WETLAND DETERMINATION DATA FORM - Alaska Region

Tree Stratum Absolute % Cover Dominant Species? Indicator Species? Dominant Species That are OBL, FACW, or FAC: 2 (A) 1. 2. <	Project/Site: Susitna-Watana Hydroelectric Project	Bor	rough/City:	Matanusk	a-Susitna Borough Sampling Date: 23-Aug-15
Landform (hillside, terrace, hummocks etc.): Shoulder slope	Applicant/Owner: Alaska Energy Authority				Sampling Point: SW15_T310_01
Subregion : Interior Alaska Mountains Lat:		L;	andform (hill	Iside, terrac	
Subregion : Interior Alaska Mountains Lat:		s	Slope: 10.5	5 % / 6.0	-
Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) Are Vegetation Soil Order Hydrology Isignificantly disturbed? Are Normal Circumstances" present? Yes No No (If no, explain in Remarks.) Are Vegetation Order Hydrology Isignificantly disturbed? Are Normal Circumstances" present? Yes No No No Instituted in Are Normal Circumstances present? Yes No No No Instituted in Are Normal Circumstances present? Yes No No No Instituted in Are Normal Circumstances present? Yes No No No Instituted in Are Normal Circumstances present? Yes No No No Instituted in Are Normal Circumstances present? Yes No No No No Instituted in Are Normal Circumstances present? Yes No No No No Institute in Are Normal Circumstances present? Yes No					
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 No 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 Wolfard Hydrology Present? Yes No Wolfard Hydr					
Are Vegetation	· -	mo of year?		No ○	
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes No Wow Is the Sampled Area within a Wetland? Yes No Wetland Hydrology Present? Yes No Wetland Hydrology Present? Yes No Wetland Hydrology Present? Yes No Wetland Present? Yes No Wetland? Ye	Are Vegetation , Soil , or Hydrology si	ignificantly o	disturbed?	Are "N	ormal Circumstances" present? Yes No
Hydrophytic Vegetation Present? Yes ● No ●					
Hydric Soil Present? Yes No ● Wetland Hydrology Present? Yes No ● Within a Wetland? Yes No ● Remarks: VEGETATION - Use scientific names of plants. List all species in the plot.	SUMMARY OF FINDINGS - Attach site map show	∕ing samp	oling point	locations	, transects, important features, etc.
Wetland Hydrology Present? Yes No	Hydrophytic Vegetation Present? Yes ● No ○				
Wetland Hydrology Present? Yes	Hydric Soil Present? Yes ○ No ●				-
VEGETATION - Use scientific names of plants. List all species in the plot. Tree Stratum Absolute % Cover % Cover Dominant Species? Status Indicator Status Dominant Species That are OBL, FACW, or FAC: 2 (A) (A) 1. </td <td></td> <td></td> <td>w</td> <td>ithin a W</td> <td>etland? Yes ∪ No ●</td>			w	ithin a W	etland? Yes ∪ No ●
Tree Stratum Absolute % Cover Dominant Species? Indicator Species? Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: 2 (A) 2. 3. 4. ————————————————————————————————————					
Tree Stratum Absolute % Cover Dominant Species? Indicator Species? Dominant Species That are OBL, FACW, or FAC: 2 (A) 1. 2. <					
Tree Stratum					
Tree Stratum Absolute % Cover Dominant Species? Indicator Species? Dominant Species That are OBL, FACW, or FAC: 2 (A) 1. 2. <	VEGETATION - Use scientific names of plants. Lis	st all spec	ies in the	plot.	
