

## **INITIAL STATEMENT OF REASONS**

### **Operations on Saturated Soils and Stable Operating Surfaces, 2010**

**[Published July 9, 2010]**

#### **Title 14 of the California Code of Regulations (14 CCR):**

##### **Amend:**

- 14 CCR § 895.1 Definitions.
- 14 CCR § 914.7 [934.7, 954.7]. Timber Operations, Winter Period.
- 14 CCR § 915.1 [935.1, 955.1]. Use of Heavy Equipment for Site Preparation.
- 14 CCR § 916.9 (k)[936.9(k), 956.9 (k)]. Year-Round Logging Road, Landing and Tractor Road Use Limitations.
- 14 CCR § 916.9 (l) [936.9(l), 956.9 (l)]. Extended Wet Weather Period.
- 14 CCR § 923.1, [943.1, 963.1]. Planning for Roads and Landings.
- 14 CCR § 923.2 [943.2, 963.2]. Road Construction.
- 14 CCR § 923.5 [943.5, 963.5]. Landing Construction.
- 14 CCR § 1093.2. Contents of Road Management Plan.
- 14 CCR § 1104.1. Conversion Exemptions.

#### **PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATIONS ARE INTENDED TO ADDRESS**

The Board received a letter from a Registered Professional Forester (RPF) and the California Forestry Association related to amendments needed for sections of the Forest Practice Rules (FPRs) that use the term “saturated soils” and “stable operation surface”. The letters indicate unintended adverse economic consequences resulting from changes made in 2009 to the “saturated soil conditions” and “stable operating surface” definitions.

The amendments made in 2009 extracted from the definition the resultant environmental impacts (e.g. turbidity in watercourses) that could be caused by operations on saturated soils/unstable operating surface, and solely retained the characteristics/definition of a saturated soil conditions /stable operating surface or (e.g. road surface showing pumping of water from soil fines). In doing this, several FPR subsections now prohibit any operations on saturated soil conditions and the letters suggest this is an unintended purpose of the 2009 amendments.

While the adopted changes in 2009 resulted in reducing risks to environmental impacts, they may have unnecessarily restricted certain operations on saturated

soils (e.g. decking/sorting logs on saturated ridge top landings not near watercourses; truck hauling on wet areas that will not discharge sediment to watercourses) which presumably would not have an impact on any environmental conditions (e.g. water quality). By prohibiting any operation on saturated soil conditions, an adverse economic impact could result if CAL FIRE strictly interprets the new definitions as prohibiting all operations on saturated soil conditions, as such operations would be a violation of FPRs. The prohibition of operations is stated by proponents to have imposed an unnecessary adverse economic impact, citing self imposed shut down of log hauling to avoid citations and inability of RPFs to reliably prepare plans that propose operations during times when saturated soils may be present.

## **SPECIFIC PURPOSE AND NECESSITY OF THE REGULATION**

To address the necessity, the Board inserted the resultant environmental impacts to be avoided in every section which uses the terms “saturated soils” and “stable operation surface”. This effectively qualifies the definitions to allow operations on saturated soils as long as operations do not result in significant adverse impacts to the beneficial uses of water.

The proposed amendments result in allowing operations on saturated soils that do “not violate Water Quality Requirements” and avoid any potential discharged “that may” result in increasing turbidity to watercourses. This generally satisfies the legal water quality requirements of the State and Regional Water Board's anti-degradation laws. Also, by retaining the existing definitions of saturated soils and stable operating surfaces, practitioners (RPFs, LTOs and inspectors) are provided field guidance on indicators of conditions that may lead to or avoid discharge (e.g. structurally sound road base, ponded water, pumping of fines on the road surface).

The amendment to 14 CCR § 895.1 establishes the definition for Water Quality Requirements. This definition is needed to clarify the typical water quality control plan limitations or other policy requirements that are necessary to avoid adverse impact to beneficial use of water. It provides specificity for practitioners on the components of the water quality control plans (i.e. basin plan) requirements or other policy requirements that must be considered.

The amendments to this subsection, contains OPTION X. This option deletes from the list of descriptors of Water Quality Requirements other policies not related to a water quality control plan ( i.e. a basin plan). Option X is included to allow the Board flexibility in deciding what other plans or policies may be included. The first portion of the definition limits it to Basin plan requirements while the second section includes other plans and policies that may not have gone through the Basin plan approval process.

