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Denver, CO 80205
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November 14, 2016

Mr. Brian DeRose
Synergy Resources Corporation
20203 Highway 60
Platteville, CO 80651
Initial Site Assessment: Orr Well Pad

LOCATION:

Orr Well Pad
Legal Description: NESE, Section 36, Township 6N, Range 67W
Latitude/Longitude: 40.442269/-104.833029

SUMMARY:

Quandary Consultants, LLC (Quandary) conducted an Initial Site Assessment (ISA) for Synergy Resources Corporation (Synergy). The ISA was prepared for the Orr Well Pad location (Location), located in Weld County, north of intersection Weld County Road (WCR) 25/95th Avenue and WCR 62.25. To confirm findings, Quandary also conducted a field survey of the Location on July 15, 2016. This ISA includes a one-mile search radius of water resources that cover mapped floodplains, surface water, wetlands, and domestic water wells, and a half-mile search radius of rare and protected wildlife and vegetation species of concern. In addition to water resources and wildlife, the ISA provides information on pre-existing vegetation and soil types for the Location.

PURPOSE:

The Purpose of this ISA is to identify any significant water resources, wildlife, and vegetation risks associated with the development of the Location in order to meet State and Federal guidelines, rules, and regulations. This ISA was completed as a desktop analysis utilizing best available data at the time from various State and Federal resources.

RESULTS:

Four maps were created to complete the ISA, and can be found in Attachment I. These include a Site Location Map (Figure 1), Topography Map (Figure 2), Water Resource Findings Map (Figure 3) and, Wildlife and Vegetation Findings Map (Figure 4).

1. **Water Resources:** Based on review of Colorado Oil and Gas Conservation Commission (COGCC), United States Army Corp of Engineers, Federal Emergency Management Agency (FEMA) and the National Wetland Inventory the Location does not appear to be located within a mapped floodplain, cross or disturb surface waters (either jurisdictional or non-jurisdictional) or wetlands. The nearest surface waters to the Location are the Jones Ditch and Cache La Poudre River (Poudre River) located approximately 180 feet and 670 feet to the north, respectively.

Five domestic water wells were mapped within a one-mile buffer of the Location and may require sampling under COGCC Rule 318 A.f. prior to setting conductor casing. Research of COGCC records did not indicate existing water sample data for domestic wells within the search radius.

2. **Wildlife:** The United States Fish and Wildlife Service (USFWS) and Colorado Parks and Wildlife (CPW) mapped layers indicate potential Black-tailed prairie dog habitat, and Bald Eagle roosts within the half-mile search radius. Review of aerial photographs do not indicate the presence of Prairie Dog burrows or suitable habitat for Burrowing Owls. A Bald Eagle roost area is located approximately 600 feet north of the Location along the Poudre River. An Active Bald Eagle nest is located approximately 2,700 feet northeast of Location and is therefore outside of the CPW recommended half-mile disturbance buffer for active Bald Eagle nests. However, these datasets are variable over time and over the landscape of the Location. As new information becomes available these datasets are modified by CPW.

While conducting surveys, Quandary confirmed that no prairie dog burrows were located within the area of disturbance for the Location. The Bald Eagle nest is currently active and Quandary confirmed the nest to be located further than a half-mile from the Location. Red-Tailed Hawks and a Great Blue Herron were observed during the onsite survey but no nests were observed along the Poudre, just north of the Location.

On August 26, 2016 Quandary and Synergy met with Colorado Parks and Wildlife (CPW) to discuss mitigation measures and proximity to the Bald Eagle nest and associated roost area. CPW confirmed the Bald Eagle nest remains active; however, the area to the north of the Location is not an active documented roost area.

3. **Vegetation and Soil Type:** National Resource Conservation Service (NRCS) data indicates native vegetation consists of short grasses predominantly blue-gramma, buffalo grass, needle grass, and wheat grass. The soil type for the Location and surrounding area is Nunn Clay Loam, with a 0-1% slope. The Nunn series consists of very deep, well drained

soils that formed in loess and mixed alluvium. Nunn soils are on terraces or alluvial fans, and in drainage ways. Most areas with Ascalon soils are cultivated and used as dry, irrigated croplands or for grazing.

