

**WASHINGTON DEPARTMENT OF ECOLOGY  
ENVIRONMENTAL ASSESSMENT PROGRAM  
FRESHWATER MONITORING UNIT  
STREAM DISCHARGE TECHNICAL NOTES  
MANUAL STAGE HEIGHT STATION**

**STATION ID:** 35J050  
**STATION NAME:** Tenmile Creek at Mouth  
**WATER YEAR:** 2010  
**AUTHOR:** Mitch Wallace

**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 the threatened Snake River steelhead.

Gage Location

Tenmile Creek at Mouth is located on the Snake River Road bridge crossing, approximately 4.5 miles south of Asotin, Washington. The gage is located on the left bank, directly upstream of the bridge.

Table 1.

|                                       |                    |
|---------------------------------------|--------------------|
| Drainage Area (square miles)          | 41.6 (Streamstats) |
| Latitude (degrees, minutes, seconds)  | 46° 17' 48" N      |
| Longitude (degrees, minutes, seconds) | 116° 59' 32" W     |
| Primary Gage Index Type               | Staff              |
| Secondary Gage Index Type             | Tapedown           |

**Error Analysis**

|                                 |      |
|---------------------------------|------|
| Overall Rating Error Percentage | 11.5 |
|---------------------------------|------|

**Rating Table(s)**

Table 2. Rating Table Summary

|                              |                     |                    |                     |
|------------------------------|---------------------|--------------------|---------------------|
| Rating Table No.             | 10                  | 11                 | 12                  |
| Period of Ratings            | 10/1/09 to 10/25/09 | 10/1/09 to 1/27/09 | 10/28/09 to 4/21/09 |
| Range of Ratings (cfs)       | 0.24 to 76.0        | 0.39 to 2.0        | 1.0 to 76.0         |
| No. of Defining Measurements | 5                   | 1                  | 2                   |
| Rating Error (%)             | 13.6                | 13.7               | 8.5                 |

|                              |                    |                    |                    |
|------------------------------|--------------------|--------------------|--------------------|
| Rating Table No.             | 13                 | 14*                | 15*                |
| Period of Ratings            | 1/27/10 to 8/18/10 | 8/18/10 to 9/30/10 | 8/31/10 to 9/30/10 |
| Range of Ratings (cfs)       | 1.2 to 76.0        | 0.36 to 161        | 0.48 to 161        |
| No. of Defining Measurements | 3                  | 7                  | 2                  |
| Rating Error (%)             | 11.3               | 14.8               | 15.4               |

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

**Narrative**

The rating changes in the fall were a result of leaf litter build up, then the subsequent flushing of the leaf litter. The spring rating was due to spring runoff.

The above statistics only cover the period October 1, 2009, to August 18, 2010. Due to bridge replacement, the station was relocated upstream. It was also upgraded from a manual stage height station to a stand alone, continuous data collection station.

\*New site location

**Discrete Flow Record**

Table 3. Discrete Flow Record Summary

|  |      |          |
|--|------|----------|
| Number of Discrete Stage Readings          | 13   |          |
| Maximum Observed Stage (feet) and Date     | 4.2  | 6/9/10   |
| Maximum Predicted Discharge (cfs) and Date | 8.3  | 6/9/10   |
| Minimum Observed Stage (feet) and Date     | 3.8  | 5/26/10  |
| Minimum Predicted Discharge (cfs) and Date | 0.78 | 10/28/09 |
| Range of Stage (feet) and Discharge (cfs)  | 0.37 | 7.5      |

**Narrative**

Four discharge measurements were taken during this period, ranging from 0.78 to 8.3 cfs.

The above statistics only cover the period October 1, 2009, to August 18, 2010. Due to bridge replacement, the station was relocated upstream. It was also upgraded from a manual stage height station to a stand alone, continuous data collection station.

The mean daily flow statistics from August 19, 2010, through September 30, 2010, were the following:

August 19, 2010, through August 31, 2010: 0.50 cfs, September 2010: 0.70 cfs.

**Modeled Discharge**

Table 4. Model Summary

|  |                       |
|--|-----------------------|
| Model Type (Slope conveyance, other, none) | Slope Conveyance      |
| Range of Modeled Stage (feet)              | 5.25 to 6.00          |
| Range of Modeled Discharge (cfs)           | 110 to 295            |
| Valid Period for Model                     | 8/18/2010 to 9/30/210 |
| Model Confidence                           | 1.4%                  |

### Surveys

Table 5. Survey Type and Date (station, cross section, longitudinal)

| Type | Date |
|------|------|
| n/a  | n/a  |

### Activities Completed

Upgraded station to a stand alone, continuous data station. Relocated station upstream due to a bridge replacement project. Installed laser level setup at new station site.