

APPENDIX C

Thurston Energy, LLC's Surface Use Plan of Operations (SUPO)

Thurston Energy LLC

Ouray National Wildlife Refuge 2-Well Development Program

Proposed Surface Use Plan of Operations

Name of Owner(s)
Thurston Energy LLC
4925 Greenville Avenue, Suite 900
Dallas, Texas 75206
P| 214.704.3896

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1) Proof of Mineral Rights

Utah SITLA ML 52016 Oil, Gas & Associated Hydrocarbon Lease Serial Page (Page 1)

 Trust Lands Administration <small>State of Utah's School and Institutional Trust Lands Administration</small>	Contract Serial Register Page ML52016
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Contract Details

Lease: ML52016	Lease Type: OIL GAS & ASSOCIATED	Acres: 619.08
Date Approved: 08/15/2011	Start Date: 09/01/2011	Royalty Rate: 16.66666700
Date Cancelled:	End Date: 08/31/2019	Term: 5
Lessee: THURSTON ENERGY LLC		Status: Active
Address: SUITE 900 4925 GREENVILLE AVENUE DALLAS, TX 75206		

Parcel Legal Description

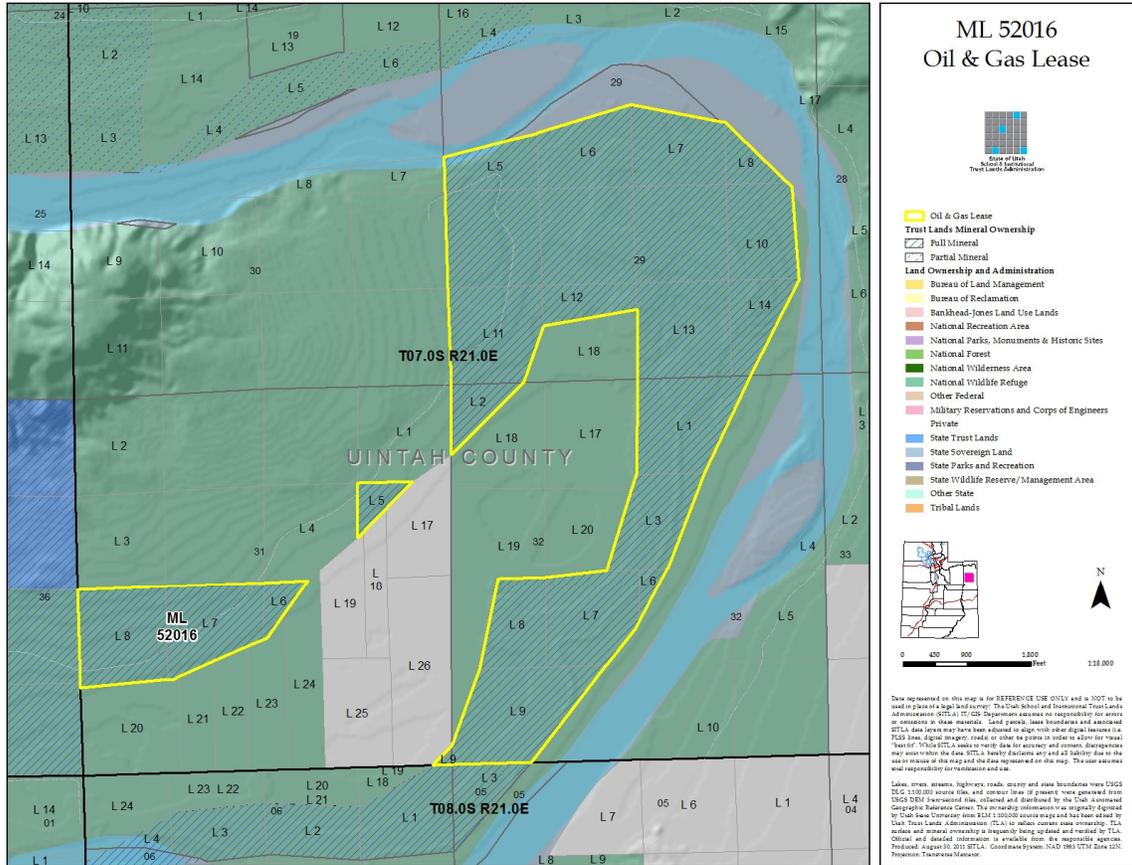
TRS	County	Bene	Type	Layer	Acres
T7.0 S R21.0E S31 SL	UINT	SCH	Use	O&G	80.65
Legal Description: LOTS 5(6.27), 6(5.40), 7(32.00), 8(36.90), 9(0.08) [AKA PART OF NW4SE4NE4, PART OF N2SW4, PART OF NW4NW4SE4, PART OF SE4SE4SE4SE4]					
T7.0 S R21.0E S32 SL	UINT	SCH	Use	O&G	190.03
Legal Description: LOTS 1(39.00), 2(11.23), 3(29.00), 6(4.55), 7(37.25), 8(22.80), 9(46.20) [AKA PART OF NW4NE4, PART OF SW4NE4, PART OF NW4NW4, PART OF SE4NW4, PART OF SW4, PART OF NW4SE4]					
T7.0 S R21.0E S29 SL	UINT	SCH	Use	O&G	348.40
Legal Description: LOTS 5(19.00), 6(30.00), 7(32.00), 8(9.10), 10(29.00), 11(37.30), 12(13.00), 13(40.00), 14(19.00), N2SW4, NW4SE4 [LOTS AKA PART OF S2S2N2, PART OF S2SW4, PART OF NE4SE4, PART OF S2SE4]					
					Total Acres: 619.08

