Station to Instrument : -8.130 Floor to Instrument : 5.380
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-46-94	2203717.992	481611.278	4686.750	4686.746

Forward Bearing : 101.1654 Forward Distance : 13.183
Reverse Bearing : 281.1654

DDSTN #13

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS13	2203757.321	481628.857	4677.480	4663.940

Reverse Bearing : 223.1814 Reverse Distance : 288.363

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-47-94	254.0715			
Angles Turned	254.0715		254.0715	117.2529
Final Angles	254.0715		254.0715	117.2529

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	89.3420		0.2540

SLOPE DISTANCE :

Whole	26.004
Part	0.000
Distance	26.004

HEIGHTS :

Set Up On
Station to Instrument : -8.250 Floor to Instrument : 5.290
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-47-94	2203745.344	481651.938	4669.420	4669.424

Forward Bearing : 117.2529 Forward Distance : 26.003
Reverse Bearing : 297.2529

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS13	2203757.321	481628.857	4677.480	4663.940

Reverse Bearing : 223.1814 Reverse Distance : 288.363

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-48-94	251.4510			
Angles Turned	251.4510		251.4510	115.0324
Final Angles	251.4510		251.4510	115.0324

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	66.4810		23.1150

SLOPE DISTANCE :

Whole	23.281
Part	0.000
Distance	23.281

HEIGHTS :

Set Up On
Station to Instrument : -8.250 Floor to Instrument : 5.290
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-48-94	2203748.258	481648.242	4678.400	4678.400

Forward Bearing : 115.0324 Forward Distance : 21.399
Reverse Bearing : 295.0324

TRAVERSE CALCULATION REPORT 3-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS13	2203757.321	481628.857	4677.480	4663.940

Reverse Bearing : 223.1814 Reverse Distance : 288.363

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-49-94	249.0835			
Angles Turned	249.0835		249.0835	112.2649
Final Angles	249.0835		249.0835	112.2649

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	59.5733		30.0227

SLOPE DISTANCE :

Whole	17.910
Part	0.000
Distance	17.910

HEIGHTS :

Set Up On
Station to Instrument : -8.250 Floor to Instrument : 5.290
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-49-94	2203751.401	481643.186	4678.200	4678.196

Forward Bearing : 112.2649 Forward Distance : 15.504
Reverse Bearing : 292.2649

STATION # 14

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS14	2203801.313	481659.385	4668.860	4660.880

Reverse Bearing : 221.5807 Reverse Distance : 341.408

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-50-94	258.1325			
Angles Turned	258.1325		258.1325	120.1132
Final Angles	258.1325		258.1325	120.1132

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	93.3955		-3.3955

SLOPE DISTANCE :

Whole	21.188
Part	0.000
Distance	21.188

HEIGHTS :

Set Up On
Station to Instrument : -7.980 Floor to Instrument : 0.000
Foresight
Station to Target : 5.000 Floor to Target : 5.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-50-94	2203790.679	481677.662	4654.526	4654.526

Forward Bearing : 120.1132 Forward Distance : 21.145
Reverse Bearing : 300.1132

STATION 14

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS14	2203801.313	481659.385	4668.860	4655.490

Reverse Bearing : 221.5807 Reverse Distance : 341.408

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-51-94	257.3625			
Angles Turned	257.3625		257.3625	119.3432
Final Angles	257.3625		257.3625	119.3432

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	98.4240		-8.4240

SLOPE DISTANCE :

Whole	24.941
Part	0.000
Distance	24.941

HEIGHTS :

Set Up On
Station to Instrument : -7.960 Floor to Instrument : 5.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-51-94	2203789.145	481680.826	4657.120	4657.123

Forward Bearing : 119.3432 Forward Distance : 24.653
Reverse Bearing : 299.3432

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS14	2203801.313	481659.385	4668.860	4655.490

Reverse Bearing : 221.5807 Reverse Distance : 341.408

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-52-94	257.3825			
Angles Turned	257.3825		257.3825	119.3632
Final Angles	257.3825		257.3825	119.3632

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	90.1750		-.1750

SLOPE DISTANCE :

Whole	23.412
Part	0.000
Distance	23.412

HEIGHTS :

Set Up On
Station to Instrument : -7.960 Floor to Instrument : 5.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-52-94	2203789.746	481679.740	4660.780	4660.779

Forward Bearing : 119.3632 Forward Distance : 23.412
Reverse Bearing : 299.3632

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS14	2203801.313	481659.385	4668.860	4655.490

Reverse Bearing : 221.5807 Reverse Distance : 341.408

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-53-94	257.4430			
Angles Turned	257.4430		257.4430	119.4237
Final Angles	257.4430		257.4430	119.4237

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	87.5035		2.0925

SLOPE DISTANCE :

Whole	24.917
Part	0.000
Distance	24.917

HEIGHTS :

Set Up On
Station to Instrument : -7.960 Floor to Instrument : 5.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-53-94	2203788.973	481681.011	4661.840	4661.838

Forward Bearing : 119.4237 Forward Distance : 24.899
Reverse Bearing : 299.4237

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS14	2203801.313	481659.385	4668.860	4655.490

Reverse Bearing : 221.5807 Reverse Distance : 341.408

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-54-94	257.4830			
Angles Turned	257.4830		257.4830	119.4637
Final Angles	257.4830		257.4830	119.4637

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	82.2410		7.3550

SLOPE DISTANCE :

Whole	24.131
Part	0.000
Distance	24.131

HEIGHTS :

Set Up On
Station to Instrument : -7.960 Floor to Instrument : 5.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-54-94	2203789.434	481680.146	4664.090	4664.090

Forward Bearing : 119.4637 Forward Distance : 23.919
Reverse Bearing : 299.4637

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS14	2203801.313	481659.385	4668.860	4655.490

Reverse Bearing : 221.5807 Reverse Distance : 341.408

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-55-94	257.2905			
Angles Turned	257.2905		257.2905	119.2712
Final Angles	257.2905		257.2905	119.2712

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	75.4655		14.1305

SLOPE DISTANCE :

Whole	23.596
Part	0.000
Distance	23.596

HEIGHTS :

Set Up On
Station to Instrument : -7.960 Floor to Instrument : 5.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-55-94	2203790.066	481679.302	4666.690	4666.695

Forward Bearing : 119.2712 Forward Distance : 22.873
Reverse Bearing : 299.2712

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS14	2203801.313	481659.385	4668.860	4655.490

Reverse Bearing : 221.5807 Reverse Distance : 341.408

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-56-94	256.5430			
Angles Turned	256.5430		256.5430	118.5237
Final Angles	256.5430		256.5430	118.5237

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	62.4905		27.1055

SLOPE DISTANCE :

Whole	21.975
Part	0.000
Distance	21.975

HEIGHTS :

Set Up On
Station to Instrument : -7.960 Floor to Instrument : 5.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-56-94	2203791.873	481676.502	4670.940	4670.939

Forward Bearing : 118.5237 Forward Distance : 19.548
Reverse Bearing : 298.5237

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	RB-40	2203547.472	481431.078	4721.020	4708.680
Instrument	DDS14	2203801.313	481659.385	4668.860	4655.490

Reverse Bearing : 221.5807 Reverse Distance : 341.408

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
RB-40	0.0000			
D-57-94	255.4150			
Angles Turned	255.4150		255.4150	117.3957
Final Angles	255.4150		255.4150	117.3957

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	57.1350		32.4610

SLOPE DISTANCE :

Whole	17.782
Part	0.000
Distance	17.782

HEIGHTS :

Set Up On
Station to Instrument : -7.960 Floor to Instrument : 5.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-57-94	2203794.371	481672.628	4670.520	4670.525

Forward Bearing : 117.3957 Forward Distance : 14.952
Reverse Bearing : 297.3957

STATION # 15

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS14	2203801.313	481659.385	4668.860	4655.490
Instrument	DDS15	2203849.927	481691.704	4660.640	4653.890

Reverse Bearing : 213.3659 Reverse Distance : 58.377

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS14	0.0000			
D-58-94	277.5320			
Angles Turned	277.5320		277.5320	131.3019
Final Angles	277.5320		277.5320	131.3019

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	91.2345		-1.2345

SLOPE DISTANCE :

Whole	22.323
Part	0.000
Distance	22.323

HEIGHTS :

Set Up On
Station to Instrument : -6.750 Floor to Instrument : 0.000
Foresight
Station to Target : 5.000 Floor to Target : 5.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-58-94	2203835.138	481708.416	4648.346	4648.346

Forward Bearing : 131.3019 Forward Distance : 22.316
Reverse Bearing : 311.3019

STATION 15

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS14	2203801.313	481659.385	4668.860	4655.490
Instrument	DDS15	2203849.927	481691.704	4660.640	4648.450

Reverse Bearing : 213.3659 Reverse Distance : 58.377

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS14	0.0000			
D-59-94	277.1935			
Angles Turned	277.1935		277.1935	130.5634
Final Angles	277.1935		277.1935	130.5634

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	100.4225		-10.4225

SLOPE DISTANCE :

Whole	22.999
Part	0.000
Distance	22.999

HEIGHTS :

Set Up On
Station to Instrument : -6.630 Floor to Instrument : 5.560
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-59-94	2203835.118	481708.775	4649.740	4649.737

Forward Bearing : 130.5634 Forward Distance : 22.599
Reverse Bearing : 310.5634

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS14	2203801.313	481659.385	4668.860	4655.490
Instrument	DDS15	2203849.927	481691.704	4660.640	4648.450

Reverse Bearing : 213.3659 Reverse Distance : 58.377

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS14	0.0000			
D-60-94	276.4625			
Angles Turned	276.4625		276.4625	130.2324
Final Angles	276.4625		276.4625	130.2324

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	97.2155		-7.2155

SLOPE DISTANCE :

Whole	25.863
Part	0.000
Distance	25.863

HEIGHTS :

Set Up On
Station to Instrument : -6.630 Floor to Instrument : 5.560
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-60-94	2203833.306	481711.240	4650.690	4650.695

Forward Bearing : 130.2324 Forward Distance : 25.650
Reverse Bearing : 310.2324

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS14	2203801.313	481659.385	4668.860	4655.490
Instrument	DDS15	2203849.927	481691.704	4660.640	4648.450

Reverse Bearing : 213.3659 Reverse Distance : 58.377

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS14	0.0000			
D-61-94	276.2910			
Angles Turned	276.2910		276.2910	130.0609
Final Angles	276.2910		276.2910	130.0609

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	89.3645		0.2315

SLOPE DISTANCE :

Whole	27.303
Part	0.000
Distance	27.303

HEIGHTS :

Set Up On
Station to Instrument : -6.630 Floor to Instrument : 5.560
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-61-94	2203832.340	481712.587	4654.190	4654.195

Forward Bearing : 130.0609 Forward Distance : 27.302
Reverse Bearing : 310.0609

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS14	2203801.313	481659.385	4668.860	4655.490
Instrument	DDS15	2203849.927	481691.704	4660.640	4648.450

Reverse Bearing : 213.3659 Reverse Distance : 58.377

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS14	0.0000			
D-62-94	276.5905			
Angles Turned	276.5905		276.5905	130.3604
Final Angles	276.5905		276.5905	130.3604

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	74.4545		15.1415

SLOPE DISTANCE :

Whole	27.838
Part	0.000
Distance	27.838

HEIGHTS :

Set Up On
Station to Instrument : -6.630 Floor to Instrument : 5.560
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-62-94	2203832.447	481712.097	4661.330	4661.326

Forward Bearing : 130.3604 Forward Distance : 26.859
Reverse Bearing : 310.3604

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS14	2203801.313	481659.385	4668.860	4655.490
Instrument	DDS15	2203849.927	481691.704	4660.640	4648.450

Reverse Bearing : 213.3659 Reverse Distance : 58.377

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS14	0.0000			
D-63-94	277.4115			
Angles Turned	277.4115		277.4115	131.1814
Final Angles	277.4115		277.4115	131.1814

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	65.2200		24.3800

SLOPE DISTANCE :

Whole	24.409
Part	0.000
Distance	24.409

HEIGHTS :

Set Up On
Station to Instrument : -6.630 Floor to Instrument : 5.560
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-63-94	2203835.282	481708.372	4664.180	4664.184

Forward Bearing : 131.1814 Forward Distance : 22.188
Reverse Bearing : 311.1814

TRAVERSE CALCULATION REPORT 7-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS14	2203801.313	481659.385	4668.860	4655.490
Instrument	DDS15	2203849.927	481691.704	4660.640	4648.450

Reverse Bearing : 213.3659 Reverse Distance : 58.377

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS14	0.0000			
D-64-94	278.4610			
Angles Turned	278.4610		278.4610	132.2309
Final Angles	278.4610		278.4610	132.2309

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	63.2910		26.3050

SLOPE DISTANCE :

Whole	22.418
Part	0.000
Distance	22.418

HEIGHTS :

Set Up On
Station to Instrument : -6.630 Floor to Instrument : 5.560
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-64-94	2203836.404	481706.521	4664.020	4664.018

Forward Bearing : 132.2309 Forward Distance : 20.060
Reverse Bearing : 312.2309

STATION # 16

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS16	2203884.277	481715.700	4660.020	4647.290

Reverse Bearing : 214.5614 Reverse Distance : 41.901

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-65-94	253.3850			
Angles Turned	253.3850		253.3850	108.3504
Final Angles	253.3850		253.3850	108.3504

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	100.4850		-10.4850

SLOPE DISTANCE :

Whole	22.054
Part	0.000
Distance	22.054

HEIGHTS :

