WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 25E060

STATION NAME: Abernathy Creek

WATER YEAR: 2008

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Introduction

Watershed Description

Abernathy Creek is a right bank tributary to the Columbia River located approximately 9 miles west of Longview, Washington. Historically, the stream supported runs of coho salmon and chinook salmon and steelhead and cutthroat trout. Land use is primarily commercial forestry with state and private holdings. Flow basalt with interbedded sandstone defines the underlying geology. Precipitation varies with elevation but typically ranges between 60 and 70 inches annually. Hydrology is almost entirely rainfall driven.

Gage Location

The gage is on the right bank near the downstream side of the Slide Creek road bridge.

Table 1.

Drainage Area (square miles)	20.3
Latitude (degrees, minutes, seconds)	46 12 20.7 north
Longitude (degrees, minutes, seconds)	123 09 14.0 west

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	87
Median Annual Discharge (cfs)	55
Maximum Daily Mean Discharge (cfs)	562
Minimum Daily Mean Discharge (cfs)	8.2
Maximum Instantaneous Discharge (cfs)	608
Minimum Instantaneous Discharge (cfs)	6.9
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	200
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	11
Percent of Time Discharge is Greater Than Range of Ratings	1.4
Percent of Time Discharge is Less Than Range of Ratings	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

The statistics above do not include 5 days of record. The 5 days of missing record occurred during the peak discharge periods. For that reason all statistics are below the actual values.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	1.2
Weighted Rating Error (% of discharge)	10.5
Total Potential Error (% of discharge)	11.7

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	4	3	5	
Period of Ratings	10/01-10/23	10/23-12/04	12/04-09/30	
Range of Ratings (cfs)	3.9-466	3.8-379	4.6-665	
No. of Defining Measurements	4	6	8	
Rating Error (%)	5.5	9.9	10.7	

Rating Table No.				
Period of Ratings				
Range of Ratings (cfs)				
No. of Defining Measurements				
Rating Error (%)				

Narrative

Rating Table 4 covered the start of Water Year (WY) 2008 from 10/01/2007 to 10/23/2007. The rating then shifted back to Rating 3. Rating 5, a new rating for the station, took effect on 12/04/2007 and covered the remainder of WY 2008.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	4.27
Maximum Recorded Stage (feet)	9.31
Range of Recorded Stage (feet)	5.04
Number of Un-Reported Days	5
Number of Days Qualified as Estimates	0
Number of Days Qualified as Unreliable Estimates	5

Narrative

Problems which caused gaps in the stage record during WY 2007 were, for the most part, corrected in WY 2008. Five days were unreported in the discharge statistics because the predicted discharge exceeded twice the highest measured discharge. A large storm event occurred in early December 2007.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	none
Range of Modeled Stage (feet)	
Range of Modeled Discharge (cfs)	
Valid Period for Model	
Model Confidence	

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
Station	10/07/2008

Activities Completed

Station power supply is re-designed in September 2008. Second year of TTS sampling.