WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 35J050

STATION NAME: Tenmile Creek at Mouth

WATER YEAR: 2013

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Introduction

Watershed Description

Tenmile Creek is located in Asotin County in southeastern Washington. Tenmile Creek drops 2000 feet from the fringes of the Blue Mountains to the Snake River. The canyon created by the creek provides habitat for a variety of wildlife including deer, elk, coyote, and many species of birds. Land use is primarily rangeland.

Tenmile Creek also has a small population of threatened Snake River steelhead.

Gage Location

The gage is located off of Weisenfels Ridge Road, approximately 0.50 miles southwest from the Snake River Road. It is located on the left bank.

Table 1. Basin Area and Legal Description

Drainage Area (square miles)	41.6 (Streamstats)
Latitude (degrees, minutes, seconds)	46° 17' 28" N
Longitude (degrees, minutes, seconds)	116° 59' 54" W

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	2.3
Median Annual Discharge (cfs)	0.9
Maximum Daily Mean Discharge (cfs)	10
Minimum Daily Mean Discharge (cfs)	0.50
Maximum Instantaneous Discharge (cfs)	12
Minimum Instantaneous Discharge (cfs)	0.40
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	7.90
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	0.55
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	24
Number of Un-Reported Days	112
Number of Days Qualified as Estimates	97
Number of Modeled Days	0

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

Table 2 Discussion (Discharge Statistics)

The unreported days were due to the pressure transducer being removed for the winter.

The days qualified as estimates were a combination of data gaps filled with regressed data from nearby stations and logger drift. The main reasons for logger drift are very low flows and shallow water.

Data is considered to be an estimate when the mean daily flow difference between uncorrected data (logger) and corrected data (logger data adjusted to equal the primary gage index) is greater than 20% and greater than 0.50 cfs.

Table 3. Error Analysis Summary.

Potential Logger Drift Error (% of discharge)	31.5
Potential Weighted Rating Error (% of discharge)	17.6
Total Potential Error (% of discharge)	49.1

Table 3 Discussion (Error Analysis)

Logger drift was high due to the pressure transducer's location in the stream. Logger drift can be magnified by extremely low flows and shallow water depth.

Table 4. Stage Record Summary

Minimum Recorded Stage (feet)	3.39
Maximum Recorded Stage (feet)	4.01
Range of Recorded Stage (feet)	0.62

Table 4 Discussion (Stage Record)

No continuous data was collected between mid-November 2012 and early March 2013. The pressure transducer was removed for the winter.

Table 5. Rating Table Summary

Rating Table No.	20	21	22
Period of Ratings	10/1/12 to 11/15/12	10/2/12 to 2/21/13	1/9/13 to 9/16/13
Range of Ratings (cfs)	0.21 to 186	0.01 to 186	0.35 to 186
No. of Defining Measurements	6	5	7
Rating Error (%)	22.2	14.2	17.1

Rating Table No.	201	221	
Period of Ratings	7/2/13 to 10/1/13	9/16/13 to 10/1/13	
Range of Ratings (cfs)	0.21 to 1.86	0.35 to 186	
No. of Defining Measurements	6	7	
Rating Error (%)	22.2	17.1	

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

Table 5 Discussion (Rating Tables)

Ratings 21 and 221 were caused by leaf litter build-up in the channel. Ratings 22 and 201 were caused by the removal of leaf litter through higher flows.

Ten discharge measurements were taken throughout the water year, ranging from 0.59 to 9.0 cfs. This includes a discharge measurement taken on October 1, 2013.

Table 6. Model Summary

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

Table 6 Discussion (Modeled Data)

A change in channel geometry led to discontinuing the use of the current slope conveyance model.

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

Type	Date
Station, X-Section, Long.	10/18/11

Table 7 Discussion (Surveys)

Activities Completed

Monitoring at this station was discontinued on October 1, 2013, due to budget cuts.