

PROJECT ACTION SHEET

RESOURCE EVALUATION BRANCH

PROJECT NUMBER: 9228-C4-1E

COMPANY: CHEVRON
FORT GOOD HOPE JOINT VENTURE

REPORT TITLE: ELECTROMAGNETIC SOUNDING SURVEY

The following action has been taken:

Receipt acknowledged: JAN 2/90

Reports and maps date-stamped: YES

Reports for review list edited: YES

Inventory sheet made: YES

Mylar:

REVIEW AND APPROVAL MADE BY: L. Richards Feb 1990.

*****RETURN APPROVED REPORTS TO MIKE McLINTON*****

COMMENTS: Due to loop parameters the

Results were poor and did not give a

structural picture of subsurface. Possible
interference of permafrost due to its resistivity

PROGRAM NUMBER 9228-C4-1E

AREA Fort Good Hope
N.W.T.

YEAR 1989

E.A. 322

FILED UNDER: Same

REPORTS

OPERATIONS REPORT:

NUMBER 1

INTERPRETATION REPORT:

NUMBER

MAPS

SHOTPOINT MAPS

NUMBER 1

UTEM SURVEY LOCATION MAP SEISMIC SHOTPOINTS

INTERPRETATION

NUMBER

OTHER

NUMBER

~~RECORDS~~

NUMBER 7

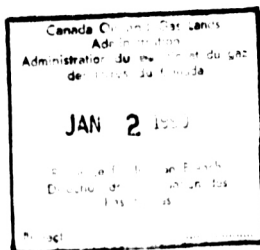
REDUCED UTEM DATA LINES

22 B
24 X
26 X
42 Y
61
61 B
63

9 2 2 8 - C 4 - 1 E

9 2 2 8 - C 4 - 1 E

**CHEVRON - FORT GOOD HOPE JOINT VENTURE
ELECTROMAGNETIC SOUNDING SURVEY**



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November 1989

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ABSTRACT

In March 1989 a UTEM 3 sounding survey was carried out in the area of the Chevron - Fort Good Hope Joint Venture land block (Figure 1). The purpose of the survey was to map subsurface conductivity variations over shallow thrust features.

The survey consisted of two separate grids. A calibration grid was recorded over the Mtn. River H-47 well just north of the Mountain River. A detailed grid was recorded over a shallow structural feature south of the Mountain River.

LIST OF ENCLOSURES

Enclosure 1 - Survey Location Map

Enclosure 2 - Shot point and UTEM station correspondence table

Enclosure 3 - Reduced UTEM data

PROGRAM DESCRIPTION

Program Number:	9228-C4-1E
Type of Survey:	UTEM electromagnetic sounding
Period of Field Operation:	March 8 to March 28, 1989
Locality of Work:	65° 35' N to 65° 50' N 128° 45' W to 129° 20' W
Interest Holders:	Chevron Canada Resources Community of Fort Good Hope
Program Operator:	Chevron Canada Resources
Contractor:	Lamontagne Geophysics Ltd.

STATISTICAL SUMMARY

Production Diary

TABLE 1

<u>Date</u>	<u>km/fold*</u>	<u>Comments</u>
March 8	-	Crew arrived at Mountain River Camp. Prepared geophysical gear and started some trail breaking.
9	-	Broke trail. Chained some of L61 and L61B Laid Loop 6
10	3.2 300%	Read loops 6, 5 lines 61, 61B
11	3.2 300% 1.8 200%	Read loops 2, 3 4 lines 61, 61B
12	3.2 300% 1.8 200%	Read loops 14, 15, 16 lines 63, 63B
13	4.8 300%	Read loops 17, 18, 19 lines 63, 63B
14	4.8 300%	Read loops 20, 21, 22 lines 63, 63B
15	1.6 300% 3.6 200%	Read loop 23 lines 63, 63B loops 10, 11 lines 61, 61B
16	4.8 300%	Read loops 7, 8, 9 lines 61, 61B
17	3.325 300%	Read loops 25-33 line 22B
18	3.6 300%	Read loops 34-42 line 22B
19	3.325 300%	Read loops 43-51 line 22B

<u>Date</u>	<u>km</u>	<u>Comments</u>
20	-	Rx and Tx out of sync. Read loops 72-78 line 42Y Turn off line 26Y at 51.5
21	2.425 300%	Read loops 72-28 line 42Y
22	3.2 300%	Read loops 64-71 line 42Y
March 23	3.2 300%	Read loops 56-63 line 42Y
24	1.225 300%	Read loops 52-55 line 42Y
25	3.6 300% 1.6 200%	Read loops 91-94 lines 26X, 24X
26	6.0 300%	Read loops 86-90 lines 24X, 26X
27	3.6 300%	Read loops 83-85 lines 24X, 26X
28	3.6 300% 1.6 200%	Read loops 79-82 lines 24X, 26X
29		STANDBY
30		Demobilized to Calgary

*Fold relates to the number of transmitter-receiver pair which contribute data to a particular subsurface location (i.e., 300% = 3 different transmitter-receiver pairs).

Number of Personnel

There were 12 people per day employed in the field operations.

Production Data

3-fold coverage	62.7 km
<u>2-fold coverage</u>	<u>10.4 km</u>
Total	73.1 km

Production Notes:

There was no significant downtime once production was underway. Loop size and recording geometry varied somewhat from line to line. Recording geometries are summarized as follows:

TABLE 2

<u>Line Number</u>	<u>Loop Size</u>	<u>Line/loop geometry*</u>
61	800 x 800 m	off
61B	800 x 800 m	thru
63	800 x 800 m	thru
63B	800 x 800 m	off
24X	600 x 600 m	off
26X	600 x 600 m	thru
22B	400 x 400 m	thru
42Y	400 x 400 m	thru

*thru - denotes the survey line passed through the centre of the transmitter loop

off - denotes the survey line was off to the side and parallel to the transmitter loop

A survey location map is included as Enclosure 1.

FIELD PROCEDURES

All operations were run out of the Chevron Mountain River base camp.

Equipment

A standard UTEM 3 recording system was employed. All field transportation was by skidoo or snowshoe.

Parameters

- loop size and recording geometry as noted in table 2
- receiver spacing = 50 metres
- fold of data 200% and 300%
- base frequency = 23 Hz

Data Reduction

Quality control profiles were produced at the base camp to ensure accurate recording geometry and acceptable data quality.

DISCUSSION OF RESULTS

For discussion of the UTEM technique and processing, references are listed at the end of this report.

Data Presentation

Copies of the reduced UTEM data for each line are included as enclosure 3. Table 3 describes the delay time and symbol for each channel of data. Data are plotted in "channel 1 normalized" form where the y axis on each plot represents the difference from 100% of channel 1 (or the calculated primary field).

TABLE 3

UTEM SYSTEM MEAN DELAY TIME

channel number	delay time (msec)	Symbol
1	18.5	
2	13.0	>
3	9.3	/
4	6.5	<
5	4.7	\
6	3.3	⊞
7	2.3	□
8	1.6	⊞
9	1.1	⊞
10	0.81	x
11	0.58	^
12	0.409	v
13	0.289	∇
14	0.204	∇
15	0.145	⊞
16	0.102	△
17	0.071	△
18	0.050	▽
19	0.036	◇
20	0.025	

Base frequency = 23Hz

Northern Grid - H-47 Calibration

Line 42Y shows resistive material virtually at surface between stations 200 SE to 2200 SE. This feature is believed to represent carbonate directly beneath the permafrost layer. To the northwest the resistive horizon dips gently while to the east there is an abrupt termination.

Line 24X ties 42Y at stations 100 NE. This line also shows high resistivity near surface between stations 1000 SW and 2000 NE which ties well with line 42Y. Line 26X parallels 24X and shows the resistive layer to be 200 to 300 m below the surface.

Results from these three lines agrees well with the seismic interpretation of structural distribution and match the results seen in the H-47 well.

Southern Grid - Structural Closure

Lines 22B, 63 and 63B clearly show a large resistive feature which comes to within about 200 metres of the surface. Lines 63 and 63B running north-south imply the structure is generally symmetric. Line 22B gives the best shallow resolution and shows a number of lateral resistivity variations.