Set Up On
Station to Instrument : -7.470 Floor to Instrument : 5.260
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-65-94	2203877.373	481736.232	4648.410	4648.412

Forward Bearing : 108.3504 Forward Distance : 21.662
Reverse Bearing : 288.3504

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS16	2203884.277	481715.700	4660.020	4647.290

Reverse Bearing : 214.5614 Reverse Distance : 41.901

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-66-94	255.0550			
Angles Turned	255.0550		255.0550	110.0204
Final Angles	255.0550		255.0550	110.0204

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	93.2115		-3.2115

SLOPE DISTANCE :

Whole	23.694
Part	0.000
Distance	23.694

HEIGHTS :

Set Up On
Station to Instrument : -7.470 Floor to Instrument : 5.260
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-66-94	2203876.174	481737.922	4651.160	4651.164

Forward Bearing : 110.0204 Forward Distance : 23.653
Reverse Bearing : 290.0204

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS16	2203884.277	481715.700	4660.020	4647.290

Reverse Bearing : 214.5614 Reverse Distance : 41.901

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-67-94	255.1235			
Angles Turned	255.1235		255.1235	110.0849
Final Angles	255.1235		255.1235	110.0849

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	87.4750		2.1210

SLOPE DISTANCE :

Whole	24.134
Part	0.000
Distance	24.134

HEIGHTS :

Set Up On
Station to Instrument : -7.470 Floor to Instrument : 5.260
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-67-94	2203875.971	481738.340	4653.480	4653.478

Forward Bearing : 110.0849 Forward Distance : 24.116
Reverse Bearing : 290.0849

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS16	2203884.277	481715.700	4660.020	4647.290

Reverse Bearing : 214.5614 Reverse Distance : 41.901

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-68-94	256.3850			
Angles Turned	256.3850		256.3850	111.3504
Final Angles	256.3850		256.3850	111.3504

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	72.1055		17.4905

SLOPE DISTANCE :

Whole	26.483
Part	0.000
Distance	26.483

HEIGHTS :

Set Up On
Station to Instrument : -7.470 Floor to Instrument : 5.260
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-68-94	2203875.002	481739.145	4660.650	4660.654

Forward Bearing : 111.3504 Forward Distance : 25.213
Reverse Bearing : 291.3504

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS16	2203884.277	481715.700	4660.020	4647.290

Reverse Bearing : 214.5614 Reverse Distance : 41.901

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-69-94	245.1545			
Angles Turned	245.1545		245.1545	100.1159
Final Angles	245.1545		245.1545	100.1159

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	56.5110		33.0850

SLOPE DISTANCE :

Whole	18.320
Part	0.000
Distance	18.320

HEIGHTS :

Set Up On
Station to Instrument : -7.470 Floor to Instrument : 5.260
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-69-94	2203881.561	481730.797	4662.570	4662.567

Forward Bearing : 100.1159 Forward Distance : 15.339
Reverse Bearing : 280.1159

STATION #18

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS18	2203958.465	481776.164	4658.440	4649.880

Reverse Bearing : 217.5319 Reverse Distance : 137.528

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-72-94	255.3445			
Angles Turned	255.3445		255.3445	113.2804
Final Angles	255.3445		255.3445	113.2804

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	87.1315		2.4645

SLOPE DISTANCE :

Whole	22.477
Part	0.000
Distance	22.477

HEIGHTS :

Set Up On
Station to Instrument : -8.560 Floor to Instrument : 0.000
Foresight
Station to Target : 5.000 Floor to Target : 5.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-72-94	2203949.524	481796.758	4645.970	4645.970

Forward Bearing : 113.2804 Forward Distance : 22.451
Reverse Bearing : 293.2804

STATION #18

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS18	2203958.465	481776.164	4658.440	4644.690

Reverse Bearing : 217.5319 Reverse Distance : 137.528

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-73-94	255.5500			
Angles Turned	255.5500		255.5500	113.4819
Final Angles	255.5500		255.5500	113.4819

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	96.5005		-6.5005

SLOPE DISTANCE :

Whole	23.461
Part	0.000
Distance	23.461

HEIGHTS :

Set Up On
Station to Instrument : -8.440 Floor to Instrument : 5.310
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-73-94	2203949.063	481797.476	4647.210	4647.208

Forward Bearing : 113.4819 Forward Distance : 23.294
Reverse Bearing : 293.4819

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS18	2203958.465	481776.164	4658.440	4644.690

Reverse Bearing : 217.5319 Reverse Distance : 137.528

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-74-94	256.2025			
Angles Turned	256.2025		256.2025	114.1344
Final Angles	256.2025		256.2025	114.1344

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	91.0615		-1.0615

SLOPE DISTANCE :

Whole	24.468
Part	0.000
Distance	24.468

HEIGHTS :

Set Up On
Station to Instrument : -8.440 Floor to Instrument : 5.310
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-74-94	2203948.426	481798.472	4649.530	4649.528

Forward Bearing : 114.1344 Forward Distance : 24.463
Reverse Bearing : 294.1344

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS18	2203958.465	481776.164	4658.440	4644.690

Reverse Bearing : 217.5319 Reverse Distance : 137.528

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-75-94	256.5800			
Angles Turned	256.5800		256.5800	114.5119
Final Angles	256.5800		256.5800	114.5119

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	87.3510		2.2450

SLOPE DISTANCE :

Whole	24.711
Part	0.000
Distance	24.711

HEIGHTS :

Set Up On
Station to Instrument : -8.440 Floor to Instrument : 5.310
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-75-94	2203948.088	481798.566	4651.040	4651.041

Forward Bearing : 114.5119 Forward Distance : 24.689
Reverse Bearing : 294.5119

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS18	2203958.465	481776.164	4658.440	4644.690

Reverse Bearing : 217.5319 Reverse Distance : 137.528

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-76-94	257.0315			
Angles Turned	257.0315		257.0315	114.5634
Final Angles	257.0315		257.0315	114.5634

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	85.3715		4.2245

SLOPE DISTANCE :

Whole	25.069
Part	0.000
Distance	25.069

HEIGHTS :

Set Up On
Station to Instrument : -8.440 Floor to Instrument : 5.310
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-76-94	2203947.924	481798.829	4651.910	4651.914

Forward Bearing : 114.5634 Forward Distance : 24.996
Reverse Bearing : 294.5634

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS18	2203958.465	481776.164	4658.440	4644.690

Reverse Bearing : 217.5319 Reverse Distance : 137.528

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-77-94	258.2100			
Angles Turned	258.2100		258.2100	116.1419
Final Angles	258.2100		258.2100	116.1419

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	71.1700		18.4300

SLOPE DISTANCE :

Whole	27.287
Part	0.000
Distance	27.287

HEIGHTS :

Set Up On
Station to Instrument : -8.440 Floor to Instrument : 5.310
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-77-94	2203947.039	481799.345	4658.760	4658.756

Forward Bearing : 116.1419 Forward Distance : 25.844
Reverse Bearing : 296.1419

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS18	2203958.465	481776.164	4658.440	4644.690

Reverse Bearing : 217.5319 Reverse Distance : 16.908

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-78-94	253.0730			
Angles Turned	253.0730		253.0730	111.0049
Final Angles	253.0730		253.0730	111.0049

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	56.3930		33.2030

SLOPE DISTANCE :

Whole	20.239
Part	0.000
Distance	20.239

HEIGHTS :

Set Up On
Station to Instrument : -8.440 Floor to Instrument : 5.310
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-78-94	2203952.402	481791.948	4661.120	4661.124

Forward Bearing : 111.0049 Forward Distance : 16.908
Reverse Bearing : 291.0049

STATION #19

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
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TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
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BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4651.480

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-79-94	252.4150			
Angles Turned	252.4150		252.4150	107.5509
Final Angles	252.4150		252.4150	107.5509

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	89.4320		0.1640

SLOPE DISTANCE :

Whole	20.013
Part	0.000
Distance	20.013

HEIGHTS :

Set Up On
Station to Instrument : -5.460 Floor to Instrument : 0.000
Foresight
Station to Target : 5.000 Floor to Target : 5.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-79-94	2203997.537	481819.305	4646.577	4646.577

Forward Bearing : 107.5509 Forward Distance : 20.013
Reverse Bearing : 287.5509

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4642.950

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-80-94	251.5825			
Angles Turned	251.5825		251.5825	107.1144
Final Angles	251.5825		251.5825	107.1144

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	85.1640		4.4320

SLOPE DISTANCE :

Whole	21.001
Part	0.000
Distance	21.001

HEIGHTS :

Set Up On
Station to Instrument : -5.580 Floor to Instrument : 8.410
Foresight
Station to Target : -6.670 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-80-94	2203997.507	481820.257	4659.760	4653.089

Forward Bearing : 107.1144 Forward Distance : 20.929
Reverse Bearing : 287.1144

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4642.950

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-81-94	253.1400			
Angles Turned	253.1400		253.1400	108.2719
Final Angles	253.1400		253.1400	108.2719

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	95.0930		-5.0930

SLOPE DISTANCE :

Whole	21.604
Part	0.000
Distance	21.604

HEIGHTS :

Set Up On
Station to Instrument : -5.580 Floor to Instrument : 8.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-81-94	2203996.882	481820.673	4649.420	4649.418

Forward Bearing : 108.2719 Forward Distance : 21.517
Reverse Bearing : 288.2719

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4642.950

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-82-94	252.5435			
Angles Turned	252.5435		252.5435	108.0754
Final Angles	252.5435		252.5435	108.0754

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	92.0205		-2.0205

SLOPE DISTANCE :

Whole	23.300
Part	0.000
Distance	23.300

HEIGHTS :

Set Up On
Station to Instrument : -5.580 Floor to Instrument : 8.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-82-94	2203996.448	481822.392	4650.530	4650.533

Forward Bearing : 108.0754 Forward Distance : 23.285
Reverse Bearing : 288.0754

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
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Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4642.950

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-83-94	252.5525			
Angles Turned	252.5525		252.5525	108.0844
Final Angles	252.5525		252.5525	108.0844

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	82.0330		7.5630

SLOPE DISTANCE :

Whole	23.770
Part	0.000
Distance	23.770

HEIGHTS :

Set Up On
Station to Instrument : -5.580 Floor to Instrument : 8.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-83-94	2203996.362	481822.634	4654.640	4654.644

Forward Bearing : 108.0844 Forward Distance : 23.542
Reverse Bearing : 288.0844

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4651.480

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-84-94	249.3835			
Angles Turned	249.3835		249.3835	104.5154
Final Angles	249.3835		249.3835	104.5154

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	63.0900		26.5100

SLOPE DISTANCE :

Whole	18.387
Part	0.000
D' tance	18.387

HEIGHTS :

Set Up On
Station to Instrument : -5.460 Floor to Instrument : 0.000
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-84-94	2203999.485	481816.119	4659.785	4659.785

Forward Bearing : 104.5154 Forward Distance : 16.405
Reverse Bearing : 284.5154

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4651.480

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-85-94	244.5125			
Angles Turned	244.5125		244.5125	100.0444
Final Angles	244.5125		244.5125	100.0444

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	88.4500		1.1500

SLOPE DISTANCE :

Whole	19.862
Part	0.000
Distance	19.862

HEIGHTS :

Set Up On
Station to Instrument : -5.460 Floor to Instrument : 0.000
Foresight
Station to Target : 8.000 Floor to Target : 8.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-85-94	2204000.219	481819.814	4643.913	4643.913

Forward Bearing : 100.0444 Forward Distance : 19.857
Reverse Bearing : 280.0444

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4651.480

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-86-94	243.0935			
Angles Turned	243.0935		243.0935	98.2254
Final Angles	243.0935		243.0935	98.2254

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	89.3520		0.2440

SLOPE DISTANCE :

Whole	20.902
Part	0.000
Distance	20.902

HEIGHTS :

Set Up On
Station to Instrument : -5.460 Floor to Instrument : 0.000
Foresight
Station to Target : 7.000 Floor to Target : 7.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-86-94	2204000.647	481820.941	4644.630	4644.630

Forward Bearing : 98.2254 Forward Distance : 20.901
Reverse Bearing : 278.2254

TRAVERSE CALCULATION REPORT 3-Nov-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4651.480

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-87-94	240.5540			
Angles Turned	240.5540		240.5540	96.0859
Final Angles	240.5540		240.5540	96.0859

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	85.0940		4.5020

SLOPE DISTANCE :

Whole	22.523
Part	0.000
Distance	22.523

HEIGHTS :

Set Up On
Station to Instrument : -5.460 Floor to Instrument : 0.000
Foresight
Station to Target : 5.000 Floor to Target : 5.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-87-94	2204001.290	481822.577	4648.380	4648.380

Forward Bearing : 96.0859 Forward Distance : 22.443
Reverse Bearing : 276.0859

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4642.950

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-88-94	239.2620			
Angles Turned	239.2620		239.2620	94.3939
Final Angles	239.2620		239.2620	94.3939

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	87.2105		2.3855

SLOPE DISTANCE :

Whole	23.405
Part	0.000
Distance	23.405

HEIGHTS :

Set Up On
Station to Instrument : -5.580 Floor to Instrument : 8.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-88-94	2204001.794	481823.566	4652.440	4652.442

Forward Bearing : 94.3939 Forward Distance : 23.380
Reverse Bearing : 274.3939

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4642.950

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-89-94	241.1345			
Angles Turned	241.1345		241.1345	96.2704
Final Angles	241.1345		241.1345	96.2704

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	79.0730		10.5230

SLOPE DISTANCE :

