CHAPTER 9
TEMPORARY SPOIL STORAGE AREA

INCORPORATED

OCT 26 2001

DIV OF OIL GAS & MINING

TEMPORARY SPOIL STORAGE
WHISKEY CREEK JOB, UTAH

ELEV.	SQ.FT.	AVG.SQ.FT.	INT.	CU.YDS	ACC.CU.YDS.
8925	31174				0
		41,489	5	7,683	
8930	51804				7,683
		53,003	5	9,815	
8935	54201				17,498
		57,478	5	10,644	
8940	60754				28,142
		67,393	5	12,480	
8945	74031				40,623
		80,602	5	14,926	
8950	87172				55,549
		94,883	5	17,571	
8955	102594				73,120
		103,402	5	19,149	
8960	104210				92,268
		104,463	5	19,345	
8965	104715				111,613
		104,702	5	19,389	
8970	104689				131,002
		103,290	5	19,128	
8975	101890				150,130

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ELEV.	SQ.FT.	AVG.SQ.FT.	INT.	CU.YDS	ACC.CU.YDS.
8925	31174				0
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8930	51804				7,683
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		57,478	5	10,644	
8940	60754				28,142
		67,393	5	12,480	
8945	74031				40,623
		80,602	5	14,926	
8950	87172				55,549
		94,883	5	17,571	
8955	102594				73,120
		103,402	5	19,149	
8960	104210				92,268
		104,463	5	19,345	
8965	104715				111,613
		104,702	5	19,389	
8970	104689				131,002
		103,290	5	19,128	
8975	101890				150,130
		82,778	0	-	
8975	63665				150,130
		63,295	5	11,721	
8980	62925				161,851
		66,451	5	12,306	
8985	69976				174,157
		70,157	5	12,992	
8990	70337				187,149
		71,659	5	13,270	
8995	72981				200,419
		75,162	5	13,919	
9000	77343				214,338
		79,428	5	14,709	
9005	81512				229,047
		86,814	5	16,077	
9010	92115				245,123
		102,328	5	18,950	
9015	112540				264,073
		111,586	5	20,664	
9020	110631				284,737
		109,684	5	20,312	
9025	108736				305,049

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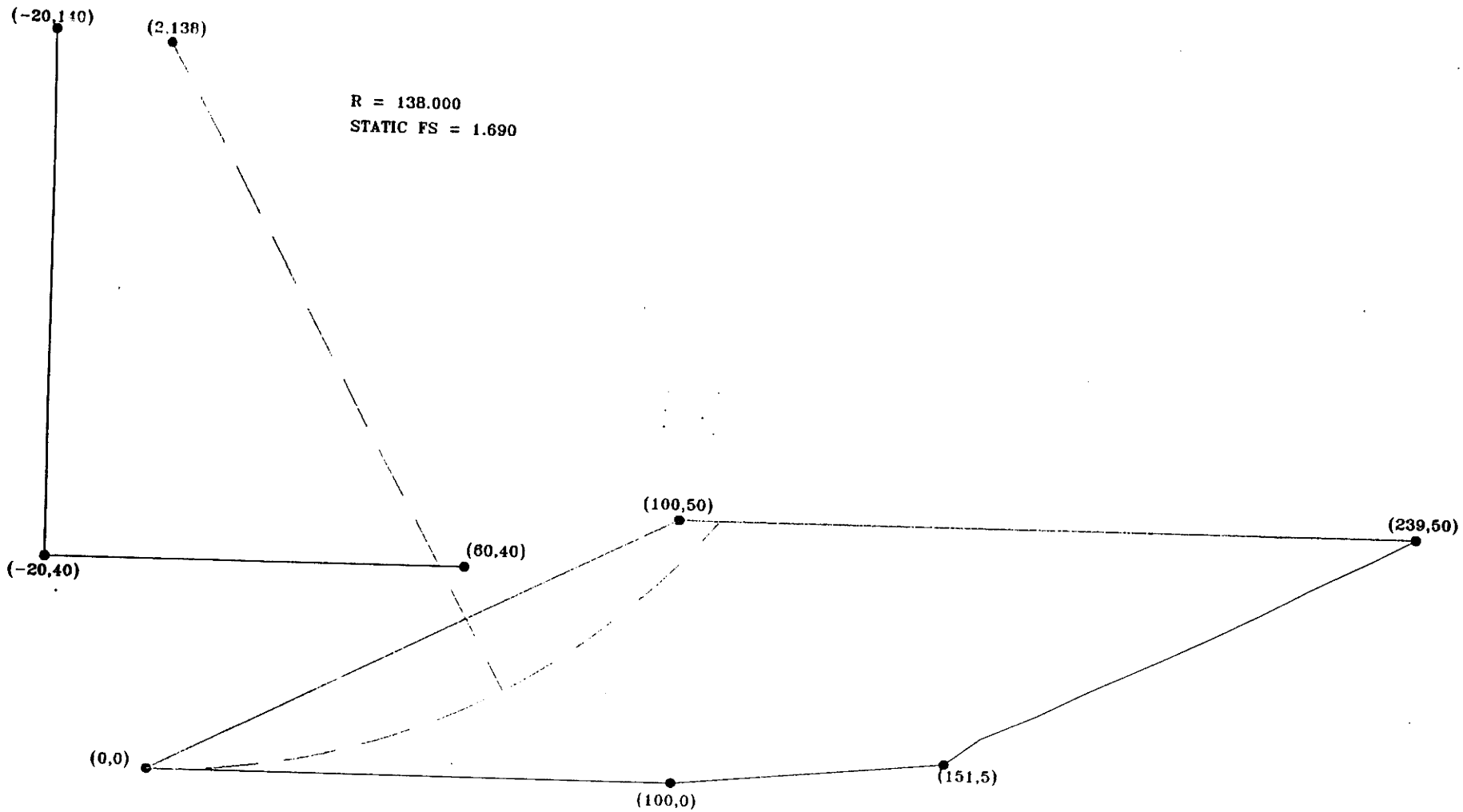