Compared to the northern grid, this southern area is far more difficult to interpret for three main reasons:

- (i) the geologic structure is very complicated with steep dips near surface.
- (ii) there is a large difference between the transmitter loop sizes of 400 metres on line 22B versus 800 m on lines 63B, 63, 61B and 61.
- (iii) there were problems deriving the periodic corrections for the 800 m loop data.

Conclusions

The UTEM sounding method is feasible for mapping the distribution of shallow resistive features. Care must be exercised when choosing parameters to take into account the local structural picture.

REFERENCES

West, G. F., Macnae, J. C., and Lamontagne, Y., 1984, A time-domain electromagnetic system measuring the step response of the ground; *Geophysics*, 49, 1010-1026.

Macnae, J., and Lamontagne, Y., 1987, Imaging quasi-layered conductive structures by simple processing of transient electromagnetic data; *Geophysics*, 52, 545-554.

Polzer, B., Macnae, J., Lamontagne, Y., and Koch, R., 1989, Lateral resolution enhancement of TEM data by correlation processing; SEG annual meeting, Dallas.

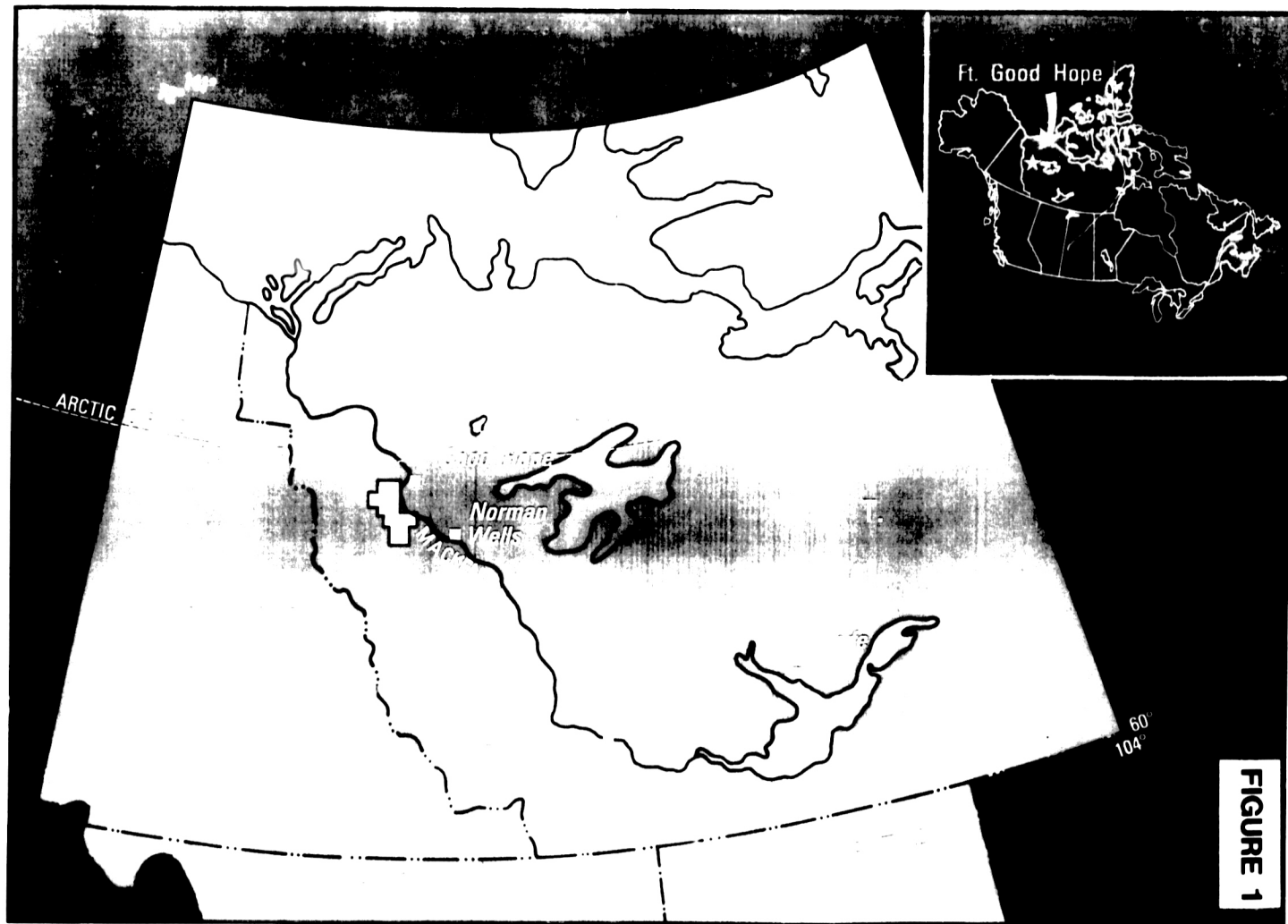


FIGURE 1

206	b	y	z	Label	Shotpoint	x
1	-4750	0	136	405		4750W
2	-4700	0	135	406	3340	4700W
3	-4650	0	134	407		4650W
4	-4600	0	133	408		4600W
5	-4550	0	133	409		4550W
6	-4500	0	133	410		4500W
7	-4450	0	133	411		4450W
8	-4400	0	133	412		4400W
9	-4350	0	133	413		4350W
10	-4300	0	133	414		4300W
11	-4250	0	133	415		4250W
12	-4200	0	132	416		4200W
13	-4150	0	132	417		4150W
14	-4100	0	132	418	3310	4100W
15	-4050	0	132	419		4050W
16	-4000	0	132	420		4000W
17	-3950	0	133	421		3950W
18	-3900	0	133	422		3900W
19	-3850	0	132	423		3850W
20	-3800	0	131	424		3800W
21	-3750	0	130	425		3750W
22	-3700	0	129	426		3700W
23	-3650	0	129	427		3650W
24	-3600	0	129	428		3600W
25	-3550	0	129	429		3550W
26	-3500	0	130	430	3280	3500W
27	-3450	0	131	431		3450W
28	-3400	0	121	432		3400W
29	-3350	0	130	433		3350W
30	-3300	0	133	434	3270	3300W
31	-3250	0	126	435		3250W
32	-3200	0	123	436	3265	3200W
33	-3150	0	119	437		3150W
34	-3100	0	118	438	3260	3100W
35	-3050	0	118	439		3050W
36	-3000	0	117	440	3255	3000W
37	-2950	0	117	441		2950W
38	-2900	0	118	442	3250	2900W
39	-2850	0	119	443		2850W
40	-2800	0	116	444		2800W
41	-2750	0	111	445		2750W
42	-2700	0	110	446		2700W
43	-2650	0	109	447		2650W
44	-2600	0	110	448		2600W
45	-2550	0	104	449		2550W
46	-2500	0	103	450		2500W
47	-2450	0	104	451		2450W
48	-2400	0	105	452		2400W

49	-2350	0	109	453		2350W
50	-2300	0	112	454	3220	2300W
51	-2250	0	116	455		2250W
52	-2200	0	118	456		2200W
53	-2150	0	118	457		2150W
54	-2100	0	117	458		2100W
55	-2050	0	116	459		2050W
56	-2000	0	117	460		2000W
57	-1950	0	117	461		1950W
58	-1900	0	117	462		1900W
59	-1850	0	118	463		1850W
60	-1800	0	118	464		1800W
61	-1750	0	118	465		1750W
62	-1700	0	117	466	3190	1700W
63	-1650	0	117	467		1650W
64	-1600	0	117	468		1600W
65	-1550	0	117	469		1550W
66	-1500	0	117	470		1500W
67	-1450	0	116	471		1450W
68	-1400	0	115	472		1400W
69	-1350	0	114	473		1350W
70	-1300	0	114	474		1300W
71	-1250	0	113	475		1250W
72	-1200	0	113	476		1200W
73	-1150	0	113	477		1150W
74	-1100	0	112	478	3160	1100W
75	-1050	0	111	479		1050W
76	-1000	0	110	480		1000W
77	-950	0	110	481		950W
78	-900	0	110	482		900W
79	-850	0	109	483		850W
80	-800	0	108	484		800W
81	-750	0	107	485		750W
82	-700	0	107	486		700W
83	-650	0	107	487		650W
84	-600	0	106	488		600W
85	-550	0	106	489		550W
86	-500	0	105	490	3130	500W
87	-450	0	105	491		450W
88	-400	0	105	492		400W
89	-350	0	105	493		350W
90	-300	0	104	494		300W
91	-250	0	104	495		250W
92	-200	0	104	496		200W
93	-150	0	104	497		150W
94	-100	0	104	498		100W
95	-50	0	103	499		50W
96	0	0	103	500		0E
97	50	0	104	501		50E

