## WETLAND DETERMINATION DATA FORM - Alaska Region

Stope:         10.5 % / 6.0 *         Elevation:	Project/Site: Susitna-Watana Hydroelectric Project	Borough/City:	atanuska-Susitna Borough Sampling Date	: 24-Aug-15
meetigator(s):       ERT. TX2       Landtom (hilliskic lerrace, hummods etc.):       Footsigne         subregion:       Interior Alaska Mountais       Lat:       Long:       Datum: WG884         subregion:       Interior Alaska Mountais       Lat:       Long:       Datum: WG884         subregion:	Applicant/Owner: Alaska Energy Authority		Sampling Point:	SW15_T343_05
Accal relief (concave, convex, none):       hummocky       Sippe: 10.5 %/ 6.0 °       Elevation:		Landform (hills	B	
biblegion:       Interview       Datum:       WGS84         oil Mep Unit Name:       WW classification:       Datum:       WGS84         oil Mep Unit Name:       WW classification:       PSS1E         ve dentable/Mydorogic conditions on the site typical for this time of year?       Yes ● No ○       (fin de cognian in Remarks.)         SubMMARY OF FINDINGS - Attach site maps showing sampling point locations, transects, important features, etc.       Hydrophydic Vegetation Present?       Yes ● No ○         Hydrophydic Vegetation Present?       Yes ● No ○       Is the Sampled Area       Within at Westand?       Yes ● No ○         Hydrophydic Vegetation Present?       Yes ● No ○       Is the Sampled Area       Within at Westand?       Yes ● No ○         Hydrophydic Vegetation Present?       Yes ● No ○       Is the Sampled Area       Within at Westand?       Yes ● No ○         Remarks: open canopy low willow and sedge. microlows are sedge and standing water, microhighs are salpul.       Deminance Test worksheet:       Trace ● No ○       Ze (A)         1.			· · · · ·	
Net Name:       Net classification: pBs1E         ve dimatchydrologic conditions on the site typical for this time of year?       Yes ● No ○         Are Vegetation   , Soil   , or Hydrology   aluntally problematic?       Are Normal Circumstances' present? Yes ● No ○         Are Vegetation Present?       Yes ● No ○         Hydrology Present?       Yes ● No ○         Hydrology Present?       Yes ● No ○         Within a Wetland?       Yes ● No ○         Wattand Hydrology Present?       Yes ● No ○         Remarks: open canopy low willow and sedge. microlows are sedge and standing water, microhighs are salpul.         FEEETATION - Use scientific names of plants. List all species in the plot.         Tree Stratum	Subregion : Interior Alaska Mountains Lat.			Datum: WGS84
ve elimatic/hydrologic conditions on the site typical for this time of year?       Yes ● No ○       (ff no, explain in Remarks.)         Are Vegetation ○       Sol ○       or hydrology       inflicantly disturbed?       Are "Normal Circumstances" Present?       Yes ● No ○         Are Vegetation ○       Sol ○       or hydrology       inflicantly disturbed?       Are "Normal Circumstances" present?       Yes ● No ○         Hydrophytic Vegetation Present?       Yes ● No ○       Is the Sampled Area       within a Wetland?       Yes ● No ○         Hydrophytic Vegetation Present?       Yes ● No ○       Is the Sampled Area       within a Wetland?       Yes ● No ○         Remarks: open canopy low willow and sedge. microlows are sedge and standing water, microhighs are salpul.       Image: Core in	•			
Are Vegetation	·	Vec (		
Hydrophytic Vegetation Present?       Yes ● No ○       Is the Sampled Area         Wetland Hydrology Present?       Yes ● No ○       within a Wetland?       Yes ● No ○         Remarks: open canopy low villow and sedge. microlows are sedge and standing water, microhighs are salpul.       Period Status       Period Status         //EGETATION - Use scientific names of plants. List all species in the plot.       Dominance Test worksheet:       Number of Dominant Species         1.	Are Vegetation 🗌 , Soil 🗌 , or Hydrology 🗌 significant	ntly disturbed?	Are "Normal Circumstances" present? Ye	
Hydric Soil Present?       Yes ● No       Is the Sampled Area         Wetland Hydrology Present?       Yes ● No       within a Wetland?       Yes ● No         Remarks: open canopy low willow and sedge: microlows are sedge and standing water, microhighs are salpul.       The Stratum       Yes ● No         Zegetation       Absolute       Dominant       Indicator         Yes ● No       Absolute       Dominant       Indicator         Zegetation       Solution       Solution       Dominant       Indicator         Tree Stratum       Solution       Solution       Total Cover:       2       (A)         3.	SUMMARY OF FINDINGS - Attach site map showing sa	ampling point I	cations, transects, important features	s, etc.
