

**To: Christine Wright-Shacklett, Senior Engineering Geologist
Glenn Edwards, Registered Professional Forester
Steve Smith, California Department of Forestry
CDF Review Team Chairman
Official THP File**

From: Cherie Blatt, Sanitary Engineering Associate

Date: March 26, 2003

**Subject: Preliminary Preharvest Inspection
Timber Harvest Plan No. 1-02-179 SON
Roger Burch, Landowner
Mays Canyon Timber Harvest Plan
Mays Canyon Creek Watershed, Russian River Basin**

Timber Harvest Plan (THP) Information:

Watershed: Mays Canyon Creek, Russian River Basin

County: Sonoma

303d-Listed: Yes

Calwater No.: 1114.110301, 1114.110303

Legal Description: T8N, R10W, Section 32 and T7N, R10W, Section 5

Total Acreage: 118

Silviculture: Selection (28 ac), Seed Tree Removal Step (90 ac). Note that 116 acres are within a Special Treatment Area due to scenic highway status.

Yarding Method: Tractor, skidder, high lead cable, skyline cable

Erosion Hazard Rating: Moderate, High

Site Preparation: None

Winter Operations: Heavy Equipment operations until December 31 under low antecedent wetness conditions

Watercourse/Supply: Class I, II, III

Road Construction/Reconstruction: yes, widening in problem areas

Landing Re/Construction: No

Proposed In-Lieu Practices: Yes, WLPZ road, skid trail, and landing

On October 25, 2002, I participated in the preharvest inspection for Timber Harvest Plan 1-02-179 SON. Also in attendance was Charles Reed, North Coast Regional Water Quality Control Board (Regional Water Board); Emily Dean, Sonoma County Water Agency (SCWA); Stacy Martinelli and Kent Aue, California Department of Fish and Game (CDF&G); Glenn Edwards, Registered Professional Forester (RPF); Steve Smith and Ken Margiott, California Department of Forestry (CDF); and Michael Huyette, California Geologic Survey (CGS). The weather was clear and cool. Areas inspected include watercourses, slides, roads, and spray areas.

On January 28, 2003, I participated in the second preharvest inspection for this THP. Also in attendance was Michael Huyette, CGS; Steve Smith and Ken Margiott, CDF; Stacy Martinelli, CDF&G; and Glenn Edwards, RPF. The weather was clear and cool. Moderate rains had fallen approximately six days prior to the inspection. Areas inspected include Class I WLPZ, other watercourses, slides and spray areas.

BACKGROUND/SUMMARY

The eastern portion of the THP flows to Mays Canyon Creek, a tributary to Pocket Canyon Creek in the Russian River Basin. The western edge of the THP drains to the Russian River.

Approximately 35 percent of the THP area is leased to the Russian River County Sanitation District (RRCSD) for the irrigation of advance treatment wastewater effluent. The RRCSD sprays approximately 1 to 6 million gallons of wastewater per year on the upper field portion of the THP area during the spring, summer and fall (see Attachment 1). An increase in irrigation volumes and expansion of the spray area is possible in the future. The RRCSD is under Waste Discharge Requirements (WDRs) with the Regional Water Board to regulate wastewater discharges to the Russian River. Any direct discharge of wastewater to streams in the Mays Canyon watershed is prohibited.

On October 29, 1999, THP 1-98-253 SON was approved by CDF allowing landowner Roger Burch to harvest 14 acres of timber just south of THP 1-02-179 SON. Due to conflicts and disagreement between the landowner and the agencies, the original 63 acres planned for harvest in the draft THP was reduced. THP 1-98-253 SON was approved and the 14 acres was harvested along the southern boundary only to reduce impacts to slides and the RRCSD spray fields. The document expired on October 28, 2002.

Ms. Dean, SCWA, on behalf of the RRCSD, submitted comments on 1-02-179 SON in a letter dated November 19, 2002. The letter states that the THP application falls short of meeting the applicable requirements and the RRCSD requests the THP be denied. The main concerns are described as disruption of RRCSD operations, reduction of evapotranspiration (ET) in the wastewater disposal areas, potential problems with RRCSD access to the wastewater treatment facility, geologic impacts, and adherence to the THP given past logging violations on Burch property (THP 1-96-275 SCR).

BASIN PLAN PROHIBITIONS

The Water Quality Control Plan for the North Coast (Basin Plan) prohibits the discharge or threatened discharge of earthen material to waters of the state. Earthen material has been discharged to Class II and III watercourses at slides S3 and S5 within the THP area in the past. Reactivation of slides should be avoided. Any discharge of earthen materials to these watercourses due to anthropogenic activities is a violation of the Basin Plan.

PHI OBSERVATIONS

Mays Canyon Creek

According to “Major Streams in Sonoma County” by Bill Cox, CDF&G, dated November 13, 1997, Mays Canyon Creek supports steelhead trout populations. No barrier to fish is known to exist between the THP area and Pocket Canyon Creek. THP map pages 36, 38, and 39 show Mays Canyon Creek as a Class II watercourse. THP map page 37 shows Mays Canyon Creek as a Class I watercourse. During the PHI, Stacy Martinelli, CDFG, stated that Mays Canyon Creek is a Class I watercourse containing degraded fish habitat. Upon observation at the THP entrance gate crossing, the dry, low gradient creek contained a large quantity of sediment with no valuable fish habitat such as large or medium sized rocks, pools or overhanging banks. Stream habitat restoration and ample flushing flows over a long period of time would be necessary to begin to reduce the large quantities of sediment in the stream.

