

**JURISDICTIONAL WETLANDS  
AND OTHER WATERS OF THE U.S.,  
SEMINOE ROAD COALBED METHANE  
GAS GATHERING PIPELINE AND  
ACCESS ROADS PROJECT,  
CARBON COUNTY, WYOMING**

*Prepared for*

**Dudley & Associates, LLC**

Denver, Colorado

*Prepared by*

**TRC Mariah Associates Inc.**

Laramie, Wyoming

April 2002

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**TABLE OF CONTENTS**

	<u>Page</u>
1.0 INTRODUCTION.....	1
2.0 METHODS.....	3
3.0 RESULTS.....	5
3.1 OVERVIEW.....	5
3.2 EPHEMERAL WUS/NON-WUS.....	8
3.2.1 Ephemeral WUS--Sites 1, 3, 4, 7-12, 16, 21-23, 26, A, and C-G.....	8
3.2.2 Non-WUS Sites 2, 5, 13-15, 17-20, 24, and B.....	8
3.3 PERENNIAL WUS/WETLAND.....	8
3.3.1 Site 6--North Platte River, Perennial WUS/Wetland.....	8
3.3.2 Wetland--Site 25.....	9
3.4 SUMMARY AND RECOMMENDATIONS.....	9
4.0 LITERATURE CITED.....	10
APPENDIX A: WETLAND DELINEATION FORMS	
APPENDIX B: PHOTOGRAPHS OF SELECTED WETLAND AND WATERS OF THE U.S. SITES	
APPENDIX C: LIST OF PLANTS SPECIES ENCOUNTERED AND WETLAND INDICATOR STATUS	

**LIST OF TABLES**

	<u>Page</u>
Table 3.1 Potential Wetland Sites, Seminole Road Coalbed Methane Gas Gathering Pipeline and Access Roads Project.....	6

**LIST OF MAPS**

	<u>Page</u>
Map 1 Vegetation/Wetland/WUS Map.....	Map Pocket

## **1.0 INTRODUCTION**

A survey of wetlands and other waters of the U.S. (WUS) was conducted by TRC Mariah Associates Inc. (TRC Mariah) for Dudley & Associates, LLC (Dudley) of Denver, Colorado, to facilitate compliance with Section 404 of the *Clean Water Act* during the planned construction of a natural gas gathering pipeline and associated access road improvements. The proposed pipeline would gather gas from Dudley's proposed compressor station (Section 10, T23N, R85W) adjacent to and south of the Seminoe Road Coalbed Methane Pilot project area and send it to the existing Colorado Interstate Gas pipeline (Section 35, T21N, R84W) located near Walcott, Wyoming (see Map 1 in map pocket).

The pipeline corridor would cross (using boring and/or directional drilling procedures) the North Platte River and the Saint Marys Creek/Union Pacific Railroad (UPRR) right-of-way (ROW). The project would utilize existing improved roads off Carbon County Road 351 (Seminoe Reservoir Road) to access segments of the pipeline north and west of the North Platte River. A secondary unpaved road that heads north from Walcott (referred to in this report as the Walcott access road) would provide access to the pipeline route south and east of the North Platte River (see Map 1). Portions of the Walcott access road would require improvements to accommodate project-related construction access; however, all improvements would occur within currently disturbed areas (see ROW Plan of Development [POD]).

The proposed pipeline and access road routes traverse a mosaic of rolling sagebrush-grasslands, greasewood shrublands, cushion plant communities, and rock outcrops. The North Platte River is the only perennial water within the area of the project. A complete description of the vegetation communities present along the proposed pipeline route and access roads is presented in a separate letter report: *Seminoe Road Gas Gathering Pipeline and Access Roads Project Biological Investigations* (TRC Mariah 2002).

The current regulatory definition of wetlands is "areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and [which] under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (U.S. Army Corps of Engineers [COE] 1987; Wetlands Training Institute, Inc. 1995). A WUS has an active channel that exhibits relatively stable characteristics; thus, the criterion for a WUS is the presence of a well-defined bed and bank. The boundaries of a WUS extend to the ordinary high-water mark or to the boundaries of adjacent wetlands.