Hydric Soil Present?       Yes Image No       Is the Sampled Area         Wetland Hydrology Present?       Yes Image No       within a Wetland?       Yes Image No         Remarks open canopy low willow and sedge. microlows are sedge and standing water, microhighs are salpul.       Tes Stratum       Yes Image No         Tree Stratum       Mocourt Dominant Indicator % Cover Sector Status       Toda Cover: Image No       Continance Test worksheet: That are OBL, FACW, GFAC       2       (A)         1.       Salix publichre       Image No       Image No       Image No       Image No       Image No         3.       Image No       Image No       Image No       Image No       Image No       Image No         3.       Image No       Imag	Hydrophytic Vegetation Present? Yes  No			
Wetland Hydrology Present?         Yes         No         within a Wetland?         Yes         No           Remarks: open canopy low willow and sedge, microlows are sedge and standing water, microhighs are salpul.         Image: Comparison of Compa		ls t		
Remarks: open canopy low willow and sedge. microlows are sedge and standing water, microhighs are salpul.         (EGETATION - Use scientific names of plants. List all species in the plot.         Tree Stratum       Mode Cominant Indicator:         1.		wit	in a Wetland? Yes $ullet$ No $igodot$	
FEGETATION - Use scientific names of plants. List all species in the plot.         Ominance Test worksheet:         Number of Dominant Species         1.		and standing wat	microhighs are salpul	
Tree Stratum       Absolute % Cover       Dominant Species       Indicator Status       Dominant Species That are OBL, FACW, or FAC:       2       (A)         1.	includes open callopy low willow and seage. Iniciolows are seage			
Tree Stratum       Absolute % Cover       Dominant Species       Indicator Status       Dominant Species That are OBL, FACW, or FAC:       2       (A)         1.				
Tree Stratum       Absolute % Cover       Dominant Species       Traitactor Status         1.	VEGETATION Lies scientific names of plants List all s	nacios in the n		
Absolute Dominant Indicators       Number of Dominant Species Total Cover:       Q	Cost and set a	pecies in the p		
Image: Construction       Image: Construction<			dicator	
2.				<u>2</u> (A)
3.	· · · · · · · · · · · · · · · · · · ·			
4.	3	- 🗆		<u>2</u> (B)
5.		-		100.0% (A/B)
Total Cover:		-		
Sapling/Shrub Stratum       50% of Total Cover:       0       20% of Total Cover:       0         1.       Salix pulchra       60       Image: FACW       FACW       FACW Species       1mmm factor         2.       Vaccinium uliginosum       6       FAC       FACW Species       8mm factor       2mm factor         3.       Salix reticulata       2       FAC       FACU Species       8mm factor       2mm factor         4.       Picea glauca       0.1       FACU       FACU Species       0mm factor       1mm factor         5.       0       0       Prevalence Index is 55.1       (A)       162.4       (B)         6.       0       0       Prevalence Index is 5.5.1       (A)       162.4       (B)         7.       0       0       Prevalence Index is 5.5.1       (A)       162.4       (B)         9.       0       0       Prevalence Index is 5.5.0       X5 = 0.0       Column Totals:       55.1       (A)       162.4       (B)         10.       0       0       W       Dominance Test is 5.50%       You factor       Morphological Adaptations       (Provide supporting data in Remarks or on a separate sheet)       Problematic Hydrophytic Vegetation (Explain)         1.       Carex				ly by:
1. Salix pulchra       60       Image: Facular sector of the sect	Sapling / Shrub Stratum 50% of Total Cover: 0 20	— 0% of Total Cover:	•	
1. Outrophonomical distributions of the second distribution and distribution distributions of the second distribution distributicant distribution distreases distribution distribution distributio				
2       indentifying and indentifyinging and indentifyinginging and indentifying and indentifying and	· · · · ·			
0       0       1       FACU       UPL Species       0       x 5 =       0         4.       0       0       0       0       Column Totals:       85.1       (A)       162.4       (B)         6.       0       0       0       0       Prevalence Index = B/A =       1.908         7.       0       0       0       Prevalence Index = B/A =       1.908         8.       0       0       0       Prevalence Index is 53.0       Pointance Test is > 50%         10.       Total Cover:       68.1       Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)         1.       Carex aquatilis       16       Ø       OBL       Problematic Hydrophytic Vegetation (Explain)         2.       Equisetum palustre       1       FACW       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         4.       0       9       0       9       0       9         10.       Total Cover:       17       0       9       0       0         3.       0       0       9       0       0       1       10         4.       0       0       9       0       0       1 <td></td> <td></td> <td></td> <td></td>				