The Class I WLPZ was inspected during the January 28, 2003 inspection. The following problems were found: **(Issue 1)**

- a) Despite available public information, the THP did not show Mays Canyon Creek as a Class I watercourse on all maps prior to first review or the PHIs as required per FPR 1034(x)(9). THP Item 26 does not contain Class I protection widths and overstory canopy protection measures for the Threatened and Impaired watershed based on slope. Flagging did not encompass the correct WLPZ as defined under Forest Practice Rules (FPR) 916.5. **(Issue 1.a.)**
- b) Ten largest diameter at breast height (dbh) trees (per 330 feet of channel, within 50 feet of channel and most likely to enter channel as large woody debris (LWD)) were marked for harvest. This does not conform with FPR 916.9(i) for Threatened and Impaired watersheds. **(Issue 1.b.)**
- c) The floodplain was partially inundated with storm flows in the northeast corner of the THP during the January 28, 2003, PHI. The floodplain is to be included in the channel zone and the WLPZ re-flagged in conformance with FPR 916.4(a)(1) and 916.4(b). **(Issue 1.c.)**
- d) At the January 28, 2003, inspection, trees were found marked for harvest within the braided channel zone. This harvest mark, including islands of conifers between the

main channel and the overflow channels, does not conform with FPR (916.9(e)).
(Issue 1.d.)

- e) Trees were marked for harvest within the Class I WLPZ that did not appear to meet FPR 916.9(g). At least 85 percent overstory canopy is to be retained within 75 feet of the watercourse or lake transition line, and at least 65 percent overstory canopy within the remainder of the WLPZ. Several trees were marked for harvest in areas that appeared to contain less than 85 percent overstory canopy within 75 feet of the watercourse. No trees should be harvested in these areas. This issue was raised during the January 28, 2003, PHI. The RPF marked “out” some large conifers. However, without measuring the overstory canopy shade, it was not obvious that the new mark meets FPR 916.9(g). **(Issue 1.e.)**

Class II and III Watercourses

Several Class II and III watercourses were inspected. Problems regarding these areas include: **(Issue 2)**

- a) Watercourse classification changes were recommended by Regional Water Board staff during the January 28, 2003 inspection. A portion of a Class III watercourse (Map Point MP-8) showed characteristics of a Class II watercourse for approximately 250 feet, such as flowing water, pools, and hydrophytic vegetation. This watercourse is located near Mays Canyon Road in the southeast portion of the THP (just west of the special treatment area (STA) boundary line on map page 36). **(Issue 2.a.)**
- b) The last Class III watercourse in the southeast corner of the THP from the THP boundary down to Mays Canyon Road also was found to contain flowing water, hydrophytic vegetation, pools, and salamanders. This watercourse needs to be reflagged and marked as Class II watercourses. **(Issue 2.b.)**
- c) A Class III watercourse was inspected just northwest of the two watercourses listed above. A conifer was marked for harvest within the channel zone of the Class III watercourse. According to FPR 916.9(e), operations in the channel zones of Threatened Impaired watersheds is prohibited. No harvesting should take place in the channel zones of Class I, II, or III watercourse. **(Issue 2.c.)**

Roads, Crossings and Skid Trails

The main haul road from the entrance gate on Mays Canyon Road to S6 was inspected. One secondary haul road at S1, S2, MP3, MP4, and S5 was inspected up to a landing at the end of the road just north of S5. Another secondary haul road was inspected which extends west on slide S4 then south away from the slide area to the THP boundary. Additionally, the skid trail shown on THP maps between S4 and S6 was inspected. The extent of the RRCSD spray areas was not clear except for the 13 or so sprinklers observed in operation during the inspection. Any future spray areas or existing spray areas away from roads traveled were not observed, nor mapped in the THP, and therefore, not evaluated.

Map Page 36 shows a skid trail just inside the northern boundary of the harvest area. This skid trail closely follows the Class III watercourse toward Mays Canyon Creek. The skid trail crosses the Class III watercourse. This skid trail is not shown on any THP map nor described in the THP. The RPF should add this skid trail crossing to map page 36 and list water quality protection measures in the THP. **(Issue 3)**

CDF PHI Report Recommendations

On November 7, 2002, CDF submitted their first preharvest inspection report. Regional Water Board staff agrees with CDF recommendations 1, 6-15, and 18. On February 19, 2003, CDF submitted their second preharvest inspection report. Regional Water Board staff agrees with CDF recommendations 1, 2, 4, and 5. These recommendations regarding water quality are necessary to comply with the FPRs and the Basin Plan, thus should be incorporated into the final THP. **(Issue 4)**

In-Lieu Practices

THP Item 27 states that there is a road, skid trail, and a landing within the WLPZ of a Class II watercourse. This area near the Mays Canyon Creek entrance gate was inspected during the PHI. Since Mays Canyon Creek is recommended to be changed to Class I, the RPF should edit Item 27 to change the watercourse classification and add more extensive stabilization of these soils. Example of soil stabilization language includes: the installation of a large berm near the dip out location to allow water to remain in its watercourse and not flow down the skid trail, and, shaping and slash packing or seeding and mulching the approaches to the skid trail crossing to prevent a sediment discharge to the watercourse. **(Issue 5)**

During the January 28, 2003, PHI, a skid trail was found to be within the Class I WLPZ in the northeast corner of the THP. Information regarding proposed use of this trail and stabilization of all soils should be described in the THP as required per FPR 916.4(d) for WLPZ in-lieu practices. **(Issue 6)**

Winter Operations

Item 23 contains a winter operating plan including tractor and cable operations until December 31 during periods of low antecedent wetness (48 hours after last storm), however, "low antecedent wetness" is undefined. As a consequence, this term is unenforceable.

