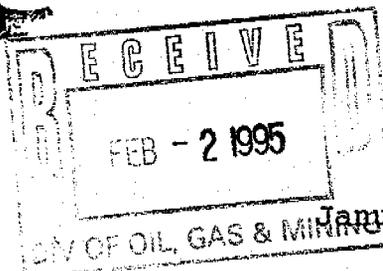


CO-OP MINING COMPANY

P.O. Box 1245
Huntington, Utah 84528

(801) 381-5238
Coal Sales (801) 381-5777



January 27, 1995

Pamela Grubaugh-Littig
Permit Coordinator
Utah Division of Oil, Gas & Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Ms. Grubaugh-Littig,

Re: Tank Seam Response, Stipulations 6, 7 and 8, Bear Canyon Mine,
ACT/015/025-94I, Emery County, Utah

#2

Enclosed are three finalized copies of the above-referenced amendment, which was approved per Division letter dated January 24, 1995.

If you have any questions, please call Charles Reynolds at (801) 687-2450.

Thank You,

Wendell Owen,
Resident Agent

Enclosure(s)
cr



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

February 2, 1995

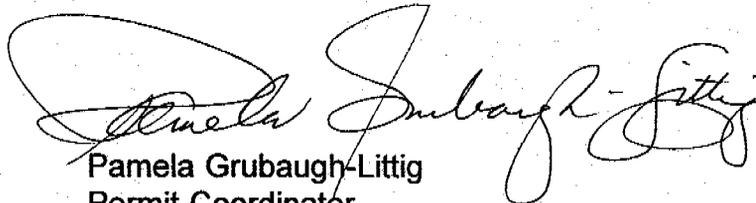
Thomas E. Ehmett, Acting Director
Office of Surface Mining
Reclamation and Enforcement
505 Marquette N.W., Ste. 1200
Albuquerque, NM 87102

Re: BTCA Area "E" Silt Fence and Tank Seam Stipulations 6,7, and 8, Bear Canyon Mine, Co-Op Mining Company, ACT/015/025-95A and ACT/015/025-94I, Folder #2, Emery County, Utah

Dear Mr. Ehmett:

Enclosed please find the above-noted amendments which were approved, January 26, 1995 (pages 7K-6 and Plate 7-1C) and January 24, 1995, (pages 3H-54 through 3H-70), respectively.

Sincerely,


Pamela Grubaugh-Littig
Permit Coordinator

Enclosure

cc: Price Field Office

PERMIT CHANGE TRACKING FORM

DATE RECEIVED	12/13/94	PERMIT NUMBER	ACT/015/025
Title of Proposal:	Task Plan Responses	PERMIT CHANGE #	94T
Description:	Stipulations 6, 7, 8	PERMITTEE	Co-Op Mining Co.
		MINE NAME	Blow Canyon Mine

	DATE DUE	DATE DONE	RESULT
<input type="checkbox"/> 15 DAY INITIAL RESPONSE TO PERMIT CHANGE APPLICATION			<input type="checkbox"/> ACCEPTED <input type="checkbox"/> REJECTED
<input type="checkbox"/> Notice of Review Status of proposed permit change sent to the Permittee.			Permit Change Classification
<input type="checkbox"/> Request additional review copies prior to Division/Other Agency review.			<input type="checkbox"/> Significant Permit Revision
<input type="checkbox"/> Notice of Approval of Publication. (If change is a Significant Revision.)			<input type="checkbox"/> Permit Amendment
<input type="checkbox"/> Notice of request to modify proposed permit change prior to approval.			<input type="checkbox"/> Incidental Boundary Change

REVIEW TRACKING	INITIAL REVIEW		MODIFIED REVIEW		FINAL REVIEW AND FINDINGS	
DOGM REVIEWER	DUE	DONE	DUE	DONE	DUE	DONE
<input type="checkbox"/> Administrative						
<input type="checkbox"/> Biology						
<input checked="" type="checkbox"/> Engineering						
<input type="checkbox"/> Geology						
<input checked="" type="checkbox"/> Soils						
<input type="checkbox"/> Hydrology						
<input type="checkbox"/> Bonding						
<input type="checkbox"/> AVS Check						

COORDINATED REVIEWS	DUE	DONE	DUE	DONE	DUE	DONE
<input type="checkbox"/> OSMRE						
<input type="checkbox"/> US Forest Service						
<input type="checkbox"/> Bureau of Land Management						
<input type="checkbox"/> US Fish and Wildlife Service						
<input type="checkbox"/> US National Parks Service						
<input type="checkbox"/> UT Environmental Quality						
<input type="checkbox"/> UT Water Resources						
<input type="checkbox"/> UT Water Rights						
<input type="checkbox"/> UT Wildlife Resources						
<input type="checkbox"/> UT State History						
<input type="checkbox"/> Other						

<input type="checkbox"/> Public Notice/Comment/Hearing Complete (If the permit change is a Significant Revision)	<input type="checkbox"/> Permit Change Approval Form signed and approved effective as of this date. <input type="checkbox"/> Permit Change Denied.
<input type="checkbox"/> Copies of permit change marked and ready for MRP.	<input type="checkbox"/> Notice of <input type="checkbox"/> Approval <input type="checkbox"/> Denial to Permittee.
<input type="checkbox"/> Special Conditions/Stipulations written for approval.	<input type="checkbox"/> Copy of Approved Permit Change to File.
<input type="checkbox"/> TA and CHIA modified as required.	<input type="checkbox"/> Copy of Approved Permit Change to Permittee.
<input type="checkbox"/> Permit Change Approval Form ready for approval.	<input type="checkbox"/> Copies to Other Agencies and Price Field Office.

CO-OP MINING COMPANY

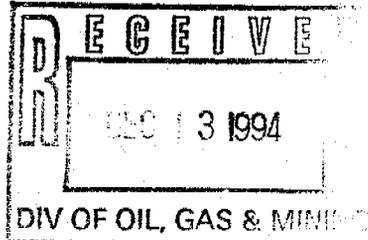
P.O. Box 1245
Huntington, Utah 84528



(801) 381-5238
Coal Sales (801) 381-5777

94J
December 10, 1994

Pamela Grubaugh-Littig
Utah Division of Oil, Gas & Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203



Ms. Grubaugh-Littig,

Re: Tank Seam Response to Stipulations 6, 7 and 8, Bear Canyon Mine ACT/015/025, Emery County, Utah

Co-Op Mining Company has completed the backfilling and grading of the Access Road portion of the Tank Seam Amendment. Enclosed are three DRAFT copies of an amendment to Appendix 3-H. The amendment contains information relevant to Stipulations 6, 7 and 8 of the Tank Seam Amendment approval.

Pages 3H-56 through 3H-60 contain detailed slope profiles of the five fill areas as required by Stipulation 8. The figures show where bedrock was exposed during construction in accordance with Stipulation 6. Pages 3H-61 through 3H-70 contain a detailed slope stability analysis of each fill area as required by Stipulation 8. The analysis is based on soil samples taken from the fill material in accordance with Stipulation 7.

The Tank Seam Portal Pad backfilling and grading is expected to be completed by the end of December, 1994. Surface structures are anticipated to be completed by March, 1995. Upon completion, Co-Op will generate as-built contours of the completed work, which will be accomplished by aerial photo. Since the aerial photos will not be obtained until Spring of 1995, Co-Op Mining Company anticipates that the final as-built contours will be submitted in July, 1995.

If you have any questions, please call Charles Reynolds at (801) 687-2450.

Thank You,

Wendell Owen
Wendell Owen,
Resident Agent

Enclosure(s)

cr

APPLICATION FOR PERMIT CHANGE

Title of Change: <i>Response to Tank Seam Specifications 6,7+8</i>	Permit Number: <i>ACT 0151025</i>
Mine: <i>Bear Canyon Mine</i>	Permittee: <i>Co-op Mining Co</i>

Description, include reason for change and timing required to implement:
Required by 93B Approval

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	1. Change in the size of the Permit Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease.
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	2. Change in the size of the Disturbed Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease.
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	3. Will permit change include operations outside the Cumulative Hydrologic Impact Area?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	4. Will permit change include operations in hydrologic basins other than currently approved?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	5. Does permit change result from cancellation, reduction or increase of insurance or reclamation bond?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	6. Does permit change require or include public notice publication?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	7. Permit change as a result of a Violation? Violation # _____
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	8. Permit change as a result of a Division Order? D.O.# _____
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	9. Permit change as a result of other laws or regulations? Explain: <i>Approval Specifications to 93B</i>
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	10. Does permit change require or include ownership, control, right-of-entry, or compliance information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	11. Does the permit change affect the surface landowner or change the post mining land use?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	12. Does permit change require or include collection and reporting of any baseline information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	13. Could the permit change have any effect on wildlife or vegetation outside the current disturbed area?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	14. Does permit change require or include soil removal, storage or placement?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	15. Does permit change require or include vegetation monitoring, removal or revegetation activities?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	16. Does permit change require or include construction, modification, or removal of surface facilities?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	17. Does permit change require or include water monitoring, sediment or drainage control measures?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	18. Does permit change require or include certified designs, maps, or calculations?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	19. Does permit change require or include underground design or mine sequence and timing?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	20. Does permit change require or include subsidence control or monitoring?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	21. Have reclamation costs for bonding been provided or revised for any change in the reclamation plan?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	22. Is permit change within 100 feet of a public road or perennial stream or 500 feet of an occupied dwelling?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	23. Is this permit change coal exploration activity <input type="checkbox"/> inside <input type="checkbox"/> outside of the permit area?

Attach 3 complete copies of proposed permit change as it would be incorporated into the Mining and Reclamation Plan.

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

Wendell Owen Res Agent 12/12/94
 Signed - Name - Position - Date

Subscribed and sworn to before me this *12* day of *December* 1994
Leanne Stone
 Notary Public



Notary Public
LEANNE STONE
 P.O. Box 300
 Huntington, Utah 84528
 My Commission Expires
 June 18, 1997
 State of Utah

My Commission Expires: _____
 Attest: STATE OF _____
 COUNTY OF _____

Received by Oil, Gas & Mining

RECEIVE

DEC 13 1994

DIV OF OIL, GAS & MINING

ASSIGNED PERMIT CHANGE NUMBER

PERMIT CHANGE TRACKING FORM

DATE RECEIVED	12/13/94	PERMIT NUMBER	ACT/015/028
Title of Proposal:	Jark New Response	PERMIT CHANGE #	94T
Description:	Stipulations 6, 7, 8	PERMITTEE	Co-Op Mining Co.
		MINE NAME	Blow Canyon Mine

<input type="checkbox"/> 15 DAY INITIAL RESPONSE TO PERMIT CHANGE APPLICATION <input type="checkbox"/> Notice of Review Status of proposed permit change sent to the Permittee. <input type="checkbox"/> Request additional review copies prior to Division/Other Agency review. <input type="checkbox"/> Notice of Approval of Publication. (If change is a Significant Revision.) <input type="checkbox"/> Notice of request to modify proposed permit change prior to approval.	DATE DUE	DATE DONE	RESULT
			<input type="checkbox"/> ACCEPTED <input type="checkbox"/> REJECTED Permit Change Classification <input type="checkbox"/> Significant Permit Revision <input type="checkbox"/> Permit Amendment <input type="checkbox"/> Incidental Boundary Change

REVIEW TRACKING	INITIAL REVIEW		MODIFIED REVIEW		FINAL REVIEW AND FINDINGS	
DOGM REVIEWER	DUE	DONE	DUE	DONE	DUE	DONE
<input type="checkbox"/> Administrative						
<input type="checkbox"/> Biology						
<input checked="" type="checkbox"/> Engineering Jess	1/13/95	1/20/95				
<input type="checkbox"/> Geology						
<input checked="" type="checkbox"/> Soils						
<input type="checkbox"/> Hydrology						
<input type="checkbox"/> Bonding						
<input type="checkbox"/> AVS Check						

COORDINATED REVIEWS	DUE	DONE	DUE	DONE	DUE	DONE
<input type="checkbox"/> OSMRE						
<input type="checkbox"/> US Forest Service						
<input type="checkbox"/> Bureau of Land Management						
<input type="checkbox"/> US Fish and Wildlife Service						
<input type="checkbox"/> US National Parks Service						
<input type="checkbox"/> UT Environmental Quality						
<input type="checkbox"/> UT Water Resources						
<input type="checkbox"/> UT Water Rights						
<input type="checkbox"/> UT Wildlife Resources						
<input type="checkbox"/> UT State History						
<input type="checkbox"/> Other						

<input type="checkbox"/> Public Notice/Comment/Hearing Complete (If the permit change is a Significant Revision)	<input type="checkbox"/> Permit Change Approval Form signed and approved effective as of this date. <input type="checkbox"/> Permit Change Denied.
<input type="checkbox"/> Copies of permit change marked and ready for MRP.	<input type="checkbox"/> Notice of <input type="checkbox"/> Approval <input type="checkbox"/> Denial to Permittee.
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<input type="checkbox"/> TA and CHIA modified as required.	<input type="checkbox"/> Copy of Approved Permit Change to Permittee.
<input type="checkbox"/> Permit Change Approval Form ready for approval.	<input type="checkbox"/> Copies to Other Agencies and Price Field Office.