Whole	22.792
Part	0.000
Distance	22.792

HEIGHTS :

Set Up On
Station to Instrument : -5.580 Floor to Instrument : 8.410
Foresight
Station to Target : 0.000 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-89-94	2204001.179	481822.504	4655.660	4655.660

Forward Bearing : 96.2704 Forward Distance : 22.383
Reverse Bearing : 276.2704

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4642.950

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-90-94	218.0220			
Angles Turned	218.0220		218.0220	73.1539
Final Angles	218.0220		218.0220	73.1539

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	85.2120		4.3840

SLOPE DISTANCE :

Whole	12.274
Part	0.000
Distance	12.274

HEIGHTS :

Set Up On
Station to Instrument : -5.580 Floor to Instrument : 8.410
Foresight
Station to Target : -2.770 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-90-94	2204007.218	481811.979	4655.120	4652.354

Forward Bearing : 73.1539 Forward Distance : 12.234
Reverse Bearing : 253.1539

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4642.950

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-91-94	224.5955			
Angles Turned	224.5955		224.5955	80.1314
Final Angles	224.5955		224.5955	80.1314

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	83.3240		6.2720

SLOPE DISTANCE :

Whole	17.775
Part	0.000
Distance	17.775

HEIGHTS :

Set Up On
Station to Instrument : -5.580 Floor to Instrument : 8.410
Foresight
Station to Target : -4.460 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-91-94	2204006.694	481817.668	4657.820	4653.358

Forward Bearing : 80.1314 Forward Distance : 17.662
Reverse Bearing : 260.1314

TRAVERSE CALCULATION REPORT 27-Oct-94

Calculated :- W.H.
Checked :-
Fieldbook :- Page Ref :

BACKSIGHT AND INSTRUMENT STATIONS :

	Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
Backsight	DDS15	2203849.927	481691.704	4660.640	4648.240
Instrument	DDS19	2204003.694	481800.263	4656.940	4642.950

Reverse Bearing : 215.1319 Reverse Distance : 188.227

HORIZONTAL ANGLES - MULTIPLE ZERO METHOD:

Angle to Station	Face Left	Face Right	Mean	Fwd Bearing
DDS15	0.0000			
D-92-94	242.1700			
Angles Turned	242.1700		242.1700	97.3019
Final Angles	242.1700		242.1700	97.3019

VERTICAL ANGLES:	Face Left	Face Right	Slope Angle
	82.2830		7.3130

SLOPE DISTANCE :

Whole	21.653
Part	0.000
Distance	21.653

HEIGHTS :

Set Up On
Station to Instrument : -5.580 Floor to Instrument : 8.410
Foresight
Station to Target : -3.790 Floor to Target : 0.000

FORESIGHT STATION INSERTED :

Station ID	NORTHING	EASTING	Z BACK	Z FLOOR
D-92-94	2204000.890	481821.546	4657.990	4654.196

Forward Bearing : 97.3019 Forward Distance : 21.467
Reverse Bearing : 277.3019

FAUSETT DIAMOND DRILLING

SHIFT REPORT

Contract: HECLA Hole No. D-82-94

Loc.: LOVELOCK Date: 9-16-94

Shift: Nite (AM) ____ Day X Swing ____ No. 52-2

Hole Size: NC ____ NX X BX ____ AX ____ Other ____

	FEET	MATERIALS	BAGS
Tools, End of Shift		Mud	1 - ALCOMER
Stickup, End of Shift			
Depth, End of Shift	56	Cal Seal	
Depth, Begin. of Shift	28	Lumnite	
Drilled	28	Portland	
Core Removed	28	Fuel ____ Oil	
Number of Runs		Water ____ Gallons	

Feet Cased ____ From ____ To ____ Size ____

Feet Reamed ____

Cement Drilled ____

TIME CHARGES (Hours)

Drilling	3	Cementing	
Reaming		Equip. Repair	1hr
Casing		Standby	
Set-up, Tear Down	2	Water Delay	2
Mix Mud, Filling			1 hr Travel

Bits: Size ____ Ser. No. ____ On ____ Off ____

Reaming Shells: Size ____ Ser. No. ____ On ____ Off ____

Remarks: Rescue Power unit from drill pump down drill station filling with water

Driller: COLOMBE Helper: GEORGE

Foreman ____

Approved by: ____

FAUSETT DIAMOND DRILLING

SHIFT REPORT

Contract Hecla Hole No. D-82

Loc Rose Bud Date 9-16-84

Shift: Nite (AM) ____ Day ____ Swing ✓ No. 52-2

Hole Size: NC ____ NX ____ BX ____ AX ____ Other ____

	FEET	MATERIALS	BAGS
Tools, End of Shift		Mud	
Stickup, End of Shift			
Depth, End of Shift		Cal Seal	
Depth, Begin. of Shift		Lumnite	
Drilled		Portland	
Core Removed		Fuel	Oil
Number of Runs		Water	Gallons

Feet Cased ____ From ____ To ____ Size ____

Feet Reamed ____

Cement Drilled ____

TIME CHARGES (Hours)

Drilling	Cementing
Reaming	Equip. Repair
Casing	Standby 8-flooded out
Set-up, Tear Down	Water Delay
Mix Mud, Filling	

Bits: Size ____ Ser. No. ____ On ____ Off ____

Reaming Shells: Size ____ Ser. No. ____ On ____ Off ____

Remarks: ____

Driller Luhr Helper Garrison

Foreman ____

Approved by: ____

NKILL & **NORTHWEST DRILLING, INC.**

SHIFT REPORT

Client HECLA Job No. 52-2

Mine Project: ROSEBUD Date 9-17-94

Location LOVELOCK NV. Shift: Day X Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ____ NQ X B ____ A ____ Other ____

HOLE INFO		SUPPLIES	
Hole #	D-82-94	Core Boxes	
Angle	+0°	Cement	
Depth, End	120	Fondu	
Depth, Begin.	56	Grout Packer	
Drilled	64	Mech Packer	
Core Removed	64	Lost Circulation	
# of Runs	8		
		Other	

SUPPLIES	
Alcomer 120L	1
Minex 1330	
Rod Lube	
Soluble Oil	

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling	4	Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	4
Setup, Tear Down		Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		Other Delay	
Other (Specify)	1hr. Travel		

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	4Q38008	224	0	120	344

REAMING SHELLS

NQ	4R1321	1419	0	120	1539

Remarks (Explain Delays) Had to rebuild deck, left Power pack back up after flood

Driller COLOMBE Helper GEORGE

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client Hecla Job No. 52-2
Mine Project: Rosebud Date 9-17-94
Location Lovelock NV Shift: Day ___ Swing X Grvyd ___
Hole Size: NQ X NTW ___ NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole # D-82-94
Angle +0°
Depth, End 195
Depth, Begin. 120
Drilled 75
Core Removed 74
# of Runs 10

SUPPLIES

Core Boxes ___ Alcomer 120L 1
Cement ___ Minex 1330 ___
Fondu ___ Rod Lube ___
Grout Packer ___ Big Cut Soluble Oil 1
Mech Packer ___
Lost Circulation ___
Other ___

Feet Reamed ___ From ___ To ___ Size ___
Feet Cased ___ From ___ To ___ Size ___ C/S # ___
Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling 8hr
Reaming ___
Casing ___
Setup, Tear Down ___
Hole Conditioning ___
Survey ___
Other (Specify) 1hr TRAVEL

Cementing ___
Equip. Repair ___
Delays by Client ___
Delays by Northwest ___
Blast Delay ___
Other Delay ___

Size	Serial No.	Previous Footage	On	Off	Total Footage
		BITS			
NQ	4Q38008	344			489
		REAMING SHELLS			
NQ	4R1321	1539			1614

Remarks (Explain Delays) Mudded bit up on two short runs. Ran more water, but make up water wasn't enough, Had to stop every 2½' to let water catch up. Did that for 20'.

Driller Kuhr Helper Garrison

Approved by Client ___

EST DRILLING, INC
SHIFT REPORT

Client HECLA Job No. 52-2
Mine Project: ROSEBUD Date 9-17-94
Location LOVELOCK NV. Shift: Day ____ Swing ____ Grvyd Y
Hole Size: NQ ____ NTW ____ NQ Y B ____ A ____ Other ____

HOLE INFO

Hole # D-82-94
Angle +10°
Depth, End 255
Depth, Begin. 195
Drilled 60
Core Removed 60
# of Runs ____

SUPPLIES

Core Boxes ____ Alcomer 120L Y
Cement ____ Minex 1330 Y
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 8
Reaming ____
Casing ____
Setup, Tear Down ____
Hole Conditioning ____
Survey ____
Other (Specify) ____

Cementing ____
Equip. Repair ____
Delays by Client ____
Delays by Northwest ____
Blast Delay ____
Other Delay LTRAVEL

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NQ	HQ38008	344			
NQ	HR1221	1539			
REAMING SHELLS					

Remarks (Explain Delays) HOLE MAKEING 100 GAL. MIN
HIT AT 235'
WINTERS 1 DOZ. GLOVES

Driller HANSEN Helper WINTERS

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client: HECLA Job No. 52-2
Mine Project: ROSEBUD Date 9-18-94
Location: LOVELOCK NV. Shift: Day X Swing ____ Grvyd ____
Hole Size: NQ ____ NTW ____ NQ X B ____ A ____ Other ____

HOLE INFO		SUPPLIES			
Hole #	D-82-94	Core Boxes	25	Alcomer 120L	
Angle	+0°	Cement		Minex 1330	
Depth, End	275	Fondu		Rod Lube	
Depth, Begin.	255	Grout Packer		Soluble Oil	
Drilled	20	Mech Packer	1		
Core Removed	20	Lost Circulation			
# of Runs	2				
		Other			

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling	3	Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down	3	Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey	1	Other Delay	1

Other (Specify) ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NQ	HQ38008		0	275	619
REAMING SHELLS					
NQ	4R1321		0	275	1814

Remarks (Explain Delays) No air for jackhammer
couldn't lift up drill

Driller COLOMBE Helper GEORGE

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client: Hecla — Job No. 52-2

Mine Project: Rosebud — Date: 9-18

Location: Lovelock NV. — Shift: Day ___ Swing ✓ Grvyd ___

Hole Size: NQ X NTW ___ NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole # D-83-94

Angle 125°

Depth, End 70

Depth, Begin. Ø

Drilled 70

Core Removed 69

# of Runs 9

SUPPLIES

Core Boxes ___ Alcomer 120L 1

Cement ___ Minex 1330 ___

Fondu ___ Rod Lube ___

Grout Packer ___ Soluble Oil ___

Mech Packer ___

Lost Circulation ___

Other ___

Feet Reamed ___ From ___ To ___ Size ___

Feet Cased ___ From ___ To ___ Size ___ C/S # ___

Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling 5½

Reaming ___

Casing ___

Setup, Tear Down 2

Hole Conditioning ___

Survey ___

Other (Specify) 1 TRAVEL

Cementing ___

Equip. Repair ½

Delays by Client ___

Delays by Northwest ___

Blast Delay ___

Other Delay ___

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	4Q38008	619	Ø	65	684
NQ	4Q38009	Ø	65		

REAMING SHELLS

NQ	4R1321	1814	0		1884

Remarks (Explain Delays) Put new gaskets in Bean pump. Hole is making about ½ gal per min.

Driller Luke — Helper Garrison

Approved by Client ___

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client HECLA Job No. 52-2
Mine Project: ROSEBUD Date 9-18-94
Location LOVELOCK NV. Shift: Day ____ Swing ____ Grvyd X
Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO		SUPPLIES	
Hole #	D-83-94	Core Boxes	Alcomer 120L
Angle	+25°	Cement	Minex 1330 1
Depth, End	140	Fondu	Rod Lube
Depth, Begin.	70	Grout Packer	Soluble Oil
Drilled	70	Mech Packer	
Core Removed	70	Lost Circulation	
# of Runs			
		Other	

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling	8	Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down		Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		Other Delay	1 TRAVEL

Other (Specify) ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NQ	38009	~~[illegible]~~			
REAMING SHELLS					
NQ	4R1321	1889			

Remarks (Explain Delays) HOLE D-83-94 MAKEING WATER 35 GAL MIN. FROM 90'

Driller HANSEN Helper WINTER'S

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client HECLA Job No. 52-2
Mine Project: ROSEBUD Date 9-19-94
Location LOVELOCK NV. Shift: Day X Swing ____ Grvyd ____
Hole Size: NQ X NTW ____ NQ X B ____ A ____ Other ____

HOLE INFO

Hole # D-83-94
Angle +25°
Depth, End 210
Depth, Begin. 140
Drilled 70
Core Removed 70
# of Runs 7

SUPPLIES

Core Boxes ____ Alcomer 120L ____
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 8
Reaming ____
Casing ____
Setup, Tear Down ____
Hole Conditioning ____
Survey ____
Other (Specify) 1 hr travel

Cementing ____
Equip. Repair ____
Delays by Client ____
Delays by Northwest ____
Blast Delay ____
Other Delay ____

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	38009		65	210	145

REAMING SHELLS

NQ	4R1321	1884	0	210	2039

Remarks (Explain Delays) ____

Driller COLOMBE Helper GEORGE

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client Hecla Job No. 52-2
Mine Project: Rosebud Date 9-19-94
Location Lovelock Shift: Day ___ Swing X Grvyd ___
Hole Size: NQ X NTW ___ NQ ___ B ___ A ___ Other ___

HOLE INFO		SUPPLIES	
Hole #	D-83-94 / D-84-94	Core Boxes	Alcomer 120L
Angle	+25° / +75°	Cement	Minex 1330
Depth, End	33	Fondu	Rod Lube
Depth, Begin.	Ø	Grout Packer	Soluble Oil
Drilled	33	Mech Packer 1	
Core Removed	31½	Lost Circulation	
# of Runs	7		
		Other	

Feet Reamed ___ From ___ To ___ Size ___
Feet Cased ___ From ___ To ___ Size ___ C/S # ___
Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling	3	Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	½
Setup, Tear Down	2½	Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey	1½' - D-83-94	Other Delay	½ Install Packer
Other (Specify)	1 Travel		

Size	Serial No.	Previous Footage		On	Off	Total Footage
NQ	~~3E~~ 4Q38D08	145	BITS	Ø		178
			REAMING SHELLS			
NQ	4R1321	2039		Ø		2072

Remarks (Explain Delays) Lost 1½' of core when I hit water. About 10 gal per min. ½hr power delay.