98	100	0	104	502	3100	100E
99	150	0	104	503		150E
100	200	0	104	504		200E
101	250	0	103	505		250E
102	300	0	103	506		300E
103	350	0	103	507		350E
104	400	0	103	508		400E
105	450	0	104	509		450E
106	500	0	104	510		500E
107	550	0	105	511		550E
108	600	0	105	512		600E
109	650	0	105	513		650E
110	700	0	105	514	3070	700E
111	750	0	105	515		750E
112	800	0	105	516		800E
113	850	0	105	517		850E
114	900	0	105	518		900E
115	950	0	104	519		950E
116	1000	0	104	520		1000E
117	1050	0	104	521		1050E
118	1100	0	103	522		1100E
119	1150	0	103	523		1150E
120	1200	0	102	524		1200E
121	1250	0	101	525		1250E
122	1300	0	100	526	3040	1300E
123	1350	0	99	527		1350E
124	1400	0	99	528		1400E
125	1450	0	99	529		1450E
126	1500	0	99	530		1500E
127	1550	0	100	531		1550E
128	1600	0	100	532		1600E
129	1650	0	96	533		1650E
130	1700	0	96	534		1700E
131	1750	0	96	535		1750E
132	1800	0	97	536		1800E
133	1850	0	97	537		1850E
134	1900	0	97	538	3010	1900E
135	1950	0	97	539		1950E
136	2000	0	97	540	3005	2000E
137	2050	0	97	541		2050E
138	2100	0	96	542	3000	2100E
139	2150	0	96	543		2150E
140	2200	0	96	544	2995	2200E
141	2250	0	96	545		2250E
142	2300	0	96	546	2990	2300E
143	2350	0	96	547		2350E
144	2400	0	96	548	2985	2400E
145	2450	0	96	549		2450E
146	2500	0	96	550	2980	2500E

147	2550	0	96	551		2550E
148	2600	0	95	552		2600E
149	2650	0	95	553		2650E
150	2700	0	95	554		2700E
151	2750	0	96	555		2750E
152	2800	0	95	556		2800E
153	2850	0	94	557		2850E
154	2900	0	95	558		2900E
155	2950	0	94	559		2950E
156	3000	0	94	560		3000E
157	3050	0	95	561		3050E
158	3100	0	94	562	2950	3100E
159	3150	0	94	563		3150E
160	3200	0	94	564		3200E
161	3250	0	95	565		3250E
162	3300	0	95	566		3300E
163	3350	0	95	567		3350E
164	3400	0	95	568		3400E
165	3450	0	96	569		3450E
166	3500	0	96	570		3500E
167	3550	0	96	571		3550E
168	3600	0	97	572		3600E
169	3650	0	98	573		3650E
170	3700	0	99	574	2920	3700E
171	3750	0	100	575		3750E
172	3800	0	101	576		3800E
173	3850	0	101	577		3850E
174	3900	0	101	578		3900E
175	3950	0	101	579		3950E
176	4000	0	102	580		4000E
177	4050	0	102	581		4050E
178	4100	0	102	582		4100E
179	4150	0	102	583		4150E
180	4200	0	102	584	2890	4200E
181	4250	0	102	585		4250E
182	4300	0	102	586		4300E
183	4350	0	102	587		4350E
184	4400	0	103	588		4400E
185	4450	0	103	589		4450E
186	4500	0	103	590		4500E
187	4550	0	103	591		4550E
188	4600	0	102	592		4600E
189	4650	0	102	593		4650E
190	4700	0	102	594		4700E
191	4750	0	102	595		4750E
192	4800	0	102	596		4800E
193	4850	0	101	597		4850E
194	4900	0	100	598	2860	4900E
195	4950	0	100	599		4950E

196	5000	0	99	600		5000E
197	5050	0	99	601		5050E
198	5100	0	99	602		5100E
199	5150	0	99	603		5150E
200	5200	0	100	604		5200E
201	5250	0	100	605		5250E
202	5300	0	100	606		5300E
203	5350	0	100	607		5350E
204	5400	0	100	608		5400E
205	5450	0	100	609		5450E
206	5500	0	100	610	2830	5500E

	A	B	C	D	E	F	G
1	201	bx	y	z	Label	shotpoint	x
2	1	-5250	0	88	395		5250SW
3	2	-5200	0	88	396	523	5200SW
4	3	-5150	0	89	397		5150SW
5	4	-5100	0	89	398		5100SW
6	5	-5050	0	89	399		5050SW
7	6	-5000	0	89	400		5000SW
8	7	-4950	0	89	401	513	4950SW
9	8	-4900	0	89	402		4900SW
10	9	-4850	0	89	403		4850SW
11	10	-4800	0	89	404		4800SW
12	11	-4750	0	89	405		4750SW
13	12	-4700	0	89	406		4700SW
14	13	-4650	0	89	407		4650SW
15	14	-4600	0	89	408		4600SW
16	15	-4550	0	89	409		4550SW
17	16	-4500	0	89	410		4500SW
18	17	-4450	0	89	411	493	4450SW
19	18	-4400	0	89	412		4400SW
20	19	-4350	0	89	413		4350SW
21	20	-4300	0	90	414		4300SW
22	21	-4250	0	90	415		4250SW
23	22	-4200	0	90	416		4200SW
24	23	-4150	0	91	417		4150SW
25	24	-4100	0	91	418		4100SW
26	25	-4050	0	91	419		4050SW
27	26	-4000	0	91	420	473	4000SW
28	27	-3950	0	91	421		3950SW
29	28	-3900	0	90	422		3900SW
30	29	-3850	0	89	423		3850SW
31	30	-3800	0	88	424		3800SW
32	31	-3750	0	88	425		3750SW
33	32	-3700	0	87	426		3700SW
34	33	-3650	0	86	427		3650SW
35	34	-3600	0	85	428		3600SW
36	35	-3550	0	85	429		3550SW
37	36	-3500	0	84	430	453	3500SW
38	37	-3450	0	84	431		3450SW
39	38	-3400	0	84	432		3400SW
40	39	-3350	0	84	433		3350SW
41	40	-3300	0	84	434		3300SW
42	41	-3250	0	84	435		3250SW
43	42	-3200	0	85	436		3200SW
44	43	-3150	0	84	437		3150SW
45	44	-3100	0	84	438		3100SW
46	45	-3050	0	84	439		3050SW
47	46	-3000	0	84	440		3000SW
48	47	-2950	0	85	441	433	2950SW