**TANK SEAM FILL
AS CONSTRUCTED
SLOPE STABILITY ANALYSIS**

INTRODUCTION

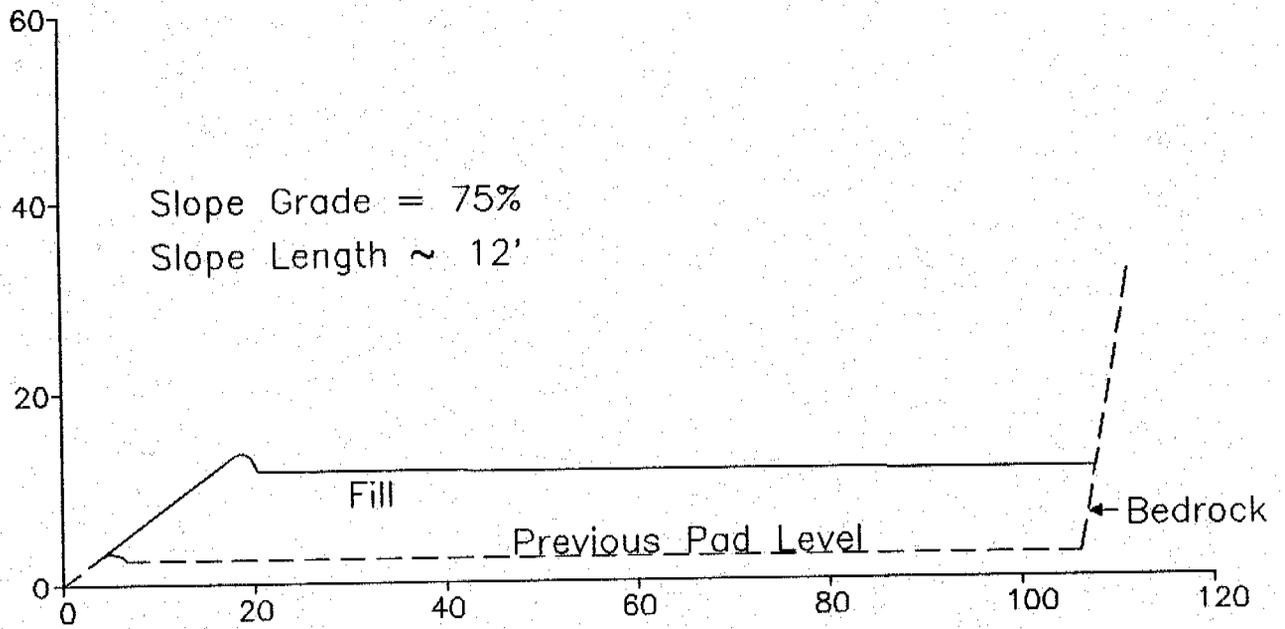
The following section contains detailed slope profiles and a stability analysis for each fill slope along the Tank Seam Access Road. Final backfilling and grading along the access road was completed in November, 1994.

Soil samples for the stability analyses were collected from the fill material prior to placement of the fill. Analyses on the soil samples were performed by Dames & Moore. The slope stability analysis and safety factors were generated by Dames & Moore.

The locations of the five fill areas are as follows (Stations are shown in Figure 3H-4). TSF-1 fill is located on the upper storage pad in the area of station 1+00. TSF-2 fill is located in the area of stations 8+00 and 9+00 (large fill area). TSF-3 fill is located between stations 10+00 and 11+00. TSF-4 fill is located at the switchback, in the area of Station 15+00. TSF-5 fill is located in the area of Station 25+00.

The following figures show detailed as constructed slope profiles of each fill area. Following the profiles is a slope stability analysis which analyzes each fill area.

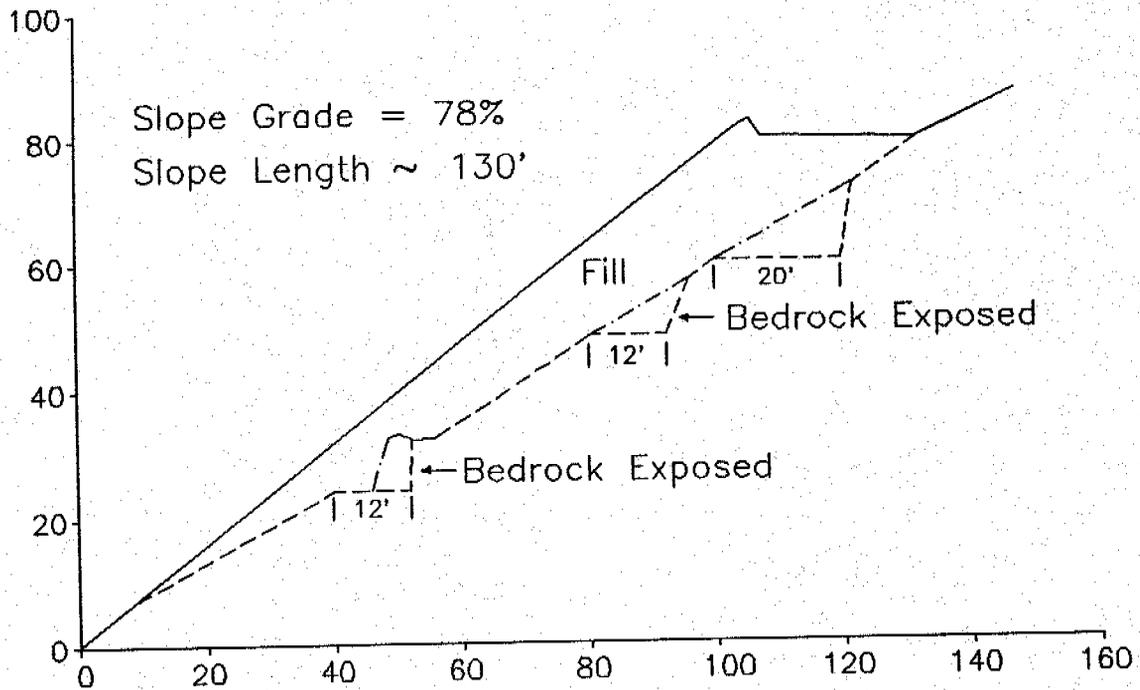
TSF-1



Constructed Slope _____
Fill Base _____

Scale: 1" = 20'

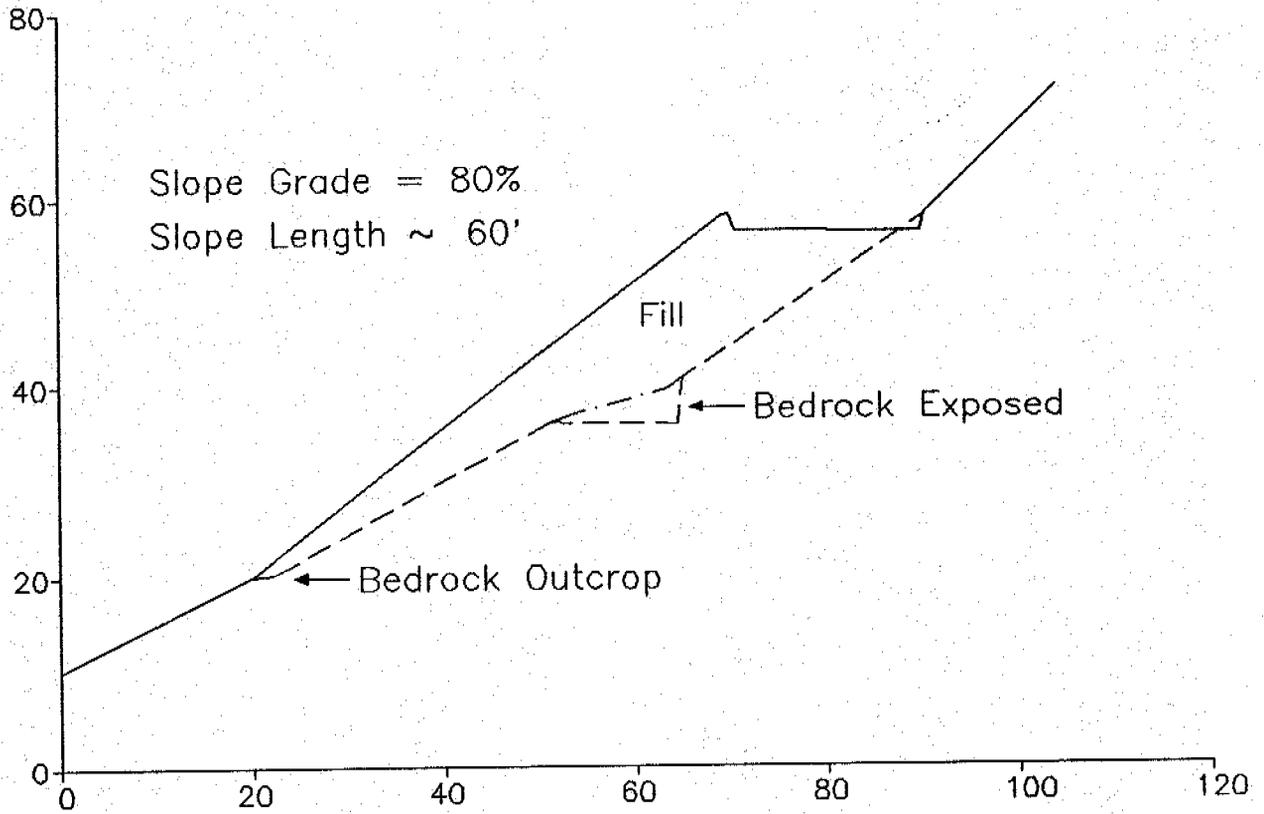
TSF-2



Constructed Slope _____
Base of Fill _____
Natural Slope _____
(where different from fill base)

Scale: 1" = 30'

TSF-3



Constructed Slope _____

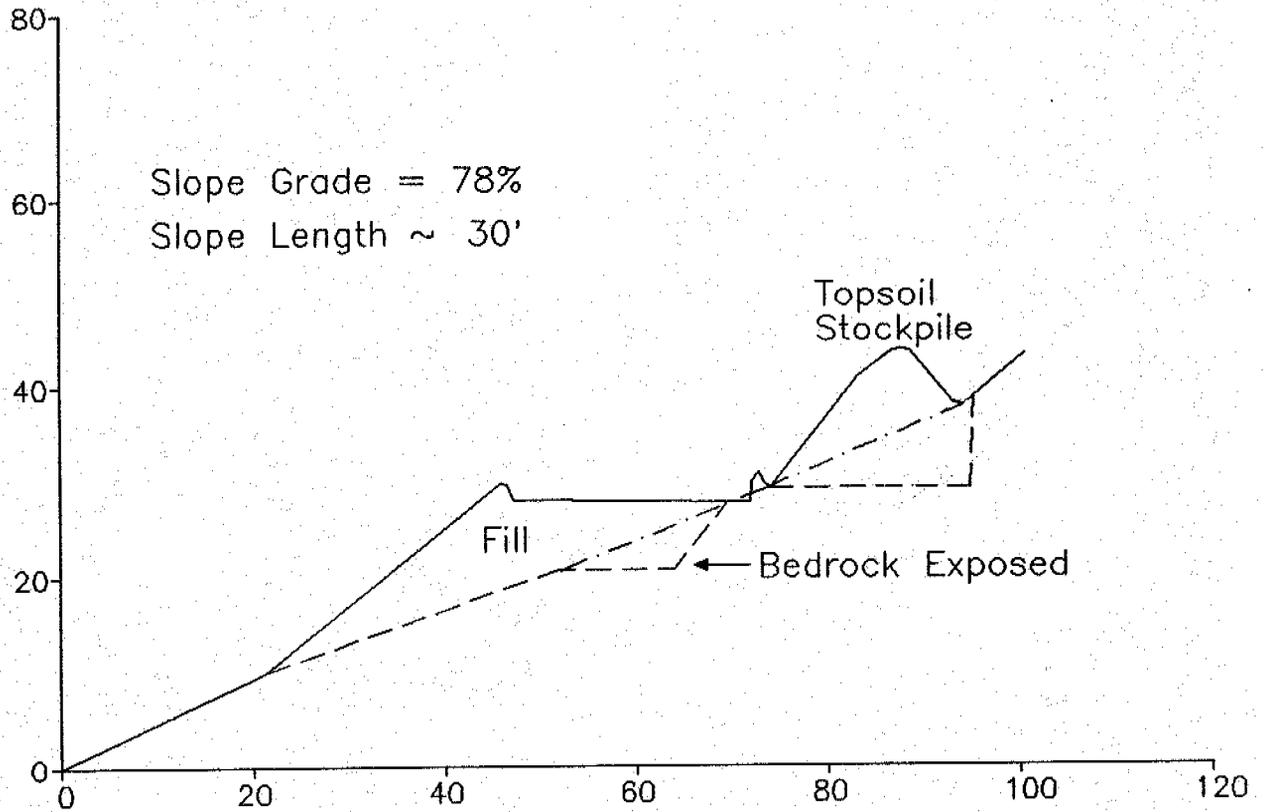
Fill Base _____

Natural Slope _____

(where different from fill base)

