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_02**

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

Local relief (concave, convex, none): hummocky | Slope: 14.0 % / 8.0 ° | Elevation:

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

Soil Map Unit Name: | **NWI classification: PFO4B**

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: seeps and springs at toe of slope below plot

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea glauca	25	☑	FACU
2. Picea mariana	10	☑	FACW
3.	0	☐	
4.	0	☐	
5.	0	☐	
Total Cover:	35		

50% of Total Cover: 17.5 20% of Total Cover: 7

Sapling/Shrub Stratum			
1. Alnus viridis	30	☑	FAC
2. Picea mariana	5	☐	FACW
3. Picea glauca	5	☐	FACU
4. Vaccinium vitis-idaea	2	☐	FAC
5. Empetrum nigrum	1	☐	FAC
6. Linnaea borealis	1	☐	FACU
7. Rosa acicularis	1	☐	FACU
8. Vaccinium uliginosum	1	☐	FAC
9. Salix pulchra	1	☐	FACW
10. Rhododendron groenlandicum	0.1	☐	FAC
Total Cover:	47.1		

50% of Total Cover: 23.55 20% of Total Cover: 9.42

Herb Stratum			
1. Equisetum sylvaticum	15	☑	FAC
2. Equisetum variegatum	5	☑	FACW
3. Carex bigelowii	2	☐	FAC
4. Cornus suecica	1	☐	FAC
5. Spinulum annotinum	1	☐	FACU
6. Rumex arcticus	0.1	☐	FAC
7. Petasites frigidus	0.1	☐	FACW
8. Boykinia richardsonii	0.1	☐	UPL
9.	0	☐	
10.	0	☐	
Total Cover:	24.3		

50% of Total Cover: 12.15 20% of Total Cover: 4.86

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species	0	x 1 =	0
FACW Species	21.1	x 2 =	42.20
FAC Species	52.2	x 3 =	156.6
FACU Species	33	x 4 =	132
UPL Species	0.1	x 5 =	0.500
Column Totals:	106.4 (A)		331.3 (B)

Prevalence Index = B/A = 3.114

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

Total Cover of Bryophytes

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

Remarks: open spruce, mostly picgla, total tree cover approx 30-35%. tall alder understory.

SOIL

Sampling Point: SW15_T209_02

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-2			100						Peat	
2-6.5									Mucky Peat	
6.5-12	10YR	2/2	80	10YR	3/4	20	C	PL	Silt Loam	with organic inclusions
12-16	5Y	5/2	70	10YR	5/6	30	C	PL	Sandy Clay Loam	with fine-coarse gravels

[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: sandy clay loam
Depth (inches): 12

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:
D3-water perched atop sandy clay loam restrictive layer.