	A	B	C	D	E	F	G
49	48	-2900	0	85	442		2900SW
50	49	-2850	0	85	443		2850SW
51	50	-2800	0	84	444		2800SW
52	51	-2750	0	84	445		2750SW
53	52	-2700	0	84	446		2700SW
54	53	-2650	0	84	447		2650SW
55	54	-2600	0	84	448		2600SW
56	55	-2550	0	84	449		2550SW
57	56	-2500	0	84	450		2500SW
58	57	-2450	0	85	451	413	2450SW
59	58	-2400	0	85	452		2400SW
60	59	-2350	0	85	453		2350SW
61	60	-2300	0	85	454		2300SW
62	61	-2250	0	85	455		2250SW
63	62	-2200	0	84	456		2200SW
64	63	-2150	0	84	457		2150SW
65	64	-2100	0	84	458		2100SW
66	65	-2050	0	84	459		2050SW
67	66	-2000	0	84	460		2000SW
68	67	-1950	0	84	461		1950SW
69	68	-1900	0	85	462		1900SW
70	69	-1850	0	86	463		1850SW
71	70	-1800	0	87	464	385	1800SW
72	71	-1750	0	86	465		1750SW
73	72	-1700	0	86	466		1700SW
74	73	-1650	0	86	467		1650SW
75	74	-1600	0	87	468		1600SW
76	75	-1550	0	88	469		1550SW
77	76	-1500	0	89	470		1500SW
78	77	-1450	0	89	471		1450SW
79	78	-1400	0	89	472		1400SW
80	79	-1350	0	88	473		1350SW
81	80	-1300	0	88	474	365	1300SW
82	81	-1250	0	88	475		1250SW
83	82	-1200	0	88	476		1200SW
84	83	-1150	0	89	477		1150SW
85	84	-1100	0	89	478		1100SW
86	85	-1050	0	89	479		1050SW
87	86	-1000	0	89	480		1000SW
88	87	-950	0	89	481		950SW
89	88	-900	0	89	482		900SW
90	89	-850	0	89	483		850SW
91	90	-800	0	89	484	345	800SW
92	91	-750	0	89	485		750SW
93	92	-700	0	89	486		700SW
94	93	-650	0	89	487		650SW
95	94	-600	0	89	488		600SW
96	95	-550	0	90	489		550SW

	A	B	C	D	E	F	G
97	96	-500	0	89	490		500SW
98	97	-450	0	89	491		450SW
99	98	-400	0	89	492		400SW
100	99	-350	0	89	493		350SW
101	100	-300	0	89	494	325	300SW
102	101	-250	0	89	495		250SW
103	102	-200	0	90	496		200SW
104	103	-150	0	91	497		150SW
105	104	-100	0	93	498		100SW
106	105	-50	0	93	499		50SW
107	106	0	0	94	500		0SW
108	107	50	0	94	501		50NE
109	108	100	0	94	502		100NE
110	109	150	0	94	503		150NE
111	110	200	0	94	504	305	200NE
112	111	250	0	93	505		250NE
113	112	300	0	93	506		300NE
114	113	350	0	93	507		350NE
115	114	400	0	93	508		400NE
116	115	450	0	94	509		450NE
117	116	500	0	94	510		500NE
118	117	550	0	94	511		550NE
119	118	600	0	94	512		600NE
120	119	650	0	94	513		650NE
121	120	700	0	94	514	285	700NE
122	121	750	0	93	515		750NE
123	122	800	0	93	516		800NE
124	123	850	0	93	517		850NE
125	124	900	0	93	518		900NE
126	125	950	0	93	519		950NE
127	126	1000	0	93	520		1000NE
128	127	1050	0	93	521		1050NE
129	128	1100	0	93	522		1100NE
130	129	1150	0	93	523		1150NE
131	130	1200	0	93	524	265	1200NE
132	131	1250	0	94	525		1250NE
133	132	1300	0	94	526		1300NE
134	133	1350	0	94	527		1350NE
135	134	1400	0	94	528		1400NE
136	135	1450	0	94	529		1450NE
137	136	1500	0	94	530		1500NE
138	137	1550	0	94	531		1550NE
139	138	1600	0	95	532		1600NE
140	139	1650	0	95	533		1650NE
141	140	1700	0	95	534	245	1700NE
142	141	1750	0	96	535		1750NE
143	142	1800	0	96	536		1800NE
144	143	1850	0	95	537		1850NE

	A	B	C	D	E	F	G
145	144	1900	0	95	538		1900NE
146	145	1950	0	95	539		1950NE
147	146	2000	0	94	540		2000NE
148	147	2050	0	94	541		2050NE
149	148	2100	0	95	542		2100NE
150	149	2150	0	96	543		2150NE
151	150	2200	0	96	544	225	2200NE
152	151	2250	0	97	545		2250NE
153	152	2300	0	96	546		2300NE
154	153	2350	0	95	547		2350NE
155	154	2400	0	95	548		2400NE
156	155	2450	0	95	549		2450NE
157	156	2500	0	95	550		2500NE
158	157	2550	0	94	551		2550NE
159	158	2600	0	95	552		2600NE
160	159	2650	0	95	553		2650NE
161	160	2700	0	96	554	205	2700NE
162	161	2750	0	96	555		2750NE
163	162	2800	0	96	556		2800NE
164	163	2850	0	97	557		2850NE
165	164	2900	0	97	558		2900NE
166	165	2950	0	97	559		2950NE
167	166	3000	0	97	560		3000NE
168	167	3050	0	97	561		3050NE
169	168	3100	0	97	562		3100NE
170	169	3150	0	97	563		3150NE
171	170	3200	0	98	564	185	3200NE
172	171	3250	0	98	565		3250NE
173	172	3300	0	99	566		3300NE
174	173	3350	0	97	567		3350NE
175	174	3400	0	96	568		3400NE
176	175	3450	0	96	569		3450NE
177	176	3500	0	95	570		3500NE
178	177	3550	0	95	571		3550NE
179	178	3600	0	95	572		3600NE
180	179	3650	0	95	573		3650NE
181	180	3700	0	95	574	165	3700NE
182	181	3750	0	95	575		3750NE
183	182	3800	0	95	576		3800NE
184	183	3850	0	95	577		3850NE
185	184	3900	0	95	578		3900NE
186	185	3950	0	95	579		3950NE
187	186	4000	0	96	580		4000NE
188	187	4050	0	96	581		4050NE
189	188	4100	0	96	582		4100NE
190	189	4150	0	96	583		4150NE
191	190	4200	0	96	584	145	4200NE
192	191	4250	0	96	585		4250NE

	A	B	C	D	E	F	G
193	192	4300	0	95	586		4300NE
194	193	4350	0	95	587		4350NE
195	194	4400	0	95	588		4400NE
196	195	4450	0	95	589	165	4450NE
197	196	4500	0	95	590		4500NE
198	197	4550	0	94	591		4550NE
199	198	4600	0	94	592		4600NE
200	199	4650	0	94	593		4650NE
201	200	4700	0	94	594		4700NE
202	201	4750	0	94	595		4750NE

202	x	y	z	Label	shotpoint	x
1	-6350	0	81	373	2445	6350NW
2	-6300	0	81	374		6300NW
3	-6250	0	81	375		6250NW
4	-6200	0	81	376		6200NW
5	-6150	0	81	377		6150NW
6	-6100	0	81	378		6100NW
7	-6050	0	81	379		6050NW
8	-6000	0	81	380		6000NW
9	-5950	0	81	381		5950NW
10	-5900	0	81	382		5900NW
11	-5850	0	81	383	2465	5850NW
12	-5800	0	81	384		5800NW
13	-5750	0	81	385		5750NW
14	-5700	0	81	386		5700NW
15	-5650	0	81	387		5650NW
16	-5600	0	81	388		5600NW
17	-5550	0	82	389		5550NW
18	-5500	0	82	390		5500NW
19	-5450	0	82	391		5450NW
20	-5400	0	82	392		5400NW
21	-5350	0	82	393	2485	5350NW
22	-5300	0	82	394		5300NW
23	-5250	0	82	395		5250NW
24	-5200	0	82	396		5200NW
25	-5150	0	82	397		5150NW
26	-5100	0	82	398		5100NW
27	-5050	0	82	399		5050NW
28	-5000	0	82	400		5000NW
29	-4950	0	82	401		4950NW
30	-4900	0	82	402		4900NW
31	-4850	0	82	403	2505	4850NW
32	-4800	0	83	404		4800NW
33	-4750	0	83	405		4750NW
34	-4700	0	83	406		4700NW
35	-4650	0	83	407		4650NW
36	-4600	0	83	408		4600NW
37	-4550	0	83	409		4550NW
38	-4500	0	83	410		4500NW
39	-4450	0	83	411		4450NW
40	-4400	0	83	412		4400NW
41	-4350	0	83	413	2525	4350NW
42	-4300	0	83	414		4300NW
43	-4250	0	83	415		4250NW
44	-4200	0	83	416		4200NW
45	-4150	0	83	417		4150NW
46	-4100	0	83	418		4100NW
47	-4050	0	83	419		4050NW
48	-4000	0	84	420		4000NW

