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Harvest - Related Landslide Annual Monitoring Report

2006

Freshwater Watershed Waste Discharge Permit R1-2006-0039

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Version 1.0



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**PROJECT TITLE: FRESHWATER WWDR R1-2006-0039 HARVEST RELATED
LANDSLIDE MONITORING PROGRAM**

ORGANIZATION IMPLEMENTING THE PROJECT:

PALCO (The Pacific Lumber Company)
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“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

**SCIENCE TEAM LEADER FOR THIS
PROJECT**

_____ Date _____
Kathleen Sullivan, Ph.D.

PALCO AUTHORIZED REPRESENTATIVE

_____ Date _____
Kathleen Sullivan

2006 Tier 2 Acres in Freshwater Creek

Enrolled Acres

In Freshwater Creek, 6 THP units were enrolled as Tier 2 acres under the WWDR in 2006. A total of 140.6 clearcut equivalent acres were harvested.

Table 1. Freshwater Tier 2 Enrolled Units

THP Number	THP Name	Unit Number
03-126	Upper Cloney	Unit 2
03-126	Upper Cloney	Unit 3
03-126	Upper Cloney	Unit 4
04-241	Falls Up	Unit 4
04-241	Falls Up	Unit 6
05-123	Mid Incline	Unit 4

Units are located on Map 1. Each unit number is consistent with the numbering in each corresponding THP.

Logging

For the purposes of the landslide monitoring, the term "Harvest Completed" includes both falling and yarding of the units, since sediment sources and landslides can be created during yarding activities.

Table 2. Freshwater Tier 2 Logging Activity Log

THP Number	THP Name	Unit Number	Harvest Initiated	Harvest Completed
03-126	Upper Cloney	Unit 2	10/4/06	12/8/06
03-126	Upper Cloney	Unit 3	10/11/06	3/9/07
03-126	Upper Cloney	Unit 4	10/4/06	10/27/06
04-241	Falls Up	Unit 4	10/18/06	11/27/06
04-241	Falls Up	Unit 6	12/9/06	1/19/07
05-123	Mid Incline	Unit 4	12/14/06	3/29/07

Inspections

Inspections for landslides are required pre-harvest, post-harvest, after a significant earthquake, and during weather triggered events: 1 inch in 6 hours, regardless of cumulative rainfall, and after storm events of 2.0 inches in 24 hours, following 10 inches of cumulative rainfall beginning October 1. If no events meet the storm criteria by April 1, an inspection will occur regardless of storm size by April 7th.

Hillslope Sediment Source field forms are attached in Appendix 1.

Pre-Harvest Inspections

Table 3. Pre-Harvest Inspection for Tier 2 Acres in Freshwater Creek

THP Number	THP Name	Unit Number	Pre-Harvest Inspection	Harvest Initiated	Harvest Completed
03-126	Upper Cloney	Unit 2	9/15/06	10/4/06	12/8/06
03-126	Upper Cloney	Unit 3	9/15/06	10/11/06	3/9/07
03-126	Upper Cloney	Unit 4	9/15/06	10/4/06	10/27/06
04-241	Falls Up	Unit 4	10/6/06	10/18/06	11/27/06
04-241	Falls Up	Unit 6	10/6/06	12/9/06	1/19/07
05-123	Mid Incline	Unit 4	10/18/06	12/14/06	3/29/07

Pre-harvest inspections were conducted as part of the THP Unit Reviews for the Tier 2 enrollment process. Observations are consistent with the approved THP and Tier 2 enrollment documentation. Copies of the Tier 2 unit review geologic summaries are attached in Appendix 2. Due to the nature of the data, results for the pre-harvest inspections are not summarized in tabular form.

Post-Harvest Inspections

Table 4. Post-Harvest Inspection Results for Tier 2 Acres in Freshwater Creek

THP Number	THP Name	Unit Number	Harvest Completed	Post-Harvest Inspection	Post-Harvest Inspection results	Source Delivery	Probability of Delivery
03-126	Upper Cloney	Unit 2	12/8/06	2/16/07	No Sediment Sources Observed	N/A	N/A
03-126	Upper Cloney	Unit 3	3/9/07	2/16/07	No Sediment Sources Observed	N/A	N/A
03-126	Upper Cloney	Unit 4	10/27/06	10/27/06	No Sediment Sources Observed	N/A	N/A
04-241	Falls Up	Unit 4	11/27/06	2/21/07	No Sediment Sources Observed	N/A	N/A
04-241	Falls Up	Unit 6	1/19/07	2/1/07	No Sediment Sources Observed	N/A	N/A
05-123	Mid Incline	Unit 4	3/29/07	N/A	N/A	N/A	N/A

No landslides or sediment sources were observed during the post-harvest inspections of the Tier 2 acres.

Deviation from Plan

Harvesting was not completed until March of 2007 on Upper Cloney Unit 3 and Mid Incline Unit 4.

Upper Cloney Unit 3 had a ½ acre that was felled, but permits were not received until March to complete yarding of the unit. A post-harvest inspection was conducted in February, since harvest had been completed on most of the unit. The ½ acre section was inspected after yarding was complete, with no sediment sources or landslides observed.

Harvesting in Mid Incline Unit 4 was nearly complete, but there were still sections that needed to be yarded when the rainfall triggering inspection occurred in February. Thus, a post-harvest inspection was not conducted prior to the rain triggering inspection. The last acres yarded were reviewed after completion with no sediment sources or landslides observed.

