

**Forest Service Manual  
National Headquarters - Washington Office  
Washington, DC**

**Forest Service Manual 2400 – Timber Management  
Chapter 2440 - Designating Cruising Scaling Accountability**

**Amendment:** 2400-2021-3

**Effective date:** October 29, 2021

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**Approved by:** Tina Johna Terrell, Associate Deputy Chief, NFS

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**Responsible Staff:**

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**Explanation of changes:** Following is an explanation of the changes throughout the directive by section.

**2440.1:** Adds authority for use of designation by prescription (DxP) as a valid method of designating trees for harvest and removal.

**2440.3:** Clarifies considering both cost of sale preparation and sale administration when determining methods for designating timber. Adds policy pertaining to use of paint for marking trees. Adds policy to report volume offered, sold, and harvested in cubic measure.

**2440.41:** Adds Regional Forester responsibility to provide guidance for use of designation by prescription in timber sales and stewardship contracts.

**2440.5:** Adds new code captioned: Definitions.

**2441.03:** Adds and clarifies policies pertaining to designating timber for cutting including marking with paint, designation by description (DxD) and designation by prescription.

**2441.04b:** Adds responsibility of Regional Forester to establish policy governing methods of designating timber in the Region. Adds responsibility of Regional Forester to provide specialized training as part of the Regional certification program to sale administration staff needed to effectively administer designation by prescription.

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**2441.04c:** Adds new code captioned: Forest Supervisor. Adds responsibility of Forest Supervisor to ensure each District Ranger has available staff and/or access to qualified employees with the necessary skills, certifications, and time to administer timber sales and stewardship contracts.

**2441.04d:** Adds new code captioned: District Ranger. Adds responsibility of District Ranger to ensure the timber designation method(s) used to implement the silvicultural prescription(s) are documented in timber sale cruise plans.

**2441.11:** Clarifies situations that do not require marking timber prior to offering.

**2441.11a:** Adds new code captioned: Purchaser Timber Marking After Sale. Adds direction and procedures for Purchaser marking.

**2441.12:** Adds direction that acceptance of Purchaser leave tree marking must be by designated sale administration personnel.

**2442.2:** Adds requirement to include a cost-benefit analysis in the cruise plan supporting a decision to use DxP. Adds authority for purchasers to select cut trees based on DxD or DxP criteria without pre-harvest marking.

**2441.21-** Adds new code captioned: DxP Prescriptions. Adds direction for including prescriptions and inspection procedures in contracts.

**2441.22:** Adds new code captioned: Determining DxP Volume. Adds direction for determining volume on sales using DxP and that post-harvest cruising shall not be used to determine volume for payment purposes.

**2441.22a:** Adds new code captioned: Determining DxD Volume. Adds direction that DxD may be used on tree measurement sales.

**2441.23:** Adds new code captioned: Inspection and Acceptance of DxP. Adds direction for inspecting and accepting units where timber is designated by prescription.

**2442.3:** Clarifies procedures for preparing and documenting cruise records.

**2443.04c:** Clarifies role of Forest Supervisor to approve non-exclusive scaling sites.

**2443.04d:** Adds role of Contracting Officer to approve alternate scaling sites.

**2443.3:** Clarifies use of electronic field data recorders for recording scale data.

**2443.32:** Updates procedures and cross references pertaining to disposal of scaling records.

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**2444.04b:** Adds Regional Forester responsibility to provide specialized training needed to effectively administer DxP as part of the Regional certification program for sale administration staff.

**2444.11:** Revise caption to: Product Removal Permit. Removes information pertaining to painting requirements addressed in FSM 2455 Timber Export Restrictions.

**2444.12:** Revises caption to: Branding and Painting Requirements. Removes all text in section pertaining to branding and painting requirements which are addressed in FSM 2455 Branding and Painting Requirements.

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**2440.1 - Authority**

The laws, Executive Orders, and regulations that affect designating, cruising, scaling and accountability are abstracted at FSM 2401.

The Agricultural Act of 2014 (2014 Farm Bill), Section 8303 (Pub. L. 113-79) amended the National Forest Management Act (NFMA) of 1976, section 14(g) to authorize, among other things, use of designation by prescription (DxP) as a valid method of designating trees or forest products for harvest and removal. Section 8303 also authorizes the use of post-harvest cruise, sample weight scaling, or other methods determined by the Secretary of Agriculture to be appropriate for supervising use of DxP and designation by description (DxD).