49	-3950	0	84	421		3950NW
50	-3900	0	84	422		3900NW
51	-3850	0	84	423	2545	3850NW
52	-3800	0	84	424		3800NW
53	-3750	0	84	425		3750NW
54	-3700	0	84	426		3700NW
55	-3650	0	84	427		3650NW
56	-3600	0	84	428		3600NW
57	-3550	0	84	429		3550NW
58	-3500	0	84	430		3500NW
59	-3450	0	84	431		3450NW
60	-3400	0	84	432		3400NW
61	-3350	0	84	433	2565	3350NW
62	-3300	0	84	434		3300NW
63	-3250	0	84	435		3250NW
64	-3200	0	84	436		3200NW
65	-3150	0	85	437		3150NW
66	-3100	0	85	438		3100NW
67	-3050	0	85	439		3050NW
68	-3000	0	85	440		3000NW
69	-2950	0	85	441		2950NW
70	-2900	0	85	442		2900NW
71	-2850	0	85	443	2585	2850NW
72	-2800	0	85	444		2800NW
73	-2750	0	85	445		2750NW
74	-2700	0	85	446		2700NW
75	-2650	0	85	447		2650NW
76	-2600	0	85	448		2600NW
77	-2550	0	85	449		2550NW
78	-2500	0	85	450		2500NW
79	-2450	0	85	451		2450NW
80	-2400	0	85	452		2400NW
81	-2350	0	86	453	2605	2350NW
82	-2300	0	86	454		2300NW
83	-2250	0	86	455		2250NW
84	-2200	0	86	456		2200NW
85	-2150	0	86	457		2150NW
86	-2100	0	86	458		2100NW
87	-2050	0	86	459		2050NW
88	-2000	0	86	460		2000NW
89	-1950	0	86	461		1950NW
90	-1900	0	86	462		1900NW
91	-1850	0	86	463		1850NW
92	-1800	0	86	464	2625	1800NW
93	-1750	0	86	465		1750NW
94	-1700	0	86	466		1700NW
95	-1650	0	86	467		1650NW
96	-1600	0	86	468		1600NW
97	-1550	0	86	469		1550NW

98	-1500	0	86	470		1500NW
99	-1450	0	87	471		1450NW
100	-1400	0	87	472		1400NW
101	-1350	0	87	473		1350NW
102	-1300	0	87	474	2645	1300NW
103	-1250	0	87	475		1250NW
104	-1200	0	87	476		1200NW
105	-1150	0	87	477		1150NW
106	-1100	0	87	478		1100NW
107	-1050	0	87	479		1050NW
108	-1000	0	87	480		1000NW
109	-950	0	87	481		950NW
110	-900	0	87	482		900NW
111	-850	0	87	483		850NW
112	-800	0	87	484	2665	800NW
113	-750	0	87	485		750NW
114	-700	0	87	486		700NW
115	-650	0	88	487		650NW
116	-600	0	88	488		600NW
117	-550	0	88	489		550NW
118	-500	0	88	490		500NW
119	-450	0	88	491		450NW
120	-400	0	88	492		400NW
121	-350	0	88	493		350NW
122	-300	0	88	494	2685	300NW
123	-250	0	88	495		250NW
124	-200	0	88	496		200NW
125	-150	0	88	497		150NW
126	-100	0	88	498		100NW
127	-50	0	88	499		50NW
128	0	0	88	500		0NW
129	50	0	88	501		50SE
130	100	0	88	502		100SE
131	150	0	88	503		150SE
132	200	0	89	504	2705	200SE
133	250	0	89	505		250SE
134	300	0	89	506		300SE
135	350	0	89	507		350SE
136	400	0	89	508		400SE
137	450	0	89	509		450SE
138	500	0	89	510		500SE
139	550	0	89	511		550SE
140	600	0	89	512		600SE
141	650	0	89	513		650SE
142	700	0	89	514	2725	700SE
143	750	0	89	515		750SE
144	800	0	89	516		800SE
145	850	0	89	517		850SE
146	900	0	89	518		900SE

147	950	0	89	519		950SE
148	1000	0	90	520		1000SE
149	1050	0	90	521		1050SE
150	1100	0	90	522		1100SE
151	1150	0	90	523		1150SE
152	1200	0	90	524	2745	1200SE
153	1250	0	90	525		1250SE
154	1300	0	90	526		1300SE
155	1350	0	90	527		1350SE
156	1400	0	90	528		1400SE
157	1450	0	90	529		1450SE
158	1500	0	90	530		1500SE
159	1550	0	90	531		1550SE
160	1600	0	90	532		1600SE
161	1650	0	90	533		1650SE
162	1700	0	90	534	2765	1700SE
163	1750	0	90	535		1750SE
164	1800	0	90	536		1800SE
165	1850	0	91	537		1850SE
166	1900	0	91	538		1900SE
167	1950	0	91	539		1950SE
168	2000	0	91	540		2000SE
169	2050	0	91	541		2050SE
170	2100	0	91	542		2100SE
171	2150	0	91	543		2150SE
172	2200	0	91	544	2785	2200SE
173	2250	0	91	545		2250SE
174	2300	0	91	546		2300SE
175	2350	0	91	547		2350SE
176	2400	0	91	548		2400SE
177	2450	0	91	549		2450SE
178	2500	0	91	550		2500SE
179	2550	0	91	551		2550SE
180	2600	0	91	552		2600SE
181	2650	0	92	553		2650SE
182	2700	0	92	554	2805	2700SE
183	2750	0	92	555		2750SE
184	2800	0	92	556		2800SE
185	2850	0	92	557		2850SE
186	2900	0	92	558		2900SE
187	2950	0	92	559		2950SE
188	3000	0	92	560		3000SE
189	3050	0	92	561		3050SE
190	3100	0	92	562		3100SE
191	3150	0	92	563		3150SE
192	3200	0	92	564	2825	3200SE
193	3250	0	92	565		3250SE
194	3300	0	92	566		3300SE
195	3350	0	92	567		3350SE

196	3400	0	92	568		3400SE
197	3450	0	93	569		3450SE
198	3500	0	93	570		3500SE
199	3550	0	93	571		3550SE
200	3600	0	93	572		3600SE
201	3650	0	93	573		3650SE
202	3700	0	93	574	2845	3700SE

165	bx	y	z	Label	Shotpoint	x
1	-4600	774	105	408		4600S
2	-4550	774	105	409	778	4550S
3	-4500	775	104	410		4500S
4	-4450	776	102	411		4450S
5	-4400	776	102	412		4400S
6	-4350	777	104	413	788	4350S
7	-4300	777	104	414		4300S
8	-4250	778	104	415		4250S
9	-4200	778	103	416		4200S
10	-4150	779	102	417		4150S
11	-4100	779	102	418		4100S
12	-4050	780	102	419		4050S
13	-4000	780	102	420		4000S
14	-3950	781	102	421		3950S
15	-3900	781	100	422		3900S
16	-3850	782	100	423		3850S
17	-3800	782	99	424		3800S
18	-3750	783	99	425	818	3750S
19	-3700	783	99	426		3700S
20	-3650	784	99	427		3650S
21	-3600	784	97	428		3600S
22	-3550	785	98	429		3550S
23	-3500	785	99	430		3500S
24	-3450	786	100	431		3450S
25	-3400	786	100	432		3400S
26	-3350	787	100	433		3350S
27	-3300	787	102	434		3300S
28	-3250	788	103	435		3250S
29	-3200	788	104	436		3200S
30	-3150	789	105	437	848	3150S
31	-3100	789	106	438		3100S
32	-3050	790	107	439		3050S
33	-3000	790	107	440		3000S
34	-2950	791	107	441		2950S
35	-2900	791	106	442		2900S
36	-2850	792	106	443		2850S
37	-2800	792	103	444		2800S
38	-2750	793	102	445		2750S
39	-2700	793	101	446		2700S
40	-2650	794	101	447		2650S
41	-2600	794	103	448		2600S
42	-2550	795	103	449	878	2550S
43	-2500	795	103	450		2500S
44	-2450	796	102	451		2450S
45	-2400	796	102	452		2400S
46	-2350	797	101	453		2350S
47	-2300	797	100	454		2300S
48	-2250	798	99	455		2250S

