

DEPARTMENT OF
ECOLOGY
State of Washington

Tutorial

Batch loading well-based depth-to-water
measurements into the Ecology Environmental
Information Management (EIM) System

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Tutorial Topics

- A discussion about the water level measuring point concept
- Water level measurement metadata
- Where to find the latest version of the **Well Water Levels** template file and help documentation
- Preparing your data in the loader template
- Uploading the data to EIM

Measuring Points and Water Level Depth Measurements

For additional guidance on steps for establishing water level measuring points, and collecting manual water level measurements from wells, see:

Washington St. Dept. of Ecology Environmental Assessment Program Standard Operating Procedure for Manual Well-Depth and Depth-to-Water Measurements, EAP052.

Water Level Measuring Points

Definition: An established point on a well casing from which depth-to-water measurements are made.

- Water level measuring points are established to ensure data comparability across time and workers.
- Metadata about the vertical position of the measuring point can be combined with elevation information about the well location to allow water levels to be normalized in terms of elevation or depth below land surface.
- A well may have multiple water level measuring points
- The vertical position of a water level measuring point may change over time.
- Every water level measurement must be referenced to a measuring point that has already been established for the well location

Assigning an ID and other Metadata to a Water Level Measuring Point

•Ecology prefers data submitters to use one of two Water Level Measuring Point naming conventions:

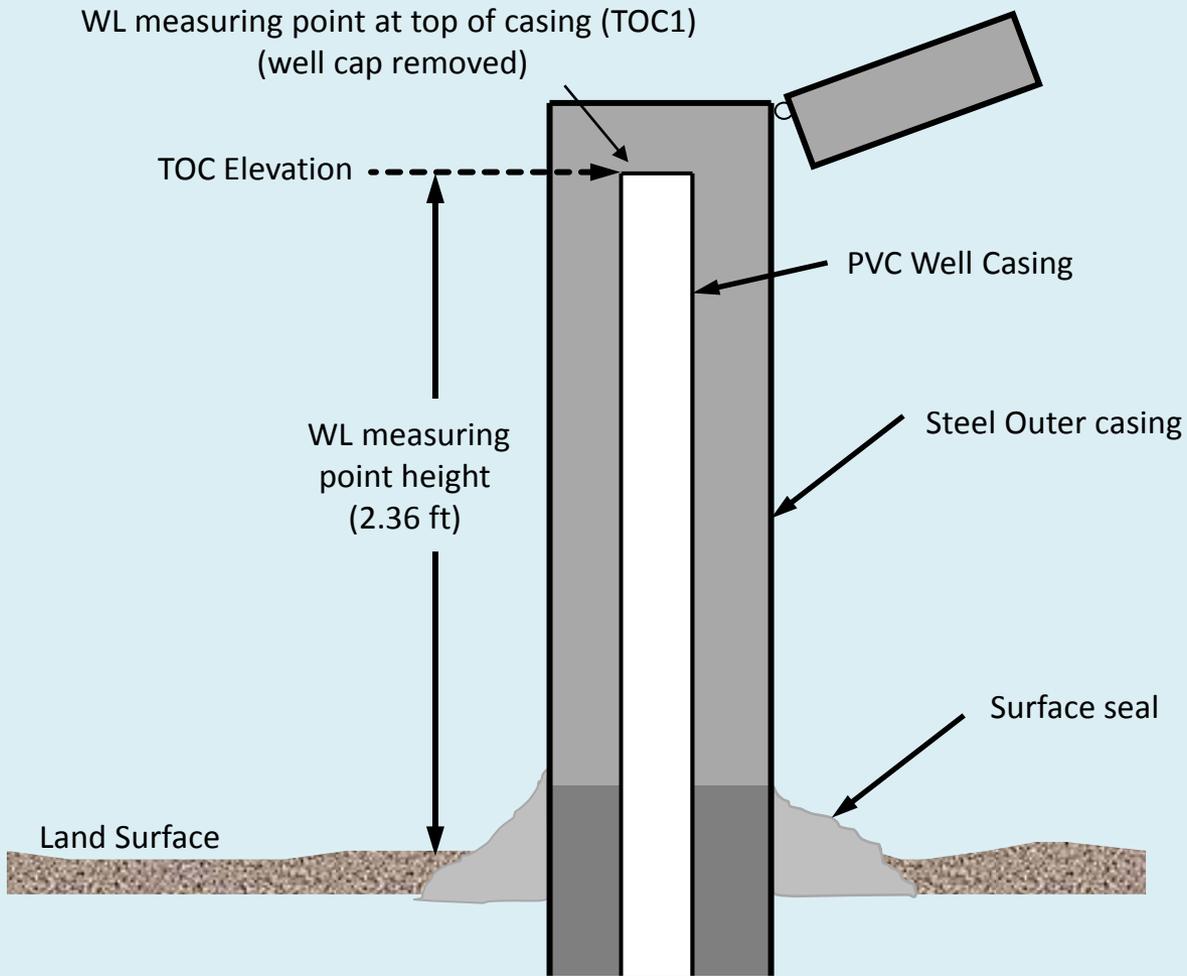
- MP#
 - TOC#
- # = a sequential numeral (e.g. MP1, MP2, MP3...)