Interests in Contract

Interest Type: 1	Record Title	RECORD TITLE		
	COMPANY ID: 27625	THURSTON ENERGY LLC	4357898580	Percent Interest: 50.000000
	Address ID: 27625	SUITE 900, 4925 GREENVILLE AVENUE DALLAS, TX, 75206		

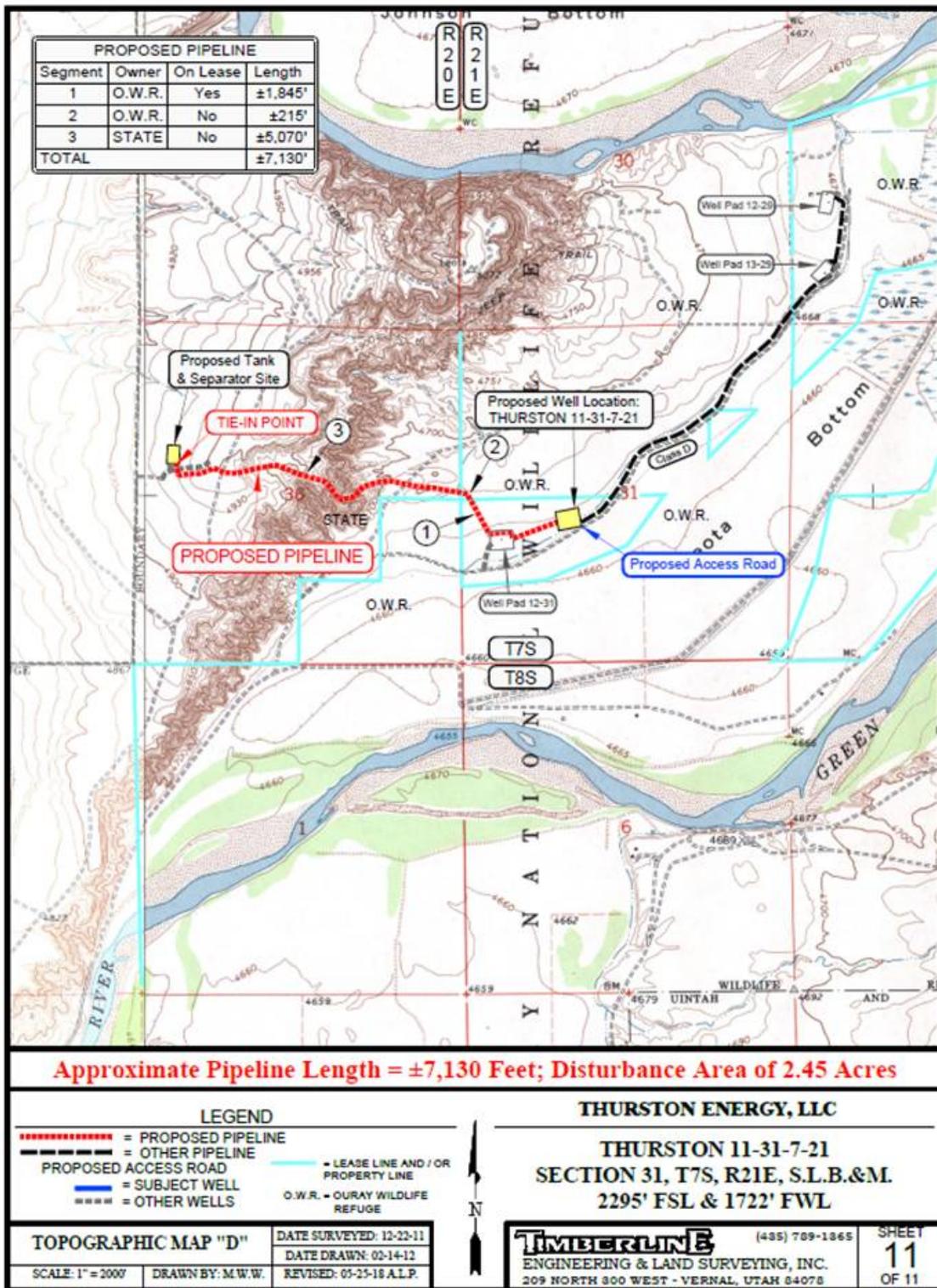
2) Location of Mineral Rights

Utah SITLA ML 52016 Oil, Gas and Associated Hydrocarbon Lease Map



3) Proposed Project Location

Thurston Energy LLC Ouray NWR 2-Well Project Development Program



4) Well-Specific Plan of Operations / Surface Use Plan

THURSTON 11-31-7-21

Location: Lot 7 (NESW), Section 31, Township 7 South, Range 21 East, S.L.B. & M.

County: Uintah County, Utah

Lease Number: ML 52016

Surface Ownership: Federal

1. Estimated Timetable for Completion & Periods of Activity

Construction to begin at first allowable annual time window on September 1. Activities will include:

- A) Construct well pad and access road in 2 days;
- B) Drill conductor hole and set and cement conductor casing in 1 day;
- C) Drill surface casing hole and set and cement surface casing in 2 days;
- D) Move in and rig up drilling rig and pressure test surface casing and BOPE in 2 days;
- E) Drill long string hole, record geophysical logs, and based upon results set and cement production casing or plug and abandon well and move drilling rig to adjacent well location or off Refuge in 8 days;
- F) If production casing decision was made wait at least 2 days for cement to cure, then run cased hole logs to include a cement bond log;
- G) Move in and rig up a completion rig and assemble equipment for completion and stimulation of productive zones in 3 days;
- H) Complete well by perforating and stimulating selected zones and begin flow testing in 3 days;
- I) Move completion equipment to adjacent well location or off Refuge, move in production equipment, and set same up for additional production testing in 3 days;
- J) Make final decision on commerciality and arrange for R-o-W for gas export pipeline construction and road maintenance immediately or during next available construction window.

2. Existing Roads

Starting in Vernal, Utah:

Proceed in a southwesterly direction from Vernal, Utah along U.S. Highway 40 approximately 13.9 miles to the junction of State Highway 88. Exit left and then proceed in a southerly direction along SH 88 approximately 7.1 miles to the intersection of 5500 South Street. Continue along SR 88 approximately 6.7 miles to the Ouray NWR entrance and exit left and continue approximately 4.7 miles. Follow flags for the proposed access road approximately 10' to the proposed location.

Total Distance from Vernal, Utah to the proposed well location is approximately 32.4 miles.

All existing roads to the proposed location are State of Utah or Uintah County Class B roads.

3. Planned Access Road

Access road will be constructed.