The THP, page 19, paragraph (9), states that there will be no winter period operations within the WLPZ skid trail located adjacent to Mays Canyon Creek or on the WLPZ landing area, however, the WLPZ haul road is proposed for use. Not all roads within the THP are up to permanent standards and need to be updated to meet the FPRs definition. In addition, roads are used year round by the RRCSD, trespassers, and others. Due to the high rainfall area, erodible soils, and need for RRCSD to utilize the roads during emergencies, winter timber operations (November 15 until May 1) are inappropriate and

are likely to result in a discharge of sediment to watercourses that may violate the Basin Plan. **(Issue 7)**

Slides

Slides S1-S6 were observed during the PHI. They are located below roads and are aggravated by road drainage (Giblin 1997 and Review Team observations). Item 24.b. states that some logging roads are in areas of unstable soils or known slide-prone areas and some road reconstruction is necessary. Item 38, Instructions to the LTO, states that no trees are to be harvested on or within 15 feet of the slides. The THP does not eliminate the use of heavy equipment on slides S1-S4. During the PHI, it was observed that waterbars are not effective due to the year-round, multi-use traffic from RRCSD vehicles, trespassers, landowners/managers, and others. Road runoff should be routed away from slides such as through the use of outsloping and rolling dips. Language should be added to the THP to eliminate the use of heavy equipment (except on existing roads) on and within at least 15 feet from slides S1-S4 and additional slides added by CGS. Permanent and seasonal roads above slides should have effective erosion control installed consistent with use. Full protection for slide prone areas should be determined after completion and evaluation of the geologic report required below in Issue 8.a. Heavy equipment exclusion flagging should be erected at slide zones. **(Issue 8)**

A geologic report by Geoservices Group was included in the THP, however, it is clear the geologist was unaware of past geologic reports on the specific area and the history of spray volumes from the RRCSD. The geologic report only reviewed four of the eight slides and did not recommend site specific road drainage above the slides. Since harvesting in the RRCSD spray areas near the slide areas is proposed, a full hydrologic and geologic report by a licensed professional with experience in slope stability and timber operations should be submitted. This report should contain an evaluation of the risk from harvesting and on and around these slides taking spray volumes into account. The geologic/hydrologic report should recommend erosion control measures including road drainage methods on and around these slides and measures needed to prevent slide failure. Columns should be added to the erosion hazard rating (EHR) table (page 103) for separate evaluation of the slides due to increases in slope, detachability and precipitation rates. Irrigation rates should be considered as precipitation. Results may change erosion ratings, silvicultural prescriptions, waterbar spacing, and harvest method in high or extreme erosion risk areas. The THP alternatives should be reevaluated after these documents are completed. **(Issue 8.a.)**

S1 is described under THP Item 25 (page 22) as an old road fill failure from the 1980s that measures 70 feet wide by 300 feet long. The slide has been replanted with Douglas Firs and is revegetating. It is located below a “permanent” road according to THP maps and is within a seed tree removal harvest unit, although no harvesting is proposed on or within 15 feet of the slide. The slide is within a high EHR area. Tractor yarding is proposed on the north side of the slide with cable yarding proposed to the south. Upon completion of operations, the road is proposed to be out sloped across the slide. Additionally, a waterbar on the road up gradient of the slide is proposed to direct runoff away from the slide.

S2 is an active slide below a “permanent” road according to THP maps and is within a high EHR area. The area around S2 is proposed for seed tree removal harvesting using tractor yarding. Due to the degradation of the roadbed at the top of the slide, the road should be properly drained to reduce the discharge of storm runoff to the slide. Waterbars or dips should be constructed on the road at both sides of the slide to route drainage toward stable, vegetated areas. Berms located on the road between S2 and the Water Tank (see THP maps) should be pulled back where possible to allow water to drain off the road.

S3 is an active slide below a seasonal road and is within a high EHR area. This slide is located between the selection and seed tree removal harvest prescription areas. Cable yarding is planned for the area around the slide. During the PHI, a large gully was observed down the center of the slide along with evidence of past sediment discharges to the Class II watercourse below. The slide was vegetated with young conifers and brush species. A portion of the slide and the forested area immediately east of the slide were being irrigated during the PHI. Large conifers marked for harvest near the edge of the road and the slide were being irrigated. Due to the soil instability and the unknown quantity of wastewater that is being discharged to the slide and adjacent areas, no trees should be marked for harvest in the spray areas until an evaluation of adverse impacts to water quality has been made and appropriate mitigation is provided. (included in Issue 8.a.)

S4 was discussed and partially inspected during the PHI. The S4 area is mapped as containing a moderate EHR, tractor yarding, and selection silvicultural prescription. The THP maps (pages 36-39) are inconsistent with The Geoservices Group mapping of S4 in THP Section V, page 121. The September 17, 2002 THP maps should have shown the larger slide mass as shown in the consultant report. During the PHI, Mr. Huyette discussed his research and evaluation of S4 instabilities. He recommended the landslide mass be shown as mapped in the consultant report and the entire area removed from the timber harvest area. On October 25, 2002, the PHI Review Team agreed to recommend no harvesting of timber on the newly defined slide area recommended by Mr. Huyette. (Regional Water Board staff agree with CGS Report, Page 13, Public Safety Recommendation)

THP descriptions of this slide should be updated based on reports and onsite observations. The RPF should revise the THP map to show the new larger landslide area and indicate that this area will not be harvested. The EHR in this area should be reevaluated due to instabilities. Prior to the next PHI, this area should be flagged off from heavy equipment use. Adequate mitigation measures for the protection of water quality must be added to the THP once all geological information is submitted.

S5 - Item 18, Soil Stabilization, states that debris slide S5 is located below an existing seasonal road. It measures 70 feet wide at the head by 240 feet long. It consists of a head scarp slope of 85 percent with the majority of the slide face at 65-70 percent, and leads to a Class III watercourse. The THP states that material that was discharged into the Class III watercourse channel has been slowly eroding and moving through the watercourse system. The THP proposes no harvesting within 15 feet of the slide edge, no

sidecast of material on the road, and outsloping of the road at the slide area with waterbar placement up gradient of the slide area.

Item 24.b. and 25. Roads and Landings, states that the road at S5 was built prior to the 1990's slide event. Approximately $\frac{1}{4}$ of the existing road prism has slid down slope. Proposed reconstruction includes widening of the road by cutting into the bank. The bank is proposed to be sloped back at $1\frac{1}{2}$ to 1 slope with excavated soil incorporated into the road bed or placed on the landing.

The Geoservices Group Report states that S5 appears to have "undermined the outboard edge of the road," as well as the native soils further down slope. The report goes on to state that the debris "runout" from the S5 failure extends down the Class III watercourse to slide S3. The geologist stated that he could not identify clear evidence that runoff from the road at the uphill edge of the slide contributed to the failure and states that the road was not gullied, although some shallow scour features on the road surface were noted. The geologist also stated that although lower portions of the debris scar are revegetating with scotch broom, the upper portions of the scar are still only slightly vegetated and may be an ongoing source of eroded sediment. The report states that the channel below the landslide is scoured, presumably from the debris flow associated with the failure and that: "Where judged feasible by the RPF, the potential for additional debris failures and erosion within the scar could be reduced by planting trees or seeding the scar areas with grasses."