Tree Stratum % Cover Species? Status Number of Dominant Species That are OBL, FACW, or FAC: 2 (A) 1.<					Dominance Test worksheet:
1. 2. That are OBL, FACW, or FAC: 2 (A) 2. 3. 4. Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B) 5. Prevalence Index worksheet: Total % Cover of: Multiply by: Sapling/Shrub Stratum 50% of Total Cover: 0 20% of Total Cover: 0 1. Vaccinium uliginosum 30 ✓ FAC FAC Species 7 x 2 = 14 2. Empetrum nigrum 15 ✓ FAC FAC Species 75 x 3 = 225 3. Betula nana 10 FAC FAC Species 3 x 4 = 12 4. Arctous ruber 8 FAC UPL Species 0 x 5 = 0 5. Betula glandulosa 5 FAC Column Totals: 85 (A) 251 (B)					
2. Species Across All Strata: 2 (B) 3. Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B) 5. Prevalence Index worksheet: Total % Cover of: Multiply by: 5. OBL Species 0 x 1 = 0 0 That Are OBL, FACW, or FAC: Total % Cover of: Multiply by: 1. Vaccinium uliginosum 30 ✓ FAC FAC FACW Species 7 x 2 = 14 That Are OBL, FACW, or FAC: 100.0% (A/B) 2. Empetrum niginosum 30 ✓ FAC FAC FACW Species 7 x 2 = 14 That Are OBL, FACW, or FAC: 100.0% (A/B) 3. Empetrum nigrum 15 ✓ FAC FAC FAC Species 7 x 2 = 14 That Are OBL, FACW, or FAC: 100.0% (A/B) 4. Arctous ruber 15 ✓ FAC FAC FAC Uspecies 3 x 4 = 12 That Are OBL, FACW, or FAC: 100.0% (A/B) 5. Betula glandulosa 5 ✓ FAC FAC Column Totals: 85 (A) 251 (B)	110000000000000000000000000000000000000				That are OBL, FACW, or FAC: (A)
3.	2.		Ī		
4					
Total Cover: One of Total Cover: Prevalence Index worksheet: Total % Cover of: Multiply by: Sapling/Shrub Stratum 50% of Total Cover: 0 20% of Total Cover: 0 OBL Species 0 x 1 = 0 1. Vaccinium uliginosum 30 ✓ FAC FACW Species 7 x 2 = 14 2. Empetrum nigrum 15 ✓ FAC FAC Species 75 x 3 = 225 3. Betula nana 10 FAC FACU Species 3 x 4 = 12 4. Arctous ruber 8 FAC UPL Species 0 x 5 = 0 5. Betula glandulosa 5 FAC Column Totals: 85 (A) 251 (B)	4.				
Total Cover:	5.				Provalence Index worksheet
Sapling/Shrub Stratum 50% of Total Cover: 0 20% of Total Cover: 0 OBL Species 0 x 1 = 0 1. Vaccinium uliginosum 30 ✓ FAC FACW Species 7 x 2 = 14 2. Empetrum nigrum 15 ✓ FAC FAC Species 75 x 3 = 225 3. Betula nana 10 FAC FACU Species 3 x 4 = 12 4. Arctous ruber 8 FAC UPL Species 0 x 5 = 0 5. Betula glandulosa 5 FAC Column Totals: 85 (A) 251 (B)	Total Cover:	0			
1. Vaccinium uliginosum 30 ✓ FAC FACW Species 7 x 2 = 14 2. Empetrum nigrum 15 ✓ FAC FAC Species 75 x 3 = 225 3. Betula nana 10 FAC FACU Species 3 x 4 = 12 4. Arctous ruber 8 FAC UPL Species 0 x 5 = 0 5. Betula glandulosa 5 FAC Column Totals: 85 (A) 251 (B)	Sapling/Shrub Stratum 50% of Total Cover:	0 20% of	f Total Cover:	:0	0.01.0
2. Empetrum nigrum 15 ✓ FAC FAC Species 75 x 3 = 225 3. Betula nana 10 FAC FAC U Species 3 x 4 = 12 4. Arctous ruber 8 FAC UPL Species 0 x 5 = 0 5. Betula glandulosa 5 FAC Column Totals: 85 (A) 251 (B)	1 Vaccinium uliginacum	20	~	EAC	
3. Betula nana 10 FAC FACU Species 3 x 4 = 12 4. Arctous ruber 8 FAC UPL Species 0 x 5 = 0 5. Betula glandulosa 5 FAC Column Totals: 85 (A) 251 (B)	-				
4. Arctous ruber 8 FAC UPL Species 0 x 5 = 0 5. Betula glandulosa 5 FAC Column Totals: 85 (A) 251 (B)	3 Potulo nono				
5. Betula glandulosa 5 FAC Column Totals: 85 (A) 251 (B)			П		
Column Totals. 65 (A) 231 (B					