## 2.0 METHODS

A routine wetland delineation with an on-site inspection of the proposed pipeline and access road corridors (assumed 100-ft disturbance width--50 ft each side of centerline) was conducted on October 16 and 17, 2001. The northern-most portion of the pipeline route and the southern-most access road have not been field investigated (see Map 1). Field investigations for wetlands/WUS are scheduled to be conducted in these areas during the week of April 15, 2002 and, once completed, a supplemental report describing conditions would be prepared.

Prior to fieldwork, background information was obtained from National Wetland Inventory (NWI) maps (U.S. Fish and Wildlife Service [USFWS] 1991, 1994a, 1994b, 1994c), U.S. Geological Survey (USGS) 7.5' topographic maps, the soil survey for Carbon County, Wyoming (Munn and Arneson 1999), and the federal hydric soils list (U.S. Soil Conservation Service 1991). These sources were used to identify areas likely to contain wetlands and other WUS.

During the on-site inspection, hydrologic, vegetative, and geomorphic characteristics of individual sites along the proposed pipeline and access road corridors were investigated to determine if potential wetland site(s) were present. Each site was investigated to determine if primary wetland hydrology indicators were present, including inundation, saturation, water marks, sediment deposits, drainage patterns, and drift lines. Secondary indicators (e.g., oxidized root channels) were searched for if no primary indicators were identified.

Dominant plant species were identified at each potential site to determine if wetland vegetation was present. Plant species were either identified on-site using the *Vascular Plants of Wyoming* (Dorn 1992), or voucher specimens were identified by Dr. Robert Dorn (Mountain West Environmental Services, Cheyenne, Wyoming). Because the survey is located in south-central Wyoming, both *The National List of Plant Species that Occur in Wetlands: North Plains (Region 4)* (Reed 1988a) and *The National List of Plant Species that Occur in Wetlands: Northwest (Region 9) and Region 9 Supplement* (Reed 1988b) were

used to determine the indicator status of dominant plants at each potential wetland site. Plant species were classified as obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), or upland (UPL) species. Ocular estimates of percent cover by dominant plant species were determined at each site. Both Region 4 and Region 9 indicator statuses are provided on the wetland delineation forms and in Appendix C, which provides a list of all plant species encountered.

If hydrologic and vegetation wetland criteria were met at areas proposed for surface disturbance, soil profiles were examined for hydric soil characteristics (e.g., mottling, gleying, saturation). Soil color was determined using a Munsell Soil Color Chart.

All ephemeral, intermittent, or perennial streams illustrated as such on the USGS topographic maps were investigated to determine if a defined bed and bank was present. All wetland areas designated as such on the NWI maps within the affected corridors were also investigated.

Width of wetlands and WUS was measured in the field by pacing. Wetland/WUS disturbance acreages were calculated based on the width (ft) of the wetlands and/or WUS and the assumed 100-ft pipeline construction disturbance width. A wetland delineation form was completed for each site investigated; complete forms are presented in Appendix A. Photographs of typical wetland sites and selected other WUSs are presented in Appendix B. Site locations are presented in Map 1 in map pocket.

### 3.0 RESULTS

#### 3.1 OVERVIEW

Thirty-three potential wetland and other WUS sites were investigated along the proposed pipeline and project-related access road corridors (Table 3.1; Map 1). Of these, 22 were determined to be either wetlands or WUS. The remaining 11 sites neither exhibit wetlands indicator criteria nor the defined bed and bank characteristics necessary to be identified as WUS. One perennial WUS, the North Platte River and two potential wetland areas--one adjacent to the North Platte River (approximately 8 ft width) and one at Saint Marys Creek (20 ft width)--occur along the proposed pipeline and access road corridors. **However, these areas would not be affected by the proposed project since directional drilling and/or boring methods would be employed to avoid these sites. Furthermore, all project-related surface disturbances would avoid these sites.**

The proposed pipeline would cross 14 ephemeral WUS for a total crossing width of 26 linear ft (Table 3.1). Project-related access roads would cross 6 WUS (7 ft total crossing width), all of which are ephemeral drainages. Because only portions of these access roads would be improved to accommodate project-related activities and all improvements would occur within existing disturbed areas, no additional disturbances are anticipated to the WUS occurring along proposed access roads.

