

# **Savage and Savage** *Environmental*

*practical solutions for environmental issues*

4610 Haystack Drive  
Windsor, Colorado 80550

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savageandsavage@earthlink.net



February 3, 2011

CJ Pietri  
Noble Energy, Inc.  
804 Grand Avenue  
Platteville, Colorado 80651

## **RE: Noble Energy, Connell C24-31D Drill Pad, Seasonal Restriction for Raptor Nest**

Dear Mr. Pietri:

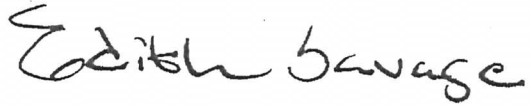
A site investigation of the proposed Connell C24-31D drill pad was conducted on January 30, 2011 to evaluate a raptor nest within a 1/3 mile radius of the proposed drill pad. The proposed well site is located southwest of the intersection of Weld County Roads 53 and 50 in Weld County, Colorado. The site lies within NE¼ Section 5, Township 4 North, Range 64 West of the 6<sup>th</sup> Prime Meridian, Weld County, Colorado. (Noble Energy Connell C24-31D Well General Location Map).

The area of investigation included an old growth cottonwood tree located northeast of the drill pad (Noble Energy Connell C24-31D - Cottonwood Tree with Raptor Nest). A raptor nest was identified within the old growth cottonwood tree. The nest appears to be the size typically associated with red-tailed hawks, a common species in the area.

Based on the Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors (Gerald R. Craig, Colorado Division of Wildlife updated December 19, 2002) seasonal restrictions to human encroachment for red-tailed hawk nests are recommended from February 15 to July 15. In order to minimize disturbance to the raptor nest, development of the site should begin July 15 and be concluded by February 15.

If you have any questions or require further information about the proposed Connell C24-31D drill pad or raptor nest please contact me.

Sincerely,

A handwritten signature in black ink that reads "Edith Savage". The signature is written in a cursive, flowing style.