**2440.3 - Policy**

In preparing and administering timber sales, line officers and persons with assigned sale preparation and sale administration responsibilities shall:

1. Use a practical and efficient method of timber designation that considers both the costs of sale preparation and sale administration as well as achieving the desired end results.
2. Ensure timber cruising methods and specifications accurately estimate the species and volume to be cut considering the method(s) of designating the timber to be cut or retained and whether payment will be based upon cruise estimate or scaling after felling.
3. Ensure only designated trees are cut.
4. Provide for effective accounting of logs and trees sold including any changes in volume for trees added or removed by agreement or modification.
5. Ensure protected trees and resources are undamaged.
6. Use only approved tracer paint following the national paint color scheme guidelines when designating cutting unit boundaries and individually marking trees with paint to cut or leave (FSM 2441.04 and FSH 2409.12, ch. 70). Approved tracer paint is the only paint that meets health safety standards for Forest Service tree markers.
7. Use cubic volume in all reporting of volume offered for sale, sold, and harvested. Weight scale and Scribner scale must be converted to cubic volume for reporting.

**2440.4 - Responsibility**

**2440.41- Regional Forester**

It is the responsibility of each Regional Forester to provide guidance for the use of DxP in timber sales and stewardship contracts.

## 2440.5 - Definitions

Basal Area. The area of a given section of land that is occupied by the cross-section of tree trunks and stems. Basal Area is usually a measurement taken at the diameter at breast height (4.5 ft) of a tree above the ground and includes the complete diameter of every tree, including the bark.

Code of Federal Regulations (CFR). The codification of general and permanent rules published in the Federal Register by the departments and agencies of the Federal Government. It is divided into 50 titles that represent broad areas subject to Federal regulation. Title 36, Part 223 (36 CFR 223) addresses the Sale and Disposal of National Forest System Timber, Special Forest Products, and Forest Botanical Products.

Cruising. The process of measuring forest stands to determine stand characteristics, such as average tree sizes, volume, and quality.

Designation by Description (DxD). Trees are designated to be cut or left uncut by describing measurable characteristics of individual trees and/or their juxtaposition to each other. Examples of descriptions include species, stump diameter, spacing, damage class or a combination of these factors. A determination of whether the correct trees were cut or left is done at the individual tree level. When trees are designated by description it should be possible to look at individual stumps to determine if a tree was authorized to be cut or not.

Designation by Prescription (DxP). Trees are designated by prescribing the desired composition of the cutting unit following harvesting. The Purchaser has discretion within the guidelines of the prescription in selecting which trees to cut and leave. A determination of whether the correct trees were cut or left is done at the cutting unit level.

Individual Tree Mark (ITM). Trees are “Marked” when individually designated with paint marks above and below stump height in accordance with the paint color scheme in FSH 2409.12, chapter 70. Cut Tree Marking (CTM) is used to designate trees to be cut and Leave Tree Marking (LTM) is used to designate trees to be left uncut. A determination of whether the correct trees were cut or left is done at the individual tree level by checking for the presence or absence of the correct color of paint on the remaining stump.

Integrated Resource Timber Contract (IRTC). A Stewardship Contract combining the sale of property and procurement of services where the Forest Service makes a determination under 36 CFR 223.301(b)(2) that the value of timber or other forest products removed exceeds the total cost of services received. An IRTC may also be referred to as an Integrated Resource Contract, Stewardship Contract or Stewardship End Results Contract.

Post-harvest Cruise. A cruise performed by the Forest Service to gather data pertaining to the characteristics of the residual trees and stand sufficient to determine compliance with the prescribed end results when timber to be cut or left uncut is designated by description (DxD) or

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designated by prescription (DxP). Post-harvest cruise methods are described in Regional special contract provisions addressing inspection procedures for acceptance of work.

Purchaser. Title of the individual or business awarded a timber sale contract or entity having the current rights to the contract under the terms of an approved third-party agreement. As used in FSM and FSH directives the term Purchaser also means stewardship Contractor.

Scaling. The determination of gross and net volume of logs or other products after trees have been cut using instructions and specifications stated in A9 of the contract. Scaling may include a variety of sampling and measurement methods and takes place at locations specified in contract provision A14.

## **2441 - Designating Timber for Cutting**

### **2441.03 - Policy**

1. Before timber is offered for sale, it must be designated in compliance with the silvicultural prescription (FSM 2478) and environmental documentation for the timber sale or stewardship project.
2. Cut trees may only be designated, including marking, by Forest Service personnel or persons under contract with the Forest Service who have no personal interest in the purchase or harvest of the products designated, and are not directly or indirectly employed by the Purchaser of the products. An exception to this policy is when a Purchaser is authorized to designate cut trees with non-tracer paint as an operational convenience in units utilizing designation by prescription (FSM 2441.11a).
3. Sale preparation personnel must use written guides (FSM 2441.4) when designating timber, and a consistent tree marking paint color scheme (FSH 2409.12, ch. 70) when individually marking trees as “cut or leave” with paint.
4. All designation of trees containing commercial products to be removed from the sale area must be designated by:
  - a. Area (FSM 2441.2);
  - b. Individually marking each cut or leave tree with tracer paint;
  - c. Description (DxD);
  - d. Prescription (DxP); or
  - e. a combination of the methods above.
5. DxP may be used to designate commercial and noncommercial timber in timber sale and stewardship contracts where the final volume for payment purposes will be determined



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using one of the post-harvest scaling methods (FSM 2443.03). DxP is not authorized for use in tree measurement contracts.