Scale: 1" = 20'

TSF-4



Constructed Slope _____

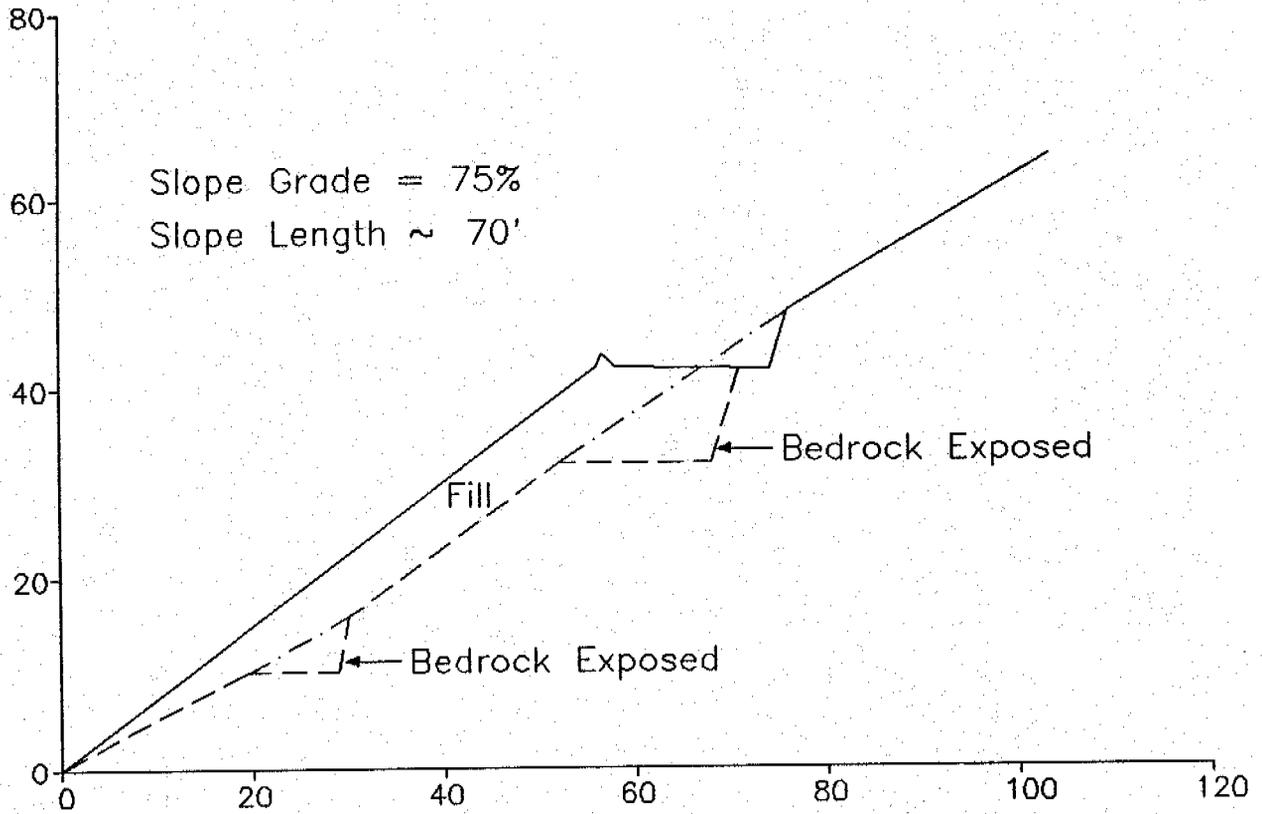
Fill Base _____

Natural Slope _____

(where different from fill base)

Scale: 1" = 20'

TSF-5



Constructed Slope _____

Fill Base _____

Natural Slope _____

(where different from fill base)

Scale: 1" = 20'



127 SOUTH 500 EAST, SUITE 300, SALT LAKE CITY, UTAH 84102-1959
(801) 521-9255 FAX: (801) 521-0380

December 5, 1994

CO-OP Mining Company
P.O. Box 1245
Highway 31
Huntington Canyon
Huntington, Utah 84528

Attention: Mr. Charles Reynolds
Mining Engineer

Report
Geotechnical Consultation
Tank Seam Portal Access Road
Job No. 27437-001-162

INTRODUCTION

This report presents the results of stability analyses performed by Dames & Moore for Tank Seam Portal Access Road fill sections for CO-OP Mining Company.

PURPOSE & SCOPE OF STUDY

The purpose and scope of this study was defined in our proposal dated October 20, 1994. In accomplishing the work the following services were performed.

- 1) Analyzing laboratory tests to determine appropriate estimates of soil strength parameters to be utilized in the subsequent analyses.
- 2) Modeling five separate fill slope sections. "As built drawings of the slopes were supplied by CO-OP mine.
- 3) Compiling data into this document that summarizes laboratory tests data and analyses results.

LABORATORY DATA

The laboratory data used in our engineering analyses were obtained from mechanical grain size analyses, compaction tests, and consolidated drained direct shear tests. Initial results for sample TSF-3 seemed low, consequently a second sample, designated TSF-6, was collected and tested. Results of the two tests were averaged and used for modeling section 3. The test results are summarized in the following paragraphs.

MECHANICAL ANALYSES

To aid in classifying the soils mechanical sieve analyses were performed on bulk samples collected from fill that was to be placed at each fill section. Results of the gradation analyses are presented in Table 1.

Table 1
Mechanical Analyses Results

Sample Number	USCS Classification	Percent Gravel	Percent Sand	Percent Fines
TSF-1	SC-SM	23.9	43.9	32.2
TSF-2	SC-SM	25.4	35.0	39.6
TSF-3	SC-SM	25.2	27.8	47.0
TSF-4	CL-ML	17.4	23.2	59.4
TSF-5	CL-ML	17.6	19.2	63.2
TSF-6	SC-SM	26.7	30.1	43.2

COMPACTION TESTS

Compaction tests were performed on bulk samples collected from fill material that was to be placed at each fill section. Results of the gradation analyses are presented in Table 2.

Table 2
 Compaction Test Results

Sample Number	USCS Classification	Optimum Moisture Content %	Maximum Dry Density PCF
TSF-1	SC-SM	10.3	124.4
TSF-2	SC-SM	7.9	131.7
TSF-3	SC-SM	6.3	139.7
TSF-4	CL-ML	9.2	128.9
TSF-5	CL-ML	9.6	132.4
TSF-6	SC-SM	7.8	136.6

DIRECT SHEAR TESTS

Direct Shear tests (consolidated drained) were performed on remolded bulk samples which were collected from fill that was to be placed at each of the fill sections. Samples were compacted to 95% of the maximum dry density as determined in the compaction tests. In accordance with ASTM 3080 the plus 3/8 material is removed prior to remolding. The plus 3/8 inch fraction of the samples ranged from 12.6 to 20.5 percent. Subjective interpretation was necessary for some tests due to scatter in the data points. The results are summarized in Table 3.

Table 3
 Direct Shear Tests Results

Sample Number	USCS Classification	Friction Angle	Cohesion psf
TSF-1	SC-SM	38.7	168
TSF-2	SC-SM	28.0	290
TSF-3	SC-SM	36.6	0
TSF-4	CL-ML	40.6	15
TSF-5	CL-ML	28.2	510
TSF-6	SC-SM	36.5	162

SLOPE STABILITY ANALYSES

Analyses of the stability of the proposed fill sections were performed using a two-dimensional, limit equilibrium stability program called PCSTABL6. An automatic search routine was employed in each case to determine the failure surfaces with the lowest factors of safety. In all cases the fill was modeled assuming unsaturated conditions.

The geometry of each section was modeled based on the "as built" drawing provided by CO-OP. In each case 95% of the maximum dry density as determined by the compaction tests was input for the soil unit weight. Friction angles and cohesion were obtained from the direct shear test results. Bedrock strength properties were input to reflect significantly higher strength values than the fill material in order to determine the factors of safety of the fills.

STABILITY ANALYSES RESULTS

The results of our analyses show factors of safety in acceptable ranges. For sections 1 and 5, the minimum calculated safety factors were above 2.0. For section 2 the minimum calculated safety factor was 1.33. For section 3 the minimum calculated safety factor was 1.36. For section 4 the minimum calculated safety factor was 1.50.

It is our opinion that the fill slopes should generally perform satisfactorily. However, due to limited sampling and testing and potential variabilities in fill placement, we recommend periodic inspection of the fill slopes for any signs of distress, particularly at sections 2 and 3, and after periods of high precipitation or snowmelt.

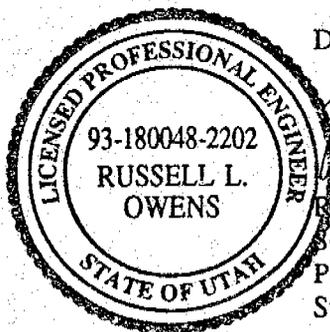
oOo

The following Plates are attached and complete this report.

- Plate 1 - Fill Slope Cross Section TSF-1
- Plate 2 - Fill Slope Cross Section TSF-2
- Plate 3 - Fill Slope Cross Section TSF-3
- Plate 4 - Fill Slope Cross Section TSF-4
- Plate 5 - Fill Slope Cross Section TSF-5

Sincerely,

DAMES & MOORE, Inc.



Russell L. Owens

Russell L. Owens, P.E.
Senior Geotechnical Engineer
Professional Engineer, N. 180048
State of Utah

Curtis J. Tanner

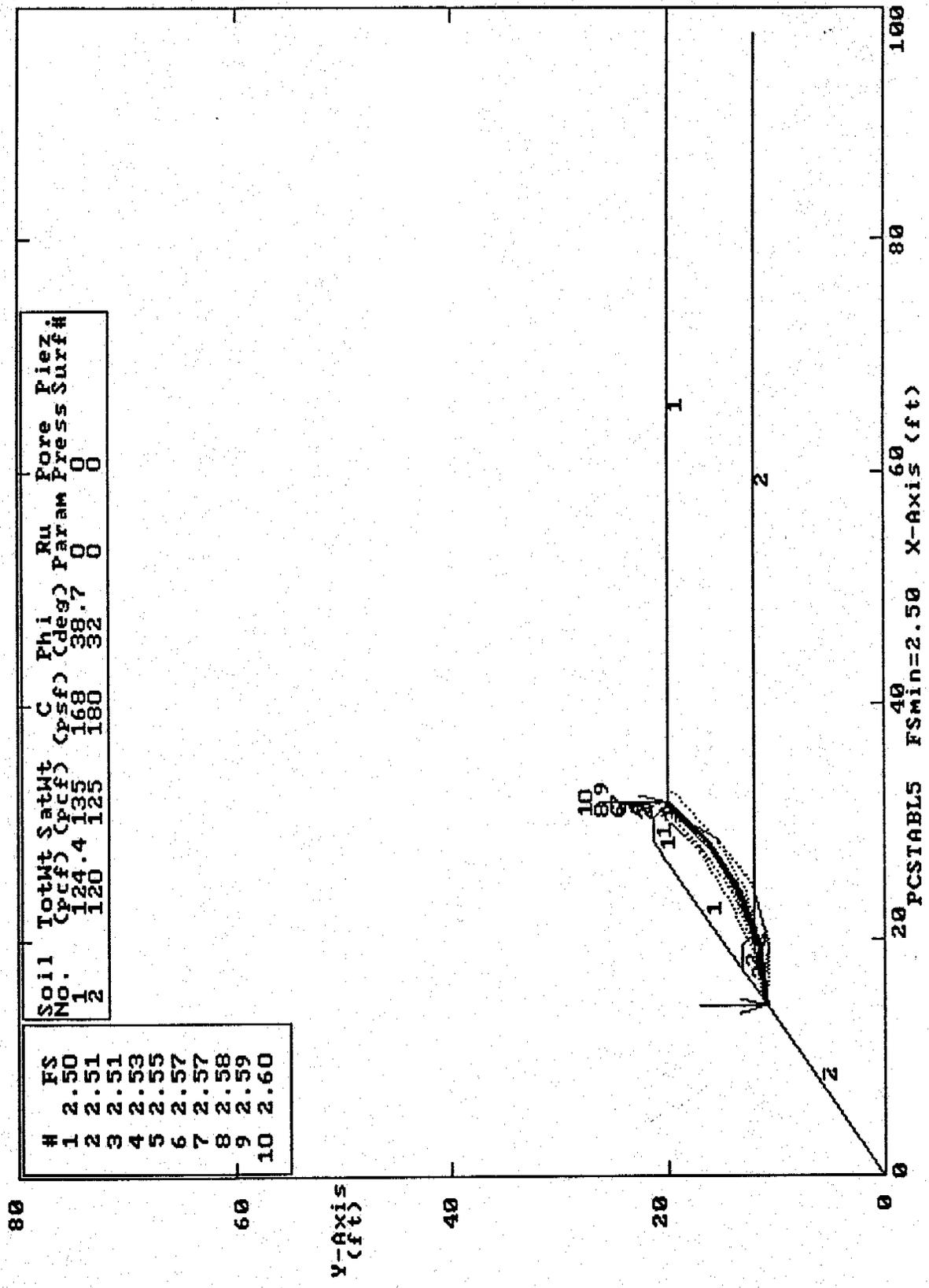
Curtis J. Tanner, P.E.
Staff Engineer
Professional Engineer No. 184573
State of Utah

