

**Cougar Looper Sorts  
FY 2017  
TIMBER CRUISE REPORT – Area 3**

1. **Sale Area Location:** Area 3 is located in portions of Section 21, T4N, R8W, W.M., Clatsop County, Oregon.
2. **Fund Distribution: Fund:** BOF 100% CSL 0%  
**Tax Code:** 8-01 100%
3. **Sale Acreage by Area:**

Area	Harvest Type	Gross Acres	Stream Buffer Acres	New R/W Acres	Existing R/W Acres	Net Acreage
3	MC	97	6	1	4	86
<b>TOTALS</b>		<b>97</b>	<b>6</b>	<b>1</b>	<b>4</b>	<b>86</b>

4. **Cruisers and Cruise Dates:** Area 3 was cruised by Jake Hatcher with Matt Dimick, Andrew Arvin, John Choate, and Bryce Rodgers. The cruise was performed in October, 2016.
5. **Cruise Method and Computation:** Area 3 is a modified clear cut unit. A variable plot cruise with a 40 BAF for conifer and a 33.61 BAF was used for hardwoods in all of these Areas.

Area 3 is a modified clear cut unit. 55 plots were sampled on a grid of 3 chains by 5 chains, with a count/cruise plot ratio of 1 to 1. There were 28 measured plots and 27 count plots sampled

Cruisers used Allegro data collectors, and were downloaded to the Atterbury Super A.C.E. program at the Astoria District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

<u>AREA</u>	<u>PROJECT</u>	<u>TRACT</u>	<u>CRUISE TYPE</u>
3	COUGARLOOP	A3	CC3
3	COUGARLOOP	A3	TAKE

6. **Timber Description:** Area 3 is approximately 75 year-old timber stand of hemlock, alder, with some Sitka spruce and Douglas-fir. The average take hemlock tree size for harvest is approximately 16 inches DBH, with an average merchantable tree height of 48 feet. The average take Red alder tree size is approximately 14 inches DBH with an average merchantable tree height of 39 feet. The average spruce take tree size is approximately 21 inches DBH, with an average merchantable tree height of 47 feet. The average volume per acre to be harvested (net) is approximately 31 MBF. All trees were cruised to a merchantable top of 6 inch DIB or 40% fp.

Cedar is a reserved species in Area 3.

7. **Statistical Analysis: (See also “Statistics Reports,” attached.)**

Area	Target CV	Target SE%	Actual CV	Actual SE%
3	55	9	56.5	7.6

The statistics are for all areas and Take and Leave trees combined based on Net BF/Acre.

8. **Take Volumes by Species and Log Grades for All Sale Areas by MBF:** (See "Species, Sort Grade-Board Feet Volumes (Project)", "Statistics (Project)", and the "Stand Table Summary" attached). Volumes do not include "in-growth." The majority of defect and breakage was taken out during the cruise.

Species	DBH	Net Vol.	Special Mill	2 Saw	3Saw	4 Saw	% D & B	% Sale
Douglas-fir	47	155		155			-	6
W. Hemlock & True Fir	16	1,706		1,054	514	138	5	65
Sitka Spruce	21	271		163	71	37	2	10
<b>Net Conifer Volume</b>		2,132		1,372	585	175		81

Species	DBH	Net Vol.	12" +	10" - 11"	8" - 9"	6" - 7"	% D & B	% Sale
Alder & Other hardwoods	14	511	135	107	48	221	3	19

**TOTAL NET VOLUME = 2,643 MBF**

**Sort Breakdown:**

Sort #	Contract Number	Species and Sort Specifications	Estimated Net MBF	Sale %
1	341-17-76	WH/fir 6"-11"	614	23
2	341-17-77	WH/fir 12" to 20"	751	28
3	341-17-78	WH/fir 21"+	254	10
4	341-17-79	WH/fir High Quality (12"+)	87	3
7	341-17-80	DF 21"+	155	6
9	341-17-81	SS 6"-20"	98	4
10	341-17-82	SS 21"+	173	7
11	341-17-83	RA Camprun 6" to 9"	269	10
12	341-17-84	RA Camprun 10"+	242	9
13	341-17-85	2" Pulp	2,100 Tons	-

High Quality Volume was estimated at 5% of volume over 12 inches for Western Hemlock.  
Pulp Volume based on approximately 7%-8% of sawlog volume.