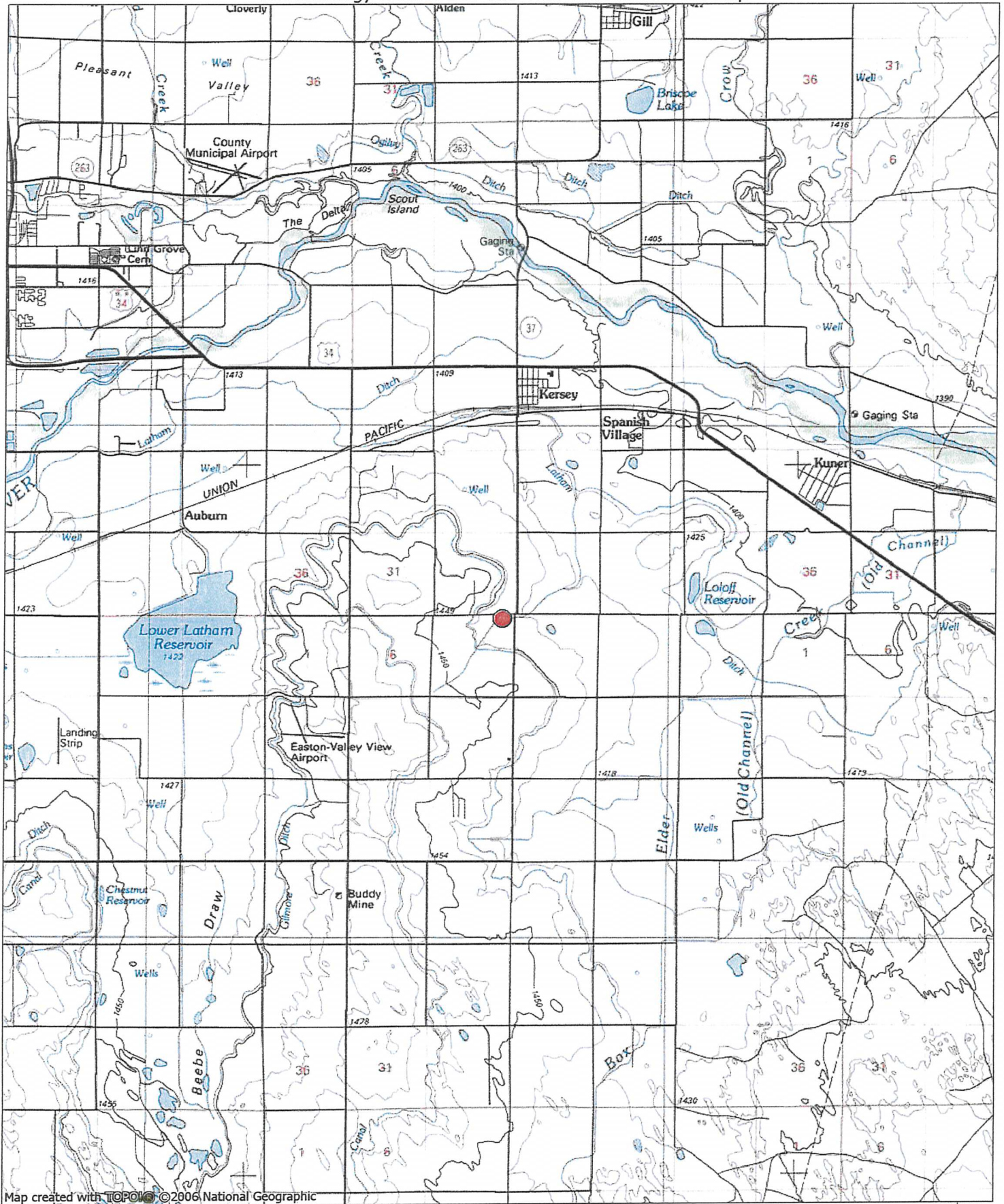
Edith Savage  
Principal

attachments: Noble Energy Connell C24-31D Drill Pad Location Map

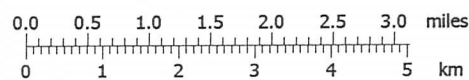
Noble Energy Connell C24-31D – Cottonwood Tree with Raptor Nest



# Noble Energy Connell C24-31D Well General Location Map



Map created with TOPO! © 2006 National Geographic



TN MN  
9 1/2°  
02/02/11



**Figure 2. Noble Energy Connell C24-31D  
Cottonwood Tree with Raptor Nest**



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February 3, 2011

Terry McKee  
U.S. Army Corps of Engineers  
9307 South Wadsworth Blvd.  
Littleton, Colorado 80128-6901

**RE: Corps Concurrence Request for Noble Energy, Connell C24-31D Drill Pad,  
Weld County, Colorado**

Dear Mr. McKee:

Savage and Savage conducted a wetland delineation within the proposed Noble Energy, Connell C24-31D pad site on January 30, 2011. Based on our on-site wetland delineation; hydrophytic vegetation, hydric soil, and wetland hydrology were not located within uplands north of the topographic swale. The proposed drill site is located above and outside the boundaries of the topographic swale and was concluded to be outside the identified wetland.

The proposed well site is located southwest of the intersection of Weld County Roads 53 and 50 in Weld County, Colorado. The latitude of the project site is 40.347729 degrees North and longitude is 104.566930 degrees West. The site lies within NE¼ Section 5, Township 4 North, Range 64 West of the 6<sup>th</sup> Prime Meridian, Weld County, Colorado.

We request Corps concurrence for the Connell C24-31D drill pad. Our firm has confirmed that the well site is located within uplands north of the topographic swale. Wetlands will not be disturbed for this development site. If you have any questions or require further information about this site please contact me.

Sincerely,

A handwritten signature in black ink that reads "Edith Savage". The signature is written in a cursive, flowing style.

Edith Savage  
Principal

attachment: Noble Energy Connell C24-31D Wetland Delineation  
c: ~~CJ~~ Pietri, Noble Energy

**NOBLE ENERGY, INC.  
CONNELL C24-31D DRILL PAD  
WATERS OF THE UNITED STATES IDENTIFICATION  
AND WETLAND DELINEATION  
WELD COUNTY, COLORADO**



Prepared by: **Savage and Savage, Inc.**  
4610 Haystack Drive  
Windsor, CO 80550  
970 674 8080

February 2011

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## **FIGURES**

1. Noble Energy Connell C24-31D Well General Location Map
2. Sample Point 001 Facing South
3. Sample Point 002 Facing South
4. Noble Energy Connell C24-31D Well Wetland Delineation

## **APPENDIX**

U.S. Army Corps of Engineers Great Plains – Interim Version Data Sheets



## INTRODUCTION

Savage and Savage conducted a wetland delineation for the proposed Connell C24-31D well site for Noble Energy, Inc. on January 30, 2011. The proposed well site is located southwest of the intersection of Weld County Roads 53 and 50 in Weld County, Colorado (Figure 1.). From Kersey, the site is accessed by traveling south on Weld County Road 53 for approximately 3.0 miles to Weld County Road 50, west on Weld County Road 50 for approximately 0.2 miles, then south onto an undeveloped road for approximately 0.1 miles to the site. The latitude of the project site is 40.347729 degrees North and longitude is 104.566930 degrees West. The average elevation of the project site is 4700 feet. The site lies within NE¼ Section 5, Township 4 North, Range 64 West of the 6<sup>th</sup> Prime Meridian, Weld County, Colorado.

