WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Susitna-Watana Hydroelectric Project	B	orough/City:	Denali Bo	rough Sampling Date: 04-Aug-13			
Applicant/Owner: Alaska Energy Authority				Sampling Point: SW13_T166_05			
Investigator(s): CTS, AMD		Landform (hill	side, terrac	e, hummocks etc.): Flat			
Local relief (concave, convex, none): flat		Slope: 2.0	% / 1.1	° Elevation: 736			
Subregion : Interior Alaska Mountains	Lat ·	63.38945293 ²	1	Long.: -148.561422825 Datum: WGS84			
Soil Map Unit Name:		00.000 10200	·	NWI classification: Upland			
Are climatic/hydrologic conditions on the site typical for this til	mo of voor	o Vec	No ○	(If no, explain in Remarks.)			
Are Vegetation , Soil , or Hydrology s	significantly naturally pr	/ disturbed? oblematic?	Are "N (If nee	ormal Circumstances" present? Yes No O ded, explain any answers in Remarks.)			
Hydrophytic Vegetation Present? Yes ● No C)						
Hydric Soil Present? Yes No •)	Is the Sampled Area within a Wetland? Yes ○ No ●					
Wetland Hydrology Present? Yes ● No C)						
Remarks:							
VEGETATION -Use scientific names of plants. Li			•	Dominance Test worksheet:			
Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Number of Dominant Species			
1.	0		- —	That are OBL, FACW, or FAC: 4 (A)			
2.	0			Total Number of Dominant Species Across All Strata: 4 (B)			
3.	0			Percent of dominant Species			
4.	0			That Are OBL, FACW, or FAC: 100.0% (A/B)			
5.	0			Prevalence Index worksheet:			
Total Covers	<u> </u>			Total % Cover of: Multiply by:			
Sapling/Shrub Stratum 50% of Total Cover:	0 20%	of Total Cover:	0	OBL Species15 x 1 =15			
1. Betula nana	25	✓	FAC	FACW Species			
2. Ledum decumbens	35	✓	FACW	FAC Species <u>46</u> x 3 = <u>138</u>			
3. Vaccinium uliginosum			FAC	FACU Species <u>0</u> x 4 = <u>0</u>			
Vaccinium vitis-idaea	10		FAC	UPL Species <u>0</u> x 5 = <u>0</u>			
5. Empetrum nigrum	3		FAC	Column Totals: <u>134</u> (A) <u>299</u> (B)			
6	0						
7				Prevalence Index = B/A =			
8	0			Hydrophytic Vegetation Indicators:			
9				✓ Dominance Test is > 50%			
10				Prevalence Index is ≤3.0			
Total Cover: Herb Stratum 50% of Total Cover:	40.5 20%			Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)			
Rubus chamaemorus	35	✓	FACW	Problematic Hydrophytic Vegetation (Explain)			
2. Carex aquatilis	15		OBL	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
3. Eriophorum vaginatum			FACW	55 p. 555.1ty diffess disturbed of problematic			
4 5.				Plot size (radius, or length x width)			
				% Cover of Wetland Bryophytes			
6				(Where applicable) % Bare Ground 3			
8.				% Bare Ground3 Total Cover of Bryophytes25			
9.				rotal cover of bryophytes			
10.	0			Hydrophytic			
Total Cover:	53			Vegetation			
50% of Total Cover:		of Total Cover:	10.6	Present? Yes No			
Remarks: Lichen = 35. Caraqu in a more terrestrial form				l e e e e e e e e e e e e e e e e e e e			

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SOIL Sampling Point: SW13_T166_05

Color (resist)	0-2 2-8 8-9	7.5YR		100	Color (moist)	<u>%</u>	Type ¹	Loc ²		Remarks
2-8 7.57k 2/2 100 SIIt Learn 9-11 107k 2/1 100 SIIt Learn 9-11 107k 2/2 100 SIIt Learn 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix Hydric Soil Indicators: 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2-Location: PL=Pare Lining, RC=Root Channell. M=Matrix 1-Type: C=Concentration. D=Depletion. RM=Reduced Matrix 1-Type: C=Concentr	2-8		2/2			_			Hemic Organics	
8-9 10/7R 2/1 100 Sil Loam 9-11 10/7R 2/2 100 Sil Loam 1 Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel. M=Matrix Hydric Soil Indicators: Histoc Epipedon (A2)	8-9		2/2	100						
