

RECLAMATION MONITORING REPORT

**ALOHA MULA #6
LINCOLN COUNTY, COLORADO**

OCTOBER 2017

Prepared for:

**WIEPKING-FULLERTON ENERGY, L.L.C.
Denver, Colorado**



Advancing Opportunity



RECLAMATION MONITORING REPORT

ALOHA MULA #6 LINCOLN COUNTY, COLORADO

OCTOBER 2017

Prepared for:

**WIEPKING-FULLERTON ENERGY, L.L.C.
8972 East 29th Place
Denver, Colorado 80238**

Prepared by:

**LT ENVIRONMENTAL, INC.
4600 West 60th Avenue
Arvada, Colorado 80003
(303) 433-9788**





RECLAMATION MONITORING REPORT
ALOHA MULA #6
LTE Project Number: 050117002

**Prepared
by:**

A handwritten signature in blue ink that reads "Hank Raizen".

Hank Raizen
LTE Staff Biologist

October 27, 2017
Date

**Reviewed
by:**

A handwritten signature in blue ink that reads "Brett Forkner".

Brett Forkner
LTE Senior Environmental Scientist

October 27, 2017
Date





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1.0 INTRODUCTION

LT Environmental, Inc. (LTE) has been retained by Wiepking-Fullerton Energy, L.L.C. (Wiepking-Fullerton) to provide this Reclamation Monitoring Report for the Aloha Mula #6 (Site) located in Lincoln County, Colorado. The purpose of this Reclamation Monitoring Report is to achieve compliance with the approved Colorado Oil and Gas Conservation Commission (COGCC) Form 27 (Document Number 2099820, Remediation Number 9514) Conditions of Approval (COA) by providing details regarding the reclamation work completed and conducting reclamation monitoring of the vegetation on the Site.



2.0 CONDITIONS OF APPROVAL

Per COGCC Form 27 (Document Number 2099820), the requirements as stated in the COA to obtain compliance include the following.

- 1) Submit an annual report documenting reclamation work completed and the status of vegetation no later than October 31st of each year to include the following information:
 - a) Total volume of any amendments or fertilizer applied and the application rate per acre;
 - b) Seed mixture and application rate;
 - c) Site photographs depicting the work completed including erosion controls and seeding;
 - d) Site photographs depicting the condition of the vegetation during the growing season;
 - e) Copies of the scheduled bi-annual monitoring inspection forms referenced in Section 2.6.5 of the Form 27 Attachment; and
 - f) Future plans for additional amendments and seeding, as needed, based on success of the seeding completed in Spring 2016.
- 2) Comply with COGCC Rule 1002.f. *Stormwater Management* throughout the duration of the project.
 - a) Conduct and document stormwater inspections after any storm event that results in runoff; and
 - b) Verify that stormwater controls are properly maintained or replaced as needed throughout the duration of the project.
- 3) Control noxious weeds throughout the reclamation process. Weed control measures will be conducted in compliance with the Colorado Noxious Weed Act C.R.S. §35-5.5-115.
- 4) If the location is currently used for cattle grazing or will be used during the project, the operator is required to install fencing as needed to protect the reclamation area from damage until vegetation can be established.
- 5) All required work to complete the planned reclamation will be conducted no later than May 31, 2016.
- 6) The reclamation project will meet closure criteria when all affected areas have a uniform vegetative cover that reflects pre-disturbance area forbs, shrubs, and grasses with total percent plant cover of at least eighty percent (80%) of pre-disturbance levels, excluding noxious weeds.
- 7) The operator will obtain written approval from the Land Owner accepting final reclamation prior to closure of this project. The written approval will be submitted with the final closure request after closure criteria has been satisfied and all stormwater management controls have been removed.
- 8) COGCC staff will conduct a final inspection to verify that the closure criteria have been satisfied after receiving the closure request.





3.0 RECLAMATION WORK COMPLETED

3.1 RECLAMATION METHODS

Reclamation activities were completed by Halde Sand & Gravel, Inc. on March 8, 2016, per the approved Remediation and Reclamation Workplan which was submitted with the COGCC Form 27 referenced in Section 1.0 of this report.

3.1.1 Soil Compact Alleviation

Soil compaction was alleviated as required by COGCC Rule 1003.c. via cross-ripping techniques to a depth of 18 inches below ground surface (bgs) using a bulldozer.

3.1.2 Seeding and Fertilizer Amendments

After soil compaction alleviation activities were completed, the top soil was disked using a tractor to prepare the seed bed. The water-based bentonitic drilling fluids and/or associated cuttings were incorporated into native soil during the compaction alleviation and seed bed preparation activities. The Natural Resource Conservation Service (NRCS)-recommended seed mix was applied at the suggested rate of 40 seeds per square foot at a depth of one-quarter to three-quarters of an inch bgs using a tractor equipped with drill seeding equipment. Additionally, an all-terrain vehicle was used to spread potash fertilizer, at a rate of 50 pounds per acre over the seeded area as a soil amendment.

3.1.3 Erosion Control, Site Security, and Stormwater Inspections

After the Site was drill seeded, straw mulch was then spread across the Site at a rate of approximately 2,000 to 4,000 pounds per acre and crimped into the soil to assist in stabilization from potential erosion, and a barbed wire fence was constructed around the area to prevent livestock grazing.

Stormwater inspections were conducted per COGCC Rule 1002.f. to evaluate structural best management practices (BMPs) implemented at the Site and to document repairs made. Over the course of 2017, Wiepking-Fullerton coordinated with LTE to conduct stormwater inspections at the Site after rain or snow melt events occurred, which had the potential to cause erosion. Erosion was not observed at the Site during any of the post-precipitation event inspections. Due to the fact that no erosion has been observed at the Site over the course of the last year, the landscape is relatively flat and native vegetation is improving, Wiepking-Fullerton is requesting that post precipitation event inspections be removed from the COA moving forward.

Appendix A includes the invoices of the weed control work completed. Completed stormwater inspection forms are attached as Appendix B.