## STUDY METHODS

A wetland delineation was conducted within the boundary of the proposed disturbance site in accordance with the requirements of the U.S. Army Corps of Engineers Wetlands Delineation Manual and Interim Supplement (USACE, 1987, 2008). To determine the areas subject to Corps jurisdiction, three criteria were evaluated: (1) evidence of a hydrologic regime reflecting saturation or periodic inundation by surface or ground water of sufficient duration and frequency, (2) soils which are considered hydric by classification or field characteristics indicating anaerobic conditions, and (3) a prevalence of vegetation typically adapted to areas of wetland hydrology and soils.

At two sample points within and adjacent to the proposed disturbance envelope the three wetland criteria were evaluated. Dominant individual plant species were identified, and their wetland indicator status was assessed (USFWS, 1988). Evidence of the hydrologic regime was collected and evaluated. Soil test pits were dug using a core auger to approximately 20 inches from the soil surface. Soil horizons were inspected and described using texture, soil color (Munsell, 1992), and moisture. Observations were recorded on the attached USACE Great Plains – Interim Version approved data sheets.

## **PROJECT DESCRIPTION**

Proposed temporary disturbance will include construction of one well pad that is approximately 1.5 to 2.0 acres in size within the investigated disturbance envelope. Permanent disturbance will include one fenced well head located on the well pad remnant. The well pad will be accessed via an existing undeveloped access road.

## **SITE DESCRIPTION**

The wetland delineation was conducted adjacent to and along the edge of a topographic swale that slopes gently to the northeast. The swale is located within a field that is used for agriculture.

Two soil map units were identified in the area of the proposed drill site and include Vona loamy sand at Sample Point 001 and Otero sandy loam at Sample Point 002.

The Soil Survey of Weld County, Southern Part, identifies Vona loamy sand (map unit 72) soils north and slightly upgradient of the swale (USDA, 1980). This map unit is found on plains and high terraces at elevations from 4,600 to 5,200 feet. Vona loamy sand is a deep, somewhat excessively drained soil that has formed in aeolian or alluvial deposits. Vona loamy sands have a grayish brown surface layer comprised of loamy sand and fine sandy loam. Lower layers in the soil column are also fine sandy loam or sandy loam to five feet.

Vona soils are not listed as hydric by the U.S. Army Corps of Engineers Wetlands Delineation Manual (USACE, 1987). On-site observation of soils within the sample point confirmed the presence of this map unit at Sample Point 001.

The Soil Survey of Weld County, Southern Part, identifies Otero sandy loam (map unit 51) within the topographic swale (USDA, 1980). This soil unit is a well-drained soil found on the plains at elevations from 4,700 to 5,250 feet. It formed in mixed outwash

and aeolian deposits. The surface layer of Otero soils is comprised of brown sandy loam about twelve inches thick. The underlying material to a depth of sixty inches is pale brown calcareous fine sandy loam.

This soil type is not defined as a hydric soil by the U.S. Army Corps of Engineers Wetlands Delineation Manual (USACE, 1987). On-site observation of soils within the sample point confirmed the presence of this map unit at Sample Point 002.

Vegetation above the swale and adjacent to the tilled agricultural field was dominated by tall wheatgrass (*Agropyron elongatum*) (50% cover) and inland saltgrass (*Distichlis spicatum*) (5% cover). (Figure 2.)

Vegetation within and along the edge of the topographic swale was dominated by broad-leaved cattail (*Typha latifolia*) (65% cover), reed canarygrass (*Phalaris arundinacea*) (15% cover), and slender wheatgrass (*Agropyron trachycaulum*) (10% cover). The dominant plant species within the swale, broad-leaved cattail, is an obligate wetland indicator species (Figure 3.).

## **RESULTS/CONCLUSION**

Savage and Savage conducted a wetland delineation at the proposed Noble Energy, Inc. Connell C24-31D well pad site on January 30, 2011. This delineation was conducted in order to determine the presence and extent of wetlands. Wetlands were found to be present within and confined to the topographic swale on the site. (Figure 4.).