Results of the ISA are presented in the following two tables. Table 1. Location Findings are defined as any possible restrictions or risk that were discovered during the ISA that **ARE** mapped or were observed within the search radius for the Location.

TABLE 1. LOCATION FINDINGS		
LOCATION FINDINGS	PROXIMITY TO LOCATION (in feet)	POTENTIAL RISK
Domestic Water Well, permit #496-WCB	2,600 SE	N/A
Domestic Water Well, permit #254335	2,935 SE	N/A
Domestic Water Well, permit #39108	2,920 SE	N/A
Domestic Water Well, permit #37321	3,280 S	N/A
Domestic Water Well, permit #22252	4,935 SE	N/A
Wetlands	770 N, 1,290 W, 1,520 NE, 3,250 S	N/A
Jones Ditch	180 S	Sediment discharge, surface spill/release.
Lake (un-named)	260 NE	N/A
Poudre River	670 NE	N/A
Potential Black-Tailed Prairie Dog Habitat	Location	Burrowing Owl Habitat (not observed onsite)
Active Bald Eagle Nest	2,700 NE	No surface occupancy with 0.25-mile radius. No Human Encroachment within 0.5-mile radius from Oct 15-July31.
Bald Eagle Roost	600 N	Bald Eagle disturbance per Bald Eagle and Golden Eagle Protection Act

* Only nearest wetlands in each general direction within a one-mile radius are presented in Table 1. See Figure 3 for additional findings.

Table 2. Location Considerations are defined as any possible restrictions or risks that were reviewed but are **NOT** mapped within search radius for the Location. The enforcement agency listed oversees the conservation of the resource listed and is the source of data reviewed for this ISA.

TABLE 2. LOCATION CONSIDERATIONS		
CONSIDERATIONS	ENFORCEMENT AGENCY	CONSERVATION CONCERN
Floodplain	EPA	Protected
Least Tern	USFWS, CPW	FE, SE
Mexican Spotted Owl	USFWS, CPW	FT, ST
Piping Plover	USFWS, CPW	FT, ST
Whooping Crane	USFWS, CPW	FE, SE
Colorado Butterfly Plant (<i>Gaura neomexicana</i> var. <i>coloradensis</i>)	USFWS	FT
Ute Ladies'-tresses (<i>Spiranthes diluvialis</i>)	USFWS	FT
Preble's Meadow Jumping Mouse (<i>Zapus hudsonius preblei</i>)	USFWS, CPW	FT, ST
Bald Eagle	USFWS, CPW	FCC, SC
Burrowing Owl	USFWS, CPW	FCC, ST
Ferruginous Hawk	USFWS, CPW	FCC, SC
Golden Eagle	USFWS	FCC
Prairie Falcon	USFWS	FCC
Mountain Plover	USFWS, CPW	FCC, SC
Swainson's Hawk	USFWS	FCC

* FE=Federal Endangered; FT= Federal Threatened; FCC= Federal Conservation Concern; SE=State Endangered; ST=State Threatened; SC=State Concerned

RECOMMENDATIONS:

Based on the proximity to surface water (Jones Ditch and Poudre River), Quandary recommends utilizing buffers and best management practices to prevent offsite runoff toward these resources.

The roost area just to the north of the facility is associated with the Bald Eagle nest located to the northeast of the facility and has been identified as an area where the eagle has historically foraged throughout the year. CPW does not have guidelines or restrictions on human encroachment to roost areas, excluding Bald Eagle winter night roosts. However, the disturbance guidelines outlined in the Bald Eagle and Gold Eagle Protection Act could still apply based on the proximity of the Location and nature of oil and gas activity.

Follow up conversations with Synergy indicate mitigation measures will be in place during drilling and completions activities. A 30-foot sound wall will surround the drilling location to reduce light and noise impacts to the surrounding area. Additionally, a permanent security fence will surround the perimeter of the production facility, and a permanent sound wall will be installed around the compressor to reduce potential noise impacts to the Poudre River Trail.