6. Vaccinium vitis-idaea 5 LJ FAC		5		FAC	Column Totals. <u>83</u> (A) <u>231</u> (B)
7. Rhododendron tomentosum 5 Prevalence Index = B/A = 2.953				FACW	Prevalence Index = B/A = 2.953
8. Picea glauca 3 FACU Hydrophytic Vegetation Indicators:	8. Picea glauca	3		FACU	Hydrophytic Vegetation Indicators:
9. Salix pulchra 2 ☐ FACW ☑ Dominance Test is > 50%	9. Salix pulchra	2		FACW	✓ Dominance Test is > 50%
10		0		FACU	✓ Prevalence Index is ≤3.0
Total Cover: 83 Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)	Total Cover:		of Total Cover	r: <u>16.6</u>	
1. Carex bigelowii 2 FAC Problematic Hydrophytic Vegetation (Exp ¹ lain)	1. Carex bigelowii	2		FAC	Problematic Hydrophytic Vegetation (Explain)
2	2	0			¹ Indicators of hydric soil and wetland hydrology must
3 be present, unless disturbed or problematic.			Ц		be present, unless disturbed or problematic.
4 O Plot size (radius, or length x width)	4				Plot size (radius, or length x width)
5 % Cover of Wetland Bryophytes	5				
6 (Where applicable)					(Where applicable)
7					% Bare Ground15
8 Total Cover of Bryophytes					Total Cover of Bryophytes
10 <u>0</u> Hydrophytic					
Total Cover: 2 Vegetation Present? Yes No			f Total Cover	: 04	
30% of Total Cover. 12 20% of Total Cover. 0.4 1 1 2000001	30% of Total cover.		T TOtal Cover.	0.4	

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SOIL Sampling Point: SW15_T310_01

inches) Color (noist)	%	Color (m	noist)	%	Type ¹	<u>Loc</u> 2	Texture	Remarks
0-2								Fibric Organics	_
2-4								Hemic Organics	
4-7								Sapric Organics	
7-10 7.5YR	3/2	90	7.5YR	6/3	10			Silt	C thin disconnected tephra, rounded cobbles
10-12 7.5YR	2.5/2	80	5YR	2.5/1	20			Silt Loam	20% 5YR2.5/1 is organic content
12-15 10YR	3/2	85	7.5YR	4/4	15	С	M	Silt Loam	evidence of seasonal pore ice, BOajj
15-17 10YR	4/4	65	10YR	5/6	10	С	PL	Very Fine Sandy Loam	BAjj, 25% A 10YR 4/2
-mottle 10YR	4/2	25							2nd matrix color
rpe: C=Concentration.	D=Depletior	ı. RM=Redu	ced Matrix	² Location	: PL=Por	e Lining. RC	=Root Cha	annel. M=Matrix	
Iric Soil Indicators:			Indicat	tors for Pro	blematic	c Hydric So	oils:		
Histosol or Histel (A1)				ska Color Cha		4		Alaska Gleyed Without	Hue 5Y or Redder
Histic Epipedon (A2)				ska Alpine sv				Underlying Layer	
Hydrogen Sulfide (A4)			Alas	ka Redox W	/ith 2.5Y F	Hue		Other (Explain in Rema	·ks)
Thick Dark Surface (A	12)		_						
Alaska Gleyed (A13)				ndicator of happropriate				mary indicator of wetland esent	hydrology,
Alaska Redox (A14)					•	•	•	Cocine	
Alaska Gleyed Pores (A	\15)		4 Give o	details of col	lor change	e in Remark	S		
rictive Layer (if presen	t):								
Гуре:								Hydric Soil Presen	t? Yes ○ No •
**								Hydric Soil Presen	t? Yes ○ No ♥
Type: Depth (inches): narks: nydric soil indicators ob:	served. evide	ence of cryo	turbation (s	soil horizon	suffix jj).			Hydric Soil Presen	t? Yes ∪ No ♥
Depth (inches):	served. evide	ence of cryo	turbation (s	soil horizon	suffix jj).			Hydric Soil Presen	t? Yes ○ No ⑨
Depth (inches):	served. evide	ence of cryo	turbation (:	soil horizon	suffix jj).			Hydric Soil Presen	t? Yes ○ No ®
Depth (inches): narks: nydric soil indicators obs		ence of cryo	turbation (:	soil horizon	suffix jj).				
