

TIMBER HARVEST ACTIVITIES MONITORING AND REPORTING PROGRAM

Prepared January 20, 2005

SECTION I

A. MINIMUM MONITORING – Under this option, compliance with the California Department of Forestry and Fire Protection (CDF) Forest Practice Rules is required and CDF conducts Forest Practice Rules compliance monitoring.

B. IMPLEMENTATION/EFFECTIVENESS MONITORING - used to determine whether activities are carried out as planned and are effective at achieving desired results.

Implementation Monitoring is used to determine whether activities are carried out as planned. Implementation Monitoring may be applied at a range of spatial scales, focusing on specific management measures or rule sets for multiple years. Examples of Implementation Monitoring include:

- Determine whether the discharger is properly applying and maintaining applicable Forest Practice Rules and specific prescriptions in a harvest plan, where the general conditional waiver or waste discharge requirements (WDRs) incorporates such requirements.
- Determine whether waiver conditions or WDRs are being properly met during the terms over which such waivers or WDRs apply.
- Inform development of waiver conditions or WDRs and adaptive management processes in order to maximize implementation success.
- Implementation Monitoring is more informative when combined with Effectiveness or Water Quality Compliance Monitoring.

Effectiveness Monitoring is used to determine whether particular land management prescriptions (e.g., erosion control measures, riparian buffers) are effective at achieving desired results. Effectiveness Monitoring may be applied at a range of spatial scales, focusing on specific management measures for multiple episodic events or multiple years. Examples of Hillslope Effectiveness Monitoring objectives include:

- Determine whether measures applied during THP operations are resulting in the intended hillslope conditions.
- Determine whether applicable waiver conditions or WDRs are producing, on a programmatic scale, the hillslope conditions they were designed to produce.
- Inform development of waiver conditions or WDRs and adaptive management processes in order to improve the performance of prescribed measures.
- Examples of Instream Effectiveness Monitoring objectives include:
 - Determine whether hillslope conditions created by timber operations are resulting in the intended instream conditions.
 - Given hillslope effectiveness monitoring data, determine whether waiver conditions or WDRs, on a programmatic scale, are adequately protecting instream aquatic resources and meeting Basin Plan standards.
 - Given hillslope effectiveness monitoring data, determine whether certain conditions or measures are necessary to ensure water quality protection.

- Inform development of waiver conditions or WDRs and adaptive management processes in order to minimize adverse impacts to aquatic resources and achieve compliance with Basin Plan standards.

Effectiveness Monitoring is most successful when instream and hillslope components are linked.

1. MONITORING POINTS

- a. **VISUAL MONITORING POINTS** – Visual monitoring points shall include all roads, watercourse crossings, landings, skid trails, water diversions, all watercourse confluences, known landslides, and all mitigation sites in the timber harvest plan area.
- b. **PHOTO-POINT MONITORING POINTS** – Photo-point monitoring points shall be at locations within the timber harvest plan area where timber harvest activities have the greatest risk of potential discharge (sites may be established during the pre-harvest inspection). Photo-point monitoring points shall include up and down stream of each newly constructed or reconstructed Class I and Class II watercourse crossing and landings within a Class I or II Watercourse or Lake Protection Zone (WLPZ).

The Discharger shall:

- i. Utilize the attached document titled “Standard Operation Procedure 5.2.3 - Photo Documentation Procedure” (including any subsequent revisions to SOP 5.2.3) as the protocol for all photo-point monitoring (attached).
- ii. Utilize flagging, rebar, or another method of establishing the photo-point site locations.
- iii. Utilize all photo-point locations until this Monitoring and Reporting Program is rescinded.

2. MONITORING CONSTITUENTS/FREQUENCY

- a. **VISUAL MONITORING:** The Discharger shall monitor all visual monitoring points for existing or potential sources of erosion. The Discharger shall perform visual monitoring within 12 hours of storm events of two inches of rain or greater within a 24-hour period. If a storm terminates or two inches is reached between the hours of 3:00 pm (1500 hours) and 9:00 pm (2100 hours) visual monitoring shall occur within 18 hours.

Year 1 – Monitoring shall occur a minimum of three times. Year one monitoring will continue through the first winter after a timber harvest is completed. Year two monitoring begins one year after a timber harvest is completed.