A) Approximate length	10'
B) Access width	36'
C) Running surface	18'
D) Surface material	Natural
E) Maximum grade	Flat
F) Fence crossing	NO
G) Culvert	Yes
H) Turnouts	NO
I) Major cuts and fills	NO
J) Road flagged	YES
K) Access road surface ownership	Federal
L) All new construction on lease	YES
M) Pipeline crossing	None
N) Construction time	1 DAY
O) Road crowned and ditched	YES

Please see the location plats on the following pages for additional details.

An access permit (USFWS Special Use Permit initially, Right-of-way permit for long-term access) will be required. All surface disturbances for the road and location will be within the lease boundary. The equipment used for road construction will be the same as used for location construction.

4. Location of existing wells

See SHEET 10 of attached Plats for well locations. There are no monitoring or observation wells.

5. Location of tank batteries, production facilities, production gathering pipelines

All associated above-ground storage tanks (AST), a boiler, 3-phase separator, natural gas dehydrator, and natural gas sales meter will be located on the proposed Thurston 11-31-7-21 well pad. Please see SHEET 6 of attached engineering packet for the production equipment installation and well site piping plan.

All permanent (on site for 6 months or longer) structures constructed or installed will be painted a Covert Green color. Facilities required to comply with OSHA will be excluded.

All tanks will be surrounded by a dike of sufficient capacity to contain 110 percent of the total storage capacity of the largest tank in the battery and sufficient freeboard to contain precipitation. The integrity of the dike will be maintained.

The operator will adhere to all site security guidelines and regulation identified in 43 CFR 3126.7.

All off lease storage, off lease measurement, comingling on lease or off lease, of production, will have prior written approval from the authorized officer.

If the well is capable of economic production a high-density polyethylene (HDPE) pipeline would be required for the transport of natural gas to a connection point with the existing natural gas gathering system for the Three Rivers field in SWNW Section 36, T. 8 S., R 20 E., S.L.B.&M. on top of the bluff near the west boundary of the Ouray NWR .

Pipeline:

The pipeline would consist of 7,131 feet of 3-inch, HDPE natural gas pipeline laid by hand from the interconnection point with the natural gas gathering system on top of the bluff to the well pad. The majority of the surface pipeline would be cross country and would first tie in to the Thurston 11-31-7-21 pad and then head west to the Thurston 12-31-7-21 pad and up the bluff to the interconnection point.

The Thurston 11-31-7-21 location will be utilized as the staging area.

- | | |
|----------------------------------|--|
| A) Staging area | None |
| B) Construction | 1 week |
| C) Additional equipment required | None |
| D) Stringing method | Unspooled by hand from 500-1000 ft reels |
| E) Wash crossing | YES |
| F) Road crossing | YES |

An off lease Right-of-Way will be required.

Please see the attached location diagrams for pipeline location.

There will be no additional surface disturbances required for the installation of gathering line.

The gas meter run will be located within 500 feet of the wellhead. The gas line will be anchored down from the wellhead to the meter. Meter runs will be housed and/or fenced.

The gas meter will be calibrated and the tank strapped in place prior to any deliveries. Tests for meter accuracy will be conducted monthly for the first 3 months on new meter installations and at least quarterly thereafter. The authorized officer will be provided with a date and time for the initial meter-proving schedules. A copy of the meter calibration report will be submitted to the BLM's Vernal District office and State of Utah, Division of Oil, Gas, and Mining. All measurement facilities will conform to API (American Gas Association) standards for gas and liquid hydrocarbon measurement.

6. Location and type of water supply

Water for drilling and cementing will be purchased from off-Refuge water suppliers. As much of the purchased water as possible will be delivered via the Refuge water supply

pipeline to minimize tanker truck traffic. Some water for special purposes may still be trucked to the site from Vernal municipal supplies.

7. Source of construction materials

All construction material for this location site and access road shall borrow material accumulated during construction of the location site and access road. Additional road gravel, if required, will be obtained from private resources and will be certified weed-free.

8. Potential hazards to persons and/or the environment

Description of potential hazards

9. Methods for handling waste disposal

A) Drilling operations

A closed system will be used to drill the well. All fresh water for drilling will come from tanks placed on location and from the rig tank. Non-flammable materials such as cuttings, salt, drilling fluids, chemicals, produced fluids, etc. will be held in tanks.