TSF-1

Ten Most Critical. CO-OP Mine Pad Section
 C:COOPL.PLI By: CJT 11-23-94 2:50pm

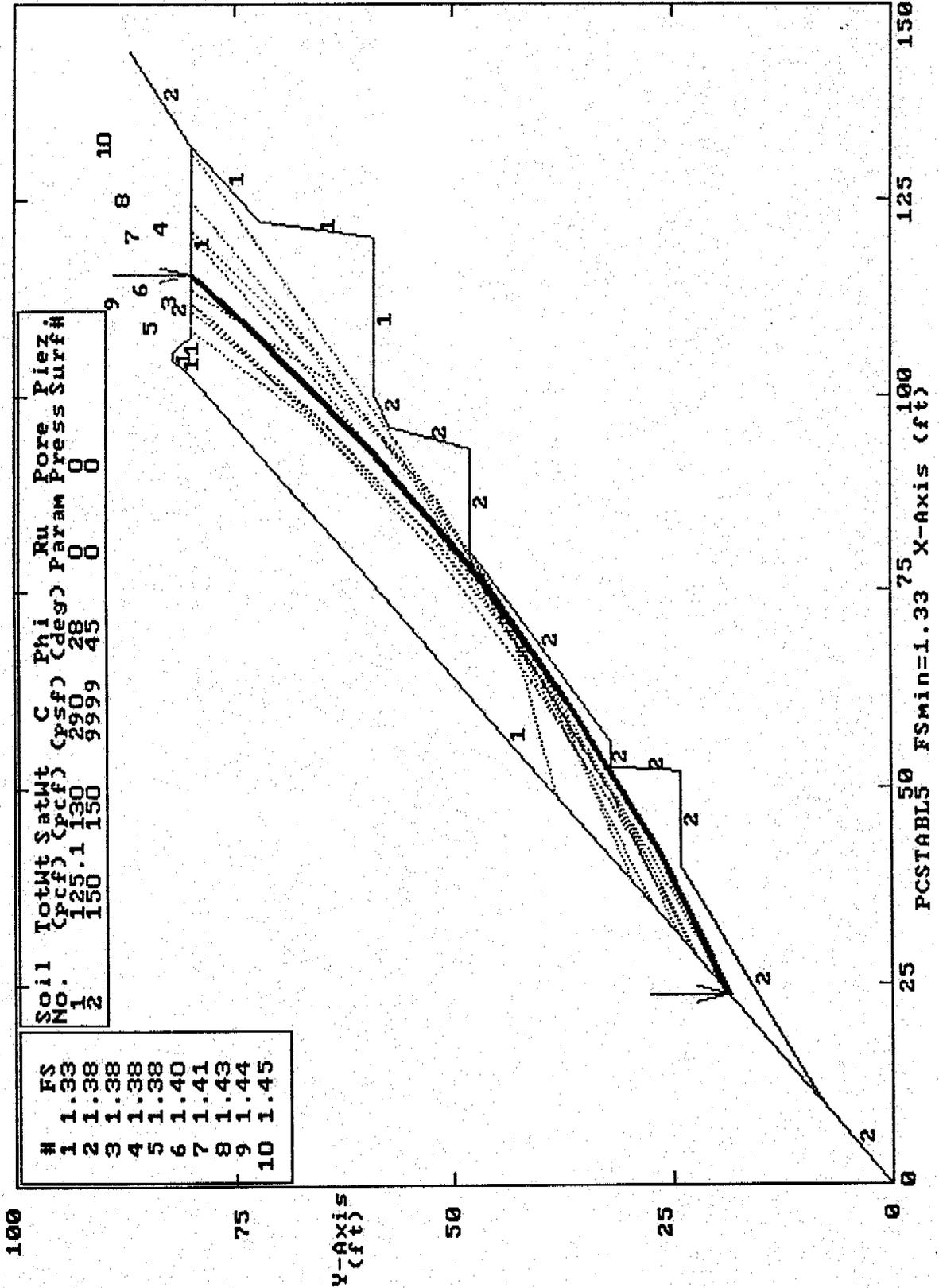
#	FS
1	2.50
2	2.51
3	2.51
4	2.53
5	2.55
6	2.57
7	2.57
8	2.58
9	2.59
10	2.60

Soil No.	TotMt (pcf)	SatMt (pcf)	C (psf)	Phi (deg)	Ru	Param	Piez. Surf#
1	124.4	135	168	38.7	0	0	0
2	120	125	180	32	0	0	0