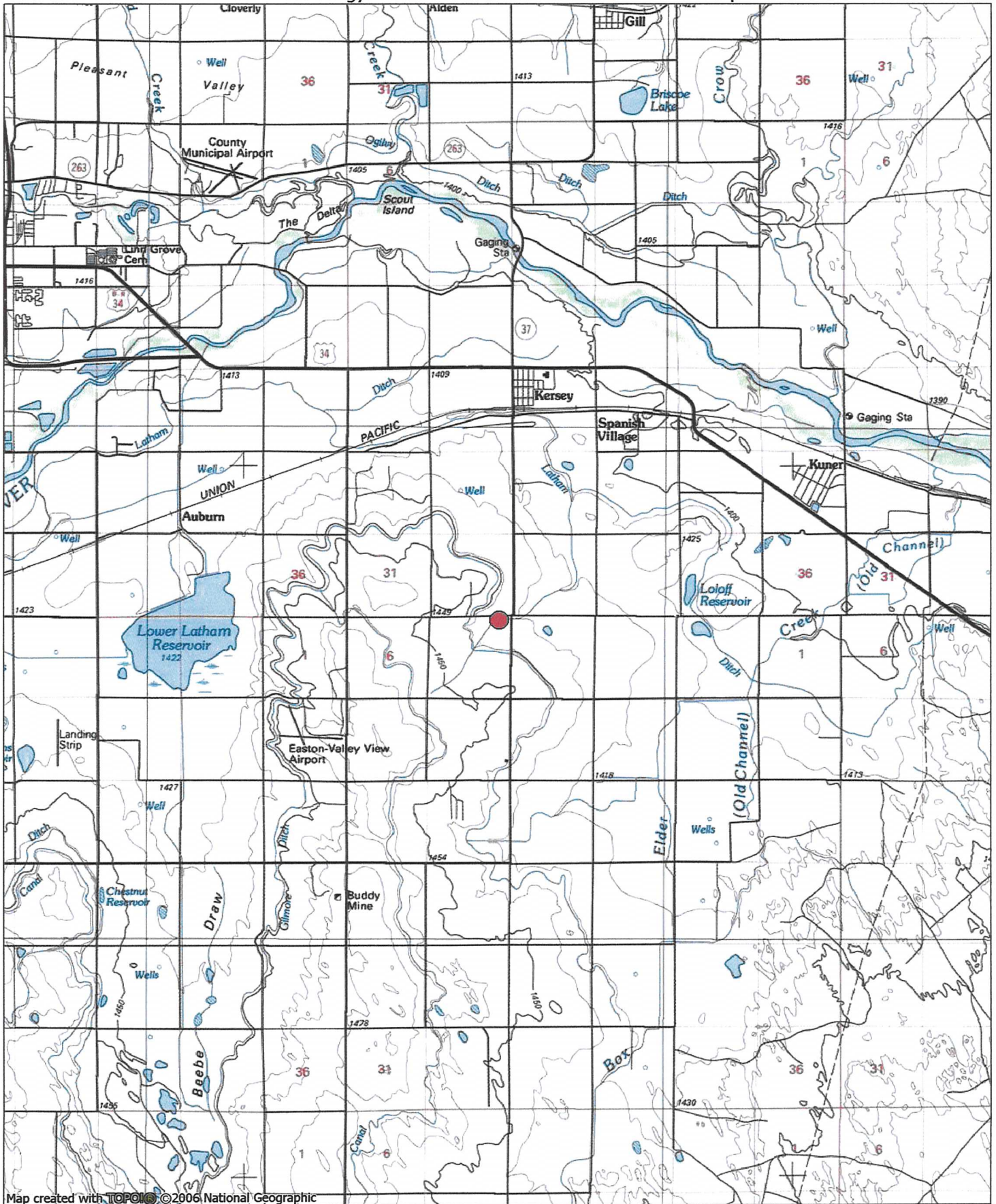


## LITERATURE CITED

- Killmorgen Instruments Corp. 1992. Munsell® Soil Color Charts. Newburg, NW.
- U.S. Army Corps of Engineers. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi.
- U.S. Army Corps of Engineers. 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble, ERDC/EL TR-08-12. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Department of Agriculture Soil Conservation Service. 1980. Soil Survey of Weld County, Colorado, Southern Part.
- U.S. Fish and Wildlife Service. 1988. National List of Plant Species that Occur in Wetlands: Central Plains (Region 5). U.S. Department of Interior, Fish and Wildlife Service Research and Project, Biological Report 88(26.5), Washington, D.C.