Both Quandary and Synergy met with CPW on August 26, 2016 at the Location to discuss proximity of the Location to the Bald Eagle nest and associated roost area. CPW stated the distance of the Location to an active nest is not a concern and the area to the north has not been documented as an active roost area. CPW agreed with Synergy's mitigation measures as a precaution and recommended continued monitoring for new nests once construction activities commence.

If you have questions or require any additional information, please contact me at 720-383-5900. We are available to complete additional site visits or follow up assessments at your request.

Sincerely,



Matt Harrison
Co-Founder

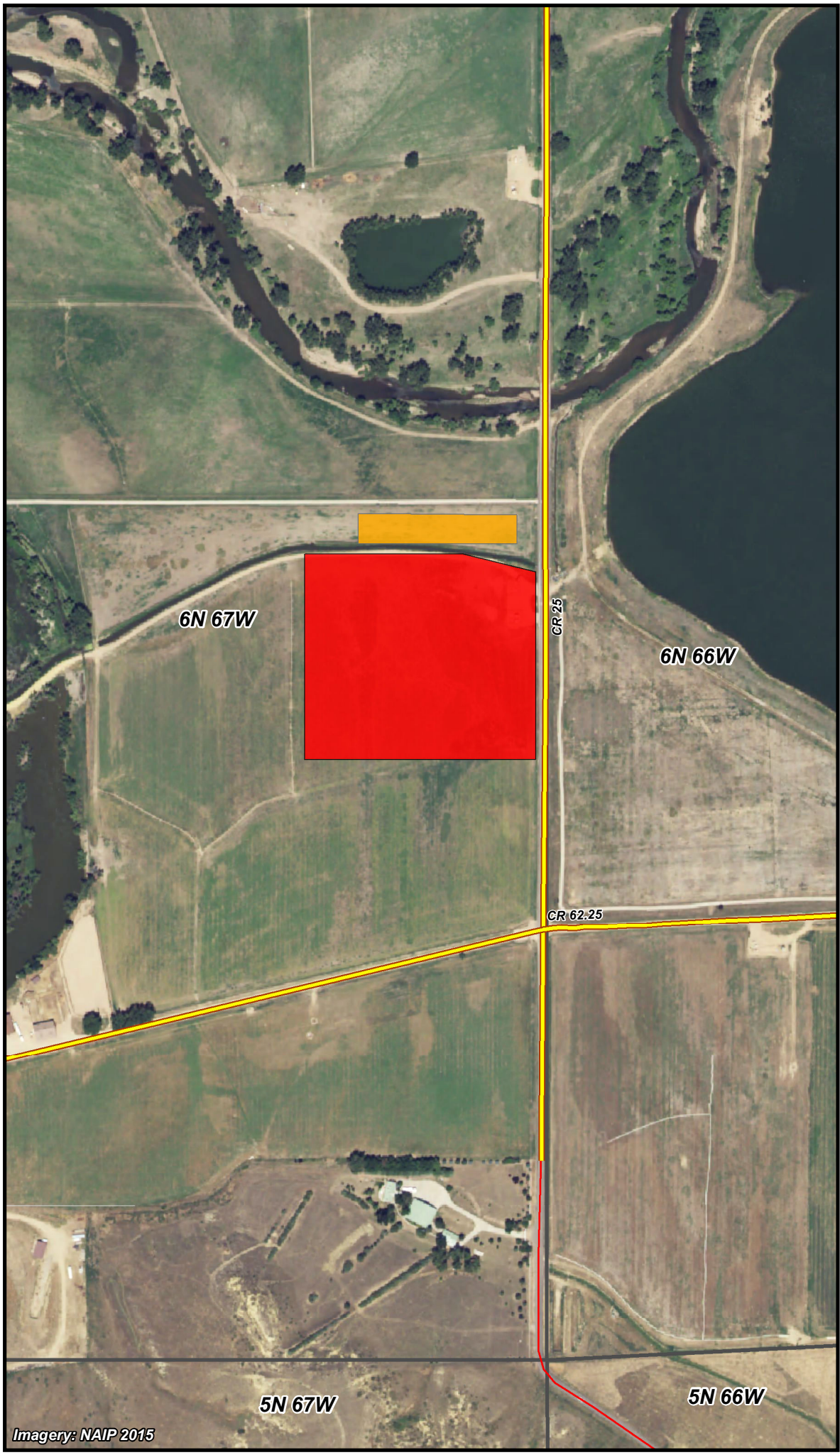
ATTACHMENTS:

