

LeRoy, Bruce J - DNR (BJ)

From: LeRoy, Bruce J - DNR (BJ)
Sent: Wednesday, February 19, 2020 8:56 AM
To: 'Jeff Tracy'
Subject: Ripon FF-NN Quarterly Report and ESD- BRRTS # 02-20-000915

Jeff,

We are coming into the 5-year review in 2021, so this case is getting some needed attention. I reviewed the 2nd and 3rd quarter reports for Ripon and discussed these with the DNR technical leader and the EPA for suggestions on how to improve the analysis going forward. Of course these are all suggestions. The most important item missing is a valid statistical analysis of groundwater chemistry.

Explanation of Significant Differences

It looks as if I am the author of the ESD, because the DNR is the lead agency. I'm targeting December as a completion date, so that it can get wrapped into the 5-year review. We will need to discuss that document, and I may need some language from you so that we are sure to capture exactly what is happening; no more, no less. It should just document what has changed, not create new requirements.

Vapor Desktop Review

Still reviewing; it's with our statewide vapor expert.

Data Analysis

The trend analysis you've been doing is based on a visual opinion. The DNR and EPA have guidelines and tools for trend analysis at MNA sites, that request more rigorous analysis. That said; I do not want in depth analysis each quarter. Once per year suffices. Here are my suggestions:

Typical Quarterly Report (Q1, Q2, Q3)

Generally I think you could cut this report down to just maintenance activities and exceedances, unless something major occurs. I'd like to continue to see Layer 4 piezo maps because they change so often. Layers 1, 2 and 3 do not appear to change much through time, so those could be cut down some and submitted at the annual report if you like.

Couple of suggestions on this report to help save you some time. Do as you see fit.

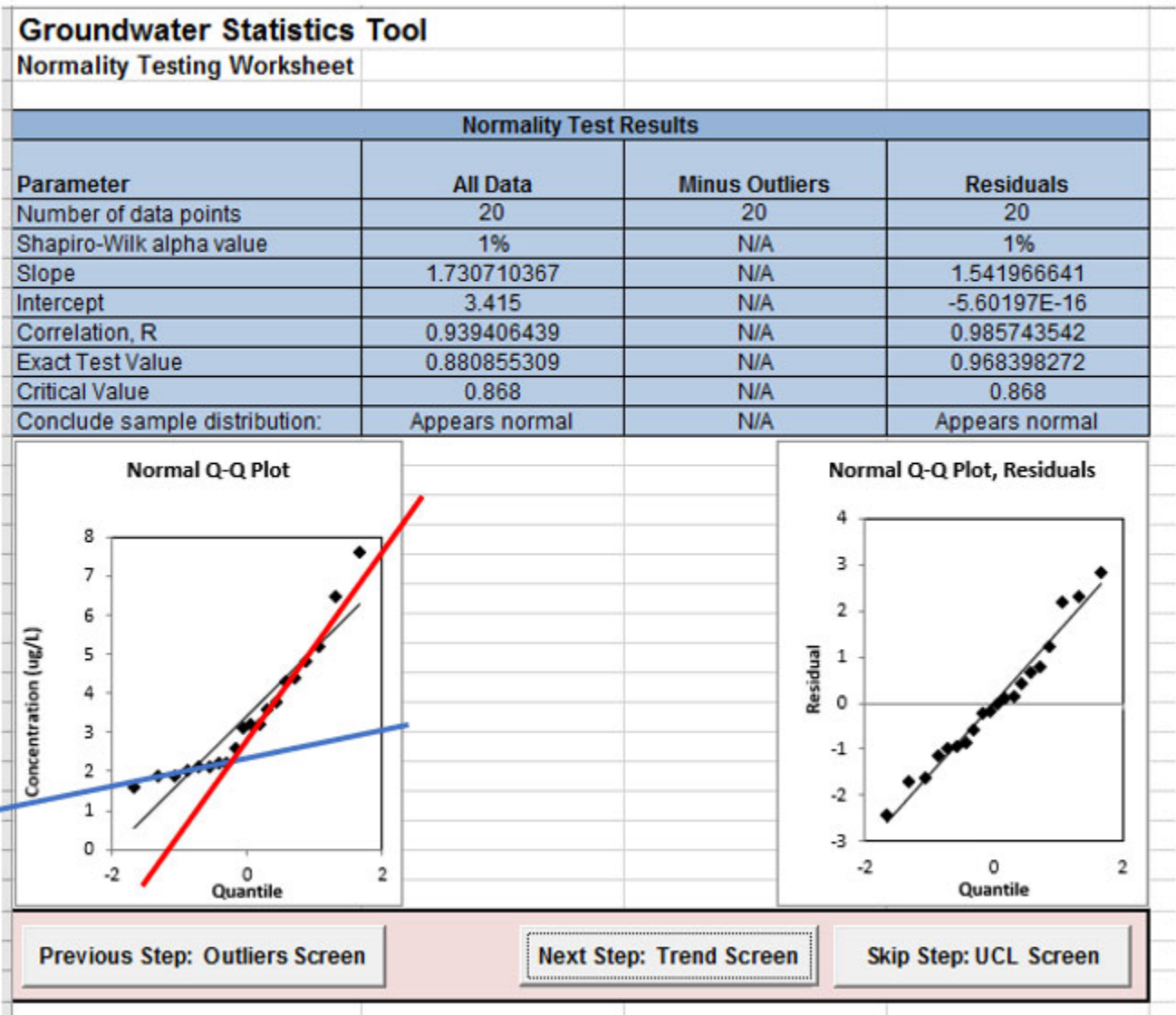
- Most of section 2 can be cut out. Just list the changes, exceptions and dates.
- Section 3, we only need to know if the water elevations are outside of a typical range. Continue the quarterly Layer 4 map. Layer 3 can be semi-annual. 1 and 2 can be annual.
- Point to the table for GW exceedances.
- You can delete the trend analysis and graphs for these quarters and save it for once each year.
- Table 2 (exceedances) is the only table we really study. Up to you, but you are welcome to just add the data from other tables to a spreadsheet in the appendix.
- The plume map can be annual, no need to do it quarterly. I would expect to see the worst-case scenario. We will look at the data to determine if changes need to be made. We don't need site location/layout figures each quarter.