No recommendations were discussed for the S5 site during the PHI. However, it should be noted that The Geoservices Group recommended that the potential for additional failures and erosion within the scar could be reduced by plantings trees or seeding the scar area with grasses. In accordance, the THP states that upon completion, the RPF would assess the slide area to determine if trees or grass would be beneficial to plant on the upper portions of the slide area (see THP page 22).

No enforceable language exists in the THP to ensure unstable, bare soils will be fully stabilized on the S5 scar. Current threatened discharges to the Class III watercourse from road use may be a violation of prohibitions contained in the Basin Plan. Enforceable language should be added to the THP to ensure bare soils will be stabilized at S5. Adequate mitigation measures for the protection of water quality must be added to the THP once all geological information is submitted. **(Issue 8.b.)** Regional Water Board staff request to attend active and completion inspections to assess water quality impacts from use of this road and any potential re-activation of this unstable area.

S6 - Item 18 states that S6 is a debris slide caused by road fill failure along the outside edge of the existing road and road surface runoff discharging onto the road fill causing a portion of the outside edge of the road to slip down slope. The THP states that the slide area is 20 feet wide by 100 feet long and occurred in the early 1980's. The map on THP page 36 shows the slide is located at the head of a Class III watercourse. The THP proposes no sidecast material discharged from the road to the slide, no trees to be harvested within 15 feet of the slide edge, and upon completion, road outsloping and placement of a waterbar to prevent road runoff from discharging onto the slide.

The Geoservices Group Report states that S6 appears to have developed as a failure of sidecast road fill along an existing ridgetop road. The geologist judged the failure as several years old by the brush regenerating within the scar. The report describes the road surface north of the head scar as scoured and locally rilled from surface water flow. The scour and discharge over the slope suggested to the geologist that road surface runoff contributed to the failure. The report states that a block of soil/fill material was partially detached from the main road fill but did not flow down slope. It also notes that the fill prism for the road is cracking and settling, extending 30 feet further south. The report concludes that the presence of a partially detached soil block in the head scar, the yielding of the fill prism, and the indications of concentrated surface runoff toward the scar indicate the potential for future failures and sediment delivery from this slide. The geologist recommends the detached soil block on the south side of the main scar, as well as areas of yielding fill to the south, be “rounded or pulled back.” The excavated material could be placed on the road surface and outsloped, or arched in the area of the debris slide scar, to deflect runoff away from the head scar area. The geologist further recommends concentrated runoff and scouring on the road could be corrected by installing a waterbar 45 to 50 feet north of the debris head scar. The recommendations from the geologist should be incorporated into the THP with enforceable language. Because the current description for work to be done to prevent a sediment discharge to the Class III watercourse is vague and unenforceable, a design for the road reconstruction and drainage should be submitted. **(Issue 8.c.)**

Items 24 and 25, under S6, state that the partially detached soil block in the head scar area and some yielding of the fill prism south of the slide scar have been recommended to be pulled back or rounded off. The THP further states that the excavated material can be incorporated into the road to arch or ramp across the top of the slide to deflect runoff. It states the road can be widened by cutting into the hillside to gain needed road width. The THP proposes to slope the bank back at a 1 ½ to 1 slope and end haul excavated material or spread it into the road surface with no sidecast.

The wording in the THP is not enforceable and must be changed to “shall” to reduce the potential for discharge of earthen material to the Class III watercourse located just down gradient. In addition, the RPF must annually inspect the base of this slide at its closest point to the Class III watercourse and report his findings of current and future potential for sediment discharge to watercourses to the reviewing agencies. Sediment discharges or potential sediment discharges to the watercourse from THP activities must be avoided. Adequate mitigation measures for the protection of water quality must be added or amended to the THP. **(Issue 8.d.)**

S7 and S8 are slides found by CGS and are to be added to the THP maps and text. Both slides are located within the spray fields or area of influence. See CGS Report for geology analysis. The RPF should add slides S7 and S8 to the THP maps as seen on CGS Report, Figure 5. Harvesting and heavy equipment use on these slides should be clearly stated in the THP and, at a minimum, in accordance with recommendations of the CGS report. **(Issue 8.e.)**

Irrigated Areas

During the October 25th, 2002 PHI, approximately 13 sprinkler heads were observed. Most were in operation spraying water over vegetated areas including many large conifers. In the area just south of S3, several large conifers were marked for harvest. In other spray areas, harvest trees were not yet marked making evaluation of impacts impossible.

Many sprinkler heads were discharging wastewater to vegetated areas along the existing jeep trail between the water tank and S6. At the southern end of this jeep trail, an existing landing and road intersection was being irrigated with little or no vegetation to take up the wastewater. Grass and bare soil covered the partially compacted area. The presence of soft, wet mud and puddles allowed the Review Team to conclude that the soil in this area was saturated with wastewater even though no rain had fallen for many months. Comparing the vegetated and unvegetated spray areas, it was evident that vegetation takes up a large amount of water and protects the soil surface. The THP proposes use of this landing and jeep trail. Use of this spray area for heavy equipment operations under saturated soil conditions would violate THP Item 18: Saturated Soil Conditions in Non-Wet Weather. The integrity of the road and skid trail would be adversely affected for landowner and RRCSD use since no agreement is made on irrigation schedules. No procedure is listed in the THP to have the sprinklers shut off to avoid harvest under saturated soil conditions. In addition, use of a jeep trail is not discussed in the THP as far as extent of use and erosion control. Jeep trails are not defined in the FPRs. This irrigated portion of the jeep trail and landing should not be used by heavy equipment to avoid timber operations during saturated soil conditions due to irrigation. If any portions of the jeep trails are proposed for use by timber equipment, the term 'jeep trail' must be defined in the THP, listed for use, and have erosion control described. **(Issue 9)**

At the October PHI, the Review Team could not fully evaluate the THP due to unknown number and distribution of harvest trees marked in the irrigated areas, and trees planned for harvest within the Primary and Future Irrigation Disposal Area (THP map page 114). During the January PHI, trees were marked for harvest from the water tank south to the end of the existing jeep trail. The sprinklers were off so a portion of the spray area to the west of the road was inspected. The spray area observed contained thick ground cover vegetation and several wood rat nests, evenly spaced just west of the spray area.