49	-2200	798	97	456		2200S
50	-2150	799	97	457		2150S
51	-2100	800	96	458		2100S
52	-2050	800	96	459		2050S
53	-2000	801	96	460		2000S
54	-1950	801	96	461	908	1950S
55	-1900	802	95	462		1900S
56	-1850	802	96	463		1850S
57	-1800	803	96	464		1800S
58	-1750	803	97	465		1750S
59	-1700	804	97	466		1700S
60	-1650	804	97	467		1650S
61	-1600	805	96	468		1600S
62	-1550	805	96	469		1550S
63	-1500	806	96	470		1500S
64	-1450	807	96	471		1450S
65	-1400	807	95	472		1400S
66	-1350	808	95	473	938	1350S
67	-1300	808	94	474		1300S
68	-1250	808	94	475		1250S
69	-1200	808	94	476		1200S
70	-1150	807	94	477		1150S
71	-1100	806	94	478		1100S
72	-1050	806	94	479		1050S
73	-1000	806	95	480		1000S
74	-950	805	97	481		950S
75	-900	805	98	482		900S
76	-850	804	97	483		850S
77	-800	804	97	484		800S
78	-750	803	96	485	968	750S
79	-700	802	96	486		700S
80	-650	802	97	487		650S
81	-600	801	98	488		600S
82	-550	800	98	489	978	550S
83	-500	800	98	490		500S
84	-450	799	98	491		450S
85	-400	798	99	492		400S
86	-350	798	99	493	988	350S
87	-300	797	99	494		300S
88	-250	796	99	495		250S
89	-200	796	98	496		200S
90	-150	795	97	497		150S
91	-100	794	96	498		100S
92	-50	794	96	499		50S
93	0	793	97	500		0N
94	50	792	96	501		50N
95	100	792	96	502		100N
96	150	791	96	503		150N
97	200	790	97	504		200N

98	250	790	96	505	1018	250N
99	300	789	96	506		300N
100	350	788	95	507		350N
101	400	788	95	508		400N
102	450	788	95	509		450N
103	500	788	95	510		500N
104	550	788	95	511		550N
105	600	788	95	512		600N
106	650	788	97	513		650N
107	700	788	97	514		700N
108	750	788	96	515		750N
109	800	788	96	516		800N
110	850	788	96	517	1048	850N
111	900	788	95	518		900N
112	950	788	95	519		950N
113	1000	788	97	520		1000N
114	1050	788	99	521		1050N
115	1100	788	99	522		1100N
116	1150	788	99	523		1150N
117	1200	788	98	524		1200N
118	1250	788	97	525		1250N
119	1300	788	96	526		1300N
120	1350	788	98	527		1350N
121	1400	788	99	528		1400N
122	1450	788	101	529	1078	1450N
123	1500	788	102	530		1500N
124	1550	788	103	531		1550N
125	1600	788	104	532		1600N
126	1650	788	103	533		1650N
127	1700	788	101	534		1700N
128	1750	788	100	535		1750N
129	1800	788	99	536		1800N
130	1850	788	99	537		1850N
131	1900	788	98	538		1900N
132	1950	788	96	539		1950N
133	2000	788	96	540		2000N
134	2050	788	96	541	1108	2050N
135	2100	788	96	542		2100N
136	2150	788		543		2150N
137	2200	788		544		2200N
138	2250	788		545		2250N
139	2300	788		546		2300N
140	2350	780		547		2350N
141	2400	772		548		2400N
142	2450	765		549		2450N
143	2500	758		550		2500N
144	2550	750		551		2550N
145	2600	742		552		2600N
146	2650	734		553	1138	2650N

147	2700	726	554	2700N
148	2750	718	555	2750N
149	2800	714	556	2800N
150	2850	710	557	2850N
151	2900	706	558	2900N
152	2950	702	559	2950N
153	3000	698	560	3000N
154	3050	694	561	3050N
155	3100	690	562	3100N
156	3150	686	563	3150N
157	3200	682	564	3200N
158	3250	678	565	1168 3250N
159	3300	674	566	3300N
160	3350	670	567	3350N
161	3400	666	568	3400N
162	3450	662	569	3450N
163	3500	658	570	3500N
164	3550	654	571	1183 3550N
165	3600	650	572	3600N

165	bx	y	z	Label	shotpoint	x
1	-4600	0	130	408		4600S
2	-4550	0	129	409		4550S
3	-4500	0	128	410		4500S
4	-4450	0	127	411		4450S
5	-4400	0	127	412	700	4400S
6	-4350	0	127	413		4350S
7	-4300	0	126	414		4300S
8	-4250	0	125	415		4250S
9	-4200	0	124	416		4200S
10	-4150	0	125	417		4150S
11	-4100	0	124	418		4100S
12	-4050	0	123	419		4050S
13	-4000	0	122	420		4000S
14	-3950	0	123	421		3950S
15	-3900	0	123	422		3900S
16	-3850	0	123	423		3850S
17	-3800	0	120	424	730	3800S
18	-3750	0	118	425		3750S
19	-3700	0	116	426		3700S
20	-3650	0	115	427		3650S
21	-3600	0	114	428		3600S
22	-3550	0	114	429		3550S
23	-3500	0	114	430		3500S
24	-3450	0	114	431		3450S
25	-3400	0	113	432		3400S
26	-3350	0	112	433		3350S
27	-3300	0	112	434		3300S
28	-3250	0	112	435		3250S
29	-3200	0	111	436	760	3200S
30	-3150	0	110	437		3150S
31	-3100	0	109	438		3100S
32	-3050	0	108	439		3050S
33	-3000	0	108	440		3000S
34	-2950	0	108	441	770	2950S
35	-2900	0	108	442		2900S
36	-2850	0	108	443		2850S
37	-2800	0	108	444		2800S
38	-2750	0	107	445		2750S
39	-2700	0	107	446		2700S
40	-2650	0	106	447		2650S
41	-2600	0	106	448		2600S
42	-2550	0	106	449		2550S
43	-2500	0	105	450		2500S
44	-2450	0	105	451		2450S
45	-2400	0	106	452		2400S
46	-2350	0	107	453	800	2350S
47	-2300	0	106	454		2300S
48	-2250	0	106	455		2250S

49	-2200	0	107	456		2200S
50	-2150	0	107	457		2150S
51	-2100	0	106	458		2100S
52	-2050	0	104	459		2050S
53	-2000	0	104	460		2000S
54	-1950	0	103	461		1950S
55	-1900	0	103	462		1900S
56	-1850	0	103	463		1850S
57	-1800	0	103	464		1800S
58	-1750	0	103	465	830	1750S
59	-1700	0	103	466		1700S
60	-1650	0	103	467		1650S
61	-1600	0	104	468		1600S
62	-1550	0	104	469		1550S
63	-1500	0	105	470		1500S
64	-1450	0	107	471		1450S
65	-1400	0	107	472		1400S
66	-1350	0	107	473		1350S
67	-1300	0	107	474		1300S
68	-1250	0	106	475		1250S
69	-1200	0	106	476		1200S
70	-1150	0	106	477	860	1150S
71	-1100	0	105	478		1100S
72	-1050	0	105	479		1050S
73	-1000	0	105	480		1000S
74	-950	0	105	481		950S
75	-900	0	104	482		900S
76	-850	0	105	483		850S
77	-800	0	104	484		800S
78	-750	0	104	485		750S
79	-700	0	104	486		700S
80	-650	0	104	487		650S
81	-600	0	104	488	894	600S
82	-550	0	105	489		550S
83	-500	0	105	490		500S
84	-450	0	105	491		450S
85	-400	0	105	492		400S
86	-350	0	105	493		350S
87	-300	0	105	494		300S
88	-250	0	105	495		250S
89	-200	0	105	496		200S
90	-150	0	105	497		150S
91	-100	0	105	498		100S
92	-50	0	105	499		50S
93	0	0	105	500	924	0N
94	50	0	105	501		50N
95	100	0	104	502		100N
96	150	0	104	503		150N
97	200	0	102	504		200N