Driller Luke Helper Garrison

Approved by Client ___

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client ~~[illegible]~~ HECLA Job No. 52-2

Mine Project: ROSEBUD Date 9-19-94

Location LOVELOCK NV. Shift: Day ____ Swing ____ Grvyd ✓

Hole Size: NQ X NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-84-94

Angle +75°

Depth, End 75

Depth, Begin. 33

Drilled 42

Core Removed 42

# of Runs ____

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 7

Reaming ____

Casing ____

Setup, Tear Down ____

Hole Conditioning ____

Survey 1 HR.

Other (Specify) ½ HR FLAT TIRE

Cementing ____

Equip. Repair ____

Delays by Client ____

Delays by Northwest ____

Blast Delay ____

Other Delay 1 TRAVEL

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	4Q38008	145			

REAMING SHELLS

NQ	4R1321	2039			

Remarks (Explain Delays) STATION #19 SLABS STILL FALLING OFF FACE AND BACK AFTER BARING DOWN. VERY UNSAFE SHOULD BE CHICKEN WIRED.

Driller HANSEN Helper WINTER'S

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client: HECLA Job No. 52-2
Mine Project: ROSEBUD Date 9-20-94
Location: LOVELOCK Shift: Day X Swing ____ Grvyd ____
Hole Size: NQ X NTW ____ NQ X B ____ A ____ Other ____

HOLE INFO

Hole # D-81-94
Angle -30°
Depth, End 10
Depth, Begin. 0
Drilled 10
Core Removed 10
# of Runs 1

SUPPLIES

Core Boxes ____ Alcomer 120L ____
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer 1 Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 1 Cementing ____
Reaming ____ Equip. Repair ____
Casing ____ Delays by Client ____
Setup, Tear Down 6½ hr. Delays by Northwest ____
Hole Conditioning ____ Blast Delay ____
Survey ____ Other Delay ____
Other (Specify) ½ set packer 1 hr Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	4Q3B008	220	0		

BITS

REAMING SHELLS

NQ	4R1321	2114	0		

Remarks (Explain Delays) ____

Driller COLOMBE Helper GEORGE

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client Hecla Job No. 52-2

Mine Project: Rosebud Date 9-20-94

Location Lovelock NV Shift: Day ____ Swing ____ Grvyd ____

Hole Size: NQ ✓ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-81-94

Angle -30°

Depth, End 135

Depth, Begin. 10

Drilled 125

Core Removed 125

# of Runs 13

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ____

Lost Circulation ____

Other Bio cut plus 1

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 8

Reaming ____

Casing ____

Setup, Tear Down ____

Hole Conditioning ____

Survey ____

Other (Specify) 1 hr TRAVEL

Cementing ____

Equip. Repair ____

Delays by Client ____

Delays by Northwest ____

Blast Delay ____

Other Delay ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NQ	4Q38008	220			357
REAMING SHELLS					
NQ	4R1321	2114			2251

Remarks (Explain Delays) We are down to 4 core springs for NQ.

Driller Luhr Helper Garrison

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client: Hecla Job No.: 52-2

Mine Project: Rosebud Date: 9-20-94

Location: Love Lock, NV Shift: Day ___ Swing ___ Grvyd X

Hole Size: NQ X NTW ___ NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole #: D-81-94

Angle: -30°

Depth, End: 165

Depth, Begin.: 135

Drilled: 30

Core Removed: 30

# of Runs: 3

SUPPLIES

Core Boxes ___ Alcomer 120L ___

Cement ___ Minex 1330 ___

Fondu ___ Rod Lube ___

Grout Packer ___ Soluble Oil ___

Mech Packer ___

Lost Circulation ___

Other ___

Feet Reamed ___ From ___ To ___ Size ___

Feet Cased ___ From ___ To ___ Size ___ C/S # ___

Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling: 3 1/2

Reaming ___

Casing ___

Setup, Tear Down ___

Hole Conditioning ___

Survey ___

Other (Specify): 1 TRAVEL

Cementing ___

Equip. Repair ___

Delays by Client: PUMP DOWN 4 1/2 FLOODED OUT

Delays by Northwest ___

Blast Delay ___

Other Delay ___

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	38008	357			387
NQ	4R1321	2254			2281

REAMING SHELLS

Remarks (Explain Delays): TOP PUMP BURN UP
FLOODED STATION #19

Driller: HANSEN Helper: WINTERS

Approved by Client ___

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client Hecla Job No. 52-2

Mine Project: Rose Bud Date 9-21-94

Location Lonelock, Nev Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO		SUPPLIES	
Hole #		Core Boxes	Alcomer 120L
Angle		Cement	Minex 1330
Depth, End		Fondu	Rod Lube
Depth, Begin.		Grout Packer	Soluble Oil
Drilled		Mech Packer	
Core Removed		Lost Circulation	
# of Runs			
		Other	

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling		Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	3 Flooded out
Setup, Tear Down		Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		Other Delay	

Other (Specify) ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays)

Drill Crew worked on #1 Drill

Driller ____ Helper ____

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client Hecla Job No. 52-2

Mine Project: Rosebud Date 9-21-94

Location Lovelock NV Shift: Day ____ Swing X Grvyd ____

Hole Size: NQ X NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-81-94

Angle -30°

Depth, End 230

Depth, Begin. 165

Drilled 65

Core Removed 65

# of Runs 7

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil 1

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 6 hr

Reaming ____

Casing ____

Setup, Tear Down ____

Hole Conditioning ____

Survey ____

Other (Specify) 1 hr TRAVEL

Cementing ____

Equip. Repair ____

Delays by Client 2 hr sump pump

Delays by Northwest ____

Blast Delay ____

Other Delay ____

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	493808	387			

REAMING SHELLS

NQ	4R1321	2281			

Remarks (Explain Delays) ____

Driller Lehr Helper Carrison

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client: HECLA Job No. 52-2

Mine Project: ROSEbud Date 9-21-94

Location: Lovelock, NV. Shift: Day ___ Swing ___ Grvyd X

Hole Size: NQ X NTW ___ NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole # D-81-94

Angle -30°

Depth, End 279

Depth, Begin. 230

Drilled 49

Core Removed 49

# of Runs ___

SUPPLIES

Core Boxes ___ Alcomer 120L ___

Cement ___ Minex 1330 ___

Fondu ___ Rod Lube ___

Grout Packer ___ Soluble Oil ___

Mech Packer ___

Lost Circulation ___

Other ___

Feet Reamed ___ From ___ To ___ Size ___

Feet Cased ___ From ___ To ___ Size ___ C/S # ___

Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling 7½

Reaming ___

Casing ___

Setup, Tear Down ___

Hole Conditioning ___

Survey ___

Other (Specify) ___

Cementing ___

Equip. Repair ___

Delays by Client PUMP DOWN ½

Delays by Northwest ___

Blast Delay ___

Other Delay 1 TRAVEL

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NQ	4Q 38008	387			
REAMING SHELLS					
NQ	4R1321	2281			

Remarks (Explain Delays) UPPER PUMP KEPT THROWING BREAKER FLOODED OUT HALF HOUR.

Driller HANSEN Helper WINTERS

Approved by Client ___

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client HECLA Job No. 52-2
Mine Project: ROSEBUD Date 9-22-94
Location LOVELOCK NV Shift: Day X Swing 2 Grvyd
Hole Size: NQ X NTW NQ X B A Other

HOLE INFO

Hole # D-81-94
Angle -30°
Depth, End 300
Depth, Begin. 279
Drilled 21
Core Removed 21
# of Runs 3

SUPPLIES

Core Boxes
Cement
Fondu
Grout Packer
Mech Packer
Lost Circulation
Other

Alcomer 120L 1
Minex 1330
Rod Lube
Soluble Oil

Feet Reamed From To Size
Feet Cased From To Size C/S #
Cement Drilled From To

TIME CHARGES (Hours)

Drilling 4
Reaming
Casing
Setup, Tear Down 3
Hole Conditioning
Survey 1
Other (Specify) 1 hr Travel

Cementing
Equip. Repair
Delays by Client
Delays by Northwest
Blast Delay
Other Delay

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	4Q38008	387	0	300	408

REAMING SHELLS

NQ	4R1321	2281	0	300	2302

Remarks (Explain Delays)

Driller COLOMBE Helper GEORGE

Approved by Client

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client Hecla Job No. 52-2

Mine Project: Rosebud Date 9-22-94

Location Lovelock NV. Shift: Day ____ Swing X Grvyd ____

Hole Size: NQ X NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-81-94 / D-80-94

Angle 30° / -58°

Depth, End Ø

Depth, Begin. Ø

Drilled ____

Core Removed ____

# of Runs ____

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer X

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling ____ Cementing ____

Reaming ____ Equip. Repair ____

Casing ____ Delays by Client ____

Setup, Tear Down 6 Delays by Northwest ____

Hole Conditioning ____ Blast Delay ____

Survey 1½hr. D-81-94 Other Delay Set packer ½

Other (Specify) 1 hr. Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) Had to get rods back on deck and put drill back on hole to take survey shots at 150' and 290'. Had to dig hole in muck pile to set up on new hole. Jack Neg steel was plugged by someone trying to get core out of tube. Got different steels. Drill blocked in.

Driller Luhr Helper Garrison

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client HECLA Job No. 52-2
Mine Project: ROSEBUD Date 9-22-93
Location LOVELOCK NV. Shift: Day ____ Swing ____ Grvyd X
Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-80-94
Angle -58°
Depth, End 58
Depth, Begin. 0
Drilled 58
Core Removed 58
# of Runs

SUPPLIES

Core Boxes 25 Alcomer 120L
Cement Minex 1330
Fondu Rod Lube
Grout Packer Soluble Oil
Mech Packer
Lost Circulation
Other

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 7½ Cementing
Reaming Equip. Repair
Casing Delays by Client
Setup, Tear Down Delays by Northwest
Hole Conditioning Blast Delay
Survey Other Delay 1 TRAVEL
Other (Specify) CHANGED HYDROLIC HOSE ½

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	4Q 38008	387	0	300	408

REAMING SHELLS

NQ	4K 1321	2281	0	300	2302

Remarks (Explain Delays) SAFTY CHECK STATION #19 O.K. TRACTOR O.K

Driller HANSEN Helper WINTERS

Approved by Client

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client: HECLA Job No. 52-2
Mine Project: ROSEBUD Date 9-23-94
Location LOVELOCK NV. Shift: Day X Swing ____ Grvyd ____
Hole Size: NQ X NTW ____ NQ X B ____ A ____ Other ____

HOLE INFO

Hole # D-80-94
Angle -58°
Depth, End 111
Depth, Begin. 58
Drilled 53
Core Removed 52
# of Runs 13

SUPPLIES

Core Boxes ____ Alcomer 120L ____
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 6
Reaming ____
Casing ____
Setup, Tear Down ____
Hole Conditioning ____
Survey ____
Other (Specify) 1 travel

Cementing ____
Equip. Repair 2
Delays by Client ____
Delays by Northwest ____
Blast Delay ____
Other Delay ____

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	4Q38008		0	58	466
NQ	4Q38007	NEW	58		53

REAMING SHELLS

NQ	4R1321	2302	0		2413

Remarks (Explain Delays) ____

Driller COLOMBE Helper GEORGE

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client Hecla Job No. 52-2
Mine Project: Rosebud Date 9-23-94
Location Lovelock Nv. Shift: Day ___ Swing X Grvyd ___
Hole Size: NQ ✓ NTW ___ NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole # D-80-94
Angle -58°
Depth, End 191
Depth, Begin. 111
Drilled 80
Core Removed 80
# of Runs 18

SUPPLIES

Core Boxes ___ Alcomer 120L 1
Cement ___ Minex 1330 ___
Fondu ___ Rod Lube ___
Grout Packer ___ Bit cut ~~Soluble~~ Oil 1
Mech Packer ___
Lost Circulation ___
Other ___

Feet Reamed ___ From ___ To ___ Size ___
Feet Cased ___ From ___ To ___ Size C/S # ___
Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling 8
Reaming ___
Casing ___
Setup, Tear Down ___
Hole Conditioning ___
Survey ~~2~~
Other (Specify) 1 hr Travel

Cementing ___
Equip. Repair ___
Delays by Client ___
Delays by Northwest ___
Blast Delay ___
Other Delay ___

Size	Serial No.	Previous Footage	On	Off	Total Footage
		BITS			
NQ	4Q38007	53			133
NQ	4Q38008	has 580	*Total Footage	not	466'
		REAMING SHELLS			
NQ	4R1321	2474			2554