Vegetation in the spray area evapotranspires and percolates several million gallons of wastewater every year. Many of the largest conifers in the spray area were marked for harvest. Without a tally of the trees proposed for harvest from the irrigation areas, their basal areas, and a complete hydrologic review to assess how evapotranspiration rates will be affected by their removal, impacts to water quality and soil stability cannot be assessed. We understand there are other spray heads within the THP area that were not observed during the PHIs. No map of the current spray area is included in the THP, thus other spray areas were not inspected. Since information on the exact location of current spray areas, evapotranspiration and potential adverse impacts is not provided in the THP, the spray areas should not be harvested, until a full hydrologic and geologic evaluation is

performed. **(Issue 10)**

The RRCSD uses roads on the timber harvest plan for access to their irrigation lines and the wastewater treatment plant. During high flow events in the Russian River, the THP area contains the only access road to the treatment plant. Item 14.g. on page 8 instructs the licensed timber operator (LTO) to fell trees away from sprinkler stand pipes as much as possible. The responsibility for identifying the location of all the sprinkler stand pipes is placed on the LTO with no maps in the THP showing where these are. Also, the THP states that the LTO is to work in conjunction with the personnel of the RRCSD to locate and protect the stand pipes from damage as much as possible. The THP states that the landowner is responsible to repair all pipes damaged during timber operations.

The THP contains no maps showing the location of the irrigation lines, nor does it contain a map of the spray areas with the THP boundary. The PHI Review Team observed approximately 13 sprinkler heads but I understand there are over 50 spray heads in the upper spray field (personal conversation, Nathan Quarles, Regional Water Board staff). During the PHI, some irrigation lines were observed along haul roads. These lines were above the ground and, in some places, very close to the road. Since the timber was not marked, the PHI Review Team could not assess the impacts from falling trees near irrigation lines. There is a high risk of irrigation lines being ruptured due to the proposed timber operations. Logging equipment could rupture lines during curve negotiation, backing up, timber removal, timber falling or erosion control installation. The THP needs to discuss the potential for irrigation line rupture from these activities and how line ruptures could affect RRCSD vehicle access and other conflicts, especially during storm events. The THP should include a map showing current irrigation spray areas, the location of irrigation lines and stand pipes. Any new lines or stand pipes installed during the life of the THP should be added to the map. Unless the THP can assure reviewing agencies that the RRCSD wastewater system will not be affected by the operations, the THP should be disapproved per FPR 898.2©. Harvesting in the spray fields has not had a proper alternatives analysis. Spray field harvesting does not appear to be the least damaging alternative. **(Issue 11)**

Evapotranspiration

THP 1-98-253 SON contains information on potential evapotranspiration rates, however, THP 1-02-179 SON does not. Conifers were generally not marked for harvest at the first preharvest inspection in October of 2002. Some conifers were marked along the upper jeep trail between the water tank and S6 at the time of the second preharvest inspection in January 2003, however, not all spray areas were marked nor re-inspected. The THP does not contain a map of the spray field, nor was a map distributed to reviewing agencies.

Volume of harvesting must be considered when assessing potential adverse impacts to the environment. The effect of trees to be harvested in the spray fields needs to be assessed against volumes of wastewater discharges. The THP does not contain these analyses. Without a discussion of the evapotranspiration rates of the conifers to be harvested, it is impossible for reviewing agencies to assess potential impacts as a result of

timber harvesting. The harvest of these conifers may result in saturation of the soils. Groundwater flow is also affected by the harvest of these conifers.

The THP does not consider impacts to water quality from saturated soils due to decreased evapotranspiration from loss of timber in irrigated areas. The THP implies the landowner may harvest trees in the spray fields without regard for wastewater uptake, and the RRCSD may need to consider alternative methods or locations for effluent disposal (see RPF response to First Review Question #18). Reviewing agencies cannot assess adverse impacts from the timber harvest project unless all information is submitted. A hydrologic study performed by an expert in the field, such as a certified hydrologist, showing surface and ground water impacts from the loss of conifer species needs to be submitted to RWB. The hydrology specialist needs to do a thorough evaluation and submit a report to the review team members. Also, the timing for irrigation and consequently, the uptake of irrigated wastewater by the trees during the growing season must be addressed. The references listed below may be used. **(Issue 12)**

References on evapotranspiration can be found in Wickman 2001, Sonoma State Redwood Project 2000, T.W. Daniel 1942, Marshall and Pasquinelli 2000, Olson, Roy, and Walters 2000, and Monteith 1965. Leaf Area Index (LAI) calculations can also be helpful in determining adverse impacts by determining the amount of water the trees to be removed are transpiring. For more information on LAI, the RPF may contact Tom Koler, U.S.F.S., Pollock Pines. See references at end of this report.

FIRST REVIEW QUESTIONS

Question #18

Regional Water Board staff submitted First Review Question #18 to CDF on July 24, 2002. The question, included in CDF's September 26, 2002, Notice of Filing, states that the information on water quality and cumulative impacts in the THP are unclear. The question requests the RPF to provide information clearly showing his determination that the THP will not have a significant adverse impact.

The RPF's response to First Review Question #18, dated October 22, 2002, reiterates information already in the THP which places the burden of water quality impacts on the RRCSD without answering the question of how the THP will affect the environment. It should be noted that the Easement Grant allowing wastewater effluent to be sprayed on the THP area is part of the THP (page 106). The Easement Grant states that the landowner (L-P in 1979, now Roger Burch), for a sum of \$10,000, grants the RRCSD an easement for 99 years for irrigating the land with partially treated sewage. The sprinkler system design and a map of the irrigation area are part of the Easement Grant. The Easement Grant allows timber harvesting but does not burden the RRCSD with any responsibility in the THP process.

