

ENVIRONMENTAL INDUSTRIAL SERVICES

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April 21, 2003

**To: Vicky Miller, Environmental Specialist
Canyon Fuel Company
Soldier Creek Mine
P.O. Box 1029
Wellington, Utah 84542**

File in:

Confidential

Shelf

Expandable

Refer to Record No. 0034

Date 06/13/2003

In C 00700372003

For additional information

**From: Daniel M. Larsen, Soil Scientist
EIS Environmental & Engineering Consulting
31 North Main Street
Helper, Utah 84526**

RE: Soil Salvage, Dugout Canyon Mine Refuse Site

During the period from March 5th through March 12th, 2003 I provided technical assistance for soil salvage at the Dugout Canyon Mine refuse site in response to your request. My participation in the project was coordinated with you and Kenneth Payne of Canyon Fuel Company, LLC.

The project site is located about six miles south of the Dugout Canyon Mine facilities site and consists of a previously disturbed area that was used as a gravel source (a gravel pit) for road construction. I had previously conducted a soil inventory and assessment of the site to determine the quality of soil resources and potential for topsoil recovery to aid in future reclamation of the site.

Soil salvage plans and objectives were discussed at the beginning of work on March 5th. Salvage included both subsoil and topsoil, with two separate stockpiles. The subsoil materials were typically high in gravel content and low in organic matter. Some fine textured material was also included where subsoil was removed down to weathered shale that underlies the gravelly material. Topsoil included soils with a higher organic matter content and less sand, gravel, or clay. The topsoil was mostly the soil material overlying the gravel deposits that had been pushed aside during the development of the gravel pit. Much of the topsoil had a high content of woody debris from on-site vegetation.

Most of the topsoil came from the "G" and "F" soil units noted on the soils map, with lesser amounts from soil units "E" and "D". Subsoil material was salvaged from soil units "A", "B", "C", and "M".

The work was conducted by Nielson Construction Company using two scrapers, a dozer, and a grader. The scraper capacity was about 30 cubic yards per load. An estimate of about 9,000 cubic yards of topsoil and 5,000 cubic yards of subsoil was recovered. Measurements of the piles are needed to accurately quantify these volumes.

**Dugout Canyon Mine Refuse Site
Soil Salvage Photographs
March 5-12, 2003**

1. Sign at site location.
2. Equipment used for soil salvage. Removing topsoil in soil unit "G".
3. Salvaging topsoil in soil unit "G" showing equipment and topsoil materials.
4. Excessively woody materials encountered in soil unit "G". About 6 to 8 feet of soil had been removed from this site. It is located at the upper end of the drainage ditch leading to the sediment pond.
5. Materials encountered in soil unit "E". Up to about 12 inches is all that was recovered when very mixed and stony material was encountered.
6. Materials encountered in soil unit "E". Less than 12 inches of topsoil was removed.
7. Removing topsoil material from soil unit "F" and dumping a scraper load of soil in the topsoil pile.
8. Topsoil materials in soil unit "F".
9. The topsoil pile on March 7, 2003.
10. The topsoil pile on March 11, 2003.
11. The refuse disposal site after soil salvage and surface shaping. View looking north.
12. A view looking northwest from the south edge of the coal waste disposal site. The topsoil pile is on the left behind the white vehicle and the subsoil pile is just right of the scrapers near the right edge of the photograph.
13. A photograph taken on April 8, 2003 showing the topsoil pile with a roughened, pitted surface and a berm around the pile.