•If the vertical position of a water level measuring point ever changes, establish a new measuring point ID. For example, if the vertical position of the top of casing of a monitoring well ever changes (e.g. cut short, converted to flush mount), establish a new measuring point and give it ID: **TOC2**

•Each time you establish a new water level measuring point for a well, you should provide the appropriate metadata for that measuring point:

- Water level measuring point ID
- Water level measuring point description
- Water level measuring point height* above land surface at the well location (+units)

*sometimes referred to as the “stickup”



WL MP or TOC ID: TOC1

WL MP Description: Top of casing, well cap removed, black mark on north side

WL MP or TOC Height: 2.36

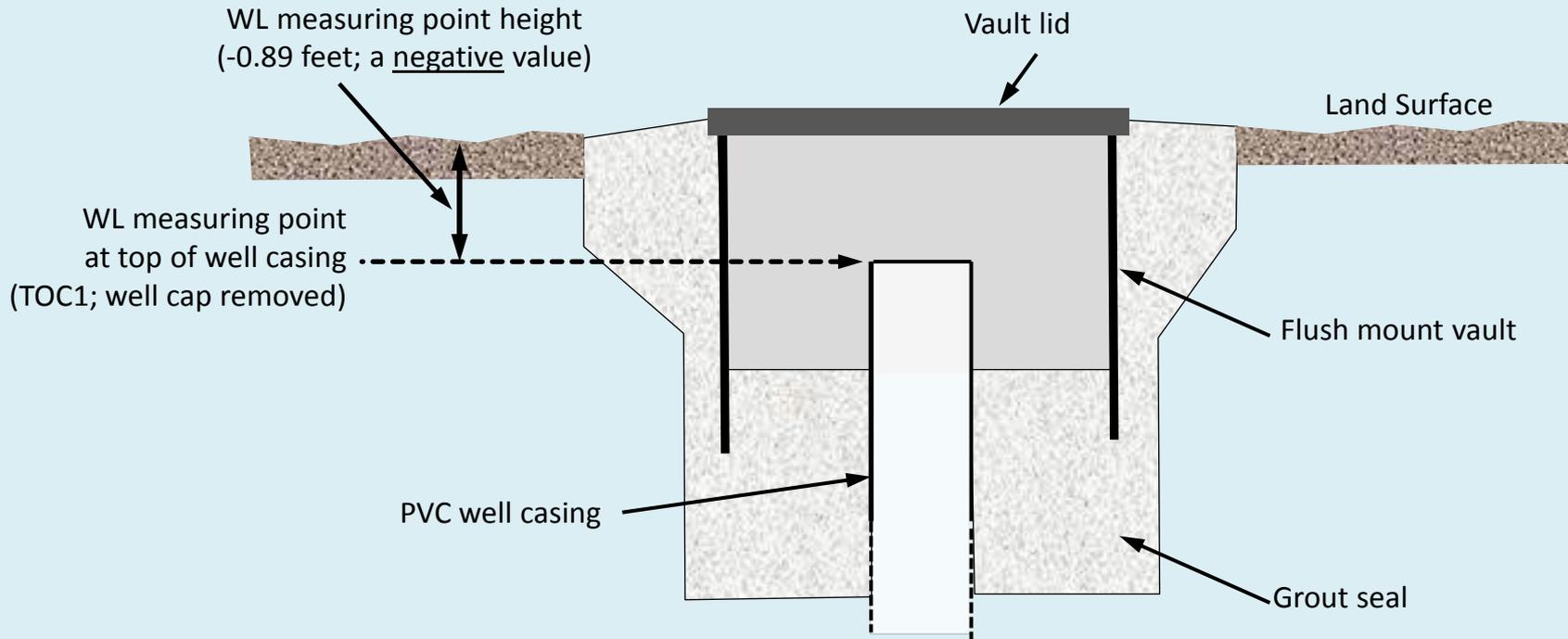
WL MP or TOC Height

Units: FT

WL MP or TOC Start Date:

2/17/2004

Typical Monitoring Well Water Level Measuring Point



WL MP or TOC ID: TOC1

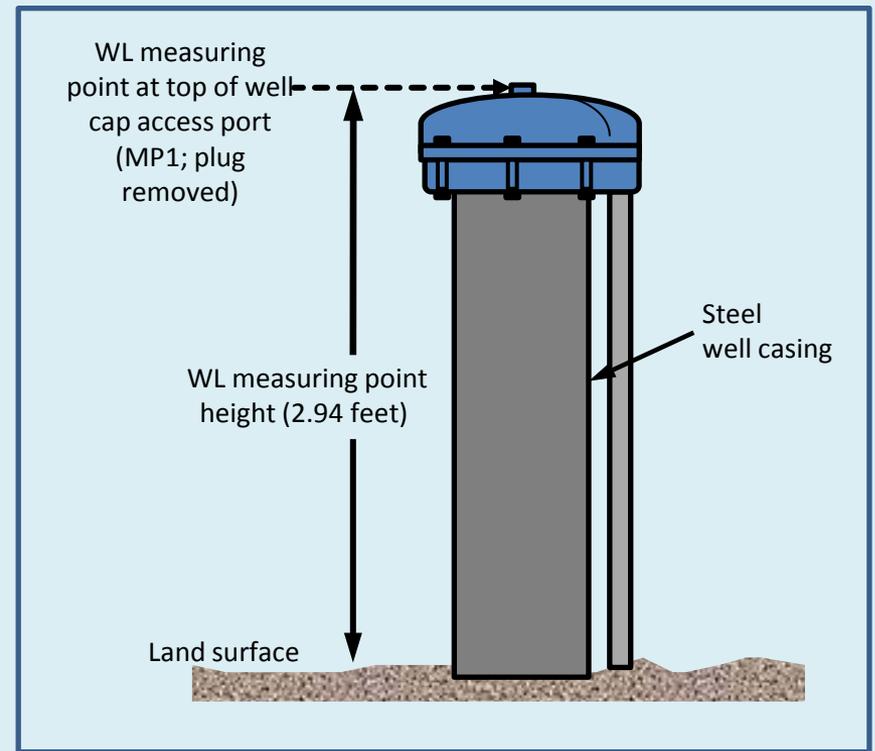
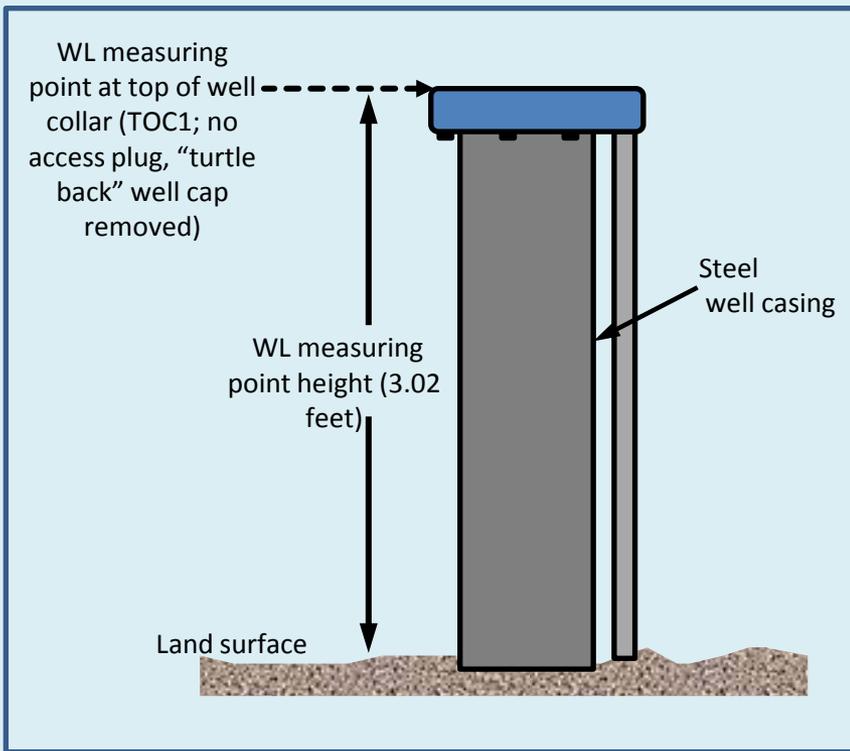
WL MP or TOC Description: Top of casing inside vault, mark on north side, cap removed