1.       1.000 greeter       0       1.000 greeter       0       1.000 greeter       1.0000 greeter       1.000 greeter				01100
6.       0       0       0       102.4       (B)         7.       0       0       0       Prevalence Index = B/A = 1.908         8.       0       0       0       Work       Prevalence Index = B/A = 1.908         9.       0       0       0       Work       Prevalence Index is ≤ 3.0         10.       0       0       0       Work       Prevalence Index is ≤ 3.0         11.       Carex aquatilis       16       0       Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)         1.       Carex aquatilis       16       0       0       Prevalence Index is ≤ 3.0         2.       Equisetum palustre       1       1       Problematic Hydrophytic Vegetation (Explain)       1         3.       0       0       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         4.       0       0       9       20       (Where applicable)       20         7.       0       0       9       85       9       0       9       85         9.       0       0       0       9       85       9       9       0       9         10.       0				
7.       0				<u>162.4</u> (B)
8.       0       0       Hydrophytic Vegetation Indicators:         9.       0       0       ✓       Dominance Test is > 50%         10.       0       ✓       Prevalence Index is ≤ 3.0         Herb Stratum       50% of Total Cover:       34.05       20% of Total Cover:       13.62         1.       Carex aquatilis       16       ✓       OBL       Problematic Hydrophytic Vegetation (Explain)         2.       Equisetum palustre       1       FACW       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         4.       0       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         9.       0       0        9       20         10.       0       0        9       0          10.       0       0        9       0          10.       0       0        9       0          10.       0       0         9       0          10.       0       0              10.       0       0			Prevalence Index = B/A =	1.908
9.       0       0       ✓       Dominance Test is > 50%         10.       0       0       ✓       Prevalence Index is ≤ 3.0         Herb Stratum       50% of Total Cover:       34.05       20% of Total Cover:       13.62         1.       Carex aquatilis       16       ✓       OBL       Problematic Hydrophytic Vegetation (Explain)         2.       Equisetum palustre       1       FACW <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         4.       0        Plot size (radius, or length x width)       10m         5.       0        % Bare Ground       0         7.       0        % Bare Ground       0         10.       0         0          9.       0         Hydrophytic Vegetation       85         9.       0          0          10.       0              10.       0               10.       0 </td <td>8. 0</td> <td></td> <td>Hydrophytic Vegetation Indicators:</td> <td></td>	8. 0		Hydrophytic Vegetation Indicators:	
10.       0				
Herb Stratum       50% of Total Cover:       34.05       20% of Total Cover:       13.62       Memarks or on a separate sheet)         1.       Carex aquatilis       16       Image: Construction of the second sheet in			✓ Prevalence Index is ≤3.0	
1. Carex aquatilis       16       Image: Constraint of the second			Morphological Adaptations (Provic	le supporting data in
2.       Equisetum palustre       1       Image: FACW of the present	Herb Stratum 50% of Total Cover: 34.05 2		13.62 Remarks or on a separate sheet)	
3.       0       0       be present, unless disturbed or problematic.         4.       0       0       Plot size (radius, or length x width)       10m         5.       0       0       % Cover of Wetland Bryophytes       20         6.       0       0       % Bare Ground       0         7.       0       0       % Bare Ground       0         8.       0       0       Hydrophytics       85         9.       0       0       Hydrophytic       Yes • No ·         50% of Total Cover:       8.5       20% of Total Cover:       3.4       Yes • No ·	1. Carex aquatilis 16		DBL Problematic Hydrophytic Vegetation	ו (Explain)
3.       0	2. Equisetum palustre 1		ACW <sup>1</sup> Indicators of hydric soil and wetland hy	drology must
7.       0	J		be present, unless disturbed or problems	atic.
0.       0	T	-	Plot size (radius, or length x width)	10m
0.	0.			_20
7.				