CANYON FUEL COMPANY, LLC
DUGOUT CANYON MINE

6955 South Union Park Center, Suite 540
Midvale, Utah 84047

Tel. No. 801-569-4700

MSHA REFUSE PILE 1211-UT-09-01890-01

MSHA DUGOUT CANYON NO. 42-01/90

ACT/007/039

03/06/03

1



03/06/03

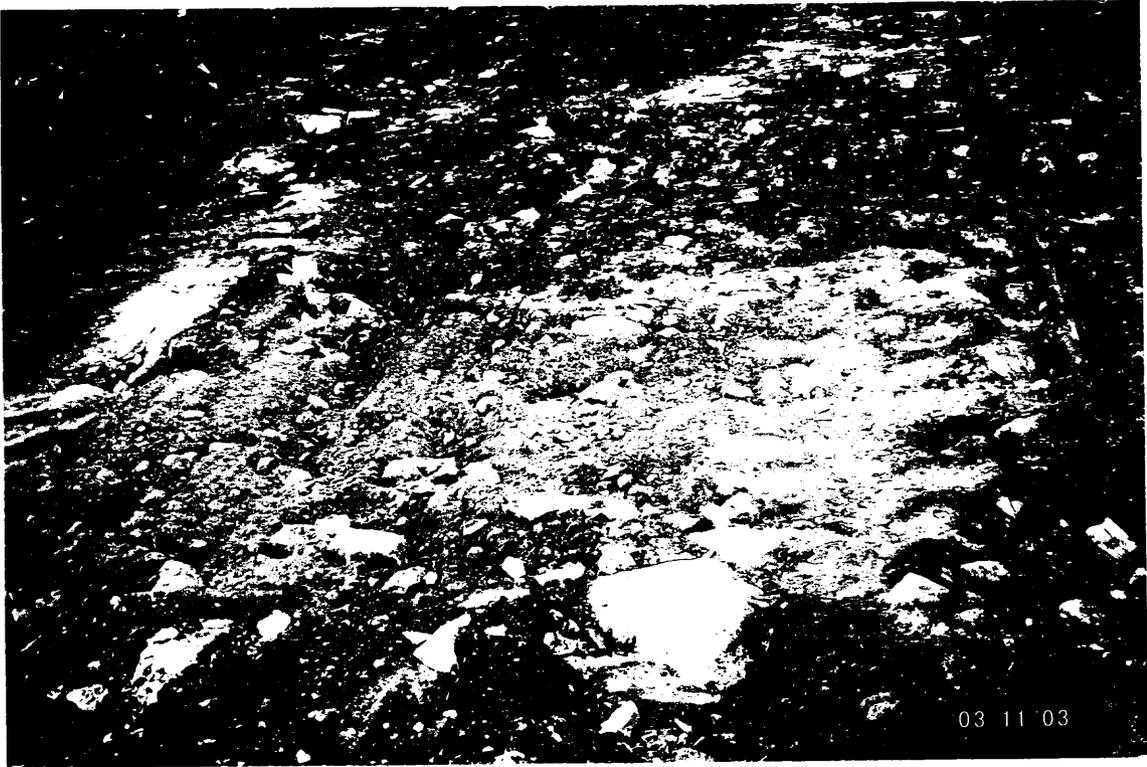
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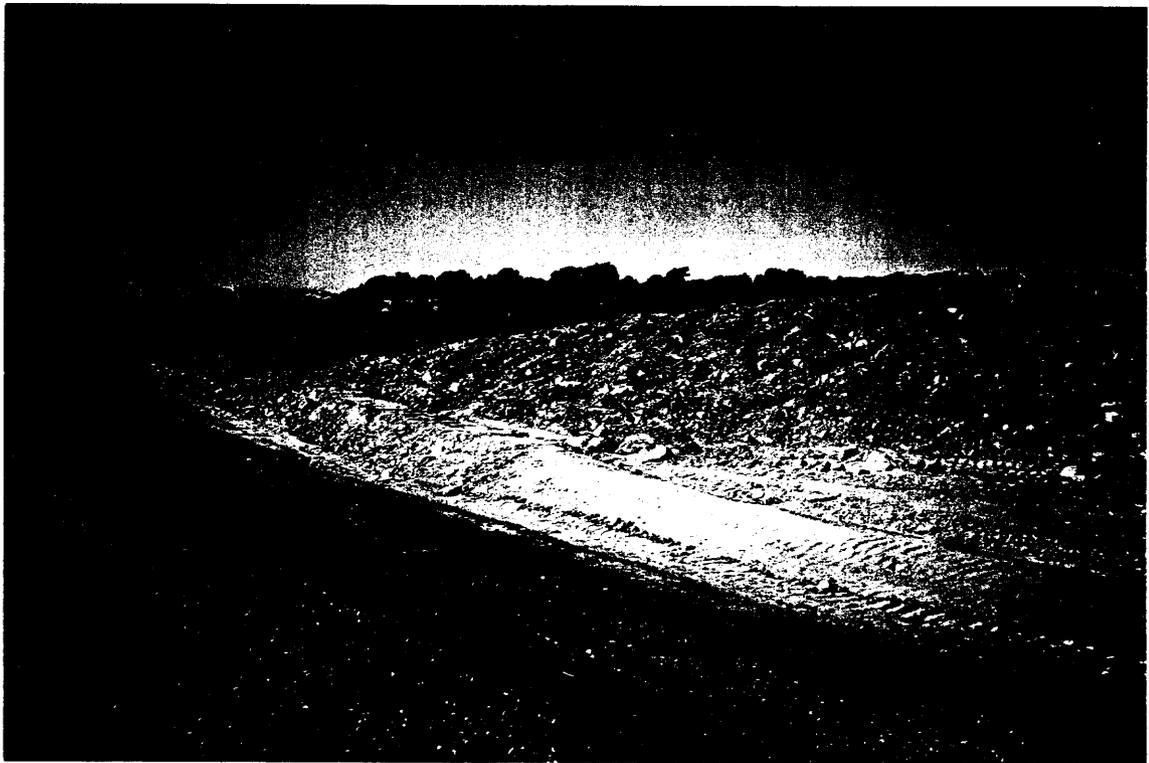
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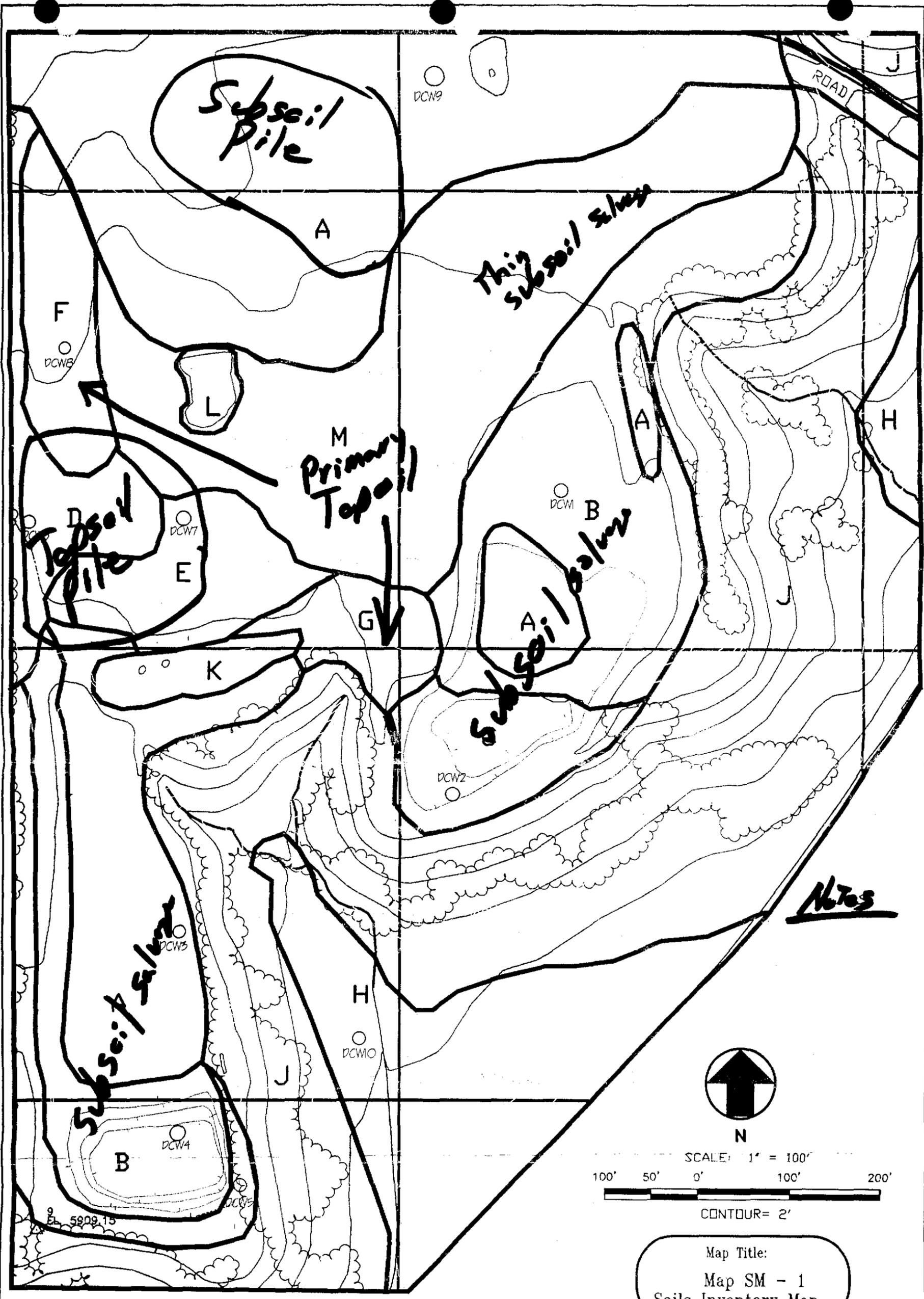
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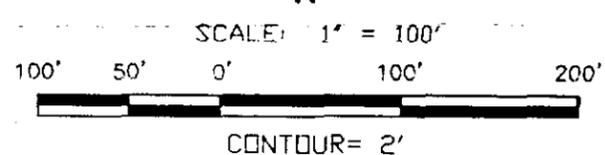
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13