Remarks (Explain Delays) ___

Driller Luhr Helper Garrison

Approved by Client ___

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client HECLA Job No. 57-2

Mine Project: ROSEBUD Date 9-23-94

Location LOVELOCK NV. Shift: Day ____ Swing ____ Grvyd X

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-80-94

Angle -58°

Depth, End 256

Depth, Begin. 191

Drilled 65

Core Removed 65

# of Runs ____

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 8

Reaming ____

Casing ____

Setup, Tear Down ____

Hole Conditioning ____

Survey ____

Other (Specify) 1 TRAVEL

Cementing ____

Equip. Repair ____

Delays by Client ____

Delays by Northwest ____

Blast Delay ____

Other Delay ____

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	38007	53	58		198

REAMING SHELLS

NQ	4R1321				2619

Remarks (Explain Delays) ____

Driller HANSEN Helper WINTERS

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client: HECLA Job No. 52-2

Mine Project: ROSE BUD Date 9-24-92

Location: LOVELOCK NV. Shift: Day X Swing ____ Grvyd ____

Hole Size: NQ X NTW ____ NQ X B ____ A ____ Other ____

HOLE INFO

Hole # D-80-94

Angle -58°

Depth, End 271

Depth, Begin. 256

Drilled 15

Core Removed 15

# of Runs 3

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 2 Cementing ____

Reaming ____ Equip. Repair ____

Casing ____ Delays by Client 6

Setup, Tear Down ____ Delays by Northwest ____

Hole Conditioning ____ Blast Delay ____

Survey ____ Other Delay ____

Other (Specify) 1 hr. Travel

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NQ	38007	198		271	213

REAMING SHELLS

NQ	4R1321				

Remarks (Explain Delays) Flooded out. No electricity

Driller COLOMBE Helper GEORGE

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client Hecla Job No. 52-2

Mine Project: Rosebud Date 9-24-94

Location Lovelock NV Shift: Day ____ Swing X Grvyd ____

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-80-94

Angle -58°

Depth, End ____

Depth, Begin. ____

Drilled ____

Core Removed ____

# of Runs ____

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ✓

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling ____

Reaming ____

Casing ____

Setup, Tear Down 4

Hole Conditioning ____

Survey 2

Other (Specify) 1 hr Travel

Cementing ____

Equip. Repair 1/2

Delays by Client ____

Delays by Northwest ____

Bar down 1

~~Blast Delay~~ ____

Other Delay Set packer 1/2

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) ____

Driller Luhr Helper Garrison

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client HECLA Job No. 52-2
Mine Project: ROSE BUD Date 9-24-94
Location LOVELOCK NV. Shift: Day ____ Swing ____ Grvyd X
Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO	SUPPLIES	
Hole #	Core Boxes	Alcomer 120L
Angle	Cement	Minex 1330
Depth, End	Fondu	Rod Lube
Depth, Begin.	Grout Packer	Soluble Oil
Drilled	Mech Packer	
Core Removed	Lost Circulation	
# of Runs		
	Other	

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling		Cementing	
Reaming		Equip. Repair	1 HR.
Casing		Delays by Client	
Setup, Tear Down	4	Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		Other Delay	1 TRAVEL

Other (Specify) CLEANED UP BLOCKS AND PICK UP STATION 3 HR.

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) PICKED BLOCKS AND LEGEN OFF STATION CHANGED COVERS ON WATER PUMP HOOKED UP HYD. LINES AND WATER LINE

Driller HANSEN Helper WINTERS

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client HECLA Job No. 523

Mine Project: ROSEBUD Date 9-25-94

Location LOVELOCK NV Shift: Day X Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-29-94

Angle -86°

Depth, End —

Depth, Begin. —

Drilled —

Core Removed

# of Runs

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling ____ Cementing ____

Reaming ____ Equip. Repair ____

Casing ____ Delays by Client ____

Setup, Tear Down 10 Delays by Northwest ____

Hole Conditioning ____ Blast Delay ____

Survey ____ Other Delay ____

Other (Specify) 1 hr Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
		BITS			
		REAMING SHELLS			

Remarks (Explain Delays)

Jim Colombe 1-slicker pants

Driller COLOMBE Helper GEORGE

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client: Hecla — Job No. 52-2
Mine Project: Rosebud — Date: 9-25-94
Location: Lovelock NV — Shift: Day ___ Swing Y Grvyd ___
Hole Size: NQ ✓ NTW ___ NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole # D-79-94
Angle -86
Depth, End 77
Depth, Begin. Ø
Drilled 77
Core Removed 77
# of Runs ~~3~~ 20

SUPPLIES

Core Boxes ___ Alcomer 120L ___
Cement ___ Minex 1330 ___
Fondu ___ Rod Lube ___
Grout Packer ___ Soluble Oil ___
Mech Packer ___ Bio Cut 1
Lost Circulation ___
Other ___

Feet Reamed ___ From ___ To ___ Size ___
Feet Cased ___ From ___ To ___ Size ___ C/S # ___
Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling 7½ — Cementing ___
Reaming ___ — Equip. Repair ½
Casing ___ — Delays by Client ___
Setup, Tear Down 2 — Delays by Northwest ___
Hole Conditioning ___ — Blast Delay ___
Survey ___ — Other Delay ___
Other (Specify) 1 Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NQ	~~39~~ 4Q3807	222			299
REAMING SHELLS					
NQ	4R1321	~~2619~~			2696

Remarks (Explain Delays) One of the adjusting bolts for the chain on head came off. The other chain looks as tho it needs to have a link taken out.
Set drill on dip & bolted & blocked in.

Driller Luke — Helper Garrison / Butierez

Approved by Client ___

SHIFT REPORT

Client: HECLA Job No. 52-2
Mine Project: ROSEBUD Date 9-26-94
Location: LOVELOCK NV. Shift: Day ✓ Swing ____ Grvyd ____
Hole Size: NQ ✓ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-79-94
Angle -86°
Depth, End 205
Depth, Begin. 77
Drilled 128
Core Removed 125
# of Runs 31

SUPPLIES

Core Boxes ____ Alcomer 120L 1
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 10 Cementing ____
Reaming ____ Equip. Repair ____
Casing ____ Delays by Client ____
Setup, Tear Down ____ Delays by Northwest ____
Hole Conditioning ____ Blast Delay ____
Survey ____ Other Delay ____
Other (Specify) 1 hr. Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NQ	4Q38007	299	0	205	427
REAMING SHELLS					
NQ	4R1321	2696	0	~~[illegible]~~	2824

Remarks (Explain Delays) ____

Driller COLOMBE Helper GEORGE

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client Hecla Job No. 52-2
Mine Project: Rosebud Date 9-26-94
Location Lovelock Nv Shift: Day ___ Swing X Grvyd ___
Hole Size: NQ X NTW ___ NQ ___ B ___ A ___ Other ___

HOLE INFO		SUPPLIES	
Hole #	D-79-94	Core Boxes	Alcomer 120L
Angle	-86°	Cement	Minex 1330
Depth, End	260	Fondu	Rod Lube
Depth, Begin.	202	Grout Packer	Soluble Oil
Drilled	58	Mech Packer	
Core Removed	58	Lost Circulation	
# of Runs	15		
		Other	

Feet Reamed ___ From ___ To ___ Size ___
Feet Cased ___ From ___ To ___ Size C/S # ___
Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling	8½	Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down		Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey	½	Other Delay	1hr worked on 52-1
Other (Specify)	1 Travel		

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NQ	4Q38007			202	424
NQ	4Q38006		202	260	58
REAMING SHELLS					
NQ	4R1321			202	2824
NQ	4R1320		202	260	58

Remarks (Explain Delays) Also used new tube stabilizer. The old reaming shell was crushed. The hole was making between 5+10 gal per min. Also put new back end on core barrel. Hole was at 202' at start of shift, not 205'

Driller Luke Helper Garrison / Grant

Approved by Client ___

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client: HECLA Job No. 52-2
Mine Project: ROSEBUD Date 9-27-94
Location: LOVELOCK NV. Shift: Day ____ Swing ____ Grvyd ____
Hole Size: NQ X NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-85-94
Angle -73°
Depth, End 25
Depth, Begin. 0
Drilled 25
Core Removed 24
# of Runs 5

SUPPLIES

Core Boxes ____ Alcomer 120L ____
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer X Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 1 Cementing ____
Reaming ____ Equip. Repair ____
Casing ____ Delays by Client 1½ hr
Setup, Tear Down 6 Delays by Northwest ____
Hole Conditioning ____ Blast Delay ____
Survey 1 Other Delay ½ Set packer
Other (Specify) 1 hr travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NQ	4Q38006	58	0		
REAMING SHELLS					
NQ	4R1320	58	0		

Remarks (Explain Delays) No electricity

Driller COLOMBE Helper GEORGE/CALVIN

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client Hecla Job No. 52-2

Mine Project: Rosebud Date 9-27-94

Location Lovelock Nv Shift: Day ____ Swing X Grvyd ____

Hole Size: NQ ✓ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-85-94

Angle -73°

Depth, End 175

Depth, Begin. 25

Drilled 150

Core Removed 148.5

# of Runs 30

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 10

Reaming ____

Casing ____

Setup, Tear Down ____

Hole Conditioning ____

Survey ____

Other (Specify) 1 Travel

Cementing ____

Equip. Repair ____

Delays by Client ____

Delays by Northwest ____

Blast Delay ____

Other Delay ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
		BITS			
NQ	4038006	83			233
		REAMING SHELLS			
NQ	4R1320	83			233

Remarks (Explain Delays) ____

Driller Luke / Hewis Helper Grant

Approved by Client ____

FAUSETT DIAMOND DRILLING

SHIFT REPORT

Contract: Hecla Hole No. D-85 / D-86

Loc. Rosebud Date 9-29-94

Shift: Nite (AM) ____ Day X Swing ____ No. 52-2

Hole Size: NC ____ NX ____ BX ____ AX ____ Other NQ

	D-85	D-86
Tools, End of Shift		
Stickup, End of Shift		
Depth, End of Shift	210	13
Depth, Begin. of Shift	175	Ø
Drilled	35	13
Core Removed	35	12
Number of Runs	7	3

MATERIALS	BAGS
Mud Alcomber	1
Cal Seal	
Lumnite	
Portland	
Fuel ____ Oil	
Water ____ Gallons	

Feet Cased ____ From ____ To ____ Size ____

Feet Reamed ____

Cement Drilled ____

TIME CHARGES (Hours)

Drilling	4 1/2	~~Cementing~~ Survey	1 1/2
Reaming		Equip. Repair	
Casing		Standby	
Set-up, Tear Down	4	Water Delay	
Mix Mud, Filling		Travel	1

Bits: Size ____ Ser. No. ____ On ____ Off ____

Reaming Shells: Size ____ Ser. No. ____ On ____ Off ____

Remarks:

Driller Luhr Helper Garrison

Foreman ____

Approved by: ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client: Hecla Job No. 52-2

Mine Project: Rosebud Date 9-30-94

Location Lovelock Nv Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ X NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-86-94

Angle -35°

Depth, End 219

Depth, Begin. 149

Drilled 70

Core Removed 70

# of Runs 14

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 6 1/2 Cementing ____

Reaming ____ Equip. Repair ____

Casing ____ Delays by Client ~~pay~~ 2 1/2

Setup, Tear Down ____ Delays by Northwest ____

Hole Conditioning ____ ~~Bist~~ Delay 1 (SAFTY)

Survey 1/2 Other Delay 1/2 (WATER)

Other (Specify) 1 TRAVEL

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) POWER OUT 3 DIFFERENT TIMES. WATER LEVEL was to high to get to drill

Walk around thru (SAFTY)

Driller Lohr Helper Garrison

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client HECLA Job No. 52-2
Mine Project: ROSE BUD Date 9-30-94
Location LOVELOCK NV Shift: Day ____ Swing X Grvyd ____
Hole Size: NQ X NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-87-94
Angle -22°
Depth, End 60
Depth, Begin. 0
Drilled 60
Core Removed 60
# of Runs 15

SUPPLIES

Core Boxes 25 Alcomer 120L ____
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer 1 Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 4 Cementing ____
Reaming ____ Equip. Repair ____
Casing ____ Delays by Client ____
Setup, Tear Down 5 Delays by Northwest ____
Hole Conditioning ____ Blast Delay ____
Survey 1/2 hr Other Delay 1/2 set packer
Other (Specify) 1 hr. Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NQ					
REAMING SHELLS					
NQ					

Remarks (Explain Delays) Hole collapsed took survey picture at 80'

Driller COLOMBE Helper GEORGE

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client ~~[illegible]~~ HomeStake Job No. ~~52~~ 90 3

Mine Project: ~~[illegible]~~ Zodiac Date 9/21/94

Location ~~[illegible]~~ Lower Lake Shift: Day ____ Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO	SUPPLIES	
Hole #	Core Boxes	Alcomer 120L
Angle	Cement	Minex 1330
Depth, End	Fondu	Rod Lube
Depth, Begin.	Grout Packer	Soluble Oil
Drilled	Mech Packer	
Core Removed	Lost Circulation	
# of Runs		
	Other	

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling		Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down		Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		~~Other Delay~~	& Travel

Other (Specify) ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) Wait to HomeStake mine to get Equipment 2hr 6 hr from Lower Lake Cal, to Battle Mt

