



Summary of Forest Practices Board Actions Addressing Unstable Slopes

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February 8, 2017



History of unstable slope rules and guidance

- **No unstable rules pre-1982, however, broad conditioning authority (potential or actual material damage to public resources)**
- **1982 established Class IV Special trigger for roads in WAC222-16-050(e) and road construction and maintenance chapter in WAC 222-24-020(6).**



History of unstable slope rules and guidance

- **1987 TFW agreement – investment in technical expertise, better information – maps, ID rain-on-snow zones (triggers for some events), monitoring**
- **Hired first regulatory geologist 1988**
- **Many FPAs in western WA were reviewed for unstable slopes**
- **Soil scientist hired in 1990**



History of unstable slope rules and guidance

- **1990 emergency rules and 1992 permanent rules**
 - rain-on-snow
 - Harvesting on unstable slopes - Class IV special
 - No specific SEPA guidance on unstable slopes
- **Watershed analysis rule was included**
- **Watershed analysis included mass-wasting module**
 - Qualified scientists asked to delineate mass-wasting maps units
 - The first general mapping followed by more precise mapping better delineating unstable slopes
 - Most WSA resulted in MW Rx's around 4 kinds of unstable slopes



History of unstable slope rules and guidance

Forests and Fish Commitments on Unstable Slopes (ESHB2091)

- Screen each application for risks associated with unstable slopes (forest practices on potential unstable slopes)
- Screening tools would be developed



History of unstable slope rules and guidance

FFR Commitments on unstable slopes

- DNR forester would verify whether an unstable landform was present & had potential to deliver
- Foresters (both DNR and others) would be trained to recognize unstable slopes
- landforms that should be included



History of unstable slope rules and guidance

- **Unstable slopes to be recognized were:**
 - Inner gorges, convergent headwalls & bedrock hollows steeper than 70%
 - Toes of deep-seated landslides with slopes > 65%
 - Groundwater recharge areas for clacial deep-seated landslides
 - Outer edge of meanders of an unconfined meandering stream or CMZ (channel migration zone)
 - catch all category (indicators of instability)



History of unstable slope rules and guidance

- Landowners are required to show unstable landforms on FPAs
- Landowners were encouraged to voluntarily provide a geology report on risks up front
- And where the potentially unstable slope has the potential to deliver sediment or debris to a public resource or to threaten public safety .



History of unstable slope rules and guidance

- **Specific SEPA guidance – geotechnical report**
 - What forest practices proposed on potentially unstable slopes
 - Is it likely to increase potential for failure
 - if the slope failed had the potential to deliver to public resource or threaten public safety
 - Mitigation for identified risks
 - SEPA checklist
- **Develop board manual for guidance.**



History of unstable slope rules and guidance

- **Class IV special rule refined to include specific landforms and snow avalanche slopes (222-16-050(d & e))**
- **SEPA guidance added (222-10-030)**
- **For Class IV-S FPA with SEPA, DNR reviews with FPST QE and determines whether the proposed forest practice is likely to increase the probability of a failure that would deliver to public resource.**



History of unstable slope rules and guidance

- Inner gorges, convergent headwalls, bedrock hollows, deep-seated landslides, groundwater recharge areas for glacial deep-seated landslides and threaten public safety was defined (222-16-010)
- Qualified experts were defined (222-10-030)
- Forest Practices Board Manual was amended



Summary of Board Actions Addressing Unstable Slopes Since 2014

February 2014, Board accepted TFW Policy Committee's recommendations to make process improvements in FPA review and to further research and monitor the effectiveness of road and harvest prescriptions to meet mass wasting resource objectives



Summary of Board Actions Addressing Unstable Slopes Since 2014

May 2014 the Board directed the:

- **AMP to prioritize mass wasting work**
- **DNR to develop Phase 1 of Board Manual Section 16**
- **DNR to file CR-101 indicating the Board's intent to amend DNR's authority to require additional information**
- **DNR to develop rule language**



Summary of Board Actions Addressing Unstable Slopes Since 2014

November 2014 the Board:

- **Approved as interim the amended Board Manual Section 16;**
- **Directed DNR to initiate Phase 2 of Board Manual Section 16 development**
- **Accepted draft rule language and directed DNR to initiate formal rulemaking**



Summary of Board Actions Addressing Unstable Slopes Since 2014

August 2015 the Board:

- Approved Board manual Section 16;
- Directed DNR to continue the stakeholder process to complete the manual section

November 2015 the Board:

- Approved Board manual Section 16;
- Directed DNR to prepare a Proposal Initiation to address concerns brought forward in the CC letter to the Board



Summary of Board Actions Addressing Unstable Slopes Since 2014

February 2016 the Board accepted the Proposal Initiation and directed TFW Policy Committee through the AMPA to present to the Board an AMP work plan and timeline to deliver recommendations to the Board

May 2016 the Board approved Board Manual Section 16



Summary of Board Actions Addressing Unstable Slopes Since 2014

August 2016 the Board accepted and approved TFW Policy Committee recommendations to review:

- **Potential instability and failure mechanisms of deep seated landslides**
- **Reactivation potentials of relict and dormant deep seated landslides, and terminology for each; and**
- **Determine if an empirically-based runout tool can developed for shallow rapid landslides**