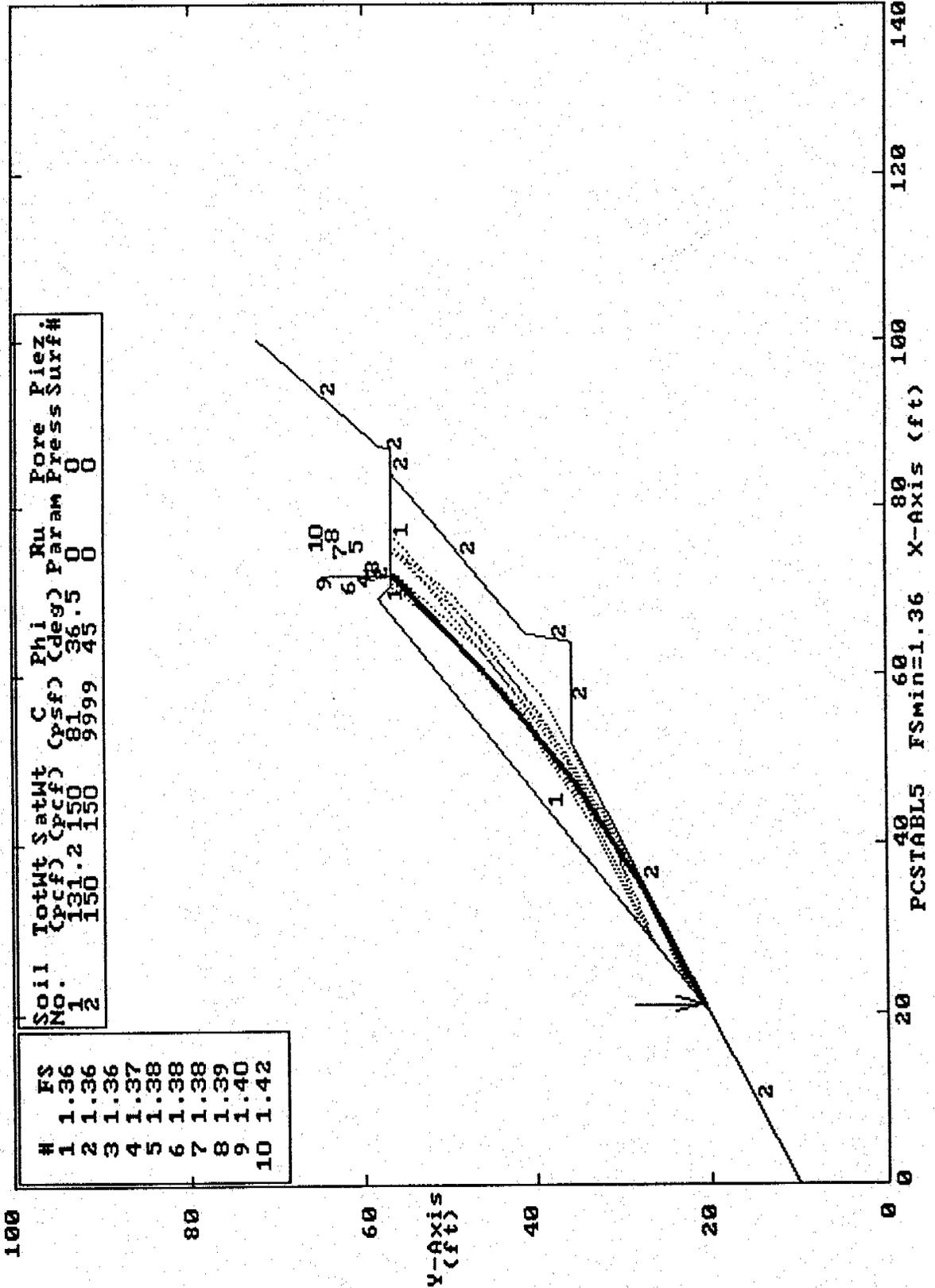
TSF-2

Ten Most Critical. CO-OP Mine Pad Section 11-23-94 2:57pm
 C:COOP2.PLT By: CJT



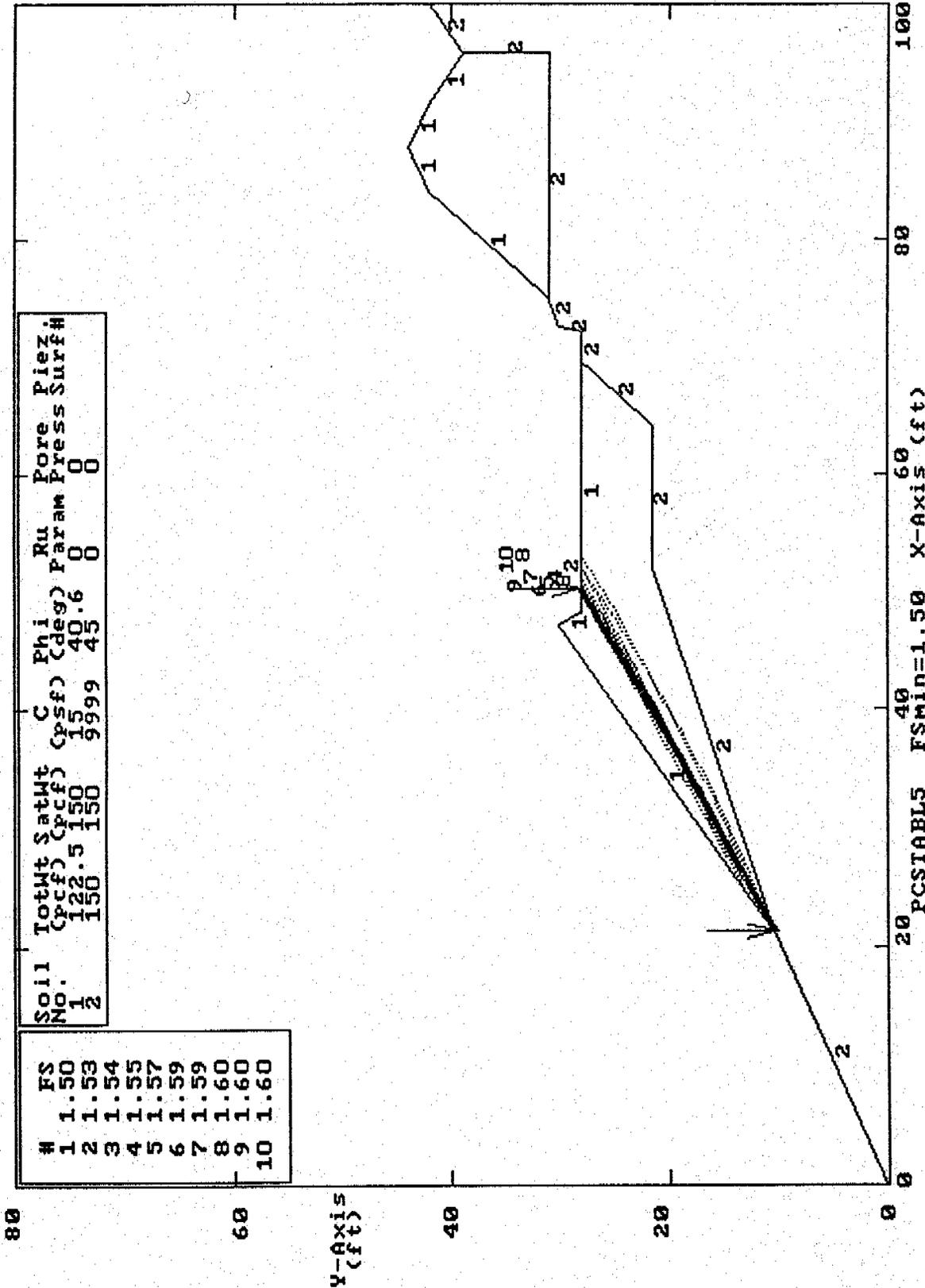
TSF-3

Ten Most Critical. CO-OP Mine Pad Section
 C:\COOP3.PLT By: CJT 11-23-94 3:25pm



TSF-4

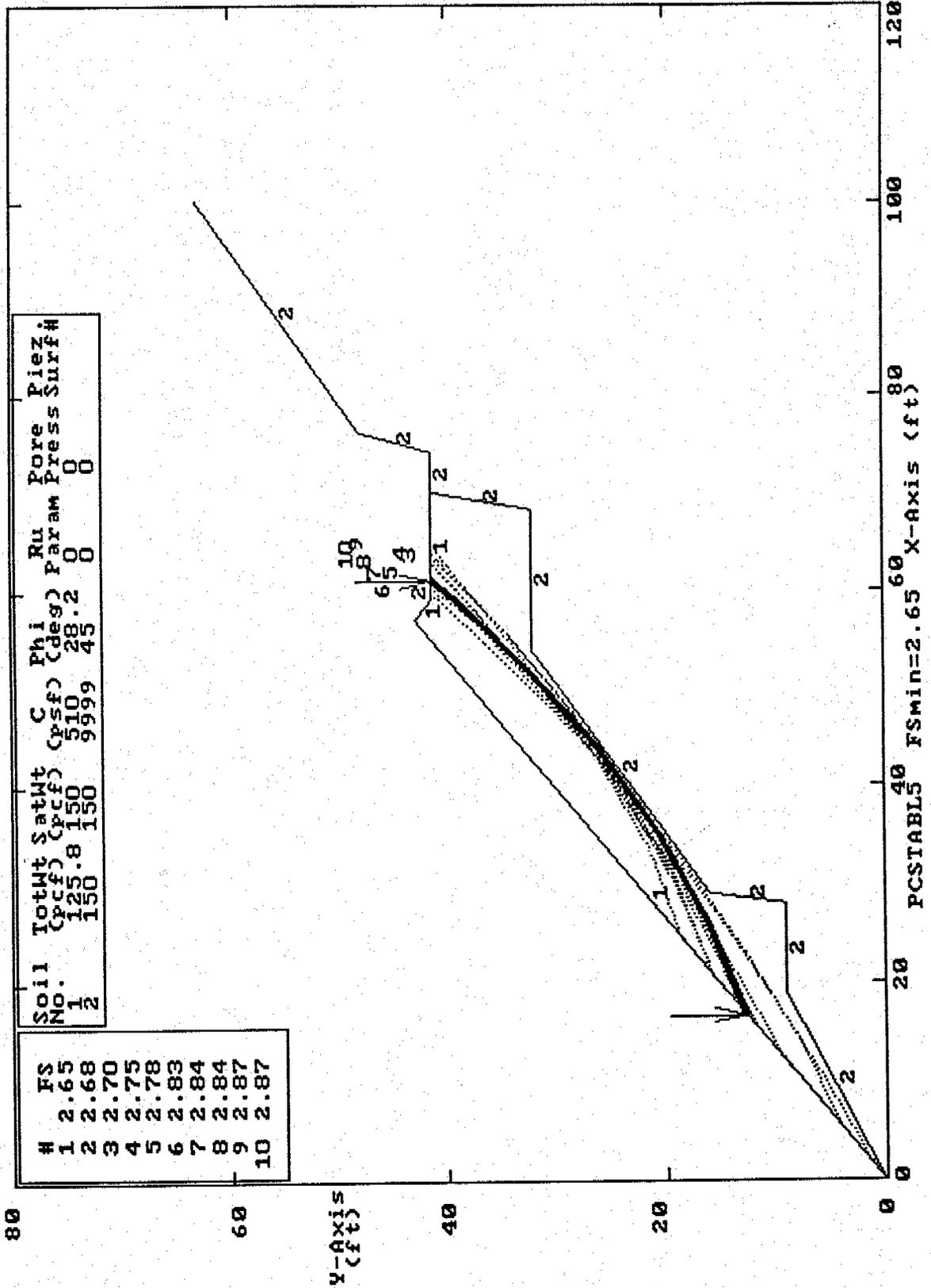
Ten Most Critical. CO-OP Mine Pad Section
 C:COOP4.PLT By: CJT 11-23-94 3:19pm



20 PCSTABLE5 FSmin=1.50 X-AXIS (ft)

TSF-5

Ten Most Critical. CO-OP Mine Pad Section 11-23-94 3:22pm
 C:COOP5.FLT By: CJT



Soil No.	TotWt (pcf)	SatWt (pcf)	C (pcf)	Phi (deg)	Ru Param	Piez Press	Surf #
1	125.8	150	510	28.2	0	0	
2	150	150	9999	45	0	0	

#	FS
1	2.65
2	2.68
3	2.70
4	2.75
5	2.78
6	2.83
7	2.84
8	2.84
9	2.87
10	2.87

PERMIT CHANGE TRACKING FORM

Amendment
file

DATE RECEIVED	12/13/94	PERMIT NUMBER	ACT/015/025
Title of Proposal:	Garb New Proposed	PERMIT CHANGE #	94T
Description:	Stipulations 6, 7, 8	PERMITTEE	Co. of Mining Co.
		MINE NAME	Blue Canyon Mine

<input type="checkbox"/> 15 DAY INITIAL RESPONSE TO PERMIT CHANGE APPLICATION <input type="checkbox"/> Notice of Review Status of proposed permit change sent to the Permittee. <input type="checkbox"/> Request additional review copies prior to Division/Other Agency review. <input type="checkbox"/> Notice of Approval of Publication. (If change is a Significant Revision.) <input type="checkbox"/> Notice of request to modify proposed permit change prior to approval.	DATE DUE	DATE DONE	RESULT		
				<input type="checkbox"/> ACCEPTED <input type="checkbox"/> REJECTED	
				Permit Change Classification	
				<input type="checkbox"/> Significant Permit Revision	
				<input type="checkbox"/> Permit Amendment	

REVIEW TRACKING	INITIAL REVIEW		MODIFIED REVIEW		FINAL REVIEW AND FINDINGS	
DOGM REVIEWER	DUE	DONE	DUE	DONE	DUE	DONE
<input type="checkbox"/> Administrative						
<input type="checkbox"/> Biology						
<input checked="" type="checkbox"/> Engineering Jess	1/13/95					
<input type="checkbox"/> Geology						
<input checked="" type="checkbox"/> Soils						
<input type="checkbox"/> Hydrology						
<input type="checkbox"/> Bonding						
<input type="checkbox"/> AVS Check						

COORDINATED REVIEWS	DUE	DONE	DUE	DONE	DUE	DONE
<input type="checkbox"/> OSMRE						
<input type="checkbox"/> US Forest Service						
<input type="checkbox"/> Bureau of Land Management						
<input type="checkbox"/> US Fish and Wildlife Service						
<input type="checkbox"/> US National Parks Service						
<input type="checkbox"/> UT Environmental Quality						
<input type="checkbox"/> UT Water Resources						
<input type="checkbox"/> UT Water Rights						
<input type="checkbox"/> UT Wildlife Resources						
<input type="checkbox"/> UT State History						
<input type="checkbox"/> Other						

<input type="checkbox"/> Public Notice/Comment/Hearing Complete (If the permit change is a Significant Revision) <input type="checkbox"/> Copies of permit change marked and ready for MRP. <input type="checkbox"/> Special Conditions/Stipulations written for approval. <input type="checkbox"/> TA and CHIA modified as required. <input type="checkbox"/> Permit Change Approval Form ready for approval.	<input type="checkbox"/> Permit Change Approval Form signed and approved effective as of this date. <input type="checkbox"/> Permit Change Denied. <input type="checkbox"/> Notice of <input type="checkbox"/> Approval <input type="checkbox"/> Denial to Permittee. <input type="checkbox"/> Copy of Approved Permit Change to File. <input type="checkbox"/> Copy of Approved Permit Change to Permittee. <input type="checkbox"/> Copies to Other Agencies and Price Field Office.
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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

January 24, 1995

Mr. Wendell Owen
Co-Op Mining Company
P.O. Box 1245
Huntington, UT 84528

Re: Tank Seam Responses, Stipulations 6, 7, and 8, Co-Op Mining Company, Bear Canyon Mine, ACT/015/025-94I, Folder #3, Emery County, Utah

Dear Mr. Owen:

The above-noted stipulations to the Tank Seam Significant Revision are approved. Please submit three finalized copies of this amendment by February 24, 1995.

Sincerely,

A handwritten signature in cursive script, reading "Pamela Grubaugh-Littig".

Pamela Grubaugh-Littig
Permit Coordinator

Enclosure

cc: Daron Haddock



Dring #3 Copy to overhead file

PERMIT AMENDMENT APPROVAL

Title: <i>Tank Seam Response</i>	PERMIT NUMBER: <i>ACT/015/025</i>
Description: <i>stipulations #6, 7, 8</i>	PERMIT CHANGE #: <i>94I</i>
	MINE: <i>Bear Canyon Mine</i>
	PERMITTEE: <i>Co-Op Mining Co</i>

WRITTEN FINDINGS FOR PERMIT APPLICATION APPROVAL

	YES, NO or N/A
1. The application is complete and accurate and the applicant has complied with all the requirements of the State Program.	<i>Yes</i>
2. The proposed permit area is not within an area under study or administrative proceedings under a petition, filed pursuant to R645-103-400 or 30 CFR 769, to have an area designated as unsuitable for coal mining and reclamation operations, unless:	<i>Yes</i>
A. The applicant has demonstrated that before January 4, 1977, substantial legal and financial commitments were made in relation to the operation covered by the permit application, or	<i>Yes</i>
B. The applicant has demonstrated that the proposed permit area is not within an area designated as unsuitable for mining pursuant to R645-103-300 and R645-103-400 or 30 CFR 769 or subject to the prohibitions or limitations of R645-103-230.	<i>Yes</i>
3. For coal mining and reclamation operations where the private mineral estate to be mined has been severed from the private surface estate, the applicant has submitted to the Division the documentation required under R645-301-114.200.	<i>Yes</i>
4. The Division has made an assessment of the probable cumulative impacts of all anticipated coal mining and reclamation operations on the hydrologic balance in the cumulative impact area and has determined that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.	<i>Yes</i>
5. The operation would not affect the continued existence of endangered or threatened species or result in destruction or adverse modification of their critical habitats, as determined under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).	<i>Yes</i>
6. The Division has taken into account the effect of the proposed permitting action on properties listed on and eligible for listing on the National Register of Historic Places. This finding may be supported in part by inclusion of appropriate permit conditions or changes in the operation plan protecting historic resources, or a documented decision that the Division has determined that no additional protection measures are necessary.	<i>Yes</i>
7. The Applicant has demonstrated that reclamation as required by the State Program can be accomplished according to information given in the permit application.	<i>Yes</i>
8. The Applicant has demonstrated that any existing structure will comply with the applicable performance standards of R645-301 and R645-302.	<i>Yes</i>
9. The Applicant has paid all reclamation fees from previous and existing coal mining and reclamation operations as required by 30 CFR Part 870.	<i>Yes</i>
10. The Applicant has satisfied the applicable requirements of R645-302.	<i>NA</i>
11. The Applicant has, if applicable, satisfied the requirements for approval of a long-term, intensive agricultural postmining land use, in accordance with the requirements of R645-301-353.400.	<i>NA</i>

SPECIAL CONDITIONS OR STIPULATIONS TO THE PERMIT AMENDMENT APPROVAL

	YES	NO
1. Are there any variances associated with this permit amendment approval? If yes, attach.		<i>X</i>
2. Are there any special conditions associated with this permit amendment approval? If yes, attach. <i>That copies be submitted</i>	<i>X</i>	
3. Are there any stipulations associated with this permit amendment approval? If yes, attach.		<i>X</i>

The Division hereby grants approval for Permit Amendment to the Existing Permit by incorporation of the proposed changes described herein and effective the date signed below. All other terms and conditions of the Existing Permit shall be maintained and in effect except as superseded by this Permit Amendment.