9.       0	· · · · · · · · · · · · · · · · · · ·			
10.       0       0       Hydrophytic         10.       17       Vegetation         50% of Total Cover:       8.5       20% of Total Cover:       3.4			Total Cover of Bryophytes	85
Total Cover:       17       Yegetation         50% of Total Cover:       8.5       20% of Total Cover:       3.4	J		<b></b>	
50% of Total Cover: <u>8.5</u> 20% of Total Cover: <u>3.4</u> Present? Yes • No	10	_	Vegetation	
				)
Kemarks:	Remarks:		i	

SOI	L

Depth		Matrix			dox Featı	sence of indic I <b>res</b>			
(inches)	Color (m	oist)	%	Color (moist)	%	Type <sup>1</sup>	Loc 2	Texture	Remarks
0-5								Peat	Oi
5-8								Mucky Peat	Oe
8-11	5Y	4/1	100					Fine Sandy Loam	C, Fluventic mineral above buried organics
11-14								Mucky Peat	Oeb
14-16	5Y	4/1	100					Fine Sandy Loam	Cg, soil and water very cold
							-		
<sup>1</sup> Type: C=Cond	centration. D	=Depletion	. RM=Red	uced Matrix <sup>2</sup> Location	n: PL=Por	e Lining. R	C=Root Cha	annel. M=Matrix	
Hydric Soil In	dicators:			Indicators for Pr	oblemati	c Hydric S	oils: <sup>3</sup>		
Histosol or				Alaska Color C		4		Alaska Gleyed Without	Hue 5Y or Redder
Histic Epipe	. ,			Alaska Alpine s		-	_	Underlying Layer	
Hydrogen S				Alaska Redox \	Nith 2.5Y I	lue	L	Other (Explain in Rema	arks)
Thick Dark	Surface (A12	2)		<sup>3</sup> One indicator of	budronbu		n one priv	many indicator of wotland	L hudvalaau
Alaska Gley				and an appropriation				mary indicator of wetlanc esent	i nyarology,
Alaska Redo				<sup>4</sup> Give details of c					
Alaska Gley	ved Pores (Al	15)			0101 0.101.5				
Restrictive Layer	r (if present)	:							$\sim$
Туре:								Hydric Soil Preser	nt? Yes $ullet$ No $igloo$
Depth (inche	es):								
Remarks:									
Remarks: Sloping fen									
Sloping fen	-								
Sloping fen HYDROLOC Wetland Hydro	ology Indic								dicators (two or more are required)
Sloping fen HYDROLOC Wetland Hydro _Primary Indicato	ology Indic		t)					Water St	ained Leaves (B9)
Sloping fen HYDROLOC Wetland Hydro Primary Indicato Surface Wa	ology Indic ors (any one ater (A1)		t)			5	, , ,	Water St	ained Leaves (B9) e Patterns (B10)
Sloping fen  HYDROLOO  Wetland Hydro  Primary Indicate  Surface Wa  Wetland Hydro High Water	ology Indic ors (any one ater (A1) r Table (A2)		t)	Sparsely Veg	etated Cor	5	, , ,	Water St	ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3)
Sloping fen  HYDROLOO Wetland Hydro Primary Indicato Surface Wa V High Water V Saturation	ology Indic ors (any one ater (A1) r Table (A2) (A3)		t)	Sparsely Veg	etated Cor s (B15)	ncave Surfa	, , ,	Water St Drainage Oxidized Presence	ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3) e of Reduced Iron (C4)
Sloping fen  HYDROLOO Wetland Hydro Primary Indicate Surface Wa I High Water I Saturation Water Marl	ology Indic ors (any one ater (A1) r Table (A2) (A3) ks (B1)	<u>e is sufficien</u>	t)	Sparsely Veg	jetated Cor s (B15) ilfide Odor	ncave Surfa (C1)	, , ,	Water St Drainage Oxidized Presence Salt Dep	ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) osits (C5)
Sloping fen  HYDROLOC  Wetland Hydro  Primary Indicato  Primary Indicato Surface Wa  High Water  Saturation Water Marl Sediment D	ology Indic ors (any one ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2)	<u>e is sufficien</u>	t)	Sparsely Veg Marl Deposit Hydrogen Su Dry-Season	letated Cor s (B15) Ilfide Odor Water Tabl	(C1) e (C2)	, , ,	Water St Drainage Oxidized Presence Salt Dep	ained Leaves (B9) e Patterns (B10) Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) osits (C5) or Stressed Plants (D1)
Sloping fen  HYDROLOC  Wetland Hydro  Primary Indicato Surface Wa  High Water  Saturation Water Marl Sediment [ Drift Depose	ology Indic ors (any one ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3)	: is sufficien	t)	Sparsely Veg	letated Cor s (B15) Ilfide Odor Water Tabl	(C1) e (C2)	, , ,	Water St Drainage Oxidized Presence Salt Dep Stunted Geomorp	ained Leaves (B9) e Patterns (B10) Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2)