9. Prepared by: Edward M. Holloran

Date: 12/1/16

10. Approved by: [Signature]

Date: 12/20/16

11. Attachments: [Signature]  
Cruise Plans & Maps – (3 pages)  
Species, Sort, Grade Reports – Take (1 page)  
Statistics Reports – (3 pages)  
Stand Table Report – (2 pages)  
Log Stock Table Report – Take (2 pages)

**CRUISE DESIGN  
ASTORIA DISTRICT**

**Sale Name:** Cougar Looper **Area(s)** 3

**Harvest Type:** Modified Clear Cut

**Approx. Cruise Acres:** 87 **Estimated CV%** 55 **Net BF** **SE% Objective** 9 **Net BF**

**Planned (Unit) Sale Volume:** 2871 MBF **Estimated Sale Area Value/Acre:** \$10,725

**A. Cruise Goals:** (a) Grade minimum 180 conifer and 20 hardwood trees:  
(b) Sample 57 cruise plots; (c) Other goals ( Determine "automark" thinning standards;  Determine log grades for sale value;  Determine snag and leave tree species and sizes;  Determine LWD (down wood) cubic feet and decay classes;  Determine "diameter limit" harvest parameters;

**B. Cruise Design:**

**1. Plot Cruises:** BAF 40 for Conifer and 33.61 for Hardwoods Full point  
Fixed Plot Size \_\_\_\_\_ Plot Radius \_\_\_\_\_ feet  
Cruise Line Direction(s) 0°/180°  
Cruise Line Spacing 5 chains  
Cruise Plot Spacing 3 chains  
Grade/Count Ratio 1 : 1 (29 measure – 28 count)  
Leave X leave trees per cruise plot.

If plot falls clearly inside a buffer drop the plot. Take plots as marked on map. Grade all hardwoods as Camp Run. All Cedar is reserved Timber.

**C. Tree Measurements:**

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods. Record DBH to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" or 40% of DOB at 16' form point. Generally, use 7" outside bark for trees < 18" DBH and 40% of DOB @ FP for trees > 18" DBH.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.
- 5. Tree Segments:** Record log segments in "standard" log lengths in general use, such as 16', 32' and 40' lengths, whenever possible. Do not record odd segments just to

maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

**6. Species, Sort, and Grade Codes:**

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple).

For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code "1" (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull

D. Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.

**7. Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

**8. Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at Intervisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.  
ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.

**9. Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back), Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design Cruise Map, Yellow Flagging, Blue Flagging