WL MP or TOC Height: -0.89

WL MP or TOC Height Units: FT

WL MP or TOC Start Date: 5/16/2007

Typical Flush-Mount Monitoring Well Water Level Measuring Point



WL MP or TOC ID: TOC1

WL MP or TOC Description: Top of collar, well cover removed, north side

WL MP or TOC Height: 3.02

WL MP or TOC Height Units: FT

WL MP or TOC Start Date: 3/12/2006

WL MP or TOC ID: MP1

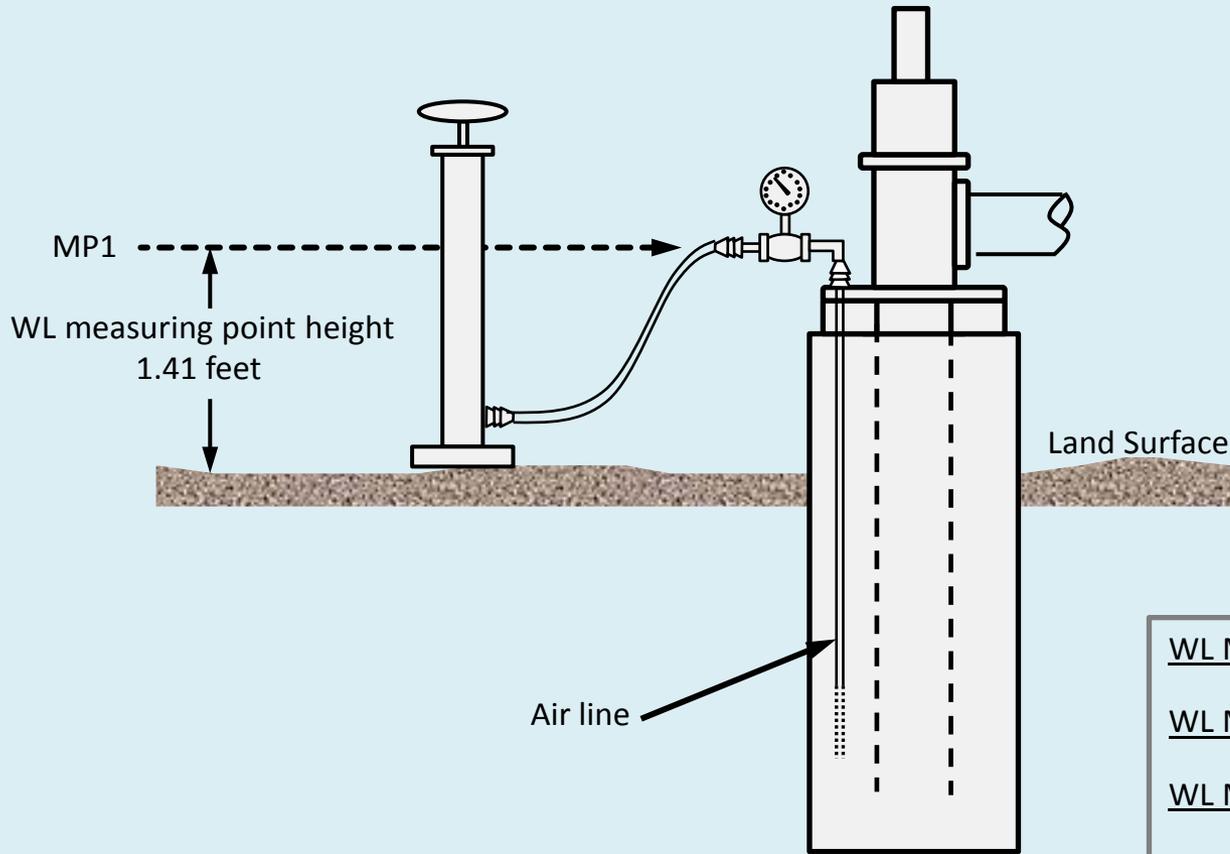
WL MP or TOC Description: Access port on top of well cap, plug removed