**In summary, construction of the proposed pipeline (assumed 100-ft disturbance width) and associated access road improvements would affect approximately 33 linear ft or 0.058 acre of WUS. Therefore, pipeline installation would be covered by a COE 404 Permit (COE Nationwide Permit Number 12 [NW-12], Utility Line Discharges), and since the total project-affected acreage of WUS would be less than 0.10 acre, no COE notification is required.**

Table 3.1 Potential Wetland Sites, Seminole Road Coalbed Methane Gas Gathering Pipeline and Access Roads Project.

Site	Description	Location	NWI Designation <sup>1</sup>	Jurisdictional Status <sup>2</sup>	Channel/Wetland Width (ft)	Affected Acreage <sup>3</sup>
<b>Pipeline Route</b>						
1	Dirtyman Draw	NWSWSW, 9, T23N, R85W	R4SBA	WUS	1	0.002
2	Unnamed ephemeral stream	SWSWSW, Section 16, T23N, R85W	--	Non-WUS	--	--
3	Unnamed ephemeral stream	NWSWNW, Section 21, T23N, R85W	--	WUS	1	0.002
4	Unnamed ephemeral stream	SWSWSW, Section 28, T23N, R85W	R4SBA	WUS	4	0.009
5	Unnamed ephemeral stream	NWNWNE, Section 9, T22N, R85W	--	Non-WUS	--	--
6	North Platte River	SWNESE, Section 9, T22N, R85W	--	WUS/ Wetland	158 <sup>4</sup>	0.363 <sup>5</sup>
7	Unnamed ephemeral stream	SWSESE, Section 9, T22N, R85W	--	WUS	1	0.002
8	Unnamed ephemeral stream	NENWNW, Section 15, T22N, R85W	--	WUS	1	0.002
9	Unnamed ephemeral stream	SWNWNW, Section 15, T22N, R85W	--	WUS	1	0.002
10	Unnamed ephemeral stream	SENWNE, Section 15, T22N, R85W	--	WUS	2	0.005
11	Unnamed ephemeral stream	NENESE, Section 15, T22N, R85W	--	WUS	6	0.014
12	Unnamed ephemeral stream	SWSESW, Section 14, T22N, R85W	--	WUS	1	0.002
13	Unnamed ephemeral stream	NENENW, Section 23, T22N, R85W	--	Non-WUS	--	--
14	Unnamed ephemeral stream	SESWNE, Section 23, T22N, R85W	--	Non-WUS	--	--
15	Unnamed ephemeral stream	SWNESE, Section 23, T22N, R85W	--	Non-WUS	--	--
16	Unnamed ephemeral stream	SESESE, Section 23, T22N, R85W	--	WUS	1	0.002
17	Unnamed ephemeral stream	NWNWNW, Section 25, T22N, R85W	--	Non-WUS	--	--
18	Unnamed ephemeral stream	SENWNW, Section 25, T22N, R85W	--	Non-WUS	--	--
19	Unnamed ephemeral stream	SWNESE, Section 36, T22N, R85W	--	Non-WUS	--	--
20	Unnamed ephemeral stream	NWSWNW, Section 8, T21N, R84W	--	Non-WUS	--	--
21	Unnamed ephemeral stream	NESWSE, Section 8, T21N, R84W	--	WUS	1	0.002
22	Unnamed ephemeral stream	SWSESE, Section 16, T21N, R84W	--	WUS	3	0.007
23	Unnamed ephemeral stream	NWSENW, Section 22, T21N, R84W	--	WUS	1	0.002
24	Unnamed ephemeral stream	NWNWSE, Section 22, T21N, R84W	--	Non-WUS	--	--
25	Saint Marys Creek	NWNWSE, Section 27, T21N, R84W	R4SBA	WUS/ Wetland	20	0.046 <sup>5</sup>
26	Unnamed ephemeral stream	NWNENE, Section 34, T21N, R84W	--	WUS	2	0.005
<b>Subtotal Pipeline Route</b>						0.467
<b>Subtotal Pipeline Route Affected</b>						0.058