Amendments to all other subsections are designed to incorporate consistent, standard terminology for operations on saturated soils or stable operating surfaces. Subsections that address saturated soils conditions are found in:

14 CCR § 914.7(c)(1) [934.7(c)(1), 954.7(c)(1)] Timber Operations, Winter Period;

14 CCR § 915.1(b) [935.1(b), 955.1(b)] Use of Heavy Equipment for Site Preparation;

14 CCR § 916.9 (k)[936.9(k), 956.9 (k)] Year-round logging road, landing and tractor road use limitations;

14 CCR § 916.9 (l) [936.9(l), 956.9 (l)] Extended Wet Weather Period;

14 CCR § 923.1 (j), [943.1(j), 963.1 (j)] Planning for Roads and Landings;

14 CCR § 923.2 (r) [943.2 (r), 963.2 (r)]; Road Construction;

14 CCR § 923.5(e) [943.5(e), 963.5(e)]; Landing Construction; and

14 CCR § 1104.1(a) (2) (E) (1.) Conversion Exemptions.

Subsections that address operations on stable operating surfaces are found in:

14 CCR § 923.2 (t)[943.2 (t), 963.2 (t)] Road Construction; and

14 CCR § 1093.2(c)(3) (A) Contents of Road Management Plan.

For subsections containing language for saturated soil conditions, each amendment incorporates language that essentially limits timber operations to situations where operations *“shall not be conducted on saturated soils conditions that may produce sediment in quantities sufficient to cause a visible increase in turbidity of downstream waters in receiving Class I, II, III or IV waters or that violate Water Quality Requirements”*. Similarly for subsections with language addressing stable operating surfaces, each amendment incorporates language that allows operations *“that maintain a stable road surface that does not produce sediment in quantities that may cause a visible increase in turbidity of downstream waters in receiving Class I, II, III or IV waters or would violate Water Quality Requirements”*.

These amendments result in operations, such as tractor yarding during winter period, site preparation, hauling, other road/landing uses, and road construction etc., being prohibited when operations “may produce” turbid discharge of water, and when operations would violate Water Quality Requirements.

## **ALTERNATIVES TO THE REGULATIONS CONSIDERED BY THE BOARD AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

The Board has considered several alternatives to the proposed regulation. The alternatives present different ways to communicate the environmental impacts to be avoided and other limitation when operating on saturated soils or [un]stable operating surfaces.

**Alternative 1: Use language where operations on saturated soils to “do not violate Water Quality Requirements”.** This alternative was rejected because it did not explicitly state content in State Water Board Resolution No. 68 -- 16 that prohibits operations “that may” result in discharge of turbid waters.

**Alternative 2: Use language already contained in 14 CCR § 916.9 (k) or (l) adopted under the recent Anadromous Salmonid Protection Rules.** The alternative solely uses the prohibition of operations that “may result” or “will result” in visibly turbid water reaching a watercourse or lake in amounts sufficient to cause a turbidity increase in Class I, II, III or IV waters. This alternative was rejected because it did not include additional descriptions of other limitations that come under the definition of Water Quality Requirements. It was also rejected because 14 CCR § 916.9 (l) uses the term “will result” in turbid discharges and this is not consistent with State Water Board Resolution No. 68 – 16.

**Alternative 3: Use language already contained in 14 CCR § 916 Intent of Watercourse and Lake Protection.** This language was recommended by the State Water Resources Control Board in 2009 and focuses on prohibiting actions which “threaten to cause” visibly turbid water reaching a watercourse or lake in amounts sufficient to cause a turbidity increase in Class I, II, III or IV waters. This alternative was rejected because it did not include additional descriptions of other limitations that come under the definition of Water Quality Requirements.

**Alternative 4: Combine language and intent from the original proposed options to better reflect Water Quality Control Board and CalFire staff inputs and delete phrase “dry, rainless period” from a limitations of winter operations.** This language combined the criteria that a saturated soil condition exists when it “may produce” sediment, and also the additional requirement that Water Quality Requirements cannot be violated. The “may produce” language requires that operations consider the potential impacts of operations on water quality before a violation actually occurs. Operations cannot continue if they “may produce” sediment that would lead to an immediate or future discharge. Language specifying “dry, rainless periods” is not needed since the actual water quality impacts are not addressed. The portion of the alternative related to inclusion of “may produce sediment” as a threshold for ceasing operations on saturated soils was included in the Board’s proposed amendment.

The portion of the Alternative which deletes the terminology of “dry, rainless period” as a constraint for winter period tractor yarding in 14 CCR §§ 914.7 [934.7, 954.7] and 1093.2 was rejected because the phrase provides clarity on field characteristics under which winter operations would be appropriate.

## **POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

Operations in forested areas on saturated soils can have adverse effects on the environment because heavy equipment operations on wet soils can increase risk or result in discharge of sediment to watercourses. This can create levels of turbid water which is not preferential to beneficial uses such as anadromous salmonids in-stream habitat. Excessive sediment can lead to impairing important habitat components such as deep pools and clean spawning gravels in downstream reaches (NMFS,2000).