98	250	0	97	505	250N
99	300	0	95	506	300N
100	350	0	94	507	350N
101	400	0	94	508	400N
102	450	0	94	509	450N
103	500	0	94	510	500N
104	550	0	99	511	550N
105	600	0	100	512	954 600N
106	650	0	100	513	650N
107	700	0	99	514	700N
108	750	0	99	515	750N
109	800	0	99	516	800N
110	850	0	100	517	850N
111	900	0	100	518	900N
112	950	0	100	519	950N
113	1000	0	101	520	1000N
114	1050	0	101	521	1050N
115	1100	0	101	522	1100N
116	1150	0	101	523	1150N
117	1200	0	100	524	984 1200N
118	1250	0	100	525	1250N
119	1300	0	99	526	1300N
120	1350	0	98	527	1350N
121	1400	0	97	528	1400N
122	1450	0	97	529	1450N
123	1500	0	97	530	1500N
124	1550	0	97	531	1550N
125	1600	0	100	532	1600N
126	1650	0	100	533	1650N
127	1700	0	100	534	1700N
128	1750	0	99	535	1750N
129	1800	0	99	536	1014 1800N
130	1850	0	99	537	1850N
131	1900	0	99	538	1900N
132	1950	0	98	539	1950N
133	2000	0	98	540	2000N
134	2050	0	98	541	2050N
135	2100	0	98	542	2100N
136	2150	0	99	543	2150N
137	2200	0	99	544	2200N
138	2250	0	99	545	2250N
139	2300	0	99	546	2300N
140	2350	0	99	547	2350N
141	2400	0	99	548	1044 2400N
142	2450	0	99	549	2450N
143	2500	0	99	550	2500N
144	2550	0	99	551	2550N
145	2600	0	99	552	2600N
146	2650	0	99	553	2650N

147	2700	0	99	554		2700N
148	2750	0	99	555		2750N
149	2800	0	99	556		2800N
150	2850	0	99	557		2850N
151	2900	0	99	558		2900N
152	2950	0	99	559		2950N
153	3000	0	99	560	1074	3000N
154	3050	0	99	561		3050N
155	3100	0	99	562		3100N
156	3150	0	99	563		3150N
157	3200	0	99	564		3200N
158	3250	0	99	565		3250N
159	3300	0	99	566		3300N
160	3350	0	99	567		3350N
161	3400	0	99	568		3400N
162	3450	0	99	569		3450N
163	3500	0	99	570		3500N
164	3550	0	99	571		3550N
165	3600	0	99	572	1104	3600N

165	ix	u	z	Label	Shotpoint	x
1	-4600	0	135	408		4600S
2	-4550	0	135	409		4550S
3	-4500	0	134	410	752	4500S
4	-4450	0	133	411		4450S
5	-4400	0	133	412		4400S
6	-4350	0	132	413		4350S
7	-4300	0	131	414		4300S
8	-4250	0	130	415		4250S
9	-4200	0	130	416		4200S
10	-4150	0	129	417		4150S
11	-4100	0	129	418		4100S
12	-4050	0	129	419		4050S
13	-4000	0	129	420		4000S
14	-3950	0	129	421		3950S
15	-3900	0	129	422	782	3900S
16	-3850	0	129	423		3850S
17	-3800	0	129	424		3800S
18	-3750	0	129	425		3750S
19	-3700	0	130	426		3700S
20	-3650	0	130	427		3650S
21	-3600	0	129	428		3600S
22	-3550	0	129	429		3550S
23	-3500	0	128	430		3500S
24	-3450	0	126	431		3450S
25	-3400	0	126	432		3400S
26	-3350	0	126	433		3350S
27	-3300	0	126	434	812	3300S
28	-3250	0	125	435		3250S
29	-3200	0	124	436		3200S
30	-3150	0	124	437		3150S
31	-3100	0	123	438		3100S
32	-3050	0	123	439		3050S
33	-3000	0	122	440		3000S
34	-2950	0	121	441		2950S
35	-2900	0	120	442		2900S
36	-2850	0	119	443		2850S
37	-2800	0	118	444		2800S
38	-2750	0	117	445		2750S
39	-2700	0	116	446	842	2700S
40	-2650	0	115	447		2650S
41	-2600	0	114	448		2600S
42	-2550	0	113	449		2550S
43	-2500	0	113	450		2500S
44	-2450	0	112	451		2450S
45	-2400	0	111	452		2400S
46	-2350	0	110	453		2350S
47	-2300	0	110	454		2300S
48	-2250	0	109	455		2250S

49	-2200	0	109	456		2200S
50	-2150	0	109	457		2150S
51	-2100	0	109	458		2100S
52	-2050	0	109	459		2050S
53	-2000	0	110	460	878	2000S
54	-1950	0	109	461		1950S
55	-1900	0	109	462		1900S
56	-1850	0	110	463		1850S
57	-1800	0	108	464		1800S
58	-1750	0	108	465		1750S
59	-1700	0	108	466		1700S
60	-1650	0	108	467		1650S
61	-1600	0	108	468		1600S
62	-1550	0	108	469		1550S
63	-1500	0	108	470		1500S
64	-1450	0	110	471		1450S
65	-1400	0	108	472	908	1400S
66	-1350	0	107	473		1350S
67	-1300	0	107	474		1300S
68	-1250	0	107	475		1250S
69	-1200	0	108	476		1200S
70	-1150	0	108	477		1150S
71	-1100	0	109	478		1100S
72	-1050	0	111	479		1050S
73	-1000	0	108	480		1000S
74	-950	0	107	481		950S
75	-900	0	106	482		900S
76	-850	0	106	483		850S
77	-800	0	106	484	938	800S
78	-750	0	106	485		750S
79	-700	0	106	486		700S
80	-650	0	106	487		650S
81	-600	0	106	488		600S
82	-550	0	106	489		550S
83	-500	0	106	490		500S
84	-450	0	106	491		450S
85	-400	0	107	492		400S
86	-350	0	106	493		350S
87	-300	0	106	494		300S
88	-250	0	106	495		250S
89	-200	0	105	496	968	200S
90	-150	0	105	497		150S
91	-100	0	105	498		100S
92	-50	0	105	499		50S
93	0	0	105	500		0N
94	50	0	105	501		50N
95	100	0	104	502		100N
96	150	0	104	503		150N
97	200	0	104	504		200N

98	250	0	103	505		250N
99	300	0	103	506		300N
100	350	0	103	507		350N
101	400	0	103	508	998	400N
102	450	0	103	509		450N
103	500	0	103	510		500N
104	550	0	103	511		550N
105	600	0	102	512		600N
106	650	0	102	513		650N
107	700	0	101	514		700N
108	750	0	100	515		750N
109	800	0	100	516		800N
110	850	0	98	517		850N
111	900	0	97	518		900N
112	950	0	97	519		950N
113	1000	0	97	520	1028	1000N
114	1050	0	97	521		1050N
115	1100	0	97	522		1100N
116	1150	0	97	523		1150N
117	1200	0	98	524		1200N
118	1250	0	98	525		1250N
119	1300	0	98	526		1300N
120	1350	0	99	527		1350N
121	1400	0	99	528		1400N
122	1450	0	101	529	1050	1450N
123	1500	0	102	530		1500N
124	1550	0	103	531		1550N
125	1600	0	103	532		1600N
126	1650	0	103	533		1650N
127	1700	0	103	534		1700N
128	1750	0	102	535		1750N
129	1800	0	102	536		1800N
130	1850	0	102	537	1070	1850N
131	1900	0	101	538		1900N
132	1950	0	101	539		1950N
133	2000	0	101	540		2000N
134	2050	0	100	541		2050N
135	2100	0	99	542		2100N
136	2150	0	98	543		2150N
137	2200	0	98	544		2200N
138	2250	0	98	545		2250N
139	2300	0	98	546		2300N
140	2350	0	97	547		2350N
141	2400	0	97	548		2400N
142	2450	0	98	549	1100	2450N
143	2500	0	97	550		2500N
144	2550	0	96	551		2550N
145	2600	0	94	552		2600N
146	2650	0	90	553		2650N