Monitoring Event One - The Discharger shall perform the first monitoring event within 12 hours of the first storm event that includes two inches of rain or greater within a 24-hour period.

Monitoring Events Two and Three - The Discharger shall perform the next two monitoring events within 12 hours of the next two storm events (one monitoring event each storm) that include two inches of rain or greater within a 24-hour period and soil saturation (i.e., soil saturation typically occurs after about four inches of

accumulated precipitation during the wet season (the wet season begins October 15 of each year)).

Years 2-5 – In the second year of monitoring following completion of timber harvest operations and a determination that implemented management practices are functioning to protect water quality and beneficial uses, visual monitoring shall be consistent with a Road Management Program (Attached).

Summary of Visual Monitoring frequency:

Year 1 = 3 events (minimum)

Year 2 - 5 = consistent with a Road Management Program

b. **PHOTO-POINT MONITORING:** The Discharger shall monitor all photo-point monitoring points:

Year 1 - Year one monitoring will continue through the first winter after a timber harvest is completed. Year two monitoring begins one year after a timber harvest is completed.

- Following the first significant storm event (First Storm) (One Photo Set).
- Following completion of timber harvest activities (One Photo Set).
- Following a significant storm event during the month of April (April Storm) (One Photo Set). A significant storm event means any storm with two inches of rain or greater within a 24-hour period and soil saturation (i.e., soil saturation typically occurs after a minimum of four inches of precipitation during after the start of the wet season (October 15)).

Additionally, The Discharger shall photograph new or reconstructed Class I and Class II water crossings:

- Before construction begins, after construction is completed, and after the crossing structure is removed (if crossing is temporary).

Photo-point monitoring shall occur within seven days of all of the following:

1. The First Storm
2. Completion of timber harvest activities
3. April Storm events. If no significant storm event occurs in the month of April, the Discharger shall complete photo-point monitoring by April 30 of the same year.

Years 2 and 5 - In years two and five, following completion of timber harvest operations and a determination that implemented management practices are functioning to protect water quality and beneficial uses, the Discharger shall conduct the April Storm photo-point monitoring.

If implemented management practices are not adequately protecting water quality and beneficial uses, as determined by the Regional Board Executive Officer, repeat year one monitoring.

Summary of Photo Sets:

Year 1 = 3 photo sets

Year 2 = 1 photo set

Year 5 = 1 photo set

C. FORENSIC MONITORING - used to detect significant pollutant sources (e.g., failed management measures) in the field for purposes of timely remedial action.

Forensic Monitoring is typically applied at a sub-watershed or project scale, focusing specifically on stream conditions and sensitive receptors downstream of potential pollutant sources. Examples of Forensic Monitoring objectives include:

- Locate sources of sediment production in a timely manner for rapid corrective action, where feasible and appropriate.
- Determine, where feasible, cause/effect relationships between hillslope activities, hydrologic triggers and instream conditions.

Forensic Monitoring is most successful when criteria such as storm events of particular size or instream sampling results are used to trigger field investigations allowing for timely detection and repair of controllable pollutant sources.

The Discharger shall perform visual monitoring of all roads, watercourse crossings, landings, skid trails, water diversions, all watercourse confluences and known landslides in the timber harvest plan area to detect failed management measures, failed implementation of management measures, or natural features that are contributing to observed water quality impacts.

- If at any time during implementation or effectiveness monitoring, a discharge is observed, the Discharger shall conduct forensic monitoring to identify failed management measures and/or source of discharge.
- If management measures fail (this includes failure to implement appropriate management measures), the Discharger shall photo document them and management practices shall be implemented immediately to prevent discharge and impacts to water quality.
- If timber activities cause a discharge (sediment, soil, other organic material, etc.) into waters of the state, the Discharger shall measure instream turbidity (using grab samples) in the closest Class I or II watercourse downstream of the discharge.
- If at any time during implementation or effectiveness monitoring, the Discharger observes a discharge, the Discharger shall notify the Regional Board within 24 hours.
- The Discharger shall submit to the Regional Board a written report, including photo documentation, water quality data, and the management measures or corrective actions and a description of their effectiveness within 10 working days. Upon review of the report, the Regional Board Executive Officer will determine completeness of the report and the need for additional actions necessary for the protection of water quality and beneficial uses.