Storm Triggered Inspections

One storm triggered inspection was conducted on all Tier 2 acres in Freshwater Creek. The rainfall trigger of 2.0 inches in 24 hours following 10 inches of cumulative rainfall beginning October 1 was reached on February 21, 2007 when Eureka received 2.32 inches in a 24 hour period. Inspections were conducted on all Tier 2 acres on February 22, 2007. See rainfall record in Table 7.

Table 5. Storm Triggered Inspection Results for Tier 2 Acres in Freshwater Creek

THP Number	THP Name	Unit Number	Inspection Date	Storm Triggered Inspection results	Source Delivery	Probability of Delivery
03-126	Upper Cloney	Unit 2	2/22/07	No Sediment Sources Observed	N/A	N/A
03-126	Upper Cloney	Unit 3	2/22/07	No Sediment Sources Observed	N/A	N/A
03-126	Upper Cloney	Unit 4	2/22/07	No Sediment Sources Observed	N/A	N/A
04-241	Falls Up	Unit 4	2/22/07	No Sediment Sources Observed	N/A	N/A
04-241	Falls Up	Unit 6	2/22/07	No Sediment Sources Observed	N/A	N/A
05-123	Mid Incline	Unit 4	2/22/07	No Sediment Sources Observed	N/A	N/A

No landslides or sediment sources were observed during the storm triggered inspections of the Tier 2 acres.

Inspection Activity Summary Log

The summary log of all hillslope landslide inspection activity is provided in Table 6. This table will be updated in each Annual report.

Table 6. Inspection Activity Summary Log for Tier 2 Acres in Freshwater Creek

THP Number	THP Name	Unit Number	Pre-Harvest Inspection	Harvest Initiated	Harvest Completed	Post- Harvest Inspection	Storm Triggered Inspection
03-126	Upper Cloney	Unit 2	9/15/06	10/4/06	12/8/06	2/16/07	2/22/07
03-126	Upper Cloney	Unit 3	9/15/06	10/11/06	3/9/07	2/16/07	2/22/07
03-126	Upper Cloney	Unit 4	9/15/06	10/4/06	10/27/06	10/27/06	2/22/07
04-241	Falls Up	Unit 4	10/6/06	10/18/06	11/27/06	2/21/07	2/22/07
04-241	Falls Up	Unit 6	10/6/06	12/9/06	1/19/07	2/1/07	2/22/07
05-123	Mid Incline	Unit 4	10/18/06	12/14/06	3/29/07	N/A	2/22/07

Daily Rainfall

Daily rainfall for 2006/2007 is as follows in Table 7. Rainfall is recorded in inches and is gathered from the National Weather Service Station in Eureka (www.whr.noaa.gov/eka).

Table 7. Daily rainfall recorded at NWS station in Eureka, California. Data is presented in inches.

NWS Station at Eureka Hydrologic Year 2006-2007							
Date	October	November	December	January	February	March	April
1	0.00	0.00	0.01	0.00	0.00	0.20	0.00
2	0.00	0.64	0.00	0.01	0.00	0.13	0.00
3	0.00	0.86	0.00	0.97	0.00	0.00	0.00
4	0.22	0.00	0.00	0.40	0.00	0.00	0.00
5	0.00	0.08	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.17	0.00	0.00	0.00
7	0.00	0.66	0.00	0.00	1.03	0.36	0.29
8	0.00	0.14	0.26	0.00	0.50	0.00	0.29
9	0.00	0.00	0.29	0.00	0.05	0.04	0.00
10	0.00	0.60	0.85	0.12	1.32	0.00	0.00
11	0.00	0.18	0.70	0.04	0.23	0.00	0.33
12	0.00	0.38	0.98	0.00	0.23	0.00	0.10
13	0.00	0.58	0.57	0.00	0.00	0.00	0.02
14	0.02	0.03	0.44	0.00	0.20	0.00	0.76
15	0.30	0.43	0.03	0.00	0.52	0.00	0.00
16	0.03	0.06	0.14	0.12	0.00	0.00	0.04
17	0.00	0.00	0.03	0.00	0.04	0.00	0.36
18	0.00	0.00	0.00	0.00	0.12	0.00	0.06
19	0.01	0.35	0.00	0.01	0.04	0.62	0.04
20	0.00	0.39	0.01	0.00	0.97	0.04	0.00
21	0.00	0.44	0.77	0.00	2.32	0.00	0.28
22	0.00	0.78	0.00	0.00	0.79	0.00	0.13
23	0.00	0.05	0.08	0.00	0.04	0.00	0.00
24	0.00	0.01	0.03	0.01	0.79	0.00	0.00
25	0.00	0.03	0.73	0.00	0.51	0.26	
26	0.00	0.45	0.97	0.00	0.50	0.39	
27	0.00	0.14	0.13	0.00	1.16	0.45	
28	0.00	0.13	0.00	0.00	0.41	0.00	
29	0.00	0.00	0.00	0.00		0.00	
30	0.00	0.00	0.00	0.01		0.00	
31	0.00		0.00	0.00		0.02	
Cumulative Total (in)	0.58	7.99	15.01	16.87	28.64	31.15	33.85

Notifications

No landslides were observed during the course of the inspections. Therefore, no notifications were made to the NCRWQCB.

Corrective Actions

No corrective actions were initiated.

Project Problems Encountered and Resolution

The post-harvest inspection timing could be improved upon. These inspections should be conducted prior to significant rainfall, but due to several factors the units were not all harvested by the onset of significant rainfall. Otherwise, we feel that the first round of inspections went well.

Appendices

Appendix 1

Copies of Hillslope/ Landslide Field Forms

Appendix 2

Copies of Tier 2 Unit Reviews- Geologic Summaries