**10. Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

B. Data Recorder Instructions

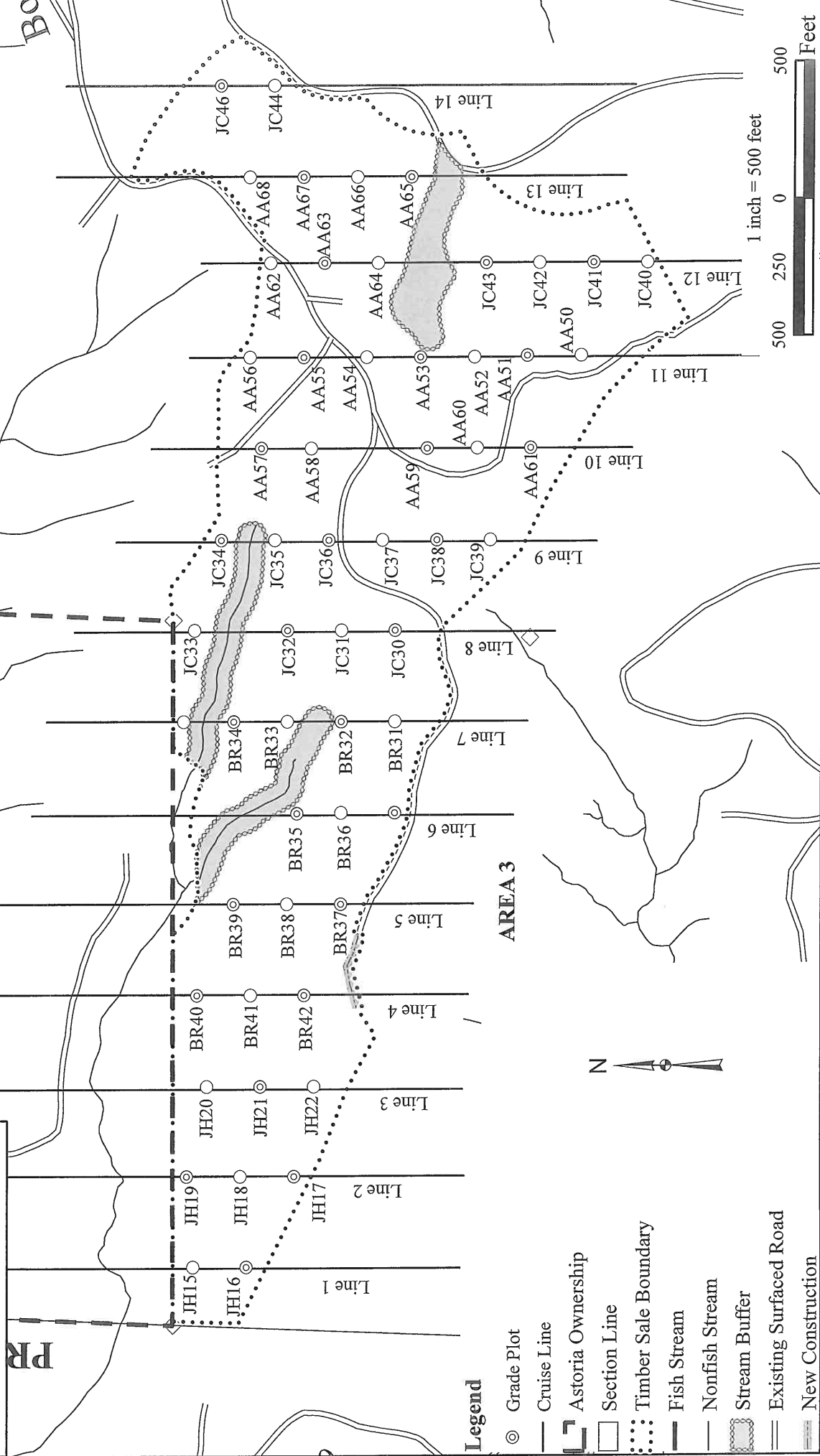
C. Other

Cruise Design by: Ed Holloran

Approved by: [Signature]

Date: 12/20/2016

Cougar Looper - Area 3 (MC)  
 55 Plots Total  
 Grade Plots: 28  
 Count Plots: 27  
 Area 3 AZ: 0/180  
 Conifer BAF: 40  
 Hardwoods BAF: 33.61  
 Plot Spacing: 3 Chains (198 Feet)  
 Line Spacing: 5 Chains (330 Feet)  
 1:6,000



**PRIVATE**

**STATE**

Section 21

**AREA 3**

**Legend**

- ⊙ Grade Plot
- Cruise Line
- ▭ Astoria Ownership
- ▭ Section Line
- ⋯ Timber Sale Boundary
- Fish Stream
- Nonfish Stream
- ▭ Stream Buffer
- ▭ Existing Surfaced Road
- ▭ New Construction

1 inch = 500 feet



T04N R08W S21 T0CC3 T04N R08W S21 T0CC3  
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt  
 04N 08W 21 A3 0CC3 86.00 55 176 1 W