Depth (inches): narks: nydric soil indicators observed. DROLOGY tland Hydrology Indi	cators:		turbation (:	soil horizon	suffix jj).			_Secondary Inc	
Depth (inches): narks: ydric soil indicators obs DROLOGY tland Hydrology Indi	cators:			soil horizon		erial Image	ry (B7)	_Secondary Inc	licators (two or more are required
DROLOGY Cland Hydrology Indinary Indicators (any or Surface Water (A1) High Water Table (A2)	i cators: e is sufficien		In		sible on A			Secondary Inc Water Sta Drainage Oxidized	licators (two or more are required) nined Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C
DROLOGY tland Hydrology Indinary Indicators (any or Surface Water (A1) High Water Table (A2) Saturation (A3)	i cators: e is sufficien		☐ Ini	undation Vis parsely Vege arl Deposits	sible on Aretated Con (B15)	ncave Surfac		Secondary Inc Water Sta Drainage Oxidized Presence	licators (two or more are required) ined Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C of Reduced Iron (C4)
DROLOGY Hand Hydrology Indinary Indicators (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	i cators: le is sufficien		☐ Ini ☐ Sp ☐ Ma	undation Vis parsely Vege arl Deposits ydrogen Sulf	sible on Aretated Con (B15) fide Odor	ncave Surfac		Secondary Inc Water Sta Drainage Oxidized Presence Salt Depo	licators (two or more are required) ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C of Reduced Iron (C4) sits (C5)
Depth (inches): narks: nydric soil indicators observed by the control of the cont	i cators: le is sufficien		Ini Sp Ma	undation Vis parsely Vege arl Deposits ydrogen Sulf ry-Season W	sible on Adetated Con (B15) fide Odor Vater Tablo	ncave Surfac (C1) e (C2)		Secondary Inc Water Sta Drainage Oxidized Presence Salt Depo	licators (two or more are required) patterns (B10) Rhizospheres along Living Roots (C of Reduced Iron (C4) sits (C5) or Stressed Plants (D1)
Depth (inches): narks: nydric soil indicators observed by the control of the cont	cators: e is sufficien)		Ini Sp Ma	undation Vis parsely Vege arl Deposits ydrogen Sulf	sible on Adetated Con (B15) fide Odor Vater Tablo	ncave Surfac (C1) e (C2)		Secondary Inc Water Sta Drainage Oxidized Presence Salt Depo	licators (two or more are required) ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C of Reduced Iron (C4) sits (C5) or Stressed Plants (D1) hic Position (D2)
DROLOGY tland Hydrology Indinary Indicators (any or Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B Drift Deposits (B3) Algal Mat or Crust (B4)	cators: e is sufficien)		Ini Sp Ma	undation Vis parsely Vege arl Deposits ydrogen Sulf ry-Season W	sible on Adetated Con (B15) fide Odor Vater Tablo	ncave Surfac (C1) e (C2)		Secondary Inc Water Sta Drainage Oxidized Presence Salt Depo	licators (two or more are required inned Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (Confederated Iron (C4) sits (C5) or Stressed Plants (D1) hic Position (D2) quitard (D3)
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