Signed *Dawn O. Haddock*
 Division of Oil, Gas and Mining

1/24/95
 EFFECTIVE DATE

CO-OP MINING COMPANY

P.O. Box 1245
Huntington, Utah 84528

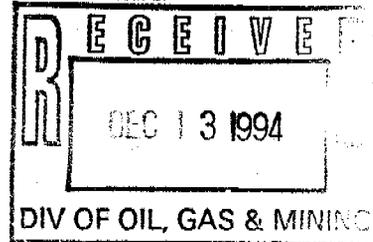


(801) 381-5238
Coal Sales (801) 381-5777

941

December 10, 1994

Pamela Grubaugh-Littig
Utah Division of Oil, Gas & Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203



Ms. Grubaugh-Littig,

Re: Tank Seam Response to Stipulations 6, 7 and 8, Bear Canyon Mine ACT/015/025, Emery County, Utah

Co-Op Mining Company has completed the backfilling and grading of the Access Road portion of the Tank Seam Amendment. Enclosed are three DRAFT copies of an amendment to Appendix 3-H. The amendment contains information relevant to Stipulations 6, 7 and 8 of the Tank Seam Amendment approval.

Pages 3H-56 through 3H-60 contain detailed slope profiles of the five fill areas as required by Stipulation 8. The figures show where bedrock was exposed during construction in accordance with Stipulation 6. Pages 3H-61 through 3H-70 contain a detailed slope stability analysis of each fill area as required by Stipulation 8. The analysis is based on soil samples taken from the fill material in accordance with Stipulation 7.

The Tank Seam Portal Pad backfilling and grading is expected to be completed by the end of December, 1994. Surface structures are anticipated to be completed by March, 1995. Upon completion, Co-Op will generate as-built contours of the completed work, which will be accomplished by aerial photo. Since the aerial photos will not be obtained until Spring of 1995, Co-Op Mining Company anticipates that the final as-built contours will be submitted in July, 1995.

If you have any questions, please call Charles Reynolds at (801) 687-2450.

Thank You,

Wendell Owen
Wendell Owen,
Resident Agent

Enclosure(s)
cr

**TANK SEAM FILL
AS CONSTRUCTED
SLOPE STABILITY ANALYSIS**

INTRODUCTION

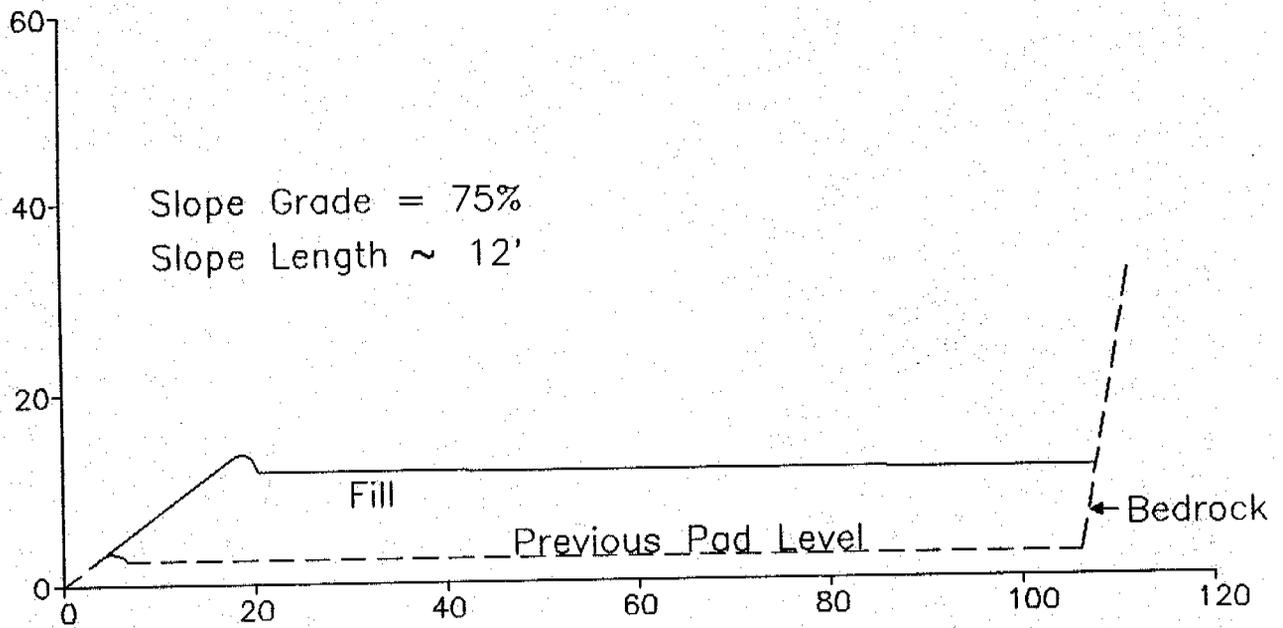
The following section contains detailed slope profiles and a stability analysis for each fill slope along the Tank Seam Access Road. Final backfilling and grading along the access road was completed in November, 1994.

Soil samples for the stability analyses were collected from the fill material prior to placement of the fill. Analyses on the soil samples were performed by Dames & Moore. The slope stability analysis and safety factors were generated by Dames & Moore.

The locations of the five fill areas are as follows (Stations are shown in Figure 3H-4). TSF-1 fill is located on the upper storage pad in the area of station 1+00. TSF-2 fill is located in the area of stations 8+00 and 9+00 (large fill area). TSF-3 fill is located between stations 10+00 and 11+00. TSF-4 fill is located at the switchback, in the area of Station 15+00. TSF-5 fill is located in the area of Station 25+00.

The following figures show detailed as constructed slope profiles of each fill area. Following the profiles is a slope stability analysis which analyzes each fill area.

TSF-1

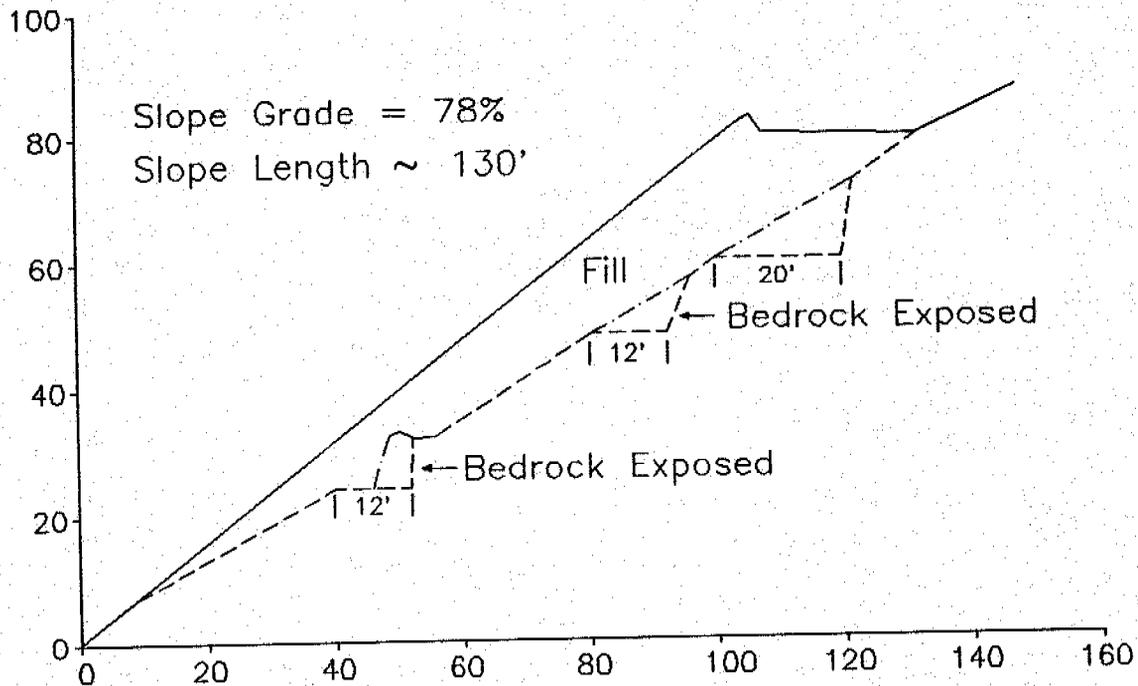


Constructed Slope _____
Fill Base _____

Scale: 1" = 20'

DRAFT

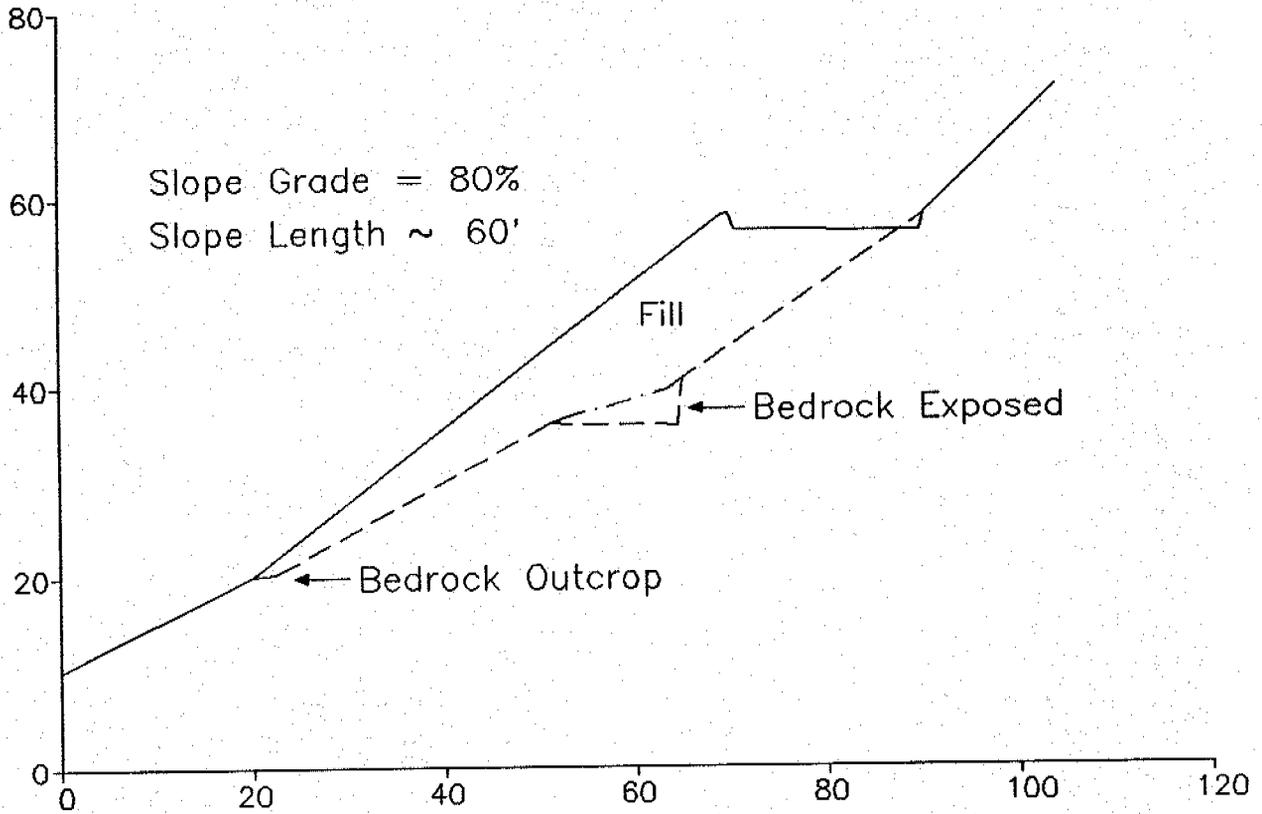
TSF-2



Constructed Slope _____
Base of Fill _____
Natural Slope _____
(where different from fill base)