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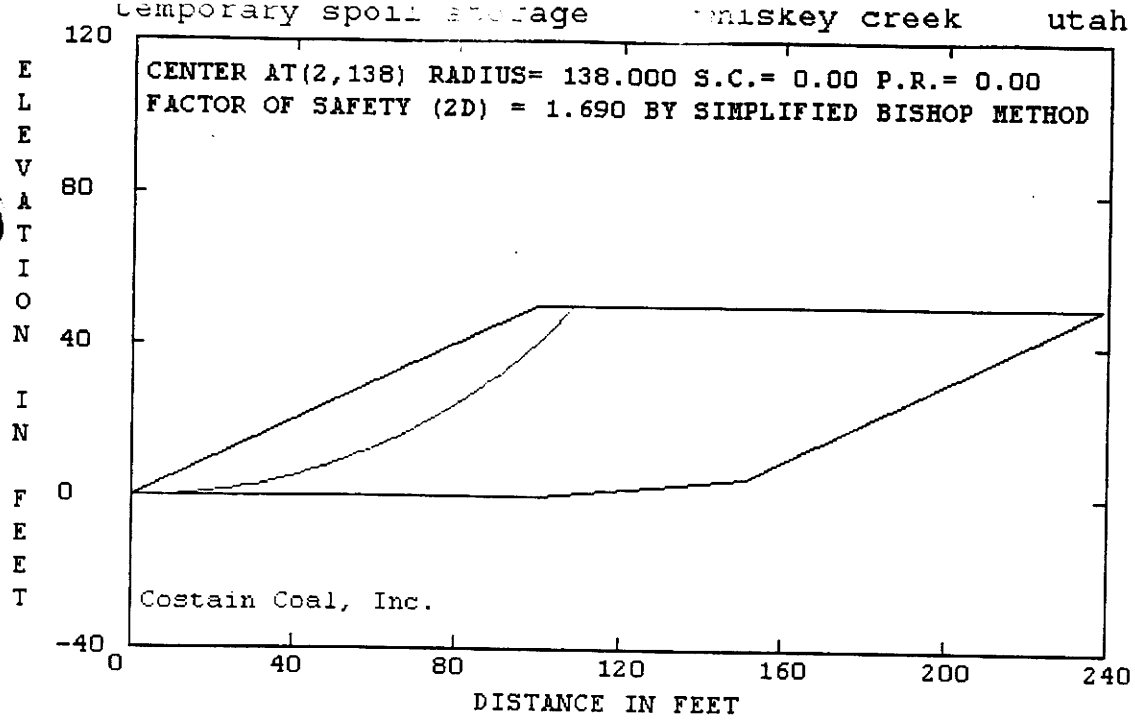
TEMPORARY SPOIL STORAGE STABILITY ANALYSIS

Temporary spoil storage Whiskey creek utah



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THIS 1997 VERSION OF REAME IS LICENSED BY CIVIL ENGINEERING SOFTWARE C
ENTER TO

COSTAIN COAL, INC.

