Table of Contents

VOLUME A-2

Table of Contents

VOLUME A-2

Revised 09/19/03

fiber matting will be used since all slopes are expected to be either flat or less than 1.5h:1v. Revegetation success will be evaluated. All ditches and retaining walls will be maintained until the vegetation success standards of R614-301-356 are met. No reclamation is planned for the access roadway at the request of the property owner's representative.

4.7.8 South Fork Breakout

After the area has had the soils redistributed, as outlined in Section 4.6.5, the site will be revegetated. The aspen site will use the seed mixture shown on Table 4.7-4 while the spruce-fir site will use the mixture shown on Table 4.7-5. Though Melilotus officinalis (yellow sweet clover)is listed on the Tables 4.7-4 and 4.7-5, it will not be included in the seed mixes used at the South Fork Portals. Following the distribution of topsoil, the area will be evenly covered with certified weed-free straw mulch at an application rate of 2,000 pounds per acre. The soil with the straw cover will then be deep gouged. The straw will be incorporated in the soil during the deep gouging activities. The appropriate seed mix will then be hand-broadcast and/or through the use of an appropriate hand-held mechanical device at the prescribed rate of application.

Fertilizer rates and applications are discussed in the soil preparation and fertilizer plan (Section 4.5).

James Canyon Area

Refer to Section 2.7 for a discussion of the revegetation success standards for the James Canyon Project area. Refers to Sections 2-11 and 4-20 for additional information pertaining to the project.

disturbance will be reseeded and have silt fences and/or straw bales to treat the runoff from the disturbance until the area is released.

4.6.5 South Fork Breakout

Before any top soil was removed, all woody vegetation was removed from the project area. Soils are basically a sandy loam mixture and have been classified by the S.C.S. as Uinta Family loam/tozc Family fine Sandy loam. Core sampling in the area shows that the soils vary in depth from 24 - 36+" in depth.

After the vegetation had been removed, the A & B horizons of soil were removed using a track hoe. The track hoe stacked the soil where a front-end loader picked it up and transported it to the storage area on the abandoned temporary Forest Service road and on the small opening at the mouth of the canyon where the knob was removed. The front-end loader spread the soil in approximately two foot lifts. By handling the soil in this manner, it will not be compacted in the storage area and the roots of the revegetation plants will penetrate the entire depth of the soil. This will allow the soil to maintain itself as viable top soil to be used during final reclamation. It is estimated that approximately 2,990 cubic yards of topsoil was removed and stored.

As subsoils were encountered, they were used to bring the ancillary access road up to grade. Subsoil not used as road was also stored on the small opening at the mouth of the canyon where the knob was removed. It is estimated that approximately 2,840 cubic yards of subsoil was removed. Approximately 1,820 cubic yards of the subsoil were used in the road fill and the remaining 1,020 cubic yards were stored for final reclamation.

As the coal in the coal seam was encountered, it was hauled out so as to eliminate the possibility of spontaneous combustion occurring.

Once the construction was complete, all of the disturbed areas were seeded and all the roads that are on National Forest Lands and the disturbed areas were water barred and seeded with the mixture shown on Table 4.6-1. A combination of silt fences and strawbales were used to treat surface run-off from the disturbed area of the ancillary road, the breakout pad and the topsoil-subsoil storage areas until adequate vegetation is established. The silt fences and strawbales were located as needed between the disturbed and undisturbed areas to treat run-off from the disturbed area.

During portal reclamation, the ancillary road into the breakout site will be reopened. The portals will be sealed as outlined in Section 4.9. Approximately 400 to 450 cubic yards of sediment from Electric Lake will be used as the required noncombustible backfill between the portal opening and the block seals. Two samples of the material to be used as backfill were obtained and analyzed in accordance with the parameters listed in Table 6 of the Division's "Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining", Revised by James Leatherwood and Dan Duce, April 1988. The laboratory data sheets are included in Appendix Volume A-2 in the Soils and Vegetation section and the two samples are identified as Electric Lake Site #1 and Site #2.

