



Kerr-McGee Oil & Gas Onshore LP

Topsoil Protection Plan

**Rainbow 24-9HZ Well Pad and Facility
E ½, Sec 9, T5N, R67W**

Greeley, Colorado

May, 2022

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1.0 INTRODUCTION

Kerr-McGee Oil & Gas Onshore LP (KMOG) has developed this site-specific Topsoil Protection Plan to establish proper planning and management of soil during oil and gas location construction, and subsequent surface reclamation of the disturbed area(s.) All topsoil management shall be in accordance with Colorado Oil and Gas Conservation Commission (COGCC) Series 1000 Reclamation Rules 1001.a, 1002.b and 1002.c requirements.

2.0 SITE DESCRIPTION

Operator	Kerr-McGee Oil & Gas Onshore LP
Project / Site Name:	Rainbow 24-9HZ Well Pad and Facility
Location:	Sec 9, T5N, R67W, Greeley, Colorado
Total Area of Project:	26.26 acres
Topsoil Depth	Approximately 8.5"
Estimated Topsoil Salvaged	27,659 Cubic Yards
Estimated Topsoil Stored for Final Rec	13,288 Cubic Yards
Description of Existing Vegetation:	Existing vegetation on the subject property is in seasonal crop rotation, land use is agriculture.
Soil Type(s):	15 – Colby loam, 1 to 3 percent slopes. HSG: B 18 – Colby-Adena loams, 3 to 9 percent slopes. HSG: B 34 – Kim loam, 5 to 9 percent slopes. HSG: A 79 – Weld loam, 1 to 3 percent slopes. HSG: C
Operator ID:	47120
Reclamation Manager Contact:	Austin Lee – HSE Advisor Occidental Petroleum Corporation Office: (970) 515-1058

3.0 SITE INVESTIGATION

National Resources Conservation Service (NRCS) soil survey data has been reviewed to determine sampling intervals and locations to identify topsoil depths, texture, and fertility for development of grading plans, topsoil management, interim reclamation plans, and for final reclamation after plugging and abandonment. Topsoil depth pit excavations and photo reports shall occur twice within each soil map unit within the disturbance area, with additional pits determined by size of unit, topography, land use change or distinct visual surface changes. A minimum of the first 6 inches of depth will be included for analysis on rangeland even if less than 6 inches of topsoil is identified during pre-construction site survey. Refer to Appendices A, B, C, and D for site-specific sampling information.

4.0 PROPOSED SEQUENCE OF MAJOR ACTIVITIES

4.1. Topsoil Removal

Depth of each soil horizon will vary with individual soil units, and determination of depth and proper removal will be monitored during construction by physical characteristics of color, density, and texture change of soil, and as determined during Site Investigation. Topsoil may not be removed during wet soil moisture conditions, as field determined considering soil texture.

4.2. Subsoil Horizon Separation

Lower soil horizons will be stockpiled separately from topsoil where it can be used for contouring during reclamation and preserved in order of original state. Distinctly visible soil horizons or soil types shall be stockpiled separately (i.e., gravel or shale layers). Under no circumstances shall subsoil be mixed with topsoil, nor placed on top of the removed topsoil stockpile

4.3. Topsoil Protection

If topsoil will be stockpiled for extended periods of time, it shall be protected from degradation due to erosion, compaction, and contamination, and to maintain soil microbial activity, using best management practices such as stabilization with mulch, seeding, track walking, perimeter control or a combination of BMPs. Weeds on stockpiles shall be controlled as to prevent production of weed seed and/or enough biomass that would interfere with redistribution of soil or cause onsite debris. Signage shall be installed to identify topsoil stockpiles to facilitate subsequent reclamation and indicate to personnel that the area may not be disturbed by drilling and completion operations.

4.4. Recontouring and Compaction Relief

The first material to backfill will be from excavated subsoil materials, and compacted to avoid subsidence, but not restrictive to root growth of plants. The stockpiled soil horizons will be replaced in order and graded with the adjacent undisturbed land. Ripping/subsoiling will be required prior to topsoil redistribution if soil is overly compacted from vehicle or equipment traffic.

4.5. Topsoil Redistribution

The stockpiled topsoil will be redistributed uniformly and to minimize compaction of soil. Topsoil may not be redistributed during wet soil moisture conditions. Topsoil should be leveled with the adjacent, undisturbed land to match surrounding topography. Special consideration will apply to redistribution and grading of irrigable land to replace designated ditches and channels, and ensure uniform coverage by flood irrigation water.

5.0 TOPSOIL STORAGE REQUIREMENTS

5.1. Calculations

Stored topsoil amounts to facilitate subsequent or final reclamation shall be calculated based off areas remaining for production operations and integrated as part of the interim reclamation area per Rule 1003.

5.2. Interim Reclamation

Placement and distribution will be determined by disturbance area boundaries, surface owner input, land use, and topography.