Figure 1. Site Location Map

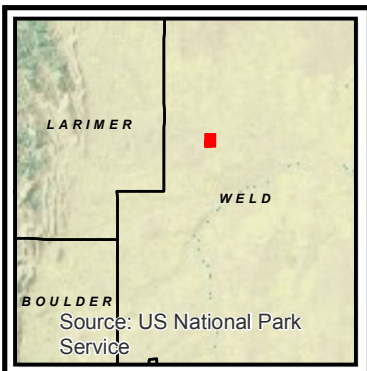
Figure 2. Topography Map





Figure 3. Water Resource Findings Map

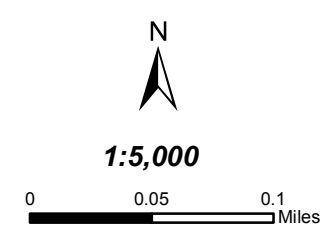
Figure 4. Wildlife and Vegetation Findings Map



Imagery: NAIP 2015



-  Orr Well Pad
-  Orr Production Facility
-  County Road
-  Local Road




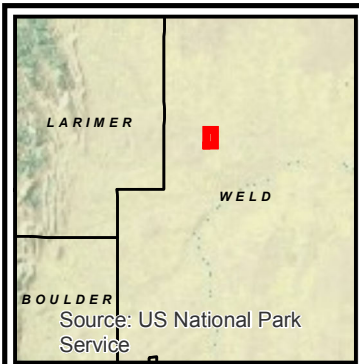
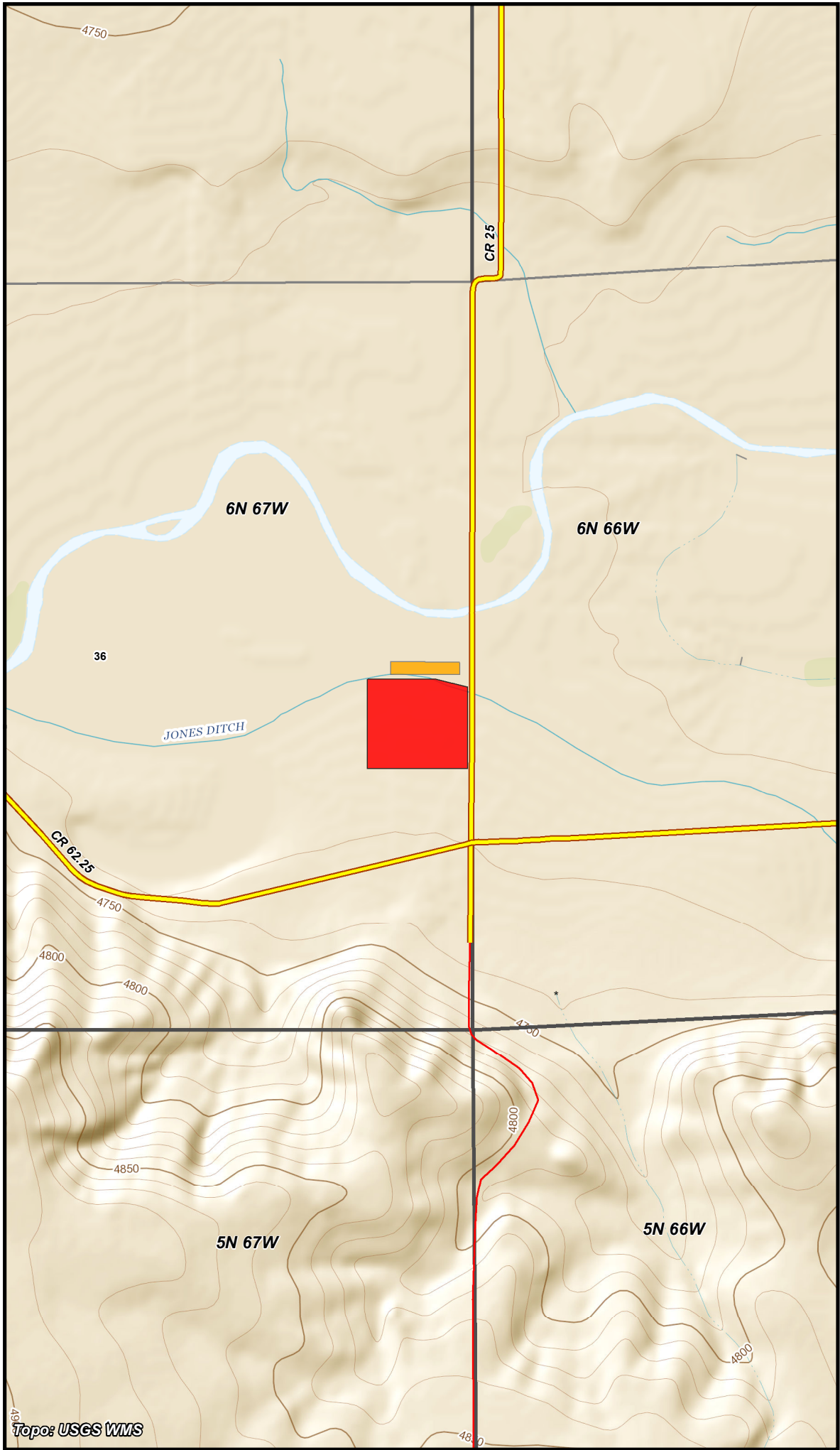