One type of sediment discharge in the past has been landslides below roads failing into watercourses (S3, S5, S6, and possibly S1, and S4). S3 is at least partially irrigated with wastewater. If a sediment discharge to any watercourses occurs during or after timber

harvest, the landowner may be responsible under water quality regulations. The THP must evaluate cumulative impacts including land instabilities, current road structure, road use and water quality. Any addition of sediment to the watercourses could have an adverse impact and must be mitigated. The RPF must explain how the project can be completed, reducing impacts to less than significant levels, while considering use agreed upon in the Easement Grant. This information shall be added to the Cumulative Impacts Assessment section of the THP prior to CDF Second Review. **(Issue 13)**

Question #19

Question 19.a) states that it is not clear if the RPF or CEG were aware of the RRCSO effluent irrigation impacts when the THP was last drafted.

The RPF response states that he is aware of the RRCSO issue of effluent irrigation and potential impacts associated and that the THP contains information relative to this issue. This answer is incomplete and unsubstantiated. Information on irrigation with respect to the THP area should be added and changes to the THP considered. This question was asked by Regional Water Board staff because the RRCSO's Waste Discharge Requirements (WDRs) and volumes of wastewater irrigated on timber land were not mentioned. The RPF received a copy of the WDRs during the first PHI. Also, a table showing volumes of wastewater discharged on the spray fields (attached) was emailed to the RPF shortly after the PHI. Other pertinent information on RRCSO such as general files, WDRs and other timber harvesting on Burch property can be found in Regional Water Board, CDF, and SCWA public files. This information was not mentioned in the THP. For instance, information from the Giblin geology report was used during the approval process for THP

1-98-253 SON yet was not mentioned in THP 1-01-179 SON. The THP under review is incomplete. Pertinent information such as WDRs, irrigation volumes, discharge locations, soil instabilities, hydrology and associated adverse water quality impacts must be fully disclosed, evaluated, and mitigated to avoid all significant impacts to water quality. **(Issue 14)**

Question #19.c) asks if the THP activities will affect effluent limitations listed in RRCSO's WDRs.

The RPF response states that the WDRs and effluent limitations are not known, there will be a reduction in the evapotranspiration rates due to tree removal and that could affect effluent limitations, and the RRCSO must make adjustments to not violate their WDRs. The burden has been put on the RRCSO even though timber removal may affect effluent uptake through evapotranspiration.

Under the FPRs, it is the RPF's responsibility to evaluate how the proposed project may combine with existing or past projects while avoiding significant adverse impacts to water quality. The SCWA comments, on behalf of the RRCSO, dated November 19, 2002, concludes that the proposed timber operations could be carried out but the THP must contain specific and acceptable information regarding the harvest in the spray

easement area. Regional Water Board staff cannot accept unknown impacts given current WDRs under which the RRCSD must operate. The THP must contain information acceptable to the Regional Water Board, the SCWA, and the RRCSD showing that the timber harvest proposed will not: adversely affect the irrigation spray fields; cause a violation of the associated WDRs; cause adverse impacts to water quality; and cause potential violations of the Basin Plan. **(Issue 15)**

CUMULATIVE IMPACTS ASSESSMENT

Mays Canyon Creek is in a degraded state. The channel contains extensive amounts of sediment. The RPF shall consider all recommendations in this report and reevaluate the THP's Cumulative Impacts Assessment section. Only after the RPF collects and reviews complete information on hydrology, evapotranspiration, waste discharge requirements, and potential agreements between the landowner and the RRCSD on road maintenance and irrigation schedules, can this THP be evaluated for cumulative effects. Reassessment may reveal that portions of the THP need to be removed from harvesting or mitigated in a more environmentally sensitive manner. **(Issue 16)**

The THP discusses several slides but does not give details regarding volumes of sediment discharged to watercourses. It is not clear how timber harvesting impacts, such as evapotranspiration loss, root strength loss, and heavy equipment use on roads, will affect slides S1-S6 and possibly cause new landslides. The Cumulative Impacts Assessments (CIA) should be reevaluated and updated to reflect this information. Also, the CIA should evaluate the letter from SCWA to CDF dated July 28, 1998, reviewing THP 1-98-253 SON. Page 2 of the letter references a February 1998 mudflow on the Burch property. Timber harvest for 1-02-179 SON may be proposed relatively close to the edge of the slide. Details on the location and cause of this mudflow are unclear and should be discussed in THP 1-02-179 SON for cumulative impact purposes. **(Issue 17)**

RECOMMENDATIONS

Recommendations and comments are provided pursuant to the statutory authority contained in the Porter Cologne Water Quality Control Act (California Water Code Section 13000 et. Seq.), the Basin Plan, and the Z'berg Nejedly Forest Practice Act (California Public Resources Code Section 1037.5).

On December 10, 2002, the North Coast Regional Water Quality Control Board adopted Order No. R1-2002-0109, Interim Categorical Waiver for Discharges Related to Timber Operations in the North Coast Region. Please be aware that Timber Harvest Plans (THPs) conducted pursuant to the Z'berg-Nejedly Forest Practice Act are covered under the Interim Waiver Policy Order No. R1-2002-0109 except as provided within section G and provided that the discharger complies with conditions F(3) through F(5) of the Interim Waiver Policy. The Interim Waiver Policy Order No. R1-2002-0109 remains in effect until January 1, 2004. A copy of the Interim Waiver Policy is attached

(Attachment 3).