5.3. Topsoil Protection

Stored topsoil shall be protected from erosion and to maintain soil microbial activity, using a combination of best management practices, such as proper design of stockpile depth and contour, stabilizing with mulch, seeding, track walking, perimeter control, establishment of vegetation and weed control.

5.4. Signage and Identification

Stored topsoil locations will be documented per Rule 407. Form 45, Location Construction Report. Signage identifying topsoil shall be installed, where feasible, based on land use.

6.0 STORMWATER CONTROLS/BMPS FOR TOPSOIL STOCKPILE

Erosion, degradation, sedimentation and topsoil loss from stormwater and snowmelt will be managed by a combination of control measures and best management practices, per phase, and as detailed below.

6.1 Construction Phase

- *Ditch and berm* shall be installed around the perimeter of the location, and subsequently around all topsoil stockpiles, to intercept and divert stormwater run-on/run-off and sediment from precipitation and melt events.
- *Track packing* all topsoil stockpiles will occur to prevent erosion from stormwater and wind, as well as provide temporary stabilization.
- *Seeding and crimped straw mulch* will be applied to prevent erosion and soil loss from stormwater and wind.
- *Vegetation establishment* through seeding efforts will promote soil health and maintain carbon exchange.
- *Weed control* will occur seasonally and as needed to hinder the spread of weeds throughout the topsoil stockpile(s) and help native grass establishment.

6.2 Drilling Phase

- *Ditch and berm* shall be installed around the perimeter of the location, and subsequently around all topsoil stockpiles, to intercept and divert stormwater run-on/run-off and sediment from precipitation and melt events.
- *Track packing* all topsoil stockpiles will occur to prevent erosion from stormwater and wind, as well as provide temporary stabilization.
- *Seeding and crimped straw mulch* will be applied to prevent erosion and soil loss from stormwater and wind.
- *Vegetation establishment* through seeding efforts will promote soil health and maintain carbon exchange.
- *Weed control* will occur seasonally and as needed to hinder the spread of weeds throughout the topsoil stockpile(s) and help native grass establishment.

6.3 Production Phase

- *Vegetation establishment* through seeding efforts will promote soil health and maintain carbon exchange.
- *Weed control* will occur seasonally and as needed to hinder the spread of weeds throughout the topsoil stockpile(s) and help native grass establishment.

Refer to the Site Plan (Appendix D) for additional information on control measures.

7.0 INSPECTION AND MAINTENANCE PROCEDURES

7.1. Inspections

Post-construction stormwater inspections will be conducted in accordance with COGCC Rules 1002.f and 1003.e, to document the status of the location, maintenance needs, effectiveness of stormwater control measures, to evaluate pollution sources, to document reclamation / final stabilization progress and necessary weed control. Inspections will be managed by the Reclamation Contact and conducted by their designated representative(s). Inspection forms will document current conditions, including evidence of or potential for off-site erosion, weed control, additional control measures that are needed, or repair and maintenance issues.

Findings, inspection records and site maps are documented electronically and available within 24 hours of any inspection.

7.2. Maintenance

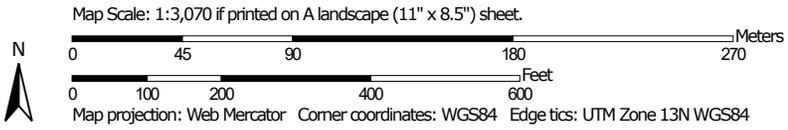
For maintenance items discovered, proposed repairs or upgrades to stormwater control measures to ensure topsoil protections will be documented and coordinated with production crews. Timeline for completion of maintenance items is a priority and will depend on scope; but in all cases, shall not be completed until field conditions allow for safe access, and utility clearance has been confirmed for items requiring ground disturbance / earthwork.

APPENDIX A
NRCS SOIL SURVEY DATA AND SAMPLING LOCATIONS

Soil Map—Weld County, Colorado, Southern Part



Soil Map may not be valid at this scale.



Weld loam, 1 to 3 percent slopes

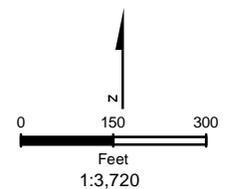


Rainbow 24-9HZ ESIF

Topsoil Depth and Composite Soil Sample Locations

Legend

- Topsoil Depth Pit and Composite Samples
- Composite Sample Only
- Access Road
- Working Pad Surface
- Oil and Gas Location



Inspector: **KD, ST, JG**
 Inspection Date: **Nov '21 / Mar '22**

Site Characteristics

Legal Location: *Sec 9, T5N R67W*
 County: *Weld*
 Land Use: *Agriculture*
 Pre-Construction Vegetation Coverage: *70%*
 Pre-Construction Vegetation Cover: *Cropland*
 Topography: *N/A*
 Run-Off Risk: *N/A*
 Total Disturbed Area: *32.72*
 Soil Type: *N/A*
 Receiving Waters: *Unnamed trib to Cache la Poudre River*