INPUT FILE NAME -I:\UTAH\TEMP.DAT

TITLE -Temporary Spoil Storage Stability Analysis Whiskey Creek, Uta
h

NO. OF STATIC AND SEISMIC CASES (NCASE) = 1

NO. OF NONCIRCULAR SLIP SURFACES (NSS) = 0

TWO-DIMENSIONAL ANALYSIS (THREED = 0)

CASE NO. 1 SEISMIC COEFFICIENT (SEIC) = 0

NO. OF BOUNDARY LINES (NBL) = 2

NO. OF POINTS ON BOUNDARY LINE 1 = 4

1	X COORD.= 0	Y COORD.= 0
2	X COORD.= 100	Y COORD.= 0
3	X COORD.= 151	Y COORD.= 5
4	X COORD.= 239	Y COORD.= 50

NO. OF POINTS ON BOUNDARY LINE 2 = 3

1	X COORD.= 0	Y COORD.= 0
2	X COORD.= 100	Y COORD.= 50
3	X COORD.= 239	Y COORD.= 50

LINE NO. AND SLOPE OF EACH SEGMENT ARE:

1	+0.000	+0.098	+0.511
2	+0.500	+0.000	

MIN. DEPTH OF TALLEST SLICE (DMIN) = 0
NO. OF RADIUS CONTROL ZONES (NRCZ) = 1

RADIUS DECREMENT (RDEC) FOR ZONE 1 = 0
NO. OF CIRCLES (NCIR) FOR ZONE 1 = 5
ID NO. FOR FIRST CIRCLE (INFC) FOR ZONE 1 = 1
NO. OF BOTTOM LINES (NOL) FOR ZONE 1 = 1

LINE NO. (LINO)	BEG. NO. (NBP)	END NO. (NEP)
1	1	4

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SOIL NO.	COHESION	FRIC. ANGLE	UNIT WEIGHT
1	200	30	125

NO SEEPAGE
USE GRID
NO. OF SLICES (NSLI) = 10
NO. OF ADD. CIRCLES (NAC) = 3
ANALYSIS BY SIMPLIFIED BISHOP METHOD (MTHD=2)
NUMBER OF FORCES (NFO)= 0
SOFT SOIL NUMBER (SSN)= 0

INPUT COORD. OF GRID POINTS 1,2,AND 3

POINT 1 X COORD. =-20 Y COORD. = 140
POINT 2 X COORD. =-20 Y COORD. = 40
POINT 3 X COORD. = 60 Y COORD. = 40

X INCREMENT (XINC) = 8 Y INCREMENT (YINC) = 8
NO. OF DIVISIONS BETWEEN POINTS 1 AND 2 (ND12) = 5
NO. OF DIVISIONS BETWEEN POINTS 2 AND 3 (ND23) = 4
ONLY F. S. AT EACH CENTER WILL BE PRINTED
SLICES WILL BE SUBDIVIDED

AUTOMATIC SEARCH WILL FOLLOW AFTER GRID

FACTORS OF SAFETY BASED ON GRID

IN THE FOLLOWING TABLE WARNING INDICATES HOW MANY TIMES THE MAXIMUM RADIUS IS LIMITED BY THE END POINTS OF GROUND LINES

CENTER X COORDINATE	CENTER Y COORDINATE	NO. OF CIRCLE TOTAL	CRITIC.	RADIUS	LOWEST F.S.	WARNING
-20	140	5	1	141.421	1.980	0
-20	120	5	1	121.655	2.233	0
-20	100	5	1	101.980	2.722	0
-20	80	5	1	82.462	3.952	0
-20	60	5	1	63.246	9.634	0
-20	40	1	1	44.721	1000.000	0
0	140	5	1	140.000	1.690	0
0	120	5	1	120.000	1.740	0
0	100	5	1	100.000	1.831	0
0	80	5	1	80.000	1.968	0
0	60	5	1	60.000	2.197	0
0	40	5	1	40.000	2.655	0
20	140	11	7	132.883	1.800	0

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20	120	11	9	114.597	1.745	0
20	100	5	1	100.000	1.740	0
20	80	5	1	80.000	1.800	0
20	60	5	1	60.000	1.919	0
20	40	5	1	40.000	2.139	0
40	140	11	7	123.666	2.042	0
40	120	11	7	104.721	1.928	0
40	100	11	10	85.777	1.852	0
40	80	11	3	69.466	1.862	0
40	60	11	8	51.522	2.005	0
40	40	11	3	31.155	2.351	0
60	140	11	8	117.169	2.513	0
60	120	11	4	96.299	2.332	0
60	100	11	9	75.696	2.155	0
60	80	11	9	57.069	2.037	0
60	60	11	4	40.100	2.139	0
60	40	11	9	19.814	2.801	0