6. Section 14(g) of NFMA, as amended by section 8303 of the 2014 Farm Bill (Pub. L. 113-79), requires the Agency to designate timber for harvesting and to supervise the harvesting of trees or forest products.
  - a. Designating timber authorized to be cut through a prescription prepared by the Forest Service (DxP) meets the statutory requirements for designation. The use of DxP on a timber sale or stewardship contract shall be documented in the cruise plan and certified by the District Ranger as a part of the Gate 3 activities (FSH 2409.12, sec. 43.5, and FSH 2409.18 sec. 34).
  - b. When using DxP, the Contracting Officer must be consulted during preparation of the cruise plan and shall sign the cruise plan, using the designation “recommended by” before approval by the District Ranger.
  - c. Section 8303 of the 2014 Farm Bill (Pub. L. 113-79) authorizes use of post-harvest cruise, sample weight scaling or other methods deemed appropriate by the Secretary of Agriculture as valid methods to supervise forest resources designated for harvest using DxP. Post-harvest cruise (FSM 2440.5) is the preferred method of inspecting compliance with the prescription. Post-harvest cruise is not an acceptable method of establishing the volume harvested for payment purposes.
7. DxD and DxP shall not be used in situations where Forest Service has determined that marking cut or leave trees in advance of harvesting is necessary to verify compliance with the description or prescription. In such cases, marking shall be performed by the Forest Service prior to offering the sale.

#### **2441.04 - Responsibility**

##### **2441.04a - Deputy Chief for National Forest System**

It is the responsibility of the Deputy Chief for the National Forest System to approve a national color scheme for tree marking paint used to designate timber and boundaries under the terms of the timber sale contract. The national color scheme table is set out in FSH 2409.12, section 71.21, exhibit 01.

##### **2441.04b - Regional Forester**

It is the responsibility of each Regional Forester to:

1. Provide guidelines for designating timber, which include quality control methods, frequency of checks and accuracy standards.

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2. Provide guidelines for exceptions to marking timber in advance of a sale (FSM 2441.11).
3. Establish policy governing the methods of designating timber. For example, establishing criteria addressing general forest types or stand conditions where DxP is or is not appropriate.
4. Provide specialized training as part of the Regional certification program (FSH 2409.15, sec. 12) to sale administration staff needed to effectively administer DxP. The use of DxP may increase contract administration workloads and expertise requirements over other forms of timber designation because the designation is not based on individual tree characteristics that are readily observable. Rather, it is based on an evaluation of a prescribed end result, which is inherently more time consuming than simply observing patent characteristics, such as the presence or absence of paint on a stump or determining the size and species of a stump. Furthermore, administering sales with DxP may require specialized training not previously required of certified sale administrators.

**2441.04c - Forest Supervisor**

It is the responsibility of each Forest Supervisor to ensure each District Ranger has available staff and/or access to qualified employees with the necessary skills, certifications, and time to administer timber sales and stewardship contracts. This includes ensuring that sale administration personnel have the specialized training and additional time needed to administer contracts where timber is designated by description or by prescription.

**2441.04d - District Ranger**

It is the responsibility of each District Ranger to ensure the timber designation method(s) used to implement the silvicultural prescription(s) are documented in timber sale cruise plans.

**2441.1 - Timber Marking**

Following marking guides requires skill and good judgment. The Timber Cruising Handbook (FSH 2409.12) provides the procedures and methods to be used to meet quality standards.

Mark or designate timber for cutting only within the sale area boundary unless the contract also includes timber outside the boundary that must be cut and cleared for roads or other improvements.

**2441.11 - Marking Timber in Advance of Sale**

Mark or designate all timber prior to offering a sale, except as follows. Exceptions to marking timber with paint in advance of offering a sale include long-term sales, salvage sales, sales to control active insect infestations, and sales using DxD or DxP. In DxD and DxP units, Forest Service may mark cut and/or leave trees in addition to those addressed in the DxD or DxP guidelines.