The highwall at the breakout area will be eliminated by front-end, backhoe, or other types of tracked or rubber tired equipment. The permittee will use waste rock from the mine's temporary waste rock storage site to return the portal area to approximate original contour. The waste rock has been analyzed in accordance with the parameters presented in Section 4.4.5 of this chapter and the results are included in Appendix Volume A-2 in the Soils and Vegetation section. The samples from the temporary waste rock site to be used in the reclamation of the South Fork Portals are listed on the data sheets as samples 11 through 13. The results of the analyses indicate the waste rock is not toxic- or acid-forming. The use of waste rock for reclamation is necessary since at least 1,000 or more cubic yards of coal and coaly soil was reportedly removed from the site during portal construction. It is anticipated, based on an August 2003 survey of the portal area used to create the topography and cross-sections presented in Drawing 4.6.5-1, that 1,300 or more cubic yards of waste rock could be used to reclaim the site and return it to AOC.

The waste rock will be buried by a minimum of five feet of subsoil and topsoil (The initial five feet of cover should allow for deep gouging of the topsoil surface while maintaining at least four feet of cover over the waste rock.) The waste rock and overlying subsoils will be placed in not more than 2 foot lifts and compacted by multiple passes of large tracked and rubber tired construction equipment (dozer, trackhoe, front-end loader, etc.).

Runoff from the portal canyon access road will be treated during construction activities. This will require the temporary use of gravel, silt fences, and/or straw bale dikes in low areas and where runoff from the road occurs. These temporary treatments will be eliminated/removed or, if applicable, used as part of the final reclamation treatment facilities.

Subsoil from the storage areas will be uniformly placed in the breakout area and then topsoil will be uniformly spread over the area. The ancillary road up the side canyon to the breakout area and the temporary road used for soil storage will then be returned to approximate original contour of surrounding terrain. The roads will be brought back to as close to original contour as possible with the least amount of new surface disturbance. No new cut slopes will be created and existing ones will be smoothed to the extent possible. As requested by the Forest Service, water bars will be placed as needed to dissuade vehicular travel after reclamation. The surfaces of the roads in the portal canyon will also be pocked or deep gouged to encourage runoff retention and eliminate long, uninterrupted runoff flow paths. Silt fences and/or straw bale dikes will be placed at locations where concentrated runoff occurs from reclaimed areas such as the downstream end of the water bars on the reclaimed Forest Service road or natural drainage crossings on any of the access the roads. The area where the

knob was, if used for reclamation, will also be contoured to blend in with the surrounding terrain.

As described in Section 4.7.8, all soils will be spread and treated in a manner to provide a roughened surface so that seed, fertilizer and mulch can remain during germination and initial growth of the seedlings. The permittee intends to roughen all reclaimed surfaces using deep gouging or pock-mocking techniques. However, raking surfaces prior to planting may also be needed to provide the necessary roughened surface in areas that cannot be deep gouged.

As described previously, subsoils were used to bring the portal access road up to grade. Subsoils were used as fill across the narrow canyon to allow the access road to cross from the south side of the canyon to the north side where the portals are located. A culvert was placed in the bottom of the drainage prior to backfilling with subsoil. During final reclamation, these subsoils will be used for reclamation of the portal area and the culvert will be removed. Upon removal of the subsoils, the newly exposed drainage slopes will be mulched, deep gouged, and reseeded. The gouging will be frequent enough to eliminate extended runoff flow paths that could result in erosion. It is anticipated that the gouges will be at least 12-inches deep and should not fill naturally until vegetation has been established. The deep gouging of the slope will be extended from the top of the slope to the channel edge. Straw, vegetative debris, and rock, if available, will be incorporated in the lower-most gouges adjacent to the channel floor to increase the durability of the stream channel walls while vegetation is being re-established.

The channel floor exposed after removal of the culvert will be roughened sufficiently to impede surface flows and bring the naturally-

occurring channel deposits to the surface. If the channel deposits do not appear to be large enough to act as rip-rap then vegetative debris, such as aspen logs and branches, or other natural debris will be placed in the channel to impeded surface flows.

The wide flat area in the existing road located just to the north of the mouth of the portal canyon will be used as a truck turnout to allow vehicles to pass one another on the narrow access road that begins at the mouth of the South Fork of Eccles Creek. This area is approximately 50 feet wide by 50 feet long, or 0.06 acres. Prior to the beginning of reclamation construction activities, the upper 12-inches of soil in this area will be removed and stored on the uphill side of the wide area and protected from traffic with silt fence. After the completion of the portal reclamation activities, the subsoils in the 0.06 acre turnout area will be ripped to a depth of at least 12-inches and the soils initially removed and stored will be spread back over the area. The area will then be mulched, gouged, and reseeded using the grasses and forbes seed mix listed in Table 4.7-1. Also following final portal reclamation, the road from the gate at the mouth of the South Fork of Eccles Canyon to the truck turnout area described above will be ripped and seeded. The grasses and forbes seed mix listed in Table 4.7-1 will also be used to reseed this section of the road.

