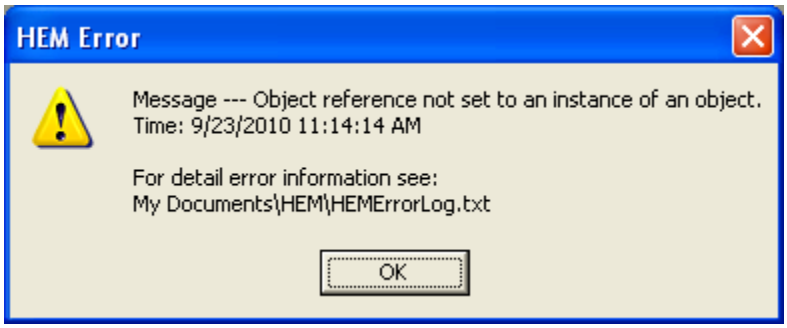
HEM Tools Error Report – Payette Subbasin Issues

There were 11 points that did not import using the HEM tools. The following message was displayed:



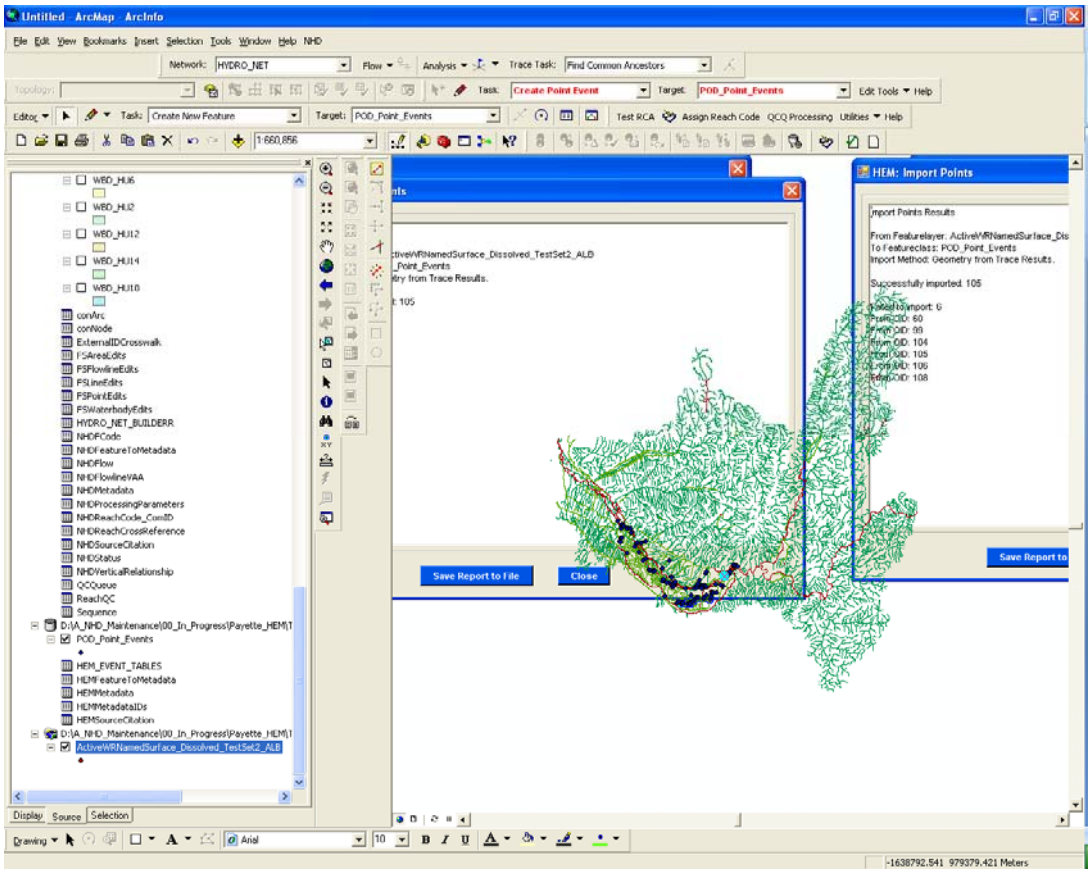
These points were used as input for the Locate Features Along Routes Tool (Linear Referencing Tools in ArcGIS), and they were successfully imported using a 300-meter buffer to the nearest feature. It is unknown what conditions caused these points not to import using the HEM tools.

