DIVISION 630
HARVESTING

PURPOSE
OAR 629-630-0000

(1) Harvesting of forest tree species is an integral part of forest management by which wood for human use is obtained and by which forests are established and tended.

(2) Harvesting operations result in a temporary disturbance to the forest environment.

(3) The purpose of the harvesting rules is to establish standards for forest practices that will maintain the productivity of forestland, minimize soil and debris entering waters of the state, and protect wildlife and fish habitat.

(4) OARs 629-630-000 through 629-630-800 shall be known as the harvesting rules.

(5) The harvesting rules shall apply to all forest practices regions unless otherwise indicated.

APPLICATION:

This rule is the Division 630 purpose statement, and is not used for enforcement. Enforcement action should be taken under OAR 629-630-0100 through 0800.

ADMINISTRATION:

This rule provides the broad framework for the remainder of the harvesting rules.

SKIDDING AND YARDING PRACTICES
OAR 629-630-0100

(1) For each harvesting operation, operators shall select a logging method and type of equipment appropriate to the given slope, landscape, and soil properties in order to minimize soil deterioration and to protect water quality.

APPLICATION:

Under unusual circumstances, this purpose statement may be used for enforcement.

COMPLIANCE:

An operator complies with this rule when using a harvesting method(s) that limits soil deterioration to the extent practical and protects water quality.

Unsatisfactory Condition: There is an unsatisfactory condition when the operator uses harvesting method(s) that are not suited to minimizing soil deterioration and protecting water quality.

It is an unsatisfactory condition when the operating method causes sediment to enter waters of the state when it could have been controlled with practical harvesting methods.

Damage: Disturbance of more than 20percent of the ground in the harvest area is considered damage. Refer to the discussion of "soil deterioration" in the guidance for OAR 629-630-0100(1).

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring.

Consult supervisors and staff technical specialists before using this section for enforcement.

ADMINISTRATION:

This is the purpose statement for falling and yarding practices. Harvesting methods and equipment are to be suited to conditions of slope, landscape, and soil type to limit soil deterioration and erosion as much as is practical. This section should be used to evaluate the effects of the entire logging operation (at the unit level) on soil deterioration, site productivity, and water quality.

"Slope": The steeper the slope, the greater the potential for erosion. Constructing skid roads on steep slopes often requires cutting and sidecasting, increasing the disturbed area and stripping off the more productive topsoils leaving less productive subsoils. Very flat slopes (under one percent) and depression areas are usually poorly drained. Soils in these locations are prone to soil deterioration from ground-based equipment.

"Landscape": Logging planning should consider changes in slope form. Slope breaks can be either an advantage or disadvantage. Selection of the logging method should take advantage of slope breaks. Ground-based methods should use the flatter portions of the slope for skid trails, and also use natural slope changes for drainage.

Skid trails should more or less follow the contour of the slope rather than running directly up and down slope. Logging methods where skidroads go up and down slopes and require "go-back" roads for equipment to get back up the slope often result in unacceptable soil deterioration.

"Soil deterioration" is the physical alteration of the soil surface layers such that the potential for growing trees is reduced substantially or water movement through or over the surface is negatively affected. Examples of soil deterioration include:

1. Skid trail excavation that results in the burial of surface layers and exposure of less productive subsoils.
2. Compacting soil within skid trails. Tree roots do not easily penetrate compacted soils.
3. Puddling of soils. Puddling occurs when ground-based equipment is operated during wet weather. The surface layer of soil becomes a slurry and the soil aggregates break down. Tree roots do not easily penetrate puddled soils that have dried.
4. Piling fertile surface layers of soil and organic matter during site preparation activities. Refer to OAR 629-615-0100(1) regarding site preparation.
5. Deep rutting of the soil surface on slopes, concentrating water and increasing the risk of surface soil erosion.
6. Deep rutting of soft soils in boggy areas such that water accumulation patterns are altered.

Soils which have been correctly sub-soiled are not considered deteriorated. Evaluate the adequacy of soil deterioration control on the basis of the signs of soil sensitivity to harvesting practices, the evidence of soil deterioration, and on the availability of practical preventive methods. Survey the entire unit for evidence of “deteriorated soil”.

Drainage on slopes **over 35 percent** is especially critical, and erosion control measures should be completed before large storms or the rainy season. Refer to OAR 629-630-0300 for guidance on drainage.

REFERENCES:

- OAR 629-615-0100(1) Maintenance of productivity and related values
- OAR 629-630-0300 Drainage systems

SKIDDING AND YARDING PRACTICES
OAR 629-630-0100

(2) Operators shall avoid ground based yarding on unstable, wet, or easily compacted soils unless operations can be conducted without damaging soil productivity through soil disturbance, compaction or erosion.

APPLICATION:

This section can be used for enforcement.

Where soil productivity is at issue, OAR 629-630-0100(1) and (2) are related. Use section (2) where most of the disturbed soils are considered unstable, wet, or easily compacted. Use section (1) where most of the disturbed soils do not fall into those classifications.

COMPLIANCE:

An operator complies with this rule by conducting ground based yarding that avoids damaging soil productivity through excessive soil disturbance, compaction, or erosion.

Unsatisfactory Condition: There is an unsatisfactory condition when wheel or tractor skidding threatens to produce major soil displacement, deep compaction, or extensive erosion.

Damage: Damage occurs when the unsatisfactory condition results in major displacement, deep compaction, or extensive erosion. Refer to the discussion of "soil deterioration" in the guidance for OAR 629-630-0100(1).

Disturbance of more than 20percent of the ground in the harvest area is considered damage.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when ceasing yarding, corrective action, or complete repair is feasible and practical prior to any more than a minor amount of damage occurring.

ADMINISTRATION:

This section prohibits ground-based yarding on unstable, wet, or easily compacted soils that would damage soil productivity through disturbance, compaction, or erosion. Operators are responsible to plan and operate carefully as needed to meet the objective of protecting soil productivity. When it appears that skid trail disturbance on a harvest unit will exceed the 20percent limit, the Stewardship Forester should notify the operator and recommend corrective action, with a Written Statement of Unsatisfactory Condition if appropriate.

Identification of damage or potential damage associated with violation of this section is usually difficult. Refer to the guidance in section (1).

REFERENCES:

- OAR 629-630-0300 Drainage systems

SKIDDING AND YARDING PRACTICES
OAR 629-630-0100

(3) Operators shall locate skid trails where sidecasting is kept to a minimum.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

An operator complies with this rule when ground based yarding is planned and conducted to minimize soil disturbance by fitting skid trails to the topography and limiting sidecasting to that necessary.

Unsatisfactory Condition: It is an unsatisfactory condition when skid trail sidecast material threatens to cover productive soil over a significant percentage of the unit.

It is also an unsatisfactory condition when sidecast material is likely to cause slides which will remove productive topsoil from the slope.

Damage: There is damage when the unsatisfactory conditions reach proportions that could have been practically limited.

Damage occurs when the combination of slope which has been covered by sidecast and slides from sidecast and ground excavated for the skidroad (road plus the cut) exceeds more than 20 percent of the ground in the unit.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when excessive sidecast-related soil disturbance is threatening or just beginning, but major damage has not yet occurred. The operator should be advised to pull back sidecast and place it in the skid road or other stable location (after the operation but prior to the rainy season is generally sufficient).

ADMINISTRATION:

This section intends to protect soil productivity. Indirectly, it also protects water quality. Operators must limit disturbance by fitting ground based skid trails to the topography, limiting the area covered by excavation and sidecast, and avoiding sidecasting that is likely to cause landslides. Encourage operators to plan and mark skid trails in advance of construction and use.

Sidecasting new material on top of old sidecast when “opening up” previously constructed skid trails may result in unexpectedly deep sidecast. Advise operators to avoid this practice.

As a general rule of thumb, consider a sidecast depth of three feet or more to be excessive on slopes between 50 percent and 65 percent, and two feet or more to be excessive on slopes over 65 percent. When evaluating sidecast stability, the Stewardship Forester must consider slope, sidecast depth and soil type, since silts and clays are weaker than gravels. Consult the Geotechnical Specialist if more information on sidecast stability is needed.

Sidecast that results in a single small landslide or a few scattered small landslides will not automatically constitute damage under this section, provided that overall disturbance of the activity area does not exceed 20percent of the ground in the unit. If waters are affected or threatened, other harvesting rules will usually also apply.

SKIDDING AND YARDING PRACTICES
OAR 629-630-0100

(4) Operators shall locate skid trails on stable areas so as to minimize the risk of material entering waters of the state.

APPLICATION:

This section can be used for enforcement. This section applies to skid trails on steep but otherwise stable slopes. In most situations, OAR 629-623, OAR 629-630-0150, or OAR 629-630-0500 will better fit the circumstances because there are high landslide hazard locations or steep or erosion-prone slopes (as described in OAR 629-630-0150(2) and (3)). Use this section only on the remaining steep, but stable sites that are endhauled or where sidecast is limited and will not enter waters.

COMPLIANCE:

An operator complies with this rule when skid trails are constructed in stable locations and disturbed soil is kept from entering waters of the state.

Unsatisfactory Condition: There is an unsatisfactory condition when any skid trail is located on slopes steep enough to pose a risk of fill or sidecast material entering waters of the state.

There is also an unsatisfactory condition when skid trails are located on slopes where serious erosion is likely despite efforts to provide drainage.

In addition, it is an unsatisfactory condition when preventable sediment begins to enter the waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when repairs are feasible and practical and can be completed prior to damage occurring. The operator should be advised to pull back any unstable sidecast and place it in a stable location, or to install drainage structures as necessary to prevent surface erosion, or to vacate and stabilize any skid trails or landings located on unstable slopes.

ADMINISTRATION:

This section is intended to prohibit landings, skid trails and fire trails from being located on steep slopes or landslide-prone locations where likely to either destabilize the slopes or cause major erosion (gullies).

Locations which are not stable for skid trails (ground-based harvesting activities) include:

1. Actively moving landslides;
2. High Landslide Hazard Locations;
3. All slopes steeper than **70 percent**; or
4. Slopes of non-cohesive soils (sands, decomposed granitics, and ash) which are steeper than **60 percent**.

After intense fire, stability is further reduced. As a rule of thumb, the slopes listed above should be **reduced by ten percent after an intense fire** to determine the maximum stable slope for ground-based harvesting.

When damage from skid trails and fire trails is due to surface erosion which could have been prevented by water bars or other drainage structures, take enforcement action under OAR 629-630-0300.

REFERENCES:

- OAR 629-623 Shallow rapidly moving landslides and public safety
- OAR 629-630-0150 Ground-based yarding on steep erosion-prone slopes
- OAR 629-630-0300 Drainage systems
- OAR 629-630-0400 Treatment of waste materials
- OAR 629-630-0500 Harvesting on high landslide hazard locations

SKIDDING AND YARDING PRACTICES
OAR 629-630-0100

(5) Operators shall avoid excavating skid trails on slumps or slides.

APPLICATION:

This section can be used for enforcement. The section applies when ground yarding is used on units with slumps or slide terrain. However, in most situations, OAR 629-623, OAR 629-630-0150, or OAR 629-630-0500 will fit the situation better. Use this section only on the remaining sites, that is, where there are no high landslide hazard locations and no steep or erosion-prone slopes (as described in OAR 629-630-0150(2) and (3)).

COMPLIANCE:

An operator complies with this rule when operators avoid excavating skid trails on slumps or slides.

Unsatisfactory Condition: It is an unsatisfactory condition when operators excavate skid trails (including re-excavation of existing skid trails) on slumps or slides.

Damage: Damage occurs when the unsatisfactory condition results in preventable sediment entry into waters of the state.

Damage also occurs when the unsatisfactory condition results in reactivation of slumps or slides, adversely affecting soil productivity over a significant portion of the harvest area. Disturbance of more than 20 percent of the ground in the harvest area is considered damage. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Operating on slumps or slides without an approved plan for an alternate practice is considered a violation. The rule of thumb here is: if the Stewardship Forester recognized the site as a slide area, then the operator and landowner also should have recognized it.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when skidding may, or has occurred across slumps or slides but no skid trail excavation has been done.

ADMINISTRATION:

This section is intended to prohibit skid trail construction on slumps or slides. The word "avoid" means "not use." Skid trail construction will usually alter drainage, over steepen the slope, and/or load the slope. Such alterations can reactivate slope movement. Damage to downslope water quality or aquatic habitat is a likely result.

There are situations where skidding across slumps or slides is a reasonable practice Consult the area geotechnical specialist before approving a plan for an alternate practice for such situations.

SKIDDING AND YARDING PRACTICES
OAR 629-630-0100

(6) Operators shall limit cable logging to uphill yarding whenever practical. When downhill cable yarding is necessary, operators shall use a layout and system which minimizes soil displacement.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

When downhill yarding is necessary, an operator complies with this rule by using a layout and system that minimizes soil displacement.

Unsatisfactory Condition: It is an unsatisfactory condition when downhill cable yarding is used and there is inadequate deflection to lift at least one end of the logs off the ground over a substantial portion of the unit. Examples of unsatisfactory conditions are:

1. At least partial suspension has not been achieved for most of the length of the yarding roads.
2. There is deep gouging (cuts more than one foot deep) of the soil surface on slopes, concentrating water, and increasing the risk of surface erosion.
3. Yarding roads have displaced soil to the extent of burying surface layers and exposing less productive subsoil.

Damage: Damage occurs when the unsatisfactory condition results in soil displacement over a significant portion (over 20 percent) of the unit.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued if an unsatisfactory condition is observed prior to damage. The operator should be advised to cease yarding and adjust yarding practices before continuing.

ADMINISTRATION:

When cable yarding, the operator must use a system that adequately protects soil productivity and water quality. For most harvest units, uphill cable yarding provides better protection. Downhill cable yarding tends to increase down slope soil movement and concentrate surface drainage on landings and other exposed soils. When downhill cable yarding systems are used, this section requires the operator to do whatever is necessary to limit soil displacement and prevent soil erosion.