Frequency: The frequency of Forensic Monitoring is coincident with implementation and effectiveness monitoring, or at anytime a failed management measure and/or discharge is reported or observed.

FORENSIC MONITORING AREAS OF CONCERN

The following areas need to be addressed during forensic monitoring if water diversion, feral pig activity, or trespass activity are leading to impacts to water quality.

WATER USAGE: The Discharger shall monitor the water diversion point(s) for total daily water usage when water is being diverted. The Discharger shall monitor the creek to ensure no more than 10 % of the creek flow is diverted.

FERAL PIG ACTIVITY: During any inspection, the Discharger shall document all evidence of feral pig activity near watercourses that may be contributing discharges to waters of the state.

TRESPASS ACTIVITY: During any inspection, the Discharger shall document all evidence of trespass activity near watercourses that may be contributing discharges to waters of the state.

D. WATER QUALITY COMPLIANCE MONITORING - used to determine whether pollutant discharges from land use activities are in compliance with water quality standards.

Water Quality Compliance Monitoring is typically applied at a sub-watershed or project scale, focusing on the combined effects of a single project for some number of years greater than the active life of the project. Examples of Water Quality Compliance Monitoring objectives include:

- Isolate and quantify pollutant discharges to waters of the State from timber harvesting and related activities.
- Determine whether discharges from timber harvesting and related activities meet Basin Plan water quality objectives, including objectives for temperature, turbidity and sediment.
- Determine whether discharges from timber harvesting and related activities meet applicable TMDL, waiver, or permitting requirements.

In most instances, it is necessary to collect pre-project data to make Water Quality Compliance Monitoring successful.

D.1 - Temperature - The Discharger shall monitor temperature continuously (“Hobo temps” shall be used for continuous temperature monitoring) in Class I watercourses (during the months of May through November) upstream, near the upper extent of timber operations, and downstream, near the lower extent of timber operations. Temperature shall be monitored when timber harvest operations occur in Class I or II WLPZ.

If no Class I watercourse exists on the parcel where timber harvest activities occur, and there is water in the Class II during the months of May through November, temperature monitoring shall be conducted in the Class II watercourse when timber harvest operations occur in Class II watercourse.

Year 1 - Year one monitoring shall continue through the first winter after a timber harvest is completed. Year two monitoring begins one year after a timber harvest is completed.

Monitoring Frequency:

Temperature - The Discharger shall monitor temperature during the months of May through November.

Years 2-5

Monitoring Frequency:

Temperature - The Discharger shall monitor temperature during the months of May through November in year two and five following completion of timber harvest operations and a determination that implemented management practices are adequately protecting water quality and beneficial uses.

If implemented management practices are not adequately protecting water quality and beneficial uses, as determined by the Regional Board Executive Officer, repeat year one monitoring. In addition to supplementary monitoring, the Regional Board Executive Officer will determine additional management measure implementation required to prevent temperature increases of more than 5°F above natural receiving water temperature.

Summary of Temperature Data Sets:

- Year 1** = 1 data set
- Year 2** = 1 data set
- Year 5** = 1 data set

D.2 Turbidity - The Discharger shall monitor all newly constructed or reconstructed Class I and II crossings within the timber harvest plan area in place after October 15th for turbidity (a hand held turbidimeter is acceptable for this purpose). Turbidity shall be measured approximately 25 feet upstream and downstream of all newly constructed or reconstructed Class I and II road crossings. Turbidity monitoring may be required as determined by the Regional Board Executive Officer if no newly constructed or reconstructed crossings exist within a proposed timber harvest plan and the plan has activity within a Class I or II WLPZ.

Monitoring Frequency:

Turbidity - The Discharger shall monitor turbidity within 12 hours of a storm event with two inches or more of rain within a 24-hour period. If a storm terminates or two inches is reached between the hours of 3:00 pm (1500 hour) and 9:00 pm (2100 hour) turbidity monitoring shall occur within 18 hours.

Year 1 – The Discharger shall monitor a minimum of three times in year one. Year one monitoring will continue through the first winter after a timber harvest is completed. Year two monitoring begins one year after a timber harvest is completed.