**FIGURES**

# Noble Energy Connell C24-31D Well General Location Map



0.0 0.5 1.0 1.5 2.0 2.5 3.0 miles  
0 1 2 3 4 5 km

TN MN  
9 1/2°  
02/02/11





**Figure 2. Sample Point 001 Facing South**



**Figure 3. Sample Point 002 Facing South**



# Noble Energy Connell C24-31D Well Wetland Delineation

Co R 450

Wetland Boundary

001

002

320 ft

Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
© 2010 Google

Image © 2011 DigitalGlobe

© 2007 Google™





**APPENDIX**

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: CONNELL C24-31D City/County: WELD Sampling Date: JAN 30, 2011  
 Applicant/Owner: NOBLE ENERGY State: CO Sampling Point: 001  
 Investigator(s): MSSAVAGIE / E A SAVAGE Section, Township, Range: NE SEC 5 T4N R64W 6TH PM  
 Landform (hillslope, terrace, etc.): 2° TERRACE OF SWALE Local relief (concave, convex, none): SLOPE TDS Slope (%): 1%  
 Subregion (LRR): \_\_\_\_\_ Lat: 40.347729° Long: -104.566930° Datum: \_\_\_\_\_  
 Soil Map Unit Name: VONA SANDY LOAM, 0-3% (#72) NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks:		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>N/A</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Wetland Non-Vascular Plants <sup>1</sup> _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Sapling/Shrub Stratum (Plot size: <u>N/A</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>10' X 10'</u> )				
1. <u>Agropyron elongatum</u>	<u>50</u>	<u>Y</u>	<u>NI (FAC)</u>	
2. <u>Distichlis spicata</u>	<u>5</u>	<u>N</u>	<u>NI (FAC)</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover <u>55</u>				
Woody Vine Stratum (Plot size: <u>N/A</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover _____				
% Bare Ground in Herb Stratum <u>20</u>				
Remarks:				

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: CONNELL CEA-31D City/County: WELD Sampling Date: JAN 30, 2011  
 Applicant/Owner: NOBLE ENERGY State: CO Sampling Point: 002  
 Investigator(s): MS SAVAGE / E A SAVAGE Section, Township, Range: NESKIS TAN PLAW 6TH PM  
 Landform (hillslope, terrace, etc.): DRAINAGE Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR): \_\_\_\_\_ Lat: 40.347729° Long: -104.566930° Datum: \_\_\_\_\_  
 Soil Map Unit Name: OTERO SANDY LOAM, 1-3% NWI classification: (#51)  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: <u>WETLAND EDGE. DEFINED BY TOPOGRAPHY AND VEGETATION. SWALE EDGE</u>		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>N/A</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>N/A</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>10'x10'</u> )				<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Wetland Non-Vascular Plants <sup>1</sup> _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Typha latifolia</u>	<u>65</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Phalaris arundinacea</u>	<u>15</u>	<u>Y</u>	<u>FACW+</u>	
3. <u>Agropyron trachycaulum</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>N/A</u> )				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>5</u>				
Remarks: _____				

# **Savage and Savage** *Environmental*

*practical solutions for environmental issues*

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Windsor, Colorado 80550

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savageandsavage@earthlink.net



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## **Transmittal**

**To:** CJ Pietri  
**Company:** Noble Energy  
**Address:** 804 Grand Avenue  
**City, State, Zip:** Platteville, CO 80651

**From:** Edith Savage  
**Company:** Savage and Savage, Inc.  
**Project:** Connell C24-31D Drill Pad  
**Phone:** 970-674-8080  
**Fax:** 970-674-8088  
**Date:** February 16, 2011

Attached for your files is Corps concurrence that no wetlands were identified in the uplands north of the topographic swale at the Connell C24-31D well site. A Corps permit is not required for this project.





DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, OMAHA DISTRICT  
DENVER REGULATORY OFFICE, 9307 S. Wadsworth Boulevard  
LITTLETON, COLORADO 80128-6901

February 7, 2011

Ms. Edith Savage  
Savage and Savage  
4610 Haystack Drive  
Windsor, CO 80550-2597

**RE: Noble Energy, Connell C24-31D Drill Pad to be Constructed in Uplands  
Corps File No. NWO-2011-223-DEN**

Dear Ms. Savage:

Reference is made to the above-mentioned project located near 40.3477; -104.5669, Weld County, Colorado.

This project has been reviewed by Mr. Terry McKee of my office in accordance with Section 404 of the Clean Water Act under which the U.S. Army Corps of Engineers regulates the discharge of dredged and fill material, and any excavation activity associated with a dredge and fill project in waters of the United States.

Based on the information provided, a Department of the Army (DA) Permit will not be required for this project. Although a DA Permit will not be required for the project, this does not eliminate the requirement that other applicable federal, state, and local permits be obtained as needed.

If there are any questions call **Mr. Terry McKee** of my office at (303) 979-4120 and reference **Corps File No. NWO-2011-223-DEN**.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy T. Carey", is written over a circular stamp.

Timothy T. Carey  
Chief, Denver Regulatory Office

tm