

**ATLANTIC COAST PIPELINE, LLC  
ATLANTIC COAST PIPELINE**

**Construction, Operations, and Maintenance Plans**

**ATTACHMENT Q**

**Specifications for Cruising Lumber, Marlinton Ranger District,  
Monongahela National Forest**

**SPECIFICATIONS  
For  
CRUISING TIMBER**

**Atlantic Coast Pipeline Project**

**MARLINTON RANGER DISTRICT  
MONONGAHELA NATIONAL FOREST**

**Prepared by: Jeff Kochenderfer  
Monongahela National Forest**

**Date: 11/14/2016**

**Overview:** This timber cruise is for the removal of all merchantable trees ( $\geq 6$  inches dbh) on National Forest lands that will have to be cut for the construction of the Atlantic Coast Pipeline.

- A sample tree cruising method will be used to estimate the standing timber volume that will need to be removed (*cruise method defined in FSH 2409.12 Chapter 30; 33.1*).
- Prior to final NEPA decision, all boundaries associated with the pipeline corridor will be designated, with flagging before cruising timber. Once a final NEPA decision has been completed the boundaries shall be designated by painting three slash marks at DBH and a stump mark using orange marking paint containing Forest Service tracer element (provided by the Forest Service).
- Before contractor begins marking they must meet with Forest Service advanced cruiser to go over cruise standards, data collection and reporting, and paint accountability standards.
- Prior to final NEPA decision trees may be designated with nonpermanent marking methods such as lumber crayons or chalk paddles. All measured sample trees shall be identified using flagging wrapped completely around the tree.
- Before final acceptance of the cruise all boundaries must be marked with tracer paint, and all designated trees are verified to be within final marked boundary. Contractor will be responsible for verifying final painted boundaries and making any adjustments to the timber cruise to ensure designated trees are within said boundaries prior to Forest Service inspection and final acceptance.
- Contractor must abide by all Forest Service regulations pertaining to the use of tracer paint and will be responsible for security and accountability of paint while in contractor's possession.

**Trees will be measured as follows:** Refer to the minimum merchantability chart below for the minimum size standards for all trees.

- Diameter - All merchantable trees will be measured for diameter of the tree at breast height, 4 ½ feet from the ground up, from the uphill side of the tree. This will be done to the nearest tenth of an inch.

- Tree Heights – All trees in the plots will be measured for height. Heights are measured to different upper stem diameters depending on the tree species being measured. See the merchantability specifications chart below.
- Defect – All sawtimber trees will be examined for potential defect. A defect card will be provided that will guide the contractor in how to determine the percentage defect an individual tree has. Pulpwood is not to be defected.

**Other Determinations Needed:**

- Species – All trees will be identified by their appropriate species code. A list is attached.
- Sample Group – All trees will be identified by their appropriate sample group. This consist of the following:

No	Sample Group	Species	Frequency
1	Mixed Hardwood	Beech, birch, basswood, hickory	30
2	White Oak	White oak, chestnut oak	25
3	Red Oak	Red oak, black oak, Scarlett oak	15
4	Maple	Red maple and sugar maple	10
5	Mixed Softwoods	All Softwoods species	10
6	Pulpwood	All	50

All measured trees must have the measurements written on the flagging wrapped completely around the tree.

The required information on the flag will be similar to the following.

Sample Group, Tree#, Spp., DBH, 1<sup>st</sup> Hgt. (saw timber only), 2<sup>nd</sup> Hgt. (all products), Defect and Cruisers Initials

**Sawtimber Example = 2-T2 – 131 – 18.2” – 70 – 70 – 0% - JK**

**Pulpwood Example = 5-T3 – 100 – 9.9” – 40 – JK**

Data may be recorded on paper tally cards or by data recorder. In all cases, data will be entered by the Contractor in the current Forest Service timber cruising

software prior to delivery to the Forest Service. Data may be turned in directly to one of the inspectors or in an electronic format by email. If paper tally sheets are used, all original copies must be turned into the Forest Service. The Forest Service may be able to provide a data recorder if needed.

**MINIMUM MERCHANTIBILITY SPECIFICATION:**

		Minimum Specifications				
		Merchantable Tree		Piece Required to be Removed		
Species	Product	DBH (inches)	Pieces per Tree	Length (feet)	DOB Small End (inches)	Net Scale in % of Gross
Hardwood	Sawtimber	11.0	1.0	8	9.6	60
Softwood	Sawtimber	9.0	1.0	8	7.6	60
Hardwood	Pulpwood	6.0	1.0	8	4.0	N/A
Softwood	Pulpwood	6.0	1.0	8	4.0	N/A

**Sawtimber Stopper Specifications:**

- 9.6” DOB
- or the last (highest) 8 foot bolt without 2, 2 foot clear sections of wood on the second worst face of the bolt without another 8 foot bolt above that with 2, 2 foot clear faces on the second worst face.
- Deformity – (sweep or crook) does not constitute a stopper and should be defected out.

**Contractor Acceptable Performance Elements:**

Performance Objective and Standard	Acceptable Quality Level Assessment	Method of Performance
Measure Trees	≥ 95% Accuracy of Measurements to Standard	Contractors Records and Reports and a Check Cruise done by Forest Service Personnel

**CHECK CRUISE:**

This sale shall be check cruised for accuracy. The Forest Service will use the internal program known as “Check Mate” to determine accuracy. The tolerances of the program will be set to the following standards.

USDA Forest Service						
FIELD MEASUREMENT EVALUATION						
<b>FSH 2409.12,60</b>						
Check Cruise Elements	Tolerance	Total Possible Correct Answers (a)	Numbers of Incorrect Answers (b)	Error Weight (c)	Total Error (bxc) (d)	Percent Correct (1-(d/a))x100 (e)
Species	None			5		
Product	None			3		
DBH	≤0.2 in.			1		
Merch Ht Primary	± 1 (6')			1		
Merch. Ht Secondary (4")	± 1 (6')					
Saw Defect	± 10%			1		

Note: To pass this check, each item checked must have at least 75 percent correct and the overall accuracy must be 80 percent. Failure of any given item or of overall score constitutes a need to check additional trees, and/or retraining, or loss of certification.

The “Total Possible Correct Answers” (a) is the number of trees measured by the check cruiser. For plot or point cruises, the “Total Possible Correct Answers” of “in/out trees” is the number of plots checked by the check cruiser. Number of “in” trees must be the same for cruiser’s count and check cruiser’s count for plot to be correct. For all other elements, it is the measurements on the number of correctly identified “in” trees.

In addition the cruise in its entirety must be within **+10% Error** within the 95% Confidence Interval. If the cruise does not meet this standard a re-work may be required including but not limited to, Changing Cruise Methods, Re-measuring all plots,

Species	Code
Eastern redcedar	068
Norway spruce	091
White spruce	094
Red spruce	097
Red pine	125
Pitch pine	126
Eastern white pine	129
Virginia pine	132
Hemlock	261
Red maple	316
Sugar maple	318
Yellow birch	371
Black birch	372
Hickory	400
Beech	531
White ash	541
Black Walnut	602
Yellow poplar	621
Cucumbertree	651
Fraser magnolia	654
Blackgum/sourwood/elm	694
Bigtooth aspen	743
Quaking aspen	746
Black cherry	762
White oak	802
Scarlet oak	806
Chestnut oak	832
Northern red oak	833
Black locust	901
Basswood	951