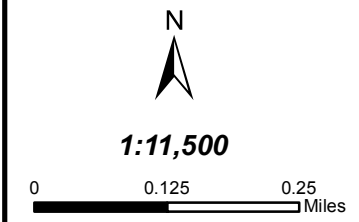
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CONSULTANTS

Figure 1.
Site Location Map

Author: CGEO	Date: 7/28/2016
NAD 1983 UTM Zone 13N	
IEA_Quandary_Template.mxd	



-  Orr Well Pad
-  Orr Production Facility
-  County Road
-  Local Road
-  Contour Line - 10 Foot




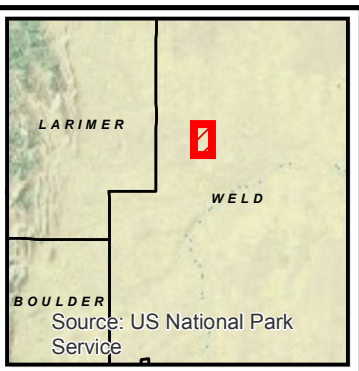
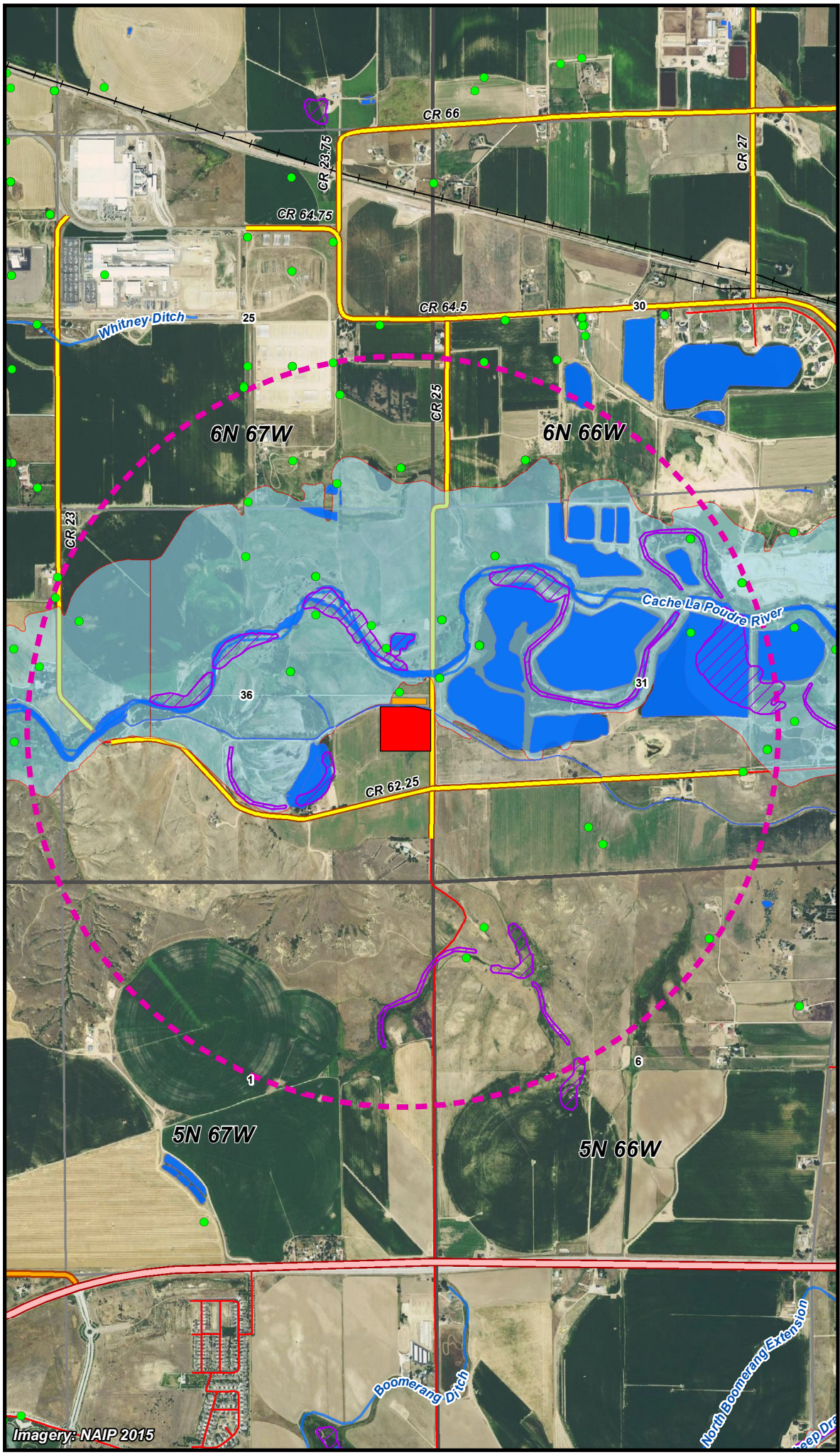
 **QUANDARY**
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Figure 2.
Topography Map

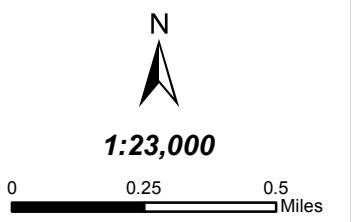
Author: CGEO Date: 7/28/2016

NAD 1983 UTM Zone 13N

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- Orr Well Pad
- Orr Production Facility
- 1 Mile Radius
- Water Wells (CDWR)
- US Highway
- County Road
- Local Road
- Railroad
- Rivers/Canals/Ditches
- Lakes/Ponds
- Wetlands
- 100 Year Floodplain