Table 3.1 (Continued)

Site	Description	Location	NWI Designation <sup>1</sup>	Jurisdictional Status <sup>2</sup>	Channel/Wetland Width (ft)	Affected Acreage <sup>3</sup>
<b>Access Roads</b>						
A	Unnamed ephemeral stream	SENESEW, Section 31, T23N, R85W	--	WUS	2	0.005
B	Unnamed ephemeral stream	NESWNE, Section 7, T21N, R84W	--	Non-WUS	--	--
C	Unnamed ephemeral stream	NESESEW, Section 8, T21N, R84W	--	WUS	1	0.002
D	Unnamed ephemeral stream	NESWSE, Section 16, T21N, R84W	--	WUS	1	0.002
E	Unnamed ephemeral stream	NESESEW, Section 22, T21N, R84W	--	WUS	1	0.002
F	Unnamed ephemeral stream	NWSESEW, Section 22, T21N, R84W	--	WUS	1	0.002
G	Unnamed ephemeral stream	SESESEW, Section 26, T21N, R84W	--	WUS	1	0.002
<b>Subtotal Access Roads</b>						0.015
<b>Subtotal Access Roads Affected</b>						-- <sup>6</sup>
<b>Total</b>						0.482
<b>Total Affected</b>						0.058

<sup>1</sup> National Wetland Inventory (NWI) Designations: R4SBA = intermittent riverine streambed, temporarily flooded; -- = no designation on NWI maps.  
<sup>2</sup> WUS = water of the U.S. (i.e., a site with a defined bed and bank); wetland = all three wetland criteria (wetland hydrology, hydrophytic vegetation, and hydric soils) were observed.  
<sup>3</sup> Based on an estimated 100-ft disturbance width.  
<sup>4</sup> Approximately 150-ft wide channel (WUS) and 8-ft wide wetland.  
<sup>5</sup> Site would be bored and/or directionally drilled; therefore, it is not included in the affected acreage total.  
<sup>6</sup> Assumes road improvements as necessary would occur within existing disturbed areas, and no additional disturbance would occur to WUS.

## **3.2 EPHEMERAL WUS/NON-WUS**

### **3.2.1 Ephemeral WUS--Sites 1, 3, 4, 7-12, 16, 21-23, 26, A, and C-G**

Sites 1 and 4 are classified on the NWI maps as R4SBA (intermittent riverine streambed, temporarily flooded); however, field investigations found these sites to be only WUS because, while defined beds and banks were present, one or more wetland indicator criteria were absent (Appendix B, Photograph B.1). Remaining sites are not classified on the NWI maps. Vegetation varied from site to site; sites were grouped based on sites were dry at the time of the on-site investigation. Channel widths generally ranged from 1 to 6 ft wide and a site form was completed for each group of similar sites (Appendix A). Vegetation at WUS sites was generally composed of upland species such as Wyoming big sagebrush, greasewood, rabbitbrush, western wheatgrass, slender wheatgrass, and alkali bluegrass (see Table C.1 for wetland indicators status). Soil pits were not excavated at most of these sites because neither hydrophytic vegetation nor indicators or wetland hydrology were observed. Approximately 33 linear ft (0.058 acre) of WUS would be affected.

### **3.2.2 Non-WUS Sites 2, 5, 13-15, 17-20, 24, and B**

These sites were investigated because they were illustrated as either ephemeral or intermittent streams on USGS topographic maps (Map 1). Based on field inspection of these areas, defined beds and banks were not present within the proposed pipeline or access road corridors; therefore, these sites are not WUS (Appendix B, Photograph B.2).