It has cost the agencies many hours and tremendous resources to evaluate this plan up to this date. RWB staff have spent approximately 13 hours in field review and 57 hours in research and office review of this seriously deficient THP. The THP fails to comply with many FPRs. In that respect, the RPF has failed to disclose required information in the THP, has failed to properly assess the impacts to the resources, and consequently, has done a seriously inadequate job of mitigating water quality impacts. There is substantial evidence that the information in the THP is incorrect, incomplete, and misleading in a material way, and is insufficient to evaluate significant environmental effects. **RWB staff recommend disapproval of this THP per 898.2© of the FPRs.**

The deficiencies of the THP and reasons for disapproval include the following issues:

1. The Class I WLPZ: **(Issue 1)**
 - a) The THP shall show Mays Canyon Creek as a Class I watercourse on all maps. THP Item 26 shall contain Class I protection widths and overstory canopy protection measures for the Threatened and Impaired watershed based on slope. Flagging shall encompass the correct WLPZ as defined under Forest Practice Rules (FPR) 916.5. **(Issue 1.a.)**
 - b) Ten largest diameter at breast height (dbh) trees (per 330 feet of channel, within 50 feet of channel and most likely to enter channel as LWD) shall be retained in conformance with FPR 916.9(i) for Threatened and Impaired watersheds. **(Issue 1.b.)**
 - c) The floodplain and overflow channels shall be included in the channel zone and the WLPZ shall flagged in conformance with FPR 916.4(a)(1) and 916.4(b). **(Issue 1.c.)**
 - d) Trees marked for harvest within the braided channel zone of the Class I watercourse shall be marked out for conformance with FPR (916.9(e)). **(Issue 1.d.)**
 - e) In the Class I WLPZ at Mays Canyon Creek, at least 85 percent overstory canopy shall be retained within 75 feet of the watercourse or lake transition line, and at least 65 percent overstory canopy within the remainder of the WLPZ (FPR 916.9(g)). **(Issue 1.e.)**
2. Several Class II and III watercourses were inspected. Recommendations regarding these areas include:
 - a) Approximately 250 feet of the Class III watercourse at Map Point MP-8 shall have Class II protection due to the presence of flowing water, pools, and hydrophytic vegetation. **(Issue 2.a.)**
 - b) The last Class III watercourse in the southeast corner of the THP shall be changed to a Class II watercourse and have Class II protection. **(Issue 2.b.)**

- c) A Class III watercourse was inspected just northwest of the two watercourses listed above. The conifer marked for harvest within the channel zone of the Class III watercourse shall be retained. No trees are to be harvested in the channel zones of watercourses in accordance with FPR 916.9(e). **(Issue 2.c.)**
3. Map Page 36 shows a skid trail just inside the northern boundary of the harvest area. This skid trail closely follows the Class III watercourse toward Mays Canyon Creek. The skid trail crosses the watercourse but is not shown on any THP map nor described in the THP. The RPF shall add this skid trail crossing to map page 36 and list water quality protection measures in the THP. **(Issue 3)**
4. On November 7, 2002, CDF submitted their first preharvest inspection report. Regional Water Board staff agrees with CDF recommendations 1, 6-15, and 18. On February 19, CDF submitted their second preharvest inspection report. Regional Water Board staff agrees with CDF recommendations 1, 2, 4, and 5. These recommendations regarding water quality shall be incorporated into the final THP. **(Issue 4)**
5. Item 27 shall be edited to reflect the classification change of Mays Canyon Creek to a Class I watercourse. Additional soil stabilization shall also be included in this item for protection of the Class I watercourse such as: installation of a large berm near the dip out location to allow water to remain in its watercourse and not flow down the skid trail, and, shaping and slash packing or seeding and mulching the approaches to the skid trail crossing to prevent a sediment discharge to the watercourse. **(Issue 5)**
6. During the January 28, 2003, PHI, a skid trail was discovered to be within the Class I WLPZ in the northeast corner of the THP. Information regarding in-lieu practices and stabilization of all soils shall be described in the THP as required per FPR 916.4 (d) for the WLPZ. **(Issue 6)**
7. Item 23, page 19, paragraph (9), describes winter operations including use of the road within the Mays Canyon Creek WLPZ. Due to the high rainfall area, erodible soils, proximity to the Class I watercourse, and need for RRCSD to utilize the roads during emergencies, winter operations from November 15 to May 1 shall not be conducted. In addition, roads shown on the THP maps as “permanent” are not up to the definition of permanent standards and need an additional rock layer and erosion control updating, especially at watercourse crossings, WLPZs, and slide areas, to meet the FPR definition. **(Issue 7)**
8. Language should be added to the THP to eliminate the use of heavy equipment on and within at least 15 feet from all slides. Full protection for slide prone areas must be determined after completion and evaluation of the geologic report required below in Issue 8.a. Heavy equipment exclusion flagging must be erected at slide zones. **(Issue 8)**
- a) A geologic report by Geoservices Group was included in the THP, however, it is clear the geologist was unaware of past geologic reports on the specific area and the

history of spray volumes from the RRCSD. The geologic report only reviewed four of the eight slides and did not recommend site-specific road drainage remedies above slides. Since harvesting in the RRCSD spray areas near the slide areas is proposed, a full hydrologic and geologic report by a licensed professional with experience in slope stability and timber operations shall be submitted. This report shall contain an evaluation of the risk from harvesting and on and around these slides taking spray volumes into account. The geologic/hydrologic report shall recommend erosion control measures including road drainage methods on and around these slides and measures needed to prevent activation or slide failure. In addition, columns shall be added to the erosion hazard rating (EHR) table (page 103) for separate evaluation of the slides due to increases in slope, detachability and precipitation rates. Irrigation rates shall be considered as precipitation. Results may change erosion ratings, silvicultural prescriptions, waterbar spacing, and harvest method in high or extreme erosion risk areas. The THP alternatives analysis shall be reevaluated after these documents are complete. **(Issue 8.a.)**

