WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 32B100

STATION NAME: Touchet River at Bolles Road

WATER YEAR: 2012

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Introduction

Watershed Description

The Touchet River, the largest tributary of the Walla Walla River, flows out of the Blue Mountains in southeast Washington. Spring Chinook, steelhead, and bull trout are present within the watershed. Land use is primarily agricultural, consisting of dryland crops and irrigated farming in the lower portions.

Gage Location

This gage is located on the right bank, downstream of the Highway 125 Bridge, 3.5 miles west of the town of Waitsburg. It is located at river mile 40.4.

Table 1. Basin Area and Legal Description

Drainage Area (square miles)	357 (Streamstats)
Latitude (degrees, minutes, seconds)	46° 16' 28" N
Longitude (degrees, minutes, seconds)	118° 13' 16" W

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	269
Median Annual Discharge (cfs)	116
Maximum Daily Mean Discharge (cfs)	1690
Minimum Daily Mean Discharge (cfs)	41
Maximum Instantaneous Discharge (cfs)	1960
Minimum Instantaneous Discharge (cfs)	38
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	711
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	45
Number of Days Discharge is Greater Than Range of Ratings	5
Number of Days Discharge is Less Than Range of Ratings	0
Number of Un-Reported Days	5
Number of Days Qualified as Estimates	1
Number of Modeled Days	3

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 five missing days were due to rating curve exceedances. This occurs when the predicted discharge is greater than two times the highest measured discharge associated with the rating. Nine discharge measurements were taken throughout the water year, ranging from 42 to 1040 cfs.

Table 3. Error Analysis Summary.

Potential Logger Drift Error (% of discharge)	1.2
Potential Weighted Rating Error (% of discharge)	9.1
Total Potential Error (% of discharge)	10.3

Table 3 Discussion (Error Analysis)

The potential logger drift refers to the amount of instrument drift that was corrected in the stage record.

The potential weighted rating error is based on the quality of the individual discharge measurements used to define the particular rating and how those defining measurements related to the rating.

Table 4. Stage Record Summary

Minimum Recorded Stage (feet)	2.35
Maximum Recorded Stage (feet)	6.88
Range of Recorded Stage (feet)	4.53

Table 4 Discussion (Stage Record)

Peak flow occurred on March 30, 2012, during spring run-off. The lowest flow of the water year occurred in late August, 2012.

Table 5. Rating Table Summary

Rating Table No.	8	9	
Period of Ratings	10/1/11 to 2/22/12	2/20/12 to 9/30/12	
Range of Ratings (cfs)	26 to 7780	21 to 7780	
No. of Defining Measurements	8	11	
Rating Error (%)	8.8	9.3	

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

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Period of Ratings			
Range of Ratings (cfs)			
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Rating Error (%)			

Table 5 Discussion (Rating Tables)

The shift from rating 8 to rating 9 was caused by a late winter precipitation event combined with mid-elevation snowmelt.

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope Conveyance
Range of Modeled Stage (feet)	6.0 to 9.48
Range of Modeled Discharge (cfs)	1780 to 7780
Valid Period for Model	10/1/11 to 2/22/12
Model Confidence	2.1%

Table 6 Discussion (Modeled Data)

The slope conveyance model is based on a cross-section and longitudinal survey and on data from three discharge measurements that were taken under channel control.

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

Type	Date
Station, X-Section, Long.	9/27/11

Table 7 Discussion (Surveys)

Activities Completed

Labor and Industries retrofit was completed.

Appendix