WL MP or TOC Height: 2.94

WL MP or TOC Height Units: FT

WL MP or TOC Start Date: 8/23/2006

Typical Domestic Water Supply Well Water Level Measuring Points



WL MP or TOC ID: MP1

WL MP or TOC Description: Airline nipple

WL MP or TOC Height: 1.41 feet

WL MP or TOC Height Units: FT

WL MP or TOC Height Date: 2/2/1998

Typical Airline Water Level Measuring Point

WL MP or TOC ID: MP1

WL MP or TOC Description: Top of slant tube, plug removed

WL MP or TOC Height: 1.03

WL MP or TOC Height Units: FT

WL MP or TOC Start Date: 9/12/2005

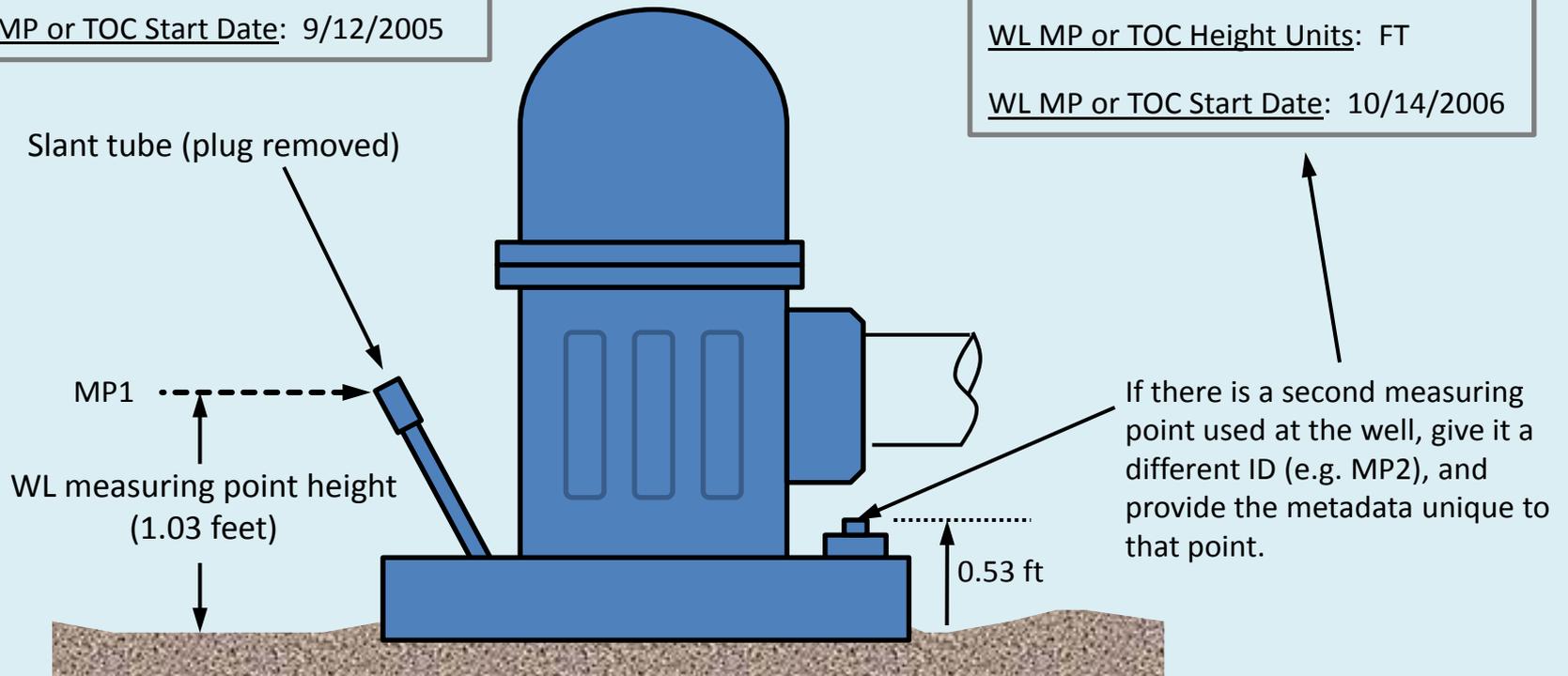
WL MP or TOC ID: MP2

WL MP or TOC Description: Access port on monument, plug removed

WL MP or TOC Height: 0.53

WL MP or TOC Height Units: FT

WL MP or TOC Start Date: 10/14/2006



Typical Slant-tube Measuring Point

Entering Water Level Depth Measurement Data

Key information associated with each water level depth measurement includes:

- *Study_ID** - the ID of the study the measurements were collected for
- *Location_ID** - the unique EIM ID for the well location – should be the well tag ID
- *Study_Location_Name** - a common study name for the well location
- *Data_Collector** - who collected the measurement
- *Start_Date** and *Start_Time* of the measurement (in separate fields)
- *Water_Level_Measuring_Point_or_TOC_ID** – the ID of the water level measuring point that was used as a vertical reference for the measurement
- *Water_Level_Parameter** - one of three water level parameter types:
 - Water level in well (depth below top of casing)
 - Water level in well (depth below measuring point)
 - Water level in well (depth below land surface)
- *Water_Level_Value** – the depth to water measurement value (and units)
- *Water_Level_Qualifier* – a code used to qualify your measurement value
- *Water_Level_Accuracy* – a code used to indicate how accurate you consider the measurement value to be