- b) Enforceable language shall be added to the THP to ensure bare soils will be stabilized at slide S5. **(Issue 8.b.)**
- c) The Geoservices Group Report states that S6 appears to have developed as a failure of sidecast road fill along an existing ridgetop road. The geologist recommends the detached soil block on the south side of the main scar, as well as areas of yielding fill to the south, be “rounded or pulled back.” The report states that excavated material could be placed on the road surface and outsloped, or arched in the area of the debris slide scar, to deflect runoff away from the head scar area. The geologist further recommends concentrated runoff and scouring on the road could be corrected by installing a waterbar 45 to 50 feet north of the debris head scar. These recommendations from the geologist shall be incorporated into the THP Item 25. Additional language describing work to be done to prevent a sediment discharge to the Class III watercourse shall be added to Item 25 along with a design for road reconstruction and drainage needed to prevent a sediment discharge to the Class III watercourse. **(Issue 8.c.)**
- d) The work described in Item 25, page 22, under slide S6, is not enforceable and must be changed to “shall” to reduce the potential for discharge of earthen material to the Class III watercourse located just down gradient. In addition, the RPF shall annually inspect the base of this slide at its closest point to the Class III watercourse and report his findings of current and future potential for sediment discharge to watercourses. This annual report must be submitted to the RWB and CDF by June 1 of each year that the THP is active and each year during the maintenance period. Sediment discharges or potential sediment discharges to the watercourse from THP activities must be avoided. Adequate mitigation measures for the protection of water quality must be added or amended to the THP. **(Issue 8.d.)**
- e) The RPF shall add slides S7 and S8 to the THP maps as seen on CGS Report, Figure 5. Harvesting and heavy equipment use on these slides shall be clearly stated in the THP and, at a minimum, in accordance with recommendations of the CGS report.

(Issue 8.e.)

9. The THP proposes use of the ridgetop landing and jeep trail between the water tank and S6. This irrigated portion of the jeep trail and landing should not be used by timber harvest equipment in order to avoid operations during saturated soil conditions. If any portion of the jeep trails are proposed for use by timber equipment, the term 'jeep trail' must be defined in the THP, listed for use on maps and in the text, and have erosion control described. Any portion of the jeep trail that is not to be used by heavy equipment shall be so designated on THP maps for LTO use. **(Issue 9)**
10. The RRCSD spray areas shall not be harvested due to the lack of information in the THP on the location of current spray areas, evapotranspiration rates of the trees to be harvested, and potential adverse impacts to water quality. **(Issue 10)**
11. The THP must discuss the potential for irrigation line rupture from timber operations and how line ruptures could affect RRCSD vehicle access and other conflicts, especially during storm events. The THP must include a map showing current irrigation spray areas, the location of irrigation lines and stand pipes. Harvesting and heavy equipment operations in the spray fields has not had a proper alternatives analysis. Spray field harvesting does not appear to protect water quality from adverse impacts. Unless assurance is given that the RRCSD wastewater system will not be affected by timber operations, the THP must be disapproved per FPR 898.2©. **(Issue 11)**
12. A hydrologic study performed by an expert in the field, such as a certified hydrologist, showing surface and ground water impacts from the loss of conifer species in the RRCSD spray fields shall be submitted to RWB. Also, the uptake of irrigated wastewater by the trees during the growing season must be addressed. The references listed below may be used. **(Issue 12)**
13. Cumulative Impacts: The THP must evaluate cumulative impacts including land instabilities, current road structure, road use and water quality. Any addition of sediment to the watercourses could have an adverse impact and must be mitigated. The RPF must explain how the THP activities can be completed, reducing impacts to less than significant levels, while considering use agreed upon in the Easement Grant. This information must be added to the Cumulative Impacts Assessment section of the THP as required prior to plan submission by FPR 898.1, 1034, and Board of Forestry Technical Rule Addendum No. 2. **(Issue 13)**
14. Pertinent information from the RRCSD waste discharge requirements (WDRs), volumes of wastewater sprayed on the THP area, mapping of all discharge locations, and the Giblin geology report from THP 1-98-253 SON shall be added to the THP. The RPF shall review these documents, list them as references in the THP, and consider their information when performing the alternatives analysis, evaluating impacts to water quality, soil instabilities, and cumulative impacts, as required by the FPRs. **(Issue 14)**

15. Under the FPRs, it is the RPF's responsibility to evaluate how the proposed project may combine with existing or past projects while avoiding significant adverse impacts to water quality. The RPF shall add information to the THP acceptable to the Regional Water Board, the SCWA, and the RRCSD, showing that the timber harvest proposal will not: adversely affect the irrigation spray fields; cause a violation of the associated WDRs; cause adverse impacts to water quality; and cause potential violations of the Basin Plan. **(Issue 15)**

16. The RPF shall consider all recommendations in this report and reevaluate the THP's Cumulative Impacts Assessment section regarding protection of Mays Canyon Creek and the Russian River. Only after the RPF collects and reviews complete information on hydrology, evapotranspiration, waste discharge requirements, and potential agreements between the landowner and the RRCSD on road maintenance and irrigation schedules, can this THP be properly evaluated for cumulative effects. Reassessment may reveal that portions of the THP need to be removed from harvesting or mitigated in a more environmentally sensitive manner. **(Issue 16)**

17. The Cumulative Impacts Assessment (CIA), starting on THP page 56, shall be reevaluated and updated to reflect information on volumes of sediment discharged to watercourses due to slides in the THP area, how timber harvest may impact evapotranspiration and root strength, and how heavy equipment use on roads will affect slides S1-S6 and possibly cause new landslides. Also, the CIA section shall evaluate the letter from SCWA to CDF dated July 28, 1998, reviewing THP 1-98-253 SON. Page 2 of the letter references a February 1998 mudflow on the Burch property. Timber harvest for 1-02-179 SON may be proposed relatively close to the edge of the slide. Details on the location and cause of this mudflow shall be discussed in THP 1-02-179 SON for cumulative impact purposes. **(Issue 17)**

General Recommendation: The RPF, landowner or designee shall notify RWB staff prior to completion of timber harvest activities so that the staff may perform an inspection.

ATTACHMENTS

Attachment 1. RRCSD Irrigation Summary Table

Attachment 2. Map

Attachment 3 Interim Waiver Policy

REFERENCES:

CDF PHI Report dated November 7, 2002

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Wickman, Daniel, IOS Corporation, Sonoma State University Subsurface Forest Wastewater Irrigation Project: Preliminary Results on Nutrient Uptake, 2001

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