3.1.4 Weed Control

Halde Sand and Gravel, Inc. mowed the Site as a weed control method on August 25, 2017, as recommended by the regional NRCS office. Invoices for the mowing operations are included as Appendix A.



4.0 RECLAMATION MONITORING

Scheduled bi-annual reclamation monitoring was conducted on April 28, 2017, and September 12, 2017. Reclamation monitoring included collecting qualitative and quantitative data for the Site.

4.1 MONITORING METHODS

4.1.1 Qualitative Data

Qualitative data included the visual observations of general site conditions and photographic documentation conducted during reclamation monitoring events.

4.1.1.1 General Site Conditions

Qualitative inspections evaluate the erosion potential, the overall plant community vigor and diversity, and the general conditions of the Site, such as disturbances present or any other notable conditions needing corrections. Plant species on- and off-site were identified.

4.1.1.2 Photographic Documentation

Photographic documentation provides a visual qualitative method for monitoring vegetation changes. Photographs of the groundcover were collected facing the four cardinal directions representing vegetation conditions on and off the Site. The photographs provide information for the Site regarding wildlife habitat, rangeland quality, and plant population conditions. Features like weed invasion, disturbances, plant height, and plant vigor can also be identified in the photographs.

4.1.2 Quantitative Data

Quantitative data were collected using the line-point intercept method at locations that were determined to be representative of the plant communities present at the time of the reclamation inspection. Data were recorded using the line-point intercept method at 1-foot intervals over each 100-foot transect. The transect locations on and off the Site were selected based on the applicable NRCS Ecological Site Description (ESD).

4.2 MONITORING RESULTS

Qualitative and quantitative data were collected on April 28, 2017, and September 12, 2017. The site-specific reclamation inspection forms are presented as Appendix C and include the inspection summaries and photographic logs. Both inspections revealed that the Site has less than 80% vegetative cover with large bare spots, compared to the reference area. However, desirable vegetation is establishing well on the north end of the Site.



5.0 PLANS FOR CONTINUED OR ADDITIONAL ACTION ITEMS

5.1 WEED CONTROL

Weed control will be continued with additional mowing operations prior to seed set in the subsequent growing seasons, as needed. Chemical herbicide controls will be used as needed.

5.2 RESEEDING

Due to failure of native seed germination in certain areas of the reclaimed area, reseeding is recommended, at a minimum, in the bare spots on the Site. Wiepking-Fullerton will be implementing additional drill seeding of the bare spots and interseeding lightly vegetated areas. Halde Construction will be contracted to conduct the additional seeding and will use a no-till drill seeder to apply the seed mix. Seeding operations will begin in the fall of 2017 and be completed no later than April 1, 2018

5.3 RECLAMATION MONITORING AND STORMWATER INSPECTIONS

Bi-annual monitoring of the vegetation will occur until the vegetation cover is 80% of the pre-disturbance or reference area and all reclamation objectives have been met. Post-construction stormwater inspections will be conducted pursuant to COGCC Rule 1002.f, and corrective actions related to vegetation as well as stormwater compliance will be implemented, as needed.

5.4 LAND OWNER ACCEPTANCE

When final reclamation of the area has been completed, a letter of acceptance regarding final reclamation will be provided to the land owner prior to closure of the project. The written approval will be submitted with the final closure request.

5.5 FINAL CLOSURE REQUEST

A final closure request will be submitted with the required documentation. COGCC staff will then conduct a final inspection to verify that the closure criteria have been satisfied.

FIGURES

APPENDIX A
WORK INVOICES



Greg Shalberg
 15559 County Rd 67
 Sheridan Lake, CO 81071

Invoice

DATE	INVOICE #
8/25/2017	530

BILL TO
Wiepking Fullerton Energy, LLC 4600 S Downing St Englewood, CO 80113

DUE DATE	P.O. NUMBER
9/25/2017	

ITEM	DESCRIPTION	QTY	RATE	AMOUNT
Contract Labor Gates	Mowing	41.5	80.00	3,320.00
	Drive Through Cattle Gates	2	180.00	360.00
<i>FIELDWIDE MOWING</i>				
			Total	3,680.00

APPENDIX B
STORMWATER MANAGEMENT INSPECTION RECORDS



Stormwater Management Plan Compliance Inspection Form

SiteID/Name: COG-06389 / Aloha Mula 6 COGCC
 Location: Sec 19 T10S R55W

Inspection Date: 5/1/2017
 Inspector: Gentry Muniz
 Signature: 

Inspection Type: COGCC COA Storm Event
 Land Use: Pasture/Grassland/Range
 SiteType: Jetted Location

InspectorTitle: Staff Scientist

Phase: Interim

Receiving Body of water/Distance/Direction: Big Sandy Creek 1.5 miles NE

Prior Veg Cover (%): 71% Current Weather: partly cloudy 60

Stormwater Runoff Risk: Low

In the past 24 hours, has there been overland runoff due to a storm event that caused sediment movement? No

Best Management Practice (BMP) Checklist

BMP TYPE					
BMP	In Use Y/N	Req'd Y/N	Required Action or Maintenance	Location	Done
Minimized Footprint	Yes	Yes			

GENERAL CONDITIONS

General	Y/N/NA	Comments
Have repairs/additional BMP issues been addressed since last inspection?	NA	
Are there signs of sediment leaving the site?	No	
Are there signs of offsite tracking at access point?	No	
Are surface waters being impacted by site runoff?	No	
Have simple repairs been made today at this site by the Inspector?	NA	
Pad Area Observations	Y/N/NA	Comments
Are tanks and/or drums present?	No	
Are tanks and/or drums placed in secondary containment areas?	NA	
Is pad area stabilized road base material?	No	
Is access road graveled (offsite soil tracking control)?	No	
Vegetation Checklist (Erosion Reduction Control)	Y/N/NA	Comments
Has the site achieved 70% or prior vegetation coverage for stabilization?	Yes	
Is the pad area reseeded?	Yes	
Are there signs of vegetation regrowth?	Yes	
Is reseeded needed?	No	

Comments: **Approximately 0.2" of rain on 4/29/17. Notified by WFE staff that no erosion was observed.**

Compliance Status:

If checked Yes, this site is in compliance with the Permit and had no incidents requiring corrective action at the time of the inspection.