Spp	So	Gr	Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre			
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf		
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99							
H	DO	CU		100.0	868											13	10		0.00	12.5		
H	DO	2S	61	.7	12,339	12,253	1,054			52	48			1	3	12	85	38	15	366	2.22	33.5
H	DO	3S	30	.5	6,009	5,978	514		93	5	2			2	1	35	63	36	8	88	0.76	67.8
H	DO	4S	9	2.1	1,646	1,612	139		99	1				53	31	9	7	22	6	28	0.43	58.3
<b>H</b>	<b>Totals</b>		64	4.9	20,862	19,843	1,706		36	34	30			5	4	19	72	30	9	115	1.02	172.0
A	DO	CU		100.0	143													7	10		0.00	7.3
A	DO	1S	26		1,569	1,569	135			82	18			19	35	8	38	28	13	189	1.69	8.3
A	DO	2S	21		1,248	1,248	107		100					17	44		39	29	10	114	1.02	10.9
A	DO	3S	9		560	560	48		100					7	48	12	34	30	9	74	0.86	7.6
A	DO	4S	44	2.0	2,614	2,562	220		100					19	17	9	55	30	6	44	0.57	58.1
<b>A</b>	<b>Totals</b>		19	3.2	6,133	5,939	511		74	22	5			17	30	7	45	28	8	64	0.74	92.2
S	DO	CU		100.0	55													8	11		0.00	1.3
S	DO	2S	59		1,890	1,890	163				100						100	40	26	1292	6.51	1.5
S	DO	3S	27		830	830	71		59	8	33				25	7	68	35	12	216	1.69	3.8
S	DO	4S	14		430	430	37		33		67			27	22	51		22	8	84	0.94	5.2
<b>S</b>	<b>Totals</b>		10	1.7	3,205	3,150	271		20	2	78			4	10	9	78	27	12	267	2.26	11.8
D	DO	2S	100		1,801	1,801	155			10	90						100	40	25	1243	5.83	1.4
<b>D</b>	<b>Totals</b>		6		1,801	1,801	155			10	90						100	40	25	1243	5.83	1.4
CL	DO	CU		100.0	11													8	20		0.00	.1
CL	DO	2S	73		117	117	10				100			26	74			23	26	735	6.11	.2
CL	DO	3S	3		5	5	0		100						100			30	8	60	1.30	.1
CL	DO	4S	24		37	37	3		100					100				18	9	40	0.72	.9
<b>CL</b>	<b>Totals</b>		1	6.6	170	158	14		26	74				42	58			19	12	127	1.60	1.2
SL	DO	2S	83		114	114	10				100						100	40	43	3490	17.95	.0
SL	DO	4S	17		23	23	2				100						100	40	20	700	6.05	.0
<b>SL</b>	<b>Totals</b>		0		136	136	12				100						100	40	32	2095	12.00	.1
HL	DO	2S	100	7.0	154	143	12			6	94			6		28	66	30	20	660	5.08	.2
<b>HL</b>	<b>Totals</b>		0	7.0	154	143	12			6	94			6		28	66	30	20	660	5.08	.2
<b>Type Totals</b>				4.0	32,461	31,170	2,681		39	26	35			7	10	14	69	29	9	112	1.02	278.9

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	COUGLOOP			DATE	12/16/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	08W	21	A3	TAKE	86.00	55	361	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		55	361	6.6						
CRUISE		28	169	6.0	16,198	1.0				
DBH COUNT REFOREST COUNT		27	192	7.1						
BLANKS 100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	94	111.0	15.7	48	37.5	148.4	19,994	19,843	5,219	5,219
R ALDER	67	69.8	14.2	39	20.4	76.8	5,990	5,939	1,907	1,907
S SPRUCE	7	7.1	21.2	47	3.8	17.5	3,150	3,150	716	716
DOUG FIR	1	.5	47.0	123	0.8	5.8	1,801	1,801	338	338
<b>TOTAL</b>	<i>169</i>	<i>188.4</i>	<i>15.5</i>	<i>45</i>	<i>63.0</i>	<i>248.4</i>	<i>30,936</i>	<i>30,733</i>	<i>8,180</i>	<i>8,180</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	117.8	12.1	379	432	484					
R ALDER	129.4	15.8	101	120	139					
S SPRUCE	116.3	47.3	1,008	1,913	2,818					
DOUG FIR										
<b>TOTAL</b>	<i>185.8</i>	<i>14.3</i>	<i>333</i>	<i>389</i>	<i>445</i>	<i>1,378</i>	<i>345</i>	<i>153</i>		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	110.7	14.9	94	111	128					
R ALDER	106.6	14.4	60	70	80					
S SPRUCE	218.2	29.4	5	7	9					
DOUG FIR	406.0	54.7	0	0	1					
<b>TOTAL</b>	<i>58.0</i>	<i>7.8</i>	<i>174</i>	<i>188</i>	<i>203</i>	<i>134</i>	<i>34</i>	<i>15</i>		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	86.3	11.6	131	148	166					
R ALDER	105.6	14.2	66	77	88					
S SPRUCE	201.0	27.1	13	17	22					
DOUG FIR	406.0	54.7	3	6	9					
<b>TOTAL</b>	<i>44.1</i>	<i>5.9</i>	<i>234</i>	<i>248</i>	<i>263</i>	<i>78</i>	<i>19</i>	<i>9</i>		
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	83.4	11.2	17,613	19,843	22,072					
R ALDER	111.2	15.0	5,049	5,939	6,828					
S SPRUCE	201.7	27.2	2,294	3,150	4,006					
DOUG FIR	406.0	54.7	816	1,801	2,787					
<b>TOTAL</b>	<i>57.9</i>	<i>7.8</i>	<i>28,335</i>	<i>30,733</i>	<i>33,131</i>	<i>134</i>	<i>33</i>	<i>15</i>		