The silt fences and straw bales used to treat runoff from disturbed areas will be maintained until reclamation vegetation has been adequately established and artificial erosion control is no longer necessary. After a determination has been made that the artificial erosion controls are no longer needed, the silt fences will be removed by cutting the fabric off at ground level and the supporting stakes

pulled from the ground. Straw bales will remain in-place and be allowed to naturally decompose.

The disturbed area related to the South Fork portals is 0.96 acres. This 0.96 acres includes the access road up the side canyon, including the portion where topsoil is stored, the portal pad, and the area at the mouth of the canyon where topsoil and subsoil is stored. The truck turnout area is within an existing pre-mining road and does not represent additional disturbance. The road that traverses from the mouth of the South Fork of Eccles Canyon continues for some distance on Forest lands beyond the mouth of the side canyon in which the portals are located. However, access to this road is controlled by a gate at the mouth of the South Fork of Eccles Canyon. As described previously, the mine intends to rip and seed the road from the gate at the mouth of the canyon to the lower end of the truck turnout. The portion of the road where topsoil is stored at the mouth of the portal canyon will be reclaimed by pocking or gouging, mulching, and seeding. No further reclamation activities are planned on the pre-existing road south of the topsoil stockpile area.

The truck turnout is approximately 0.06 acres. The road from the truck turnout to the mouth of the South Fork of Eccles has approximately 1 acre of surface area. Therefore, approximately 1.06 acres of road between the south end of the truck turnout will be reclaimed; the truck turnout by ripping the subsoil to relieve compaction, respreading the upper 12-inches of soil previously moved aside, mulching, deep gouging, and seeding, and ripping and reseeding the remainder of the South Fork road from the truck turnout to the road's northern terminus.

Sample Analysis Results of Waste Rock and Electric Lake Sediment Used to Reclaim South Fork Portals, Mine 1

September 19, 2003

Inter Mountain Laboratories, Inc.

1633 Terra Avenue
Sheridan, WY 82801

Report ID: 010312880

Soil Analysis Report

Canyon Fuel Company, LLC
Skyline Mine
HC 35 Box 380
Helper, UT 84526

Client Project ID: Skyline Mine
Date Received: 08/27/03

Set #0103S12880
Report Date: 09/18/03

Lab Id	Sample Id	pH	Saturation	EC @ 25°C	Calcium	Magnesium	Sodium	SAR	Available Sodium	Exchangeable Sodium
		s.u.	%	mmhos/cm	meq/L	meq/L	meq/L		meq/100g	meq/100g
0103S12880	Sample 1	8.2	29.1	6.47	31.3	36.5	15.2	2.61	0.77	0.33
0103S12881	Sample 2	8.5	28.6	5.68	23.5	30.0	18.9	3.65	1.12	0.58
0103S12882	Sample 3	8.3	37.2	3.33	21.5	21.9	4.33	0.93	0.24	0.08
0103S12883	Sample 4	7.9	35.2	3.46	23.6	21.3	4.23	0.89	0.25	0.10
0103S12884	Sample 5	8.4	31.1	4.92	24.3	28.2	13.1	2.55	0.85	0.44
0103S12885	Sample 6	7.9	34.2	3.61	24.4	20.9	4.33	0.91	0.21	0.06
0103S12886	Sample 7	7.8	31.0	3.51	20.3	19.5	11.6	2.60	0.60	0.24
0103S12887	Sample 8	7.7	32.0	2.85	21.6	12.2	7.20	1.75	0.39	0.16
0103S12888	Sample 9	7.7	31.3	3.86	20.6	20.4	12.6	2.78	0.64	0.25
0103S12889	Sample 10	8.5	29.3	3.66	18.4	19.3	7.27	1.67	0.49	0.28
0103S12890	Sample 11	8.0	40.1	4.23	22.0	23.0	11.9	2.51	0.47	<0.01
0103S12891	Sample 12	7.8	32.4	3.40	23.3	19.1	3.75	0.81	0.11	<0.01
0103S12892	Sample 13	7.9	34.4	1.55	8.16	7.34	3.30	1.19	0.12	0.01
0103S12893	Electric Lake Site #1	7.8	62.0	0.45	2.64	0.74	0.78	0.60	0.03	<0.01
0103S12894	Electric Lake Site #2	7.7	40.8	0.33	1.77	0.44	0.72	0.68	0.02	<0.01