Yes No

Certification

All required corrective actions have been completed, and this site is in compliance with the permit to the best of the signer's knowledge and belief.

Certifier Signature: 

Date: 5/1/2017

Certified by: Gentry Muniz

Certifier Title: Staff Scientist

Stormwater Management Plan Compliance Inspection Form

SiteID/Name: COG-06389 / Aloha Mula 6 COGCC
 Location: Sec 19 T10S R55W

Inspection Date: 7/14/2017
 Inspector: Alysia Padilla
 Signature: 

Inspection Type: COGCC COA Storm Event
 Land Use: Pasture/Grassland/Range
 SiteType: Jetted Location

InspectorTitle: Compliance Specialist

Phase: Interim

Receiving Body of water/Distance/Direction: Big Sandy Creek 1.5 miles NE

Prior Veg Cover (%): 71% Current Weather: Partly cloudy and 83

Stormwater Runoff Risk: Low

In the past 24 hours, has there been overland runoff due to a storm event that caused sediment movement? No

Best Management Practice (BMP) Checklist

BMP TYPE					
BMP	In Use Y/N	Req'd Y/N	Required Action or Maintenance	Location	Done
Mulching	Yes	Yes			
Seeding	Yes	Yes			

GENERAL CONDITIONS

General	Y/N/NA	Comments
Have repairs/additional BMP issues been addressed since last inspection?	NA	
Are there signs of sediment leaving the site?	No	
Are there signs of offsite tracking at access point?	No	
Are surface waters being impacted by site runoff?	No	
Have simple repairs been made today at this site by the Inspector?	NA	
Pad Area Observations	Y/N/NA	Comments
Are tanks and/or drums present?	No	
Are tanks and/or drums placed in secondary containment areas?	NA	
Is pad area stabilized road base material?	No	
Is access road graveled (offsite soil tracking control)?	No	
Vegetation Checklist (Erosion Reduction Control)	Y/N/NA	Comments
Has the site achieved 70% or prior vegetation coverage for stabilization?	No	
Is the pad area reseeded?	Yes	
Are there signs of vegetation regrowth?	Yes	
Is reseeding needed?	No	

Comments:

Compliance Status:

If checked Yes, this site is in compliance with the Permit and had no incidents requiring corrective action at the time of the inspection.

Yes No

Certification

All required corrective actions have been completed, and this site is in compliance with the permit to the best of the signer's knowledge and belief.

Certifier Signature: 

Date: 7/14/2017

Certified by: Alysia Padilla

Certifier Title: Compliance Specialist

Stormwater Management Plan Compliance Inspection Form

SiteID/Name: COG-06389 / Aloha Mula 6 COGCC
 Location: Sec 19 T10S R55W

Inspection Date: 8/18/2017
 Inspector: Gentry Muniz
 Signature: 

Inspection Type: COGCC COA Storm Event
 Land Use: Pasture/Grassland/Range
 SiteType: Jetted Location

InspectorTitle: Staff Scientist

Phase: Interim

Receiving Body of water/Distance/Direction: Big Sandy Creek 1.5 miles NE

Prior Veg Cover (%): 71% Current Weather: sunny 80s

Stormwater Runoff Risk: Low

In the past 24 hours, has there been overland runoff due to a storm event that caused sediment movement? No

Best Management Practice (BMP) Checklist

BMP TYPE					
BMP	In Use Y/N	Req'd Y/N	Required Action or Maintenance	Location	Done
Minimized Footprint	Yes	No			
Seeding	No	Yes			

GENERAL CONDITIONS

General	Y/N/NA	Comments
Have repairs/additional BMP issues been addressed since last inspection?	NA	
Are there signs of sediment leaving the site?	No	
Are there signs of offsite tracking at access point?	No	
Are surface waters being impacted by site runoff?	No	
Have simple repairs been made today at this site by the Inspector?	NA	
Pad Area Observations	Y/N/NA	Comments
Are tanks and/or drums present?	No	
Are tanks and/or drums placed in secondary containment areas?	NA	
Is pad area stabilized road base material?	No	
Is access road graveled (offsite soil tracking control)?	No	
Vegetation Checklist (Erosion Reduction Control)	Y/N/NA	Comments
Has the site achieved 70% or prior vegetation coverage for stabilization?	Yes	
Is the pad area reseeded?	Yes	
Are there signs of vegetation regrowth?	Yes	
Is reseeding needed?	No	

Comments: **No erosion observed. Recommend spot seeding.**

Compliance Status:

If checked Yes, this site is in compliance with the Permit and had no incidents requiring corrective action at the time of the inspection.

Yes No

Certification

All required corrective actions have been completed, and this site is in compliance with the permit to the best of the signer's knowledge and belief.

Certifier Signature: 

Date: 8/18/2017

Certified by: Gentry Muniz

Certifier Title: Staff Scientist

Stormwater Management Plan Compliance Inspection Form

SiteID/Name: COG-06389 / Aloha Mula 6 COGCC
 Location: Sec 19 T10S R55W

Inspection Date: 9/28/2017
 Inspector: Alysia Padilla
 Signature: 

Inspection Type: COGCC COA Storm Event
 Land Use: Pasture/Grassland/Range
 SiteType: Jetted Location

InspectorTitle: Compliance Specialist

Phase: Interim

Receiving Body of water/Distance/Direction: Big Sandy Creek 1.5 miles NE

Prior Veg Cover (%): 71% Current Weather: Cloudy and 48

Stormwater Runoff Risk: Low

In the past 24 hours, has there been overland runoff due to a storm event that caused sediment movement? No

Best Management Practice (BMP) Checklist

BMP TYPE					
BMP	In Use Y/N	Req'd Y/N	Required Action or Maintenance	Location	Done
Seeding	Yes	Yes			

GENERAL CONDITIONS

General	Y/N/NA	Comments
Have repairs/additional BMP issues been addressed since last inspection?	NA	
Are there signs of sediment leaving the site?	No	
Are there signs of offsite tracking at access point?	No	
Are surface waters being impacted by site runoff?	No	
Have simple repairs been made today at this site by the Inspector?	NA	
Pad Area Observations	Y/N/NA	Comments
Are tanks and/or drums present?	No	
Are tanks and/or drums placed in secondary containment areas?	NA	
Is pad area stabilized road base material?	No	
Is access road graveled (offsite soil tracking control)?	No	
Vegetation Checklist (Erosion Reduction Control)	Y/N/NA	Comments
Has the site achieved 70% or prior vegetation coverage for stabilization?	Yes	
Is the pad area reseeded?	Yes	
Are there signs of vegetation regrowth?	Yes	
Is reseeding needed?	No	

Comments: No erosion observed.

