

**Forest Service Handbook  
National Headquarters (WO)  
Washington, DC**

**Forest Service Handbook 2409.12 – Timber Cruising Handbook  
Chapter 70 - Designating Timber For Cutting**

**Amendment:** 2409.12-2009-1

**Effective date:** December 01, 2009

**Duration:** This amendment is effective until superseded or removed.

**Approved by:** Gloria Manning, Associate Deputy Chief, NFS

**Date approved:** November 23, 2009

**Responsible Staff:**

**Last Change:** 2409.12-2008-2 to 2409.12\_contents.

**Superseded Document(s):** 2409.12\_70, Amendment 2409.12-2004-1, May 12, 2004

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

**70:** Makes numerous format changes, resulting in the recoding of some sections.

**71.1:** Adds paragraph 1 which addresses residual paint from previous projects. Renumbers paragraph 1 and 2 to paragraphs 2 and 3.

**71.21:** Revises exhibit 01 to reflect modifications to the uniform color scheme for tree marking paint. Adds direction in paragraph 3 on marking the cutting boundary.

**71.6:** Establishes code and recodes to this section caption and direction previously set out in section 72.

**71.7:** Establishes code and recodes to this section caption and direction previously set out in 72.2.

**72:** Establishes caption "Tracer Paint" recodes direction previously set out in section 72.1 to this section. Sets forth new direction on tracer kits use restrictions.

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**72.1:** Establishes caption “Purchase” recodes direction previously set out in section 72.13 to this section. Sets forth new direction adding the Bureau of Land Management as an authorized tracer paint user.

**72.2:** Establishes code and caption “Use” and recodes to this section direction previously set out in section 72.14. Sets forth new direction requiring that tree marking crew members review the tree-marking video and familiarize themselves with the JHA regarding paint use at the beginning of each season.

**72.3:** Establishes code and caption “Testing” and recodes to this section direction previously set out in section 72.11. Removes the General Services Administration as a source of laboratory testing of paint. Revises and sets forth direction for performing laboratory analysis of tracer paint from the direction.

**72.4:** Establishes code and caption “Security” and recodes to this section direction previously set out in section 72.12. Adds paragraph 2 and sets forth new direction for paint storage when no secure paint facilities are available.

**72.41:** Establishes code and caption “Responsibility” and recodes to this section direction previously set in section 72.12a. Clarifies enterprise unit roles that are equivalent to forest supervisor and line officer. Adds the responsibility that designation of paint custodians be done in writing. Modifies the responsibilities of the paint custodian and the paint property manager. Adds paragraph d with caption “Disposal of Aerosol Containers,” and sets forth new direction. Adds form FS 2400-65 as exhibit 01.

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## **71 - Timber Marking**

Regions must provide quality standard guides for designating timber, including control methods and measures (FSM 2441).

1. Designate timber for cutting only within the sale area boundary unless the contract also provides for timber cutting outside the boundary when clearing for roads or other improvements.
2. Use only tree marking paint containing registered tracer(s) in designating trees on National Forest System land for removal, measurement, tallying, scaling, and so forth, and in designating the area where these activities are to take place.

### **71.1 - Marking Timber in Advance of Sale**

1. Prior to marking, check the sale area for any residual paint from previous projects and develop a marking plan that addresses any existing tree marking paint.
2. Mark or designate all timber to be cut prior to sale advertisement. This permits the prospective bidder to determine the volume and quality of the offered timber. Long-term sales, salvage sales, or cutting to control active insect infestations may be exceptions to this requirement.
3. Complete the marking of units planned for cutting within a rate redetermination period before establishing rates.

### **71.2 - Marking Guides**

Ensure that written guides are designed to achieve the silvicultural objectives (FSM 2441.03). If the available marking guides do not contain guidance appropriate for a particular unit, develop a detailed guide for the unit that includes requirements for:

1. Desired residual stocking.
2. Selection criteria for cut and leave trees.
3. Boundaries.
4. Special trees.
5. Paint colors to use for each marking purpose.

#### **71.21 - Marking With Paint**

Know the planned timber sale contract requirements and the marking guide. Mark or designate timber for cutting in accordance with the marking guide. Use a paint mark at or above eye level

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and another mark below stump height for each cut tree, leave tree, or boundary tree to be marked.