TC TSTNDSUM		Stand Table Summary														
Project COUGLOOP											T04N R08W S21 TTAK					
T04N R08W S21 TTAK											Page: 1					
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees		Date:	Time:	T04N R08W S21 TTAK					
04N	08W	21	A3	TAKE	86.00	55	169		12/16/20	10:18:05AM						
S Spc	T	Sample			Av			Average Log		Net			Totals			
		DBH	Trees	FF 16'	Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Net Cu.Ft.	Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Tons	Cunits	MBF
H		8	3	86	20	13.565	4.74	9.04	5.0	20.0		45	181		39	16
H		9	4	86	45	14.291	6.31	14.29	8.2	27.5		118	393		101	34
H		10	5	86	36	14.469	7.89	14.47	8.8	28.0		127	405		110	35
H		11	1	89	70	2.392	1.58	2.39	17.0	60.0		41	143		35	12
H		12	3	87	50	6.029	4.74	6.03	17.7	56.7		107	342		92	29
H		13	4	86	55	6.849	6.31	8.56	17.0	46.0		146	394		125	34
H		14	8	87	85	11.812	12.63	20.67	21.7	79.3		449	1,639		386	141
H		15	5	89	97	6.431	7.89	12.86	26.0	98.0		334	1,260		288	108
H		16	2	85	76	2.261	3.16	4.52	22.0	77.5		99	350		86	30
H		17	5	88	97	5.007	7.89	10.01	33.9	121.0		339	1,212		292	104
H		18	8	87	86	7.145	12.63	12.50	39.0	130.7		488	1,634		419	141
H		19	2	87	76	1.603	3.16	3.21	34.0	115.0		109	369		94	32
H		20	5	88	97	3.617	7.89	7.96	42.6	154.5		339	1,230		292	106
H		21	2	89	90	1.312	3.16	2.62	49.0	175.0		129	459		111	40
H		22	3	84	89	1.794	4.74	3.59	46.8	165.0		168	592		144	51
H		23	4	86	87	2.188	6.31	4.38	56.8	203.8		248	892		214	77
H		24	5	87	95	2.512	7.89	5.02	63.9	230.0		321	1,156		276	99
H		25	2	86	100	.926	3.16	2.32	57.0	250.0		132	579		113	50
H		26	3	88	99	1.284	4.74	2.57	81.0	320.0		208	822		179	71
H		27	3	85	100	1.191	4.74	2.78	74.3	300.0		206	834		178	72
H		28	1	85	111	.369	1.58	1.11	66.7	290.0		74	321		63	28
H		29	1	89	99	.344	1.58	.69	100.5	425.0		69	292		59	25
H		30	2	84	102	.643	3.16	1.29	104.5	402.5		134	518		116	45
H		31	1	85	92	.301	1.58	.90	62.3	313.3		56	283		48	24
H		32	2	83	107	.565	3.16	.85	94.3	453.3		80	384		69	33
H		33	1	92	129	.266	1.58	.80	110.7	593.3		88	473		76	41
H		34	2	84	115	.501	3.16	1.00	101.5	430.0		102	431		87	37
H		35	1	78	136	.236	1.58	.71	69.0	366.7		49	260		42	22
H		36	1	86	101	.223	1.58	.45	153.0	675.0		68	301		59	26
H		39	2	85	123	.381	3.16	.95	167.8	830.0		160	790		137	68
H		41	1	89	115	.172	1.58	.52	153.7	813.3		79	420		68	36
H		43	1	83	104	.157	1.58	.16	323.0	1520.0		51	238		43	20
H		44	1	86	78	.149	1.58	.30	183.0	825.0		55	247		47	21
H		Totals	94	87	64	110.984	148.36	159.50	32.7	124.4		5,219	19,843		4,488	1,706
A		9	2	86	62	5.161	2.28	5.16	11.0	30.0		57	155		49	13
A		10	3	86	44	6.271	3.42	6.27	10.7	36.7		67	230		58	20
A		11	6	87	64	10.365	6.84	10.37	16.2	55.0		168	570		144	49
A		12	4	87	45	5.806	4.56	5.81	17.0	50.0		99	290		85	25
A		13	5	86	53	6.184	5.70	7.42	18.2	55.0		135	408		116	35
A		14	8	85	61	8.532	9.12	11.73	21.3	64.5		250	757		215	65
A		15	7	86	39	6.503	7.98	7.43	18.2	61.2		136	455		117	39
A		16	11	86	55	8.982	12.54	11.43	27.1	71.4		310	817		267	70
A		17	4	87	69	2.893	4.56	4.34	29.8	101.7		129	441		111	38
A		18	5	86	64	3.433	6.07	5.58	29.5	93.1		164	519		141	45
A		19	2	86	74	1.158	2.28	2.32	34.0	107.5		79	249		68	21
A		20	4	86	57	2.090	4.56	3.14	38.2	106.7		120	334		103	29
A		21	4	86	54	1.896	4.56	2.84	39.3	133.3		112	379		96	33
A		25	1	86	60	.334	1.14	.67	50.0	190.0		33	127		29	11
A		35	1	87	101	.171	1.14	.34	143.5	605.0		49	206		42	18
A		Totals	67	86	56	69.781	76.75	84.84	22.5	70.0		1,907	5,939		1,640	511
S		12	1	83	33	3.175	2.49	3.17	13.0	30.0		41	95		35	8