Monitoring Event One - The Discharger shall perform the first monitoring event within 12 hours of the first storm event that includes two inches of rain or greater within a 24 hour period.

Monitoring Events Two and Three - The Discharger shall perform the next two monitoring events within 12 hours of the next two storm events (one monitoring event each storm) that include two inches of rain or greater within a 24 hour period and soil saturation (i.e., soil saturation typically occurs after about four inches of precipitation during after the start of the wet season (October 15)).

Years 2-5 - In the second year of monitoring following completion of timber harvest operations and a determination by the Regional Board Executive Officer, that implemented management practices are adequately protecting water quality and beneficial uses, the Discharger shall conduct turbidity monitoring based on need as determined by level C (forensic) monitoring.

If implemented management practices are not adequately protecting water quality and beneficial uses, as determined by the Regional Board Executive Officer, repeat year one monitoring.

Summary of Turbidity Data Sets:

Year 1 = 1 data set (minimum of three events)

Year 2 - 5 = as needed

SECTION II

DATA LOGGING AND REPORTING

- a. **LOGBOOKS:** The Discharger shall maintain logbooks for recording all visual and water analysis data. These logbooks shall be available for inspection to the Regional Board staff.

- b. **SEDIMENT RELEASE REPORTING:** Whenever at least one cubic yard of soil is released to a waterway due to anthropogenic causes or at least five cubic yards of soil is released to a waterway due to natural causes, or when turbidity is noticeably greater downstream compared to upstream (of a crossing or the Plan area), then the Discharger shall report this event to the Regional Board within 48 hours. The Discharger shall submit a written report to the Regional Board within 10 days of detection. The Discharger shall investigate source areas of sediment. If sources are found, the Discharger will locate and document the source and size of the release. If sources related to timber harvest activities are found, the Discharger shall immediately correct the source if possible, or schedule corrective action at an appropriate time given the site conditions present.

- c. **ROAD INVENTORY PROGRAM:** The Discharger shall implement a Roads Management Program (similar to the Big Creek Lumber Company's "Protocol for Conducting Company Road Inventories & Maintenance" (See Attached May 23, 2001 document)) within the THP area. After each storm event that triggers an inspection, the Discharger shall perform a field inspection and prepare a field form as described in the Protocol. The Discharger shall enter the data into a logbook (same as described in item a. above) and database or spreadsheet which tracks observations, work completed, and dates of last review. If the need for repair is immediate, the Discharger shall promptly develop an appropriate treatment so that the Discharger can complete corrective action as soon as practical.

- d. **VIOLATION REPORTING:** The Discharger shall report any violation of the Forest Practice Rules related to water quality, to the Regional Board within 48 hours. The Discharger shall provide the report in writing to the Regional Board within 10 working days of the violation. The written report shall include photo documentation and water quality data before and after remedial action. Upon review of the report, the Regional Board Executive Officer will determine completeness of the report and the need for additional actions necessary for the protection of water quality and beneficial uses.

- e. **ANNUAL REPORT:** By November 15 of each year, The Discharger shall submit an Annual Report to the Regional Board that addresses the following:
 - i. A status of active timber harvest operations
Previous year activities, wet weather problems observed, etc.
Planned activities
 - ii. A summary of all violations.
 - iii. Summary of the water quality monitoring performed during the previous year including submittal of data and photos in electronic format.
 - iv. With the first annual report, submit a copy of the road management program.

- v. A summary of the road management program¹ and actions implemented for the protection of water quality and beneficial uses.
- vi. Recommendations for improving the monitoring and reporting program.

- f. The Discharger is responsible for ensuring that all monitoring is done in a safe manner. If any monitoring point is too dangerous to sample, then the Discharger shall report this circumstance to the Regional Board within 48 hours.

- g. The Regional Board Executive Officer may modify or rescind this Monitoring and Reporting Program at any time, or may modify or rescind the monitoring and reporting program as to a specific discharger.

MONITORING PROGRAM REVIEW AND UPDATE

Data collected will be evaluated after 24 months (two summer and two winter seasons shall be evaluated) to determine the need for monitoring program modification.

Ordered By: _____
Roger W. Briggs, Executive Officer

Date

¹ Big Creek's Road Inventory Program may be used as a model.