B) Drilling mud

Fresh water or gel-based drilling mud with polymer will be used.

C) Produced fluids

Onsite disposal of produced water is prohibited. Produced water may only be disposed of at an offsite State-approved facility. No wastewater will be discharged onto Refuge lands, ditches, or water bodies. All cuttings and drilling fluids will be temporarily stored in tanks and then removed from the Refuge and disposed of off-site at an approved disposal facility

D) Garbage

A trash cage fabricated from expanded metal will be used to hold trash on location and will be removed weekly and taken to an authorized landfill location.

E) Sewage

A portable chemical toilet will be supplied for human waste. A sewage gathering system will be used for all affluent from camp building on location. All effluent will be disposed of at the Ashley Valley water treatment plant.

F) Site clean-up

After the rig is moved off the location, the well site area will be cleaned and all refuse removed.

10. Ancillary facilities

There are no ancillary facilities planned at this time and none are foreseen in the future.

11. Well-site layout

Location dimensions are as follows:

A) Pad length	370 ft
B) Pad width	300 ft
C) Pit depth	N/A
D) Pit length	N/A
E) Pit width	N/A
F) Max cut	2.8 ft
G) Max fill	1.5 ft
H) Total cut yds	4,070 cu yds
I) Pit location	N/A
K) Access road location	Southeast
L) Flare	110 ft from well head

Please see the engineering packet sheets for additional details.

12. Surface restoration

Reclamation activities will be accomplished as provided in the **Thurston Energy LLC., Ouray National Wildlife Refuge Reclamation and Weed Plan**. (The plan and plat of the Interim Reclamation Diagram on SHEET 7 of the engineering packet and Site Specific Plan are enclosed.)

13. Surface ownership

Access road	Federal
Location	Federal
Pipeline	Federal and State

14. Other information

- A) Vegetation
See Site Specific Plan

- B) Dwellings
There are no dwellings or other facilities within a 1-mile radius of the location, though there are several residences and a bunkhouse in the Refuge Headquarters area nearby.

- C) Weed Control Plan
Weed control will be accomplished as provided in the attached **Thurston Energy LLC., Ouray National Wildlife Refuge Reclamation and Weed Plan**.

D) Archaeology

The location has been surveyed. The cultural and paleontological report is included in the USFWS project file but may not be available for public distribution due to sensitive material contained within.

E) Water

Nearest water is in the Green River approximately 0.7 miles to the south.

F) Chemicals

No pesticides, herbicides or other possible hazardous chemicals will be used without prior application and approval.

G) Proper Notification

- a) Will occur at least 48-hours prior to construction of location and access roads.
- b) Will occur prior to moving the drilling rig onsite.
- c) Will occur at least 24 hours prior to spudding the well.
- d) Will occur at least 24 hours prior to running casing and cementing all casing strings.
- e) Will occur at least 24 hours prior to initial pressure tests of Blowout Preventer and related equipment (BOPE) and surface casing.
- f) First production notice will be submitted within 5 business days after the new well begins or resumes production if the well has been shut-in for more than 90 days.

H) Paleontology

The location has been surveyed. The cultural and paleontological report is included in the USFWS project file but may not be available for public distribution due to sensitive material contained within.

THURSTON 12-31-7-21

Location: Lot 8 (NWSW), Section 31, Township 7 South, Range 21 East, S.L.B. & M.

County: Uintah County, Utah

Lease Number: ML 52016

Surface Ownership: Federal

1. Estimated Timetable for Completion & Periods of Activity

Construction to begin at first allowable annual time window on September 1. Activities will include:

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- E) Drill long string hole, record geophysical logs, and based upon results set and cement production casing or plug and abandon well and move drilling rig to adjacent well location or off Refuge in 8 days;
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Total Distance from Vernal, Utah to the proposed well location is approximately 32.2 miles.

All existing roads to the proposed location are State of Utah or Uintah County Class B roads.

3. Planned Access Road

Access road will be constructed.

