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HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
Fax 206.328.5581
Tel 206.324.9530

J-2296-07

February 7, 1997

Mr. Gregory A. Rapp
Construction Services Manager
Potlatch Corporation
1100 Railroad Avenue
P.O. Box 386
St. Maries, Idaho 83861

Re: 1996 Annual Performance Report
Avery Landing Recovery System

Dear Mr. Rapp:

Hart Crowser is pleased to present the Annual Performance Report for 1996 for the free product recovery system at the Avery Landing site. This letter report presents the following three sections, as required by your Consent Order with the State of Idaho Department of Health and Welfare, Division of Environmental Quality (IDEQ):

1. **Volume of Product Recovered.** The total amount of product recovered during the year, and the destination of the product recovered;
2. **Recovery System Effectiveness.** An analysis of the effectiveness of the recovery system with respect to free product capture; and
3. **Schedule.** A schedule for next year's product and water level monitoring.

System performance data (groundwater elevations and free product thicknesses) for 1996 were reported in the quarterly performance reports submitted to the IDEQ. The 3rd quarter performance report (December 10, 1996) also contained a capture zone analysis to assess the effectiveness of the recovery system.

VOLUME OF PRODUCT RECOVERED

During 1996 a product volume of approximately 200 gallons was recovered from the extraction tronches at the site and collected in the free product storage tank. This volume is approximately twice the amount of product collected in 1995. We feel this is the result of operating the system in a more consistent manner with respect to the water level. A local Potlatch representative was able to monitor the river level more closely this year and make adjustments to the pump levels that kept the free product removal rate more consistent. Also by the 3rd quarter monitoring event, the free product pumps were maintaining the free product at a minimum.

The product consistency has changed in extraction well EW-4. The product found this year in EW-4 was less viscous than in the past. The viscosity change could be caused by the lighter, less viscose, petroleum products flowing to the extraction well at a higher rate now that some of the more viscous petroleum products have been removed.

RECOVERY SYSTEM EFFECTIVENESS

The evaluation of the recovery system effectiveness in capturing free phase hydrocarbons before they reach the river is based on a capture zone analysis, and the amount of free product removed from the river using oil absorbent booms. Based on the capture zone analysis completed for the 3rd quarter, the system is working well in the areas that have a measurable amount of free product (EW-2, EW-3, and EW-4). This is further supported by the fact that the oil absorbent booms on the river have not required changing.

During the first quarter monitoring event in 1997, we will try to further optimize the system by resetting the water pumps in the extraction wells to a lower level. The depth of the pumps is controlled by the amount of silt at the bottom of the well. The pumps were originally set to ensure that the silt would not overtake the pump. Now that the system has been operating for two years the pump level may possibly be lowered. Specifically the EW-1 pump should be lowered to the maximum extent possible since it has had the least amount of capture during the last two years.

SCHEDULE

Table 1 presents the project schedule for the 1997 monitoring year.

Table 1 - Avery Landing Recovery System Project Schedule for 1997 Monitoring Year

Scheduled Milestone	Date
Startup Recovery System in Spring	April 15, 1997 or as weather permits
System Startup Complete	May 1, 1997
Conduct First Quarter Monitoring	June 1, 1997
Submit First Quarter Performance Report	July 1, 1997
Conduct Second Quarter Monitoring	August 1, 1997
Submit Second Quarter Performance Report	September 1, 1997
Conduct Third Quarter Monitoring	October 1, 1997
Submit Third Quarter Performance Report	November 1, 1997
Submit Annual Report	December 1, 1997

The schedule may change based on weather conditions in the spring. Once the actual startup is completed the actual schedule will be submitted to IDEQ so that joint site visits can be planned.

LIMITATIONS

Work for this project was performed, and this letter report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar location, at the time the work was performed. It is intended for the exclusive use of the Potlatch Corporation for specific application to the referenced property.

If additional information or clarification is required, please call Terry Montoya at (206) 324-9530.

Sincerely,

HART CROWSER, INC.

TERRY MONTOYA
Project Engineer

BARRY L. KELLEMS, P.E.
Associate

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cc: Kreg Beck, Idaho Department of Environmental Quality