#### **2441.11a - Purchaser Timber Marking After Sale**

For operational reasons on sales including DxD or DxP units, a Purchaser may be authorized to designate cut or leave trees at the Purchaser's expense with non-tracer paint in advance of cutting subject to the following conditions:

1. Designating Leave Trees: When the contract specifies DxD or DxP the Purchaser may be authorized to mark leave trees above and below stump height with non-tracer paint following the national paint scheme prior to cutting. If requested in writing by the Purchaser, the Forest Service will inspect and approve such marking complying with contractual requirements. However, since this marking is optional, inspection and approval by Forest Service is not required prior to harvesting.
2. Designating Cut Trees: When the contract specifies DxD or DxP, the Purchaser may be authorized to designate cut trees with non-tracer paint in accordance with the national paint scheme prior to cutting. Cut trees designated by the Purchaser prior to cutting shall not include a mark below stump height. Because additional cut trees could be marked any time prior to the completion of harvesting, the Forest Service will not approve cut tree marking performed by the Purchaser in advance of cutting. Forest Service acceptance of DxD or DxP contractual requirements will be accomplished by inspection following completion of harvesting in the cutting unit.
3. Marking under Cooperative Agreement: Upon the Purchaser's request and by written agreement, the Forest Service may mark cut or leave trees in DxD and DxP units. Purchaser shall reimburse Forest Service for the cost of marking. Forest Service agreement to mark cut or leave trees shall be documented on form FS-2400-0016 Timber Purchaser's Request for Work.

#### **2441.12 - Checking Marking Quality**

Timber marking must be inspected by designated employees of the Forest Service to ensure quality of paint marks and compliance with written marking guides (FSH 2409.12, sec. 71.3). Presale marking inspections shall be documented and will normally be performed by the marking crew leader or silviculturist. Acceptance of Purchaser's leave tree marking (FSM 2441.11a) shall be by designated sale administration personnel.

#### **2441.2 - Designating Without Marking**

Use area designation to reduce sale layout costs when such methods would accomplish the silvicultural objectives. Examples of area designation include clearcutting, overstory or understory removal, and DxD or DxP. Consider increased costs to sale administration associated with DxD and DxP when determining the most cost-effective method for designating timber.

Timber sale purchasers may select cut trees based on DxD or DxP criteria in the contract without pre-harvest marking.

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**2441.21 - DxP Prescriptions**

When DxP is used in a timber sale or stewardship contract, the prescription in the contract must be complete and shall not reference material or guides not included in the contract.

Inspection procedures that will be used both during and after harvest operations to determine compliance with the prescription must be incorporated in the post-harvest acceptance of work contract provision (FSM 2441.23).

**2441.22 - Determining DxP Volume**

Timber in DxP units will not be marked when the timber sale or stewardship contract is cruised to estimate volume prior to offering. Coordination between the cruise designer, silviculturist, and Contracting Officer must occur to assure accountability of forest products and achievement of resource objectives. Direction for how to cruise DxP is in FSH 2409.12, chapter 40. Because individual trees that will be harvested are not known when the sale is cruised, DxP may only be used on sales where the final volume for payment purposes will be determined by scaling after felling. Post-harvest cruising (FSM 2441.23) shall not be used to determine volume for payment purposes.

**2441.22a - Determining DxP Volume**

Although timber in DxP units will not be marked when the sale or stewardship contract is cruised, the description of what trees are designated for cutting must be sufficient for cruisers to determine whether individual trees encountered on a cruise are designated to cut or not. DxP may be used on sales where the volume for payment purposes is based on presale measurements.

**2441.23 - Inspection and Acceptance of DxP**

Section 8303 of the 2014 Farm Bill (Pub. L. 113-79) authorizes use of post-harvest cruise, sample weight scaling or other methods deemed appropriate by the Secretary of Agriculture as valid methods to supervise forest resources designated for harvest using DxP. Post-harvest cruising (FSM 2440.5) is the preferred method.

The intent of post-harvest cruising is to determine whether the cutting unit meets measurable criteria described in the DxP provision. These criteria may include, but are not limited to, remaining basal area, remaining trees per acre, spacing or juxtaposition of remaining trees, species composition of residual stand, crown ratio of residual trees and so forth. The remaining timber volume should not be a criterion for achieving the desired end result. Post-harvest cruising is not intended to be a “stump cruise” to determine volume removed or remaining.

Establish procedures and standards for inspecting DxP and include those in a special Regional contract provision titled C6.36# - Acceptance of Work, for any timber sale or stewardship contract designating timber by prescription.

### **2441.3 - Protecting Witness Trees in Timber Marking**

Do not designate witness, bearing, and corner trees for cutting unless preservation or replacement of such monuments occurs before they are cut.

### **2441.4 - Technical Guides for Timber Marking**

Ensure written marking guides achieve the silvicultural objectives and the desired degree of resource protection.

In contracts using DxP, ensure written designation guides are included in the prescriptive language in the contract as an aid for timber sale purchasers or stewardship contractors in selecting trees to cut or leave.