Notes



Map Title:
Map SM - 1
Soils Inventory Map

Additional Map Information:
Materials for this map to be available upon request and can be obtained through E.I.S. This map has been formatted using State Plane Coordinates with units of feet. Draft site information provided by Jay Marshall, Utah Regional Engineer. Approval of accuracy cannot be guaranteed.

Legend
See LEGEND PLATE

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CLIENT: Canuch Fuel Company
Dugout Canuch Waste Rock Site

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ACAD REF:
LONDON, Texas 75840

DATE: DEC. 14, 1999

SCALE: AS SHOWN

DESIGNED BY:
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Soil Resources and Soil Salvage
Dugout Canyon Mine
Refuse Site Spillway

For: Canyon Fuel., LLC
P.O. Box 1029
Wellington, UT 84542



By: Daniel M. Larsen
Soil Scientist
Environmental Industrial Services
31 North Main Street
Helper, UT 84526

4/11/03

Soil Resources and Soil Salvage Dugout Canyon Mine Refuse Site Spillway

Introduction

This report is to provide documentation of information on the soil resources and soil salvage activities at the spillway site below the sediment pond at the Dugout Canyon Mine Refuse (coal waste) pit in Carbon County, Utah. The project is an extension at the south end of the area included in the "Soil Resources Inventory and Assessment, Dugout Canyon Mine Coal Waste Rock Site, Carbon County, Utah", December, 1999. Soil Inventory and sampling was conducted on February 18th; and soil salvage was conducted on April 7, 8, and 9, 2003. The spillway is about 220 feet in length and 15 feet wide.

Soil Resources

Soils were inspected by use of a spade and hand auger at various spots at the spillway location. Three soil descriptions were taken and identified as DCW-11, DCW-12, and DCW-13. The soils are compatible with soil units "J" and "H" as identified on the soil map for Dugout Canyon Mine, RA Plate 2-1, revised 01/07/03. The map must be revised to show the "H" soil unit in the south corner of the map, which involves about one-half of the spillway alignment.

The soils correlate with the slope character and vegetation. The upper portion (soil unit "J") has slopes of 15 - 30 percent and supports Utah juniper. The surface is cobbly to stoney. Soil textures are sandy loam to loam to a depth of about 6 - 24 inches at which depth weathered shale is present. Soil description DCW-12 and DCW-13 were recorded along this portion of the slope. The surface 6 to 10 inches is considered suitable topsoil. Subsoils consist of materials high in carbonates and rock fragments or weathered shale.

At the lower portion of the spillway the soils are formed from more recent alluvium derived from sandstone and shale. Slopes are about 5 percent and the vegetation consists of greasewood, saltbrush and prickly pear cactus. The surface soils are relatively low in rock fragments and have a sandy loam texture. At about 16 to 20 inches the soils are higher in carbonates and rock fragments. These subsoils are hard and light colored. Soil description DCW-11 was taken about 15 feet up slope from the drainage at the end of the spillway.

