

Date	Hours	Synopsis	Deliverables
12/16/2019	6	<p>Finding most efficient way to execute merge, exploring Excel, R, ArcMap, settling back on Excel. Cleaning up data sheets then using Power Query function in Excel to do data merge. Linear regression and relevant graphics executed using R.</p>	<p>OaksLoggerDataSummary_DM.xlsx: <i>Revised Excel file with aligned Logger/Gauge data for Mercer Lake and Observation Well loggers</i></p> <p>MercerAssunMerge.csv ObsWellAssunMerge.csv <i>Simplified CSV files of just merged logger/gauge data for respective loggers</i></p> <p>Gauges.R <i>R script for executing linear regression and creating graphics</i></p> <p>MercerLakeDischarge.png MercerLakeStage.png ObsWellDischarge.png ObswellStage.png <i>Graphics with R2 and p of simple linear regression of Logger (Mercer Lake and Obs. Well) data vs Discharge or State data from Gauge</i></p> <p>SOP_WaterGaugesExcelMerge.docx <i>This document detailing current work and methodology.</i></p>

Procedure for Merger of Logger/Gauge data sheets

1. Clean up original data sheet

- 1.1. Copy fields from Sheet1 (renamed Sensors) to respective tabs
 - 1.1.1. Date and Time Depth Pressure and Barometric Pressure, A7 to E7 respectively from Sensors to Mercer
 - 1.1.2. Date and Time Depth Pressure and Barometric Pressure, G7 and H7 from Sensors to ObsWell
- 1.2. Rename copied fields DateTime, DepthFt, PressPSI, BaroPSI

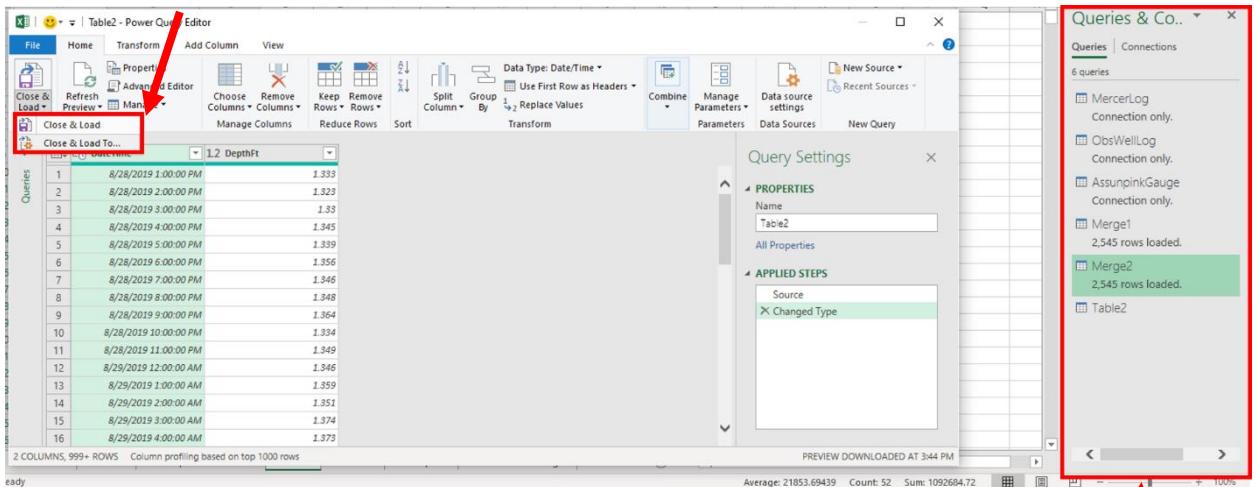
2. Round the Date/Time field of the Mercer logger (off by 4 minutes from the hour)

- 2.1. Add column next to the original date/time column with the following equation:
([original date/time column] + 4/1440)
- 2.2. Make sure to format column cells in the appropriate Time format
 - 2.2.1. Select column, right click → format cells → time → 3/14/12 13:30
- 2.3. Copy values of rounded time column, right click on empty column, paste values only
- 2.4. Clean up data
 - 2.4.1. Delete column with the equation for rounding the time
 - 2.4.2. Rename time column to “DateTime”
 - 2.4.3. Rename original time column to “DateTimeOG”

3. Create Excel “Power Query”

3.1. Open relevant tab (e.g. Mercer), select relevant data columns (DateTime, DepthFt), Open “Data” tab in excel, on the far left select the “Get Data” “From Table/Range”

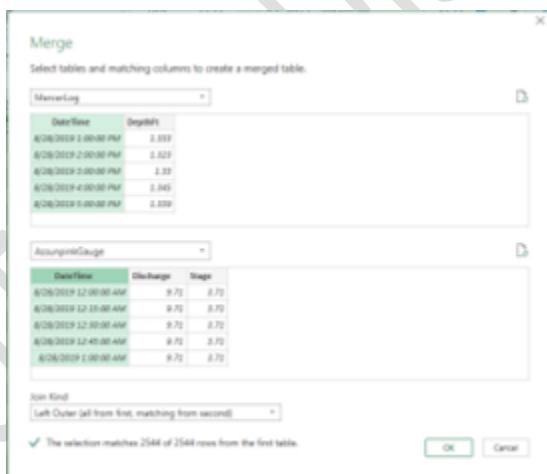
3.2. “Power Query Editor” window will open, select the “Close and Load” button on the left and choose “Close and Load to...”



3.3. “Import Data” window will open, select “only Create Connection” option
 3.4. Formatting of excel file will change somewhat, and a tab on the side will appear, “Queries & Connections” with the list of Queries you’ve generated”
 3.5. Create a query for each data set (Mercer → MercerLog, ObsWell → ObsWellLog, Assunpink → AssunpinkGauge)

4. Merge Queries

4.1. Right click on MercerLog query in the “Queries & Connections” Tab, and select the “Merge” option
 4.2. Merge window will appear, select the AssunpinkGauge for the lower tab



4.3. Set “Join Kind” to “Left Outer”, Highlight the “DateTime” column from MercerLog, then highlight the “DateTime” from AssunpinkGauge and press OK
 4.4. Power Query window will open again, click on the double arrow icon next to the “AssunpinkGauge” column, deselect DateTime and “Use original column name as prefix” boxes
 4.5. Select the “Close & Load To...” option from the Close & Load menu again, select the “Table” and “New worksheet” options
 4.6. New worksheet will appear in the excel file with the now merged columns

5. Repeat for ObsWell Records

6. Graphics/Regression

- 6.1. Can either do via Excel or via R, I did it via R because I prefer the graphics that R generates over the ones from Excel
- 6.2. Exported Mercer and ObsWell worksheets as comma delineated .csv
- 6.3. See attached R Script for how I generated the R based graphics

NOT FOR DISTRIBUTION