147	2700	0	88	554		2700N
148	2750	0	92	555		2750N
149	2800	0	96	556	1118	2800N
150	2850	0	96	557		2850N
151	2900	0	96	558		2900N
152	2950	0	96	559		2950N
153	3000	0	96	560		3000N
154	3050	0	96	561		3050N
155	3100	0	96	562		3100N
156	3150	0	96	563		3150N
157	3200	0	96	564		3200N
158	3250	0	96	565		3250N
159	3300	0	96	566		3300N
160	3350	0	96	567		3350N
161	3400	0	96	568		3400N
162	3450	0	96	569		3450N
163	3500	0	96	570		3500N
164	3550	0	96	571		3550N
165	3600	0	96	572		3600N

9 2 2 8 - 0 4 - 1 E

165	x	y	z	Label	Shotpoint	x
1	-4600	-610	134	408		4600S
2	-4550	-610	134	409		4550S
3	-4500	-610	134	410		4500S
4	-4450	-610	134	411	695	4450S
5	-4400	-610	134	412		4400S
6	-4350	-610	134	413	700	4350S
7	-4300	-610	134	414		4300S
8	-4250	-610	134	415		4250S
9	-4200	-610	134	416		4200S
10	-4150	-610	134	417		4150S
11	-4100	-610	135	418		4100S
12	-4050	-610	136	419	720	4050S
13	-4000	-609	137	420		4000S
14	-3950	-609	136	421		3950S
15	-3900	-609	135	422		3900S
16	-3850	-609	134	423		3850S
17	-3800	-609	134	424		3800S
18	-3750	-609	133	425		3750S
19	-3700	-609	133	426		3700S
20	-3650	-609	133	427	740	3650S
21	-3600	-615	133	428		3600S
22	-3550	-621	133	429		3550S
23	-3500	-627	133	430		3500S
24	-3450	-633	133	431		3450S
25	-3400	-639	132	432		3400S
26	-3350	-646	132	433		3350S
27	-3300	-652	132	434		3300S
28	-3250	-658	131	435	760	3250S
29	-3200	-664	131	436		3200S
30	-3150	-670	130	437		3150S
31	-3100	-677	130	438		3100S
32	-3050	-683	130	439		3050S
33	-3000	-689	130	440		3000S
34	-2950	-696	130	441		2950S
35	-2900	-703	130	442		2900S
36	-2850	-711	130	443	780	2850S
37	-2800	-716	130	444		2800S
38	-2750	-721	129	445		2750S
39	-2700	-725	128	446		2700S
40	-2650	-730	128	447		2650S
41	-2600	-735	127	448		2600S
42	-2550	-740	128	449		2550S
43	-2500	-745	127	450		2500S
44	-2450	-749	126	451	800	2450S
45	-2400	-754	126	452		2400S
46	-2350	-759	123	453		2350S
47	-2300	-764	121	454		2300S
48	-2250	-769	119	455		2250S

49	-2200	-774	117	456		2200S
50	-2150	-778	117	457		2150S
51	-2100	-783	117	458	820	2100S
52	-2050	-786	116	459		2050S
53	-2000	-796	115	460		2000S
54	-1950	-804	115	461		1950S
55	-1900	-812	115	462		1900S
56	-1850	-820	115	463		1850S
57	-1800	-828	116	464		1800S
58	-1750	-836	117	465		1750S
59	-1700	-844	117	466	840	1700S
60	-1650	-852	117	467		1650S
61	-1600	-860	117	468		1600S
62	-1550	-868	115	469		1550S
63	-1500	-874	112	470		1500S
64	-1450	-882	112	471		1450S
65	-1400	-890	111	472		1400S
66	-1350	-898	111	473		1350S
67	-1300	-906	110	474	860	1300S
68	-1250	-914	110	475		1250S
69	-1200	-916	110	476		1200S
70	-1150	-917	110	477		1150S
71	-1100	-919	108	478		1100S
72	-1050	-920	107	479		1050S
73	-1000	-922	107	480		1000S
74	-950	-924	107	481		950S
75	-900	-925	108	482	880	900S
76	-850	-927	109	483		850S
77	-800	-928	109	484		800S
78	-750	-930	109	485		750S
79	-700	-932	109	486		700S
80	-650	-933	109	487		650S
81	-600	-935	110	488		600S
82	-550	-936	112	489		550S
83	-500	-938	113	490	900	500S
84	-450	-940	113	491		450S
85	-400	-941	113	492		400S
86	-350	-943	112	493		350S
87	-300	-944	112	494		300S
88	-250	-946	111	495		250S
89	-200	-948	111	496		200S
90	-150	-949	111	497		150S
91	-100	-951	111	498	920	100S
92	-50	-952	111	499		50S
93	0	-954	110	500		0N
94	50	-954	110	501		50N
95	100	-954	110	502		100N
96	150	-954	110	503		150N
97	200	-954	110	504		200N

98	250	-954	110	505		250N
99	300	-954	110	506	940	300N
100	350	-954	109	507		350N
101	400	-954	108	508		400N
102	450	-955	108	509		450N
103	500	-955	107	510		500N
104	550	-955	106	511		550N
105	600	-955	106	512		600N
106	650	-955	105	513		650N
107	700	-955	105	514	960	700N
108	750	-955	105	515		750N
109	800	-955	105	516		800N
110	850	-955	104	517		850N
111	900	-956	104	518		900N
112	950	-956	104	519		950N
113	1000	-956	103	520		1000N
114	1050	-956	102	521		1050N
115	1100	-956	101	522	980	1100N
116	1150	-956	100	523		1150N
117	1200	-957	100	524		1200N
118	1250	-958	99	525		1250N
119	1300	-959	99	526		1300N
120	1350	-961	99	527		1350N
121	1400	-962	99	528		1400N
122	1450	-964	99	529		1450N
123	1500	-965	99	530	1000	1500N
124	1550	-967	99	531		1550N
125	1600	-968	99	532		1600N
126	1650	-969	99	533		1650N
127	1700	-970	99	534		1700N
128	1750	-972	99	535		1750N
129	1800	-973	99	536		1800N
130	1850	-975	99	537		1850N
131	1900	-976	99	538	1020	1900N
132	1950	-978	98	539		1950N
133	2000	-979	99	540		2000N
134	2050	-980	99	541		2050N
135	2100	-981	99	542		2100N
136	2150	-983	99	543		2150N
137	2200	-984	99	544		2200N
138	2250	-986	99	545		2250N
139	2300	-987	100	546	1040	2300N
140	2350	-989	100	547		2350N
141	2400	-990	99	548		2400N
142	2450	-991	98	549		2450N
143	2500	-992	98	550		2500N
144	2550	-994	98	551		2550N
145	2600	-995	98	552		2600N
146	2650	-997	98	553		2650N

147	2700	-998	98	554	1060	2700N
148	2750	-1000	97	555		2750N
149	2800	-1001	96	556		2800N
150	2850	-1002	95	557		2850N
151	2900	-1003	96	558		2900N
152	2950	-1005	96	559		2950N
153	3000	-1006	96	560		3000N
154	3050	-1008	97	561		3050N
155	3100	-1009	97	562	1080	3100N
156	3150	-1011	96	563		3150N
157	3200	-1012	96	564		3200N
158	3250	-1013	96	565		3250N
159	3300	-1014	96	566		3300N
160	3350	-1016	95	567		3350N
161	3400	-1017	96	568		3400N
162	3450	-1019	97	569		3450N
163	3500	-1020	97	570	1100	3500N
164	3550	-1021	96	571		3550N
165	3600	-1022	95	572	1105	3600N