TC TSTNDSUM

**Stand Table Summary**

Project **COUGLOOP**

**T04N R08W S21 TTAKE**

**T04N R08W S21 TTAKE**

Twp Rge Sec Tract  
**04N 08W 21 A3**

Type Acres Plots Sample Trees  
**TAKE 86.00 55 169**

Page: **2**  
 Date: **12/16/20**  
 Time: **10:18:05AM**

S Spc	T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
S		17	1	83	60	1.582	2.49	3.16	23.0	80.0		73	253		63	22
S		20	1	85	60	1.143	2.49	1.14	60.0	180.0		69	206		59	18
S		27	1	83	101	.627	2.49	1.25	87.0	325.0		109	408		94	35
S		42	1	85	146	.259	2.49	.78	196.0	1016.7		152	790		131	68
S		48	1	86	131	.198	2.49	.60	224.0	1213.3		133	722		115	62
S		62	1	77	141	.119	2.49	.36	388.7	1893.3		139	676		119	58
S		Totals		7	83	7.103	17.45	10.47	68.4	301.0		716	3,150		616	271
D		47	1	88	157	.483	5.82	1.45	233.3	1243.3		338	1,801		291	155
D		Totals		1	88	.483	5.82	1.45	233.3	1243.3		338	1,801		291	155
Totals			169	86	61	188.352	248.39	256.26	31.9	119.9		8180	30,733		7,035	2,643