### **2441.5 - Trespass Prevention**

Use only Forest Service approved paint with special tracer elements for markings that designate timber to be cut or retained and for marking of special resources to be protected under the timber sale contract.

Refer to FSH 2409.12, chapter 70 for tracer paint use requirements.

### **2441.6 - Danger Trees**

Consider safety in the layout and design of timber sales. Conduct an on-site evaluation of the sale area to identify and reduce the exposure to danger tree hazards, while meeting resource management objectives for retaining reserve trees. Danger trees located when marking or designating timber in the sale area must either be marked for removal or avoided. If trees are to be avoided, do not designate trees for cutting within two tree lengths of the danger tree. Reflect costs associated with safety in the appraisal if they are not already recognized in the transaction evidence database.

## **2442 - Pre-Harvest Timber Cruising**

### **2442.02 - Objective**

The objective of pre-sale timber cruising is to estimate the quantity and quality of timber to appraise and offer for sale within established standards of accuracy.

### **2442.03 - Policy**

Timber sale officials are to conduct timber cruising activities according to established procedures, as follows:

1. Estimate the volume and quality of the timber offered for sale by following the standards and procedures set forth in the Timber Cruising Handbook, FSH 2409.12.

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2. Ensure certified cruisers cruise timber or approve timber cruises for timber sales, land exchanges, trespass actions, or other National Forest System purposes.
3. Ensure all timber cruises meet guides and standards.
4. Select timber sale measurement methods that ensure accountability of timber based on values and cost-effectiveness, and efficiency in timber sale preparation and administration.
5. Thinning and salvage sales may be sold as scaled sales if cruising to tree measurement sampling error standards is precluded by on-the-ground conditions, or if it is not cost effective to cruise to tree measurement standards. Salvage sales may be sold as scaled sales if the sale volume is likely to deteriorate during the term of the contract. Acceptable methods for determining volume after cutting include:
  - a. Thinning sales may be measured in cubic volume determined by weight scale or cubic scale unless the Regional Forester approves other methods of determining volume after cutting.
  - b. Salvage sales may be measured in cubic volume determined by weight scale, cubic scale, or Scribner Decimal C 20-foot log scale unless the Regional Forester approves other methods of determining volume after cutting;
  - c. Contracts including DxP must be scaled (FSM 2441.03).
6. Use of cubic measure in all reporting of volume offered for sale, sold, and harvested. Weight scale, Scribner scale and other approved methods of determining volume after cutting must be converted to cubic volume for reporting.

**2442.04 - Responsibility**

**2442.04a - Regional Forester**

It is the responsibility of each Regional Forester to:

1. Establish and maintain a cruising quality control program, including training, certification, and check cruising in accordance with the standards and guidelines in FSH 2409.12.
2. Ensure all cruising for timber sales is done or approved by certified cruisers.
3. Approve the tree volume estimators and computational programs to be used in determining timber sale volumes.
4. Approve the design of cruise forms and data entry programs used by field data recorders.

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5. Specify a system of accounting for original and supplementary cruise records of each sale and a means of auditing cruise data for sales where the cruise estimates form the basis for payment.

**2442.04b - Forest Supervisor**

It is the responsibility of each Forest Supervisor to provide cruiser training, certify production cruisers, and perform check cruises according to the region's quality control program.

**2442.04c - District Ranger**

It is the responsibility of each District Ranger to:

1. Approve the cruise plan for each timber sale (FSM 2441.03 and FSH 2409.12).
2. Certify that timber cruises were done in accordance with the standards and procedures in FSH 2409.12, section 43.5.
3. Ensure that cruise results are used to accurately reflect the timber volume in timber sale advertisements and contracts.

**2442.1 - Volume Estimators**

Establish and maintain a system to manage the tree volume estimators for each Region. Manage volume estimators, including data collection preparation, documentation, labeling, cataloging, validation and revalidation. Refer to FSH 2409.12, chapter 20, for technical guidance.

**2442.2 - Cruise Plan**

Each timber sale expected to have a value in excess of \$5,000 must have a cruise plan. As a minimum, the cruise plan for a timber sale must cover:

1. Sampling method(s).
2. Sampling intensity.
3. Product merchantability specifications.
4. Sale area maps.
5. Silvicultural guides (when required).
6. A cost-benefit analysis supporting the decision to use DxP when DxP is included in the sale. The analysis must demonstrate that DxP is cost effective considering increased sale administration costs and availability of sufficient trained personnel to administer DxP units.

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The cruise plan must contain a level of detail commensurate with the sale value and complexity of timber conditions on the sale area.

### **2442.21 - Sampling Error Standards for Designing Cruises**

Sampling error standards are in FSH 2409.12. Regional Foresters may authorize smaller sampling errors, considering high monetary risks, high value species, or other factors.