1. The primary methods for designating timber to be cut include:
  - a. Marking the trees to be cut or to be left with paint containing registered tracer(s), and
  - b. Marking the boundaries around the area in which the cutting takes place.
2. The Deputy Chief for the National Forest System has the responsibility to approve a national color scheme for tree marking paint (FSM 2441.04a). The purposes of using one color scheme are to create uniformity in timber sale contract administration across district, forest, and regional boundaries; to minimize the opportunity for timber trespass; and to maintain reasonable costs. The national color scheme for marking timber is shown in exhibit 01. This color scheme should be used on all new timber sales.
3. Mark the cutting boundary with a distinctly different type of mark than the leave trees within the unit, such that the cutting boundary is clearly defined and can be seen as the boundary is approached during harvesting.

**71.21 - Exhibit 01**

**National Paint Scheme for Timber-Related Activities**

<b>Work Item</b>	<b>Primary Color</b>	<b>Secondary Color</b>	<b>Tertiary Color</b>
<b>Cut Trees</b>	Blue	Yellow	Green
<b>Leave Trees *</b>	Orange	Pink	White
<b>Cancel Prior Work</b>	Black		
<b>Property Lines</b>	Red (non-tracer)		

\* Includes cutting boundary, cultural resource, and wildlife trees.

**71.22 - Marking Boundaries**

Use paper or plastic signs, as needed, to identify the cutting units, payment units, and sale area boundaries in addition to using painted or other boundary identifications. Boundaries may be left unmarked if natural or constructed features are so conspicuous that they can be identified from the sale area map alone, and if using those features would not cause mistakes to be made when the trees are cut.

### **71.3 - Checking Timber Marking Quality**

Determine compliance with marking guides and plans by periodically checking crew performance. Individuals that are designated to ensure the quality of timber marking must inspect timber marking activities to ensure compliance with written marking guides. File written documentation on marking crew compliance with marking guides in each timber sale case folder.

### **71.4 - Designating Without Marking Individual Trees**

1. Use clearcut units, overstory or understory removal, or similar descriptions for treatment designations to reduce sale layout costs when such methods would accomplish the sale objectives.
2. Designation of trees by description may be done only by using contract provisions for this method of designation that have received prior approval from the Washington Office, Director of Forest Management.
3. Designation of trees by prescription may be used for noncommercial trees that are not removed from the contract area or having contract provisions for this method of designation that have received prior approval from the Washington Office, Director of Forest Management.
4. Clearly mark the cutting unit boundaries (sec. 71.22) with tree marking paint containing registered tracer(s). Make certain there is no question of which trees are designated for removal.
5. Ensure that the sale area map agrees with the designated boundaries on the ground.

### **71.5 - Protecting Special Trees**

Trees often need to be retained for special purposes, such as a wildlife tree, while trees around them are cut or removed. Mark such trees clearly and in a manner that would avoid the likelihood of these trees being cut through error.

#### **71.51 - Witness Trees**

Do not designate witness, bearing, and corner trees for cutting. If, for some reason, destruction of such trees is inevitable, coordinate with the forest cadastral surveyor for the preservation or replacement of such monuments before cutting occurs.

#### **71.52 - Wildlife and Other Trees**

Mark trees needed for wildlife habitat, tree improvements, or other purposes as identified in the plan or as instructed. Use a leave tree color specified in section 71.21, exhibit 01 or signs (metal or plastic).

## **71.6 - Trespass Prevention**

Ensure that tree designation methods minimize the chance of trespass and maximize the probability of early detection and successful prosecution if trespass does occur.

## **71.7 - Stump Marks**

Always use stump marks for any tree marked for cutting, as a leave tree, or as a boundary tree. Ensure that the mark is at or near the ground line, but on the tree and not the ground. Make the stump mark large enough to be conspicuous if scraped or chipped off. Avoid marking thick moss or loose bark that could easily be removed from the tree. When possible, mark on the low side of the tree, or where it is less likely that the mark could be removed by cutting the tree.

## **72 - Tracer Paint**

Use of paint containing tracer(s) helps reduce unauthorized cutting and may provide evidence when unauthorized cutting does occur. Tracer test kits are for Forest Service and Bureau of Land Management employee use only and shall not be provided to any contractor or other non-agency employee.

### **72.1 - Purchase**

1. Purchase only approved tracer paint through the normal procurement channels. Specifications for this paint limit the tracer to Forest Service and Bureau of Land Management use only. The tracer is registered with the San Dimas Technology and Development Center.
2. Contact the San Dimas Technology and Development Center for information and assistance with tracer paint questions.