**Log Stock Table - MBF**  
**Project: COUGLOOP**

T04N R08W S21 TTAKE

T04N R08W S21 TTAK

Twp Rge Sec Tract  
 04N 08W 21 A3

Type Acres Plots Sample Trees  
 TAKE 86.00 55 169

Page 1  
 Date 12/16/2016  
 Time 10:18:03AM

Spp	T	S	So	Gr	Log	Len	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
											2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-20	21-25	26-29	30-39	40+
H		DO	CU		5																	
H		DO	CU		6																	
H		DO	CU		8																	
H		DO	CU		10																	
H		DO	CU		12																	
H		DO	CU		16																	
H		DO	CU		18																	
H		DO	CU		21																	
H		DO	CU		22																	
H		DO	CU		37																	
H		DO	CU		83																	
H		DO	2S		16		6		6	.4							6					
H		DO	2S		24		13		13	.7							13					
H		DO	2S		30		16		16	1.0								16				
H		DO	2S		32		126		126	7.4				67	27	14					18	
H		DO	2S		40		900	.8	892	52.3				194	146	320		141	67		24	
H		DO	3S		16		5		5	.3				5								
H		DO	3S		18		1		1	.1				1								
H		DO	3S		20		2		2	.1					2							
H		DO	3S		26		3		3	.2					3							
H		DO	3S		32		173		173	10.1			89	9	65				10			
H		DO	3S		34		6		6	.4			6									
H		DO	3S		36		12		12	.7			10	3								
H		DO	3S		40		314	.9	312	18.3			85	70	135	9	6	7				
H		DO	4S		16		38		38	2.2			36	3								
H		DO	4S		18		2		2	.1						2						
H		DO	4S		20		33		33	1.9			33									
H		DO	4S		23		2		2	.1			2									
H		DO	4S		24		12		12	.7			12									
H		DO	4S		26		13		13	.7			11	2								
H		DO	4S		30		17		17	1.0			17									
H		DO	4S		32		15	19.7	12	.7			12									
H		DO	4S		36		10		10	.6			10									
H			Totals				1,719		1,706	64.6			322	86	206	<sup>275</sup> <del>278</del>	181	360	167	67	43	42
A		DO	CU																			
A		DO	CU		2																	
A		DO	CU		6																	
A		DO	CU		8																	
A		DO	CU		9																	
A		DO	CU		10																	
A		DO	CU		12																	
A		DO	1S		10		5		5	.9					5							
A		DO	1S		16		6		6	1.3					6							
A		DO	1S		20		15		15	2.9					7	7						
A		DO	1S		30		47		47	9.2					8	29	10					
A		DO	1S		32		11		11	2.1					11							
A		DO	1S		40		51		51	10.0					36				15			
A		DO	2S		16		6		6	1.2					6							
A		DO	2S		20		12		12	2.4					12							
A		DO	2S		30		47		47	9.2					47							

**Log Stock Table - MBF**  
**Project: COUGLOOP**

**T04N R08W S21 TTAKE**

**T04N R08W S21 TTAK**

**Twp Rge Sec Tract Type Acres Plots Sample Trees**  
**04N 08W 21 A3 TAKE 86.00 55 169**

**Page 2**  
**Date 12/16/2016**  
**Time 10:18:03AM**

SPP	T	S	So	Gr	Log	Gross	% Def	Net	% Spc	Net Volume by Scaling Diameter in Inches											
										MBF	MBF	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-20	21-25	26-29
A		DO	2S	40		42		42	8.2				42								
A		DO	3S	20		3		3	.6				3								
A		DO	3S	26		6		6	1.2				6								
A		DO	3S	30		17		17	3.2				17								
A		DO	3S	32		6		6	1.1				6								
A		DO	3S	40		16		16	3.2				16								
A		DO	4S	16		19		19	3.7			19									
A		DO	4S	18		1		1	.2			1									
A		DO	4S	20		21		21	4.1			21									
A		DO	4S	22		1		1	.3			1									
A		DO	4S	24		2		2	.4			2									
A		DO	4S	26		9		9	1.7			9									
A		DO	4S	30	15.3	29		25	4.8			25									
A		DO	4S	32		18		18	3.5			18									
A		DO	4S	34		3		3	.5			3									
A		DO	4S	36		2		2	.5			2									
A		DO	4S	40		120		120	23.4			120									
A		Totals				515		511	19.3			220	48	107	74	36	10	15			
S		DO	CU	4																	
S		DO	CU	9																	
S		DO	2S	40		163		163	60.0						29	23		77	34		
S		DO	3S	30		18		18	6.5			18									
S		DO	3S	32		5		5	1.8					5							
S		DO	3S	36		6		6	2.1				6								
S		DO	3S	40		43		43	15.9			6	18						19		
S		DO	4S	16		4		4	1.5			4									
S		DO	4S	20		6		6	2.2					6							
S		DO	4S	24		8		8	3.0			8									
S		DO	4S	32		19		19	6.9									19			
S		Totals				271		271	10.2			12	6	35		6	39	23	19	96	34
D		DO	2S	40		155		155	100.0						15				57	83	
D		Totals				155		155	5.9						15				57	83	
Total All Species						2,660		2,643	100.0			555	141	348	349	238	409	204	142	221	34