REVISED	BY	COMMENT
4/1/2022	KD	Natural Resources Map



Feature symbols not to scale

Kim loam, 5 to 9 percent slopes

Colby loam, 1 to 3 percent slopes

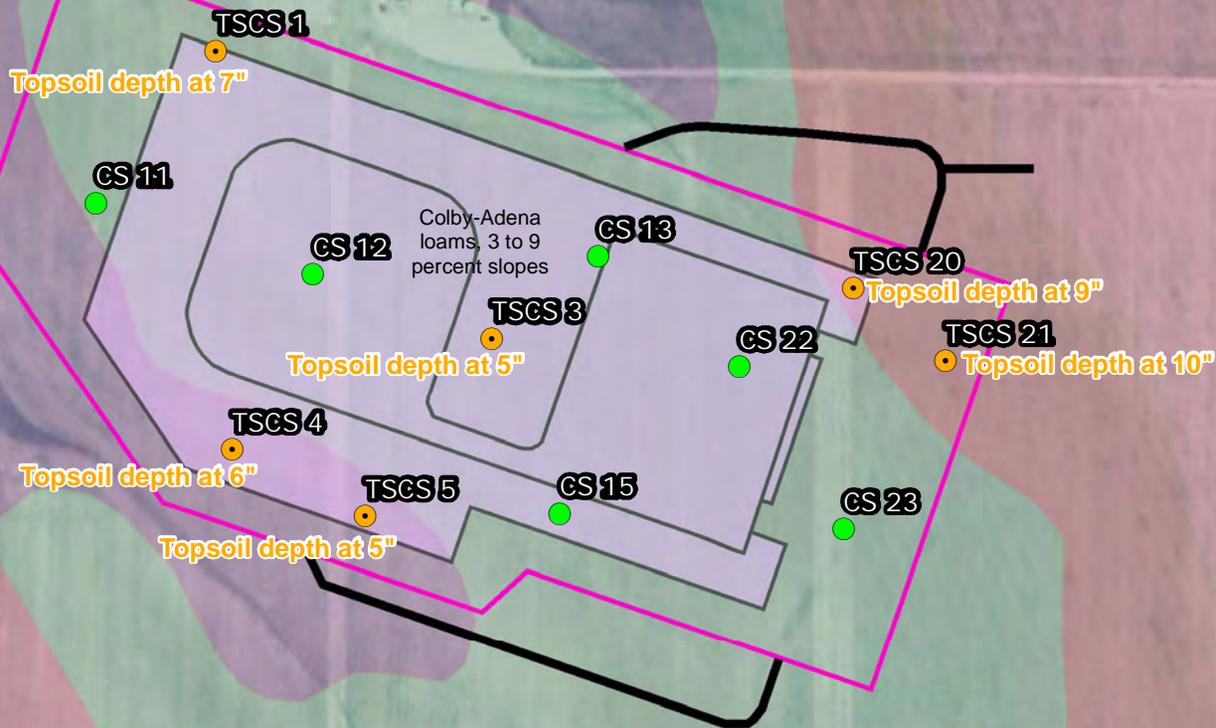
Colby-Adena loams, 3 to 9 percent slopes

Colby loam, 1 to 3 percent slopes

Weld loam, 1 to 3 percent slopes

Colby loam, 1 to 3 percent slopes

Kim loam, 5 to 9 percent slopes



APPENDIX B
TOPSOIL DEPTH PHOTOLOG



Photograph 1. Topsoil depth pit (TSCS 1) with topsoil determined to be at 7 inches. Change in color from light-medium brown to a lighter gray-brown. Soil texture became more compact with some “shelving.”



Photograph 2. Topsoil depth pit (TSCS 3) with topsoil determined to be at 5 inches. Change in color from light-medium brown to a lighter gray-brown. Soil texture became more compact with “shelving.”



Photograph 3. Topsoil depth pit (TSCS 4) with topsoil determined to be at 6 inches. Change in color from light-medium brown to a lighter gray-brown. Soil texture became more compact with “shelving.”



Photograph 4. Topsoil depth pit (TSCS 5) with topsoil determined to be at 5 inches. Change in color from light brown to a lighter gray-brown. Soil texture became more compact.



Photograph 7. Composite soil sample "CS13."



Photograph 8. Composite soil sample "CS15."



Photograph 9. Topsoil depth pit (TSCS20) with topsoil determined to be at 9 inches. Change in color from medium brown to a lighter gray-brown. Soil texture became more compact.



Photograph 10. Topsoil depth pit (TSCS21) with topsoil determined to be at 10 inches. Change in color from medium brown to a lighter gray-brown. Soil texture became more compact.



Photograph 11. Composite soil sample "CS22."



Photograph 12. Composite soil sample "CS23."

