WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Susitna-Watana Hydroelectric Project | Borough/City: Matanuska-Susitna Borough | Sampling Date: 25-Aug-15

Applicant/Owner: Alaska Energy Authority | Sampling Point: **SW15_T209_05**

Investigator(s): SLI, SCB | Landform (hillside, terrace, hummocks etc.): drainage

Local relief (concave, convex, none): hummocky | Slope: 5.2 % / 3.0 ° | Elevation:

Subregion : Interior Alaska Mountains | Lat.: | Long.: | Datum: WGS84

Soil Map Unit Name: | **NWI classification: PSS1E**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ 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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? **Yes** ◉ **No** ○

Remarks: low open willow shrub with scattered picmar saplings and few trees. seeps and springs, moving surface water and bare mud. tipped-over spruce with puddles at their bases suggest thermokarst.

VEGETATION - Use scientific names of plants. List all species in the plot.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum			
1. Picea mariana	5	☑	FACW
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
Total Cover:	5		
Sapling/Shrub Stratum	50% of Total Cover: 2.5		20% of Total Cover: 1
1. Salix pulchra	25	☑	FACW
2. Picea mariana	5	☑	FACW
3. Vaccinium uliginosum	5	☑	FAC
4. Salix barclayi	5	☑	FAC
5. Empetrum nigrum	3	☐	FAC
6. Betula nana	2	☐	FAC
7. Salix commutata	2	☐	FAC
8. Betula glandulosa	1	☐	FAC
9. Spiraea stevenii	1	☐	FACU
10. Vaccinium vitis-idaea	1	☐	FAC
Total Cover:	50		
Herb Stratum	50% of Total Cover: 25		20% of Total Cover: 10
1. Comarum palustre	5	☑	OBL
2. Calamagrostis canadensis	5	☑	FAC
3. Rumex arcticus	3	☐	FAC
4. Petasites frigidus	2	☐	FACW
5. Viola palustris(IAM)	1	☐	FAC
6. Sanguisorba canadensis	1	☐	FACW
7. Cornus suecica	1	☐	FAC
8. Ranunculus hyperboreus	0.1	☐	OBL
9. Rubus arcticus(IAM)	0.1	☐	FACU
10. Rubus chamaemorus	0.1	☐	FACW
Total Cover:	18.3		
50% of Total Cover:	9.15	20% of Total Cover:	3.66

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species	5.1	x 1 =	5.1
FACW Species	38.1	x 2 =	76.2
FAC Species	29	x 3 =	87
FACU Species	1.1	x 4 =	4.400
UPL Species	0	x 5 =	0
Column Totals:	73.3 (A)		172.7 (B)

Prevalence Index = B/A = 2.356

Hydrophytic Vegetation Indicators:

☑ Dominance Test is > 50%

☑ Prevalence Index is ≤3.0

☐ Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 25

Total Cover of Bryophytes 20

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: low willow with scattered picmar, similar to plot SW15_ T209_01. additional traces of leddec, ledgro, betken, epiang, unidentified sedge (grazed)

SOIL

Sampling Point: SW15_T209_05

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3			100						Mucky Peat	
3-6			100						Muck	with thin bands of mineral soil
6-9	5Y	2.5/2	95	10Y	3/N	5	D	PL	Silt Loam	few faint redox concentrations (pore linings)
9-10			100						Fine Sand	vareigated
10-16	5Y	3/1	85	10Y	4/N	10	D	PL	Silt Loam	with pockets of fine sand
+mottle				5Y	2.5/	5	C	PL		

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix [2] Location: PL=Pore Lining. RC=Root Channel. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☑ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):
Type:
Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☑ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches): 2
Water Table Present?	Yes ◉	No ○	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

Remarks:
B5-biogenic sheen, iron flocc