Although uphill cable yarding is generally preferred, downhill cable yarding may be appropriate in some situations. Several examples of these situations are:

- When downhill cable yarding leads to lower overall impact on soils and water quality. For example, when road construction across a high landslide hazard location would be needed for

use of an uphill system a well-designed downhill layout may provide better resource protection.

- When cable systems for yarding small logs are designed as downhill systems. These systems are acceptable provided that they meet the resource protection standards described in this guidance.
- When the operator has no practical alternative to downhill yarding, even though uphill yarding would provide better resource protection. The Stewardship Forester should be satisfied that the operator has exhausted all reasonable alternatives, including attempting to gain access over adjacent ownership. Special measures may be needed to protect soils and water quality. Stewardship Foresters may consult district supervisory staff and contact technical specialists and Salem advisors if it appears that downhill yarding could degrade soils or waters of the state and there appears to be no reasonable alternative.

REFERENCES:

- OAR 629-630-0500(1) and (2) Harvesting on high risk sites in western Oregon

GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(1) The purpose of this rule is to reduce the potential for erosion from steep or erosion-prone slopes to enter waters of the state.

APPLICATION:

This section cannot be used for enforcement. It is the purpose statement for OAR 629-630-0150. Sections (4) through (9) of this rule describe specific protection standards used for enforcement.

ADMINISTRATION:

The purpose of this rule is to reduce erosion from steep or erosion-prone slopes into waters of the state. Use OAR 629-630-0100 Skidding and Yarding Practices to address situations where soil disturbance from yarding equipment affects soil productivity. OAR 629-630-0150 applies to slopes that are steep or erosion-prone but are not high landslide hazard locations.

When high landslide hazard locations are present, use the following rules for enforcement:

- OAR 629-623-0000 through 0800, Shallow, Rapidly Moving Landslides and Public Safety
- OAR 629-630-0500, Harvesting on High Landslide Hazard Locations

GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(2) Slopes over 60 percent are subject to the requirements of Sections (4) through (9) of this rule.

(3) Slopes over 40 percent where soils consist of decomposed granite-type materials, or other highly erodible materials as determined by the State Forester, are considered erosion-prone and subject to the requirements of Sections (4) through (9) of this rule.

APPLICATION:

Sections (2) and (3) cannot be used for enforcement.

ADMINISTRATION:

OAR 629-630-0150 applies to slopes considered "steep" or "erosion-prone." Under section (2), "steep slopes" are slopes that are steeper than 60 percent gradient but are not high landslide hazard locations. Operators are expected to be aware of these slopes in their operation areas.

Under section (3), "erosion–prone slopes" are slopes that are steeper than 40 percent (but not high landslide hazard locations) that have either decomposed granitic soils or other soils that are determined by the State Forester to be highly erodible. Decomposed granitic soils are generally limited to a band running south from near Roseburg, through Grants Pass, to near Ashland; maps and GIS layers showing the locations of these soils are available. Operators are expected to be aware of mapped decomposed granitic soils in their operation areas. "Other highly erodible materials as determined by the State Forester" include:

- Soils that have become highly erodible after intense wildfire, or
- Soils on slopes with a history of surface erosion problems.

Consult with the Area Geotechnical Specialist when considering whether to apply the rule in this manner. The department must notify the operator for this rule to apply on "other highly erodible materials."

GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(4) Methods that avoid development of compacted or excavated trails are the preferred alternative for operating on steep or erosion-prone slopes. If the operation will result in excavated or compacted skid trails, operators shall apply sections (5) through (9) of this rule.

APPLICATION:

This section cannot be used for enforcement.

ADMINISTRATION:

Definition. For the purposes of this rule, "excavated or compacted skid trails" is defined as follows:

- "Skid trail" means a yarding route used by ground-based equipment.
- "Excavated" means that soil has been moved by ground-based yarding equipment, exposing mineral soil.
- "Compacted": Determining whether compaction has occurred can be difficult. Stewardship Foresters are not expected to routinely conduct tests for soil infiltration rates or soil bulk density. Instead, consider that compaction has occurred when any of the following conditions exist:
  - Excavation (as described above) exists.
  - There is soil puddling. Puddling occurs when ground-based equipment is operated during wet weather. The surface layer of soil becomes a slurry and the soil aggregates break down. Tree roots do not easily penetrate dry puddled soils.
  - There are ruts more than one foot deep in the soil surface.

Yarding Systems and Requirements. Where steep or erosion-prone slopes are identified based on sections (2) and (3) of this rule, operators should always first consider yarding methods that do not result in excavated or compacted skid trails. The most common alternative yarding method is cable yarding, but other methods may be effective. In their analyses, operators and landowners may determine that these systems are not feasible. Reasons for this determination could be economic (high costs, low timber value, or other considerations) or operational (cable systems won't work in the situation, the operator has no access to cable systems, or other factors). Note that this decision is up to the operator and landowner, not the Stewardship Forester, although the Stewardship Forester can provide advisory input. However, when operators use any yarding system that will result in excavated or compacted skid trails on steep or erosion-prone slopes, they must meet or exceed the protection standards in sections (5) through (9) of this rule. The requirements in sections (5) through (9) apply to existing skid trails only if new excavation or fill is needed.

GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(5) If skid trails are located on steep or erosion-prone slopes, operators shall locate them at least 100 feet from any stream channels.

APPLICATION:

This section can be used for enforcement.

Sections (5), (6), and (7) of this rule focus on placing skid trails on steep or erosion-prone slopes only in locations where effective drainage is feasible. Use those sections when operators have failed to locate skid trails properly. Use section (8) when skid trails on steep or erosion-prone slopes have been properly located, but operators have not installed cross ditches as needed to prevent drainage water from carrying sediment into waters of the state.

COMPLIANCE:

An operator complies with this rule by locating skid trails on steep or erosion-prone slopes at least 100 feet (slope distance) away from any stream channel.

Unsatisfactory Condition. There is an unsatisfactory condition when excavated or compacted skid trails on steep or erosion-prone slopes are located within 100 feet (slope distance) of any stream.

It is an unsatisfactory condition when sediment from these skid trails begins to enter the waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring.

ADMINISTRATION:

The key in this section is for operators to carefully plan skid trail locations on steep or erosion-prone slopes. The thrust of this section is that on steep or erosion-prone slopes, skid trails within 100 feet of streams pose unacceptable risks of erosion into streams. Operators must keep skid trails on steep or erosion-prone slopes at least 100 feet from any stream, regardless of stream

type. “Stream” is defined in OAR 629-600-0100. The 100-foot distance is to be measured in slope distance from the high water level.

GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(6) Operators shall locate skid trails where water can drain off the skid trail and onto undisturbed soils.

APPLICATION:

This section can be used for enforcement.

Sections (5), (6), and (7) of this rule focus on placing skid trails on steep or erosion-prone slopes only in locations where effective drainage is feasible. Use those sections when operators have failed to locate skid trails properly. Use section (8) when skid trails on steep or erosion-prone slopes have been properly located, but operators have not installed cross ditches as needed to prevent drainage water from carrying sediment into waters of the state.

COMPLIANCE:

An operator complies with this rule when skid trails on steep or erosion-prone slopes are located only where water can be drained off the trail and onto undisturbed soils, where sediment can be filtered out before reaching waters of the state.

Unsatisfactory Condition. There is an unsatisfactory condition when skid trails on steep or erosion-prone slopes are located where water cannot be diverted from the skid trails onto undisturbed soils, causing potential and eventual entry of sediment or debris into waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. Corrective actions may include sidecast pullback (if feasible), ripping, cross ditching, mulching, seeding, or other measures to minimize the entry of sediment into streams.

ADMINISTRATION:

This section is the drainage objective for locating skid trails on steep or erosion-prone slopes. The key in this section is for operators to carefully plan skid trail locations on steep or erosion-prone slopes. Repair or correction once the skid trail is in the wrong location can be costly and may not be feasible. Drainage water must run off of skid trails and away from skid trails, not back onto the trails.

"Undisturbed soils" as used in this section means soils that are sufficiently undisturbed to:

(1) Allow sediment-laden waters to infiltrate; and
(2) To filter sediment from those waters before it enters waters of the state.
"Undisturbed" does not mean that forest operations have not affected the soil in any way.

GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(7) Skid trails shall not be located straight up and down steep or erosion prone slopes for a distance exceeding 100 feet unless effective drainage and sediment filtration can be achieved.

APPLICATION:

This section can be used for enforcement.

Sections (5), (6), and (7) of this rule focus on placing skid trails on steep or erosion-prone slopes only in locations where effective drainage is feasible. Use those sections when operators have failed to locate skid trails properly. Use section (8) when skid trails on steep or erosion-prone slopes have been properly located, but operators have not installed cross ditches as needed to prevent drainage water from carrying sediment into waters of the state.

COMPLIANCE:

An operator complies with this rule when they avoid locating skid trails straight up and down steep or erosion-prone slopes for more than 100 feet unless drainage water can be controlled to keep sediment from streams or other waters.

Unsatisfactory Condition. There is an unsatisfactory condition when skid trails are located straight up and down steep or erosion-prone slopes for more than 100 feet slope distance in such a fashion that effective drainage and sediment filtration cannot be achieved.

It is also an unsatisfactory condition when sediment from skid trails has the potential or actually enters the waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. Corrective actions may include sidecast pullback (if feasible), ripping, cross ditching, mulching, seeding, or other measures to minimize the entry of sediment from skid trails into waters of the state.

ADMINISTRATION:

The key in this section is for operators to carefully plan skid trail locations on steep or erosion-prone slopes. It is often very difficult, if not impossible, to divert water from skid trails that run straight up and down slopes. “Effective drainage and filtration” means cross ditches or other diversions that direct drainage water onto soils where sediment can be filtered before it enters waters of the state. Drainage water must run off of and away from skid trails, not back onto the trails causing further erosion.

GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(8) Operators shall install effective cross ditches on all skid roads located on steep or erosion-prone slopes.

APPLICATION:

This section can be used for enforcement.

Sections (5), (6), and (7) of this rule focus on placing skid trails on steep or erosion-prone slopes only in locations where effective drainage is feasible. Use those sections when operators have failed to locate skid trails properly. Use section (8) when skid trails on steep or erosion-prone slopes have been properly located, but operators have not installed cross ditches as needed to prevent drainage water from carrying sediment into waters of the state.

COMPLIANCE:

An operator complies with this rule when on skid trails located on steep or erosion-prone slopes, they install cross ditches that keep drainage water from carrying eroded sediment into streams or other waters of the state.

Unsatisfactory Condition: It is an unsatisfactory condition when on skid trails located on steep or erosion-prone slopes, operators fail to install cross ditches as needed to keep runoff water from carrying eroded sediment into streams or other waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring.

ADMINISTRATION:

For the purposes of this section, “cross ditch” means an excavated water diversion that is deeper than a water bar, with a correspondingly higher mound of soil on the downhill side. Cross ditches will usually be deep and high enough that passenger vehicles (including four-wheel drive pickup) cannot pass. “Effective” means that the cross ditch is located and constructed so that drainage water is directed off of and away from the skid trail and onto soils where sediment can be filtered before entering streams or other waters of the state. Cross ditches must be located and spaced as needed to avoid erosion into waters of the state; maximum spacing should generally not exceed 200 feet.

GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(9) Operators shall limit the amount of ground with disturbed soils on steep or erosion-prone slopes as described in Sections (2) and (3) of this rule to no more than ten percent of the steep or erosion-prone slopes within the operation area.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

An operator complies with this rule when they limit the amount of ground disturbed on steep or erosion-prone slopes to no more than ten percent of those slopes within the operation area.

Unsatisfactory Condition. It is an unsatisfactory condition when ground disturbance on steep or erosion-prone slopes is approaching or exceeds ten percent of the area of those slopes within the operation area.

Damage: Damage occurs when the unsatisfactory condition is not avoided by limiting ground disturbance on steep or erosion-prone slopes to less than ten percent of those slopes within the operation area.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. Appropriate corrective actions will vary with the site. Consider measures such as sidecast pullback (if feasible), ripping, cross ditching, mulching or seeding.

ADMINISTRATION:

This focus in this section is on prevention. Higher levels of disturbance are likely to lead to erosion that enters waters of the state. Effective rehabilitation of skid trails on steep or erosion-prone slopes after the fact is often not feasible.

Disturbed Soils. The term “disturbed soils” means soils disturbed by ground-based yarding activities that exhibit any or all of the following:

- Excavation, i.e., soil has been moved by ground-based yarding equipment, exposing mineral soil.
- Soil Puddling: Puddling occurs when ground-based equipment is operated during wet weather. The surface layer of soil becomes a slurry and the soil aggregates break down.
- Ruts in the soil surface are more than one foot in depth.

The ten percent disturbance standard in this section is half the standard used in OAR 629-630-0100(2) and (3) Skidding and Yarding Practices because erosion is much more likely on steep or erosion-prone slopes. Calculate the percent disturbance based on the total area of the slopes

within the operation area that are considered steep or erosion-prone (see OAR 629-630-0150(2) and (3)).

LANDINGS
OAR 629-630-0200

(1) Operators shall minimize the size of landings to that necessary for safe operation.

APPLICATION:

This section can be used for enforcement. This section applies when operators construct landings larger than needed for the harvest operation.

COMPLIANCE:

An operator complies with this rule when landings are constructed no larger than is safe and practical.

Unsatisfactory Condition: It is an unsatisfactory condition when a landing is larger than is necessary for safe and practical operation.

It is also an unsatisfactory condition when an oversize landing results in erosion and sediment entering waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state, or when damage to soil productivity cannot be corrected.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. Corrective measures include pullback and placement of fill and sidecast onto stable locations, or erosion abatement measures. Restoration methods may include road rock removal, re-grading and sub-soiling.