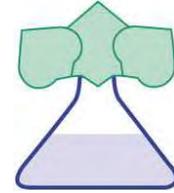
APPENDIX C
SOIL ANALYSIS

American Agricultural Laboratory, Inc.

700 West D Street / PO Box 370 / McCook, Nebraska 69001

Office: 308-345-3670 / FAX: 308-345-7880

www.AmAgLab.com



95029

ORIGINS LABORATORY INC

1725 ELK PLACE

DENVER CO 80211

NAME : APEX

DATE RECEIVED: 11/09/2021

DATE REPORTED: 11/12/2021

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH		EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA)		PHOSPHORUS				
				1 : 1 Soil	Buffer Woodruff				ppm	lbs/A	P1 ppm	Bicarb ppm	P2 ppm	M2 ppm	M3 ppm
3357705	BROOKIE AND RAINBOW	TSCS 1 Y111124 01	0-8	8.1		M	0.46	1.6	7.1	17	6				
3357706	BROOKIE AND RAINBOW	TSCS 2 Y111124 02	0-8	8.1		L	0.76	1.7	7.1	17	6				
3357707	BROOKIE AND RAINBOW	TSCS 3 Y111124 03	0-8	8.1		H	0.96	2.0	9.0	22	27				
3357708	BROOKIE AND RAINBOW	TSCS 4 Y111124 04	0-8	8.2		H	0.76	1.6	5.6	13	7				
3357709	BROOKIE AND RAINBOW	TSCS 5 Y111124 05	0-8	8.1		H	0.76	1.5	6.8	16	7				
3357710	BROOKIE AND RAINBOW	TSCS 6 Y111124 06	0-8	8.0		M	0.74	1.9	9.4	23	10				

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable)				DTPA				BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION					
		K ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	Cu ppm			BASE	H	Ca	Mg	K	Na
3357705		308	3230	286	7					0.8	19.4	100	0	84	12	4	0
3357706		375	3300	288	4					0.8	19.9	100	0	83	12	5	0
3357707		325	3230	268	4					0.9	19.2	100	0	84	12	4	0
3357708		213	2740	199	2					0.7	15.9	100	0	87	10	3	0
3357709		216	2820	246	2					0.8	16.7	100	0	85	12	3	0
3357710		372	3160	396	4					0.7	20.1	100	0	79	16	5	0

LAB NUMBER	SOLUBLE (SAT. EXT.)			SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS				CHLORIDE ppm	EXCH. NH4-N ppm	ALUMINUM ppm	TOTAL N %
	Ca me/L	Mg me/L	Na me/L				SAND %	SILT %	CLAY %	SOIL TEXTURE				
3357705	3.80	0.75	0.25	0.17	1	0	51	36	13	LOAM				
3357706	4.00	0.76	0.18	0.12	1	0	31	56	13	SILT LOAM				
3357707	4.08	0.78	0.20	0.13	1	0	31	56	13	SILT LOAM				
3357708	3.37	0.56	0.20	0.14	1	0	31	56	13	SILT LOAM				
3357709	3.33	0.71	0.25	0.18	1	0	31	50	19	LOAM				
3357710	2.87	0.83	0.25	0.18	1	0	31	58	11	SILT LOAM				

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N	P2O5	K2O	S	Zn	MgO	Fe	Mn	Cu	B	Cl	LIME REC 60% ECCE T/A
3357705	BROOKIE AND RAINBOW	TSCS 1 Y111124 01														
3357706	BROOKIE AND RAINBOW	TSCS 2 Y111124 02														
3357707	BROOKIE AND RAINBOW	TSCS 3 Y111124 03														
3357708	BROOKIE AND RAINBOW	TSCS 4 Y111124 04														
3357709	BROOKIE AND RAINBOW	TSCS 5 Y111124 05														
3357710	BROOKIE AND RAINBOW	TSCS 6 Y111124 06														

Approved By: Kevin Grooms

Analysis By: American Agricultural Lab

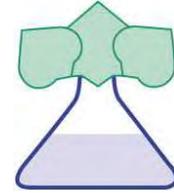
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SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH		EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA)		PHOSPHORUS				
				1 : 1 Soil	Buffer Woodruff				ppm	lbs/A	P1 ppm	Bicarb ppm	P2 ppm	M2 ppm	M3 ppm
3357711	BROOKIE AND RAINBOW	TSCS 7 Y111124 07	0-8	8.2		H	0.74	1.5	2.7	6	7				
3357712	BROOKIE AND RAINBOW	TSCS 8 Y111124 08	0-8	7.4		N	1.02	1.8	16.8	40	22				
3357713	BROOKIE AND RAINBOW	CS 9 Y111124 09	0-8	7.8		L	0.76	1.8	6.6	16	7				
3357714	BROOKIE AND RAINBOW	CS 10 Y111124 10	0-8	8.2		M	0.98	1.4	8.1	19	10				
3357715	BROOKIE AND RAINBOW	CS 11 Y111124 11	0-8	8.2		H	0.36	1.5	5.1	12	6				
3357716	BROOKIE AND RAINBOW	CS 12 Y111124 12	0-8	8.2		H	0.56	1.6	4.6	11	10				