Operations of heavy equipment (excluding on roads or landings) on forested areas during wet soil conditions can result in undesired compaction of forest soils. Soil compaction increases soil strength which commonly slows root penetration and reduces the regeneration and growth of trees, reduces soil infiltration rates, increases the potential for erosion, changes landscape hydrology. (Blinn, 2010).

Soil compaction can be considered as a decrease in porosity with an increase in density and strength, the result of reduced pore space as air is expelled. When soil porosity is lost because of compaction, less soil volume is available for roots to occupy, and plant nutrients are relatively immobile. Management practices that maintain the integrity and structure of surface organic matter will have the least impact. Activities that displace or compact the surface soil have the greatest potential to alter site productivity. The potential for altering the surface soil is greatest during site preparation, and somewhat lower during timber harvest. (Poff)(Gomez et al).

Recent consideration of affects of soil compaction has also included affects on microbial activity and carbon storage in soils. Soil enzymes are linked to microbial functions and nutrient cycling in forest ecosystems and are considered sensitive to soil disturbances. Forest management practices that alter soil porosity (through compaction) and organic matter distribution in the soil profile can dramatically change soil C and N dynamics that may result in the eventual change in soil C and N concentrations or availability.

### **Mitigation**

Currently in the FPRs, as result of changes in 2009 during the Anadromous Salmonid Protection Rules, risks to potential environmental impacts resulting from operations on saturated soils is extremely low because the rules essentially prohibit operations on saturated soil. However, this level of protection has created an unnecessary economic burden on timber operators, and mitigation to avoid potential significant adverse environmental effects associated with limited operations on saturated soils can be accomplished using existing FPRs and proposed amendments.

In addition to the subsections in the proposed amendments, several forest practice rules, including but not limited to the following, mitigate impacts for use of roads during wet operating conditions:

- **Section 14 CCR § 923.4 [943.4, 963.4], Road Maintenance**, contains several provisions addressing maintaining roads to minimize concentration of runoff and soil erosion. Provisions include maintenance to minimize concentration of runoff, ensuring drainage structures are properly operating; treatment of surfaces to prevent excess loss of surface material; and prohibition of heavy equipment used for maintenance during wet weather in a watercourse and Lake Protection Zone.
- **Section 14 CCR § 923.6[943.6, 963.6], Conduct of Operations on Roads and Landings**, requires that road use and maintenance shall not take place during wet conditions, when equipment cannot operate under its own power. Roads must be gently firm, easily passable or use during hard frozen conditions. Isolated wet spots are required to be rocked to permit passage.

Proposed amendments are explicitly designed to prohibit any wet conditions operations that could potentially result in discharge of turbid water into watercourse and adversely affect the beneficial uses of water. First, every amendment uses specific language that prohibits operations on saturated soil “that may” produce turbid runoff into watercourses. This establishes a substantially higher threshold of impacts avoidance than alternatives that were considered prohibiting operations “that will” result in discharge. This is because by the time a discharge is recognized in the watercourse, adverse impacts may have already happened. Using the concept of restricting operations “that may” produced turbid runoff in watercourse will result in LTOs avoiding high risk operations that lead to discharge.

Secondly, the proposed amendments explicitly require conformance with legal Water Quality Requirements that are designed by water boards to ensure protection the beneficial use of water. This results in LTOs being required to adhere to any specific plan, numeric threshold, or policy adopted by a water board intended to protect the beneficial uses of water. While existing rules already require conformance to “basin plans’, the proposed amendments detail contents of specific Water Quality Requirements giving additional clarity to practitioners and regulators.

Mitigation of potential impacts from tractor operations compacting forest soils, including operations on wet soils, is mitigated by the following:

- **Section 14 CCR § 914.2 [934.2, 954.2], Tractor Operations**, addresses the use of tractor roads, otherwise known as skid trails. The rules limit tractor roads to existing trails on slopes over 50%, and any new skid trails on steep slopes must be flagged in advance for review by enforcement agencies. The section also prohibits mechanical site preparation on slopes over 40% in the