South Fork Portal WASTEROCK

These results only apply to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= 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:

Sheeley, Soils Lab Supervisor

1633 Terra Avenue
Sheridan, WY 82801

Report ID: 010312880

Soil Analysis Report

Canyon Fuel Company, LLC
Skyline Mine
HC 35 Box 380
Helper, UT 84526

Client Project ID: Skyline Mine
Date Received: 08/27/03

Set #0103S12880
Report Date: 09/18/03

Lab Id	Sample Id	1/3 Bar	15 Bar	Coarse Fragments	Sand	Silt	Clay	Texture
		%	%	%	%	%	%	
0103S12880	Sample 1	19.4	7.4	48.3	74.0	20.0	6.0	SANDY LOAM
0103S12881	Sample 2	18.8	7.3	59.3	73.0	17.0	10.0	SANDY LOAM
0103S12882	Sample 3	20.2	7.6	46.6	82.0	11.0	7.0	LOAMY SAND
0103S12883	Sample 4	22.6	9.3	35.2	72.0	20.0	8.0	SANDY LOAM
0103S12884	Sample 5	16.4	6.5	53.6	76.0	17.0	7.0	SANDY LOAM
0103S12885	Sample 6	19.6	8.8	40.5	74.0	19.0	7.0	SANDY LOAM
0103S12886	Sample 7	16.1	8.5	62.9	68.0	20.0	12.0	SANDY LOAM
0103S12887	Sample 8	17.9	10.4	33.6	62.0	24.0	14.0	SANDY LOAM
0103S12888	Sample 9	16.1	9.6	63.8	66.0	22.0	12.0	SANDY LOAM
0103S12889	Sample 10	22.3	11.4	52.7	70.0	22.0	8.0	SANDY LOAM
0103S12890	Sample 11	22.2	11.9	40.7	78.0	15.0	7.0	LOAMY SAND
0103S12891	Sample 12	20.5	11.2	45.5	72.0	22.0	6.0	SANDY LOAM
0103S12892	Sample 13	24.6	12.7	43.2	73.8	18.7	7.5	SANDY LOAM
0103S12893	Electric Lake Site #1	33.4	32.0	0.0	24.0	55.0	21.0	SILT LOAM
0103S12894	Electric Lake Site #2	25.7	18.3	1.8	48.0	38.0	14.0	LOAM

These results only apply to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= 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:

J[illegible] Sheeley, Soils Lab Supervisor

1633 Terra Avenue
Sheridan, WY 82801

Report ID: 010312880

Soil Analysis Report

Canyon Fuel Company, LLC
Skyline Mine
HC 35 Box 380
Helper, UT 84526

Client Project ID: Skyline Mine
Date Received: 08/27/03

Set #0103S12880
Report Date: 09/18/03

Lab Id	Sample Id	TOC	Total Sulfur	T.S. AB	Neutral. Pot.	T.S. ABP	Boron	Nitrogen Nitrate	Selenium	TKN
		%	%	t/1000t	t/1000t	t/1000t	ppm	ppm	ppm	%
0103S12880	Sample 1	26.7	0.45	14.1	282	268	0.83	1.72	<0.02	0.43
0103S12881	Sample 2	22.5	0.45	14.1	340	326	1.76	3.22	<0.02	0.37
0103S12882	Sample 3	67.9	0.46	14.4	85.5	71.1	1.42	4.72	<0.02	1.14
0103S12883	Sample 4	52.9	0.53	16.6	95.7	79.1	1.74	1.38	0.02	0.91
0103S12884	Sample 5	16.8	0.39	12.2	358	346	1.72	1.74	0.02	0.27
0103S12885	Sample 6	51.2	0.50	15.6	95.3	79.7	1.38	1.92	0.02	0.87
0103S12886	Sample 7	33.7	0.64	20.0	78.0	58.0	1.03	6.70	0.08	0.60
0103S12887	Sample 8	36.3	0.49	15.3	76.4	61.1	1.26	3.84	0.04	0.62
0103S12888	Sample 9	32.2	0.56	17.5	82.2	64.7	1.09	6.94	0.14	0.65
0103S12889	Sample 10	24.3	0.27	8.43	221	213	1.43	1.06	<0.02	0.44
0103S12890	Sample 11	65.8	0.43	13.4	79.0	65.6	2.02	1.44	<0.02	1.24
0103S12891	Sample 12	45.2	0.36	11.2	104	92.3	1.03	1.08	0.02	0.92
0103S12892	Sample 13	58.4	0.33	10.3	74.6	64.3	0.95	1.18	0.02	0.96
0103S12893	Electric Lake Site #1	3.0	0.02	0.62	26.1	25.5	0.38	15.1	<0.02	0.19
0103S12894	Electric Lake Site #2	1.6	0.01	0.31	8.75	8.44	0.29	4.22	<0.02	0.14