Scale: 1" = 30'

TSF-3



Constructed Slope _____

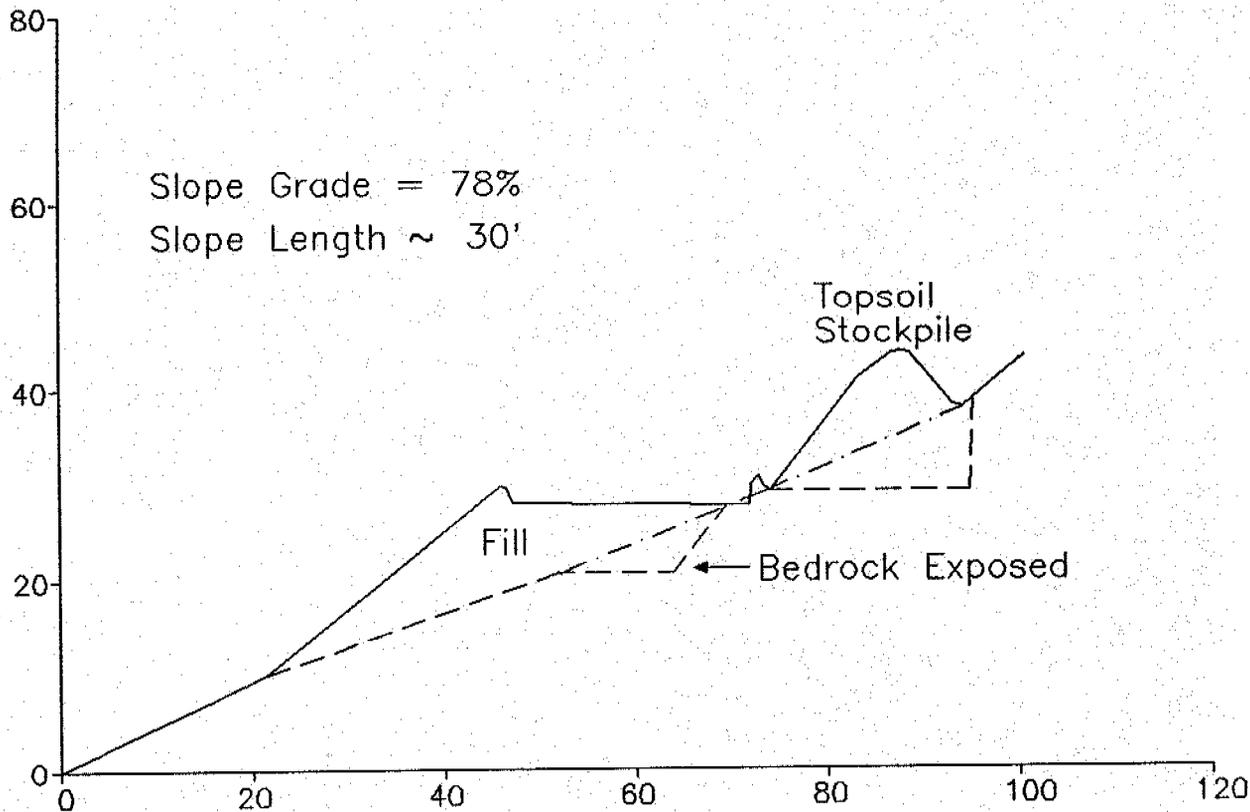
Fill Base _____

Natural Slope _____

(where different from fill base)

Scale: 1" = 20'

TSF-4



Constructed Slope _____

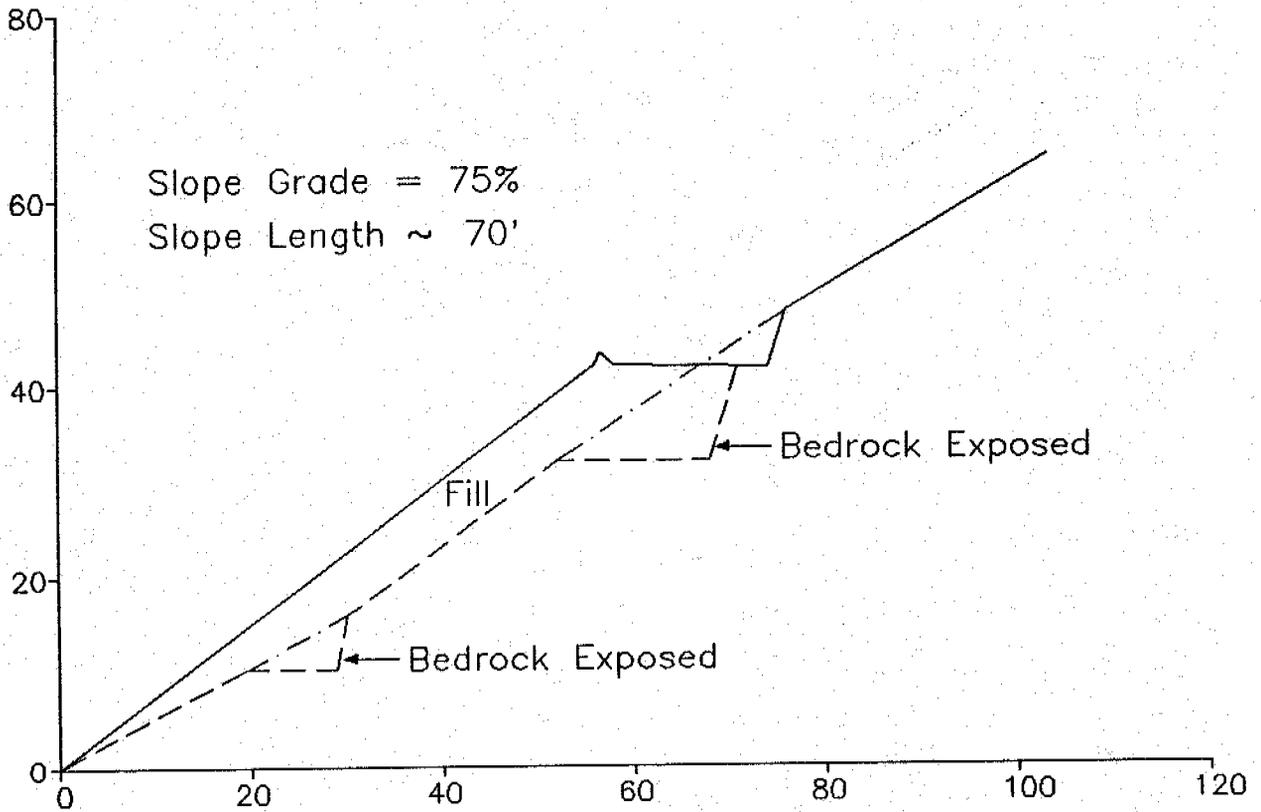
Fill Base _____

Natural Slope _____

(where different from fill base)

Scale: 1" = 20'

TSF-5



Constructed Slope _____

Fill Base _____

Natural Slope _____

(where different from fill base)

Scale: 1" = 20'

December 5, 1994

CO-OP Mining Company
P.O. Box 1245
Highway 31
Huntington Canyon
Huntington, Utah 84528

Attention: Mr. Charles Reynolds
Mining Engineer

Report
Geotechnical Consultation
Tank Seam Portal Access Road
Job No. 27437-001-162

INTRODUCTION

This report presents the results of stability analyses performed by Dames & Moore for Tank Seam Portal Access Road fill sections for CO-OP Mining Company.

PURPOSE & SCOPE OF STUDY

The purpose and scope of this study was defined in our proposal dated October 20, 1994. In accomplishing the work the following services were performed.

- 1) Analyzing laboratory tests to determine appropriate estimates of soil strength parameters to be utilized in the subsequent analyses.
- 2) Modeling five separate fill slope sections. "As built drawings of the slopes were supplied by CO-OP mine.
- 3) Compiling data into this document that summarizes laboratory tests data and analyses results.

LABORATORY DATA

The laboratory data used in our engineering analyses were obtained from mechanical grain size analyses, compaction tests, and consolidated drained direct shear tests. Initial results for sample TSF-3 seemed low, consequently a second sample, designated TSF-6, was collected and tested. Results of the two tests were averaged and used for modeling section 3. The test results are summarized in the following paragraphs.

MECHANICAL ANALYSES

To aid in classifying the soils mechanical sieve analyses were performed on bulk samples collected from fill that was to be placed at each fill section. Results of the gradation analyses are presented in Table 1.

Table 1
Mechanical Analyses Results

Sample Number	USCS Classification	Percent Gravel	Percent Sand	Percent Fines
TSF-1	SC-SM	23.9	43.9	32.2
TSF-2	SC-SM	25.4	35.0	39.6
TSF-3	SC-SM	25.2	27.8	47.0
TSF-4	CL-ML	17.4	23.2	59.4
TSF-5	CL-ML	17.6	19.2	63.2
TSF-6	SC-SM	26.7	30.1	43.2

COMPACTION TESTS

Compaction tests were performed on bulk samples collected from fill material that was to be placed at each fill section. Results of the gradation analyses are presented in Table 2.

Table 2
Compaction Test Results

Sample Number	USCS Classification	Optimum Moisture Content %	Maximum Dry Density PCF
TSF-1	SC-SM	10.3	124.4
TSF-2	SC-SM	7.9	131.7
TSF-3	SC-SM	6.3	139.7
TSF-4	CL-ML	9.2	128.9
TSF-5	CL-ML	9.6	132.4
TSF-6	SC-SM	7.8	136.6

DIRECT SHEAR TESTS

Direct Shear tests (consolidated drained) were performed on remolded bulk samples which were collected from fill that was to be placed at each of the fill sections. Samples were compacted to 95% of the maximum dry density as determined in the compaction tests. In accordance with ASTM 3080 the plus 3/8 material is removed prior to remolding. The plus 3/8 inch fraction of the samples ranged from 12.6 to 20.5 percent. Subjective interpretation was necessary for some tests due to scatter in the data points. The results are summarized in Table 3.

Table 3
Direct Shear Tests Results

Sample Number	USCS Classification	Friction Angle	Cohesion psf
TSF-1	SC-SM	38.7	168
TSF-2	SC-SM	28.0	290
TSF-3	SC-SM	36.6	0
TSF-4	CL-ML	40.6	15
TSF-5	CL-ML	28.2	510
TSF-6	SC-SM	36.5	162

SLOPE STABILITY ANALYSES

Analyses of the stability of the proposed fill sections were performed using a two-dimensional, limit equilibrium stability program called PCSTABL6. An automatic search routine was employed in each case to determine the failure surfaces with the lowest factors of safety. In all cases the fill was modeled assuming unsaturated conditions.

The geometry of each section was modeled based on the "as built" drawing provided by CO-OP. In each case 95% of the maximum dry density as determined by the compaction tests was input for the soil unit weight. Friction angles and cohesion were obtained from the direct shear test results. Bedrock strength properties were input to reflect significantly higher strength values than the fill material in order to determine the factors of safety of the fills.

STABILITY ANALYSES RESULTS

The results of our analyses show factors of safety in acceptable ranges. For sections 1 and 5, the minimum calculated safety factors were above 2.0. For section 2 the minimum calculated safety factor was 1.33. For section 3 the minimum calculated safety factor was 1.36. For section 4 the minimum calculated safety factor was 1.50.

It is our opinion that the fill slopes should generally perform satisfactorily. However, due to limited sampling and testing and potential variabilities in fill placement, we recommend periodic inspection of the fill slopes for any signs of distress, particularly at sections 2 and 3, and after periods of high precipitation or snowmelt.

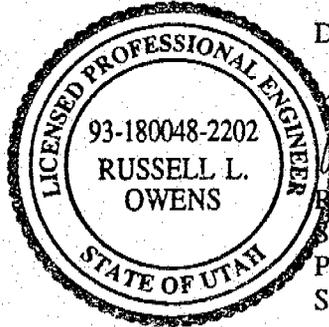
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The following Plates are attached and complete this report.

- Plate 1 - Fill Slope Cross Section TSF-1
- Plate 2 - Fill Slope Cross Section TSF-2
- Plate 3 - Fill Slope Cross Section TSF-3
- Plate 4 - Fill Slope Cross Section TSF-4
- Plate 5 - Fill Slope Cross Section TSF-5

Sincerely,

DAMES & MOORE, Inc.