Compliance Status:

If checked Yes, this site is in compliance with the Permit and had no incidents requiring corrective action at the time of the inspection.

Yes No

Certification

All required corrective actions have been completed, and this site is in compliance with the permit to the best of the signer's knowledge and belief.

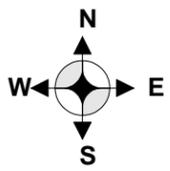
Certifier Signature: 

Date: 9/28/2017

Certified by: Alysia Padilla

Certifier Title: Compliance Specialist

WELL NAME:	Aloha Mula 6			API#:	COG-06389		
	QTR/QTR:	SVNE	SEC:	19	TWN:	10S	RNG: 55W
LAT/LONG:	39.16595/-103.59198						
DIRECTIONS:							
Hwy 40 & CR 26S, 2.6, W.35 into							
MUNICIPALITY:							
Lincoln							
PRE-CONSTRUCTION VEGETATION DESCRIPTION AND COVERAGE PERCENT:							
Rangeland 71%							
TOPOGRAPHY:							
3-20% slopes							
TOTAL DISTURBED AREA (acres):							
0.62							
SOIL TYPE'							
Valent Sand							
NEAREST RECEIVING WATERS							
NAME	Big Sandy Creek						
DIRECTION	Northeast						
DISTANCE	1.5 miles						
NON-STORMWATER DISCHARGE							
NAME							
DIRECTION							
DISTANCE							
POTENTIAL DRAINAGE AREA							
NAME							
DIRECTION							
DISTANCE							
MAP GENERATED BY				LT ENVIRONMENTAL			
SITE CONSTRUCTION COMPANY							
LANDMAN REPRESENTATIVE	KERRY HALDE						
COMMENTS							