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT COUGLOOP				DATE	12/16/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	08W	21	A3	0CC3	86.00	55	370	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		55	370	6.7						
CRUISE		28	176	6.3	16,360	1.1				
DBH COUNT										
REFOREST										
COUNT		27	194	7.2						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	94	111.0	15.7	48	37.5	148.4	19,994	19,843	5,219	5,219
R ALDER	67	69.8	14.2	39	20.4	76.8	5,990	5,939	1,907	1,907
S SPRUCE	7	7.1	21.2	47	3.8	17.5	3,150	3,150	716	716
DOUG FIR	1	.5	47.0	123	0.8	5.8	1,801	1,801	338	338
SNAG	3	.8	29.3	49	0.7	3.6				
CEDLEAV	2	1.0	16.3	80	0.4	1.5	158	158	37	37
HEMLEAV	1	.1	43.0	93	0.1	.7	154	143	33	33
SPRUCELV	1	.0	64.0	81	0.1	.7	136	136	31	31
<b>TOTAL</b>	<i>176</i>	<i>190.2</i>	<i>15.7</i>	<i>45</i>	<i>64.4</i>	<i>254.9</i>	<i>31,384</i>	<i>31,170</i>	<i>8,281</i>	<i>8,281</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	117.8	12.1	379	432	484					
R ALDER	129.4	15.8	101	120	139					
S SPRUCE	116.3	47.3	1,008	1,913	2,818					
DOUG FIR										
SNAG										
CEDLEAV	134.2	125.7		785	1,772					
HEMLEAV										
SPRUCELV										
<b>TOTAL</b>	<i>186.8</i>	<i>14.1</i>	<i>359</i>	<i>418</i>	<i>476</i>	<i>1,394</i>	<i>348</i>	<i>155</i>		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	110.7	14.9	94	111	128					
R ALDER	106.6	14.4	60	70	80					
S SPRUCE	218.2	29.4	5	7	9					
DOUG FIR	406.0	54.7	0	0	1					
SNAG	446.5	60.2	0	1	1					
CEDLEAV	684.5	92.2	0	1	2					
HEMLEAV	741.6	99.9	0	0	0					
SPRUCELV	741.6	99.9	0	0	0					
<b>TOTAL</b>	<i>57.0</i>	<i>7.7</i>	<i>176</i>	<i>190</i>	<i>205</i>	<i>130</i>	<i>32</i>	<i>14</i>		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	86.3	11.6	131	148	166					
R ALDER	105.6	14.2	66	77	88					
S SPRUCE	201.0	27.1	13	17	22					
DOUG FIR	406.0	54.7	3	6	9					
SNAG	437.6	59.0	1	4	6					
CEDLEAV	519.5	70.0	0	1	2					
HEMLEAV	741.6	99.9	0	1	1					

**STATISTICS**  
**PROJECT COUGLOOP**

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	21	A3	0CC3	86.00	55	370	1	W
CL: 68.1%		COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0		VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
SPRUCELV		741.6	99.9	0	1	1			
<b>TOTAL</b>		43.2	5.8	240	255	270	74	19	8
CL: 68.1%		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
WHEMLOCK		83.4	11.2	17,613	19,843	22,072			
R ALDER		111.2	15.0	5,049	5,939	6,828			
S SPRUCE		201.7	27.2	2,294	3,150	4,006			
DOUG FIR		406.0	54.7	816	1,801	2,787			
SNAG									
CEDLEAV		591.0	79.6	32	158	285			
HEMLEAV		741.6	99.9	0	143	285			
SPRUCELV		741.6	99.9	0	136	273			
<b>TOTAL</b>		56.5	7.6	28,798	31,170	33,543	127	32	14