Driller Adams Helper ____

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client HBCA Job No. 52-3

Mine Project: Rosebud Date 9/23/94

Location Lovelock NV Shift: Day____ Swing____ Grvyd____

Hole Size: NQ____ NTW____ NQ____ B____ A____ Other____

HOLE INFO	SUPPLIES	
Hole #	Core Boxes	Alcomer 120L
Angle	Cement	Minex 1330
Depth, End	Fondu	Rod Lube
Depth, Begin.	Grout Packer	Soluble Oil
Drilled	Mech Packer	
Core Removed	Lost Circulation	
# of Runs		
	Other	

Feet Reamed____ From____ To____ Size____

Feet Cased____ From____ To____ Size C/S #

Cement Drilled____ From____ To____

TIME CHARGES (Hours)

Drilling		Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down		Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		~~Other Delay~~	5 Travel

Other (Specify)

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays)

Driller Adams Helper

Approved by Client

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client Hecla Job No. 52-3

Mine Project: Rosebud Date 9/24/94

Location ~~Lovelock~~ Lovelock Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ ✓ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO		SUPPLIES	
Hole #		Core Boxes	Alcomer 120L
Angle		Cement	Minex 1330
Depth, End		Fondu	Rod Lube
Depth, Begin.		Grout Packer	Soluble Oil
Drilled		Mech Packer	
Core Removed		Lost Circulation	
# of Runs			
		Other	

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling		Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	9 Flooding
Setup, Tear Down		Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		~~Other Delay~~	1 Travel

Other (Specify) ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) Flooding at Starting, no power work on Gen Set

Driller Adams Helper ____

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client ASCA Job No. 52-3

Mine Project: Rosebud Date 9/25/94

Location Lovelock Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO		SUPPLIES	
Hole #		Core Boxes	Alcomer 120L
Angle		Cement	Minex 1330
Depth, End		Fondu	Rod Lube
Depth, Begin.		Grout Packer	Soluble Oil
Drilled		Mech Packer	
Core Removed		Lost Circulation	
# of Runs			
		Other	

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling		Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down	10	Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		~~Other Delay~~	1 Travel
Other (Specify)			

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) Build Deck, Took drill down,

Driller Adams Helper Mike / Davis

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client HECLA Job No. 52-3

Mine Project: Rosebud Date 9/26/84

Location ~~Lovelock~~ Lovelock Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO		SUPPLIES	
Hole #		Core Boxes	Alcomer 120L
Angle		Cement	Minex 1330
Depth, End		Fondu	Rod Lube
Depth, Begin.		Grout Packer	Soluble Oil
Drilled		Mech Packer	
Core Removed		Lost Circulation	
# of Runs			
		Other	

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling		Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down	~~10~~ 9.5	Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		~~Other Delay~~	1 Travel
Other (Specify)			.5 Safety meeting

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) Finish moving equipment down drill is set up NEED to hook up Hyd Lines NEED to fix Hyd pump
mike 1 doz cloves, Tom m 1 doz cloves 1 set of Rein gear, Adams 1 set of Rein gear

Driller Adams/Tom Helper Mike

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client HECLA Job No. 5203

Mine Project: Rosebud Date 9/27/94

Location Lovelock Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D 76

Angle +0

Depth, End ____

Depth, Begin. ____

Drilled ____

Core Removed ____

# of Runs ____

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling ____ Cementing ____

Reaming ____ Equip. Repair ____

Casing ____ Delays by Client 9

Setup, Tear Down 1 Delays by Northwest ____

Hole Conditioning ____ Blast Delay ____

Survey ____ Other Delay ____

Other (Specify) ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) Finish setup, no power cable for number 3 drill

Driller Adams Helper Mallak

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client HECLA Job No. 52-3

Mine Project: Rossland Date 9/29/99

Location Lovelock Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D76

Angle +0

Depth, End 39

Depth, Begin. 0

Drilled 39

Core Removed 39

# of Runs ____

SUPPLIES

Core Boxes 25 Alcomer 120L 2

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil 1

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 1.5 Cementing ____

Reaming ____ Equip. Repair 8.5

Casing ____ Delays by Client ____

Setup, Tear Down ____ Delays by Northwest ____

Hole Conditioning ____ Blast Delay ____

Survey ____ ~~Other Delay~~ 1 Travel

Other (Specify) ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NQ	L36059	0	0		
REAMING SHELLS					
NQ	4R1621	0	0		

Remarks (Explain Delays) Water pump would not suck Change cup Gasget and Rubber Cup

Driller Adams Helper Danny

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client Hecla Job No. 52-3
Mine Project: Rose Bud Date 9-29-94
Location _____ Shift: Day ____ Swing X Grvyd ____
Hole Size: NQ ____ NTW X NQ ____ B ____ A ____ Other ____

HOLE INFO		SUPPLIES	
Hole #	D-76	Core Boxes	Alcomer 120L
Angle	+0	Cement	Minex 1330
Depth, End	199	Fondu	Rod Lube
Depth, Begin.	39	Grout Packer	Soluble Oil
Drilled	160	Mech Packer	
Core Removed	160	Lost Circulation	
# of Runs	19		
		Other	

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling	10	Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down		Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		Other Delay	

Other (Specify) 1 Travle

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
HQ	636059	39	0	199	199
REAMING SHELLS					
NQ	4R1621	39	0	199	199

Remarks (Explain Delays) Hole is Ready To Suvery.
Suvery Equip. is at Machine.
Need Grease + 5' Tubs

Driller Heinis Helper Mallak

Approved by Client _____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client HECLA Job No. 52-3

Mine Project: Rosebud Date 9/30/94

Location Lovelock Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ✓ NQ ____ B ____ A ____ Other ____

HOLE INFO		SUPPLIES	
Hole #	D72	Core Boxes	Alcomer 120L
Angle	-90	Cement	Minex 1330
Depth, End		Fondu	Rod Lube
Depth, Begin.		Grout Packer 1	Soluble Oil
Drilled		Mech Packer	
Core Removed		Lost Circulation	
# of Runs			
		Other	

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling		Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	2.5
Setup, Tear Down	6.5	Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey	1	~~Other Delay~~	1 Travel

Other (Specify) ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) No power off and on all day put Grout Packer in hole, set up on new hole. Grout Packer .5

Driller Adams Helper Dan

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client Hecla Job No. 52-3

Mine Project: Date 9-30-94

Location Shift: Day Swing X Grvyd

Hole Size: NQ NTW X NQ B A Other

HOLE INFO		SUPPLIES	
Hole #	D72-94	Core Boxes	Alcomer 120L
Angle	-87	Cement	Minex 1330
Depth, End		Fondu	Rod Lube
Depth, Begin.		Grout Packer	Soluble Oil
Drilled		Mech Packer	
Core Removed		Lost Circulation	
# of Runs			
		Other	

Feet Reamed From To Size

Feet Cased From To Size C/S #

Cement Drilled From To

TIME CHARGES (Hours)

Drilling	1	Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down	5	Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		Other Delay	4

Other (Specify) 1 travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
HQ	4Q43252	0	0	5	5
HQ	4Q43253	0			
REAMING SHELLS					
NQ	4R1621	199	0	206	206
NO	4R1686	0			

Remarks (Explain Delays) Stuck Rods at 5' got all out But Bit + Reamer Shell turned up 4° ready to collar hole

Driller Heinis Helper Mallak

Approved by Client

FAUSETT DIAMOND DRILLING

SHIFT REPORT

Contract: Hec 12 Hole No.: D-55-94

Loc.: Republic, w Rosebud Date: 9-15-94

Shift: Nite (AM) ____ Day ✓ Swing ____ No. 52-1

Hole Size: NC ____ NX ____ BX ____ AX ____ Other NTW

	FEET	MATERIALS	BAGS
Tools, End of Shift		Mud	1-Alconner 120
Stickup, End of Shift			1-MATex
Depth, End of Shift	224	~~Cal Seal~~	25Hq Core Bxs
Depth, Begin. of Shift	165	Lumnite	
Drilled	59	Portland	
Core Removed	59	Fuel	Oil
Number of Runs		Water	Gallons

Feet Cased ____ From ____ To ____ Size ____

Feet Reamed ____

Cement Drilled ____

TIME CHARGES (Hours)

Drilling	7 1/2	Cementing	
Reaming		Equip. Repair	1/2 Pump
Casing		Standby	
Set-up, Tear Down		Water Delay	
Mix Mud, Filling			1-Travel

Bits: Size NTW Ser. No. 4Q41991 On 0+796 Off 214-1010

NTW 4HP028 214

Reaming Shells: Size NTW Ser. No. 14R1603 On 0+796 Off ____

Remarks: Hobit 10 helped a little in the hard rock, but not much. Pretty Hard Rock

Driller Williams Helper Davis

Foreman ____

Approved by: ____

DRILL #1

NORTHWEST DRILLING, INC

SHIFT REPORT

Client HECLA Job No. #52-1

Mine Project: ROSEBUD Date

Location LOVELOCK NV. Shift: Day ____ Swing ____ Grvyd ✓

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # ____

Angle ____

Depth, End ____

Depth, Begin. ____

Drilled ____

Core Removed ____

# of Runs ____

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 2 showup

Reaming ____

Casing ____

Setup, Tear Down ____

Hole Conditioning ____

Survey ____

Cementing ____

Equip. Repair ____

Delays by Client ____

Delays by Northwest ____

Blast Delay ____

Other Delay ____

Other (Specify) ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) NO HELPER

Driller HANSEN Helper ____

Approved by Client ____

FAUSETT DIAMOND DRILLING

SHIFT REPORT

Contract: Hecla — Hole No. D-56-94

Loc.: Rosebud — Date: 9-16-94

Shift: Nite (AM) ____ Day ✓ Swing ____ No. 52-1

Hole Size: NC ____ NX ____ BX ____ AX ____ Other NTW

	FEET	MATERIALS	BAGS
Tools, End of Shift		Mud	
Stickup, End of Shift		1-MATEX	
Depth, End of Shift	78	Cal Seal	
Depth, Begin. of Shift	8	Lumnite	
Drilled	70	Portland	
Core Removed	70	Fuel ____ Oil	
Number of Runs		Water ____ Gallons	

Feet Cased ____ From ____ To ____ Size ____

Feet Reamed ____

Cement Drilled ____

TIME CHARGES (Hours)

Drilling	5	Cementing	1-BOOKS
Reaming		Equip. Repair	
Casing		Standby	2-Remarks
Set-up, Tear Down		Water Delay	
Mix Mud, Filling			1-Travel

Bits: Size ____ Ser. No. ____ On ____ Off ____

Reaming Shells: Size ____ Ser. No. ____ On ____ Off ____

Remarks: Had to Rescue Power unit from Drill #2. Pump down & filling up fast with water

Driller: Williams — Helper: Davis

Foreman ____

Approved by: ____

ORTHWEST DRILLING, INC

SHIFT REPORT

Hecla — Job No. 52-1

Mine Project: Rosebud — Date 9-16-94

Location Lovelock Nev. — Shift: Day ____ Swing X Grvyd ____

Hole Size: NQ ____ NTW X NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-56-94

Angle EOH

Depth, End 150

Depth, Begin. 78

Drilled 72

Core Removed 72

# of Runs ____

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer 1 ✓ Soluble Oil ____

Mech Packer 1 ✓

Lost Circulation ____

Other 1-matex

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 6 hrs

Reaming ____

Casing ____

Setup, Tear Down ____

Hole Conditioning ____

Survey 1 hr 150' TB' 0'

Other (Specify) 1 hr packers - 1 hr Travel

Cementing ____

Equip. Repair ____

Delays by Client ____

Delays by Northwest ____

Blast Delay ____

Other Delay ____

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NTW	4HP028	36	0	150	186

REAMING SHELLS

NTW	4R1603	1046	0	150	1196

Remarks (Explain Delays) Grout packer No stop Water - put in mech.