Sloping fen  HYDROLOC Wetland Hydro Primary Indicato Surface Wa G High Water G Saturation Sediment D Drift Depos Algal Mat c	ology Indic ors (any one ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)	: is sufficien	t)	Sparsely Veg Marl Deposit Hydrogen Su Dry-Season	letated Cor s (B15) Ilfide Odor Water Tabl	(C1) e (C2)	, , ,	Water St Drainage Oxidized Presence Salt Dep Stunted Geomorp Shallow	ained Leaves (B9) e Patterns (B10) Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2) Aquitard (D3)
Sloping fen  HYDROLOC Wetland Hydre Primary Indicate Surface Wa G High Water G Saturation Water Marl Sediment D Drift Depos Algal Mat c I Iron Depos	ology Indic ors (any one ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)	: is sufficien	t)	Sparsely Veg Marl Deposit Hydrogen Su Dry-Season	letated Cor s (B15) Ilfide Odor Water Tabl	(C1) e (C2)	, , ,	Water St Drainage Oxidized Presence Salt Dep Stunted Geomorp Shallow Microtop	ained Leaves (B9) e Patterns (B10) Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2) Aquitard (D3) ographic Relief (D4)
Sloping fen  HYDROLOC  Wetland Hydro  Primary Indicate  Surface Wa  High Water  Saturation  Water Marl  Sediment [ Drift Depos Algal Mat c Iron Depos Surface So	ology Indic ors (any one ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) iil Cracks (B6	: is sufficien	t)	Sparsely Veg Marl Deposit Hydrogen Su Dry-Season	letated Cor s (B15) Ilfide Odor Water Tabl	(C1) e (C2)	, , ,	Water St Drainage Oxidized Presence Salt Dep Stunted Geomorp Shallow Microtop	ained Leaves (B9) e Patterns (B10) Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2) Aquitard (D3)
Sloping fen  HYDROLOC Wetland Hydre Primary Indicate Surface Wa G High Water G Saturation Water Marl Sediment D Drift Depos Algal Mat c I Iron Depos	ology Indic ors (any one ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) iil Cracks (B6 tions:	)	t)	Sparsely Veg Marl Deposit Hydrogen Su Dry-Season Other (Expla	letated Cor s (B15) Ilfide Odor Water Tabl in in Rema	(C1) e (C2)	, , ,	Water St Drainage Oxidized Presence Salt Dep Stunted Geomorp Shallow Microtop	ained Leaves (B9) e Patterns (B10) Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2) Aquitard (D3) ographic Relief (D4)
Sloping fen  HYDROLOC  Wetland Hydro Primary Indicato Surface Wa  High Water Saturation Water Marl Sediment [ Drift Depos Algal Mat c Surface Soi Field Observat	ology Indic ors (any one ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) iil Cracks (B6 tions: Present?	)) )) Yes (		Sparsely Veg Marl Deposit Hydrogen Su Dry-Season V Other (Expla	etated Cor s (B15) Ilfide Odor Water Tabl in in Rema	(C1) e (C2)	ce (B8)	Water St Drainage Oxidized Presence Salt Dep Stunted Geomorp Shallow Microtop	ained Leaves (B9) e Patterns (B10) Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2) Aquitard (D3) ographic Relief (D4) tral Test (D5)
Sloping fen  HYDROLOC  Wetland Hydro Primary Indicato Surface Wa  High Water Saturation Water Marl Sediment D Drift Depos Algal Mat c Iron Depos Surface So  Field Observat Surface Water	ology Indic ors (any one ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) iil Cracks (B6 tions: Present? resent? sent?	) ) ) Yes Yes	) No (	Sparsely Veg Marl Deposit Hydrogen Su Dry-Season V Other (Expla Depth (inche	etated Cor s (B15) Ilfide Odor Water Tabl in in Rema es): es): 6	(C1) e (C2)	ce (B8)	Water St         Drainage         Oxidized         Presence         Salt Dep         Stunted         Geomorp         Shallow         Microtop         ✓ FAC-neut	rained Leaves (B9) e Patterns (B10) Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2) Aquitard (D3) ographic Relief (D4) tral Test (D5)

## Remarks:

No evidence of permafrost after probing with shovel to 24 inches. Water is pouring into pit at water table depth. No evidence of episaturation (texture related aquitard). However permafrost may be deeper, or recently left the system. Some standing water in microlows, covering about 7% of plot.