Soil Sampling and Testing

Soil samples were taken from representative soil layers and placed in one gallon size plastic bags. Four samples were selected and submitted to Inter-Mountain Laboratories, Sheridan, Wyoming for analysis of parameters recommended by the Utah State Division of Oil, Gas, and Mining. These included:

- DCW-11, 0-8 inches, in soil unit "H"
- DCW-11, 10-20 inches, in soil unit "H"
- DCW-12, 0-5 inches, in soil unit "J"
- DCW-13, 0-8 inches, in soil unit "J"

The soil test results did not reveal any unsuitable features or qualities in the material

tested. The soil analysis report provided by Inter-Mountain Laboratories and the suitability guidelines may be referred to for details. In general the surface soils rated good for reclamation soil materials. Subsoils not tested were noted as having high carbonates, rock fragments, or weathered shale.

Soil Salvage

Soil salvage was conducted by Nielson Construction Company utilizing a trackhoe excavator and a dump truck beginning on April 7, and ending on April 9, 2003.

The site was initially cleared of juniper trees and stones to access the lower portion of the spillway location by the equipment. Excavation of soils began at the lower end of the spillway at the natural drainage and proceeded up slope. In soil unit "H" about 16 - 20 inches of soil was salvaged as topsoil. Subsoil was identified by its lighter color, hardness, and higher gravel content. Total depth of excavation was about 3 - 4 feet. On soil unit "J" on the upper half of the spillway, the topsoil ranged from about 6 - 12 inches in thickness. This included the brown and very dark brown soil that was underlain by subsoil identified by high carbonates, shaley structure, or very stony material. Weathered shale was encountered within 20 inches over most of this slope.

At the completion of topsoil salvage about 15 truck loads of topsoil had been recovered with an estimated volume of about 125 - 150 cubic yards. Subsoil salvage had not been completed at the time that I left the project on April 9th, but up to that time it appeared that 15 loads of subsoil had been recovered. Soils were hauled to the designated topsoil and subsoil piles in the northwest portion of the refuse site project area.

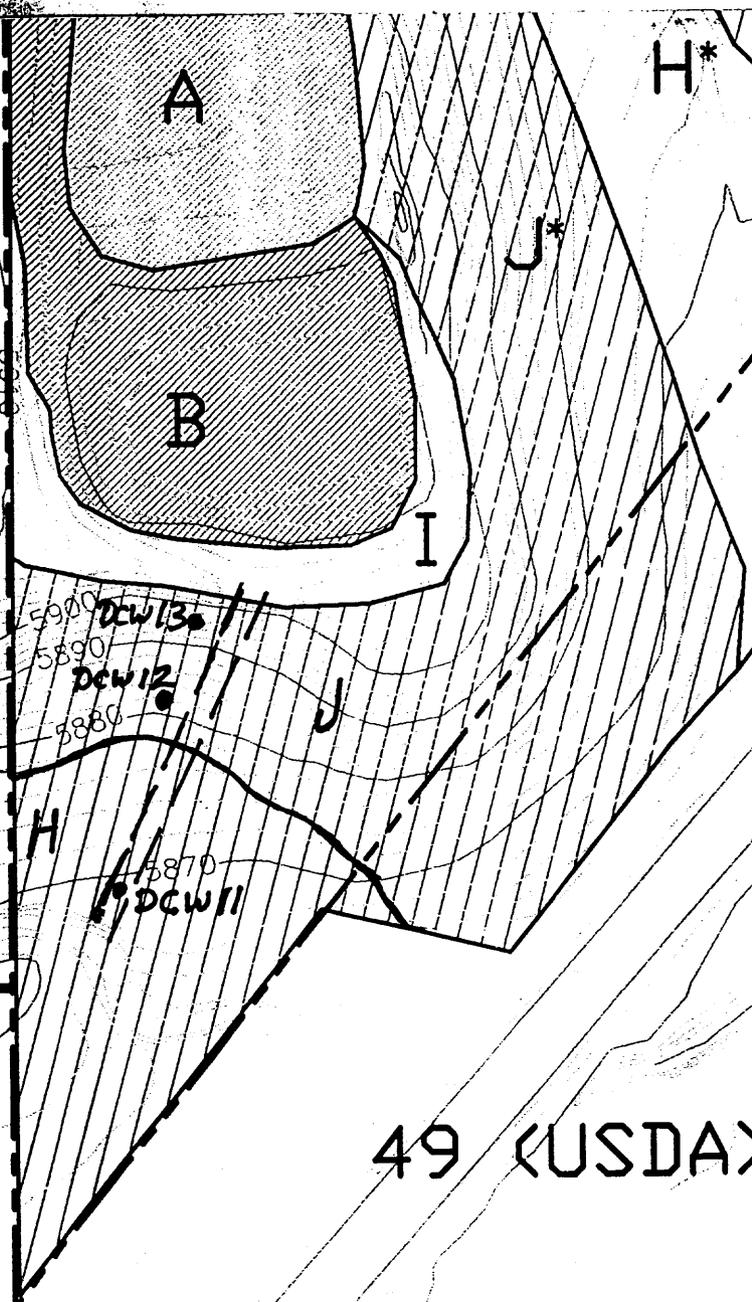
Daniel M. Larsen
Soil Scientist
EIS

Canyon Fuel Company., LLC
Dugout Canyon Mine
Refuse Site - Spillway

Soils Map

66 (USDA)

49 (USDA)



A

B

I

J

H

H*

J*

DCW13

DCW12

DCW11

5900

5890

5880

5870

5880

5860

Canyon Fuel Company., LLC
Dugout Canyon Mine
Refuse Site - Spillway

Soil Analysis Report



Canyon Fuel Company, LLC
Soldier/Dugout Canyon Mines
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FACSIMILE TRANSMITTAL

DATE: 3/28/03 No. Of Pages (Including Cover Sheet) 4

TO: DAN LARSEN

COMPANY: EIS

FROM: Vicky Miller

REMARKS: WASTE ROCK SITE
LAB DATA SHEETS

Note: Soil area notations have been revised
(corrected) from original data sheets. *DMJ*
"H" & "J"