Prescribe sample sizes to achieve, not to substantially exceed, sampling error standards.

### **2442.3 - Cruise Records**

1. Use standard forms that fit timber conditions in the Region or on specific Forests. Avoid creating local forms, data entry programs, or computational programs.
2. Use electronic field data recorders for all pre-sale cruising unless field conditions (such as, extreme cold) preclude the use of data recorders. Process data in a cruise program to produce reports that include, but are not limited to, number of trees and volumes by species and products.
3. Use the specified system of accounting for cruise records of each sale and audit cruise data for sales where the cruise estimates form the basis for payment. Include added-scale sheets in pre-sale measurement sales.
4. Ensure final cruise computations used to generate the appraisal and contract is clearly identified as final in the official sale file moving forward into Gate 4.
5. Document volume added or deleted from tree measurement sales on form FS-2400-0081 Timber Sale & Stewardship IRTC Inspection Report and report the change on form FS-2400-0066a Report of Harvest or Additional Volume.

### **2442.31 - Disposal of Cruise Records**

Refer to FSH 6209.11 for direction on the disposition of cruise records.

## **2443 - Scaling Timber Sale Products After Felling**

### **2443.02 - Objective**

The objective of scaling is to determine the merchantable volume for payment by species of timber that is cut and removed from the sale area.

### **2443.03 - Policy**

Scaling National Forest System timber sale products for payment must be performed by Forest Service personnel or parties under contract to the Forest Service. Weighing services may be



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performed by personnel or parties approved by the Forest Service. Scalers shall use only the scaling rules and methods approved by the Deputy Chief for National Forest System and set forth in the National Forest Log Scaling Handbook (FSH 2409.11) and National Forest Cubic Scaling Handbook (FSH 2409.11a).

Scaling must be carried out as soon as practicable after felling and at scaling locations approved by the Forest Service. Each scaling location must provide for remote check scaling. Mill deck scaling is not allowed.

**2443.04 - Responsibility**

**2443.04a - Deputy Chief for National Forest System**

It is the responsibility of the Deputy Chief for National Forest System to:

1. Approve changes in log scaling rules, defect deductions and associated measurement procedures. This authority may not be re-delegated.
2. Approve studies necessary to maintain or improve accuracy of scaling rules.
3. Ensure review of proposed changes in scaling rules by interested agencies and representatives of the timber industry prior to approving any such change.

**2443.04b - Regional Forester**

It is the responsibility of the Regional Forester to:

1. Establish and maintain a scaling quality control program, as described in FSM 2443.2 and the Timber Sale Administration Handbook, FSH 2409.15.
2. Issue supplementary instructions (FSM 1113.2) and procedures for record keeping, log accountability, and scaling location requirements consistent with national standards in FSH 2409.11a and FSH 2409.15.
3. Recommend necessary changes in scaling rules to the Chief.
4. Consistent with all other applicable laws, regulation and policy, the Regional Forester may authorize use of other systems of measurement, such as weight, piece count, load count, or measuring landing piles or decks on sales of low value products, and difficult-to-measure products, such as small logs, bark, stumps, and boughs.
5. Ensure periodic check scaling to evaluate the scalers' accuracy (FSH 2409.15 and FSH 2409.11a).
6. Establish check scaling frequencies.

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7. Establish and maintain a roster of scalers certified to scale National Forest System timber for payment. Approve the addition of qualified scalers to that roster.
8. Specify the approved scale ticket form.
9. Develop procedures to resolve scaling problems within 10 working days of discovery. Authorize adjustments in the original scale that may be needed to resolve the problems.
10. Develop and publish Regional audit and frequency instructions.
11. Periodically review for accuracy the processes used for volume determination and the reports of scaled National Forest System timber developed by the Forest Service, a contractor, or third-party scaling organizations (FSM 2443.31).
12. Authorize adjustments in the original scale volume as needed to resolve scaling complaints.

**2443.04c - Forest Supervisor**

It is the responsibility of the Forest Supervisor to:

1. Conduct the scaling quality control program in accordance with Regional direction.
2. Approve non-exclusive scaling locations where more than one Purchaser may be served. See FSH 2409.15, chapter 20 for approval criteria.
3. Recommend, in writing, nominees to the Regional roster of certified scalers.

**2443.04d - Contracting Officer**

It is the responsibility of the Contracting Officer to:

1. Ensure that scaling of National Forest timber meets the requirements at 36 CFR 223.30(f) and is within the terms of the timber sale contract.
2. Review and accept requests for cooperative scaling by Forest Service personnel as time and budget permit.
3. Approve an alternate scale site such as a private mill yard, private truck ramp, or privately operated log transfer facility.