- **Section 14 CCR § 914.7 [934.7, 954.7], Tractor Operations, Winter Period**, has other provisions beyond those being proposed for amendments that address site preparation and site productivity that could be affected during wet weather operations. Subsection 14 CCR § 914.7 (b) explicitly deals with winter period operations and mitigating any environmental impacts related to compaction. Such consideration is intended to be addressed in a winter operating plan in accordance this subsection. Subsection (c)(2) requires erosion control structures to be installed on all tractor roads prior to a chance of rain during the winter period. Subsection (c)(3) requires operations maintain site productivity by minimizing soil loss.
- **Section 14 CCR § 916.4 [936.4, 956.4], Watercourse and Lake Protection**, requires Registered Professional Foresters to identify potential impacts from operations near sensitive riparian conditions and to establish WLPZ widths and other measures to address the conditions. Subsection (d) prohibits the use of heavy equipment for site preparation in Watercourse and Lake Protection Zones.
- **Section 14 CCR § 916.7 [936.7, 956.7] Reduction of Soil Loss**, establishes requirement for WLPZs where soil is exposed. These rules require treatments to stabilize and reduce soil loss from exposed areas. Section 14 CCR 916.9(n) for watersheds with anadromous salmonids also addressed this requirement.
- **Section 14 CCR § 898 and Technical Rule Addendum No. 2, Cumulative Impacts Assessment**, requires an assessment and disclosure of cumulative impacts on soil productivity from compacted of forest soils. This assessment requires disclosure about impacts of the proposed operations combined with other past, present or reasonable foreseeable action. The assessment and disclosure required for soil compaction includes consideration of site productively effects from loss of soil pore space and reduction of organic matter. Factors included in the assessment in depth of surface litter, organic matter content, soil type/structure, and soil moisture status. These factors are considered in relation to the proposed timber operations and determinations are made for the need to mitigate potential adverse impacts from compacting wet forest soils.

Specific rules that govern the logging practices under wet conditions are also found in local “county rules” contained in the state Forest Practice Rules. For example, logging practices under 14 CCR § 927.11 for Marin County prohibit operations on excessively wet ground conditions that could result in substantial soil compaction and erosion. These restrictions contribute to mitigating impacts from wet weather operations.

In total, the existing rules and proposed amendments are found by the Board to result in avoiding any significant adverse environmental effects as a result of the proposed rules.

## **ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

The Board has not identified any alternatives that would lessen any adverse impact on small businesses.

## **EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated the regulation should not have any adverse economic impact on any business. The amendments re-instate regulatory requirements for operations on saturated soils that were in place prior to 2009. The amendments allow certain operations on saturated soils that avoid significant impacts to water quality. The amendments avoid unnecessary, but unquantified, adverse economic impact resulting from 1) operator's self imposed shut down of log hauling unsaturated soil conditions to avoid citations and 2) inability of RPFs to reliably prepare plans that propose operations during times when saturated soils may be present.

## **TECHNICAL, THEORETICAL, AND/OR EMPIRICAL STUDY, REPORTS, OR DOCUMENTS**

The State Board of Forestry and Fire Protection consulted the following listed information and/or publications as referenced in this *Initial Statement of Reasons*. Unless otherwise noted in this *Initial Statement of Reasons*, the Board did not rely on any other technical, theoretical, or empirical studies, reports or documents in proposing the adoption of this regulation.

1. State Water Board Resolution No. 68 – 16
2. Selected subsection of the Porter-Cologne Act section 13260- 13304.
3. Salmonid Guidelines for Forestry Practices in California, Southwest Office of the National Marine Fisheries Service, February 8, 2000.
4. Wood Energy and Soil Productivity, Diomy Zamora and Charlie Blinn, March 24, 2010.
5. Poff, R. J. Effects of silvicultural practices and wildfire on productivity of forest soils. Vol. 2, chapter 16, pp. 477-495, Sierra Nevada Ecosystem Project.
6. Gomez, R. F. Powers, M. J. Singer and W. R. Horwath. Soil Compaction Effects on Growth of Young Ponderosa Pine Following Litter Removal in California's Sierra Nevada . Soil Science Society of America Journal 66:1334-1343 (2002).
6. Xiao, Chang. Soil compaction and forest litter amendment affect carbon and net nitrogen mineralization in a boreal forest soil. ' Centre for Enhanced Forest Management, University of Alberta. (2005).

**Pursuant to Government Code § 11346.2(b)(6)**

In order to avoid unnecessary duplication or conflicts with federal regulations contained in the Code of Federal Regulations addressing the same issues as those addressed under the proposed regulation revisions listed in this *Initial Statement of Reasons*; the Board has directed the staff to review the Code of Federal Regulations. The Board staff determined that no unnecessary duplication or conflict exists.

**PROPOSED TEXT**

The proposed revisions or additions to the existing rule language are represented in the following manner:

The following revisions or additions to the existing rule language are represented in the following manner:

UNDERLINE indicates an addition to the California Code of Regulations,  
and

~~strikeout~~ indicates a deletion from the California Code of Regulations.

All other text is existing rule language.