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Report ID: 010302030

1633 Terra Avenue
Sheridan, WY 82801

Soil Analysis Report

Canyon Fuel Co

Dugout Mine

P.O. Box 1029

Wellington, UT 84542

Client Project ID: Topsoil

Date Received: 02/24/03

Set #0103S02030

Report Date: 03/26/03

Lab Id	Sample Id	Depths (Inches)	TOC %	Total Sulfur %	T.S. AB t/1000t	Neutral. Pot. t/1000t	T.S. ABP t/1000t	CO3 %	Organic Matter %
0103S02030	DCW-11 Area "X" H	0 - 8	0.1	0.02	0.62	116	115	11.5	1.4
0103S02031	DCW-11 Area "X" H	10 - 20	<0.1	0.01	0.31	131	131	11.9	0.8
0103S02032	DCW-12 Area "J"	0 - 5	<0.1	0.11	3.44	140	136	12.1	1.9
0103S02033	DCW-13 Area "M" J	0 - 8	0.6	0.02	0.62	151	150	15.1	2.5

These results only apply to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neut. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed By: _____

Joey Sheeley, Soils Lab Supervisor

Report ID: 010302030

1633 Terra Avenue
Sheridan, WY 82801

Soil Analysis Report

Canyon Fuel Co

Dugout Mine

P.O. Box 1029

Wellington, UT 84542

Page 3 of 3

Client Project ID: Topsoil

Date Received: 02/24/03

Set #0103S02030

Report Date: 03/26/03

Lab Id	Sample Id	Depths (Inches)	Nitrogen		TKN %	Phosphorus ppm	Selenium ppm
			Boron ppm	Nitrate ppm			
0103S02030	DCW-11 Area "X" H	0 - 8	0.26	1.24	0.24	4.99	<0.02
0103S02031	DCW-11 Area "X" H	10 - 20	0.31	0.52	0.13	1.20	<0.02
0103S02032	DCW-12 Area "J"	0 - 5	0.21	1.32	0.09	2.04	<0.02
0103S02033	DCW-13 Area "X" J	0 - 8	0.23	1.56	0.12	3.26	<0.02

These results only apply to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neut. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed By: _____

Joey Sheeley, Soils Lab Supervisor

****Soil Suitability for Topsoil Evaluation**

Parameters	Good	Fair	Poor	Unacceptable
pH	6.1 - 8.2	5.1 - 6.1 8.2 - 8.4	4.5 - 5.0 8.5 - 9.0	less than 4.5 greater than 9.0
EC mmhos/cm 25° C	0 - 2	2 - 8	8 - 15	greater than 15
Saturation %	25% - 80%		less than 25% greater than 80%	
Texture	sl, l, sil, scl, vfsl, fsl	cl, sicl, sc, ls, lfs	sic, s, sc, c, cos, fs, vfs	g, vcoss
SAR	0 - 5	5 - 10	10 - 12 fine texture 10 - 15 coarse texture	>12 fine texture >15 coarse texture
Selenium	less than 0.1 mg/kg			greater than 0.1 mg/kg
Boron	less than 5.0 mg/kg			greater than 5.0 mg/kg
Acid/Base Potential	greater than -5 tons CaCo ₃ 1,000 tons material			less than -5 tons CaCo ₃ 1,000 tons material
% Coal Fine (Total Organic Carbon)	<10%			>10%
Available water capacity (in/in)	Greater than 0.10	0.05 - 0.10	less than 0.05	
Rock Fragments (% volumes)				
3 inches	0 - 15	15 - 25	25 - 30	greater than 30
3-10 inches	0 - 15	15 - 25	25 - 30	greater than 30
10 inches	0 - 3	3 - 7	7 - 10	greater than 10
Carbonates %	<15	15 - 30	>30	
Erodibility K-factor	<0.37		>0.37	

02/25/02

**Revised table prepared by D. Larsen, EIS, based on Utah State Division of Oil, Gas and Mining Guidelines. Tentative guidelines, pending UDOGM revised soil management guidelines.

Canyon Fuel Company., LLC
Dugout Canyon Mine
Refuse Site - Spillway

Soil Description Forms

Soil type *Map Unit H*

File No. *DCW-11*

Area <i>Dipout Canyon Mine - Refuse Site Spillway</i>		Date <i>D. Larsen 2-18-03</i>	Stop No. <i>1</i>
Classification <i>Hernandez Family</i>			
Location <i>About 15 feet from the drainage which the spillway will go into Sec 18, T14S, R12E</i>			
N. veg. (or crop) <i>Greasewood, prickly pear cactus, salt bush, fuzzy spurge etc.</i>		Climate <i>USDA / Mesic near aridic</i>	
Parent material <i>Alluvium</i>			
Physiography <i>Alluvial valley fill, slight fan</i>			
Relief <i>Gentle slope, single</i>	Drainage <i>Well drained</i>	Salt or alkali <i>SAR ≈ 1.0</i>	
Elevation <i>5870</i>	Gr. water	Stoniness <i>nonstony</i>	
Slope <i>5%</i>	Moisture		
Aspect <i>S</i>	Root distrib. <i>Roots present to about 40"</i>	% Clay* <i>18</i>	
Erosion <i>slight</i>	% Coarse fragments*	% Coarser than V.F.S.*	
Permeability <i>Moderate</i>			

Additional notes

Subsoils and underlying materials are clayey (shale) or gravelly & cobbly shale observed in drainage at about 3 feet just above spillway location (in depth) 3-20'

*Very high in carbonates below 20 inches
No gravel in subsoil varies from about 20 to 40%*

Samples DCW-11, 0-8" sent to lab.