9-11 10YR 2/2 100 Site town Type: C=Concentration. D=Depletion. RM=Reduced Matrix ^2 Location: PL=Pore Lining. RC=Root Channel. M=Matrix Phydric Soil Indicators: Indicators for Problematic Hydric Soils Alaska Cloyer Change (TAD) Alaska Cloyer (Present): 1		10YR							Silt Loam	
Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2 Location: PL=Pore Lining. RC=Root Channel. M=Matrix Hydric Soil Indicators: Hydric Soil Indicators: Indicator for Problematic Hydric Soils 2 Alaska Gleyed Without Hue SY or Redder Histocoppon (nd 2) Alaska Alpine swoles (TA5) Indicative from the Hydric Soils 2 Indicative from the Hydrogen Sulfide (A4) Alaska Redox (A1) Alaska Redox (A13) Alaska Redox (A14) Alaska Redox (A13) Alaska Redox (A14) Alaska Redox (A15) Alaska Redox (A16) Alaska Redox (A17) Alaska Redox (A17) Alaska Redox (A18) Alaska Redox (A19) Alaska Red	9-11		2/1	100					Silt Loam	
*Type: C-Concentration. D=Depletion. RM=Reduced Matrix **Location: PL=Pore Lining. RC=Root Channel. M=Matrix **Hydric Soils** Histoso Indicators:		10YR	2/2	100					Silt Loam	
Hydric Soil Indicators: Histosol or Histel (A1)			<u> </u>							
Hydric Soil Indicators: Histosol or Histel (A1)										
Hydric Soil Indicators: Histosol or Histel (A1)										
Hydric Soil Indicators: Histosol or Histel (A1)										
Histosol or Histel (A1)	Type: C=Concent	ration. D=	 =Depletion.	RM=Reduce	d Matrix ² Locatio	n: PL=Pore	Lining. RC	=Root Cha	nnel. M=Matrix	
Histosol or Histel (A1)	Hydric Soil Indica	ators:			Indicators for P	roblematic	: Hydric So	oils: ³		
Histic Epipedon (A2)							4		Alaska Gleyed Without Hu	e 5Y or Redder
Thick Dark Surface (A12) Alaska Gleyed (A13) Alaska Gleyed Pores (A15) 4 Give details of color change in Remarks Restrictive Layer (if present): Type: Active layer Depth (inches): 11 Type: Active layer Depth (inches): 11 Hydric Soil Present? Yes No ● No	_	. ,			Alaska Alpine	swales (TA5	5)		Underlying Layer	
Alaska Gleyed (A13)	Hydrogen Sulfi	de (A4)			Alaska Redox	With 2.5Y H	lue		Other (Explain in Remark	5)
Alaska Gleyed (A13) Alaska Gleyed Pores (A15) Alaska Gleyed Pores (A15) Restrictive Layer (if present): Type: Active layer Depth (inches): 11 Remarks: Hydric Soil Present? Yes No ● Primary Indicators Hydric Soil Present? Yes No ● Primary Indicators (any one is sufficient) High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Sufface Water (A15) Water Marks (B1) Hydrospoits (B2) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Wetland Hydrology Present? Yes No ● Primary Indicators (any one is sufficient) Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Oxidized Rhizospheres along Living Roots (C3) Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C4) Saturation (A3) Marl Deposits (B15) Sufface Water Present? Primary Indicators (any one is sufficient) Water Table (A2) Sparsely Vegetated Concave Surface (B8) Oxidized Rhizospheres along Living Roots (C3) Presence of Reduced Iron (C4) Saturation (A3) Marl Deposits (B15) Sufface Water (A15) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Sufface Water (B4) Fron Deposits (B3) Other (Explain in Remarks) Wetland Hydrology Present? Yes No ● Depth (inches): Wetland Hydrology Present? Yes No ● Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:	Thick Dark Surf	ace (A12))							
Alaska Gleyed Pores (A15)	Alaska Gleyed (A13)								/drology,
Restrictive Layer (if present): Type: Active layer Depth (inches): 11 Remarks: no hydric soil indicators HYDROLOGY Wetland Hydrology Indicators: Surface Water (A1)	Alaska Redox (A14)					•			
Type: Active layer Depth (inches): 11 Remarks: no hydric soil indicators HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (Iwo or more are required) Surface Water (A1)	Alaska Gleyed F	ores (A1	5)		Give details or o	color change	e in Remark	iS .		
PYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) Surface Water (A1) Surface Water (A2) Saturation (A3) Marl Deposits (B15) Sediment Deposits (B2) Dry-Season Water Table (C2) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Field Observations: Surface Water Present? Yes No ● Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:	Restrictive Layer (if	present):								
HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (two or more are required)	Type: Active la	/er							Hydric Soil Present?	Yes O No 💿
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient)	Depth (inches):	11								
Wetland Hydrology Indicators: Primary Indicators (any one is sufficient)										
Primary Indicators (any one is sufficient) Surface Water (A1) High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Oxidized Rhizospheres along Living Roots (C3) Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C4) Salt Deposits (C5) Sediment Deposits (B2) Drift Deposits (B3) Other (Explain in Remarks) Surface Soil Cracks (B6) Field Observations: Surface Water Present? Water Table Present? Yes No Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:										
Surface Water (A1)		-								
High Water Table (A2)			<u>is sufficient)</u>							` '
Saturation (A3)							_			
Water Marks (B1)		` ,				_	cave Surfac	ce (B8)		
Sediment Deposits (B2) □ Dry-Season Water Table (C2) □ Stunted or Stressed Plants (D1) □ Drift Deposits (B3) □ Other (Explain in Remarks) □ Geomorphic Position (D2) □ Algal Mat or Crust (B4) □ Iron Deposits (B5) □ Microtopographic Relief (D4) □ Surface Soil Cracks (B6) □ PFAC-neutral Test (D5) □ Surface Water Present? Yes □ No ● Depth (inches): Water Table Present? Yes □ No ● Depth (inches): Saturation Present? Yes □ No ● Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:	•	•				. ,	(C1)			• ,
□ Drift Deposits (B3) □ Other (Explain in Remarks) □ Geomorphic Position (D2) □ Algal Mat or Crust (B4) □ Shallow Aquitard (D3) □ Iron Deposits (B5) □ Microtopographic Relief (D4) □ Surface Soil Cracks (B6) □ FAC-neutral Test (D5) Field Observations: Surface Water Present? Yes □ No ● Depth (inches): Water Table Present? Yes □ No ● Depth (inches): Saturation Present? Yes □ No ● Depth (inches): Saturation Present? Yes □ No ● Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:										
Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Surface Soil Cracks (B6) Fac-neutral Test (D5) Field Observations: Surface Water Present? Water Table Present? Yes No Depth (inches): Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:		. ,								` ,
☐ Iron Deposits (B5) ☐ Surface Soil Cracks (B6) Field Observations: Surface Water Present? Water Table Present? Yes No Depth (inches): Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:		. ,			□ Other (Expir	ani in itemai	10)			` '
Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Wetland Hydrology Present? Yes No Depth (inches):										` '
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Cincludes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:	Surface Soil Cr	acks (B6)	,						✓ FAC-neutra	Test (D5)
Water Table Present? Yes No Depth (inches): Saturation Present? (includes capillary fringe) Wetland Hydrology Present? Yes No Depth (inches): Depth (inches): Depth (inches):	Field Observation	s:								
Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:	Surface Water Pres	ent?	Yes 🔾	No 💿	Depth (inch	es):				
(includes capillary fringe) Yes No Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:	Water Table Prese	nt?	Yes \bigcirc	No 💿	Depth (inch	es):		Wetlar	nd Hydrology Present	:? Yes • No O
Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:			Yes 〇	No 💿	Depth (inch	es):				
Remarks:	(Includes capillary		am gauge,	monitor well,	· ` `		ction) if ava	ailable:		
Remarks:	Describe Recorded I									

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