Lease/Name: Aloha Mula 6

API: COG-06389

SEC: 19 TWN: 10S RNG: 55W

Land Use: Rangeland

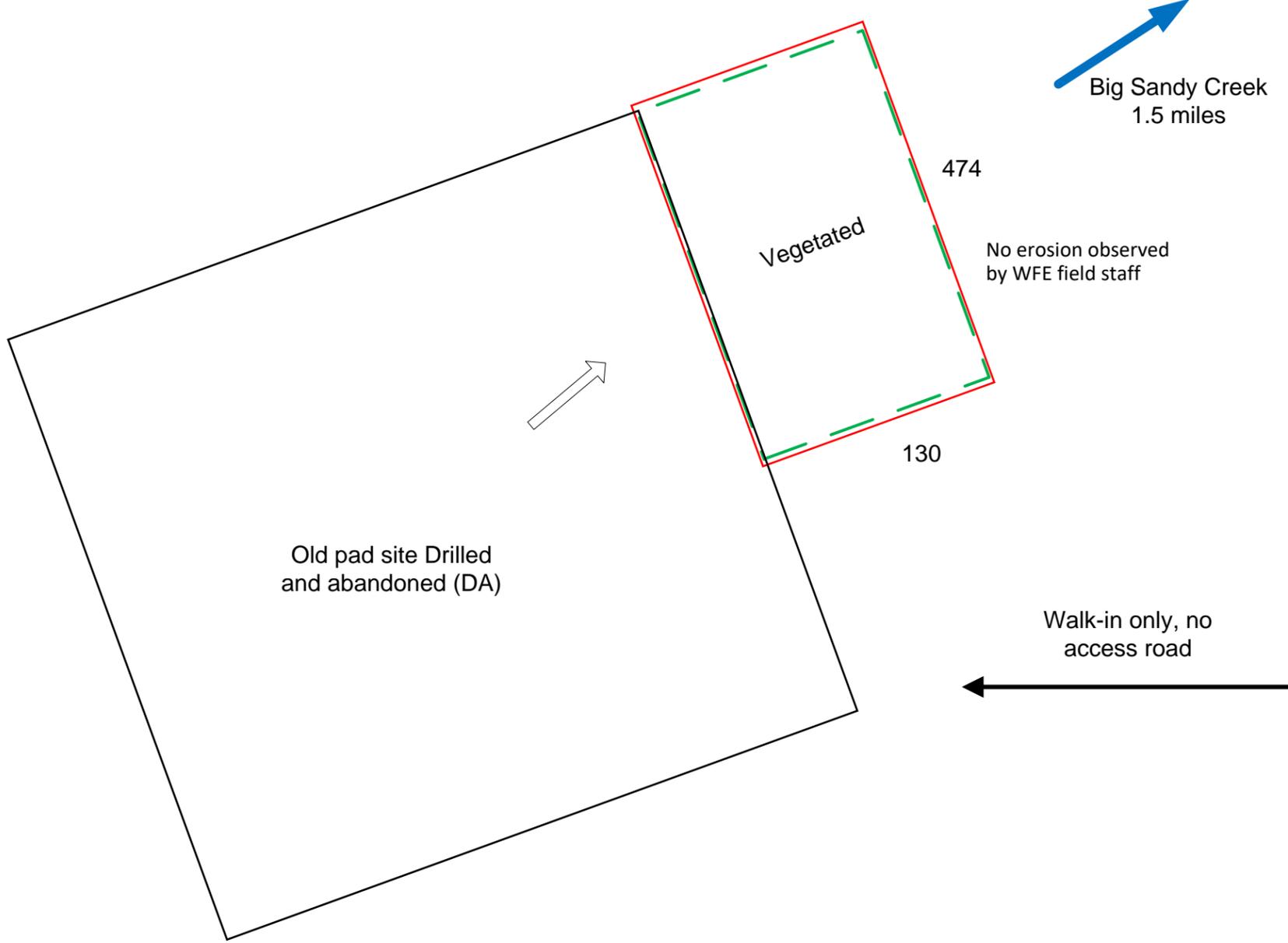
Lat/Long: 39.16595/-103.59198

Runoff Risk: Low

County: Lincoln

Permittee:
Wiepking-Fullerton
Energy, LLC

Inspection Date:
5/1/17



Satellite Map: Courtesy of Google Earth



LEGEND

Construction Boundary	Disturbance Boundary	Cut/Fill Line	Chemical Storage	Port-o-let	Roadbased Surface	Surface Water	Paved Road	Unpaved Road	Meter House	Flare	AST	Water Sump	Separator	Pad Surface Boundary	Wellhead	Ditch																									
Construction Boundary	Disturbance Boundary	Cut/Fill Line	Chemical Storage	Port-o-let	Roadbased Surface	Surface Water	Paved Road	Unpaved Road	Meter House	Flare	AST	Water Sump	Separator	Wellhead	Rig	Stock Pile	Rolloff Frac Tank	Frac Trailer	Equipment Storage	Trailer	Surface Flow	Vehicle Tracking Control	Cattleguard	Dumpster	Berm	Check Dam	Culvert	Ditch & Berm	Erosion Control Blanket	Filter Berm	Hydro-mulch	Mulching	Ripping	Riprap	Sediment Trap	Seeding	Silt Fence	Sound Barrier	Straw Bale	Soil Roughening	Wattle

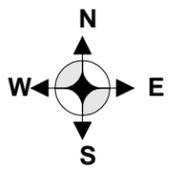
Topographic Map: Courtesy of Google Earth



- 1) Construction site boundaries include all ground surface disturbances and approximately 10-15 feet beyond perimeter BMPs. Boundaries are subject to change at any time for pad expansion, maintenance and addition of BMP structures, or new access roads.
- 2) Surrounding conditions include rangeland vegetation with pre-disturbance vegetation density approximately 70%
- 3) Receiving Body of Water:
Big Sandy Creek approximately 1.5 miles Northeast
- 4) Pad will be graded and seeded, if necessary, to as close to pre-existing conditions as practicable once construction is completed.
- 5) Pad dimensions are approximate.