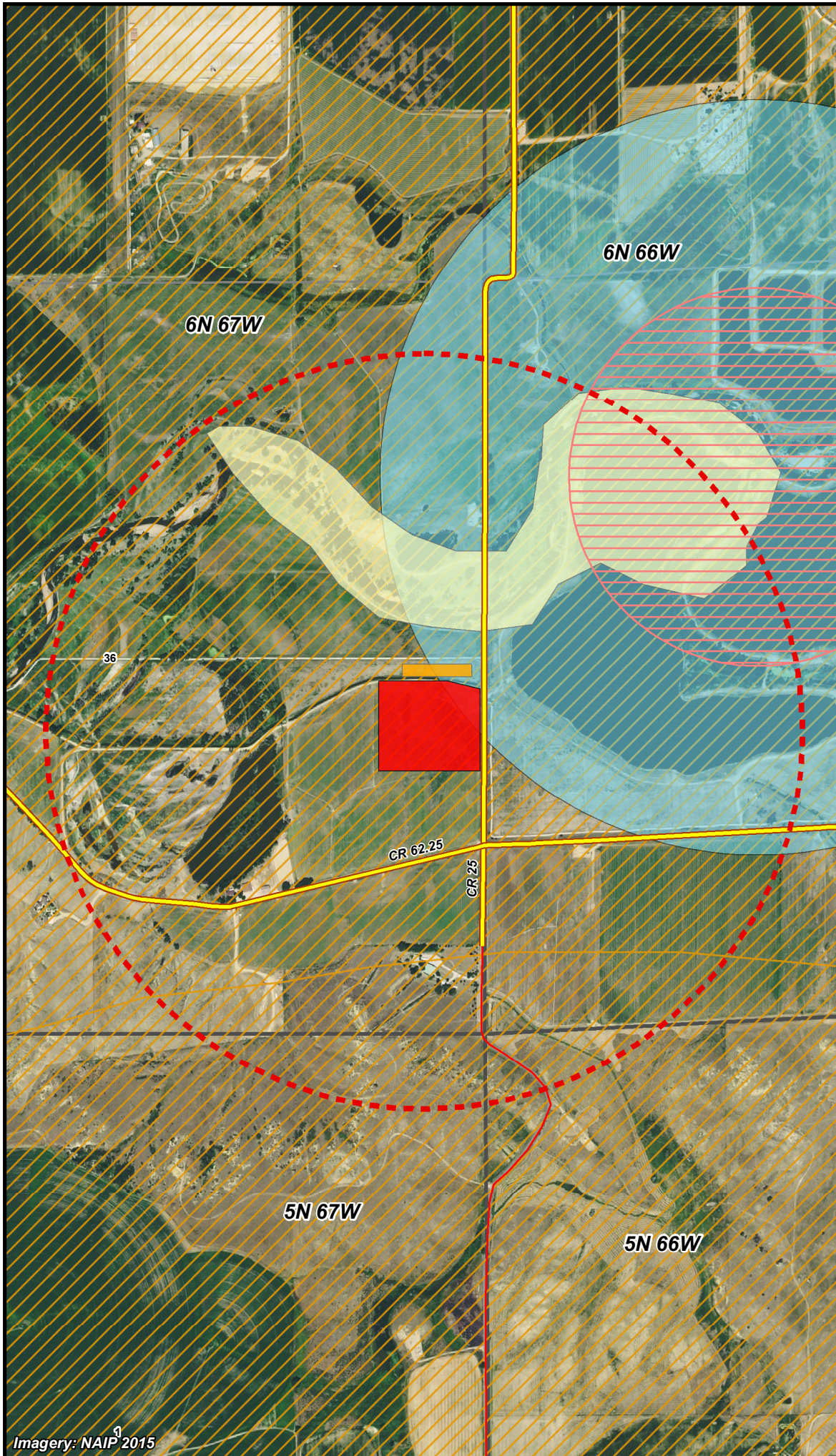
**Figure 3.
Water Resources
Findings Map**

Author: CGEO Date: 7/28/2016

NAD 1983 UTM Zone 13N

IEA_Quandary_Template.mxd

Imagery: NAIP 2015



- Orr Well Pad
- Orr Production Facility
- Half Mile Radius
- County Road
- Local Road
- Potential Black-Tailed PD Habitat (CPW)
- Bald Eagle Roosts (COGCC)
- Bald Eagle Active Nests SWH (COGCC)
- Bald Eagle Active Nests RSO (COGCC)



1:11,500

0 0.125 0.25 Miles



Figure 4.
Wildlife and Vegetation
Findings Map

Author: CGEO Date: 7/28/2016

NAD 1983 UTM Zone 13N

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