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable)				DTPA				BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION					
		K ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	Cu ppm			BASE	H	Ca	Mg	K	Na
3357711		217	2890	259	3					0.7	17.2	100	0	84	13	3	0
3357712		420	2330	457	5					0.5	16.6	100	0	71	23	6	0
3357713		369	2780	387	3					0.7	18.1	100	0	77	18	5	0
3357714		386	2530	371	4					0.9	16.7	100	0	75	19	6	0
3357715		316	3280	278	18					0.8	19.6	100	0	84	12	4	0
3357716		275	3060	342	14					0.8	18.9	100	0	81	15	4	0

LAB NUMBER	SOLUBLE (SAT. EXT.)			SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS				CHLORIDE		EXCH. NH4-N		ALUMINUM ppm	TOTAL N %
	Ca me/L	Mg me/L	Na me/L				SAND %	SILT %	CLAY %	SOIL TEXTURE	ppm	lbs/A	ppm	lbs/A		
3357711	2.91	0.58	0.19	0.14	1	0	31	52	17	SILT LOAM						
3357712	4.20	1.82	0.30	0.17	1	0	31	50	19	LOAM						
3357713	2.73	0.88	0.18	0.13	1	0	33	52	15	SILT LOAM						
3357714	3.47	1.12	0.23	0.15	1	0	31	50	19	LOAM						
3357715	3.43	0.62	0.24	0.17	1	0	31	52	17	SILT LOAM						
3357716	3.26	0.79	0.20	0.14	1	0	29	52	19	SILT LOAM						

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N	P2O5	K2O	S	Zn	MgO	Fe	Mn	Cu	B	Cl	LIME REC 60% ECCE T/A
3357711	BROOKIE AND RAINBOW	TSCS 7 Y111124 07														
3357712	BROOKIE AND RAINBOW	TSCS 8 Y111124 08														
3357713	BROOKIE AND RAINBOW	CS 9 Y111124 09														
3357714	BROOKIE AND RAINBOW	CS 10 Y111124 10														
3357715	BROOKIE AND RAINBOW	CS 11 Y111124 11														
3357716	BROOKIE AND RAINBOW	CS 12 Y111124 12														

Approved By: Kevin Grooms

Analysis By: American Agricultural Lab

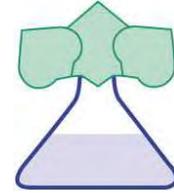
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				1 : 1 Soil	Buffer Woodruff				ppm	lbs/A	P1 ppm	Bicarb ppm	P2 ppm	M2 ppm	M3 ppm			
3357717	BROOKIE AND RAINBOW	CS 13 Y111124 13	0-8	8.1		H	0.84	1.9	9.2	22								
3357718	BROOKIE AND RAINBOW	CS 14 Y111124 14	0-8	8.2		H	0.84	1.7	10.9	26								

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable)				DTPA				BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION					
		K ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	Cu ppm			BASE	H	Ca	Mg	K	Na
3357717		427	3630	354	12					0.9	22.2	100	0	82	13	5	0
3357718		291	3130	277	10					0.9	18.7	100	0	84	12	4	0

LAB NUMBER	SOLUBLE (SAT. EXT.)			SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS				CHLORIDE ppm lbs/A	EXCH. NH4-N ppm lbs/A	ALUMINUM ppm	TOTAL N %	
	Ca me/L	Mg me/L	Na me/L				SAND %	SILT %	CLAY %	SOIL TEXTURE					
3357717	3.64	0.74	0.22	0.15	1	0	31	56	13						SILT LOAM
3357718	3.95	0.76	0.22	0.14	1	0	31	50	19						LOAM

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N	P2O5	K2O	S	Zn	MgO	Fe	Mn	Cu	B	Cl	LIME REC 60% ECCE T/A
3357717	BROOKIE AND RAINBOW	CS 13 Y111124 13														
3357718	BROOKIE AND RAINBOW	CS 14 Y111124 14														

Approved By: Kevin Grooms

Analysis By: American Agricultural Lab

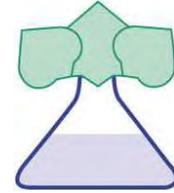
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				1 : 1 Soil	Buffer Woodruff				ppm	lbs/A	P1 ppm	Bicarb ppm	P2 ppm	M2 ppm	M3 ppm
3357720	BROOKIE AND RAINBOW	CS 15 Y111124 15	0-8	8.2		H	0.74	1.9	6.9	17	15				
3357721	BROOKIE AND RAINBOW	CS 16 Y111124 16	0-8	8.1		H	0.90	1.7	8.4	20	5				
3357722	BROOKIE AND RAINBOW	CS 17 Y111124 17	0-8	8.2		H	0.78	1.6	4.4	11	5				
3357723	BROOKIE AND RAINBOW	CS 18 Y111124 18	0-8	7.2		L	0.88	1.6	9.0	22	15				

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable)				DTPA				BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION					
		K ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	Cu ppm			BASE	H	Ca	Mg	K	Na
3357720		287	3100	326	5					0.8	19.0	100	0	82	14	4	0
3357721		276	3170	320	7					0.8	19.3	100	0	82	14	4	0
3357722		291	3210	313	12					0.8	19.5	100	0	83	13	4	0
3357723		422	1940	455	10					0.4	14.6	100	0	67	26	7	0

LAB NUMBER	SOLUBLE (SAT. EXT.)			SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS				CHLORIDE ppm	EXCH. NH4-N ppm	ALUMINUM ppm	TOTAL N %
	Ca me/L	Mg me/L	Na me/L				SAND %	SILT %	CLAY %	SOIL TEXTURE				
3357720	3.86	0.86	0.23	0.15	1	0	31	52	17					SILT LOAM
3357721	3.55	0.77	0.20	0.14	1	0	31	48	21					LOAM
3357722	2.98	0.62	0.18	0.13	1	0	33	50	17					LOAM
3357723	3.84	2.00	0.30	0.18	1	0	33	48	19					LOAM

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N	P2O5	K2O	S	Zn	MgO	Fe	Mn	Cu	B	Cl	LIME REC 60% ECCE T/A
3357720	BROOKIE AND RAINBOW	CS 15 Y111124 15														
3357721	BROOKIE AND RAINBOW	CS 16 Y111124 16														
3357722	BROOKIE AND RAINBOW	CS 17 Y111124 17														
3357723	BROOKIE AND RAINBOW	CS 18 Y111124 18														

Approved By: Kevin Grooms

Analysis By: American Agricultural Lab

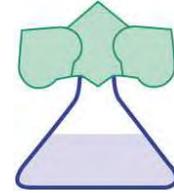
Recommendations By: American Agricultural Lab

American Agricultural Laboratory, Inc.

700 West D Street / PO Box 370 / McCook, Nebraska 69001

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95029

ORIGINS LABORATORY INC

1725 ELK PLACE

DENVER CO 80211

NAME : APEX

DATE RECEIVED: 11/09/2021

DATE REPORTED: 11/12/2021

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH		EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA)		PHOSPHORUS				
				1 : 1 Soil	Buffer Woodruff				ppm	lbs/A	P1 ppm	Bicarb ppm	P2 ppm	M2 ppm	M3 ppm

3357724	BROOKIE AND RAINBOW	CS 19 Y111124 19	0-8	8.2		H	1.04	1.6	9.8	24	7				
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LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable)				DTPA				BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION					
		K ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	Cu ppm			BASE	H	Ca	Mg	K	Na

3357724		322	3230	323	10					0.9	19.7	100	0	82	14	4	0
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LAB NUMBER	SOLUBLE (SAT. EXT.)			SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS				CHLORIDE		EXCH. NH4-N		ALUMINUM ppm	TOTAL N %
	Ca me/L	Mg me/L	Na me/L				SAND %	SILT %	CLAY %	SOIL TEXTURE		ppm	lbs/A	ppm		

3357724	3.76	0.84	0.28	0.18	1	0	29	52	19	SILT LOAM						
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SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N	P2O5	K2O	S	Zn	MgO	Fe	Mn	Cu	B	Cl	LIME REC 60% ECCE T/A
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3357724	BROOKIE AND RAINBOW	CS 19 Y111124 19														
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Approved By: Kevin Grooms

Analysis By: American Agricultural Lab

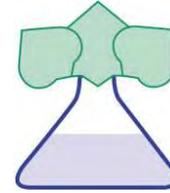
Recommendations By: American Agricultural Lab

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ORIGINS LABORATORY INC

1725 ELK PLACE

DENVER CO 80211

NAME : ORIGINS LABORATORY

DATE RECEIVED: 03/15/2022

DATE REPORTED: 03/17/2022

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH		EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA)		PHOSPHORUS				
				1 : 1 Soil	Buffer Woodruff				ppm	lbs/A	P1 ppm	Bicarb ppm	P2 ppm	M2 ppm	M3 ppm
3392612	RAINBOW 24 9H2	TSCS 20 Y203314 01	0-8			N		1.9	3.8	9	26				
3392613	RAINBOW 24 9H2	TSCS 21 Y203314 02	0-8			N		2.2	1.3	3	34				
3392614	RAINBOW 24 9H2	CS 22 Y203314 03	0-8			N		2.3	1.2	3	25				
3392615	RAINBOW 24 9H2	CS 23 Y203314 04	0-8			N		2.2	0.8	2	27				