DCW-11, 10-20"

* Control section average

Horizon	Depth	Color		Texture	Structure	Consistence			Reaction	Boundary	% Rock Fragments	Root Distribution	
		Dry	Moist			Dry	Moist	Wet					
<i>A</i>	<i>0-8</i>	<i>10YR 5/3 Brown</i>	<i>10YR 3 1/4 - 4/4 Dark yellowish brown</i>	<i>sandy loam</i>	<i>wfgr</i>	<i>SO</i>	<i>FA</i>	<i>SS SP</i>	<i>em 7.5</i>	<i>gs</i>	<i>10%</i>	<i>LF-VF-m</i>	<i>(Common very fine med.)</i>
<i>Bw</i>	<i>8-20</i>	<i>10YR 6/3 Pale brown</i>	<i>10YR 4 1/4 - 5/4 Dark yellowish br-yellowish brown</i>	<i>Sandy loam</i>	<i>wfsix</i>	<i>SO-SH</i>	<i>FA</i>	<i>SS SP</i>	<i>es 4.6</i>	<i>cw</i>	<i>10%</i>	<i>CF</i>	
<i>BK1</i>	<i>20-30</i>	<i>10YR 7/3 very pale brown</i>	<i>10YR 5/4 yellowish brown</i>	<i>Gravelly sandy loam</i>	<i>-</i>	<i>H</i>	<i>VF1</i>	<i>SS SP</i>	<i>ev 7.6</i>	<i>gw</i>	<i>25% 100%</i>	<i>FF</i>	<i>(few fine)</i>
<i>BK2</i>	<i>30-40</i>	<i>10YR 8/2 Very pale brown</i>	<i>2.5Y 5/2 grayish brown</i>	<i>Very gravelly loam</i>	<i>OM</i>	<i>H some VH</i>	<i>VF1</i>		<i>ev 7.6</i>		<i>30% 5%</i>	<i>1-F</i>	
													<i>9% gravel co = cobbles</i>

Carbon Co., Utah
Soil type *Mag Unit d*

File No. DCW-12

Area	<i>Dipout Canyon Mine - Refuse Site Spillway</i>		Date	<i>D. Larsen 2-18-03</i>	Stop No.	<i>2</i>
Classification	<i>Gerst</i>		<i>Sec. 18, T14S, R12E</i>			
Location	<i>About midway on spillway location near the toe of the slope; edge of benches</i>					
N. veg. (or crop)	<i>Utah juniper</i>			Climate	<i>UStic/Aridic</i>	
Parent material	<i>Coarse alluvium mostly from sandstone over shale</i>					<i>Mesic</i>
Physiography	<i>Toeslope of a pediment (alluvial bench)</i>					
Relief	<i>mod. sloping, ^{slightly} concave</i>	Drainage	<i>well drained</i>		Salt or alkali	<i>SAA < 1</i>
Elevation	<i>5882</i>	Gr. water	<i>-</i>		Stoniness	<i>very cobbly</i>
Slope	<i>15-20%</i>	Moisture				
Aspect	<i>South</i>	Root distrib.	<i>Mostly in upper 8"</i>		% Clay*	<i>16%</i>
Erosion	<i>slight to moderate</i>	% Coarse fragments*	<i>20%</i>		% Coarser than V.F.S.*	
Permeability	<i>Mod/slow</i>					
Additional notes						

	GROUND COVER (%)	RANGE	AVERAGE
<i>Old alluvium from a pediment surface over Mancos shale</i>	Gravel 2MM-3"		<i>20</i>
	Cobble 3-10"		<i>35</i>
	Stone 10-24"		<i>-</i>
	Boulder >24"		<i>-</i>
	Vegetation		<i>10</i>
	Litter		<i>20</i>
	Bare		<i>15</i>

*Thin topsoil
Cobbly surface*

Some of the shale in this area is high in very fine sand -

Sample DCW12, 0-5" sent to lab.

* Control section average

Horizon	Depth	Color		Texture	Structure	Consistence			Reaction	Boundary	% Rock Fragments	Root Distribution
		Dry	Moist			Dry	Moist	Wet				
<i>A</i>	<i>0-5</i>	<i>Brown 10YA 5/3</i>	<i>Dark brown - Dark yellowish br. 10YA 3/4 - 3/3</i>	<i>Sandy loam</i>	<i>wfgr</i>	<i>so</i>	<i>Fr</i>	<i>SS/SP</i>	<i>es 7.6</i>	<i>cw</i>	<i>10% 10%</i>	<i>cfm</i>
<i>BC</i>	<i>5-8</i>	<i>Light brownish gray 10YA 6/2</i>	<i>Dark grayish brown 10YA 4/2</i>	<i>Sandy clay loam</i>	<i>wtstk</i>	<i>SH- S</i>	<i>Fi</i>	<i>S/P</i>	<i>7.6</i>	<i>cw</i>	<i>25% shale fragments</i>	<i>cfm</i>
<i>CH</i>	<i>8-12"</i>	<i>weathered gray shale with streaks of carbonates</i>										
				<i>clay loam</i>		<i>SH</i>	<i>Fi</i>					<i>ff</i>

Soil type *Map Unit J*

File No. *DCW-13*

Area *Dugout Canyon Mine, Refuse Site Spillway* Date *D. Larsen 2-18-03* Stop No. *3*
 Classification *Stych like - moderately deep*
 Location *About 15 feet below upper edge of sediment pond site* *Sec 18, T14S, R12E*
 N. veg. (or crop) *Utah juniper* Climate *Ustic / Mesic*
 Parent material *Coarse alluvium over Mancos shale* *Near aridic*
 Physiography *Edge of a pediment*
 Relief *Steep* Drainage *Well drained* Salt or alkali *SAR < 1*
 Elevation *5896* Gr. water *-* Stoniness *Very stony*
 Slope *25-30%* Moisture *Moist*
 Aspect *South* Root distrib. *Mostly in upper 8"* % Clay * *20%*
 Erosion *Slight* % Coarse fragments * *50%* % Coarser than V.F.S. *
 Permeability *Moderate*