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: _____
Sheeley, Soils Lab Supervisor

1633 Terra Avenue
Sheridan, WY 82801

Report ID: 010312880

Soil Analysis Report

Canyon Fuel Company, LLC
Skyline Mine
HC 35 Box 380
Helper, UT 84526

Client Project ID: Skyline Mine
Date Received: 08/27/03

Set #0103S12880
Report Date: 09/18/03

Lab Id	Sample Id	pH	Saturation	EC @ 25°C	Calcium	Magnesium	Sodium	SAR	Available Sodium	Exchangeable Sodium
		s.u.	%	mmhos/cm	meq/L	meq/L	meq/L		meq/100g	meq/100g
0103S12887	Sample 8	7.7	32.0	2.85	21.6	12.2	7.20	1.75	0.39	0.16
0103S12887D	Sample 8	7.7	31.2	2.81	21.6	12.2	7.31	1.78	0.37	0.14
0103S12892	Sample 13	7.9	34.4	1.55	8.16	7.34	3.30	1.19	0.12	0.01
0103S12892D	Sample 13	7.9	35.6	1.35	6.21	5.93	2.25	0.91		

These results only apply to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= 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:

Sheeley, Soils Lab Supervisor

1633 Terra Avenue
Sheridan, WY 82801

Report ID: 010312880

Soil Analysis Report

Canyon Fuel Company, LLC
Skyline Mine
HC 35 Box 380
Helper, UT 84526

Client Project ID: Skyline Mine
Date Received: 08/27/03

Set #0103S12880
Report Date: 09/18/03

Lab Id	Sample Id	1/3 Bar %	15 Bar %	Coarse Fragments %	Sand %	Silt %	Clay %	Texture
0103S12887	Sample 8	17.9	10.4	33.6	62.0	24.0	14.0	SANDY LOAM
0103S12887D	Sample 8	16.9	10.3	0.0	64.0	22.0	14.0	SANDY LOAM
0103S12892	Sample 13	24.6	12.7	43.2	73.8	18.7	7.5	SANDY LOAM
0103S12892D	Sample 13	24.8	11.6	0.0	73.8	18.7	7.5	SANDY LOAM

These results only apply to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= 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:

Sheeley, Soils Lab Supervisor

1633 Terra Avenue
Sheridan, WY 82801

Report ID: 010312880

Soil Analysis Report

Canyon Fuel Company, LLC
Skyline Mine
HC 35 Box 380
Helper, UT 84526

Client Project ID: Skyline Mine
Date Received: 08/27/03

Set #0103S12880
Report Date: 09/18/03

Lab Id	Sample Id	TOC	Total Sulfur	T.S. AB	Neutral. Pot.	T.S. ABP	Boron	Nitrogen Nitrate	Selenium	TKN
		%	%	t/1000t	t/1000t	t/1000t	ppm	ppm	ppm	%
0103S12887	Sample 8	36.3	0.49	15.3	76.4	61.1	1.26	3.84	0.04	0.62
0103S12887D	Sample 8	33.1	0.48	15.0	78.7	63.7	1.30	2.88	0.04	0.66
0103S12892	Sample 13	58.4	0.33	10.3	74.6	64.3	0.95	1.18	0.02	0.96
0103S12892D	Sample 13	61.9	0.35	10.9	74.6	63.7	0.96	1.12	0.04	1.01

These results only apply to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= 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:

Sheeley, Soils Lab Supervisor