## **3.3 PERENNIAL WUS/WETLAND**

### **3.3.1 Site 6--North Platte River, Perennial WUS/Wetland**

Site 6 is the North Platte River (Map 1; Appendix B, Photograph B.3), which is approximately 150 ft wide at the proposed pipeline crossing. A small potential wetland

(approximately 8 ft wide) is located adjacent to the river but was not investigated because this site would not be disturbed since directional drilling and/or boring methods would be used to avoid the site. Based on field inspection of the location of the directional drill pad/bore pit areas, all wetlands and WUS at this site would be avoided.

### **3.3.2 Wetland--Site 25**

Site 25 is Saint Marys Creek, which is an ephemeral/intermittent WUS. This site is classified as a R4SBA on the NWI map (Map 1; Appendix B, Photograph B.4). The channel width at the proposed pipeline crossing is approximately 20 ft. In addition, hydrophytic vegetation and hydric soils were observed at this site (Appendix A). This area also would be directionally drilled or bored to avoid any surface disturbance to the wetland and WUS.

## **3.4 SUMMARY AND RECOMMENDATIONS**

Based on field investigations of the proposed pipeline and access road corridors, a total of approximately 0.058 acre (33 linear ft) of WUS and no wetlands would be disturbed by the proposed project (Table 3.1). The pipeline corridor (assumed 100-ft disturbance width) would affect 14 WUSs.

**As a result of these findings, a COE 404 Permit from the COE is required. Pipeline installation would be covered under a COE Nationwide Permit NW-12, Utility Line Discharges, since disturbances to wetlands or other WUS would not exceed a total of 0.5 acre. Furthermore, since total disturbance to WUS would be less than 0.10 acre, the COE does not require notification.**

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**APPENDIX A:**  
**WETLAND DELINEATION FORMS**

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 Corps of Engineers Manual)**

Project/Site: <u>Seminole Road Pipeline and Access Roads/Ephemeral Streams</u>	Date: <u>10/16/01</u>
Applicant/Owner: <u>Dudley &amp; Associates, LLC</u>	County: <u>Carbon</u>
Investigator: <u>Jan Hart</u>	State: <u>Wyoming</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes [ ] No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)?    [ ] Yes <input checked="" type="checkbox"/> No	Transect ID: _____
Is the area a potential Problem Area?                      [ ] Yes <input checked="" type="checkbox"/> No	Plot ID: <u>Sites 1, 10, 11, 12, 16, and 26</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator*	Dominant Plant Species	Stratum	Indicator
1. <i>Artemisia tridentata wyomingensis</i> (50%)	S	UPL/UPL	6.		
2. <i>Chrysothamnus viscidiflorus</i> (20%)	S	UPL/UPL	7.		
3. <i>Elymus smithii</i> (10%)	H	FACU/ FACU	8.		
4. <i>Stipa comata</i> (10%)	H	UPL/UPL	9.		
5. <i>Lepidium perfoliatum</i> (10%)	H	FACU/ FACU	10.		
Percent of Dominant Species that are OBL, FACW, and/or FAC (exclude FAC- species). <u>0/5=0%</u>					
Remarks: * Both Region 4 and Region 9 (Reed 1988a, 1988B) indicator status is given.					

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks) <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input checked="" type="checkbox"/> Other - Topographic and NWI Maps <input type="checkbox"/> No Known Recorded Data	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>  0  </u> inches  Depth to Free Water in Pit: <u>  -  </u> inches  Depth to Saturated Soil: <u>  -  </u> inches	
Remarks: At the time of the survey, the channels were dry. No wetland hydrology indicators were observed.	

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Map Type? <input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions (test required)		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks:					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: These sites are waters of the U.S. because they have defined beds and banks.	