A) Approximate length	410'
B) Access width	36'
C) Running surface	18'
D) Surface material	Native
E) Maximum grade	Flat
F) Fence crossing	N/A
G) Culvert	Yes
H) Turnouts	None
I) Major cuts and fills	None
J) Road flagged	YES
K) Access road surface ownership	Federal
L) All new construction on lease	YES
M) Pipeline crossing	None
N) Construction time	1 DAY
O) Road crowned and ditched	YES

Please see the location plats on the following pages for additional details.

An access permit (USFWS Special Use Permit initially, Right-of-way permit for long-term access) will be required. All surface disturbances for the road and location will be within the lease boundary. The equipment used for road construction will be the same as used for location construction.

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Pipeline:

The pipeline would consist of 7,131 feet of 3-inch, HDPE natural gas pipeline laid by hand from the interconnection point with the natural gas gathering system on top of the bluff to the well pad. The majority of the surface pipeline would be cross country and would first tie in to the Thurston 1-31-7-21 pad and then head east to the Thurston 11-31-7-21 pad and up the bluff to the interconnection point.

The Thurston 11-31-7-21 location will be utilized as the staging area.

- | | |
|----------------------------------|--|
| A) Staging area | None |
| B) Construction | 1 week |
| C) Additional equipment required | None |
| D) Stringing method | Unspooled by hand from 500-1000 ft reels |
| E) Wash crossing | YES |
| F) Road crossing | YES |

An off lease Right-of-Way will be required.

Please see the attached location diagrams for pipeline location.

There will be no additional surface disturbances required for the installation of gathering line.

The gas meter run will be located within 500 feet of the wellhead. The gas line will be anchored down from the wellhead to the meter. Meter runs will be housed and/or fenced.

The gas meter will be calibrated and the tank strapped in place prior to any deliveries. Tests for meter accuracy will be conducted monthly for the first 3 months on new meter installations and at least quarterly thereafter. The authorized officer will be provided with a date and time for the initial meter-proving schedules. A copy of the meter calibration report will be submitted to the BLM's Vernal District office and State of Utah, Division of Oil, Gas, and Mining. All measurement facilities will conform to API (American Gas Association) standards for gas and liquid hydrocarbon measurement.

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F) Site clean-up

After the rig is moved off the location, the well site area will be cleaned and all refuse removed.

10. Ancillary facilities

There are no ancillary facilities planned at this time and none are foreseen in the future.

11. Well-site layout

Location dimensions are as follows:

A) Pad length	370 ft
B) Pad width	300 ft
C) Pit depth	N/A
D) Pit length	N/A
E) Pit width	N/A
F) Max cut	3.1 ft
G) Max fill	1.7 ft
H) Total cut yds	4,190 cu yds
I) Pit location	N/A
K) Access road location	Southwest
L) Flare	110 ft from well head

Please see the engineering packet sheets for additional details.

12. Surface restoration

Reclamation activities will be accomplished as provided in the **Thurston Energy LLC., Ouray National Wildlife Refuge Reclamation and Weed Plan**. (The plan and plat of the Interim Reclamation Diagram on SHEET 7 of the engineering packet and Site Specific Plan are enclosed.)

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- e) Will occur at least 24 hours prior to initial pressure tests of BOPE and surface casing.
- f) First production notice will be submitted within 5 business days after the new well begins or resumes production if the well has been shut-in for more than 90 days.

H) Paleontology

The location has been surveyed. The cultural and paleontological report is included in the USFWS project file but may not be available for public distribution due to sensitive material contained within.

5) Thurston Energy Ouray National Wildlife Refuge Reclamation and Weed Plan

[See **Appendix F** of the EA]



**PRECONSTRUCTION/BASELINE WEED INVENTORY
FOR THURSTON ENERGY'S
OURAY NATIONAL WILDLIFE REFUGE PROJECT:**

Well Name
Thurston 11-31-7-21
Thurston 12-31-7-21

Prepared for

Thurston Energy, LLC
4925 Greenville Avenue, Suite 900
Dallas, Texas 75206

and

US Fish and Wildlife Service
HC 69 Box 232
Randlett, UT 84063

Survey Date: June 11-14, 2012
Report Date: June 28, 2012
Updated: December 30, 2014
Report Number: KLF-12-110

Introduction

In May 2012, Thurston Energy (Thurston) in Vernal, Utah, requested that Kleinfelder (KLF) conduct a baseline weed inventory for two proposed wells and associated infrastructures located in the Ouray National Wildlife Refuge. Proposed wells Thurston 11-31-7-21 and Thurston 12-31-7-21 are located in Uintah County, Utah approximately 30 miles southwest of Vernal, UT. The project area is located in Leota Bottom, adjacent to the Green River. The purpose of this inventory was to identify any invasive weed species within the proposed Project Area.