Additional notes *Very stony surface*
Shale estimated to be between near 24"
Pit location was about 20 feet west of final
spillway location - Actual location had less stones at surface
Upper 8" composited and sent to lab
for testing DCW-13, 0-8"

GROUND COVER (%)	RANGE	AVERAGE
Gravel 2MM-3"		10
Cobble 3-10"		20
Stone 10-24"		20
Boulder >24"		5
Vegetation		10
Litter		25
Bare		10

* Control section average

Horizon	Depth	Color		Texture	Structure	Consistence			Reaction	Boundary	% Rock Fragments	Root Distribution
		Dry	Moist			Dry	Moist	Wet				
A	0-4	Brown 10YR 5/3	Very dark grayish brown-dk brown 10YA 3/2-3/3	SL	WFGA	SO	FA	SS/SP	7.5	CW	10g 15c 20s	CF-m
B _W BK1	4-8	Pale brown 10YA 6/3	Dark yellowish brown 10YA 4/4	SCL	WFSGA	SH	FA	S/P	7.6	gW	10g 15c 20s	CF-m
BK2	8-18	Pale brown - v. pale brown 10YA 6/3 - 7/3	Yellowish brown - dark yellowish br 10YA 5/4 - 4/4	SCL	MFSGA	SH	FI	S/P	7.6	gW	10g 15c 30s	FF-m
BK3	18-22	Slightly lighter due to more carbonates Some shale fragments		SCL	MFSGA	H	FI	S/P	7.6		10g 15c 35s	FF

Canyon Fuel Company., LLC
Dugout Canyon Mine
Refuse Site - Spillway

Soil Resource and Soil Salvage Photographs

**Soil Resource and Soil Salvage Photographs for the Dugout Canyon Mine
Refuse Site Spillway Project - April 2003**

1. The spillway site from the natural drainage at the south end and looking up slope. The spade is at the location of soil description DCW-11 in soil unit "H".
2. The soil profile exposed by the trackhoe at the location of soil description DCW-11. About 18-20 inches of topsoil material overlies a hard subsoil that is high in carbonates and is more gravelly than the surface material.
3. A view from the top of the slope looking down along the spillway location.
4. Soil profile DCW-12, taken at the top of the slope in soil unit "J" to the right of the juniper stump.
5. Soil profile DCW-12 taken about 20 feet west of the spillway location at the upper part of the slope in soil unit "J".
6. Soil pit and site condition at soil description DCW-13 location.
7. The edge of the sediment pond showing the initial cut made for the spillway.
8. The trackhoe clearing surface rock and trees at the upper part of the spillway. 04/07/03
9. Beginning soil salvage at the lower end of the spillway in soil unit "H" near the natural drainage. Soil unit "J" is on the slope with the junipers. 04/07/03
10. View of the spillway after topsoil was salvaged. Subsoil had been removed at the lower end but not on the upper portion. 04/09/03
11. A cut along the upper portion of the slope showing shallow depth to weathered shale. About 10 - 12 inches of topsoil was recovered.
12. The upper portion of the spillway showing where photo 11 was taken. Soils are cobbly over shale.
13. Topsoil from the spillway was placed at the north end of the refuse site topsoil pile.
14. Subsoil from the spillway was placed along the west side of the refuse site subsoil pile.



- 1 -



- 2 -



- 3 -



- 4 -



- 5 -



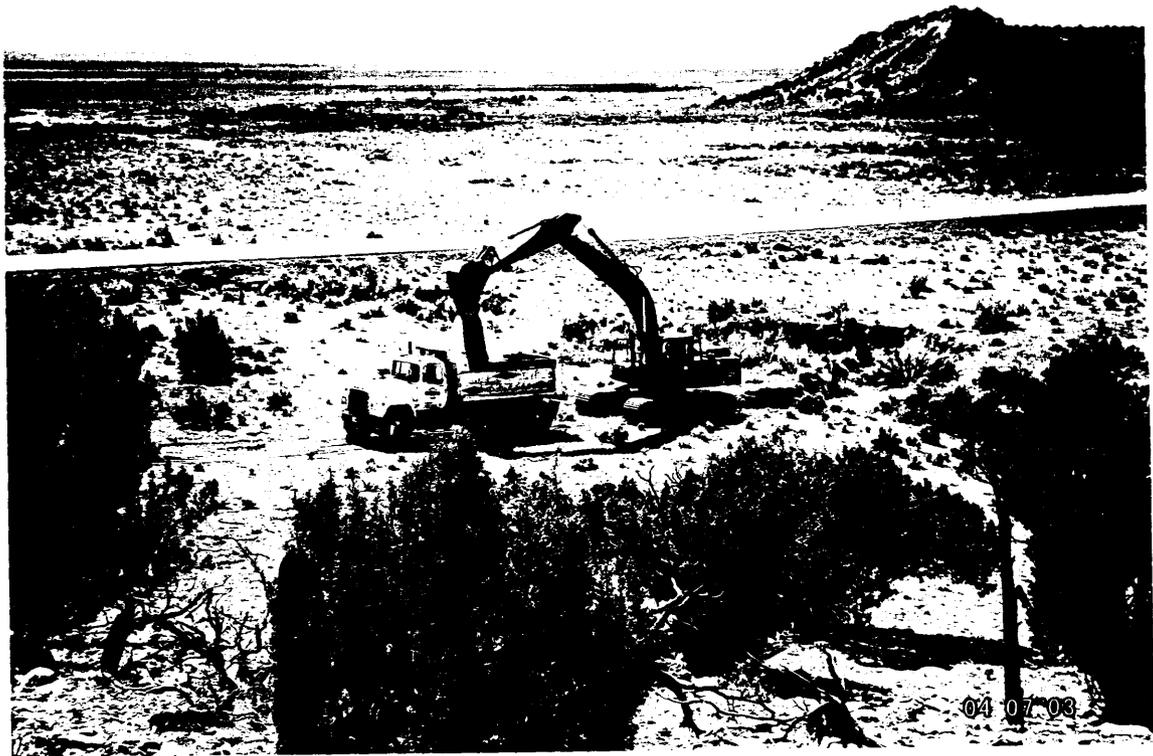
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- 10 -