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 Corps of Engineers Manual)**

Project/Site: <u>Seminole Road Pipeline and Access Roads/Ephemeral Streams</u>	Date: <u>10/16/01 and 10/17/01</u>
Applicant/Owner: <u>Dudley &amp; Associates, LLC</u>	County: <u>Carbon</u>
Investigator: <u>Jan Hart</u>	State: <u>Wyoming</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes [ ] No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)?    [ ] Yes <input checked="" type="checkbox"/> No	Transect ID: _____
Is the area a potential Problem Area?                      [ ] Yes <input checked="" type="checkbox"/> No	Plot ID: <u>Sites 2, 5, 13 14, 15, 17, 18, 19, 20, and B</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator*	Dominant Plant Species	Stratum	Indicator
1. <i>Sarcobatus vermiculatus</i> (20%)	S	FACU/ FACU+	6.		
2. <i>Artemisia tridentata wyomingensis</i> (40%)	S	UPL/ UPL	7.		
3. <i>Elymus smithii</i> (30%)	H	FACU/ FACU	8.		
4. <i>Chrysothamnus viscidiflorus</i> (10%)	S	UPL/ UPL	9.		
5.			10.		
Percent of Dominant Species that are OBL, FACW, and/or FAC (exclude FAC- species). <u>0/4=0%</u>					
Remarks: * Both Region 4 and Region 9 (Reed 1988a, 1988B) indicator status is given.					

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks) <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input checked="" type="checkbox"/> Other - Topographic and NWI Maps <input type="checkbox"/> No Known Recorded Data	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>  0  </u> inches  Depth to Free Water in Pit: <u>  -  </u> inches  Depth to Saturated Soil: <u>  -  </u> inches	
Remarks: These sites were investigated because they were designated as ephemeral streams on the USGS 7.5' series quadrangles.	

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Map Type? [ ] Yes [ ] No			
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
[ ] Histosol		[ ] Concretions			
[ ] Histic Epipedon		[ ] High Organic Content in Surface Layer of Sandy Soils			
[ ] Sulfidic Odor		[ ] Organic Streaking in Sandy Soils			
[ ] Aquic Moisture Regime		[ ] Listed on Local Hydric Soils List			
[ ] Reducing Conditions (test required)		[ ] Listed on National Hydric Soils List			
[ ] Gleyed or Low-Chroma Colors		[ ] Other (Explain in Remarks)			
Remarks: No soil pit was dug since neither hydrophytic vegetation nor indicators of wetland hydrology were present.					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? [ ] Yes [X] No Wetland Hydrology Present? [ ] Yes [X] No Hydric Soils Present? [ ] Yes [X] No	Is this Sampling Point within a Wetland? [ ] Yes [X] No
Remarks: All of these sites did not exhibit defined bed and bank criteria; therefore, these sites are not WUS as defined by the U.S. Army Corps of Engineers.	

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 Corps of Engineers Manual)**

Project/Site: <u>Seminole Road Pipeline and Access Roads/Ephemeral Streams</u>	Date: <u>10/16/01</u>
Applicant/Owner: <u>Dudley &amp; Associates, LLC</u>	County: <u>Carbon</u>
Investigator: <u>Jan Hart</u>	State: <u>Wyoming</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Transect ID: _____
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Plot ID: <u>Sites 3, 4, 21, 23, A, D, E, F, and G</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator*	Dominant Plant Species	Stratum	Indicator
1. <i>Sarcobatus vermiculatus</i> (40%)	S	FACU/ FACU+	7.		
2. <i>Artemisia tridentata wyomingensis</i> (10%)	S	UPL/ UPL	8.		
3. <i>Poa juncifolia</i> (10%)	H	FAC/ FACU+	9.		
4. <i>Elymus smithii</i> (20%)	H	FACU/ FACU	10.		
5. <i>Elymus trachycaulum</i> (10%)	H	FACU/ FAC	11.		
6.			12.		

Percent of Dominant Species that are OBL, FACW, and/or FAC (exclude FAC- species). 0/5=0%

Remarks: \* Both Region 4 and Region 9 (Reed 1988a, 1988B) indicator status is given.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks) <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input checked="" type="checkbox"/> Other - Topographic and NWI Maps <input type="checkbox"/> No Known Recorded Data	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ inches  Depth to Free Water in Pit: ____ inches  Depth to Saturated Soil: _____ inches	
Remarks: These sites are designated as ephemeral streams on the topographic maps.	