Map Not to Scale



Lease/Name: Aloha Mula 6

API: COG-06389

SEC: 19 TWN: 10S RNG: 55W

Land Use: Rangeland

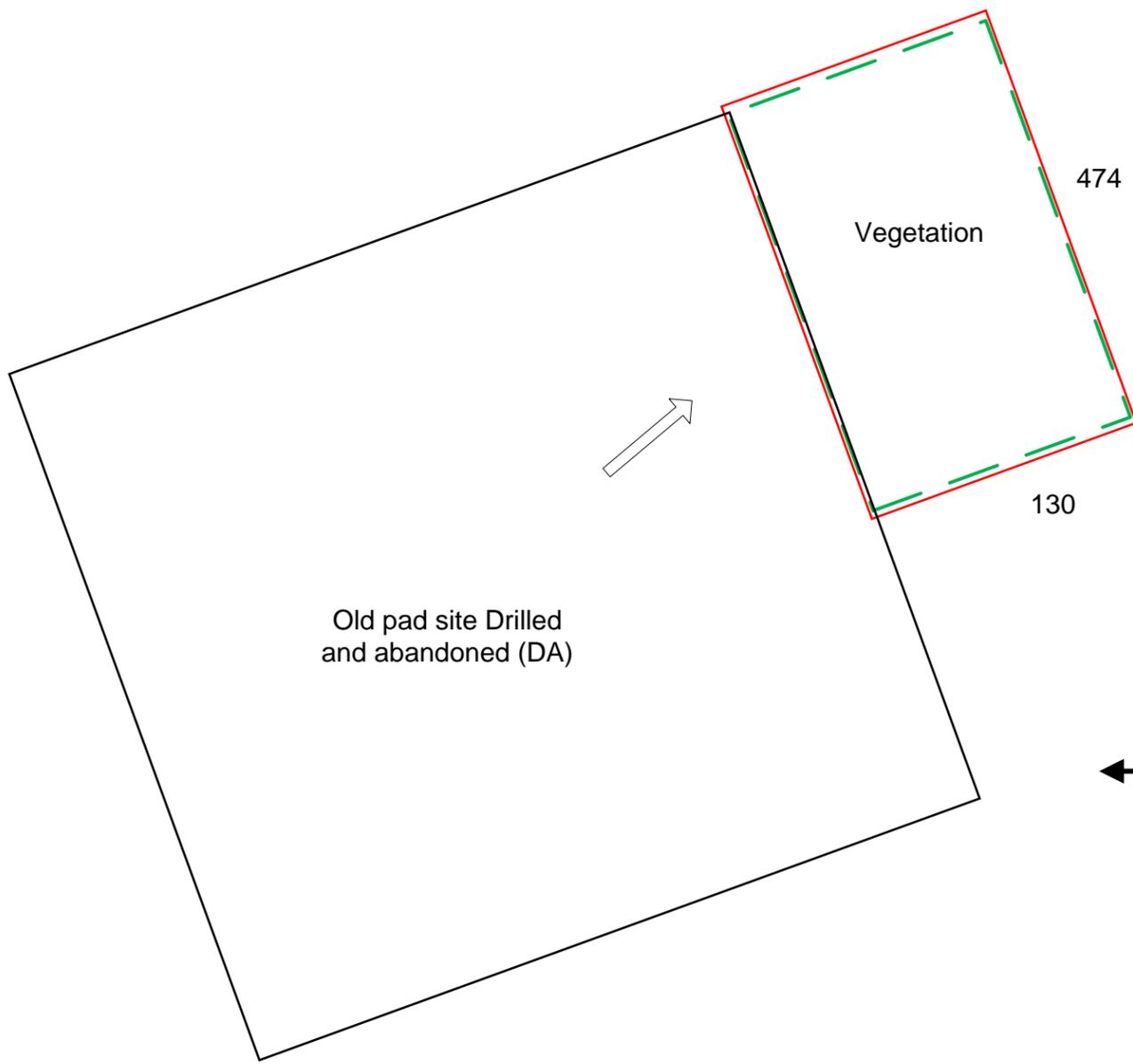
Lat/Long: 39.16595/-103.59198

Runoff Risk: Low

County: Lincoln

Permittee:
Wiepking-Fullerton
Energy, LLC

Inspection Date:
7/14/17



Satellite Map: Courtesy of Google Earth



LEGEND

Construction Boundary	Disturbance Boundary	Cut/Fill Line	Chemical Storage	Port-o-let	Roadbased Surface	Surface Water	Paved Road	Unpaved Road	Meter House	Flare	AST	Water Sump	Separator	Pad Surface Boundary	Wellhead	Rig	Stock Pile	Rolloff Frac Tank	Frac Trailer	Equipment Storage	Trailer	Surface Flow	Vehicle Tracking Control	Cattleguard	Dumpster	Berm	Check Dam	Culvert	Ditch	Ditch & Berm	Erosion Control Blanket	Filter Berm	Hydro-mulch	Mulching	Ripping	Riprap	Sediment Trap	Seeding	Silt Fence	Sound Barrier	Straw Bale	Soil Roughening	Wattle
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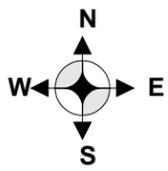
Topographic Map: Courtesy of Google Earth



- 1) Construction site boundaries include all ground surface disturbances and approximately 10-15 feet beyond perimeter BMPs. Boundaries are subject to change at any time for pad expansion, maintenance and addition of BMP structures, or new access roads.
- 2) Surrounding conditions include rangeland vegetation with pre-disturbance vegetation density approximately 70%
- 3) Receiving Body of Water:
Big Sandy Creek approximately 1.5 miles Northeast
- 4) Pad will be graded and seeded, if necessary, to as close to pre-existing conditions as practicable once construction is completed.
- 5) Pad dimensions are approximate.