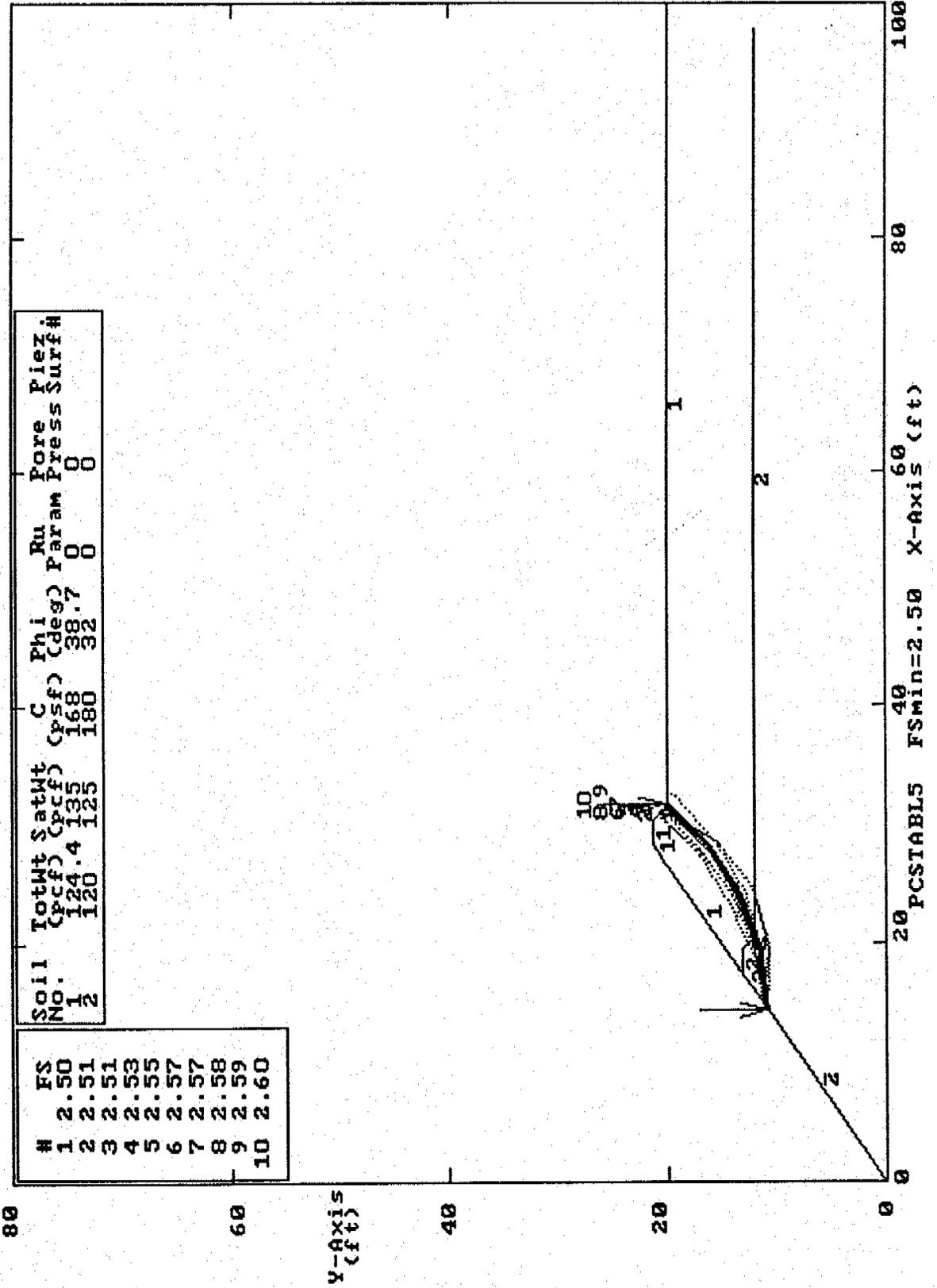


Russell L. Owens
Russell L. Owens, P.E.
Senior Geotechnical Engineer
Professional Engineer, N. 180048
State of Utah

Curtis J. Tanner
Curtis J. Tanner, P.E.
Staff Engineer
Professional Engineer No. 184573
State of Utah

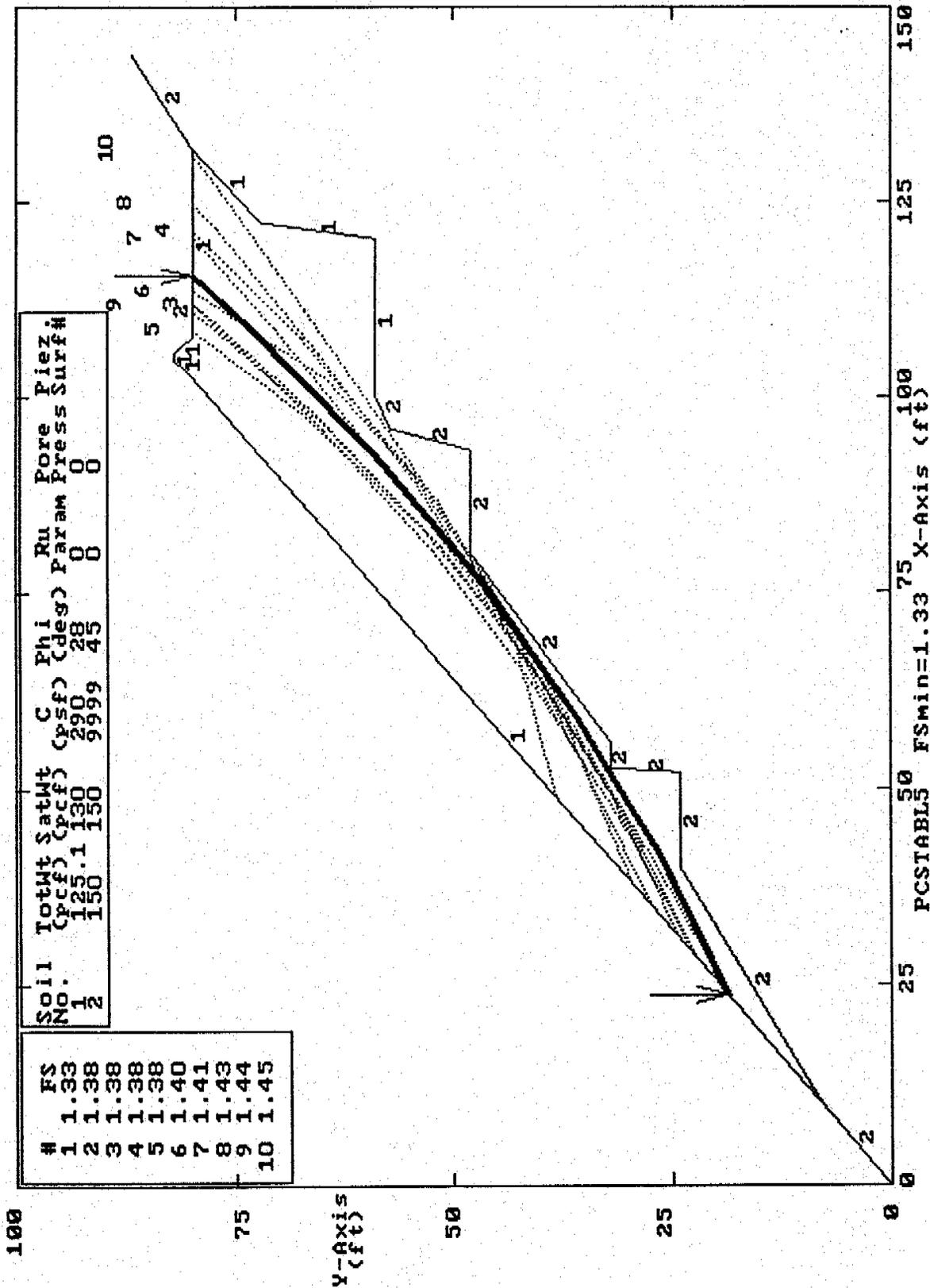
TSF-1

Ten Most Critical. CO-OP Mine Pad Section
 C:\COOP1.PLT By: CJI 11-23-94 2:50pm



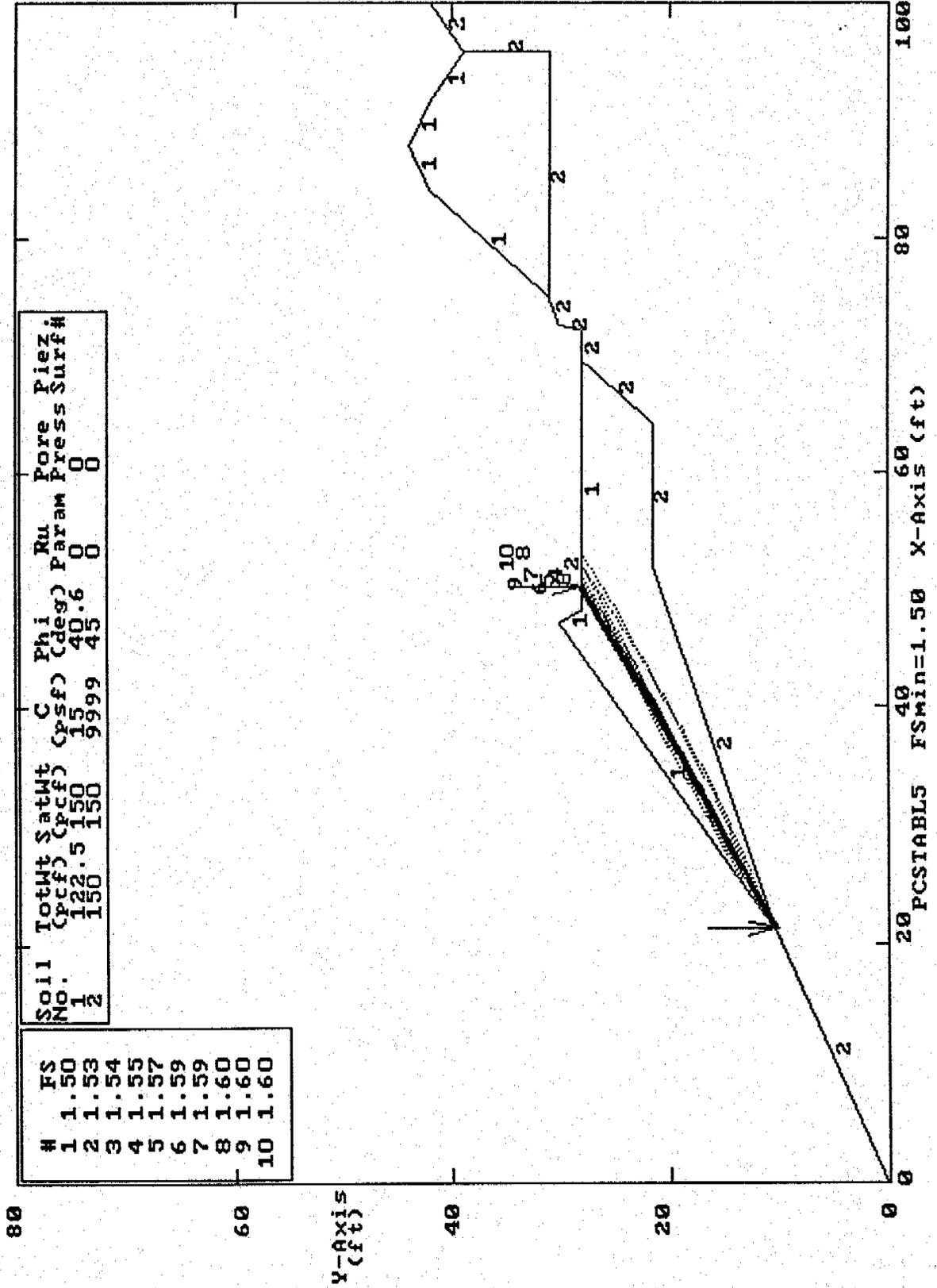
TSF-2

Ten Most Critical, CO-OP Mine Pad Section 11-23-94 2:57pm
 C:\COOP2.PLI By: CJT



TSF-4

Ten Most Critical. CO-OP Mine Pad Section By: CJT 11-23-94 3:19pm



#	FS
1	1.50
2	1.53
3	1.54
4	1.55
5	1.57
6	1.59
7	1.59
8	1.60
9	1.60
10	1.60

Soil No.	TotMt (pcf)	SatMt (pcf)	C (psf)	Phi (deg)	Ru Param	Piez Press	Piez Surf#
1	122.5	150	15	40.6	0	0	0
2	150	150	9999	45	0	0	0

TSF-5

Ten Most Critical. CO-OP Mine Pad Section 11-23-94 3:22pm
 C:COOPS.PLI By: CJT