### **72.2 - Use**

1. When paint orders are received, and prior to use of the paint, check for the presence of tracer. Document relevant information on the inventory form.
2. Use tracer paint for all sale designations where paint is needed, including marking of the following:
  - a. Cut trees.
  - b. Leave trees.
  - c. Posting sale or unit boundaries.
  - d. Reserve trees.
  - e. Special area protection zones.

- f. Streamside management zones.
  - g. Designated additional timber.
  - h. Cancelling prior work.
3. Follow all safety requirements, as stated on the manufacturer's label. All employees who use tracer paint must review the video, *Tree Marking Paint: Safety, Security and Use*, at the beginning of each marking season and be familiar with provisions in the tree marking "Job Hazard Analysis."
  4. Keep all tracer paint carried to the field in a secured locked storage box when not in use.
  5. When contract marking is used, require a daily accounting of all paint used. Consider including contract provisions to level fines for missing paint cans.

### 72.3 - Testing

Use the field test kit available from the paint manufacturer on a sample of the marked trees to verify that the tracer additives are present. Document the results along with the date, name of the tester, and other pertinent details. File any test results in the sale case folder. The sale administrator must also check the use of tracer paint on each active sale unit, as a function of normal sale administration. Document findings on an inspection report (FSH 2409.15, sec. 13.42).

When tests of a more thorough depth are desired, they must be made by laboratory analysis. The Federal Bureau of Investigation, State crime laboratories, or private testing labs make such analyses. Contact the San Dimas Technology and Development Center for further information regarding laboratory analysis of tracer paint.

### 72.4 - Security

1. Tracer paint is specially prepared for Forest Service use and the following safeguards must be taken:
  - a. Tracer paint must be kept in secure, locked facilities when not in actual use in the field.
  - b. Paint stored in vehicles must be in securely locked storage boxes out of public view.
  - c. Do not use Forest Service locks to secure tracer paint storage boxes or facilities.
  - d. Tracer paint should be returned to the paint custodian at the end of each workday, and the inventory must be completed when the paint is returned. The paint must not be stored in vehicles over holidays, weekends, or extended periods.



2. An enterprise unit must follow all requirements of a forest, including receiving, inventory, storage and security requirements. An enterprise unit working on a project located on a field unit that is not equipped with a secure tracer paint storage facility shall follow directions in paragraph 1b listed above, for vehicle storage for the duration of the project. If tracer paint must be stored in a vehicle or trailer over holidays, weekends, or extended periods, the vehicle or trailer must be parked at a Forest Service facility, inside a gated and locked compound if available. Once the project is completed all remaining tracer paint must be stored in secure locked storage facilities.

## 72.41 - Responsibility

1. Line officer/Enterprise executive officer. Each line officer/enterprise executive officer has the responsibility to designate in writing a paint custodian (or one primary and one backup paint custodian) to issue paint and to maintain the paint inventory, and a paint property manager, who is responsible for quantity audits. The designees to these positions must be separate individuals. These precautions should ensure that a minimum number of personnel have access to the tracer paint storage area.

2. Paint custodian. The paint custodian is responsible for taking the following steps to ensure proper storage, inventory, and disposal of tracer paint:

a. Paint Storage.

1. Store tracer paint separately from any non-tracer paint.
2. Organize paint in the storage area by color, brand, lot number, and container size or type for easy counting and accountability.
3. Store tracer paint cans that have already been inventoried, which are used for, and clearly marked for paint gun cleaning and other uses, on a separate shelf in the tracer paint storage area.
4. Ensure that access to the paint is not possible by removing door hinges or hinge pins.

b. Paint Inventory.

1. Record tracer paint by paint color, brand, lot number, container size or type, and by full and empty containers. Record and maintain this inventory on form FS-2400-65, Issue and Inventory Record for Tracer Tree Marking Paint. This form is available electronically and is found in the forms library on the FSWeb/Intranet (sample is shown in sec. 72.41- ex. 01).
2. Reconcile the inventory at least monthly.

c. Disposal of Containers.