Map Not to Scale



Lease/Name: Aloha Mula 6

API: COG-06389

SEC: 19 TWN: 10S RNG: 55W

Land Use: Rangeland

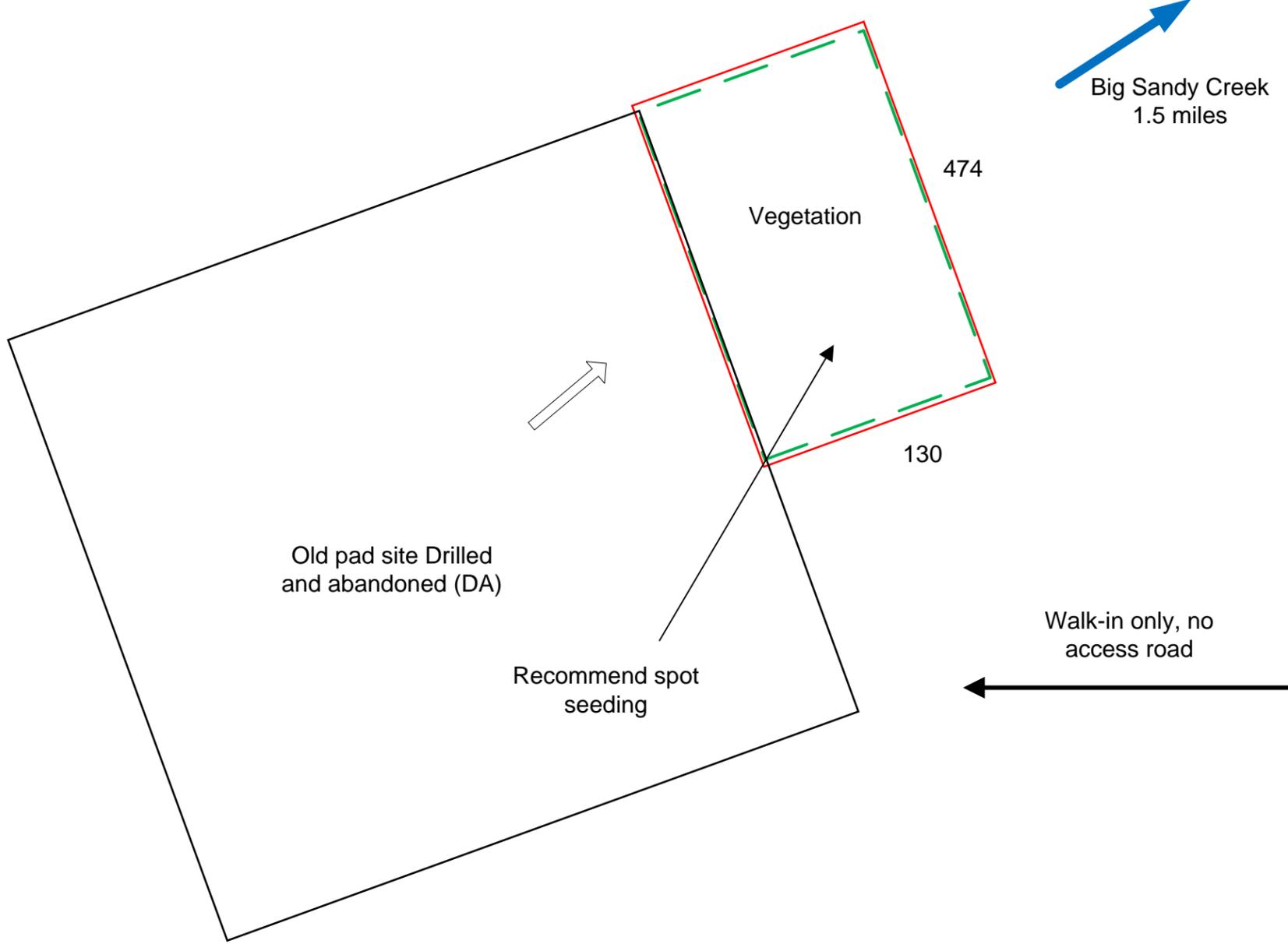
Lat/Long: 39.16595/-103.59198

Runoff Risk: Low

County: Lincoln

Permittee:
Wiepking-Fullerton
Energy, LLC

Inspection Date:
8/18/17



Satellite Map: Courtesy of Google Earth



LEGEND

Construction Boundary	Disturbance Boundary	Cut/Fill Line	Chemical Storage	Port-o-let	Roadbased Surface	Surface Water	Paved Road	Unpaved Road	Meter House	Flare	AST	Water Sump	Separator	Pad Surface Boundary	Wellhead	Rig	Stock Pile	Rolloff Frac Tank	Frac Trailer	Equipment Storage	Trailer	Surface Flow	Vehicle Tracking Control	Cattleguard	Dumpster	Berm	Check Dam	Culvert	Ditch	Ditch & Berm	Erosion Control Blanket	Filter Berm	Hydro-mulch	Mulching	Ripping	Riprap	Sediment Trap	Seeding	Silt Fence	Sound Barrier	Straw Bale	Soil Roughening	Wattle
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Topographic Map: Courtesy of Google Earth



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API: COG-06389

SEC: 19 TWN: 10S RNG: 55W

Land Use: Rangeland

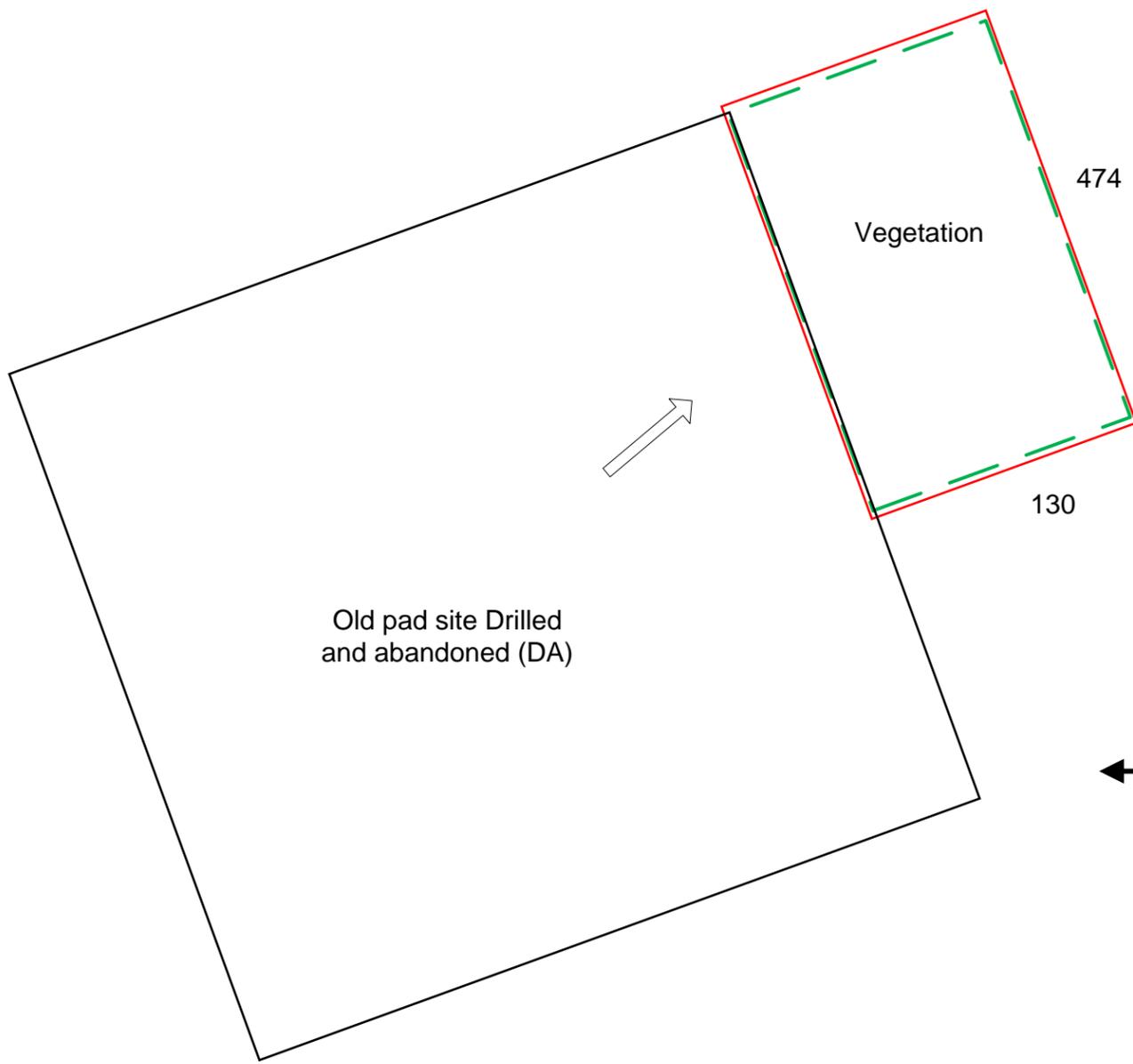
Lat/Long: 39.16595/-103.59198

Runoff Risk: Low

County: Lincoln

Permittee:
Wiepking-Fullerton
Energy, LLC

Inspection Date:
9/28/17



Satellite Map: Courtesy of Google Earth



LEGEND

Construction Boundary	Disturbance Boundary	Cut/Fill Line	Chemical Storage	Port-o-let	Roadbased Surface	Surface Water	Paved Road	Unpaved Road	Meter House	Flare	AST	Water Sump	Separator	Wellhead	Rig	Stock Pile	Rolloff Frac Tank	Frac Trailer	Equipment Storage	Trailer	Surface Flow	Vehicle Tracking Control	Cattleguard	Dumpster	Berm	Check Dam	Culvert	Ditch	Ditch & Berm	Erosion Control Blanket	Filter Berm	Hydro-mulch	Mulching	Ripping	Riprap	Sediment Trap	Seeding	Silt Fence	Sound Barrier	Straw Bale	Soil Roughening	Wattle
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Topographic Map: Courtesy of Google Earth