- *Water_Level_Method** – a code to represent the field technique you used to make your measurement
- *Water_Level_Comment* - any special remark you want to make about the measurement

**You cannot submit
water levels to EIM in
units of elevation or
pressure head**

*required field

Downloading the latest version of the EIM
Well Water Levels template file

If you are an external data submitter:

1. Go to the Groundwater Data Center internet homepage (www.ecy.wa.gov/eim/groundwater.htm)
2. Click on “Submit wells and groundwater data”
3. Scroll down the page until you find the section titled “To submit data using EIM spreadsheets”
4. Download the *.zip file that contains the data loader templates
5. Open the *.zip folder, then open the **Well Water Levels** template spreadsheet (*.xls)
6. Save the template file to your hard-drive as a *.xls file

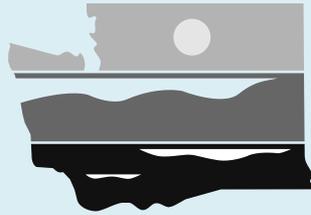
If you work for Ecology:

1. Go to the Intranet version of the Groundwater Data Center homepage <http://aww.ecology/eim/groundwater.htm>
2. Click on the “Bulk load wells and groundwater data” link
3. Open the **Well Water Levels** template spreadsheet from the Data Loader page (*.xls)
4. Save the template file to your hard-drive as a *.xls file

Preparing your **Well Water Levels** spreadsheet file for
upload to EIM

Validating and exporting your **Well Water Levels**
spreadsheet file prior to upload

Uploading your **Well Water Levels** file to EIM



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Additional Resources

To find additional tutorial videos and supporting files, visit:
www.ecy.wa.gov/eim/groundwater.htm

To see additional help documentation, visit:
<http://www.ecy.wa.gov/eim/help.htm>

To submit a comment or question to the EIM Team, visit:
<http://apps.ecy.wa.gov/eimreporting/ContactUs.asp>