**2443.1 - Scaling Procedures and Methods**

The objective of log scaling is to measure logs to determine the gross and net volumes of wood based on the log rule and utilization standards, as specified in the timber sale contract. Scaling normally occurs at approved locations away from the sale area. See FSH 2409.15, section 23,

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for criteria for approving scaling locations. Detailed instructions for log scaling appear in FSH 2409.11a.

Use sample scaling rather than scaling all logs when appropriate in order to reduce costs. Ensure acceptable accuracy of sampling procedures. See FSH 2409.11a for sample scaling procedures.

### **2443.2 - Scaling Quality Control Program**

The Region's scaling quality control program must:

1. Ensure public interest is served through continuing inspections (check scales) and audits.
2. Ensure accuracy, objectivity, and uniformity in scaling National Forest System timber.
3. Identify and provide a means for resolving scaling problems quickly.
4. Minimize the need for scaling adjustments.
5. Provide scaler training and certification, inspection (check scaling) and reporting, and resolution of scaling complaints and scale adjustments.

#### **2443.21 - Scaler Training and Certification**

Minimum training and certification requirements for Forest Service scalers are set out in FSH 2409.15, section 26.

Third-party scaling organizations and contractors must establish and maintain a scaler training and certification program as a condition for approval to scale National Forest timber. Minimum requirements for third-party scaling organization and contractor scaler training and certification programs are set out in FSH 2409.15, section 26.

#### **2443.22 - Regional Roster of Certified Scalers**

The Region's roster of certified scalers must include the Forest Service, third-party organizations, and contract scalers. Scalers may not scale until the Regional Forester approves the addition of their names to the Region's roster of certified scalers.

Third-party scaling organizations and contractors must recommend, in writing, nominees to the Region's roster of certified scalers before such scalers may be added to the roster. The written documentation must state that a nominee has met the certification requirements and has demonstrated proficiency in scaling National Forest System timber. Documentation must describe limitations on the nominee's proficiency, such as "truck scaling only" or "not trained in sample scaling."

### **2443.23 - Check Scaling and Reporting**

Check scaling is a quality assurance procedure that ensures accurate and uniform scaling of National Forest System timber. Direction on the conduct and standards for check scaling is in FSH 2409.15, section 26.

Guidelines for determining check scaling frequency and check scale reporting requirements are in FSH 2409.11a and FSH 2409.15, chapter 20.

### **2443.24 - Resolving Scaling Complaints Including Adjustments**

Prescriptive instructions for resolving scaling complaints and problems are difficult because of the innumerable situations that can occur. Agency officials must resolve problems expeditiously and fairly to the extent practicable. Resolution of scaling problems may include remedial scaler training, temporary or permanent withdrawal of a scaler's certificate, a scaling adjustment, or combinations of these actions.

Take prompt action on scaling complaints or when check scales indicate unsatisfactory scaler performance. Attempt to resolve scaling problems within 10 working days of discovery. Memorandums of Agreement with contractors and third-party scaling organizations should include procedures and time requirements for resolving these problems.

Do not authorize adjustments in the original scale unless those adjustments are approved by the Regional Forester (FSM 2443.04b).

FSH 2409.15, chapter 20 contains guidelines for resolving scaling complaints, including adjustments.

### **2443.3 - Scale Records**

Electronic Field data recorders are the preferred method of recording scale data unless conditions (such as extreme cold) make their use impractical. Field data recorders must produce a hard copy for the record. See FSH 2409.11a and FSH 2409.15, chapter 20 for guidelines.

### **2443.31 - Audit of Scale Records**

An audit of scale records is a sample review to determine the accuracy of timber sale volume records.

Audit sale volume records of active sales at least once monthly to ensure:

1. Posting of correct volumes in the timber sale accounting system.
2. Prompt detection, correction, and recording of errors.
3. Prompt notice to responsible persons of the cause and results of errors so that they may take corrective action.

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Scaling conditions and recording methods may vary widely among localities. Use applicable audit and frequency instructions, and guidance in FSH 2409.15, section 27, for auditing procedures.

### **2443.32 - Disposal of Scale Records**

All scale records, including the original copy of each scale ticket, shall be filed in the same location as the official electronic contract file. Scale records prepared on paper must be scanned for inclusion in the official electronic contract files. When the contract is completed, retain these records in the official contract file as directed in FSH 6209.11, chapter 40, under file code 2450 (commercial) or 2460 (other than commercial).

General scale records which do not pertain to an individual contract are retained as directed in FSH 6209.11, section 41, under file code 2440.

### **2443.4 - Alternate Scaling Services**

Allow scaling services from a third-party scaling organization or contractor provided that entity has been approved, maintains an effective check scaling organization in the Region, ensures remote check scaling at each scaling location, and meets the conditions in FSH 2409.15, chapter 20.