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1. Keep all empty containers in the storage area until proper disposal occurs.
  2. Count the quantity of empty containers prior to disposal.
  3. Ensure that all paint in non-aerosol containers has hardened prior to disposal.
  4. Dispose of all tracer paint containers at least monthly or when paint has hardened. Containers may be disposed as trash or recycled.
- d. Disposal of Aerosol Containers.
1. Each can must be fully emptied in the field by holding the can upright and holding the nozzle tip down until all of the propellant has been discharged. Cans do not need to be punctured.
  2. Paint property manager or paint custodian must verify that all aerosol cans are completely emptied prior to disposal.
  3. Remove paper labels and nozzle tip prior to disposal in the trash or recycle.
  4. Cans that malfunction because paint and/or propellant cannot be fully emptied must be disposed of as hazardous waste.
3. Paint property manager. The paint property manager is responsible for taking the following steps to ensure proper storage, inventory and disposal of tracer paint:
- a. Audit the tracer paint inventory and disposal procedures at least once per quarter, and report results to the forest supervisor/Enterprise Program Director through the line officer/enterprise executive officer. This audit must also address whether the inventory is in compliance with the policy and procedures set out in sections 71.1, 72.1, 72.2 and 72.4.
  - b. Report shortages after each quarterly audit on form AD-112, Report of Unserviceable, Lost, or Damaged Property.
4. Forest staff officer.
- a. The forest staff officer is responsible for assuring that each district's tracer paint inventory is audited annually. This audit should be scheduled with the line officer/enterprise executive officer, without the knowledge of the paint custodian and paint property manager. An enterprise unit shall arrange for a forest staff officer to conduct an annual tracer paint inventory audit at the forest facility where the enterprise unit's permanent secure storage is located.
  - b. The forest staff officer shall ensure that the security requirements in 72.4(1) are followed when timber marking is performed by non-Forest Service personnel, such as contract marking crews.

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**72.41 - Exhibit 01**

*Sample of an Issue and Inventory Record for Tracer Tree Marking Paint*

**PREPARE AN INVENTORY FORM FOR EACH PAINT COLOR BY CONTAINER SIZE, BRAND NAME, AND BATCH NUMBER**

FS-2400-65

**National Forest:** Smokey Bear

**District:** North Fork

**PAINT COLOR:** Blue

**MISC. CANS REC'D:** 2

**CAN SIZE OR TYPE:** Quart

**CASES RECEIVED:** 10

**TOTAL CANS RECEIVED:** 122

**Brand:** NCP

**Batch No:** X0101

**Purchase Order No:** 1234-56-789-01

**Date Received:** 4/15/06

**Tracer Element Checked By:** Woody Painter

**Date:** 4/15/06

ISSUE RECORD								INVENTORY RECORD							
Date (1)	Paint Custodian's Initials (2)	FULL Issued (3)	FULL Transferred (3a)	Issued to (4)	Location of use (5)	FULL Returned (6)	EMPTY Returned (7)	DESTROYED Today (8)	Cumulative Total DESTROYED (9)	On Hand FIELD (9A)	On Hand FULL Storage Facility (10)	On Hand EMPTY Storage Facility (11)	Cumulative FULL Transferred (12)	*Balance* (13)	Remarks Confirmation of Balance (14)
5/1/06	WTP	30	0	DRM	Elk	0	0	0	0	30	92	0	0	122	
5/3/06	WTP	0	0	DRM	Elk	2	28	0	0	0	94	28	0	122	
5/5/06	-	-	-	-	-	-	-	28	28	0	94	0	0	122	Jade Spotts
5/8/06	CBK	16	0	DRM	Elk	0	0	0	28	16	78	0	0	122	
5/12/06	WTP	0	0	DRM	Elk	0	16	16	44	0	78	0	0	122	Jade Spotts
5/15/06	CBK	0	24	PMS	Dist. 2	-	-	0	44	0	54	0	24	122	Mark Redd
5/16/06	WTP	20	0	DRM	Elk	0	12	0	44	8	34	12	24	122	
5/16/06	WTP	2	0	TDF	PR3	0	0	0	44	10	32	12	24	122	
5/17/06	-	-	-	-	-	-	-	-	Monthly Audit		✓	✓			Mark Redd
5/18/06	CBK	22	0	DRM	N Fork	0	8	0	44	24	10	20	24	122	
5/19/06	-	-	-	-	-	-	-	20	64	24	10	0	24	122	Jade Spotts
5/22/06	WTP	10	0	DRM	N Fork	0	22	0	64	12	0	22	24	122	
5/22/06	WTP	0	0	TDF	PR3	0	2	0	64	10	0	24	24	122	
5/23/06	WTP	0	0	DRM	N Fork	0	10	34	98	0	0	0	24	122	Jade Spotts