ADMINISTRATION:

Generally, landings larger than one-quarter acre (approximately 100 feet by 100 feet) are larger than necessary. Careful consideration of correction and repair is especially important when impacts to soil productivity are at issue. If correction (or repair) is feasible, the entire landing must be restored to a productive condition. For landings constructed without much excavation, removal of road rock (if there is a significant layer or rock) and the use of sub-soiling equipment may be adequate. Where landings include deep cuts, pullback and re-grading of excavated soil may be necessary.

Oversized landings reduce the productive area of forestlands and increase the risk of sediment entering into waters of the state. The Stewardship Forester should encourage operators to limit landing size to what is necessary for safe operation. The 100 x 100 foot standard is intended as an upper limit. In many operations, landings of smaller sizes will meet safety and operational needs. Allowance for safety may occasionally necessitate larger landings. When evaluating landing size and safety, the Stewardship Forester may need to consult with a representative from the Oregon Occupational Safety and Health Division (OR-OSHA). On rare occasions, operators may need landings larger than one-quarter acre to meet special operational needs, or to avoid additional road construction on steep slopes. Air operations usually require larger but fewer landings to allow for landing and servicing the aircraft. Aerial yarding usually proceeds more quickly than hauling requiring more area to deck logs prior to removal.

Consult technical specialists and Salem advisory staff if there are questions about unsatisfactory conditions, repairs, or corrective actions.

LANDINGS
OAR 629-630-0200

(2) Operators shall locate landings on stable areas so as to minimize the risk of material entering waters of the state.

APPLICATION:

This section can be used for enforcement. This section applies when operators locate landings on unstable areas where there is also a risk of material entering waters of the state.

COMPLIANCE:

Operators comply with this section by avoiding locating landings on unstable sites, including very steep slopes, high landslide hazard locations, and existing slumps or slides.

Unsatisfactory Condition: It is an unsatisfactory condition when landings are located in unstable areas and there is a risk of sediment or other debris entering waters of the state. Unstable areas include:

1. Steep slopes;
2. High landslide hazard locations; or
3. Areas where excavation, fill, or side-cast related to a landing may reactivate an old landslide.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. Corrective actions include pullback and placement of fill and side-cast onto stable locations, and erosion abatement measures.

ADMINISTRATION:

The Stewardship Forester should consult the Geotechnical Specialist if there are questions about landing stability and the risk of materials entering waters of the state. Prevention of damage may require complete landing reconstruction or removal.

REFERENCES:

- OAR 629-630-0500 Harvesting on high landslide hazard locations

LANDINGS
OAR 629-630-0200

(3) Operators shall avoid locating landings in riparian management areas. When no feasible alternative landing locations exist, operators shall submit a written plan to the State Forester before locating landings in riparian management areas.

APPLICATION:

This section can be used for enforcement. This section applies when operators locate landings in a riparian management area (RMA) without submitting a written plan.

The requirement for a **non-statutory** written plan under this rule may be waived if the Stewardship Forester determines that the formal plan process is not needed to ensure resource protection. Consideration of the waiver begins when the operator requests the waiver. Unless the department grants the waiver, a **non-statutory** written plan is required and must be submitted before the practice or operation begins.

COMPLIANCE:

Operators comply with this section by keeping all landings, including log decks, out of the RMA, unless specifically addressed in a required written plan.

Unsatisfactory Condition: It is an unsatisfactory condition when operators locate landings or any portions of landings in RMAs without submitting the required written plan.

It is also an unsatisfactory condition when a landing is located in an RMA when feasible alternative locations exist, despite the stated intentions in the written plan.

Damage: Resource damage is not a prerequisite for taking enforcement action on a procedural violation. The operator, by not submitting a written plan, denies the Stewardship Forester the opportunity to review and comment on the operation.

It is also resource damage when a landing is located in an RMA when feasible alternative locations exist, despite the stated intentions in the written plan. Landings located in RMAs should be evaluated for resource damage specified in the other sections of this rule, OAR 629-630-0200.

Written Statement of Unsatisfactory Condition: Under specific conditions listed in OAR 629-670-0125 (Using the Written Statement of Unsatisfactory Condition for Noncompliance with Procedural Rules), a written statement of unsatisfactory condition may be issued instead of a citation.

A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring.

ADMINISTRATION:

This section prohibits the location of landings or log decks within the RMA. All areas used for decking logs are considered landings.

Written Plans: Statutory written plans are required for Type F and D RMAs and significant wetland RMAs; a non-statutory written plan may be required for large and medium Type N streams and large lakes. If there are no reasonable alternative locations, this section allows operators to locate landings within riparian management areas after submitting a required written plan. The Stewardship Forester must determine that the operator has considered all reasonable alternative locations and methods and that no feasible alternatives are available. Landings in the RMA should be temporary if possible, and the disturbance should always be the minimum necessary for safe operation. The Stewardship Forester may recommend protection and restoration measures that exceed standard FPA requirements, as needed and appropriate for the specific situation. Landings should **not** be acceptable in the aquatic area or within 20-feet of the high water level. Consultation with ODFW may be appropriate during review of the written plan.

When a written plan for operations near waters is required, the operator should include in the written plan the proposed resource protection measures, including restoration.

REFERENCES:

- ORS 527.670 Commencement of operations; when notice and written plan required; notice of chemical application; appeal of plan
- OAR 629-605-170 Written plans
- OAR 629-635-0130 (1) Written plans for streams; lakes; wetlands and riparian management areas
- OAR 629-635-0310 Riparian management area widths for streams
- OAR 629-645-0000 (3) and (4) Riparian management areas and protection measures for significant wetlands
- OAR 629-650-0000 (2) Riparian management areas and protection measures for lakes

LANDINGS
OAR 629-630-0200

(4) Operators shall not incorporate slash, logs, or other large quantities of organic material into landing fills.

APPLICATION:

This section can be used for enforcement. This section applies when destabilizing quantities of organic material are buried in landing fills.

COMPLIANCE:

Operators comply with this section by keeping slash, logs, or other organic debris out of landing fills.

Unsatisfactory Condition: It is an unsatisfactory condition when slash, logs, or other large accumulations of organic debris are incorporated into landing fills.

It is also an unsatisfactory condition when tension cracks or other indicators of soil instability or movement are evident.

Damage: Damage occurs when the unsatisfactory condition results in preventable sediment or debris entering waters of the state through landing slope failure or overland flow.

Damage also occurs when the unsatisfactory condition results in adverse impacts to soil productivity over a significant area down-slope due to its causing slope failure.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. Corrective measures include pullback and placement of fill and organic debris onto stable locations.

ADMINISTRATION:

This section is intended to prevent a landing fill failure by keeping organic debris out of landing fills. Organic debris in fills decays over time. Where logs or other large accumulations of organic debris are in fills, the loss of strength that occurs as decay advances can allow the fills to fail under wet soil conditions.

This section is generally applicable when slopes are over 50 percent, or when the landing is within 100 feet of waters of the state. Determinations of the causes or likelihood of landslides can be difficult; consult the Geotechnical Specialist if there are questions relating to landslides and organic material in landing fills.

REFERENCES:

- OAR 629-625-0440(3) Stabilization

LANDINGS
OAR 629-630-0200

(5) Operators shall deposit excess material from landing construction in stable locations well above the high water level.

APPLICATION:

This section can be used for enforcement. This section applies to the disposal of overburden not directly utilized in landing construction.

COMPLIANCE:

An operator complies with this rule when excess material from landing construction is placed in stable locations. Excess material must be placed above the 100-year flood level of any associated water of the state.

Unsatisfactory Condition: It is an unsatisfactory condition when operators place material from landing construction in any of the following locations, causing soil or other debris to enter or to be likely to enter waters of the state:

1. Any location below the 100-year flood level of any water of the state;
2. Any slide, slump, or unstable slope above any water of the state;
3. Any high landslide hazard location.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to move excess material to a stable location above the 100 year flood level. Early landing construction on hazardous slopes should be relocated.

ADMINISTRATION:

This section is intended to prevent damage to water quality or aquatic habitat from excess material generated by landing construction. Excess landing material such as soil, rock, or clearing debris must be placed in stable locations well above the high water level. "Well above the high water level" means above the 100-year flood level. End hauling excess material to a stable disposal site may be required.

REFERENCES:

- OAR 629-623- Shallow, Rapidly Moving Landslides and Public Safety
- OAR 629-630-0150 Ground-based Harvesting on Steep or Erosion-Prone Slopes
- OAR 629-630-0500 Harvesting on high risk sites in western Oregon

DRAINAGE SYSTEMS
OAR 629-630-0300

(1) The purpose of this rule is to provide and maintain a drainage system for each landing, skid trail, and fire trail that will control and disperse surface runoff to minimize sediment entering waters of the state.

APPLICATION:

This section is not used for enforcement; it is the rule purpose statement. Enforcement action should be taken as appropriate under OAR 629-630-0300 (2) through (4).

ADMINISTRATION:

This section is intended to minimize the entry of sediment into waters of the state by providing drainage systems on all landings, skid trails, and fire trails.

DRAINAGE SYSTEMS
OAR 629-630-0300

(2) Operators shall construct dips, grade reversals or other effective water diversions in skid trails and fire trails as necessary to minimize soil displacement and to ensure runoff water is filtered before entering waters of the state.

APPLICATION:

This section can be used for enforcement. This section applies to the design, layout, initial construction, and consequent performance of skid trails and fire trail drainage systems.

COMPLIANCE:

Operators comply with this section when they design and lay out skid trails and fire trails that incorporate a drainage system as necessary to ensure that sediment does not enter waters of the state.

Unsatisfactory Condition: It is an unsatisfactory condition when an operator fails to construct dips, grade reversals, or other diversions on skid trails or fire trails and that failure causes sediment to enter or to be likely to enter waters of the state during or after the operation.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action is feasible and practical prior to damage occurring. The operator should be advised to construct and maintain drainage structures as needed to prevent sediment from entering waters of the state.

ADMINISTRATION:

This section addresses both skid trails and fire trails, and focuses on integrated design and construction features such as dips and grade reversals, in the initial layout and construction. With planning and care, operators can avoid creating trails that are difficult or impossible to drain. Dips and grade reversals can be used to create self-draining sections of skid trails or fire trails.

Drainage should be designed to divert runoff onto locations that will allow filtering of sediment before the runoff enters waters of the state. Water should not be directed onto locations that will be eroded or destabilized. Water bars or other diversions may be needed as well on some sections of trails.

The Stewardship Forester should educate operators on the importance of planning skid trail location and design. Go-back roads, or other skid trails, which go up and down steep slopes rather than closer to the contour, are very difficult to drain and should be strongly discouraged.

REFERENCES:

- OAR 629-630-0100 (1) Skidding and yarding practices

DRAINAGE SYSTEMS
OAR 629-630-0300

(3) Operators shall drain skid trails by water barring or other effective means immediately following completion of the operation and at all times during the operation when runoff is likely.

APPLICATION:

This section can be used for enforcement. This section applies to the maintenance of skid trails during use, and treatment of skid trails at the completion of use. Since fire trails are not specifically mentioned in this section, Section (2) should be cited for maintenance needs on fire trails.

COMPLIANCE:

An operator complies with this rule when water bars or other measures are constructed and maintained on skid trails to ensure that drainage water does not carry sediment into waters of the state.

Unsatisfactory Condition: It is an unsatisfactory condition when operators fail to construct and maintain water bars, or other drainage structures on skid trails. It is an unsatisfactory condition when failure to construct and maintain water bars, or other drainage structures on skid trails results in preventable, unnecessary down-slope erosion during or after the operation.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action is feasible and practical prior to damage occurring. Operators should be advised to construct water bars or use other effective means to facilitate drainage of skid roads.

ADMINISTRATION:

This section focuses on adding water bars or other water diversions after skid trails have been constructed. Drainage structures must be in place and functional immediately after completion of the operation and at all times during the operation when runoff is likely. Drainage structures must be sufficient to remain operative under all uses, including recreational uses, and runoff events until they are rendered unnecessary by re-vegetation or other processes. Maintenance may be necessary.

Water bars and cross ditches should be constructed at an angle and "ditched out" to prevent water retention. Water bars and cross ditches should be cut into compacted material rather than being constructed by piling loose material on the surface of the skid trail. When feasible, construction equipment should back away from rather than progressing over constructed water bars and drainage ditches. Skid trail fills that block minor swales (depressions with no eroded channel) may pond water during runoff generating events. To avoid fill erosion or washout, fill material in swales should be removed and stabilized prior to wet periods.

Operators should follow these guidelines for water bar spacing on skid trails:

MAXIMUM WATER BAR SPACING IN SKID TRAILS (feet)

SLOPE OF SKID TRAIL	**SOIL DESCRIPTION**	
	Erodible (silt, sands, granitics)	**Less Erodible** (loam, gravel, cobble)
5 to 15%	150'	300'
15 to 35%	100'	200'
35 to 50%	50'	100'
over 50%	25'	50'

REFERENCE:

- *Manual: Water Bar Systems*, Oregon Department of Forestry, Associated Oregon Loggers, Steve Goeller

DRAINAGE SYSTEMS
OAR 629-630-0300

(4) Operators shall establish effective drainage on landings during and after use.

APPLICATION:

This section can be used for enforcement. This section applies to landing drainage during and after use.

COMPLIANCE:

Operators comply with this section by providing effective landing drainage during and after use.

Unsatisfactory Condition: It is an unsatisfactory condition when operators fail to provide effective landing drainage during and after use.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. Corrective actions include outsloping the landing, ditching water onto stable slopes, or pullback of fill material placing it in a stable location.

ADMINISTRATION:

Operators should be encouraged to plan, during layout and construction, for landing drainage and roads and trails that will drain towards landings. Ongoing maintenance of drainage during use is also essential. Debris should be removed from drainage structures during landing use to ensure effective drainage any time it is needed.

Operators must slope or ditch landings so that water running across cut slopes, working surfaces, or fills does not carry sediment into waters of the state. Drainage from landings must not be directed onto high landslide hazard locations. See the guidance under OAR 629-630-0500 for more information.

REFERENCE:

OAR 629-630-0500 Harvesting on high landslide hazard locations

TREATMENT OF WASTE MATERIALS
OAR 629-630-0400

(1) Operators shall leave or place all debris, slash, sidecast and other waste material associated with harvesting in such a manner to prevent their entry into waters of the state.

APPLICATION:

This section can be used for enforcement. This section applies to soil and organic waste material, and specifically addresses possible entry into waters of the state.

COMPLIANCE:

An operator complies with this rule when debris such as slash, sidecast and other waste material that is generated from logging activities is placed so that it will not enter waters of the state.

Unsatisfactory Condition: It is an unsatisfactory condition when waste material generated from harvesting activities is left or placed in waters of the state, or where it is likely to enter waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Normally material should be removed as soon as practicable, unless removal is likely to create more damage.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. Corrective actions include removal or pullback of debris and other material and placement in a stable location. Other erosion control measures such as grass seeding and mulching may be necessary.

ADMINISTRATION:

This section applies to slash, other woody debris, and soil or rock debris generated by harvesting activities. Operators must place these materials so that they do not enter waters of the state. Burying of organic debris is acceptable, provided that the debris is not placed in a fill or other location where decay of the debris is likely to cause a mass failure. Operators must follow fire prevention and smoke management rules if they choose to burn slash accumulations.

TREATMENT OF WASTE MATERIALS
OAR 629-630-0400

(2) Where sidecast material or exposed soils are potentially unstable or erodible, the operator shall stabilize it by pullback, spreading out, seeding or other effective means.

APPLICATION:

This section can be used for enforcement. This section applies to areas of potential mass failure or surface erosion.

COMPLIANCE:

An operator complies with this rule when sidecast material and exposed soils are treated as needed to keep soil and other debris from entering waters of the state or adversely affecting soil productivity through landslide or erosion.

Unsatisfactory Condition: It is an unsatisfactory condition when operators fail to stabilize sidecast material or exposed soils as prescribed, and that failure creates potential for surface erosion or tension cracks and other evidence of instability.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

Damage also occurs when the unsatisfactory condition results in soil disturbance over a significant portion of the operation area. Disturbance of more than 20 percent of the ground in the harvest area is considered damage. Refer to the discussion of "soil deterioration" in the guidance for OAR 629-630-0100(1).

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The rule describes the appropriate corrective action (or repair): pullback, spreading out, seeding, or other effective means.

ADMINISTRATION:

This section is intended to prevent sediment from entering waters of the state through erosion of exposed soils or from landslides caused by sidecast soil. Exposed soils often do not re-vegetate rapidly enough to prevent erosion, especially if lower soil horizons have been exposed. Stabilization measures may be needed to prevent slope failure or sediment entering waters of the state. Sidecast material is less stable than in-place soil. Stabilization through pullback, spreading

out of material so that the depth is reduced, mulching, or other means, may be necessary to avoid causing landslides.

Operators must remove sidecast materials and debris accumulations from high landslide hazard locations. Use the guidance under OAR 629-630-0500.

TREATMENT OF WASTE MATERIALS
OAR 629-630-0400

(3) Operators shall remove from the forest all petroleum product related waste material associated with the operation including, but not limited to, crankcase oil, filters, grease and oil containers.

APPLICATION:

This section can be used for enforcement. This section applies to the removal of all petroleum products, and prohibits draining oil onto the ground when servicing equipment.

COMPLIANCE:

Operators comply with this section when they remove from the forest all petroleum product-related waste material including oil, grease, or associated filters or containers. Oil from oil changes must be contained and removed from the site.

Unsatisfactory Condition: It is an unsatisfactory condition when an operator leaves any of the following items associated with the operation on forestland: crankcase oil, filters, grease or oil containers, or any other petroleum product items.

Damage: Damage occurs when the unsatisfactory condition results in preventable deposits of petroleum products being left on forestland or entering waters of the state. Also evaluate taking enforcement action under OAR 629-620-0100.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action can be taken prior to damage occurring. The operator should be advised to remove the petroleum product including contaminated soil from forestlands to a licensed disposal site.

ADMINISTRATION:

This section is intended to prevent damage to water quality, aquatic habitat and wildlife habitat by requiring the removal of petroleum products and associated filters and containers from the forest. Filters and containers must be removed, not buried on site. This section requires only removal, but the material should be properly disposed of at a landfill or licensed disposal service. Federal and state laws prohibit the application of used oil on road surfaces for dust abatement or other purposes.

If petroleum products enter or are likely to enter waters, take action as described in Directive 6-3-0-002 *"Hazardous Materials Incident Reporting and Control."*

REFERENCES:

- OAR 629-620-0100 (2), (3) Preventing, controlling, and reporting leaks and spills of chemicals and other petroleum products
- Oregon Department of Forestry Directive 6-3-0-002 - *"Hazardous Materials Incident Reporting and Control"* and the accompanying Guide.

TREATMENT OF WASTE MATERIALS
OAR 629-630-0400

(4) Operators shall dispose of all other debris such as machine parts, old wire rope, and used tractor tracks so that such materials do not enter waters of the state.

APPLICATION:

This section can be used for enforcement. This section applies to the disposal of all machinery waste resulting from the operation and is linked to entry into waters of the state.

COMPLIANCE:

Operators comply with this section when they dispose of all machinery waste resulting from the operation.

Unsatisfactory Condition: It is an unsatisfactory condition when machinery waste such as machine parts, old wire rope, used tractor tracks, or similar materials are left in locations where they are likely to enter waters of the state.

Damage: Damage exists when other debris such as machine parts, old wire rope, and used tractor tracks have entered waters of the state.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete removal is feasible and practical prior to damage occurring.

ADMINISTRATION:

This section is intended to prevent damage to water quality and aquatic habitat by requiring that machinery wastes be kept out of waters of the state.

HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS
629-630-0500

(1) The purpose of this rule is to prevent timber harvesting-related serious ground disturbance and drainage alterations on all high landslide hazard locations, and to reference additional requirements when there is public safety exposure below the high landslide hazard location.

APPLICATION:

This rule is not subject to enforcement. It is the purpose statement for OAR 629-630-0500 Sections (2) through (6).

ADMINISTRATION:

The intent of this rule is to prevent harvest operations that cause adverse ground disturbance, gouging, and sidecasting on high landslide hazard locations. These rules apply when operating on **any** high landslide hazard location regardless of public safety exposure. If there is public safety exposure, such as homes or roads below the operation, then the practices described in Division 623 may apply.

REFERENCES:

- OAR 629-623-0000 through 0800
- Technical Note # 2 - High Landslide Hazard Locations
- Technical Note #6 - Determination of Rapidly Moving Landslide Impact Rating

HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS
629-630-0500

(2) Operators and the State Forester shall share responsibility to identify high landslide hazard locations and to determine if there is public safety exposure from shallow, rapidly moving landslides using methods described in OAR 629-623-0100 through 0300. If there is public safety exposure, then the practices described in OAR 629-623-0400 through 0800 shall also apply.

APPLICATION:

This rule is not used for enforcement. The intent of this rule is to identify the shared responsibility of the operator and State Forester to identify high landslide hazard locations and to determine if there is public safety exposure to shallow, rapidly moving landslides.

ADMINISTRATION:

The operator should conduct pre-harvest screening of proposed harvest operations to determine the presence of high landslide hazard locations using the procedures described in Technical Note #2. Stewardship Foresters should also screen operations using the procedures described in Technical Note #2. It is the operator's responsibility to determine the specific locations of high landslide hazard locations on the proposed operation. If high landslide hazard locations are present on or near the proposed harvest unit, an assessment of downslope public safety exposure should be made. If there is downslope public safety exposure, apply the practices described in OAR 629-623-0400 through 0800. Regardless of downslope public safety exposure, sections (3) through (5) of this rule apply to any high landslide hazard location.

REFERENCES:

- OAR 629-623-0000 through 0800
- Technical Note # 2 - High Landslide Hazard Locations
- Technical Note #6 - Determination of Rapidly Moving Landslide Impact Rating

HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS
629-630-0500

(3) Operators shall not construct skid roads on high landslide hazard locations.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

An operator complies with this rule when skid road locations avoid high landslide hazard locations.

Unsatisfactory Condition: It is an unsatisfactory condition when skid roads are located on high landslide hazard locations.

Damage: Damage occurs when the unsatisfactory condition results in adverse ground disturbance or drainage alterations on high landslide hazard locations.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring.

ADMINISTRATION:

If the operator was informed of the presence of a high landslide hazard location and constructed a skid road on that location, a citation should be issued.

REFERENCES:

- OAR 629-623-0000 through 0800
- Technical Note # 2 - High Landslide Hazard Locations
- Technical Note #6 - Determination of Rapidly Moving Landslide Impact Rating

HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS
629-630-0500

(4) Operators shall not operate ground-based equipment on high landslide hazard locations.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

An operator complies with this rule when ground-based equipment use is avoided on high landslide hazard locations.

Unsatisfactory Condition: It is an unsatisfactory condition when ground-based equipment is used on high landslide hazard locations.

Damage: Damage occurs when the unsatisfactory condition results in adverse ground disturbance or drainage alterations on high landslide hazard locations.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring.

ADMINISTRATION:

If the operator was informed of the presence of a high landslide hazard location and ground-based equipment was used on that location, a citation should be issued.

HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS
629-630-0500

(5) Operators shall prevent deep or extensive ground disturbance on high landslide hazard locations during log felling and yarding operations.

APPLICATION:

This section can be used for enforcement action.

COMPLIANCE:

An operator complies with this rule when felling and yarding operations are planned and conducted to minimize ground disturbance on high landslide hazard locations.

Unsatisfactory Condition: It is an unsatisfactory condition when felling and yarding operations result in preventable ground disturbance on high landslide hazard locations.

Damage: Damage occurs when the unsatisfactory condition results in deep or extensive ground disturbance.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring.

ADMINISTRATION:

Felling and yarding operations should be carefully planned on high landslide hazard locations.

REFERENCES:

- OAR 629-623-0000 through 0800
- Technical Note # 2 - High Landslide Hazard Locations
- Technical Note #6 - Determination of Rapidly Moving Landslide Impact Rating

HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS
629-630-0500

(6) Operators concerned about the application of these standards to a specific operation may consult with the State Forester to obtain an evaluation of their harvesting plan and its likelihood of compliance with these standards.

APPLICATION:

This rule is not used for enforcement.

ADMINISTRATION:

Pre-operation planning should precede any proposed harvest on high landslide hazard locations. Operators should be aware of the location of any high landslide hazard locations and clearly identify them to any sub-contractors. The Stewardship Forester should evaluate any harvest plan presented to them for operations on high landslide hazard locations.

REFERENCES:

- OAR 629-623-0000 through 0800
- Technical Note # 2 - High Landslide Hazard Locations
- Technical Note #6 - Determination of Rapidly Moving Landslide Impact Rating

FELLING; REMOVAL OF SLASH
OAR 629-630-0600

(1) Operators shall fell, buck, and limb trees in ways that minimize disturbance to channels, soils and retained vegetation in riparian management areas, streams, lakes and all wetlands greater than one-quarter acre, and that minimize slash accumulations in channels, significant wetlands and lakes.

APPLICATION:

This section can be used for enforcement. However, sections (2) and (3) describe more specific protection standards more appropriate for enforcement.

COMPLIANCE:

Operators comply with this section when they use falling, bucking and limbing practices that:

1. Maintain the *general integrity* (defined under ADMINISTRATION:) of stream channels, soils, retained RMA vegetation, lakes and wetlands; and
2. Limit slash accumulations in waters of the state to protect water quality.

Operators are required to apply appropriate prevention practices that limit direct disturbance to the resources listed in this section. The section also requires the operator to minimize slash accumulations. Specific compliance standards are described under the Administration heading for this section along with sections OAR 629-630-0600(2), felling trees away from waters, and (3), minimizing the effects of slash.

Unsatisfactory Condition: There is an unsatisfactory condition when the operator fails to apply appropriate and feasible practices to prevent the potential for damage to the protected resource's functions and values.

Damage: There is damage when adverse and unnecessary disturbance occurs to the *general integrity* of stream beds and banks, soils, retained RMA vegetation, lakes and wetlands. This includes soil disturbance and erosion into waters of the state; water quality degradation such as turbidity, siltation, excessive nutrient levels, or reduced dissolved oxygen levels; bank disturbance; reduction of the functions and values of retained vegetation; or excessive slash accumulations that may contribute to these effects.

Written Statement of Unsatisfactory Condition: Use a written statement to direct the operator to apply specific felling, bucking, limbing or yarding practices to avoid damage. Even if felling has not caused a significant adverse disturbance, the Stewardship Forester should consider the potential disturbance that may occur during yarding. A written statement recommending specific yarding practices is also appropriate under OAR 629-630-0600(2)(c) and (3).

ADMINISTRATION:

The purpose statement for the harvesting rules is in OAR 629-630-0000. It establishes forest practices standards that maintain the *general integrity* of specific resources, while recognizing that felling and associated harvest practices cause temporary disturbances.

OAR 629-630-0600(1) requires operators to "minimize disturbances" to the RMA and waters of the state when conducting felling and bucking operations. The section also requires the operator to "minimize slash accumulations" in channels, significant wetlands and lakes. Specific practices for achieving these results are described in OAR 629-630-0600(2) and (3).

General integrity, as it is used in this guidance, means the intact purposes, functions and values of the aquatic area, beds, banks, soils, RMA, and RMA vegetation. Except for yarding corridors through RMA vegetation, trees must be left with adequate crowns to provide original canopy cover. Understory vegetation required to be retained in RMAs must remain relatively undisturbed. Aquatic areas and banks must be stable and functional over the entire length within the unit. Slash accumulations are to be limited in the areas below the high water level of streams, significant wetlands, and lakes in order to protect water quality, primarily from dissolved oxygen deprivation.

Definition of "Slash": For the purposes of OAR 629-630-0600, "slash" means any tree tops, limbs, remnants of cut brush and sections of tree trunks and the like that remain after felling, limbing, bucking and yarding. Naturally-occurring wood, in the channel prior to the operation, should be retained.

Minimize Disturbance: Disturbance to the *general integrity* of channels, soils and retained vegetation in RMAs is expected to be minimized during felling, bucking, limbing, and yarding. Type N streams and wetlands must be protected from unnecessary disturbance during felling, bucking, limbing, and yarding.

Minimize Slash Accumulations: Slash must be removed from Type F and Type D streams, lakes and significant wetlands as required under OAR 629-630-0600(3)(a). The requirements for minimizing slash accumulations in all Type N streams, lakes without fish use or less than one-half acre, or other wetlands greater than one-quarter acre, are addressed under OAR 629-630-0600(3)(b).

High Landslide Hazard Locations; Public Safety: If high landslide hazard locations are present and there is a risk to public safety from shallow, rapidly moving landslides, apply division OAR 629-623 Shallow, Rapidly Moving Landslides and Public Safety. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If high landslide hazard locations are present, but risks to public safety are not involved, apply OAR 629-630-0500 Harvesting on High Landslide Hazard Locations.

Green Trees to be left Near Type F and D Streams: If felling conifers or hardwoods in or along a Type F or Type D stream RMA is likely to cause adverse disturbance to the *general integrity* of the stream or RMA soils and vegetation, the Stewardship Forester should consider requiring the operator to retain 25 percent of the green wildlife leave trees in the RMA. This opportunity is available only in harvest type 2 or harvest type 3 units as specified in ORS 527.676(3)(c). These

extra green wildlife leave trees in the RMA are in addition to trees that are required to be left in the RMA. The operator chooses these wildlife leave trees, provided they are in or adjacent to the RMA (see guidance under ORS 527.676(3)(c) Leaving Snags and Down Logs in Harvest Units; Green Trees to be Left Near Certain Streams).

Yarding Damage. If damage is caused by yarding trees that were not felled into the channel or RMA, refer to the rule and guidance for OAR 629-630-0700 Yarding; Cable Equipment Near Waters of the State, or OAR 629-630-0800 Yarding; Ground-based Equipment Near Waters of the State.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), "Felling, Bucking, Limbing and Removal of Slash," p. 8-2 to 8-9

FELLING; REMOVAL OF SLASH
OAR 629-630-0600

(2) During felling operations operators shall:
(a) Whenever possible, fell all conifer trees away from riparian management areas, streams, lakes and significant wetlands, except for trees felled for approved stream improvement projects.

APPLICATION:

This section can be used for enforcement and is applied when conifers are felled near all lakes, significant wetlands all stream types, and their RMAs. Subsections (a) and (b) work together. Subsection (a) applies to all slopes; subsection (b) adds practices for steep slopes.

COMPLIANCE:

Operators comply with this section when they fell, or make a good faith effort to fell, all conifers away from RMAs, streams, lakes, and significant wetlands. The rule recognizes that it is not always safe or feasible to fell conifers away from the waters and RMAs listed in this rule. (See the "Felling Standards" under ADMINISTRATION.)

"Away" means at any angle from parallel to the channel to perpendicular and directly away from the channel. The intent is to avoid excessive direct disturbance to the channel and to minimize slash accumulations due to falling.

Unsatisfactory Condition: There is an unsatisfactory condition when an operator purposely or carelessly fells conifer trees across or into RMAs, streams, lakes and significant wetlands when it was safe and feasible to fell them "away" from the protected RMAs and waters.

Exceptions are allowed and not considered an unsatisfactory condition when:

1. Conifer trees are felled across or into RMAs or waters of the state as authorized in approved stream improvement projects; or
2. The operator determines that a conifer tree or snag is an operational safety hazard that cannot be safely felled away from the protected area; or
3. The protected vegetation or waters are as well or better protected by felling across or into the RMA, stream, wetland, or lake; or
4. The operator makes a good faith effort to fell "away", as directed by rule, but an occasional tree "gets away" because of wind, undetected rot, or other factors beyond the operator's control; or
5. The topography is so steep or bisected along small Type N streams that it is just not possible to fell away, or otherwise keep slash out of the channel.

The department recognizes that operators need some discretion in exceptions 3 and 5 above and in determining if it is safe and feasible to fell conifers away from the protected resource. Where written plans are required because operations will be near waters (Type F streams, for example),

the operator must describe in the plan any known proposals to fall conifer trees across or into the waters or associated RMAs. (Changes can be made by the operator under the exceptions listed above. Only in this very narrow set of circumstances are operators allowed to deviate from the rule practices without creating an unsatisfactory condition.) Where written plans are not required (for harvesting operations near most small Type N streams, for example), the operator makes the determination. However, in this latter situation, the operator should be aware of the desired result and of the fact that the results will be subject to review by the Stewardship Forester.

Damage: There is damage when conifers are deliberately or carelessly felled into a RMA, stream channel, lake or significant wetland, adversely disturbing the *general integrity* of soils, beds, banks or vegetation. Damage effects may include: sediment gouged or dragged into waters of the state; exposed soil near the water eroding into the stream; accumulation of slash in waters of the state that changes the hydrologic function; slash accumulations that affect water quality; or impairment of the functions of retained vegetation.

If enforcement action is under consideration and the operator alleges that it was unsafe or infeasible to fell the conifers away from the protected resource, the Stewardship Forester will need to investigate and judge whether there is evidence to support or refute the operator's contention.

Written Statement of Unsatisfactory Condition: Use a written statement to direct the operator to apply specific felling, bucking, limbing, or yarding practices when there is an opportunity to avoid damage during or after felling. If felling has not caused a significant impact, the Stewardship Forester should consider the potential damage that may occur during yarding.

ADMINISTRATION:

Stewardship Foresters should take available opportunities to educate operators that felling conifers away from RMAs, streams, lakes, and significant wetlands is expected to protect the functions and values of those resources.

Felling Standards: This subsection sets a "whenever possible" standard of felling conifer trees away from RMAs and certain waters. This means that, with limited exceptions, operators are expected to fell conifer trees in any harvest unit away from RMAs, streams, lakes and significant wetlands by using proper planning and felling techniques. This wording also concedes that there are conditions under which it is safest or most feasible to fell confer trees across RMAs, streams, lakes, and significant wetlands. The rule wording is not prohibitive; therefore a guidance change was made in a March 17, 2003 memorandum, no longer treating felling across or into RMAs and waters as an Alternate Practice. The requirement to fall conifers away applies to all the listed waters, including all small Type N streams. However, what must be protected varies with the classification of each of the following types of water:

1. For waters with RMAs, including Type F and D streams, large and medium type N streams, large lakes (greater than 8 acres), other lakes and significant wetlands, operators must fell conifers away whenever possible to maintain the *general integrity* of the RMA components.

2. For certain small Type N streams, operators must fell conifers away whenever possible to maintain the non-merchantable vegetation within 10 feet of the high water level (see Table 5 for OAR 629-640-0200(6) Retain Vegetation Along Small Type N Streams).
3. For all waters listed in this subsection, including all small Type N streams, operators must fell conifers away whenever possible to protect the beds and banks and water quality, and to limit slash accumulations.

Exceptions: Operators may fall conifer trees across or into RMAs, streams, lakes or significant wetlands when:

1. Conifer trees are felled across or into RMAs or streams as authorized in a stream improvement project; or
2. The operator determines that a conifer tree is an operational safety hazard that cannot be safely felled away from the protected area; or
3. The protected vegetation or waters would be as well or better protected by felling across or into the RMA, stream, wetland, or lake; or
4. The operator makes a good faith effort to fell "away", as directed by rule, but an occasional tree "gets away" because of wind, undetected rot or other factors beyond the operator's control.
5. The topography is so steep or bisected along small Type N streams that it is just not possible to fell away.

The department recognizes that operators need some discretion in exceptions 3 and 5 above and in determining if it is safe and feasible to fell conifers away from the protected resource. Where written plans are required because operations will be near waters (Type F streams, for example), the operator must describe in the plan any known proposals to fall conifer trees across or into the waters or associated RMAs. (Changes can be made by the operator under the exceptions listed above.) Where such plans are not required (for harvesting operations near most small Type N streams, for example), the operator may make the determination. However, in this latter situation, the operator should be aware of the desired result and of the fact that the results will be subject to review by the Stewardship Forester.

Operators should not be allowed to use safety, feasibility, or "good faith effort" to justify routine falling of conifer trees across or into RMAs, streams, lakes or significant wetlands.

Felling conifer trees away from RMAs and waters is an important means of preventing slash accumulations within high water levels. This felling practice is also essential to protect the vegetation retained in required RMAs. Certain small Type N streams are the only waters listed in this rule which are provided no RMA and little or no protected vegetative buffer by the Water Protection rules (Table 5, in rule book). The standards in the guidance for OAR 629-630-0600 (3)(b) describe the slash accumulation limits expected for these small streams while recognizing that felling conifers away from such streams is sometimes difficult.

In judging compliance with OAR 629-630-0600 as a whole, emphasis is on satisfactory post-harvest condition of the beds and banks of waters and retained vegetation within RMAs and retention strips. Compliance requires safe and feasible application of effective felling, bucking, limbing, and yarding practices to protect all functions and values associated with these waters. Any methods used, whether listed in the rule or developed by the operator, must achieve

protection of water quality, protect retained vegetation, limit slash accumulations, and limit the effects of potential debris flows. When post-harvest conditions do not achieve the purposes of the rule or the standards in guidance, investigation should be conducted to determine the applicable practice that should have been applied. Enforcement will then be based on the applicable rule subsection.

High Landslide Hazard Locations; Public Safety: If high landslide hazard locations are present and there is a risk to public safety from shallow, rapidly moving landslides, apply the rules in division OAR 629-623, Shallow, Rapidly Moving Landslides and Public Safety. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If high landslide hazard locations are present, but risks to public safety are not involved, apply OAR 629-630-0500 Harvesting on High Landslide Hazard Locations.

FELLING; REMOVAL OF SLASH
OAR 629-630-0600

(2) During felling operations operators shall:
(b) On steep slopes, use felling practices such as jacking, line pulling, high stumps, whole tree yarding, or stage-cutting as necessary and feasible to prevent damage to vegetation retained in riparian management areas, soils, streams, lakes and significant wetlands.

APPLICATION:

This subsection can be used for enforcement. In addition to subsection (2)(a), this subsection applies when felling conifers on steep streamside slopes that are generally over 60percent. The practice is to be applied wherever necessary to minimize trees or logs rolling or sliding downhill and adversely disturbing soils, RMA soils and vegetation, or waters of the state.

COMPLIANCE:

Operators comply with this subsection when they use conifer-felling practices that are safe, feasible, and successful in protecting retained vegetation in RMAs, soils, streams, lakes and significant wetlands.

Unsatisfactory Condition: There is an unsatisfactory condition when the operator fails to use safe and feasible felling practices on steep slopes that prevent adverse disturbance to vegetation, soils, or waters.

Damage: There is damage when:

1. The *general integrity* of the required leave vegetation, stream banks, stream beds, lakes or significant wetlands is not protected; or
2. Soil is exposed to erosion within the high water level of any waters of the state; or
3. Significant slope disturbance results in soil erosion into waters of the state.

If damage has been caused by improper felling practices, enforcement action under this subsection is more appropriate than under the rules for vegetation retention.

Written Statement of Unsatisfactory Condition: Use a written statement to direct the operator to apply specific bucking, limbing or yarding practices when there is an opportunity to avoid damage during or after felling. If felling has not caused a significant impact, the Stewardship Forester should consider the potential damage that may occur during yarding. The operator's follow-up action to prevent adverse disturbance to soils, beds or banks should focus on careful yarding methods. Commonly, yarding has greater potential than felling to damage the protected resources. When encountering the felled and bucked unit before yarding, the Stewardship Forester may issue a written statement for yarding under OAR 629-630-0700(1) Yarding; Cable Equipment Near Waters of the State or 629-630-0800(1) Yarding; Ground-based Equipment Near Waters of the State.

ADMINISTRATION:

The Stewardship Forester should take available opportunities to educate operators that jacking, lining or other directional felling techniques are expected on steep slopes to prevent adverse disturbance to soils, RMAs, stream beds and banks, lakes or significant wetlands.

Exceptions: It may not be feasible to successfully use special felling practices on steep slopes when:

1. The operator determines that a conifer tree is an operational safety hazard that cannot be safely felled away from the protected area; or
2. The protected vegetation or waters would be as well or better protected by felling across or into the RMA, stream, wetland, or lake; or
3. The operator makes a good faith effort to fell "away", as directed by rule, but an occasional tree "gets away" because of wind, undetected rot or other factors beyond the operator's control; or
4. The topography is so steep or bisected along small Type N streams that it is just not practical or feasible to fell away.

High Landslide Hazard Locations; Public Safety: If high landslide hazard locations are present and there is a risk to public safety from shallow, rapidly moving landslides, apply OAR 629-623 Shallow, Rapidly Moving Landslides and Public Safety. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If high landslide hazard locations are present, but risks to public safety are not involved, apply OAR 629-630-0500 Harvesting on High Landslide Hazard Locations.

FELLING; REMOVAL OF SLASH
OAR 629-630-0600

(2) During felling operations operators shall:
(c) When hardwoods must be felled into or across streams, lakes or significant wetlands, operators shall:
(A) Buck and yard the trees to minimize damage to beds, banks and retained vegetation.
(B) When it can be done consistently with protecting beds and banks, yard hardwood trees or logs away from the water before limbing.

APPLICATION:

This subsection can be used for enforcement. This subsection applies to felling, bucking and yarding hardwood trees. Because hardwoods often lean toward streams, are shorter and have broader crowns, safety and feasibility considerations are likely to interfere with efforts to fell these trees away from streams, lakes and significant wetlands.

COMPLIANCE:

When operators must fell hardwoods into or across streams, lakes and significant wetlands for safety or feasibility reasons, they comply with this subsection by using limbing, bucking and yarding methods that protect retained vegetation, beds and banks.

Unsatisfactory Condition: There is an unsatisfactory condition when the operator could, safely and feasibly, but is not:

Falling hardwoods away from streams, lakes or significant wetlands; or
Bucking and yarding hardwoods to protect beds, banks and retained vegetation; or
Protecting beds and banks by using appropriate yarding practices.

Damage: There is damage when:

1. The *general integrity* of beds, banks and retained vegetation of streams, lakes or significant wetlands is adversely disturbed during felling, bucking or yarding; or
2. Soil is dragged into streams during yarding; or
3. Soil is made subject to erosion within the high water level of any waters of the state; or
4. Significant slope disturbance results in soil erosion into waters of the state; or
5. There is an excessive accumulation of slash (see guidance for OAR 629-630-0600(3)) in streams, lakes, or wetlands due to inadequate methods of felling, bucking, or yarding.

Written Statement of Unsatisfactory Condition: Use a written statement to direct the operator to apply specific bucking and yarding practices to avoid damage in any unfinished portion of the operation. Even if felling has not caused a significant impact, the Stewardship Forester should consider the potential disturbance that may occur during yarding.

ADMINISTRATION:

Falling leaning hardwoods away from streams, lakes, or significant wetlands often is not safe or feasible. When hardwoods are felled into a stream, lake, or significant wetland, these trees must be bucked and yarded to prevent, as much as possible, additional disturbance to the bed, banks, and retained vegetation. Operators are expected to take into account tree form, site conditions, logging system layout and the like and use limbing, bucking, and yarding practices that will minimize disturbance.

Determining compliance may be difficult. During pre-operation inspections, the Stewardship Forester and the operator may be able to determine if it is safe and practical to fell most hardwoods away from streams, lakes or wetlands. Where pre-operation inspections cannot be conducted, it is important to inform the operator of these felling, bucking, and yarding requirements before felling starts.

High Landslide Hazard Locations; Public Safety: If high landslide hazard locations are present and there is a risk to public safety from shallow, rapidly moving landslides, apply division OAR 629-623 Shallow, Rapidly Moving Landslides and Public Safety. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If high landslide hazard locations are present, but risks to public safety are not involved, apply OAR 629-630-0500 Harvesting on High Landslide Hazard Locations.

FELLING; REMOVAL OF SLASH
OAR 629-630-0600

(3) Operators shall minimize the effects of slash that may enter waters of the state during felling, bucking, limbing or yarding by:
(a) Removing slash from Type F and Type D streams, lakes and significant wetlands as an ongoing process (removal within 24 hours of the material entering the stream) during the harvest operation.

APPLICATION:

This subsection can be used for enforcement. Both this subsection (3)(a) and OAR 629-630-0600(3)(b) address lakes and wetlands, but they address different stream, lake, and wetland types. Use this subsection (3)(a) for Type F and D streams, large lakes and lakes with fish or lakes larger than one-half acre, and significant wetlands. Apply subsection (3)(b) to lakes that do not have fish or that are less than one-half acre and to Type N streams and other wetlands greater than one-quarter acre.

COMPLIANCE:

Operators' first consideration should be to avoid, as much as possible, felling any trees in such a way that slash enters Type F and D streams, lakes, and significant wetlands. Sections (1) and (2) of this subsection require operators to apply felling, bucking, limbing, and yarding practices that limit the entry of slash into waters of the state. If this is unsuccessful, unsafe, or infeasible, operators comply with this subsection when they remove slash from Type F and D streams, lakes and significant wetlands as a continuous process during harvesting.

Unsatisfactory Condition: There is an unsatisfactory condition when felling or yarding operations along Type F or Type D streams, lakes or significant wetlands are depositing slash below high water levels without removing it as an ongoing process. Small amounts of slash, a few branches scattered along a stream reach for example, are considered incidental and do not constitute an unsatisfactory condition.

Damage: There is damage when slash has not been removed in an ongoing fashion and within approximately 24 hours after the material has entered the stream, lake or significant wetland, or when slash has been transported out of the unit by stream flow. The presence of a few, scattered branches does not constitute damage.

Written Statement of Unsatisfactory Condition: Use a written statement to direct the operator to:

1. Remove slash from within the high water level as an ongoing process within approximately 24 hours; and/or
2. Remove slash immediately from waters if the slash is being, or can be, transported by stream flow.

ADMINISTRATION:

This subsection applies when the operator gets slash in Type F and Type D streams, lakes or significant wetlands, whether unintentionally or carelessly. When improper felling causes excessive slash accumulations in these streams, ODF will probably want to take enforcement action under OAR 629-630-0600 (2)(a) through (c) and use this subsection to direct repair of the accumulation if necessary. If slash enters Type F and Type D streams, lakes or significant wetlands in spite of the operator's best prevention efforts, removal within approximately 24 hours is required to comply with this subsection. Judgment should be applied in enforcing this 24 hour provision by appropriate discussion of proposals for alternate timing practices that are both protective of water quality and operationally practical.

High Landslide Hazard Locations; Public Safety: If high landslide hazard locations are present and there is a risk to public safety from shallow, rapidly moving landslides, apply division OAR 629-623 Shallow, Rapidly Moving Landslides and Public Safety. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If high landslide hazard locations are present, but risks to public safety are not involved, apply OAR 629-630-0500 Harvesting on High Landslide Hazard Locations.

FELLING; REMOVAL OF SLASH
OAR 629-630-0600

(3) Operators shall minimize the effects of slash that may enter waters of the state during felling, bucking, limbing or yarding by:
(b) Not allowing slash to accumulate in Type N streams, lakes or wetlands in quantities that threaten water quality or increase the potential for mass debris movement.

APPLICATION:

This subsection can be used for enforcement. Both this subsection (3)(b) and OAR 629-630-0600(3)(a) address lakes and wetlands, but they address different stream, lake, and wetland types. Use this subsection (3)(b) for lakes that do not have fish or that are less than one-half acre and for Type N streams and other wetlands greater than one-quarter acre. Apply subsection (3)(a) to Type F and D streams, to large lakes and other lakes larger than one-half acre with fish, and to significant wetlands.

COMPLIANCE:

Operators comply with this subsection when they minimize slash accumulations in Type N streams, lakes addressed by this subsection, or other wetlands, either by preventing slash entry or by removing water-quality-degrading slash. For Type N streams, this encompasses the water and the beds and banks below the high water level which may contain water, whether or not water is actually present.

Unsatisfactory Condition: There is an unsatisfactory condition when the operator leaves slash in or over the bed and banks of Type N Streams, in lakes, or in other wetlands, and the slash accumulations exceed the standards described below.

Slash Accumulation Standards: Slash left in streams, lakes, or wetlands can reduce dissolved oxygen, alter pH levels, provide excessive nutrients, and/or change channel morphology. To minimize the amount of slash entering streams, operators must apply the preventive felling practices in subsections (1) and (2) of this rule or devise methods producing equivalent results. However, slash often enters Type N streams even if those practices are applied, and slash removal may be required. Because some level of temporary disturbance is unavoidable in harvesting operations, and because slash can provide beneficial functions in streams, lakes, and wetlands in some circumstances, subsection (3)(b) does not require complete removal of slash from all Type N stream reaches, small lakes, and other wetlands.

Subsection (3)(b) applies to streams only as defined in the Forest Practice rules. Headwalls, swales, gullies, or draws without a defined channel are not considered streams for the purposes of the Forest Practice rules. See OAR 629-600-0100 for the definitions of “channel” and “stream.”

Subsection (3)(b) applies whether there is water in the channel at the time of the operation or not. Operators must consider the effects of slash in these waters when water is present and take appropriate preventive action.

The following describe the circumstances under which slash must be removed from Type N streams, lakes that do not have fish or that are less than one-half acre with fish, and other wetlands.

1. Type N stream reaches of less than 10 percent channel gradient must be left with no more than 50 percent of the bed and banks below the high water level covered by scattered slash; and
2. Slash must not cause ponding (still or nearly still water) of stream water nor may it be allowed to remain in the water in stream reaches that are ponded; and
3. Slash accumulations that cause changes to channel morphology by increasing bank erosion when water is present, must be removed.
4. All slash must be removed from lakes that do not have fish or that are less than one-half acre with fish as an ongoing process and as soon as feasible.
5. In most cases, it is acceptable to leave slash that, in spite of proper felling practices, enters "other" wetlands, but it is not acceptable to push or pile slash into any wetland (see OAR 629-615-0200(4) Mechanical Site Preparation Near Waters of the State).

NOTE: The standards in listed circumstances 1. to 3. above apply independently. For example, if 50 percent of a Type N stream reach is free from slash cover, but some remaining slash is causing ponding in the stream, the operator would be required to remove that slash also.

Damage: There is damage when excessive slash accumulations are not removed from Type N streams, lakes that do not have fish or that are less than one-half acre with fish, or other wetlands. This must be done as described in the slash accumulation standards of this section by the end of the operation, including seasonal or other extended shutdowns.

Written Statement of Unsatisfactory Condition: Use a written statement to direct the operator to remove the slash from Type N streams, lakes that do not have fish or that are less than one-half acre with fish, or other wetlands:

1. When slash removal from a lake is not being conducted as an ongoing process; or
2. Before the end of the operation, including seasonal or other extended shutdowns; or
3. Before the slash is transported by stream flow; or
4. Before the slash causes bank erosion from increased stream flow; or
5. Before slash in ponded water begins to deteriorate and affect dissolved oxygen levels in the water.

ADMINISTRATION:

The intent of OAR 629-630-0600 Felling; Slash Removal is that operators must first apply the preventive felling practices specified in subsections (1) and (2). Preventive felling practices are required by the rule in order to insure that slash will not accumulate in quantities that affect water quality or increase the potential effects of mass debris movements. After the preventive

felling practices have been properly applied, the residual slash need only be removed from Type N streams, lakes, and other wetlands as required by the slash accumulation standards.

RMA Protection: For Type N Streams with RMAs, operators must maintain the *general integrity* of the RMAs during felling, bucking and limbing. Efforts to protect RMAs during these operations should also minimize slash accumulations in stream channels to the standards described.

Definition of "Slash": For the purposes of OAR 629-630-0600, "slash" means any tree tops, limbs, remnants of cut brush and sections of tree trunks and the like that remain after felling, limbing, bucking and yarding. Naturally-occurring wood, in the channel prior to the operation, should be retained.

Debris Movements: Debris movements result from shallow soils that come loose and slide off of steep slopes. This information has been developed in the years since adoption of this rule. We no longer believe that slash in channels is a primary cause of debris movements. Therefore, slash is not required to be removed from small Type N stream channels for the purpose of limiting the initiation of debris movements **unless the slash accumulation is actually causing water to back up the channel above it**. Preventive felling practices are required by subsection (2) in order to insure that slash will not accumulate in quantities that might increase the potential effects of mass debris movements.

High Landslide Hazard Locations; Public Safety: If high landslide hazard locations are present and there is a risk to public safety from shallow, rapidly moving landslides, apply the rules in Division 623 (Shallow, Rapidly Moving Landslides and Public Safety). OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If high landslide hazard locations are present, but risks to public safety are not involved, apply OAR 629-630-0500 Harvesting on High Landslide Hazard Locations.

Felling: Take appropriate opportunities to educate operators in planning felling operations so that slash does not accumulate in Type N steams, lakes, or other wetlands. Proper felling can avoid an unsatisfactory condition and damage. When improper felling practices result in an unsatisfactory condition and damage, enforcement action may be taken under OAR 629-630-0600(2)(a) through (c) along with this subsection, (3)(b).

Bucking, Limbing and Yarding: Tree tops that are bucked and left in the stream or below the high water level can become troublesome slash accumulations. Limbing trees that are improperly felled into or across Type N streams, lakes or wetlands compounds the slash accumulations. Whole tree yarding, or other methods that remove limbs and tops from channels, lakes, and wetlands are recommended to minimize slash accumulations.

REFERENCE:

- Swanson, F.J., and G.W. Lienkaemper. 1978. Physical Consequences of Large Organic Debris in Pacific Northwest Streams. USDA Forest Service General Technical Report PNW-69.

FELLING; REMOVAL OF SLASH
OAR 629-630-0600

(3) Operators shall minimize the effects of slash that may enter waters of the state during felling, bucking, limbing or yarding by:
(c) Placing any slash that is removed from streams, lakes, or wetlands above high water levels where it will not enter waters of the state.

APPLICATION:

This subsection can be used for enforcement.

COMPLIANCE:

Operators comply with this subsection when slash that is removed from streams, lakes, and wetlands is placed above the average annual high water level.

Unsatisfactory Condition: There is an unsatisfactory condition when slash that is removed from any stream, lake or wetland is placed where it may be picked up by average annual high flows.

Damage: There is damage when the unsatisfactory condition leads to the re-entry of slash into the water of any stream, lake or wetland.

Written Statement of Unsatisfactory Condition: Use a written statement to direct the operator to place slash above the high water level before it can be reached by high water.

ADMINISTRATION:

OARs 629-630-0600(3)(a) and (b) require operators to remove slash from certain waters of the state. This subsection further requires placing the slash far enough above average annual high water levels that it will not re-enter the water of the stream, lake or wetland. Generally, this is several feet above the average annual high water level.

High Landslide Hazard Locations; Public Safety: If high landslide hazard locations are present and there is a risk to public safety from shallow, rapidly moving landslides, apply the rules in Division 623 (Shallow, Rapidly Moving Landslides and Public Safety). OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If high landslide hazard locations are present, but risks to public safety are not involved, apply OAR 629-630-0500 Harvesting on High Landslide Hazard Locations.

YARDING; CABLE EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0700

(1) Operators shall maintain the purposes and functions of vegetation required to be retained in riparian management areas and minimize disturbance to beds and banks of streams, lakes, all wetlands larger than one-quarter acre, and retained vegetation during cable yarding operations.

APPLICATION:

This section may be used for enforcement. It is primarily an intent statement. When possible, compliance should be based on section (3) through (5) of this rule. However, when cable yarding causes damage in ways not specifically addressed by section (3) through (5), enforcement under this section is appropriate.

ADMINISTRATION:

This section provides the water resource protection objectives for cable yarding.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), "Cable Yarding", p. 8-10 to 8-12

YARDING; CABLE EQUIPMENT NEAR WATERS OF THE STATE
629-630-0700

(2) Operators shall minimize the yarding of logs across streams, lakes, significant wetlands, and other wetlands greater than one-quarter acre whenever harvesting can be accomplished using existing roads or other practical alternatives.

APPLICATION:

This section may be used for enforcement. Determination of rule compliance should normally be based on section (3) through (5), and the adequacy of required leave vegetation.

COMPLIANCE:

Operators comply with this section by yarding away from waters and wetlands whenever feasible.

Unsatisfactory Condition: It is an unsatisfactory condition when an operator yards across waters or wetlands when there are available existing roads on both sides of the protected area, or other alternatives that could be readily employed.

Damage: Damage occurs if unsatisfactory conditions described in section (3) through (5) guidance arise. Enforcement action under section (2) is possible. However, enforcement under section (3) through (5) generally serves the same purpose.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to revise the yarding plan to utilize alternatives to avoid yarding over protected areas.

ADMINISTRATION:

This section provides information for the landowner and operator when planning operations. Cable yarding across streams, lakes, or wetlands is an acceptable practice if it results in less road construction, and is conducted with equipment that can yard trees over the RMA or through narrow, widely spaced corridors.

When it is practical for operators to yard away from waters of the state, they should do so. If an operator can yard away but proposes not to, the operator must obtain approval of a Plan for an Alternate Practice. The level of impact associated with cable yarding over the water or wetland should be lower than the impact allowed under section (5) of this rule.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), “Cable Yarding”, p. 8-10 to 8-12

YARDING; CABLE EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0700

(3) Operators may use yarding corridors through retained streamside trees as long as the numbers and widths of yarding corridors are minimized. Operators shall submit a written plan to the State Forester when yarding across streams classified as Type F or Type D, any large or medium Type N streams, lakes, or significant wetlands.

APPLICATION:

This section can be used for enforcement.

The requirement for written plans to yard across Type F streams, Type D streams, and significant wetlands is **statutory** (ORS 527.670(3)) and cannot be waived by the Stewardship Forester.

The requirement for a **non-statutory** written plan under this rule may be waived if the Stewardship Forester determines that the formal plan process is not needed to help ensure resource protection. Consideration of the waiver begins when the operator requests the waiver. Unless the department grants the waiver, a **non-statutory** written plan is required and must be submitted before the practice or operation begins.

COMPLIANCE:

An operator complies with this rule when the number and widths of yarding corridors through retained streamside trees is minimized. An operator complies with this rule when a required written plan is submitted.

Unsatisfactory Condition: It is an unsatisfactory condition when any of following situations occur:

(1) Corridors (see definition below) through the RMA are unnecessarily closely spaced or of greater than minimum widths;

(2) An operator yards across any Type F or Type D or significant wetland without first submitting a statutory written plan which describes the accurate location and size of yarding corridors.

(3) An operator yards across any medium or large Type N stream, or large lake without first submitting, or receiving a waiver of, a required non-statutory written plan which describes the accurate location and size of yarding corridors.

Damage: Damage occurs when the unsatisfactory condition exists and results in RMA components, required to be retained, being removed or damaged to the extent that the intended functions for which they have been retained are no longer provided. Examples of damage include reduction of potential shade, future large wood supply, and/or sediment-filtering capability of the RMA.

Resource damage is not a prerequisite for taking enforcement action. The operator, by not submitting a written plan, denies the Stewardship Forester the opportunity to review and comment on the operation.

For written plan violations on Type F or D streams or significant wetlands cite under OAR 629-605-170(1) rather than this rule.

For written plan violations on large lakes cite under OAR 629-635-130(1)(c) rather than this rule.

For written plan violations on large or medium Type N streams, cite under this rule.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. For written plan violations a written statement of unsatisfactory condition may be issued instead of a citation when the specific conditions listed in OAR 629-670-0125 (Using the Written Statement of Unsatisfactory Condition for Noncompliance with Procedural Rules) are met.

ADMINISTRATION:

A corridor is any portion of a cable yarding road (location where cables are strung) where the cables cross a stream, lake, or significant wetland. Corridors sometimes, but not always, require the felling of trees adjacent to the cable lay(s).

This rule allows operators to use cable logging corridors through the RMA and where necessary, to cut trees within them. Generally, cable yarding corridors should be spaced a minimum of 100 feet apart, and their width should not exceed 20 feet.

Statutory written plans are required for operations within 100 feet of Type F and Type D streams, large lakes, and significant wetlands. Non-statutory written plans should also be required when corridor trees are removed from the RMA of medium and large Type N streams. These written plan should address corridor spacing, corridor width, and methods the operator will use to protect retained vegetation when changing yarding roads.

Damage or removal of trees within the minimum corridor width is to be expected. **Trees outside the corridor must be left with adequate crowns to provide original canopy cover** (excepting the interior of rub trees).

The use of corridors cannot reduce conifer levels below rule standards. However, if the RMA contains fewer conifers than the standard management target, corridors are nonetheless allowed. Those conifers felled for the corridor must either be replaced (by leaving an equivalent size and number outside the RMA), left on the ground, or placed or felled in the stream. If corridor trees are felled into the RMA and meet basal area credit requirements (species, length and diameter), the RMA can be left with conifers meeting the active management target. Where less than the active management target exists, corridor trees cannot be removed, and operators should use natural gaps in the RMA for corridors whenever possible.

Although not specifically addressed by this section, hanging cables across streams when yarding only one side of a stream is permitted. Removal of streamside trees should not be necessary in such cases.

REFERENCES:

- OAR 629-635-0130 Written Plans For Streams, Lakes, Wetlands And Riparian Management
- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), "Cable Yarding", p. 8-10 to 8-12

YARDING; CABLE EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0700

(4) When yarding across Type F or Type D streams, any large or medium Type N streams, lakes, or significant wetlands is necessary, it shall be done by swinging the yarded material free of the ground in the aquatic areas and riparian areas.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

An operator complies with this rule when logs are fully suspended while being yarded over aquatic and riparian areas.

Unsatisfactory Condition: It is an unsatisfactory condition when there is evidence of log turns not being suspended over the channel or riparian area. Single accidents (a single turn touching the ground or falling into protected areas) should not be considered a violation. Gouging in stream banks or destruction of vegetative components is evidence of an unsatisfactory condition, as is soil or debris deposited below the normal high water level by yarding.

Damage: Damage occurs when the unsatisfactory condition results in required soil or vegetative RMA components being damaged to the extent that the intended functions are no longer provided. Examples of damage include reducing: a) potential shade; b) future large wood supply; and c) sediment-filtering capability of the RMA.

Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is also damage when required vegetative functions are adversely disturbed.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator might be advised to reduce turn size or take other corrective action to increase deflection over the RMA. Some repair may be necessary to prevent damage from occurring.

ADMINISTRATION:

The written plan must address suspension of logs above the aquatic and riparian areas. If there is question whether suspension is adequate, the Stewardship Forester should advise the operator to provide yarding profiles and load analyses in appropriate written plans.

REFERENCES:

- OAR 629-605-0170(6) and (7) Written plans
- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), "Cable Yarding", p. 8-10 to 8-12

YARDING; CABLE EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0700

(5) Cable yarding across streams classified as small Type N or other wetlands greater than one-quarter acre shall be done in ways that minimize disturbances to the stream channel or wetland and minimize disturbances of retained streamside vegetation.

APPLICATION:

This section can be used for enforcement .

COMPLIANCE:

An operator complies with this rule when the stream channel is not disturbed and streamside vegetation is maintained while yarding near waters that require no RMA.

Unsatisfactory Condition: It is an unsatisfactory condition when logs have been cable yarded along or across the stream channel or the wetland or the retained streamside vegetation. Evidence includes gouging of the bed or banks, or soil dragged into the channel by yarding.

Damage: Damage occurs when the unsatisfactory condition results in retained streamside vegetation being adversely disturbed over 50 percent or more of the stream length within the harvest unit.

Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to achieve the suspension required to prevent damage to the bed and banks of streams or wetlands. Some preventive action may be necessary to prevent damage from occurring.

ADMINISTRATION:

“Minimizing disturbance" for cable yarding over small Type N streams means preventing the leading end of the log from dragging across and gouging the ground.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), “Cable Yarding”, p. 8-10 to 8-12

YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(1) Operators shall maintain the purposes and functions of vegetation required to be retained in riparian management areas, and minimize disturbances to beds and banks of streams, lakes, all wetlands larger than one-quarter acre, and retained vegetation during ground-based yarding operations.

APPLICATION:

This section can be used for enforcement. It is also the intent statement. Compliance should be based on section (2) through (9) of this rule. However, when ground-based yarding operations cause damage in ways not specifically addressed by section (2) through (9), enforcement under this section is appropriate.

ADMINISTRATION:

This section provides the soil, vegetation, and water resource protection objectives for ground-based yarding operations.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), "Ground Yarding", p. 8-13 to 8-28

YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(2) Operators shall not operate ground-based equipment within any stream channel except as allowed in the rules for temporary stream crossings.

APPLICATION:

This section can be used for enforcement action.

COMPLIANCE:

An operator complies with this rule when stream channels are not adversely disturbed by ground-based equipment.

Unsatisfactory Condition: It is an unsatisfactory condition when equipment has operated within or across any stream channel except as allowed with temporary crossing in section (4) or (5) of this rule. Evidence may include gouging or rutting of the bed or banks, or soil brought into the channel.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary disturbance to the stream channel.

Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to cease further crossings until properly planned and constructed crossings described in sections (4) and (5) are identified. Some preventive action may be necessary to stop damage from occurring.

ADMINISTRATION:

This section applies to all tractors, skidders, feller-bunchers, shovels, and other ground-based equipment used for yarding logs. When it is necessary to cross a stream, yarding equipment shall only operate on properly planned and constructed crossings.

When equipment is being used or has been used to build a landing or any portion of a landing in a channel, use OAR 629-630-0200 (2) for enforcement action.

If the operation results in the straightening or shortening of any stream channel, consider use of OAR 629-660-0040 for enforcement action.

REFERENCES:

- OAR 629-630-0200 (2) Landings
- OAR 629-660-0040 Stream channel changes
- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), "Ground Yarding", p. 8-13 to 8-28

YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(3) Operators shall minimize the number of stream crossings.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

An operator complies with this rule when no more crossings than necessary are utilized in ground-based skidding operations.

Unsatisfactory Condition: It is an unsatisfactory condition when multiple crossings are used when topography and proper planning would have required fewer crossings.

Damage: Damage occurs when the unsatisfactory condition results in preventable and unnecessary disturbance to the bed, banks, or water quality.

Damage occurs when the unsatisfactory condition results in preventable and unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to revise the yarding plan to limit the number of stream crossings. Some preventive action may be necessary to stop damage from occurring.

ADMINISTRATION:

"More than minimum" is primarily a function of topography. Crossings should be used only when **absolutely necessary**. With good planning by the operator, it is often possible to limit the number of crossings to just one.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), “Ground Yarding”, p. 8-13 to 8-28

YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(4) For crossing streams that have water during the periods of the operations, operators shall:
(a) Construct temporary stream crossing structures such as log crossings, culvert installations, or fords that are adequate to pass stream flows that are likely to occur during the periods of use. Structures shall be designed to withstand erosion by the streams and minimize sedimentation.

APPLICATION:

This subsection can be used for enforcement. Subsection (4)(a) requires the use of "temporary crossing structures" when ground-based yarding equipment crosses streams that are likely to have flow during the expected time of the operation.

COMPLIANCE:

Operators comply with this subsection when appropriate structures are installed at all temporary stream crossings. Compliant structures do not contribute to erosion or add sediment to streams.

Unsatisfactory Condition: It is an unsatisfactory condition when:

1. Structures are either not installed or are inadequate to pass expected stream flows.
2. Stream flow has eroded the crossing structure.
3. The structure has altered or diverted stream flow, resulting in erosion of the bed or banks.
4. Water is backed up (ponded) by the fill, threatening or causing fill saturation or overtopping of the fill.

Damage: Damage occurs when the unsatisfactory condition results in preventable and unnecessary disturbance to the bed, banks, and associated water quality.

Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to properly design and construct appropriate stream crossings to prevent unnecessary sedimentation. Some preventive action may be necessary to stop damage from occurring.

ADMINISTRATION:

Suitable temporary crossing structures vary from improved fords to bridges. The appropriate structure for the site depends on the stream size, time of year, presence of fish, and volume to be brought across the crossing.

In those areas where summer thunderstorms are the primary source of high stream flows, operators should install culverts or other drainage structures large enough to pass potential peak flows. **Special attention should be given to areas that have recently burned**, as large thunderstorms and high flows appear to be more common in these locations.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), "Ground Yarding", p. 8-13 to 8-28

YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(4) (b) Choose locations for temporary stream crossing structures which minimize cuts and fills or other disturbances to the stream banks.

APPLICATION:

This subsection is used for enforcement.

COMPLIANCE:

An operator complies with this rule when temporary stream crossing locations for ground based yarding equipment are selected that minimize cuts, fills and other disturbances to the stream banks.

Unsatisfactory Condition: It is an unsatisfactory condition when temporary crossings for ground based yarding equipment are located in narrow canyons, incised channels, actively eroding or exposed soil banks, wetlands, or slide areas.

Damage: Damage occurs when the unsatisfactory condition results in preventable and unnecessary disturbance to the bed, banks, or water quality.

Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to properly locate appropriate stream crossings that minimize cuts and fills or other disturbances to the stream banks. Some preventive action may be necessary to stop damage from occurring.

ADMINISTRATION:

Compliance is achieved when the operator makes an on-the-ground evaluation of all the practical alternatives, and selects the crossing which least disturbs stream banks. Soil properties, condition of the stream bank, channel form, and the ability to get the skid road away from the stream as quickly as possible, must all be considered in choosing the stream crossing(s).