Driller Hopper — Helper Winters / Rutierez

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client Hecla Job No. 52-1

Mine Project: RoseBud Date 9-17-94

Location _____ Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ✓ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-57-94

Angle +90

Depth, End 104

Depth, Begin. 0

Drilled 104

Core Removed 104

# of Runs 21

SUPPLIES

Core Boxes 25 HQ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 7 Cementing ____

Reaming ____ Equip. Repair ____

Casing ____ Delays by Client ____

Setup, Tear Down 1 Delays by Northwest ____

Hole Conditioning ____ Blast Delay ____

Survey ____ Other Delay ____

Other (Specify) 1-Travel

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NTW	4HP028	186	0		
NTW	14R1603	1046	0		

REAMING SHELLS

Remarks (Explain Delays) ____

Driller Williams Helper Davis

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla Job No. 52-1
Mine Project: Rosebud Date 9-17-94
Location Lovelock Nev Shift: Day ___ Swing X Grvyd ___
Hole Size: NQ ___ NTW X NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole # D-57-94
Angle +90 EOH
Depth, End 149
Depth, Begin. 104
Drilled 45
Core Removed 45
# of Runs

SUPPLIES

Core Boxes ___ Alcomer 120L ___
Cement ___ Minex 1330 ___
Fondu ___ Rod Lube ___
Grout Packer ___ Soluble Oil ___
Mech Packer ___
Lost Circulation ___
Other ___

Feet Reamed ___ From ___ To ___ Size ___
Feet Cased ___ From ___ To ___ Size ___ C/S # ___
Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling 5½ hr
Reaming
Casing
Setup, Tear Down 1 hr
Hole Conditioning
Survey 1 hr 50-75-0
Other (Specify) 1 hr Travel - ½ hr put in Packer

Cementing
Equip. Repair
Delays by Client
Delays by Northwest
Blast Delay
Other Delay

Size	Serial No.	Previous Footage		On	Off	Total Footage
NTW	4HP028	186	BITS	0	150	336
			REAMING SHELLS			
NTW	1HR1603	1096		0	150	1346

Remarks (Explain Delays) 5' runs & shorter - firm
Started tearing down for move

Driller Hopper Helper Butierez

Approved by Client ___

NORTHWEST DRILLING, INC
SHIFT REPORT

Client Hecla Job No. 52-1

Mine Project: Rose Bud Date 9-18-94

Location Lovelock, NEV Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ✓ NQ ____ B ____ A ____ Other ____

HOLE INFO	SUPPLIES	
Hole #	Core Boxes	Alcomer 120L
Angle	Cement	Minex 1330
Depth, End	Fondu	Rod Lube
Depth, Begin.	Grout Packer	Soluble Oil
Drilled	Mech Packer	
Core Removed	Lost Circulation	
# of Runs		
	Other	

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling		Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	2 1/2 NO ELECTRIC POWER
Setup, Tear Down	6 1/2 STATION MOVE	Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		Other Delay	
Other (Specify)	1 - Travel		

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) MOVED INTO STATION II 15

Driller Williams Helper Davis

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla — Job No. 52-1
Mine Project: Rosebud — Date: 9-18-94
Location: Lovelock Nev — Shift: Day ___ Swing X Grvyd ___
Hole Size: NQ ___ NTW X NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole # D-59-94
Angle -90
Depth, End 33
Depth, Begin. 0
Drilled 33
Core Removed 33
# of Runs

SUPPLIES

Core Boxes ___ Alcomer 120L ___
Cement ___ Minex 1330 ___
Fondu ___ Rod Lube ___
Grout Packer X Soluble Oil ___
Mech Packer ___
Lost Circulation ___
Other ___

Feet Reamed ___ From ___ To ___ Size ___
Feet Cased ___ From ___ To ___ Size ___ C/S # ___
Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling 3hrs
Reaming
Casing
Setup, Tear Down 1hr
Hole Conditioning
Survey
Other (Specify) 1hr Travel

Cementing
Equip. Repair
Delays by Client 4hrs No Power
Delays by Northwest
Blast Delay
Other Delay

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NTW	4HP028	336	0		

REAMING SHELLS

NTW	14R1603	1346	0		

Remarks (Explain Delays) finished setting up on -90

Driller Hopper — Helper Butierez

Approved by Client ___

NORTHWEST DRILLING, INC
SHIFT REPORT

Client Hecla Job No. 52-1
Mine Project: Rose Bud Date 9-19-94
Location Lovelock Shift: Day ✓ Swing ____ Grvyd ____
Hole Size: NQ ____ NTW ✓ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-59-94
Angle -90
Depth, End 120
Depth, Begin. 33
Drilled 87
Core Removed 87
# of Runs 17

SUPPLIES

Core Boxes ____ Alcomer 120L 1
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other 1-MIATEX Bio cut

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 7 1/2
Reaming ____
Casing ____
Setup, Tear Down ____
Hole Conditioning 1/2 squeezing
Survey ____
Other (Specify) 1-TRAVEL

Cementing ____
Equip. Repair ____
Delays by Client ____
Delays by Northwest ____
Blast Delay ____
Other Delay ____

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NTW	4HP028	336	0		

REAMING SHELLS

NTW	14R1603	1346	0		

Remarks (Explain Delays) ____

Driller Williams Helper Davis

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client: Hecla — Job No. 52-1

Mine Project: Rosebud — Date 9-18-94

Location: Lovelock Nev — Shift: Day ____ Swing ✓ Grvyd ____

Hole Size: NQ ____ NTW X NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-59-90

Angle -90

Depth, End 148

Depth, Begin. 120

Drilled 28

Core Removed 28

# of Runs 8

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer ____

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 3½

Reaming ____

Casing ____

Setup, Tear Down ____

Hole Conditioning ____

Survey ____

Other (Specify) 1 hr Travel

Cementing ____

Equip. Repair ____

Delays by Client 4½ No power

Delays by Northwest ____

Blast Delay ____

Other Delay ____

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NTW	4HP028	336	0		
	~~4HR1603~~	~~1346~~			

REAMING SHELLS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NTW	4HR1603	1346	0		

Remarks (Explain Delays) 5' tools - firm - Power Kicked off on power unit would not come back on.

SAfety check. Drill #142 OK

Driller Hopper — Helper Butierez

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla Job No. 52-1
Mine Project: Rose Bud Date 9-20-91
Location: Lovelock, Nev Shift: Day ✓ Swing ____ Grvyd ____
Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-59-94
Angle -90
Depth, End 170
Depth, Begin. 148
Drilled 22
Core Removed 22
# of Runs 5

SUPPLIES

Core Boxes ____ Alcomer 120L 1
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 3 Cementing ____
Reaming ____ Equip. Repair ____
Casing ____ Delays by Client 5-No Power
Setup, Tear Down ____ Delays by Northwest ____
Hole Conditioning ____ Blast Delay ____
Survey ____ Other Delay ____
Other (Specify) 1-Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NTW	4HP028	336	0		
REAMING SHELLS					
NTW	14R1603	1346	0		

Remarks (Explain Delays) Safety Check
Drill Station #1 - Secure
Drill Station #2 Continuos Barring
down SDW

Driller Williams Helper Davis

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla — Job No. 52-1
Mine Project: Rosebud — Date: 9-20-94
Location: Lovelock - Nev — Shift: Day ___ Swing ✓ Grvyd ___
Hole Size: NQ ___ NTW X NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole #	D-59-94	D-60-94
Angle	-90	-41
Depth, End	178	36
Depth, Begin.	175	0
Drilled	3	36
Core Removed	0	36
# of Runs		

SUPPLIES

Core Boxes ___ Alcomer 120L ___
Cement ___ Minex 1330 ___
Fondu ___ Rod Lube ___
Grout Packer ___ Soluble Oil ___
Mech Packer ___
Lost Circulation ___
Other: 1-~~Mat~~ B10 Cut

Feet Reamed ___ From ___ To ___ Size ___
Feet Cased ___ From ___ To ___ Size ___ C/S # ___
Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling	4 1/2	Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down	1 1/2 (-41)	Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		Other Delay	
Other (Specify)	1hr Travel		2hrs See Remarks

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NTW	HHP028	336	0	175	511
"	HQ39241		0		
REAMING SHELLS					
NTW	HR1603	1346	0	175	1521
"	HR1618		0		

Remarks (Explain Delays): Spun off core barrell coming out of hole. Could not get back down to it. Hole caved in. Mine Manager said to move to next hole.

Station Check OK GH

Driller: Hopper — Helper: Butierez

Approved by Client ___

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client: HECLA Job No. 52-1
Mine Project: ROSE BUD Date 9-21-94
Location: LOVELOCK NV. Shift: Day X Swing ____ Grvyd ____
Hole Size: NQ ____ NTW X NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-60-94
Angle -41°
Depth, End 101
Depth, Begin. 36
Drilled 65
Core Removed 63
# of Runs 8

SUPPLIES

Core Boxes ____ Alcomer 120L 1
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 7 Cementing ____
Reaming ____ Equip. Repair 1
Casing ____ Delays by Client ____
Setup, Tear Down ____ Delays by Northwest ____
Hole Conditioning ____ Blast Delay ____
Survey ____ Other Delay ____
Other (Specify) 1 hr Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NTW	4Q39241		0		
REAMING SHELLS					
NTW	4R1618		0		

Remarks (Explain Delays) ____

Driller COLOMBE/Williams Helper DAVIS/GEORGE

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla Job No. 52-1
Mine Project: Rosebud Date 9-21-94
Location Lovelock Nev Shift: Day ___ Swing X Grvyd ___
Hole Size: NQ ___ NTW X NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole #	D-60-94	D-61-94
Angle	-41 EOH	-5
Depth, End	120	85
Depth, Begin.	101	0
Drilled	19	85
Core Removed	19	85
# of Runs		

SUPPLIES

Core Boxes ___ Alcomer 120L ___
Cement ___ Minex 1330 ___
Fondu ___ Rod Lube ___
Grout Packer ___ Soluble Oil ___
Mech Packer X
Lost Circulation ___
Other ___

Feet Reamed ___ From ___ To ___ Size ___
Feet Cased ___ From ___ To ___ Size C/S # ___
Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling 6hrs Cementing ___
Reaming ___ Equip. Repair ___
Casing ___ Delays by Client ___
Setup, Tear Down 1hr -5 Delays by Northwest ___
Hole Conditioning ___ Blast Delay ___
Survey 1/2hr Other Delay ___
Other (Specify) 1/2hr Packer in - 1hr Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NTW	HQ39241		0	120	120
"	" "	120	0		
REAMING SHELLS					
NTW	HR1618		0	120	120
"	" "	120	0		

Remarks (Explain Delays) Safety Check - good DH

Driller Hopper Helper Butierez

Approved by Client ___

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla Job No. 52-1
Mine Project: Rose Bud Date 9-22-94
Location Lovelock NE Shift: Day ✓ Swing ____ Grvyd ____
Hole Size: NQ ____ NTW ✓ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-61-94
Angle -5
Depth, End 160
Depth, Begin. 85
Drilled 75
Core Removed 75
# of Runs ____

SUPPLIES

Core Boxes ____ Alcomer 120L 1
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other 1-MATEX BIOCUT

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 8 Cementing ____
Reaming ____ Equip. Repair ____
Casing ____ Delays by Client ____
Setup, Tear Down ____ Delays by Northwest ____
Hole Conditioning ____ Blast Delay ____
Survey ____ Other Delay ____
Other (Specify) 1-Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
		BITS			
NTW	4Q39241		0	126	246
NTW	L36025	New	126		
		REAMING SHELLS			
NTW	4R1618	120	0		

Remarks (Explain Delays) Hard Rock
Drill Station #1 & 2 Secure Job

Driller Williams Helper Davis

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla Job No. 52-1
Mine Project: Rosebud Date 9-22-94
Location Lovelock Nev Shift: Day ___ Swing X Grvyd ___
Hole Size: NQ ___ NTW X NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole # D-61-94
Angle -5 EOH
Depth, End 200
Depth, Begin. 160
Drilled 40
Core Removed 40
# of Runs ___

SUPPLIES

Core Boxes ___ Alcomer 120L X
Cement ___ Minex 1330 ___
Fondu ___ Rod Lube ___
Grout Packer X Soluble Oil ___
Mech Packer ___
Lost Circulation ___
Other 1-Matex

Feet Reamed ___ From ___ To ___ Size ___
Feet Cased ___ From ___ To ___ Size ___ C/S # ___
Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling 4 1/2 Cementing ___
Reaming ___ Equip. Repair ___
Casing ___ Delays by Client ___
Setup, Tear Down 1 1/2 Delays by Northwest ___
Hole Conditioning ___ Blast Delay ___
Survey 1/2 Other Delay ___
Other (Specify) 1/2 hr Packer in - 1 hr Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NTW	L36025	New	126	200	74
REAMING SHELLS					
NTW	HR1618	120	0	200	320

Remarks (Explain Delays) Setup on t31 - Ready to Start diggin - (61) pretty hard

Safety Check - OK - GA

Driller Hopper Helper Bottierez

Approved by Client ___

NORTHWEST DRILLING, INC
SHIFT REPORT

Client Hecla Job No. 52-1
Mine Project: Rose Bud Date 9-23-94
Location Lovelock Shift: Day ✓ Swing ____ Grvyd ____
Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-62-94
Angle +32
Depth, End 128
Depth, Begin. 0
Drilled 128
Core Removed 128
# of Runs

SUPPLIES

Core Boxes ____ Alcomer 120L ____
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other 1-MATEX Bio cut

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 8
Reaming
Casing
Setup, Tear Down
Hole Conditioning
Survey
Other (Specify) 1-Phone 1-Travel

Cementing
Equip. Repair
Delays by Client
Delays by Northwest
Blast Delay
Other Delay

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NTW	L36025	74	0		

REAMING SHELLS

NTW	4R1618	320	0		

Remarks (Explain Delays) Drill station 1 + 2 secure

Driller Williams Helper Davis

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla Job No. 52-1
Mine Project: Rosebud Date 9-23-94
Location Lovelock, Nev Shift: Day ___ Swing X Grvyd ___
Hole Size: NQ ___ NTW X NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole #	D-62-94	D-63-94
Angle	+31 EOH	+55
Depth, End	160	15
Depth, Begin.	128	0
Drilled	32	15
Core Removed	32	15
# of Runs		

SUPPLIES

Core Boxes ___ Alcomer 120L ___
Cement ___ Minex 1330 ___
Fondu ___ Rod Lube ___
Grout Packer ___ Soluble Oil ___
Mech Packer ___
Lost Circulation ___
Other ___

Feet Reamed ___ From ___ To ___ Size ___
Feet Cased ___ From ___ To ___ Size ___ C/S # ___
Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling	3hrs	Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down	1hr	Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey	1 1/2	~~Other Delay~~	1hr Travel

Other (Specify) 1/2hr packer put in - 2hrs See Remarks

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NTW	436025	74	0	160	234
"	"	234	0		
REAMING SHELLS					
NTW	4R1618	320	0	160	480
"	"	480	0		

Remarks (Explain Delays) Rods stuck tried to pull of bottom platform Jumped forward and broke casing on rotation unit

Driller Hopper Helper Buticvez

Approved by Client ___

NORTHWEST DRILLING, INC
SHIFT REPORT

Client Hecla Job No. 52-1

Mine Project: Rosebud Date 9-24-94

Location _____ Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ✓ NQ ____ B ____ A ____ Other ____

