

WETLAND DETERMINATION DATA FORM – Great Plains Region

W302BU001

Project/Site: KXL pipeline City/County: Harding Co. Sampling Date: 7-21-12  
 Applicant/Owner: \_\_\_\_\_ State: SD Sampling Point: Wetland  
 Investigator(s): Bio 302 Section, Township, Range: UP 361.8  
 Landform (hillslope, terrace, etc.): drainageway Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-2%  
 Subregion (LRR): G. Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation No, Soil No, or Hydrology No 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 <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	

Remarks: PEM located in drainageway - lots of upland pockets, but primarily Distichlis is saturated / ponded soils. GRAZED.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
_____ = Total Cover				Column Totals: _____ (A) _____ (B)
_____ = Total Cover				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>5' Rad</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. _____				<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Distichlis spicata</u>	<u>100%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Hordeum jubatum</u>	<u>5%</u>		<u>FAC</u>	____ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____				____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____				____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No _____
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: grazed PEM in narrow / shallow / braided drainageway.  
photos: -001SE, -002SW, -003NW, -004NE, -005corps plot, -006upland

Sampling Point: wetland

**SOIL**

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1"								thick roots
1"-73"	7.5YR4/2	90%	6.5Y 1 3/4	10%	RM	M	SCL	Sandy clay w/ depletion

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5) (LRR F)</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input checked="" type="checkbox"/> Redox Depressions (F8)</p> <p><input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 &amp; 73 of LRR H)</p>	<p>Indicators for Problematic Hydric Soils<sup>3</sup>:</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR G)</p> <p><input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 &amp; 73)</p> <p><input type="checkbox"/> Reduced Vertic (F18)</p> <p><input type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> <p><sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
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Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No \_\_\_\_\_

Remarks:

**HYDROLOGY**

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input checked="" type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p>		<p>Secondary Indicators (minimum of two required)</p> <p><input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>		<p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> <p><input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)</p>	
<p>Field Observations:</p> <p>Surface Water Present? Yes <input checked="" type="checkbox"/> No <u>51"</u> Depth (inches): _____</p> <p>Water Table Present? Yes _____ No _____ Depth (inches): _____</p> <p>Saturation Present? Yes <input checked="" type="checkbox"/> No <u>surface</u> Depth (inches): _____</p>			<p>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____</p>		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Recent rains for standing water - clays keeps water in root zone. May maintain connection to N. fork Moreau Riv.

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 Applicant/Owner: \_\_\_\_\_ State: SD Sampling Point: Upland  
 Investigator(s): Bio 302 Section, Township, Range: MP 361.8  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-2%  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation No, Soil No, or Hydrology No naturally / problematically? G = grazed (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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>		
Remarks: <u>@ higher elevations, lesser dominance of hydrophytic veg. - soil.</u>			

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Abs. %	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>0</u> (A)	
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)	
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
4. _____				Prevalence Index worksheet:	
= Total Cover				Total % Cover of:	Multiply by:
1. _____				OBL species	x 1 = _____
2. _____				FACW species	x 2 = _____
3. _____				FAC species	x 3 = _____
4. _____				FACU species	x 4 = _____
5. _____				UPL species	x 5 = _____
= Total Cover				Column Totals:	(A) _____ (B) _____
Prevalence Index = B/A = _____				Hydrophytic Vegetation Indicators:	
1. <u>Bromis tectorum</u> <u>30%</u> <input checked="" type="checkbox"/> <u>upl</u>				___ 1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Opuntia spp.</u> <u>10%</u>				___ 2 - Dominance Test is >50%	
3. <u>absinth</u> <u>10%</u>				___ 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
4. <u>Ag. Smith</u> <u>50%</u> <input checked="" type="checkbox"/> <u>upl</u>				___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
5. _____				___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
6. _____				___ 1 - Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
7. _____				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	
8. _____					
9. _____					
10. _____					
= Total Cover					
= Total Cover					
= Total Cover					
Remarks: <u>splashed water</u>					

Sampling Point: upland

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1"								thick roots
<del>1-712"</del>	7.5YR 4/4	100%			← no redox →		SL	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Creamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Creamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)		

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> High Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Covered Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Explain in Remarks	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

**Field Observations:**

Surface Water Present? Yes _____ No _____	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present? Yes _____ No _____	Depth (inches): _____	
Saturation Present? Yes _____ No _____ (Includes capillary fringe)	Depth (inches): _____	

Describe Recorded Data (stream gauge, monitoring equipment, aerial photos, previous inspections), if available:

Remarks: