**Forest Practices Biomass Work-Group**

**MASTER OUTCOME SUMMARY**

***Prioritization “Buckets”***

**Biomass only.**

*Unique to biomass collection.*

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| **Topic: Definitions** |
| 1. There is currently no definition of “Biomass” in Washington’s Forest Practices Rules. |
| **Outcome/Recommendation** |
| The Forest Practices Biomass Work-group, by consensus, proposes that the following definition of “forest biomass” be added to the Forest Practices Rules:  “Forest Biomass” means material from trees, stumps and woody plants that are by-products of forest  management, ecosystem restoration, or hazardous fuel reduction treatments on forest land. Only stumps removed from road and landing construction, for the purpose of forest health, or for conversion to non-forest land qualify as forest biomass. |

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| **Topic: Retention Levels** |
| 1. How much biomass should be left on site to ensure that forest resources/forest function is maintained? 2. Is the “bottom line” of retention, currently in the FP Rules, sufficient under the possibility of a market for more product that would have otherwise been left behind? 3. Rules lack retention targets for fine woody debris. 4. Is there a need for slash retention rules/BMP’s? 5. Should special areas where ground wood is particularly important be identified? 6. Should the fact that stumps cannot be removed be clarified in light of an emerging biomass sector? |
| **Outcome/Recommendation** |
| #1. The group has evaluated the issue, based on today’s practices and the information provided in the UW supply study (DNR, 2012), we don’t see a need for rules or guidance at this point. Group would recommend that the topic be revisited as technology changes, biomass value increases, and the bioenergy sector grows. This re-evaluation should take place no later than 2016. |
| #2. No consensus at this point. The group will evaluate other specific areas to determine if there are exceptions, nuances, etc. that are more specific to this need. |
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| **Topic: Slope** |
| What is the percent slope threshold at which biomass should not be collected due to risks collection with pose on soil erosion, water quality, etc.? |
| **Outcome/Recommendation** |
| The Forest Practices Biomass Work-group, by consensus, proposes the following rule revision:  WAC 222-30-020 Harvest unit planning and design. (1) Logging systems, including forest biomass removal operations, must be appropriate for the terrain, soils, and timber type so that yarding and skidding can be economically accomplished and achieve ecological goals of the rules.  Consensus is that the intent of this revision is captured and Marc will look at the large impacts this revision may have on the rules as a whole to ensure there are no unintended consequences. |

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| **Topic: Soil Health** |
| On sensitive soils, should biomass collection should be limited to the landings during certain seasons (allow removal during dry soil conditions or prohibit a return to the site)? |
| **Outcome/Recommendation** |
| The group identified three aspects to this issue:   1. Physical. A definition for “erodible soils” exists and is used for FPA conditioning. 2. Nutrients. Questions remain, specific to lower site classes, about whether enough organic matter remains on-site to ensure soil nutrients are provided for.   A placeholder has been requested with the following concepts/ideas on the table:   1. A biomass “check-list” for DNR FP staff to utilize when evaluating a biomass removal FPA. 2. DNR should hire a dedicated biomass FTE to work in FP.   The group would like the following:   1. Watch an FPA being screened. 2. Look over FPA, FPA Checklist, FPA’s that have indicated biomass collection as part of the operation. |

**Timber issues that affect biomass.**

*Primarily an issue with timber harvest, road construction, etc., but that has or could relate to the impacts of biomass collection.*

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| **Topic: Definitions** |
| Evaluate the need to define and/or the existing definitions of:  -Slash -Salvage  -Debris -Hazard  -Harvest -Risk  -Consequence |
| **Outcome/Recommendation** |
| The Forest Practices Biomass Work-group, by consensus, determined the following:   1. There is no need to define the word “harvest.” The work “removal” is used throughout the FP rules and is sufficient (with the proposed definition of “forest biomass”) to capture the intent. 2. There is no need to modify the definitions of “slash,” “harvest” or “salvage.” If the proposed definition of “forest biomass” is adopted, it will provide the clarification that revisions to these definitions would have sought to achieve. |
| The Forest Practices Biomass Work-group, by consensus, proposes that the following revision be made to the definition of “Forest Practices” in the Forest Practices Rules:  **"Forest practice"** means any activity conducted on or directly pertaining to forest land and relating to the growing~~,~~ and removal through harvesting~~,~~ or processing of timber or forest biomass, including but not limited to:  Road and trail construction;  Harvesting, final and intermediate;  Precommercial thinning;  Reforestation;  Fertilization;  Prevention and suppression of diseases and insects;  Salvage of trees; and  Brush control.  "Forest practice" shall not include: Forest species seed orchard operations and intensive forest nursery operations; or preparatory work such as tree marking, surveying and road flagging; or removal or harvest of incidental vegetation from forest lands such as berries, ferns, greenery, mistletoe, herbs, mushrooms, and other products which cannot normally be expected to result in damage to forest soils, timber or public resources. |
| The Forest Practices Biomass Work-group determined to put a placeholder on the need to define “hazard,” “risk,” and “consequence.” The group would like to revisit this during the soil nutrients discussion. |

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| **Topic: Timing** |
| 1. Will road abandonment and slash disposal requirements interfere with the need for forest biomass to cure over a period of 6-18 months? 2. Biomass harvest could challenge DNR’s ability to monitor for compliance with FP rules. |
| **Outcome/Recommendation** |
| 1. The Forest Practices Biomass Work-group, by consensus, determined that no rule change or BMP’s were needed to address the road abandonment and timing issue. |
| 1. The Forest Practices Biomass Work-group, by consensus, would like to recommend that, when biomass is being harvested after the timber harvest is complete (when the biomass has had time to cure on site for a period of time), to condition the FPA with the 48 hour notification requirement. FP staff present at the meeting indicated that this would already occur, whether biomass or timber was being harvested, when the “triggers” for the 48-hour notification rule were pulled. The group would like to formally request that FP foresters (perhaps at TFW meetings) be reminded of this as it applied to the removal of forest biomass. |

**Timber only.**

*Effects timber harvest, road construction, etc. only; does not directly affect impacts of biomass collection.*

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| **Topic: Retention Levels** |
| 1. WRT/GRT requirements haven’t been updated in over 20 years. Do these need to be modernized? |
| **Outcome/Recommendation** |
| The Forest Practices Biomass Work-group, by consensus, would like to recommend that the Forest Practices Board prioritize the identification of funding to complete the Landscape Level Wildlife Assessment models. This will provide the necessary information to determine whether existing WRT/GRT requirements are sufficient or if a rule change is necessary to ensure wildlife habitat is sufficiently provided for in the Forest Practices Rules. |

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| **Topic: Other Issues** |
| 1. How is sufficient large woody debris maintained in unbuffered Type Ns and Np streams? (Water Quality, Riparian Zones/Unstable Slopes, Water Infiltration) |
| **Outcome/Recommendation** |
| The Forest Practices Biomass Work-group, by consensus, determined that no action is necessary to address this issue that was raised. |

**State lands only.**

Unique to state lands, due to requirements of HB 2481.

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| **Timing** |
| 1. State timber contracts require that the purchaser complete road abandonment work. How does this interplay with a biomass collector coming back to the site. Do they need to re-abandon the road again? |
| **Existing Forest Practices Rules** |
| None |
| **Existing BMP’s/Science Related to Issue** |
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| **Comments:**  *Do you think rule change is needed? Guidance? Other?*  *What specific changes/guidance is needed?* |
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**Outside the jurisdiction of existing FP Rules.**

Forest Practices currently have no jurisdiction over this issue.

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| **Topic: Definitions** |
| Sustainability. A definition of sustainability is not currently contained in the Forest Practices Rules.  Ecologically sustainable forestry. A definition of ecologically sustainable forestry is not currently contained in the Forest Practices Rules.  Biological Diversity. A definition of biological diversity is not currently contained in the Forest Practices Rules. |
| **Existing Forest Practices Rules** |
| WAC 222-30-010 Policy--Timber harvesting.  \*(1) This chapter covers all removal of timber from forest lands in commercial operations, commercial thinning, salvage of timber, relogging merchantable material left after prior harvests, postharvest cleanup, and clearing of merchantable timber from lands being converted to other uses. It does not cover removal of incidental vegetation or removal of firewood for personal use. To the extent practicable, the department shall coordinate activities using a multiple disciplinary planning approach.  \*(2) The goal of riparian rules is to protect aquatic resources and related habitat to achieve restoration of riparian function; and the maintenance of these resources once they are restored.  \*(3) The rules provide for the conversion and/or treatment of riparian forests which may be understocked, overstocked or uncharacteristically hardwood dominated while maintaining minimum acceptable levels of function on a landscape scale. The diversity of riparian forests across the landscapes is addressed by tailoring riparian prescriptions to the site productivity and tree community at any site.  \*(4) Wetland areas serve several significant functions in addition to timber production: Providing fish and wildlife habitat, protecting water quality, moderating and preserving water quantity. Wetlands may also contain unique or rare ecological systems. The wetland management zone and wetland requirements specified in this chapter are designed to protect these wetland functions when measured over the length of a harvest rotation, although some of the functions may be reduced until the midpoint of the timber rotation cycle. Landowners are encouraged to voluntarily increase wetland acreage and functions over the long-term.  WAC 222-16-080 Critical habitats (state) of threatened and endangered species |
| **Existing BMP’s/Science Related to Issue** |
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| **Comments:**  *Do you think rule change is needed? Guidance? Other?*  *What specific changes/guidance is needed?* |
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| **Topic: Retention Levels** |
| 1. Is soil quality within the juridiction of the Forest Practices Rules to regulate? |
| **Existing Forest Practices Rules** |
| |  |  | | --- | --- | | RCW 76.09.010  Legislative finding and declaration. |  |   (1) The legislature hereby finds and declares that the forest land resources are among the most valuable of all resources in the state; that a viable forest products industry is of prime importance to the state's economy; that it is in the public interest for public and private commercial forest lands to be managed consistent with sound policies of natural resource protection; that coincident with maintenance of a viable forest products industry, it is **important to afford protection to forest soils**, fisheries, wildlife, water quantity and quality, air quality, recreation, and scenic beauty.  (2) The legislature further finds and declares it to be in the public interest of this state to create and maintain through the adoption of this chapter a comprehensive statewide system of laws and forest practices rules which will achieve the following purposes and policies:  (a) Afford protection to, promote, foster and encourage timber growth, and require such minimum reforestation of commercial tree species on **forest lands as will reasonably utilize the timber growing capacity of the soil following current timber harvest**;  (b) **Afford protection to forest soils** and public resources by utilizing all reasonable methods of technology in conducting forest practices;  (c) Recognize both the public and private interest in the profitable growing and harvesting of timber;  (d) Promote efficiency by permitting maximum operating freedom consistent with the other purposes and policies stated herein;  (e) Provide for regulation of forest practices so as to avoid unnecessary duplication in such rules;  (f) Provide for interagency input and intergovernmental and tribal coordination and cooperation;  (g) Achieve compliance with all applicable requirements of federal and state law with respect to nonpoint sources of water pollution from forest practices;  (h) To consider reasonable land use planning goals and concepts contained in local comprehensive plans and zoning regulations;  (i) Foster cooperation among managers of public resources, forest landowners, Indian tribes and the citizens of the state;  (j) Develop a watershed analysis system that addresses the cumulative effect of forest practices on, at a minimum, the public resources of fish, water, and public capital improvements of the state and its political subdivisions; and  (k) Assist forest landowners in accessing market capital and financing for the ecosystem services provided to the public as a result of the protection of public resources.  (3) The legislature further finds and declares that it is also in the public interest of the state to encourage forest landowners to undertake corrective and remedial action to reduce the impact of mass earth movements and fluvial processes.  (4) The legislature further finds and declares that it is in the public interest that the applicants for state forest practices permits should assist in paying for the cost of review and permitting necessary for the environmental protection of these resources. |
| **Existing BMP’s/Science Related to Issue** |
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| **Comments:**  *Do you think rule change is needed? Guidance? Other?*  *What specific changes/guidance is needed?* |
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| **Topic: Ecosystem Functionality** |
| 1. What is the possibility for the Forest Practices Rules to apply an ecosystem functionality approach to rules, in general. Increasing the scale of management – a crosswalk of conservation measures under existing HCP. |
| **Existing Forest Practices Rules** |
| WAC 222-30-010 Policy--Timber harvesting.  \*(1) This chapter covers all removal of timber from forest lands in commercial operations, commercial thinning, salvage of timber, relogging merchantable material left after prior harvests, postharvest cleanup, and clearing of merchantable timber from lands being converted to other uses. It does not cover removal of incidental vegetation or removal of firewood for personal use. To the extent practicable, the department shall coordinate activities using a multiple disciplinary planning approach.  \*(2) The goal of riparian rules is to protect aquatic resources and related habitat to achieve restoration of riparian function; and the maintenance of these resources once they are restored.  \*(3) The rules provide for the conversion and/or treatment of riparian forests which may be understocked, overstocked or uncharacteristically hardwood dominated while maintaining minimum acceptable levels of function on a landscape scale. The diversity of riparian forests across the landscapes is addressed by tailoring riparian prescriptions to the site productivity and tree community at any site.  \*(4) Wetland areas serve several significant functions in addition to timber production: Providing fish and wildlife habitat, protecting water quality, moderating and preserving water quantity. Wetlands may also contain unique or rare ecological systems. The wetland management zone and wetland requirements specified in this chapter are designed to protect these wetland functions when measured over the length of a harvest rotation, although some of the functions may be reduced until the midpoint of the timber rotation cycle. Landowners are encouraged to voluntarily increase wetland acreage and functions over the long-term. |
| **Existing BMP’s/Science Related to Issue** |
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| **Comments:**  *Do you think rule change is needed? Guidance? Other?*  *What specific changes/guidance is needed?* |
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| **Topic: Carbon Storage** |
| Should carbon storage be addressed by FP rules? It is not currently within our statutory authority. |
| **Existing Forest Practices Rules** |
| None specific, however a number require leaving of timber, slash and debris:  WAC 222-30-020 (11) Wildlife reserve tree management. Western Washington, Three wildlife reserve trees, Two green recruitment trees and Two down logs per acre shall be left. In Eastern Washington, Two wildlife reserve trees, Two green recruitment trees and Two down logs per acre shall be left.  WAC 222-30-040 Stream bank integrity. Avoid disturbing brush and stumps, and leave stumps and large tree root systems.  WAC 222-30-060(5) Direction of yarding. Type S or F Water channel below 100-year flood level or within RMZ, care should be taken to minimize soil disturbance and prevent logs from entering water.  WAC 222-30-070(8) Skid trail maintenance. Within 200 feet of typed water… use (leave)… slash to minimize sediment delivery to stream.  WAC 222-30-100(3) Landing cleanup. Dispose or pile slash accumulations that would prevent reforestation.  WAC 222-16-010 “Completion of harvest” definition. Preparation for reforestation including the timing of slash disposal.  WAC 222-16-010 “Site preparation” definition. Preparation for reforestation; removal of slash, scarification, slash burning. |
| **Existing BMP’s/Science Related to Issue** |
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| **Comments:**  *Do you think rule change is needed? Guidance? Other?*  *What specific changes/guidance is needed?* |
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| **Topic: Other Issues** |
| 1. Reforestation species: will species shift for biomass production? Mostly in outer limits of RMZ. NOTE: This is ‘thin ice’ with regard to telling landowners what to plant. (Silviculture) 2. Interim Step: Biomass industry infrastructure in eastern Washington is so immature it is not possible to address what constitutes appropriate biomass harvest on the Eastside of the Cascades.    1. Need a field trip. Spring 2012. Public and private lands; pre and post- harvest. (Disturbance) 3. Aquatics emphasis in rules; not a lot that relates to uplands with regard to disturbances. Gaps in rules related to uplands vs. aquatics. (Disturbance) 4. Forest Health Bill excluded riparian areas because CMER was supposed to be looking at that. Not in the rules. (Disturbance) 5. Dynamic forest products market that defines end use of all products. (Disturbance) 6. We can’t currently determine the efficacy of the existing FP rules with regard to dead wood and slash disposal. (Dead wood, slash disposal, carbon storage) 7. L&I rules conflict with replanting and the ability to leave snags. Leaving snags is important for wildlife habitat. Clumping is one potential solution. (Wildlife, Biodiversity, and Cultural Resources) 8. Site prep information where rules discuss harvest, salvage, etc. (Wildlife, Biodiversity, and Cultural Resources) 9. Will shrub layer be collected in the future for utilization as biomass? (Wildlife, Biodiversity, and Cultural Resources) |
| **Existing Forest Practices Rules** |
| WAC 222-34-010 Required reforestation — West of Cascades Summit.    1) Reforestation - where required.     a) Unless the harvest application indicates that the land will be converted to another use, or the lands are identified in WAC [222-34-050](http://apps.leg.wa.gov/wac/default.aspx?cite=222-34-050) as having a likelihood of conversion to urban uses, reforestation is required for forest lands harvested after January 1, 1975 in the following instances:      i) Clearcutting; or      ii) Partial cutting where 50 percent or more of the timber volume is removed within any 5-year period, unless the department determines that the live trees remaining will reasonably utilize the timber growing capacity of the soils.      b) Reforestation is not required where:      i) Individual dead, dying, down or windthrown trees are salvaged; or      ii) A tree or trees not constituting a merchantable stand are removed from lands in actual use for other purposes; for example, removal of individual trees from lands used for farming or grazing; or      iii) Trees are removed under a thinning program reasonably expected to maximize the long-term production of commercial timber; or      iv) An average of 190 vigorous, undamaged, well-distributed seedlings per acre of a commercial tree species are established on the area harvested (up to 20 percent of the harvested area may contain fewer than 190 seedlings per acre, but no acre of the harvested area with timber growing capacity may contain less than 150 seedlings per acre); or      v) A minimum of 100 vigorous, undamaged, well-distributed saplings or merchantable trees per acre of a commercial species or combinations thereof, remain on the area harvested.      2) Reforestation standards. A harvested area is reforested when that area contains an average of 190 or more vigorous, undamaged commercial species seedlings per acre that have survived on the site for at least 1 growing season. Up to 20 percent of the harvested area may contain fewer than 190 seedlings per acre, but no portion of the harvested area with timber growing capacity may contain less than 150 seedlings per acre. The department may determine that less than an average of 190 seedlings per acre is acceptable if fewer seedlings will reasonably utilize the timber growing capacity of the site.      3) Competing vegetation. Competing vegetation shall be controlled to the extent necessary to allow establishment, survival, and growth by commercial species.      4) Artificial regeneration standards.       a) Satisfactory reforestation - clearcuts. Satisfactory reforestation of a clearcut harvest occurs if within 3 years of completion of harvest, or a period of from 1 to 10 years as determined by the department in the case of a natural regeneration plan, the site is restocked to at least the acceptable stocking levels described in subsection (2) of this section: Provided, That regeneration failures from causes beyond the applicant's control will not result in violation of this section, but supplemental planting or reforestation may be required except in riparian management zones (see WAC [222-34-030](http://apps.leg.wa.gov/wac/default.aspx?cite=222-34-030)(4)).      The department may grant an extension of time for planting or seeding if suitable seedlings or if seeds are unavailable, or if weather conditions or other circumstances beyond the forest land owner's control require delay in planting or seeding.      i) Reforestation species. Where the species proposed for reforestation after timber harvesting differs from the removed stand, the department may approve use of the proposed species where the reforestation plan reveals that the proposed species is preferable from any of the following standpoints:      A) Site data indicates better potential production for the proposed species than the existing species.      B) Control of forest insects or diseases.      C) Greater economic return.      ii) Seedling or seeding standards. Except as approved by the department to qualify as acceptable reforestation, the seedlings or seeds must be from an appropriate seed source zone. The department shall establish seed zones and guidelines for their use.      b) Satisfactory reforestation - partial cuts. Where reforestation is required in connection with a partial cut, the harvest application shall include a plan for stocking improvement. The plan shall be approved unless the department determines that it will not reasonably utilize the timber growing capacity of the site.      5) Natural regeneration standards. A natural regeneration plan may be approved as acceptable reforestation if:      a) A seed source of well formed trees of commercial tree species, capable of seed production is available.      b) The owner of the seed source agrees in writing not to harvest the seed source for the time period specified in the plan, or until issuance of a satisfactory reforestation inspection report.      c) The seed source must consist of:      i) Seed blocks of sizes and locations shown on the plan and satisfactory to the department; or      (ii) An average of at least 8 individually marked, well-distributed, undamaged, vigorous, windfirm seed trees per acre of plantable area and no inadequately stocked area is more than 400 feet from the nearest seed tree; and      (iii) Competing vegetation shall be controlled to the extent necessary to allow establishment, survival, and growth by commercial species.      (6) Any alternate plan for natural reforestation may be approved if it provides a practical method of achieving acceptable stocking levels as described in subsection (2) of this section within a period of 1 to 10 years.  WAC 222-34-020 Required reforestation — East of Cascades Summit.    1) Reforestation - where required.      a) Unless the harvest application indicates that the land will be converted to another use, or the lands are identified in WAC [222-34-050](http://apps.leg.wa.gov/wac/default.aspx?cite=222-34-050) as having a likelihood of conversion to urban use, reforestation is required for forest lands harvested after January 1, 1975 in the following instances:      i) Clearcutting; or      ii) Partial cutting where 50 percent or more of the timber volume is removed within any 5-year period, unless the department determines that the live trees remaining will reasonably utilize the timber growing capacity of the soils      b) Reforestation is not required where:      i) Individual dead, dying, down or windthrown trees are salvaged; or      ii) A tree or trees not constituting a merchantable stand are removed from lands in actual use for other purposes, for example, removal of individual trees from lands used exclusively for farming or cultivated pasture; or      iii) Trees are removed under a thinning program reasonably expected to maximize the long-term production of commercial timber; or      iv) An average of 150 vigorous, undamaged, well-distributed seedlings per acre of a commercial tree species are established on the area harvested (up to 20 percent of the harvested area may contain fewer than 150 seedlings per acre, but no acre of the harvested area with timber growing capacity may contain less than 120 seedlings per acre); or      v) A minimum of 100 vigorous, undamaged, well-distributed advanced regeneration, saplings or merchantable trees per acre of a commercial tree species or combinations thereof, remain on the area harvested.      2) Reforestation standards. A harvest area is reforested when that area contains an average of 150 or more vigorous, undamaged commercial species seedlings per acre that have survived on the site for at least 1 growing season. Up to 20 percent of the harvested area may contain fewer than 150 seedlings per acre, but no portion of the harvested area with timber growing capacity may contain less than 120 seedlings per acre. The department may determine that less than an average of 150 seedlings per acre is acceptable if fewer seedlings will reasonably utilize the timber growing capacity of the site.      3) Competing vegetation. Competing vegetation shall be controlled to the extent necessary to allow establishment survival and growth by commercial species.      4) Artificial regeneration standards.       a) Satisfactory reforestation - clearcuts. Satisfactory reforestation of a clearcut harvest occurs if within 3 years of completion of harvest or a period of from 1 to 10 years as determined by the department in the case of a natural regeneration plan, the site is restocked to at least the acceptable stocking levels described in subsection (2) of this section: Provided, That regeneration failures from causes beyond the applicant's control will not result in a violation of this section, but supplemental planting may be required except in riparian management zones (see WAC [222-34-030](http://apps.leg.wa.gov/wac/default.aspx?cite=222-34-030)(4)).      The department may grant an extension of time for planting or seeding if suitable seedlings or seeds are unavailable, or if weather conditions or other circumstances beyond the forest landowner's control require delay in planting or seeding.      i) Reforestation species. Where the species proposed for reforestation after timber harvesting differs from the removed stand, the department may approve use of the proposed species where the reforestation plan reveals that the proposed species is preferable from any of the following standpoints:      A) Site data indicates better potential production for the proposed species than the existing species.      B) Control of forest insects or diseases.      C) Greater economic return.      ii) Seedling and seed standards. Except as approved by the department to qualify as acceptable reforestation, the seedlings and seed must be from an appropriate seed source zone. The department shall establish seed zones and guidelines for their use.      b) Satisfactory reforestation - partial cuts. Partial cuts not meeting the specifications of subsection (1)(b)(iv) or (v) of this section shall have a seed source as required in subsection (5)(c)(ii) of this section.      5) Natural regeneration standards. A natural regeneration plan may be approved by the department as acceptable reforestation if:      a) A seed source of well-formed, vigorous trees of commercial tree species capable of seed production is available.      b) The owner of the seed source agrees in writing not to harvest the seed source for the time period specified in the plan or until issuance of a satisfactory reforestation inspection report.      c) The seed source consists of one of the following, or combinations thereof:      i) Seed blocks which total a minimum of 5 percent of the area of each 40 acre subdivision or portion thereof harvested: Provided, That the seed block should be reasonably windfirm, at least 1/2 acre in size, and reserved in locations shown on the plan and approved by the department; or      ii) A minimum of 4 undamaged seed trees per acre, well distributed over each 40 acre subdivision or portion thereof harvested: Provided, That the distance from seed trees of harvested areas that are not adequately stocked should not be more than 200 feet. Seed trees shall be of commercial tree species, vigorous and of seed-bearing age and size.      6) Any alternate plan for natural reforestation may be approved if it provides a practical method of achieving acceptable stocking levels as described in subsection (2) of this section within a period of 1 to 10 years.  WAC 222-34-030 Reforestation — Plans — Reports — Inspections.    1) Reforestation plans. Reforestation plans must be submitted with the application or notification except where no reforestation is required. The department shall designate difficult regeneration areas utilizing silvicultural information. When a forest practice is proposed for such an area, the department may require additional information regarding harvest systems and post harvest site preparation, as well as regeneration. The department shall approve the reforestation plan for difficult regeneration areas if it determines that such a plan will achieve acceptable stocking according to WAC [222-34-010](http://apps.leg.wa.gov/wac/default.aspx?cite=222-34-010) and [222-34-020](http://apps.leg.wa.gov/wac/default.aspx?cite=222-34-020).      2) Reforestation reports. The landowner, forest landowner, or his/her designee shall file a report with the department either at the time of completion of planting or reforestation or at the end of the normal planting season. When artificial seeding is used the report shall be filed 2 growing seasons after seeding.      3) The reports in subsection (2) of this section must contain at least the following:       a) The original forest practices application or notification number.      b) Species reforested, planted, or seeded.      c) Age of stock planted or seed source zone.      d) Description of actual area reforested, planted, or seeded.      4) Inspection; supplemental planting or reforestation directives.      a) Within 12 months after a reforestation report is received, the department shall inspect the reforested lands. The department shall issue written notice to the landowner, forest landowner, or his/her designee stating whether supplemental planting or reforestation or further inspection is required within 30 days after the deadline for inspection or the reforestation shall be deemed satisfactory.      b) If the inspection shows that acceptable stocking levels have not been achieved, the department shall direct the forest landowner to perform supplemental planting in accordance with the planting standards of WAC [222-34-010](http://apps.leg.wa.gov/wac/default.aspx?cite=222-34-010) (3) and (4)(a)(ii), 222-34-020 (3) and (4)(a)(ii): Provided, That:      i) In lieu of such supplemental planting, the department and the forest landowner may agree on a supplemental reforestation plan.      ii) Supplemental planting or reforestation shall not be required where in the opinion of the department planting or reforestation is not feasible due to rocky ground, dry conditions, excessively high water table or other adverse site factors and the department determines that there is little probability of significantly increasing the stocking level.      iii) Where supplemental planting or reforestation has been required by the department, the landowner, forest landowner, or his/her designee shall file a report of supplemental planting or reforestation upon completion.      iv) Except where stocking improvement is necessary to protect public resources and is feasible, further supplementary planting shall not be required where acceptable stocking levels have not been achieved after two properly performed supplemental plantings.      c) Within 12 months after a supplemental planting or reforestation report is received, the department shall inspect the reforested lands.      d) Evidence of compliance. The department shall within 30 days after the deadline for inspection or reinspection and when requested by the forest landowner confirm in writing whether acceptable stocking levels have been achieved, provided field conditions do not prevent the department from properly evaluating the reforestation.      e) Where a natural regeneration plan has been approved by the department, the department may allow up to 10 years to achieve acceptable stocking levels.  WAC 222-34-040 Site preparation and rehabilitation.    1) Heavy equipment. Heavy equipment shall not be used in connection with site preparation or rehabilitation work:      a) When, because of soil moisture conditions or the type of soils, undue compaction or unnecessary damage to soil productivity would occur or erosion would result in damage to water quality; or      b) Within riparian management zones, Type A and B Wetlands, wetland management zones, or within equipment limitation zones of Type Np and Ns Waters on slopes of 30 percent or less. On slopes greater than 30 percent heavy equipment shall not operate within 50 feet of Type S through Ns Waters unless a site specific plan has been approved by the department.      2) Surface water drainage. Where site preparation or rehabilitation involves contouring or terracing of slopes, drainage ditches, or similar work:      a) The gradient of ditches or other artificial water courses in erodible soils shall not cause significant stream, lake, pond, or wetland siltation.  b) Ditches and other artificial water courses shall not discharge onto any road, landing or fill.      c) Ditches and other artificial water courses shall not be constructed to discharge onto the property of other parties without their consent.      3) Stream channel realignment. Where work involves deepening, widening, straightening or relocating the channel; or bulkheading, riprapping or otherwise stabilizing the banks of a Type S or F Water, a hydraulic project approval is always required, and the work shall be done only:      a) After consultation with any party having an appropriation permit or registered right to appropriate waters from the affected stream segment in cases of streams used for domestic water supplies.      b) Where no significant adverse effects on either the peak or minimum water levels or flows downstream can be expected.      c) In a manner not expected to result in long-term damage to public resources or to adjacent or downstream property. |
| **Existing BMP’s/Science Related to Issue** |
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| **Comments:**  *Do you think rule change is needed? Guidance? Other?*  *What specific changes/guidance is needed?* |
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**Comprehensive List of “Flagged” Items**

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| **Topic: Definitions** |
| **Silviculture**  Revisit terms contained in specific treatments (the entire definitions section of the WACs should be revisited as they pertain to biomass harvest).  **Disturbance**  Define subset of materials for which biomass is possible = all types of material are part of the discussion. Goes back to the need for a clear definition of biomass.   * 1. It’s currently pre-mature to define it; this process could help.   Example: Slash may be biomass, thinning may be something else.  “Slash” is 3 cubic feet or bigger in the rule. Does this need to be revised?  **Dead wood, Slash Disposal, and Cultural Resources**  Does course woody debris include stumps?   * 1. Need to look into definitions section.   2. Might need to clarify that stumps can’t be taken in a guidance document. Do stumps count toward contributing to ecological requirements?   Should “salvage” be added to this section (after harvesting)?  Bigger issue: Definitional evaluation of “salvage” and “harvest” to avoid unintentional harvest.  California’s Forest Practices Rules identify “biological diversity” as a consideration of forest and watershed planning. This is different from Washington’s rules and points to a Watershed analysis approach to biomass collection.  Will SEPA be triggered only if it’s a “harvest” and not a “salvage?”  Is biomass a harvest or a salvage? Both because it includes harvest activities that are FP activities.  (For Definition) Ecologically sustainable forestry “perpetuating ecosystem integrity while continuing to provide wood and non-wood values.” |

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| **Topic: Timing** |
| **Soil Productivity**  For state timber sales, major obstacle is the timber contract requirement to abandon roads, a return by the biomass collector requires the roads to re-built and then re-abandoned again.  **Roads**  Timing of road abandonment is key. Don’t want to tear out a road after timber harvest is complete if biomass harvest is planned. How can roads be left open after timber contracts expire? DNR state lands issue mostly with regards to long term biomass contracts.  Biomass removal may require more roads slated for abandonment to remain open longer: what burden does that put on DNR state lands managers to monitor? Staffing issues have been better for roads than other issues. How will staffing needs be met if roads are open longer? Work-load issue. This would be a timing issue for the forest practices RMAP program, the number and miles of road abandonment will remain the same.  Abandonment: there is a need to coordinate RMAP plan/work with biomass harvest.  **Dead wood, slash disposal, carbon storage**  Rule addressing landing clean-up directs slash to be removed within 60 days or as soon thereafter as practical. Could this pose an issue for biomass collection? WAC 222-30-080   * 1. If plans for removal are described in the Forest Practices application, intent of this requirement will be met. Must be explicit in application (can’t negatively affect resources, roads might be an issue).      1. Need to cure biomass is not an excuse to hold off reforestation and/or risk resource damage.   2. WAC 222-16-010 “Completion of Harvest.” What happens when timber contractor is independent of biomass contractor? How do we address situations where two kinds of harvests are decoupled?      1. Possibly not enough time in the 6-month window. |

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| **Topic: Retention** **Levels** |
| **Soil Productivity**  How much biomass should be left on site to ensure soil quality is maintained? How much slash needs to be left for wildlife and soil quality, to control and reduce surface run-off, maintain ecosystem functionality (harvest cycle is a contributor = potential metric), and contribute to reforestation efficacy?  Piece size is missing from the rules to define both ends of the size spectrum for “biomass” collection. Slash is defined as “pieces of woody material containing more than 3 cubic feet resulting from forest activities” and debris is defined as “woody vegetative residue less than 3 cubic feet in size resulting from forest practices activities.”  **Silviculture**  How much biomass should be left on site to ensure soil quality is maintained? How much slash needs to be left for wildlife and soil quality, to control and reduce surface run-off, maintain ecosystem functionality (harvest cycle is a contributor = potential metric), and contribute to reforestation efficacy?  **Dead Wood, Slash Disposal, Carbon Storage**  Is our group goal/intent to create broad goals like other states or more specific goals (site index) with regard to dead/down wood and retention levels (volumes)?  WRT/GRT requirements were last updated in 1992, need to determine if they need to be updated.  Rules lack retention targets for fine woody debris, need to determine if they need to be updated to include fine woody debris.  **Water Quality, Riparian Zones/Unstable Slopes, Water Infiltration**  How do we approach the issue of how much biomass needs to be left on site, in general: performance/prescriptive based or qualitative?  Methods for regulatory surrogate for identifying/measuring amount left on site. % ground cover, minimum bare soil.  **Wildlife, Biodiversity, and Cultural Resources**  Regarding retention levels: a) Retain a range of size and age classes of dead wood. b) Ensure that some large trees or snags are retained. c) Meet dead wood requirements for larger species in areas where the emphasis is not on intensive fiber production.  Avoid damaging existing downed woody debris, especially large (18+ inches) hollow or rotten logs and rotten stumps during harvesting operations (including tree falling, skidding, and road and skid trail layout). \*Special focus on decayed logs.  No rules exist for slash retention/protection for duff/litter, understory shrubs/herbs, or non-merchantable trees. |

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| **Topic: Slope** |
| **Water Quality, Riparian Zones/Unstable Slopes, Water Infiltration**  WAC 222-30-070. Slope Restrictions   * 1. 30% slope limit is SOP, but not specifically restricted in WAC. This is due to equipment restrictions and depends on the length of the slope, type of machinery used. 50% slope is more of a reasonable limit with site, seasonal, and equipment specifics. Operator skills also affect limits. Must meet performance objectives.   2. Slopes over certain thresholds have different impacts on hydrology. Do we want to evaluate slopes in a stratified manner based on % slope?      1. FP rules already prohibit rutting.   3. Biomass can’t be removed from bounded areas identified as unstable slopes.      1. Who determines that an area is “off limits”/unstable slope? Geologist/DNR qualifies the report, experts are needed. Foresters who work in areas can identify unstable slopes. DNR won’t approve a FP permit application without approval from geologists.   4. Retain at least 30% of the fine woody debris on slopes conducive to ground-based harvesting and 50% or more on steeper slopes. (Harrison et al. 2011)   5. Soils with the highest inherent erodibility contain high proportions of fine sand and silt, low amounts of oil organic matter, and slow permeability… these soils tend to erode easily when disturbed or exposed, especially on long slopes or slopes greater than 10%. (Minnesota BMP)   6. Why are steepness thresholds so much lower in other states (35-40%) than in WA (65-70%)? Based on experience and vulnerability. |

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| **Topic: Ecosystem Functionality** |
| **Wildlife, Biodiversity, and Cultural Resources**  Can biodiversity be truly applied to FP rules?  Landscape vs. stand scale management. Complete the WDFW model that was started but not finished.  **Water Quality, Riparian Zones/Unstable Slopes, Water Infiltration**  Integrate parts of discussion into RMZ standards, etc. Look at interaction of effects (vegetation composition, invasives; organic material). How could/does biomass removal impact green recruitment in RMZ, buffered/unbuffered reaches?  No FP Rules for cumulative effects of traditional harvest at the watershed scale. |

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| **Topic: Soil Health & Productivity** |
| For biomass harvest on sensitive soils, perhaps it would be best to say that no machinery can go back onto the site to collect; collection must be limited to the landing.  Difference between landing collection and going out onto the unit to collect biomass; difference should be made clear. |

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| **Topic: Carbon Storage** |
| **Silviculture**  Be aware of carbon accounting issues.  **Dead wood, slash disposal, carbon storage**  If retaining soil carbon based on biomass is equal to keeping more biomass on the ground, the trade- off diminished opportunity for production of renewable fuels and energy.  What is the analytical boundary of this group? Need to stay focused on the FP Act/rules.  There are no FP rules related to carbon storage; group needs to think about whether such rules are necessary.   1. Group could form a goal. Example: no net loss. 2. Group could look at whether carbon is being sequestered adequately as a result of meeting other goals already articulated in the FP rules. 3. What timeframe and scale is appropriate for this inquiry?   Carbon is not covered in the RCW, though it’s still important to other elements of ecosystem health – regeneration, wildlife habitat, etc. |

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| **Topic :Other Issues** |
| 1. Reforestation species: will species shift for biomass production? Mostly in outer limits of RMZ. NOTE: This is ‘thin ice’ with regard to telling landowners what to plant. (Silviculture) 2. Interim Step: Biomass industry infrastructure in eastern Washington is so immature it is not possible to address what constitutes appropriate biomass harvest on the Eastside of the Cascades.    1. Need a field trip. Spring 2012. Public and private lands; pre and post- harvest. (Disturbance) 3. Aquatics emphasis in rules; not a lot that relates to uplands with regard to disturbances. Gaps in rules related to uplands vs. aquatics. (Disturbance) 4. Forest Health Bill excluded riparian areas because CMER was supposed to be looking at that. Not in the rules. (Disturbance) 5. Dynamic forest products market that defines end use of all products. (Disturbance) 6. We can’t currently determine the efficacy of the existing FP rules with regard to dead wood and slash disposal. (Dead wood, slash disposal, carbon storage) 7. How is sufficient large woody debris maintained in unbuffered Type Ns and Np streams? (Water Quality, Riparian Zones/Unstable Slopes, Water Infiltration) 8. L&I rules conflict with replanting and the ability to leave snags. Leaving snags is important for wildlife habitat. Clumping is one potential solution. (Wildlife, Biodiversity, and Cultural Resources) 9. Site prep information where rules discuss harvest, salvage, etc. (Wildlife, Biodiversity, and Cultural Resources) 10. Will shrub layer be collected in the future for utilization as biomass? (Wildlife, Biodiversity, and Cultural Resources) |