### **2443.5 - Cooperative Scaling**

Accept cooperative scaling under limited conditions. Accept requests for cooperative scaling work if time and budget permit. If approved by the Contracting Officer, collect advance payments, as specified by the timber sale contract or separate cooperative scaling agreement. See FSH 2409.15, section 24.3 for cooperative scaling guidelines.

## **2444 - Timber Accountability**

### **2444.02 - Objective**

Ensure the Government receives full value for timber removed from the National Forest System through use of a log accountability system, review of scaling, review of timber designation, sale administration procedures, and law enforcement.

### **2444.03 - Policy**

Agency officials must establish log accountability procedures to protect the public interest in the harvesting of National Forest System timber. In addition, officials must conduct audits of log accountability, scaling, and timber designation on National Forests.

#### **2444.04 - Responsibility**

##### **2444.04a - Deputy Chief for National Forest System**

The Deputy Chief for National Forest System is responsible for performing periodic unannounced audits of National Forests to ensure they meet standards of log accountability and scaling, as set forth in FSH 2409.11a and FSH 2409.15, chapter 20.

##### **2444.04b - Regional Forester**

It is the responsibility of the Regional Forester to:

1. Ensure development and implementation of special contract provisions for timber designation, scaling, and log accountability requirements.
2. Ensure development and implementation of training programs for Agency regulations governing prohibited acts.
3. Provide law enforcement training for sale administration personnel.
4. Use reviews and functional assistance trips to ensure timber accountability and associated standards set forth in FSM 1410.
5. Conduct a sufficient number of activity reviews on sale administration to ensure sale administrators meet standards for measurements and accountability.
6. Provide specialized training needed to effectively administer DxP as part of the Regional Certification program (FSM 2441.04b) for sale administration staff. Except for DxP, all post harvesting methods for checking whether the proper trees have been cut can be quantifiably determined by examining individual stumps. DxP requires an evaluation of whether the residual stand closely matches the prescribed end result described in a silvicultural prescription.

##### **2444.04c - Forest Supervisor**

It is the responsibility of the Forest Supervisor to:

1. Establish scaling zones (FSH 2409.15, sec. 25.21) that identify the hauling limits for unscaled logs prior to scaling.
2. Approve log yard agreements.
3. Periodically review log accountability, scaling, and timber designations on each Ranger District to ensure conformance to standards.
4. Perform unannounced audits of each Ranger District as needed to ensure that standards of log accountability and scaling are met.

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5. Provide the Regional Forester a copy of each audit report.

**2444.04d - Contracting Officer**

It is the responsibility of each Contracting Officer to:

1. Enforce the provisions of the timber sale contract to ensure payment for all products.
2. Ensure purchasers do not cut undesignated trees.
3. Take prompt, decisive action in situations involving log or timber accountability problems (FSH 2409.15, chapter 20).
4. Eliminate opportunities for monetary loss of timber value.

**2444.1 - Log Accountability Requirements**

**2444.11 - Product Removal Permit**

Require product removal permits (load receipts) as evidence of authority to transport National Forest System logs on all scaled sales. Load Receipts are required on all tree measurement sales, except in Southern Region (R8) and Eastern Region (R9). Refer to FSH 2409.15, chapter 20 for log accountability procedures.

**2444.12 - Branding and Painting Requirements**

Requirements for branding and painting logs to comply with export restrictions in the Forest Resources Conservation and Shortage Relief Act of 1990, as amended (16 U.S.C. 620, *et seq.*) are in FSM 2455.

**2444.13 - Processing Facilities and Log Yards**

Log yard agreements authorize delivery and scaling of logs to facilities approved by the Forest Supervisor. Log yard agreements must require branding and painting in full compliance with contract requirements for logs that are transferred to different locations. Forest Supervisors may waive all, or a portion of, the branding and painting requirements specified in log yard agreements for specified species, grades, and/or sizes of unprocessed timber. In making the determination to waive branding and painting, the Forest Supervisor shall consider:

1. The risk of theft.
2. The risk of unprocessed timber of the same species, grade, and size being exported or used in substitution.
3. The location of the unprocessed timber and the potential for that location to increase the likelihood that the timber would be exported or used in substitution.

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4. The history of the person involved and their past compliance with log branding and painting requirements.
5. Any other factor that is relevant to determining the likelihood of the unprocessed timber being exported or used in substitution, including, but not limited to:
  - a. Whether the log yard owner otherwise complies with the requirements for branding and painting of logs and transferring of logs between persons; and
  - b. Whether similar logs from any origin are known by the Forest Service to have been exported by any person, as defined in 36 CFR 223.186, from the location where the logs are being transferred to within the previous 24 months.

**2444.2 - Timber Accountability Audits**

Refer to FSH 2409.15, chapter 20 for audit procedures.