For locating skid trails distant from the actual crossing location and the stream, refer to section (8) of this rule.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), “Ground Yarding”, p. 8-13 to 8-28

<u>YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE</u>
OAR 629-630-0800

(4) (c) Minimize the volume of material in any fills constructed at a stream crossing. Fills over eight feet deep contain such a large volume of material that they can be a considerable risk to downstream beneficial uses should the material move downstream by water. For any fill for a temporary crossing that is over eight feet deep, operators shall submit to the State Forester a written plan that includes a description of how the fills would be constructed, passage of water, and the length of time the fills would be in the stream.

APPLICATION:

This subsection is used for enforcement.

The requirement for written plans to cross Type F streams, Type D streams, and significant wetlands is **statutory** (ORS 527.670(3)) and cannot be waived by the Stewardship Forester.

The requirement for a **non-statutory** written plan under this rule may be waived if the Stewardship Forester determines that the formal plan process is not needed to help ensure resource protection. Consideration of the waiver begins when the operator requests the waiver. Unless the Stewardship Forester grants the waiver, a **non-statutory** written plan is required and must be submitted before the practice or operation begins.

COMPLIANCE:

An operator complies with this rule when temporary stream crossing fills are kept less than eight feet deep (vertical measurement, downstream edge), unless a required written plan has been submitted or waived.

Unsatisfactory Condition: It is an unsatisfactory condition when a temporary crossing fill is constructed over eight feet deep and a required written plan for such a deep fill was not submitted or waived.

It is an unsatisfactory condition when the volume of the fill is greater than necessary.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Resource damage is not a prerequisite for taking enforcement action on a procedural violation. The operator, by not submitting a written plan, denies the Stewardship Forester the opportunity to review and comment on the operation.

Written Statement of Unsatisfactory Condition: A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to stabilize or remove the fill. Some preventive action may be necessary to stop damage from occurring.

Under specific conditions listed in OAR 629-670-0125 (Using the Written Statement of Unsatisfactory Condition for Noncompliance with Procedural Rules), a written statement of unsatisfactory condition may be issued instead of a citation.

ADMINISTRATION:

The operator **must submit** a required statutory or non-statutory written plan for any temporary crossing fill which is **over eight feet**, as measured from running surface to the stream bottom at the downstream side. This includes crossings of any size Type N stream.

A field inspection of the operation is required to evaluate the need for any high fills. If an alternative structure or location is feasible, the operator should be advised to construct the crossing at this location.

This subsection also requires that the volume of fill be minimized. The width of the fill must be as narrow as safety considerations permit. Fills should not be used as waste areas for excavated material from skid trail construction.

REFERENCE:

- OAR 629-605-170(4) Non-statutory written plans
- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), “Ground Yarding”, p. 8-13 to 8-28

YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(4) (d) Design temporary structures so that fish movement is not impaired on Type F streams.

APPLICATION:

This subsection is used for enforcement.

COMPLIANCE:

Operators comply with this subsection when temporary crossing structures on skid trails allow both upstream and downstream passage of adult and juvenile fish

Unsatisfactory Condition: It is an unsatisfactory condition when a temporary crossing structure on a Type F stream does not allow for fish passage.

Damage: Damage exists when a stream crossing structure on a Type F stream that does not allow for fish passage and remains in place during periods of possible fish movement.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action is feasible and practical prior to damage occurring.

The operator should be advised to remove the temporary structure or to alter it to allow for fish passage before periods of possible fish movement.

ADMINISTRATION:

Upstream movement by anadromous fish to reach spawning grounds is usually not a consideration for the period of time a temporary crossing structure is in place. However, fish may need to move upstream to seek cool water refuges. For this reason the crossings must allow for upstream passage for juvenile fish as well as adults. The presence and movement of resident fish must also be considered.

The same design criteria presented in the **"Interim Fish Passage Guidance at Road Crossings"** should be used for temporary skid trail crossings if a culvert is going to be used. Short bridges (including log crib bridges) are preferred for protecting the natural stream bottom.

Plans to provide fish passage through temporary crossings on Type F streams should be included in statutory written plans required under OAR 629-605-0170.

Consultation with the staff hydrologist or fisheries specialist is recommended for determination of noncompliance, damage, and enforcement under this subsection.

REFERENCES:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), "Ground Yarding", p. 8-13 to 8-28
- "Interim Fish Passage Guidance at Road Crossings" - June 16, 1995 memo from George Robison, Oregon Department of Forestry hydrologist
- OAR 629-605-0170 Written plans

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(4) (e) Remove all temporary stream crossing structures immediately after completion of operations or prior to seasonal runoff that exceeds the water carrying capacity of the structures, whichever comes first. When removing temporary structures, operators shall place fill material where it will not enter waters of the state.

APPLICATION:

This subsection is used for enforcement.

COMPLIANCE:

Operators comply with this subsection when temporary crossing structures on skid trails are removed promptly following completion of use. Removal timing must also precede stream flows that exceed the structure's capacity, causing bank erosion or sediment entry into the stream. Removal must include pulling back all associated fill material and placing it in stable locations above the 100-year flood level.

Unsatisfactory Condition: It is an unsatisfactory condition when a temporary crossing structure causes water quality damage because it remained in place and washed out during the time of high expected seasonal runoff. Exceptions may be considered for unpredictable unusually severe summer thunderstorms.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.
Damage occurs if there is evidence of high stream flows eroding the crossing structure, bed, or banks as a result of the unsatisfactory condition.
There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to immediately remove the crossing.

ADMINISTRATION:

All soil, structural material, and fine slash below the high water level must be removed and placed in stable locations above the 100 year flood level. Care must be taken to avoid creating unstable, undercut or over-steepened slopes during crossing structure removal.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), "Ground Yarding", p. 8-13 to 8-28

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(5) For stream crossings where the channels do not contain water during the periods of the operations, operators are not required to construct temporary crossings as long as disturbances are no greater than what would occur if structures were constructed. Soil that enters the channels during the yarding operations must be removed after completion of the operation or prior to stream flow, whichever comes first. When removing such materials from the channels, operators shall place the materials in locations where they will not enter waters of the state.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

Operators comply with this section when disturbance caused by crossing dry stream channels without a structure is minimal and comparable to using a structure.

Operators comply with this section when soil that enters the channels during the yarding operations is removed after completion of the operation or prior to stream flow, and placed in locations where the soil will not enter waters of the state.

Unsatisfactory Condition: It is an unsatisfactory condition when disturbance is not limited. Examples of adverse disturbance include ruts over six inches deep and wheeled equipment beginning to lose traction and spin in the channel.

It is also an unsatisfactory condition when loose, erodable material is not removed from a crossing or when it is placed where it is likely to enter waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to remove soil from the channel before stream flow occurs. Other erosion control measures such as grass seeding and mulching may be necessary to prevent damage.

ADMINISTRATION:

This section allows yarding logs across dry stream channels without a temporary crossing structure as long as stream flow does not occur during the operation, the streambed and banks are neither wet nor fragile, and water quality is not damaged when stream flow resumes.

If stream flow occurs, whether expected or unexpected, the operator must immediately cease using equipment in the channel and water bar the skid trail approaches on both sides of the crossing. Use of the crossing must cease until a temporary structure is constructed as indicated in section (4), or dry conditions return.

After use of such a crossing, the operator must remove all loose soils that are below high water levels and place them above the 100-year flood level. Loose soils include the sides of ruts, bank material which has fallen toward the channel, and any material which falls from tracks or tires.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), “Ground Yarding”, p. 8-13 to 8-28

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(6) Operators shall construct effective sediment barriers such as water bars, dips, or other water diversion on stream crossing approaches after completion of operations, or prior to rainy season runoff, whichever comes first.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

An operator complies with this rule when effective sediment barriers at stream crossing approaches are installed promptly after completion of crossing use, or at least before stream flow resumption.

Unsatisfactory Condition: It is an unsatisfactory condition when sediment barriers have not been installed in a timely manner.

It is an unsatisfactory condition when there is evidence of skid trail runoff directly entering the stream or eroding the crossing approach.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to construct effective sediment barriers prior to expected runoff events.

ADMINISTRATION:

If a major storm event is forecast, sediment barriers should be installed immediately, even if the crossing will continue to be used.

"Effective" means the barriers divert water off the skid trail and onto non-compacted soil or slash, and sediment in the runoff water is filtered or settled out to keep it out of the stream water. Generally, large berms with cross ditches are suitable. Such structures should be placed a short distance (<20 feet) above the high water level (the top of stream bank for high banks, and the

edge of floodplain for low banks) so that infiltration or settling is possible. For medium and large streams, sediment barriers should also be placed at the outside boundaries of the RMA.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Unit 8 (Harvesting Practices), "Ground Yarding", p. 8-13 to 8-28

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(7) Machine activity near (generally within 100 feet) streams, lakes, and other wetlands greater than one-quarter acre shall be conducted to minimize the risk of sediment entering waters of the state and preventing changes to stream channels. Operators shall only locate, construct, and maintain skid trails in riparian management areas consistent with the harvesting rules.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

Operators comply with this rule by keeping skid trails as far away from water as practical to prevent streams from being diverted into the skid trails. Operators also comply with this rule by having water bars or other effective drainage measures installed on skid trails prior to any expected runoff events.

Unsatisfactory Condition: It is an unsatisfactory condition when any skid trail within 100 feet of any stream, lake, or wetland over one-quarter acre has inadequate water bars or other drainage measures.

It is an unsatisfactory condition when there is evidence of skid trail runoff directly entering the stream.

It is an unsatisfactory condition when skid trails divert stream channels because they are too close to streams and are not properly drained.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to install water bars or other effective drainage measures prior to any expected runoff events.

ADMINISTRATION:

Skid trails include any area where equipment conducting yarding operations makes multiple passes to the extent that ground surface disturbance is visible. A single pass is not considered a skid trail unless ground conditions are such that visible ruts develop.

Operators are responsible for locating streams, lakes, and wetlands in the operation area prior to commencing activity. Operations must be conducted to minimize disturbance around wetlands,

lakes, and streams. Machine activity, associated disturbance, and drainage practices must all combine to minimize erosion and subsequent delivery of sediment to waters of the state.

Equipment should be kept as far away from any water as practicable. Logs should be removed by reaching with grapples, or pulling winch line. If equipment enters and sinks into a wetland, it should be removed immediately, and work in the immediate area should be stopped until the boundaries of the wet soil area are identified.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Table 8-1, "Maximum waterbar spacing in skid roads (feet)", p. 8-24

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(8) Operators shall minimize the amount of exposed soils due to skid trails within riparian management areas. Except at stream crossings, operators shall not locate skid trails within 35 feet of Type F or Type D streams. Operators shall provide adequate distances between all skid trails and waters of the state to filter sediment from runoff water.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

Operators comply with this section when skid trails are kept as far away from water as practical, sediment from runoff is filtered before entering waters of the state, and no trails are within 35 feet of Type F or Type D streams other than at crossing approaches.

Unsatisfactory Condition: It is an unsatisfactory condition when any skid trail results in preventable, unnecessary soil disturbance within any RMA or near any stream, lake, or wetland. It is an unsatisfactory condition when a skid trail is constructed or reconstructed within 35 feet slope distance of the high water level of a Type F or a Type D stream.

It is an unsatisfactory condition when there is evidence of sediment-bearing skid trail runoff directly entering the stream.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

Damage exists when skid trails are located within 35 feet of Type F or D streams without effective measures to prevent sediment-bearing runoff water from entering the stream.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10% or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. Operators should be advised to install water bars or complete other corrective action, such as sub-soiling prior to expected runoff events. Other erosion control measures including grass seeding and mulching may be necessary to prevent damage.

ADMINISTRATION:

The distance required for effective filtration of sediment is sometimes more than 35 feet (see reference). For Type N streams, all lakes, and all wetlands, noncompliance occurs when the opportunity for effective filtering has been lost. The required setback distance depends on the level of disturbance, soil properties, and slope (see the reference).

A Stewardship Forester may allow use of an existing skid road which is closer than 35 feet to a Type F or Type D stream in limited locations if all other feasible harvesting alternatives would result in greater resource damage. Effective drainage must be used to keep sediment-bearing run-off water out of the stream. Placing brush and slash in the trail before use can reduce the amount of exposed soils resulting from yarding operations. Such activity should be described in the written plan required under OAR 629-605-0170.

Skid trails include any area where equipment conducting yarding operations makes multiple passes to the extent that ground surface disturbance is visible. A single pass is not considered a skid trail unless ground conditions are such that visible ruts develop.

REFERENCES:

- OAR 629-605-0170 Written Plans
- *1994 Water Classification and Protection Rules Reference Guide* - Table 8-2, “Skid trail setback guidelines for filtering muddy runoff”, p. 8-26

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(9) Operators shall locate and construct skid trails so that when high stream flow occurs water from the stream will not flow onto the skid trail.

APPLICATION:

This section can be used for enforcement.

COMPLIANCE:

Operators comply with this section when skid trails are kept as far away from streams as practical and are located above the 100-year flood level if possible.

Unsatisfactory Condition: It is an unsatisfactory condition when normal high water levels can encroach on skid trails.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state.

Damage occurs when the unsatisfactory condition results in preventable effects on channel morphology.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. The operator should be advised to re-grade the skid trail, construct effective grade reversals, or other effective corrective action prior to expected runoff events.
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ADMINISTRATION:

Compliance is best accomplished when skid trails are kept well above high water levels of any stream. When it is necessary to cross a stream, skid trails should climb away from the channel on both sides. However this needs to be balanced by grade breaks or reversals, as close as practicable, to minimize the length of trail draining towards the crossing.

Any skid trail located below the 100-year flood levels must contain frequent grade reversals or large rolling dips. Skid trails, which might be covered by flood flows, must not be constructed along the same gradient as the stream. **Grade reversals are essential** when trails are parallel to channels, or when crossing channels.

REFERENCE:

- *1994 Water Classification and Protection Rules Reference Guide* - Figure 8-8, "Locating skid trails parallel to channels", p. 8-28