Appendix – Add the historic tables if you like. You can delete the trend charts, they aren't useful to us as shown.

Annual Report (Q4)

The current report is good, if you add annual summaries for changes and site actions (which is what you can cut from the typical quarterly report).

Once each year, complete a rigorous trend analysis using EPA tools or similar (ProUCL or GW Statistics Tool I used below). Evaluate the data timeframe based on the data, not simply since remediation. For instance; there is a statistically significant rising trend in VC at P-107D over the last 20 rounds, while you are reporting a decline. In looking at the stats from the GW stats tool, there may be two populations in the data (a break in the trend) that suggests something changed (see graph below). The red and blue lines indicate something has changed, and it may no longer be appropriate to keep those two data populations together. There's also a rise in TCE, as it had been ND for a long time prior to the last 6 quarters, and now there are detects. Something is going on there and you should work on figuring that out. Data sets should be checked for typical statistical measures like normality, outliers, multiple populations, and an appropriate trend analysis should then be completed.



The DNR document *Understanding Chlorinated Hydrocarbon Behavior in Groundwater* (<https://dnr.wi.gov/files/PDF/pubs/rr/RR699.pdf>) has a decent section on plume analysis (Chapter 3) and on monitoring (Chapter 4). In both chapters, the high points should be analyzed; what changes are occurring, what trends have stabilized, which have changed, why the changes may have occurred, what are the ramifications of these changes on the conceptual model. The EPA has various guidelines and statistical tools that can be used to evaluate data sets and trends as well.

You've got a year to figure out the stats part of it. Let's start taking a more in depth look at what is occurring at the site, using EPA and DNR guidance on monitoring and statistical analysis.

Of course we can discuss further if you have questions.

BJ

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