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Map Type? <input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions (test required)		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: A soil pit was not dug since hydrophytic vegetation was not present.					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: These sites are waters of the U.S. because a defined bed and bank was observed at each site.	

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 Corps of Engineers Manual)**

Project/Site: <u>Seminole Road Pipeline and Access Roads/ North Platte River</u>	Date: <u>10/16/01</u>
Applicant/Owner: <u>Dudley &amp; Associates, LLC</u>	County: <u>Carbon</u>
Investigator: <u>Jan Hart</u>	State: <u>Wyoming</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Transect ID: _____
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Plot ID: <u>Site 6</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator*	Dominant Plant Species	Stratum	Indicator
1. _____	_____	_____	7. _____	_____	_____
2. _____	_____	_____	8. _____	_____	_____
3. _____	_____	_____	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW, and/or FAC (exclude FAC- species). n/a

Remarks: n/a = Not applicable. No vegetation is growing in the river.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks) <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input checked="" type="checkbox"/> Other - Topographic and NWI Maps <input type="checkbox"/> No Known Recorded Data	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>60</u> inches  Depth to Free Water in Pit: _____ inches  Depth to Saturated Soil: _____ inches	
Remarks: This site is the North Platte River. The channel is approximately 150-ft wide at the proposed pipeline crossing and has an adjacent 8-ft wide potential wetland. Channel depth is up to 5 ft.	

**SOILS**

Map Unit Name (Series and Phase):	Ustic Torriorthents and Aquic Haplustrols with Typic Fluvaquents	Drainage Class:			
Taxonomy (Subgroup):		Field Observations Confirm Map Type? <input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions (test required)		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: A soil pit was not dug because this site would be directionally drilled.					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: This site, the North Platte River, is a WUS. A small potential wetland is located adjacent to the river. This area was not investigated because this site would be directionally drilled/bored, and would be avoided by project-related activities.	

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 Corps of Engineers Manual)**

Project/Site: <u>Seminole Road Pipeline and Access Roads/Ephemeral Streams</u>	Date: <u>10/16/01</u>
Applicant/Owner: <u>Dudley &amp; Associates, LLC</u>	County: <u>Carbon</u>
Investigator: <u>Jan Hart</u>	State: <u>Wyoming</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Transect ID: _____
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Plot ID: <u>Sites 7, 8, and 9</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator*	Dominant Plant Species	Stratum	Indicator
1. <i>Atriplex gardneri</i> (40%)	S	UPL/UPL	7.		
2. <i>Elymus smithii</i> (50%)	H	FACU/ FACU	8.		
3. <i>Artemisia tridentata wyomingensis</i> (10%)	S	UPL/UPL	9.		
4.			10.		
5.			11.		
6.			12.		

Percent of Dominant Species that are OBL, FACW, and/or FAC (exclude FAC- species). 0/3=0%

Remarks: \* Both Region 4 and Region 9 (Reed 1988a, 1988B) indicator status is given. *E. smithii* is growing in the channel. Greasewood also occurs but is not the dominant species at this location.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks) <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input checked="" type="checkbox"/> Other - Topographic and NWI Maps <input type="checkbox"/> No Known Recorded Data	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>  0  </u> inches  Depth to Free Water in Pit: <u>  -  </u> inches  Depth to Saturated Soil: <u>  -  </u> inches	
Remarks: The channel was dry at the time of the survey. The channel width is 2 ft and incised approximately 8-10 inches deep. No indicators of wetland hydrology were observed.	

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Map Type? <input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions (test required)		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: A soil pit was not dug since hydrophytic vegetation was not present at this site.					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: These sites are waters of the U.S. because a defined bed and bank was observed at each site.	

**APPENDIX B:**  
PHOTOGRAPHS OF SELECTED WETLAND  
AND WATERS OF THE U.S. SITES

Photograph B.1 Typical WUS.

Photograph B.2 Typical Non-WUS.

Photograph B.3 Site 6, North Platte River.