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable)				DTPA				BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION					
		K ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	Cu ppm			BASE	H	Ca	Mg	K	Na
3392612		467	2360	384	21					0.6	16.3	100	0	72	20	7	1
3392613		597	2350	517	34					0.7	17.7	100	0	66	24	9	1
3392614		463	2430	380	18					0.6	16.6	100	0	74	19	7	0
3392615		335	2700	285	20					0.8	16.8	100	0	80	14	5	1

LAB NUMBER	SOLUBLE (SAT. EXT.)			SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS				CHLORIDE ppm lbs/A	EXCH. NH4-N ppm lbs/A	ALUMINUM ppm	TOTAL N %
	Ca me/L	Mg me/L	Na me/L				SAND %	SILT %	CLAY %	SOIL TEXTURE				
3392612	2.50	0.92	0.82	0.63	1	0	29	42	29	CLAY LOAM				
3392613	1.49	0.72	0.57	0.54	1	0	27	42	31	CLAY LOAM				
3392614	1.63	0.59	0.43	0.41	1	0	31	40	29	CLAY LOAM				
3392615	2.42	0.64	0.55	0.44	1	0	29	42	29	CLAY LOAM				

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N	P2O5	K2O	S	Zn	MgO	Fe	Mn	Cu	B	Cl	LIME REC 60% ECCE T/A
3392612	RAINBOW 24 9H2	TSCS 20 Y203314 0														
3392613	RAINBOW 24 9H2	TSCS 21 Y203314 0														
3392614	RAINBOW 24 9H2	CS 22 Y203314 03														
3392615	RAINBOW 24 9H2	CS 23 Y203314 04														

Approved By: Kevin Grooms

Analysis By: American Agricultural Lab

Recommendations By: American Agricultural Lab

American Agricultural Laboratory, Inc.

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ORIGINS LABORATORY INC
1725 ELK PLACE
DENVER, CO 80211

ACCOUNT NO: 95029
DATE RECEIVED: 3/15/2022
DATE REPORTED: 3/17/2022

SATURATED PASTE EXTRACT ANALYSIS

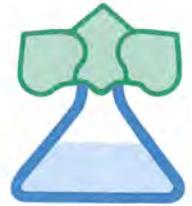
Lab No.	Grower	Field ID	Depth inches	pH s.u.	Soluble Salts mmhos/cm
3357705	RAINBOW 24-9H2	TSCS 20 (Y203314-01)	0-8	7.7	0.53
3357706	RAINBOW 24-9H2	TSCS 21 (Y203314-02)	0-8	7.7	0.43
3357707	RAINBOW 24-9H2	CS 22 (Y203314-03)	0-8	7.8	0.42
3357708	RAINBOW 24-9H2	CS 23 (Y203314-04)	0-8	7.9	0.50

Approved by: Electronically Approved by: Kevin Grooms

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1725 ELK PLACE
DENVER, CO 80211

DATE RECEIVED: 3/15/2022
DATE REPORTED: 3/17/2022
ACCOUNT NUMBER: 95029
GROWER: ORIGINS LABORATORY

SOIL BORON REPORT

Lab #	Field ID	Sample ID	B, mg/L
3392612	RAINBOW 24 9H2	TSCS 20 Y203314 01	0.6
3392613	RAINBOW 24 9H2	TSCS 21 Y203314 02	0.7
3392614	RAINBOW 24 9H2	CS 22 Y203314 03	0.6
3392615	RAINBOW 24 9H2	CS 23 Y203314 04	0.8

Method Used:

Provin, T., and H. Zhang. 2014. DTPA and DTPA-Sorbitol Extraction of Micronutrients.
Soil Test Methods From the Southeastern United States 2014