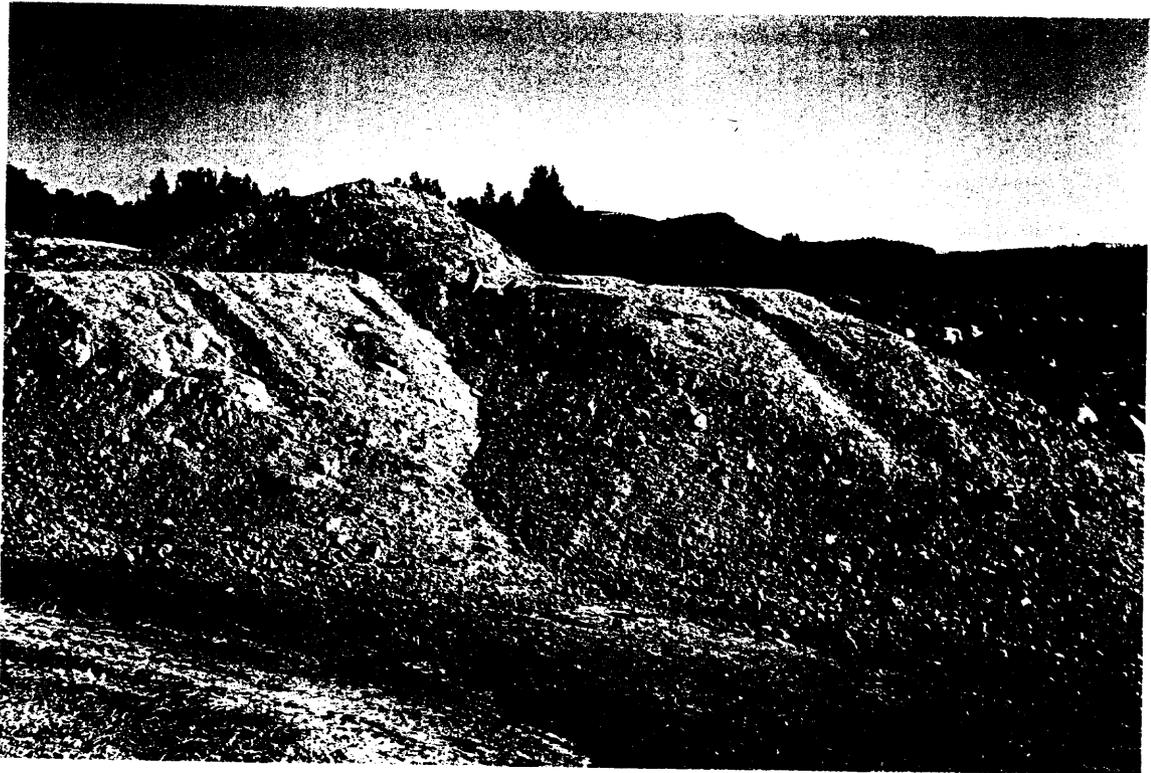
- 11 -



- 12 -



-13-



-14-

SOIL SALVAGE FIELD NOTES

4/7/03 Spillway
245 mi cleared ~~no more~~

LV office @ 7:30

Met at site with Ken Payne CFC

Parke Killpack + Steve ? Oldroyd
Nelson Casanova

Cut about 4' at drainage
~ 2' up slope ~ 12' wide

talk to Steve (trail has quite a sand subsoil)

- take down the shale or hard, which covers subsoil
- some high carbonate subsoil will be mixed with better "topsoil"

this soil has root in it and is not worth trying to separate or subsoil

~ 9:00 Steve dug out highway at spillway + cleared spillway location of large rocks + tree (Virus)

dug out tree with track for excavator

now waiting for truck to load topsoil

- Used Trackhoe excavator to dig spillway + load

- Haul to existing topsoil piles + subsoil as encountered

11:00 Dump truck arrived

Hauled 4 loads up to new (Lunch break)

1:00 Vicky stopped by - checked on progress of topsoil pile

1:05 Truck dumping

2:15 Raining subsoil down in H-unit

... .. P. 1 ... T. 0

4/7/03

3:40 -

Talk to Steve, Rick, & Ken

Truck broke down

removing subsoil of lower end

leave for the day

Topsoil 8' load
subsoil

4/8/03 Leave work at 7:45

Drop off Al in at Wal-Mart

8:30 Putting rock in lower part of spillway - south end

Want to maintain upper "road way" integrity + do some work below

9:30 Hauled a load of subsoil

Looks like 8 loads of topsoil have been dumped

9:45 another load of subsoil

color, & textures

L @ 11:00

Home 1:35 Talk with Vicki, Miller - project

Working on subsoil L @ 3:00

to office @ 3:30

subsoil
11

4/9

L @ 7:45

Working on subsoil then up slope for topsoil

finished topsoil at 11:00

more subsoil get to salvage

L @ 11:00

220' x ~15'

~18" to 20" on lower 100'

~8-10" on upper 100'

~15 loads of topsoil

+ 15 of subsoil