- 1) Construction site boundaries include all ground surface disturbances and approximately 10-15 feet beyond perimeter BMPs. Boundaries are subject to change at any time for pad expansion, maintenance and addition of BMP structures, or new access roads.
- 2) Surrounding conditions include rangeland vegetation with pre-disturbance vegetation density approximately 70%
- 3) Receiving Body of Water:
Big Sandy Creek approximately 1.5 miles Northeast
- 4) Pad will be graded and seeded, if necessary, to as close to pre-existing conditions as practicable once construction is completed.
- 5) Pad dimensions are approximate.



Map Not to Scale

APPENDIX C
RECLAMATION MONITORING REPORTS



Location: Aloha Mula 6

API: 05-073-06389

Status: DA

Location: Lincoln County, Colorado

Monitoring Date: 4/28/2017

Qualitative Analysis

Access Road in Use	NA
Road recontoured properly	NA
Site recontoured properly	Y
Road base removed	NA
Equipment on site	N
Trash or debris on site	N
Vehicle disturbances	N
Wildlife disturbances	N
Grazing disturbances	N
Reclamation area Fenced	Y
Subsidence	N
Seed germination	Y
Desirable plants vigorous	Y
Uniform growth	N

Comments

Noxious weeds observed onsite: None

Species observed onsite: SATR12, PG1, LASE, PASM

General Comments: Bare spots and abundant undesirable species. Grasses establishing well on north half of jetted area.

Recommendations

Weed mitigation and seeding in middle of site and along south side of site.

Quantitative Analysis (Line Point Intercept Transect Data)

Onsite Transect	
Species	%
Unknown perennial grass 1	44
<i>Salsola tragus</i>	15
<i>Pascopyrum smithii</i>	3
<i>Lactuca serriola</i>	1
Total Canopy Cover	47
Non-Weed Canopy Cover*	32
Non-Weed Basal Cover	0

Offsite Transect	
Species	%
<i>Bouteloua gracilis</i>	54
Unknown Perennial Bunch Grass #2	5
<i>Yucca glauca</i>	5
Unknown Perennial Bunch Grass	3
Unknown Perennial Forb	1
<i>Artemisia filifolia</i>	1
<i>Ambrosia psilostachya</i>	1
<i>Aristida purpurea</i>	1
<i>Andropogon hallii</i>	1
<i>Opuntia polyacantha</i>	1
Total Canopy Cover	71
Non-Weed Canopy Cover*	71
Non-Weed Basal Cover	9

Quantitative Results

Ratio of % Non-weedy Canopy Cover Onsite to Non-weedy Canopy Cover Offsite = 45%

Ratio of % Non-weedy Basal Cover Onsite to Non-weedy Basal Cover Offsite = 0%

*Noxious weeds are designated species determined by the Colorado Noxious Weed Act. Other undesirable species are commonly known as weeds in the region.

PHOTOGRAPHIC LOG



Photograph 1: Looking North



Photograph 2: Looking East



Photograph 3: Looking South



Photograph 4: Looking West

Location: Aloha Mula 6

API: 05-073-06389

Status: DA

Location: Lincoln County, Colorado

Monitoring Date: 09/12/2017

Qualitative Analysis

Access Road in Use	NA
Road recontoured properly	NA
Site recontoured properly	Y
Road base removed	NA
Equipment on site	N
Trash or debris on site	N
Vehicle disturbances	N
Wildlife disturbances	N
Grazing disturbances	N
Reclamation area Fenced	Y
Subsidence	N
Seed germination	Y
Desirable plants vigorous	Y
Uniform growth	N

Comments

Noxious weeds observed onsite: None
Species observed onsite: SPCR, MENU, SATR12, BOCU, YUGL
General Comments: Bare spots and abundant kochia and Russian thistle. Grasses establishing well on north half of jetted area. Recent mowing has reduced canopy cover.

Recommendations

Spot seed bare areas, and mow Russian thistle and kochia before seedset to help grasses establish.

Quantitative Analysis (Line Point Intercept Transect Data)

Onsite Transect	
Species	%
<i>Salsola tragus</i>	44
<i>Panicum virgatum</i>	4
<i>Bouteloua gracilis</i>	1
<i>Sporobolus cryptandrus</i>	1
Total Canopy Cover	50
Non-Weed Canopy Cover*	6
Non-Weed Basal Cover	0

Offsite Transect	
Species	%
<i>Bouteloua gracilis</i>	54
Unknown Perennial Bunch Grass #2	5
<i>Yucca glauca</i>	5
Unknown Perennial Bunch Grass	3
Unknown Perennial Forb	1
<i>Artemisia filifolia</i>	1
<i>Ambrosia psilostachya</i>	1
<i>Aristida purpurea</i>	1
<i>Andropogon hallii</i>	1
<i>Opuntia polyacantha</i>	1
Total Canopy Cover	71
Non-Weed Canopy Cover*	71
Non-Weed Basal Cover	9

Quantitative Results

Ratio of % Non-weedy Canopy Cover Onsite to Non-weedy Canopy Cover Offsite = 8%
 Ratio of % Non-weedy Basal Cover Onsite to Non-weedy Basal Cover Offsite = 0%

*Noxious weeds are designated species determined by the Colorado Noxious Weed Act. Other undesirable species are commonly known as weeds in the region.

PHOTOGRAPHIC LOG



Photograph 1: Looking North



Photograph 2: Looking East



Photograph 3: Looking South



Photograph 4: Looking West

PHOTOGRAPHIC LOG



Photograph 5: Site overview