HOLE INFO		SUPPLIES	
Hole #		Core Boxes	Alcomer 120L
Angle		Cement	Minex 1330
Depth, End		Fondu	Rod Lube
Depth, Begin.		Grout Packer	Soluble Oil
Drilled		Mech Packer	
Core Removed		Lost Circulation	
# of Runs			
		Other	

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling		Cementing	
Reaming		Equip. Repair	8 - REMARKS
Casing		Delays by Client	
Setup, Tear Down		Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		Other Delay	

Other (Specify) _____

Size	Serial No.	Previous Footage	On	Off	Total Footage
		BITS			
NTW	L36025		LOST		239
NTW	36058		0		
		REAMING SHELLS			
NTW	4R1620		0		

Remarks (Explain Delays) STRAITGEN OUT MESS LEFT BY SWINGSHIFT. STOLE ROTATION UNIT OFF #3 DRILL GOT CORE BARREL OUT OF HOLE LOST BIT. SET UP ON NEW HOLE

Driller _____ Helper _____

Approved by Client _____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla Job No. 52-1
Mine Project: Rose Bud Date 9-25-94
Location: Lovelock, Nev Shift: Day ✓ Swing ____ Grvyd ____
Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO		SUPPLIES	
Hole #	D-03-94	Core Boxes	Alcomer 120L
Angle		Cement	Minex 1330
Depth, End	29	Fondu	Rod Lube
Depth, Begin.	0	Grout Packer	Soluble Oil
Drilled	29	Mech Packer	
Core Removed	29	Lost Circulation	
# of Runs	6		
		Other	

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling	2	Cementing	
Reaming		Equip. Repair	8 - Remarks
Casing		Delays by Client	
Setup, Tear Down		Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		Other Delay	

Other (Specify) 1 - Travel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NTW	36058		0		
REAMING SHELLS					
NTW	4R1620		0		

Remarks (Explain Delays)
Scrounng up Lost Parts, Equipt to fix Broken parts and fetch Rotation unit from Reno

Driller Williams Helper ____

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client HECLA Job No. 52-1
Mine Project: ROSEBUD Date 9-25-94
Location LOVELOCK NV. Shift: Day ____ Swing X Grvyd ____
Hole Size: NQ ____ NTW ✓ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-63-94
Angle +55°
Depth, End 129
Depth, Begin. 29
Drilled 100
Core Removed 100
# of Runs ____

SUPPLIES

Core Boxes ____ Alcomer 120L ____
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 9
Reaming ____
Casing ____
Setup, Tear Down ____
Hole Conditioning ____
Survey ____
Other (Specify) 1 TRAVEL

Cementing ____
Equip. Repair ROTATION JAWS 1
Delays by Client ____
Delays by Northwest ____
Blast Delay ____
Other Delay ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NTW	36054		0		
REAMING SHELLS					
NTW	4R1620		0		

Remarks (Explain Delays) ROTATION JAWS SLIPPING BAD COUID NOT DRILL ANY MORE TO MUCH WATER PRESSURE. JAWS ARE SMALLER THEN OURS. HOLE MAKEING 150 GAL, MIN.

Driller HANSEN Helper WINTERS

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla Job No. 52-1
Mine Project: Rosebud Date 9-26-94
Location: Lovelock, NV Shift: Day ✓ Swing ____ Grvyd ____
Hole Size: NQ ____ NTW ✓ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-63-94
Angle +55
Depth, End 150
Depth, Begin. 129
Drilled 21
Core Removed 21
# of Runs 3

SUPPLIES

Core Boxes ____ Alcomer 120L ____
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer 2 Soluble Oil ____
Mech Packer 2
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 4
Reaming ____
Casing ____
Setup, Tear Down ____
Hole Conditioning ____
Survey 1
Other (Specify) 1- Trauc 1

Cementing ____
Equip. Repair 2- check
Delays by Client 3-set packer
Delays by Northwest ____
Blast Delay ____
Other Delay ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NTW	36058		0		150
REAMING SHELLS					
NTW	4R1620		0		

Remarks (Explain Delays) Two holes close together caused big problems getting water stopped

Drill station 1, 2 & 3 looks fine

Driller Williams Helper Davis

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client: Hecla Job No. 52-2

Mine Project: ROSEBud Date 9-26-94

Location: Lovelock, NV Shift: Day ___ Swing X Grvyd ___

Hole Size: NQ ___ NTW X NQ ___ B ___ A ___ Other ___

HOLE INFO

Hole # D-58-94

Angle -55°

Depth, End 14

Depth, Begin. 0

Drilled 14

Core Removed 14

# of Runs 3

SUPPLIES

Core Boxes ___ Alcomer 120L ___

Cement ___ Minex 1330 ___

Fondu ___ Rod Lube ___

Grout Packer ___ Soluble Oil ___

Mech Packer ___

Lost Circulation ___

Other ___

Feet Reamed ___ From ___ To ___ Size ___

Feet Cased ___ From ___ To ___ Size ___ C/S # ___

Cement Drilled ___ From ___ To ___

TIME CHARGES (Hours)

Drilling 2 hrs

Reaming ___

Casing ___

Setup, Tear Down 7 hrs

Hole Conditioning 1 hour

Survey ___

Cementing ___

Equip. Repair ___

Delays by Client ___

Delays by Northwest ___

Blast Delay ___

Other Delay 1 hr Travel

Other (Specify) ___

Size	Serial No.	Previous Footage	On	Off	Total Footage
		BITS			
NTW	4AP027		14		
NTW	36058			150	
		REAMING SHELLS			
NTW	4R1619		14		
NTW	4R1680			150	

Remarks (Explain Delays) Lost Bit & Reaming Shell in hole, had to Replace. hole Keeps caving in had Rods Stuck twice pulling out, of new hole. Lost Bit + Reaming Shell Because Rotation was backwards and did not notice in time.

Driller Hansen Helper Winter/Butierez

Approved by Client ___

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla Job No. 52-1
Mine Project: Rosebud Date 9-27-94
Location Lovelock Shift: Day ✓ Swing ____ Grvyd ____
Hole Size: NQ ____ NTW ✓ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-58-94
Angle -60
Depth, End 110
Depth, Begin. 14
Drilled 96
Core Removed 96
# of Runs ____

SUPPLIES

Core Boxes ____ Alcomer 120L 1
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 8 1/2 Cementing ____
Reaming ____ Equip. Repair ____
Casing ____ Delays by Client 1 1/2 No Electric power
Setup, Tear Down ____ Delays by Northwest ____
Hole Conditioning ____ Blast Delay ____
Survey ____ Other Delay ____
Other (Specify) 1-Trauel

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NTW	4HP027		14		
REAMING SHELLS					
NTW	4R1619		14		

Remarks (Explain Delays) ____

Driller Williams Helper Davis

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client: HecIA Job No. 52-1
Mine Project: ROSEbud Date 9-27-94
Location: LoveLock, NV Shift: Day ____ Swing X Grvyd ____
Hole Size: NQ ____ NTW + NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-58-94
Angle ~~-60~~ 55°
Depth, End 120
Depth, Begin. 110
Drilled 10
Core Removed 10
# of Runs 2

SUPPLIES

Core Boxes ____ Alcomer 120L ____
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer 2 Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 1
Reaming ____
Casing ____
Setup, Tear Down ~~.5~~ 3
Hole Conditioning ____
Survey ~~1~~ SEE COMENT
Other (Specify) 1 - TRAVEL

Cementing ____
Equip. Repair ½
Delays by Client 1HR 2 GROUT PACKER
Delays by Northwest ____
Blast Delay ____
Other Delay 2½ CLEAN UP DECK

Size	Serial No.	Previous Footage	On	Off	Total Footage
NTW	4HP027	BITS	14	120	120
NTW	4R1619	REAMING SHELLS	14	120	120

Killed BY Rodholder

Remarks (Explain Delays) HOLE CAVED IN REEMED IT OUT TO SURVEY CAVED AGAIN TOOK COLLAR SHOT. SMALL FITTING ON ROTATION UNIT BROKE ~~TO~~ CORE BARREL WELL NOT GO THROUGH CHUCK JAWS WHEN SHUT CORE BARREL IS HALF WAY OUT GENE HURT HIS SHOULDER

Driller Hansen Helper WinTER

Approved by Client ____

NORTHWEST DRILLING, INC.

SHIFT REPORT

Client: Hecla Job No. 52-1

Mine Project: ~~Lone~~ Rose Bud Date 9-29-94

Location Lovelock NEV Shift: Day ✓ Swing ____ Grvyd ____

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-64-94

Angle + 82

Depth, End 78

Depth, Begin. 0

Drilled 78

Core Removed 78

# of Runs 16

SUPPLIES

Core Boxes ____ Alcomer 120L ____

Cement ____ Minex 1330 ____

Fondu ____ Rod Lube ____

Grout Packer ____ Soluble Oil ____

Mech Packer 1

Lost Circulation ____

Other ____

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size ____ C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 6 1/2 Cementing ____

Reaming ____ Equip. Repair 1

Casing ____ Delays by Client ____

Setup, Tear Down 1 Delays by Northwest ____

Hole Conditioning ____ Blast Delay ____

Survey 1 Other Delay 1 Set Packer

Other (Specify) 1 - Travel

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NTW	L3602L	New			

REAMING SHELLS

NTW	4R1619	106	0		

Remarks (Explain Delays) ____

Driller Williams Helper Davis

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client HECLA Job No. 52-1

Mine Project: ROSEBUD Date 9-29-94

Location LOVELOCK NV. Shift: Day ____ Swing ✓ Grvyd ____

Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO	SUPPLIES	
Hole #	Core Boxes	Alcomer 120L
Angle	Cement	Minex 1330
Depth, End	Fondu	Rod Lube
Depth, Begin.	Grout Packer	Soluble Oil
Drilled	Mech Packer	
Core Removed	Lost Circulation	
# of Runs		
	Other	

Feet Reamed ____ From ____ To ____ Size ____

Feet Cased ____ From ____ To ____ Size C/S # ____

Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling		Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down	10 HRS	Delays by Northwest	
Hole Conditioning		Blast Delay	
Survey		Other Delay	1 TRAVEL

Other (Specify) ____

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
REAMING SHELLS					

Remarks (Explain Delays) CLIFF PUT ROCK IN STATION #11 MOVED DRILL IN BURIED FRONT OF DRILL. HAD TO PULL BACK OUT SO CLIFF COUID MUCK STATION OUT PUT DRILL BACK IN

Driller HANSEN Helper GRANT WINTERS

Approved by Client ____

NORTHWEST DRILLING, INC
SHIFT REPORT

Client: Hecla Job No. 52-1
Mine Project: Rose Bud Date 9-30-94
Location: Lovelock Nev Shift: Day ✓ Swing ____ Grvyd ____
Hole Size: NQ ____ NTW ✓ NQ ____ B ____ A ____ Other ____

HOLE INFO

Hole # D-38-94
Angle 0°
Depth, End 43
Depth, Begin. 0
Drilled 43
Core Removed 43
# of Runs 5

SUPPLIES

Core Boxes ____ Alcomer 120L 1
Cement ____ Minex 1330 ____
Fondu ____ Rod Lube ____
Grout Packer ____ Soluble Oil ____
Mech Packer ____
Lost Circulation ____
Other ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size ____ C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling 1 1/2 Cementing ____
Reaming ____ Equip. Repair ____
Casing ____ Delays by Client 8 1/2 NO ELECTRICITY
Setup, Tear Down ____ Delays by Northwest ____
Hole Conditioning ____ Blast Delay ____
Survey ____ Other Delay ____
Other (Specify) 1- Travel

BITS

Size	Serial No.	Previous Footage	On	Off	Total Footage
NTW	L36026	78	0		

REAMING SHELLS

NTW	4R1619	184	0		

Remarks (Explain Delays) 5D - 1 Slicker Jacket
1- DOZ gloves

TOM MALLOK

Driller Williams Helper ____

Approved by Client ____

NORTHWEST DRILLING, INC.
SHIFT REPORT

Client HECLA Job No. 52-1
Mine Project: ROSEBUD Date 9-30-94
Location LOVELOCK NV. Shift: Day ____ Swing X Grvyd ____
Hole Size: NQ ____ NTW ____ NQ ____ B ____ A ____ Other ____

HOLE INFO		SUPPLIES	
Hole #	D-38	Core Boxes	25
Angle	0°	Cement	
Depth, End	98	Fondu	
Depth, Begin	43	Grout Packer	
Drilled	55	Mech Packer	
Core Removed	55	Lost Circulation	
# of Runs		Other	

Alcomer 120L ____ Minex 1330 ____ Rod Lube ____ Soluble Oil ____

Feet Reamed ____ From ____ To ____ Size ____
Feet Cased ____ From ____ To ____ Size C/S # ____
Cement Drilled ____ From ____ To ____

TIME CHARGES (Hours)

Drilling	8	Cementing	
Reaming		Equip. Repair	
Casing		Delays by Client	
Setup, Tear Down		Delays by Northwest	½ PUMP PLUGED
Hole Conditioning	½ CAVEING	~~Blast~~ Delay	1 SAFETY
Survey		Other Delay	
Other (Specify)	1 TRAVEL		

Size	Serial No.	Previous Footage	On	Off	Total Footage
BITS					
NTW	E36026	78	0		
REAMING SHELLS					
NTW	4R1619	184	0		

Remarks (Explain Delays) MOVED WATER LINE TO MAIN WATER LINE. WAS GETTING ROCKS IN PUMP AGAIN PLUGING IT UP

Driller HANSEN Helper WINTERS

Approved by Client ____