WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Susitna-Watana Hydroelectric Project | Borough/City: Matanuska-Susitna Borough | Sampling Date: 31-Aug-15

Applicant/Owner: Alaska Energy Authority | Sampling Point: **SW15_T349_04**

Investigator(s): JGK | Landform (hillside, terrace, hummocks etc.): Hillside

Local relief (concave, convex, none): hummocky | Slope: 17.6 % / 10.0 ° | Elevation:

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

Soil Map Unit Name: | **NWI classification:** PSS4/1B

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 ○	**Is the Sampled Area within a Wetland?** **Yes ◉ No ○**
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

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

	Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.	Picea mariana	7	☑	FACW
2.		0	☐	
3.		0	☐	
4.		0	☐	
5.		0	☐	
	Total Cover:	7		

Sapling/Shrub Stratum — 50% of Total Cover: 3.5 — 20% of Total Cover: 1.4

1.	Picea mariana	25	☑	FACW
2.	Vaccinium uliginosum	20	☑	FAC
3.	Betula nana	10	☑	FAC
4.	Vaccinium vitis-idaea	10	☑	FAC
5.	Rhododendron groenlandicum	10	☑	FAC
6.	Alnus viridis ssp. sinuata	7	☐	FAC
7.	Empetrum nigrum	5	☐	FAC
8.	Salix glauca	5	☐	FAC
9.		0	☐	
10.		0	☐	
	Total Cover:	92		

Herb Stratum — 50% of Total Cover: 46 — 20% of Total Cover: 18.4

1.	Carex bigelowii	30	☑	FAC
2.		0	☐	
3.		0	☐	
4.		0	☐	
5.		0	☐	
6.		0	☐	
7.		0	☐	
8.		0	☐	
9.		0	☐	
10.		0	☐	
	Total Cover:	30		

50% of Total Cover: 15 — 20% of Total Cover: 6

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	0	x 1 =	0
FACW Species	32	x 2 =	64
FAC Species	97	x 3 =	291
FACU Species	0	x 4 =	0
UPL Species	0	x 5 =	0
Column Totals:	129 (A)		355 (B)

Prevalence Index = B/A = 2.752

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) 30

% Bare Ground 10

Total Cover of Bryophytes 65

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

Remarks: 10% lichen--wetland moss is sphagnum.

SOIL

Sampling Point: SW15_T349_04

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
0-2							Peat	
2-7							Mucky Peat	
7-12							Muck	
12-18	10YR 3/3						Coarse Sandy Loam	With gravel

[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:

Subangular cobbles throughout mineral horizon.
Numerous seeps and multiple hydrology indicators give high confidence in calling this a hydric soil. Believe that mineral portion of profile did not meet low chroma colors because of highly oxygenated water flowing through soil, preventing reducing conditions from forming.

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):
Water Table Present?	Yes ◉	No ○	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 6

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

numerous seeps present in area.