Proposed Development

Thurston proposes to drill two well pads located in Section 31 of Township 7 South, Range 21 East in the Ouray National Wildlife Refuge, Utah (see **Figure 2-1** of the EA). Surface disturbance associated with this proposed development includes constructing new well pads, site-specific access roads and installing surface pipelines. A total of 5.1 acres of disturbance is proposed for the construction of the two proposed pads (**Table 1**). A total of 420 feet of access roads is proposed to connect proposed pads to existing roads. The proposed pipeline connecting the well pads and tank battery pad would consist of a 7,131-foot, surface, 3-inch HDPE pipe laid by hand (**Table 2**).

Surface ownership for the proposed development and associated infrastructure is managed by the US Fish and Wildlife Service (USFWS). **Figure 1** shows the general locations of the proposed wells.

Table 1: Proposed Well Pad Development (Acres)

Well Name	Legal Location	Proposed Disturbance
Thurston 11-31-7-21	LOT 7 SEC31, T7S, R21E	2.548
Thurston 12-31-7-21	LOT 8 SEC31, T7S, R21E	2.548

Table 2: Proposed Associated Infrastructure Development (Feet)

Infrastructure Name	Proposed length
Thurston 12-31-7-21 Access Road	410
Thurston 11-31-7-21 Access Road	10
Surface 3-inch HDPE Pipeline	7,131

Survey Methodology and Results

Survey Methodology

On June 11-14, 2012, Kleinfelder (KLF) conducted a preconstruction weed inventory using the survey protocol outlined in the 2009 BLM Vernal Field Office Surface Disturbing Weed Policy (Weed Policy). All areas proposed for disturbance were assessed, including proposed well pads, access roads and pipeline rights-of-way (ROWs). Existing staking and hand-held GPS units (Trimble JunoSB unit 1-3 meter accuracy) were used for navigation during surveys. The presence or absence of noxious weeds, as defined by the Weed Policy, was documented.

Survey Results

Several noxious weeds were documented during the 2012 surveys. The following tables summarize the results of the surveys.

Table 3: Proposed Thurston 12-31-7-21 Well Pad and Access Road

Common Name	Scientific Name	% Cover	Pattern	Infestation Size
Cheatgrass	<i>Bromus tectorum</i>	5-10 %	Patchy but dense where found	½ - 1 acre
Halogeton	<i>Halogeton glomeratus</i>	1-5 %	Patchy	Less than 1 acre
Russian Thistle	<i>Salsola tragus</i>	< 1 %	Rare	Less than 1 acre

Table 4: Proposed Thurston 11-31-7-21 Well Pad and Access Road

Common Name	Scientific Name	Cover Class	Pattern	Infestation Size
Cheatgrass	<i>Bromus tectorum</i>	5-10 %	Patchy but dense where found	½ - 1 acre
Halogeton	<i>Halogeton glomeratus</i>	1-5 %	Patchy	Less than 1 acre
Russian Thistle	<i>Salsola tragus</i>	< 1 %	Rare	Less than 1 acre

Conclusion

Three species of noxious weeds (cheatgrass, halogeton, and Russian thistle) were documented in low densities throughout the landscape. At a minimum, Thurston would be responsible for controlling weed species and densities to these baseline conditions.

Limitations

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services were provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data as agreed upon in the scope of services. It is possible that field conditions could vary in the future and results may not be fully repeatable. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of services provided.

This report may be used only by Thurston and designated agencies, and only for the purposes stated for this specific engagement within a reasonable and acceptable time from its issuance.

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