GRID IS EXPANDED AS FOLLOWS SO MINIMUM FACTOR OF SAFETY FALLS WITH IN THE GRID

-20	160	5	1	161.245	1.828	0
0	160	5	1	160.000	1.715	0
20	160	11	8	150.957	1.877	0
40	160	11	10	142.610	2.169	0
60	160	11	9	140.671	2.680	0

LOWEST FACTOR OF SAFETY AT EACH GRID POINT IS TABULATED BELOW

COORDINATE	-20.000	0.000	20.000	40.000	60.000
160.000	1.828	1.715	1.877	2.169	2.680
140.000	1.980	1.690	1.800	2.042	2.513
120.000	2.233	1.740	1.745	1.928	2.332
100.000	2.722	1.831	1.740	1.852	2.155
80.000	3.952	1.968	1.800	1.862	2.037
60.000	9.634	2.197	1.919	2.005	2.139
40.000	1000.000	2.655	2.139	2.351	2.801

MINIMUM FACTORS OF SAFETY OCCUR AT THE FOLLOWING 2 CENTERS

FACTOR OF SAFETY = 1.690 AT (0.000, 140.000)
FACTOR OF SAFETY = 1.740 AT (20.000, 100.000)

AUTOMATIC SEARCH WILL BE MADE ONLY ON THE CENTER WITH THE SMALLEST F.S. MORE
SEARCH FROM OTHER CENTER MAY BE NEEDED TO ENSURE THAT MINIMUM F.S. IS OBTAINED.

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AT POINT (0 140) RADIUS 140.000
THE MINIMUM FACTOR OF SAFETY IS 1.690

FACTORS OF SAFETY BASED ON SEARCH

IN THE FOLLOWING TABLE WARNING INDICATES HOW MANY TIMES THE MAXIMUM RADIUS IS LIMITED BY THE END POINTS OF GROUND LINES

CENTER X COORDINATE	CENTER Y COORDINATE	NO. OF CIRCLE TOTAL	CRITIC.	RADIUS	LOWEST F.S.	WARNING
0	140	5	1	140.000	1.690	0
8	140	5	1	140.000	1.716	0
-8	140	5	1	140.228	1.749	0
0	148	5	1	148.000	1.692	0
0	132	5	1	132.000	1.700	0
2	140	5	1	140.000	1.690	0
4	140	5	1	140.000	1.694	0
2	142	5	1	142.000	1.691	0
2	138	5	1	138.000	1.690	0
2	136	5	1	136.000	1.690	0
4	138	5	1	138.000	1.692	0
0	138	5	1	138.000	1.692	0

AT POINT (2 138) RADIUS 138.000

THE MINIMUM FACTOR OF SAFETY IS 1.690

SUMMARY OF SLICE INFORMATION FOR MOST CRITICAL SLIP SURFACE

SL. NO.	SOIL NO.	SLICE WIDTH	SLICE HEIGHT	WATER HEIGHT	SLICE SINE	TOTAL WEIGHT	EFFEC. WEIGHT	RESIST. DRIVING MOMENT	RESIST MOMENT
1	1	10.827	2.678	0.000	0.025	0.362E+04	0.362E+04	0.588E+06	0.125E+05
2	1	10.827	7.395	0.000	0.103	0.100E+05	0.100E+05	0.109E+07	0.143E+06
3	1	10.827	11.247	0.000	0.182	0.152E+05	0.152E+05	0.150E+07	0.382E+06
4	1	10.827	14.204	0.000	0.260	0.192E+05	0.192E+05	0.179E+07	0.691E+06
5	1	10.827	16.215	0.000	0.339	0.219E+05	0.219E+05	0.196E+07	0.103E+07

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 6   1  10.827  17.203    0.000  0.417 0.233E+05 0.233E+05 0.201E+
07 0.134E+07
 7   1  10.827  17.056    0.000  0.496 0.231E+05 0.231E+05 0.194E+
07 0.158E+07
 8   1  10.827  15.604    0.000  0.574 0.211E+05 0.211E+05 0.174E+
07 0.167E+07
 9   1  10.827  12.592    0.000  0.653 0.170E+05 0.170E+05 0.142E+
07 0.153E+07
10   1   2.526   9.786    0.000  0.701 0.309E+04 0.309E+04 0.273E+
06 0.299E+06
11   1   8.301   4.786    0.000  0.740 0.497E+04 0.497E+04 0.607E+
06 0.507E+06
                                                SUM       0.149E+
08 0.919E+07

AT CENTER (    2.000,   138.000) WITH RADIUS    138.000 AND SEIS.
COEFF.  0.00
FACTOR OF SAFETY BY NORMAL METHOD IS    1.625
FACTOR OF SAFETY BY SIMPLIFIED BISHOP METHOD IS    1.690
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