Photograph B.4 Site 25, Saint Marys Creek.

**APPENDIX C:**

**LIST OF PLANTS SPECIES ENCOUNTERED  
AND WETLAND INDICATOR STATUS**

Table C.1 List of Plant Species Occurring on Surveyed Sites, Seminole Road Coalbed Methane Gas Gathering Pipeline and Access Roads Project.<sup>1</sup>

Life Form	Common Name	Scientific Name	Indicator <sup>2</sup>	
			Region 4	Region 9
<b>Shrubs, and Subshrubs</b>	Wyoming big sagebrush	<i>Artemisia tridentata wyomingensis</i>	UPL	UPL
	Skunkbush	<i>Rhus trilobata</i>	NI	NI
	Shadscale	<i>Atriplex confertifolia</i>	UPL	UPL
	Gardner's saltbush	<i>Atriplex gardneri</i>	UPL	UPL
	Douglas rabbitbrush	<i>Chrysothamnus viscidiflorus</i>	UPL	UPL
	Grey rabbitbrush	<i>Chrysothamnus nauseosus</i>	UPL	UPL
	Sandbar willow	<i>Salix exigua</i>	FACW	OBL
	Greasewood	<i>Sarcobatus vermiculatus</i>	FACU	FACU+
	Winterfat	<i>Kraschennikovia lanata</i>	UPL	UPL
	Fringed sage	<i>Artemisia frigida</i>	UPL	UPL
<b>Forbs</b>	Clasping pepperweed	<i>Lepidium perfoliatum</i>	FACU	FACU
	Scarlet globemallow	<i>Sphaeralcea coccinea</i>	UPL	UPL
	Franklin's Sandwort	<i>Arenaria franklinii</i>	UPL	UPL
	Field mint	<i>Mentha arvensis</i>	FACW	FACW-
	Russian thistle	<i>Salsola kali</i>	FACU-	FACU
	Seepweed	<i>Iva axillaria</i>	FACU	FAC
	Halogeton	<i>Halogeton glomeratus</i>	UPL	UPL
	Thistle	<i>Cirsium arvensis</i>	UPL	UPL
<b>Grasses and Grasslike Species</b>	Smooth brome	<i>Bromus inermis</i>	UPL	UPL
	Slender wheatgrass	<i>Elymus trachycaulum</i>	FACU	FAC
	Alkali saccaton	<i>Sporobolus airoides</i>	FAC	FAC-
	Western wheatgrass	<i>Elymus smithii</i>	FACU	FACU
	Meadow barley	<i>Hordeum pusillum</i>	FACU	FACU
	Basin wildrye	<i>Elymus cinerus</i>	NI	FAC
	Baltic rush	<i>Juncus balticus</i>	OBL	FACW+
	Bulrush	<i>Scirpus maritimus</i>	NI	OBL
	Alkali bluegrass	<i>Poa juncifolia</i>	FAC	FACU+
	Foxtail barley	<i>Hordeum jubatum</i>	FACW	FAC+
	Tufted hairgrass	<i>Deschampsia cespitosa</i>	FACW	FACW+
	Seaside arrowgrass	<i>Triglochin maritimum</i>	OBL	OBL
	Crested wheatgrass	<i>Elymus cristatum</i>	UPL	UPL
	Inland saltgrass	<i>Distichlis stricta</i>	NI	FAC+
	Needleandthread	<i>Stipa comata</i>	UPL	UPL
Weeping alkaligrass	<i>Puccinella distans</i>	FACW	FACW+	
<b>Cacti</b>	Prickly pear cactus	<i>Opuntia polyacantha</i>	UPL	UPL

<sup>1</sup> This list is a compilation of both dominant and non-dominant species observed during the wetland delineation.

<sup>2</sup> Based on Reed (1988a, 1988b). OBL = obligate upland; FACW = facultative wetland; FAC = facultative; FACU = facultative upland; UPL = obligate upland; + = occurs more often in wetlands than in uplands; - = occurs more often in uplands than wetlands; NI = insufficient information available to determine an indicator status.