It should be noted that point events created with the Locate Features Along Routes Tool maintain the attributes from the original point dataset and will maintain one field from the geometric network. This is nearly opposite of the HEM tools which maintain all of the attributes from the geometric network needed to populate the NHDPointEventFC but only one attribute from the original point dataset. An advantage of the HEM tool is that it creates a point featureclass. A point featureclass must be generated from the tables using Add Event Theme created by the Locate Features Along Routes Tool.

Using the ArcGIS Locate Features Along Routes tool appears to be as effective in placing a point on the correct canal and lateral system as the current HEM tool methodology if no candidates are reviewed. Additionally, the ArcGIS tool works on a selection set of the flowline data. Much of the point of diversion data contains some type of source information that could be used to filter the potential flowlines the points should be linked as events on. It would be useful if the HEM tool would do the same; hence narrowing the possible candidates.

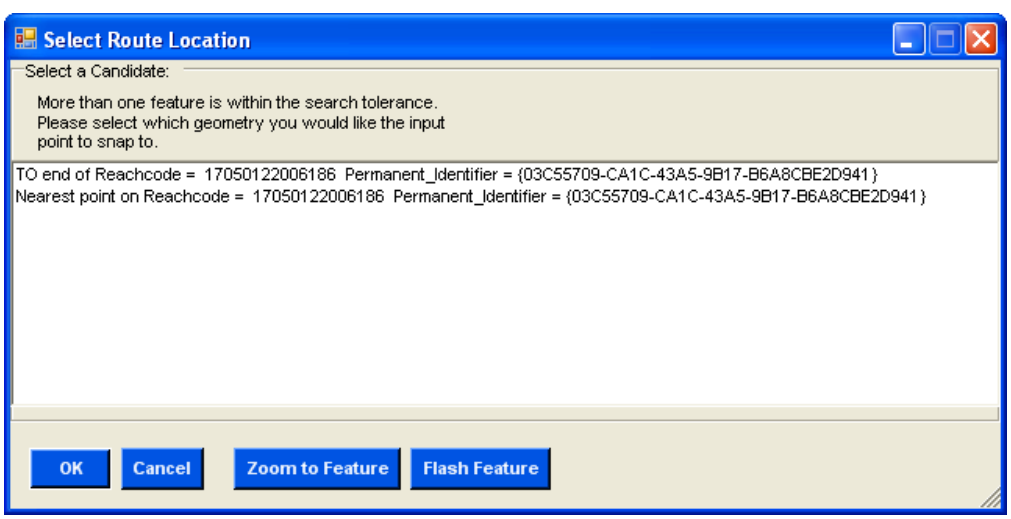
Specific Below is a summary of the issues that were observed during this study:

1) There were 11 points that would not import (Message—Object reference not set to an instance of an object), prompting the user to hit “OK” through each instance of the message. After a time, the screen would “lock” graphically, and a refresh would not work. Zooming and panning would leave graphics on the screen from the previous extent. At the end of the session, it was necessary to exit ArcMap to clear the accumulated graphics.



Example of graphic "freezing" on the screen after running the HEM Tools

2) Although the "Suppress Candidate Form" option was turned on, there were a few instances that the "Select Route Location" form came up with the message "more than one feature is within the search tolerance, please select which geometry you would like the input point to snap to", prompting the user to choose an option and press "OK". In all instances, the 1st option was selected.



Example – "Select Route Location" dialog box with "Suppress Route Candidtate" feature on.

This could be a time factor in cases where large datasets are being imported.

3) If projection of Data Frame does not EXACTLY (name and parameters) match the projection of the network, an error will be displayed every time more than one route candidate exists (HRESULT:0x80040215). This can result in a lot of time wasted pressing the OK button before application is released, if the Suppress Candidate form is not turned on. A programmatic comparison of the data layer projection and the network projection before creating the first event could be useful.
4) Tool will import points from event feature class into itself. This creates a multitude of errors. A programmatic error trap is needed if the Target of the HEM Tools equals the feature layer being imported.
5) Snapping Tolerance (Editor|Options) appears to have no affect on tool performance.