Approved by: _____

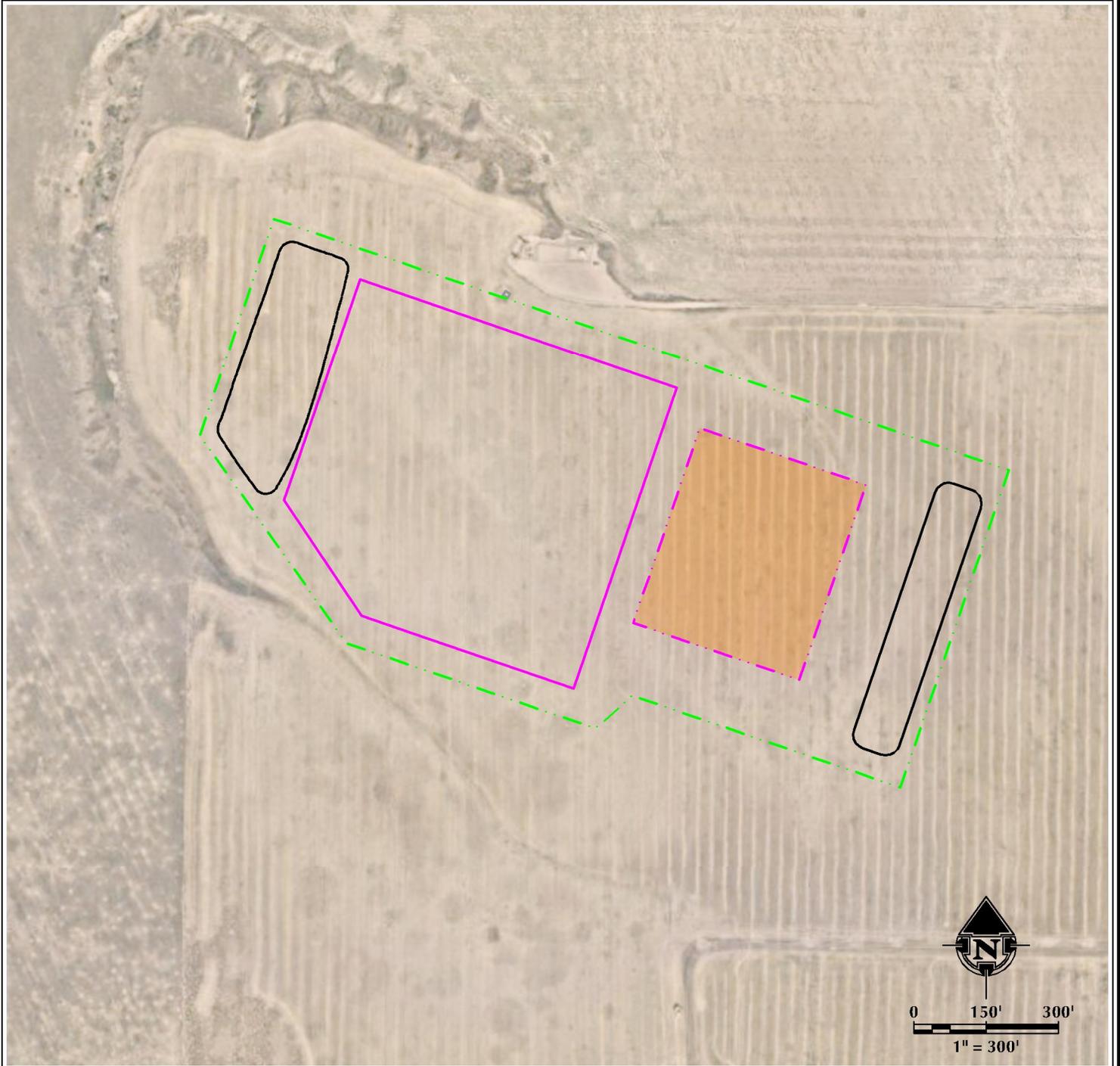


APPENDIX D
SITE PLAN

TOPSOIL STOCKPILE PLACEMENT EXHIBIT

RAINBOW 24-9HZ

E1/2 SECTION 9, TOWNSHIP 5 NORTH, RANGE 67 WEST, 6TH P.M., GREELEY, COLORADO



LEGEND

-  PROPOSED OIL & GAS LOCATION
-  PROPOSED WELL PAD
-  PROPOSED FACILITY PAD
-  TOPSOIL STOCKPILE

K:\ANADARKO\01812018_160_BROCKIE_BROWN & RAINBOW_TEN_067W_SEC_9\DWG\RAINBOW_26_WELL_OPTION_FINAL.DWG: 5/13/22 4:29:37 PM, dshen



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DATE SURVEYED: 2/21/22
DATE: 5/13/22
DRAFTER: GLK
REVISED:

DATA SOURCES:
- AERIAL COURTESY OF NEARMAP.

PREPARED FOR:
Kerr-McGee Oil & Gas Onshore LP

APPENDIX E
SUMMARY OF SITE-SPECIFIC BMPs FOR TOPSOIL MANAGEMENT AND PROTECTION

THE PURPOSE OF THIS SECTION IS FOR USE BY COGCC DURING PLAN REVIEW AND APPLICATION AT TIME OF FIELD VERIFICATION:

Topsoil will be managed during construction by a combination of site-specific erosion and sediment control measures including: a temporary diversion ditch & berm around the entire location to manage run-on and run-off; short term management of topsoil will include track packing to prevent wind and water erosion, long term management includes seeding with a native seed mix and crimping straw mulch for erosion control and water retention; vegetation establishment on stockpiles and weed control will reduce erosion as well as maintain microbial activity; during the construction phase topsoil will be stockpiled ~8 feet tall and with 3:1 slope to minimize erosion potential. Topsoil managed during interim and production phases will be maintained with BMPs including seeding with a native seed mix and crimped straw mulch; weed monitoring; the long-term topsoil stockpile will be ~3 feet tall at a 5:1 slope to maintain microbial activity for an extended time. Inspections will review all control measures / BMPs implemented, their status, and whether repair or replacement is needed, including weed maintenance when necessary. Maintenance and repair will be completed as soon as practicable, immediately in most cases.