

Monitoring the Performance of Suez Water Production Wells

2016 AWWA PNWS Conference

Roger Dittus P.G.

May 6, 2016



Well efficiency decline is obviously a bad thing...

Increased pump lift



Pump design becomes “wrong”



wasted energy

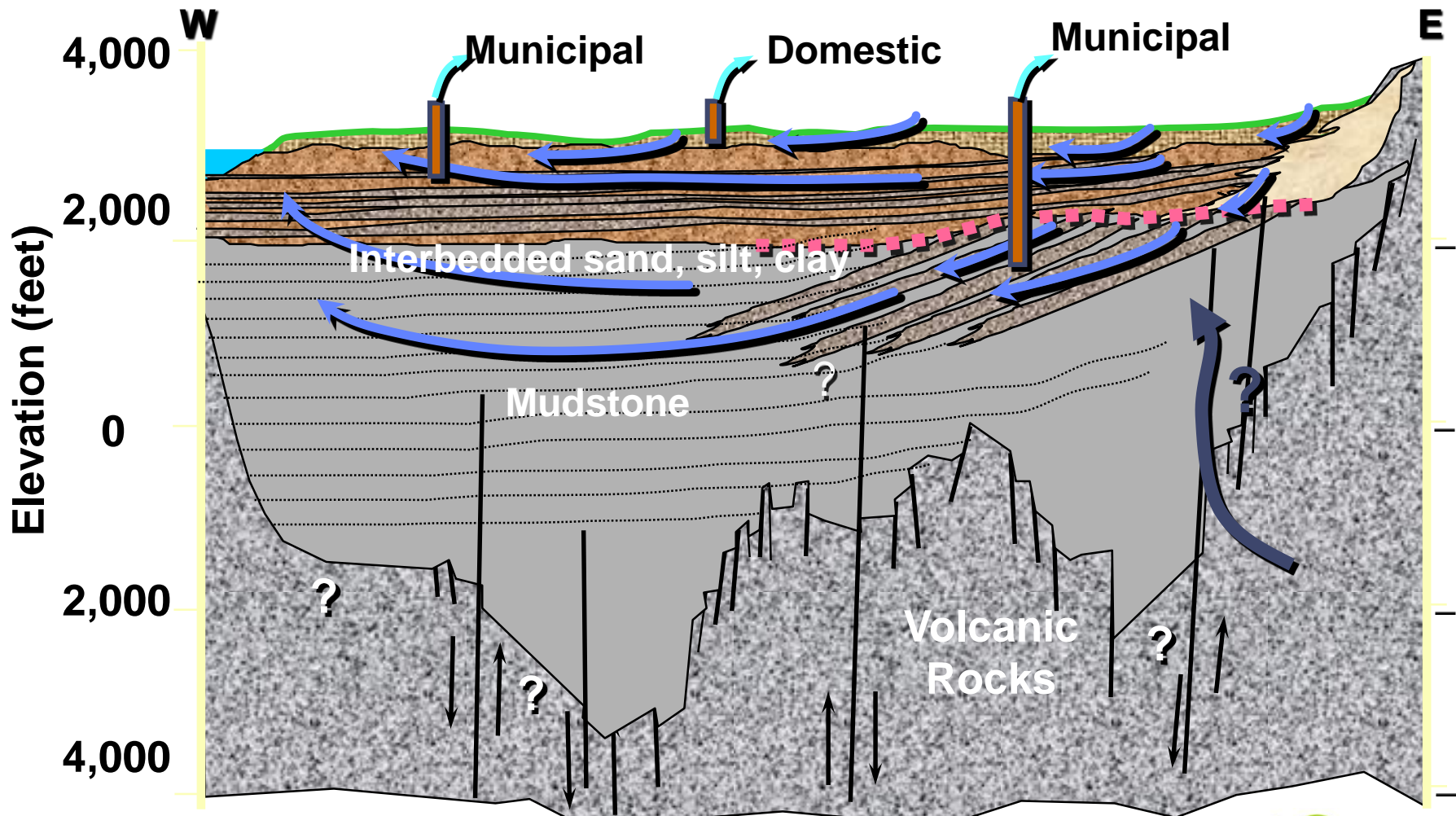
lowered ability to meet demand

may become “permanent” if allowed to worsen

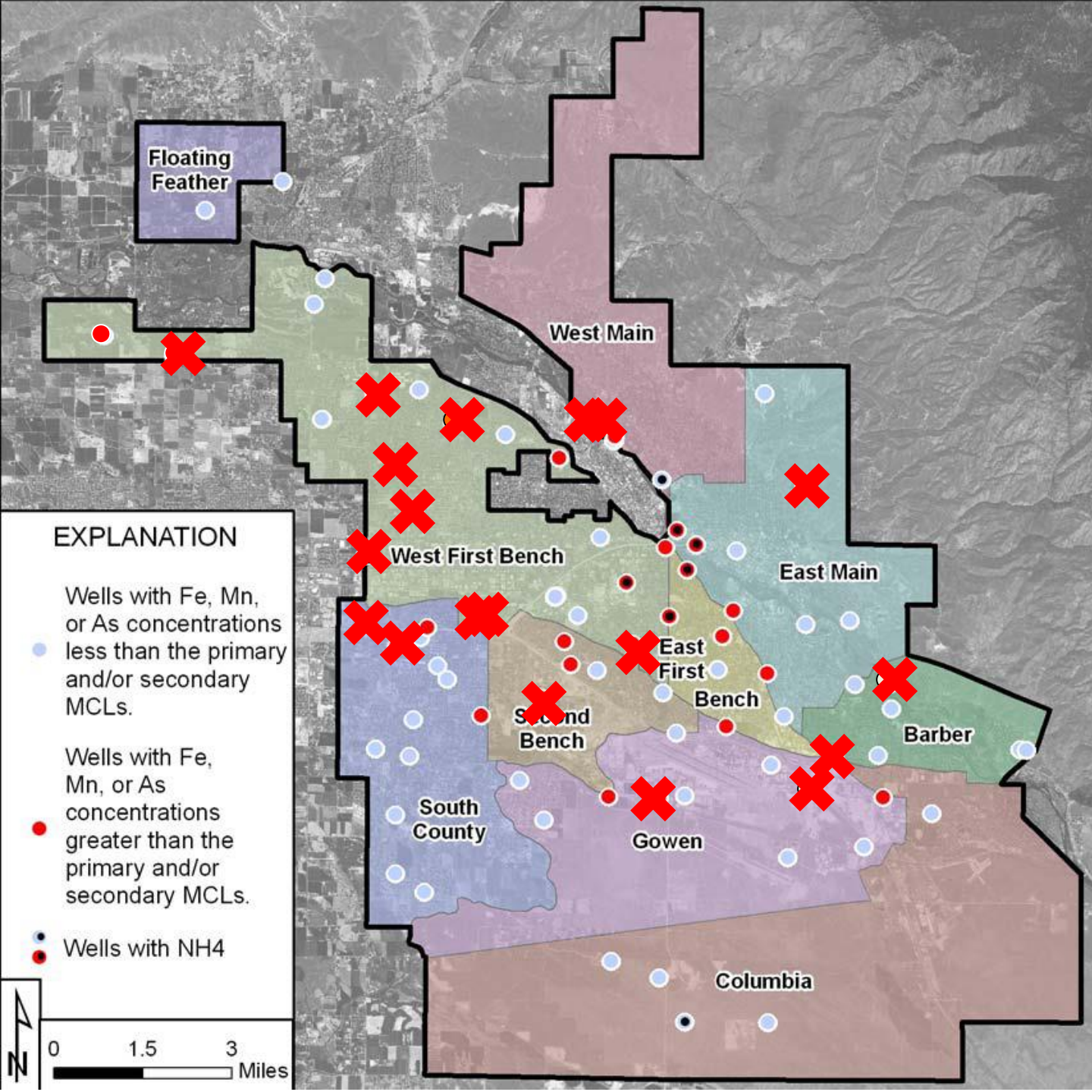
Suez's "Well Op" tool helps us evaluate well performance

- Creates easily scalable graphs of SCADA system data
- Allows comparison of current/ recent well performance to previous performance
- Suez Water New York developed Well Op tool working EMA, developer of "eOPs"
- Well Op Tool is modeled on original version of "Well Watch" software developed under Suez's R + i Alliance

Conceptual Cross-Section (Regional Scale)



Adapted from a cross section by S. Wood BSU Geosciences



Concentration
> Primary MCL

● Uranium

○ Arsenic

✗ = "not useful"

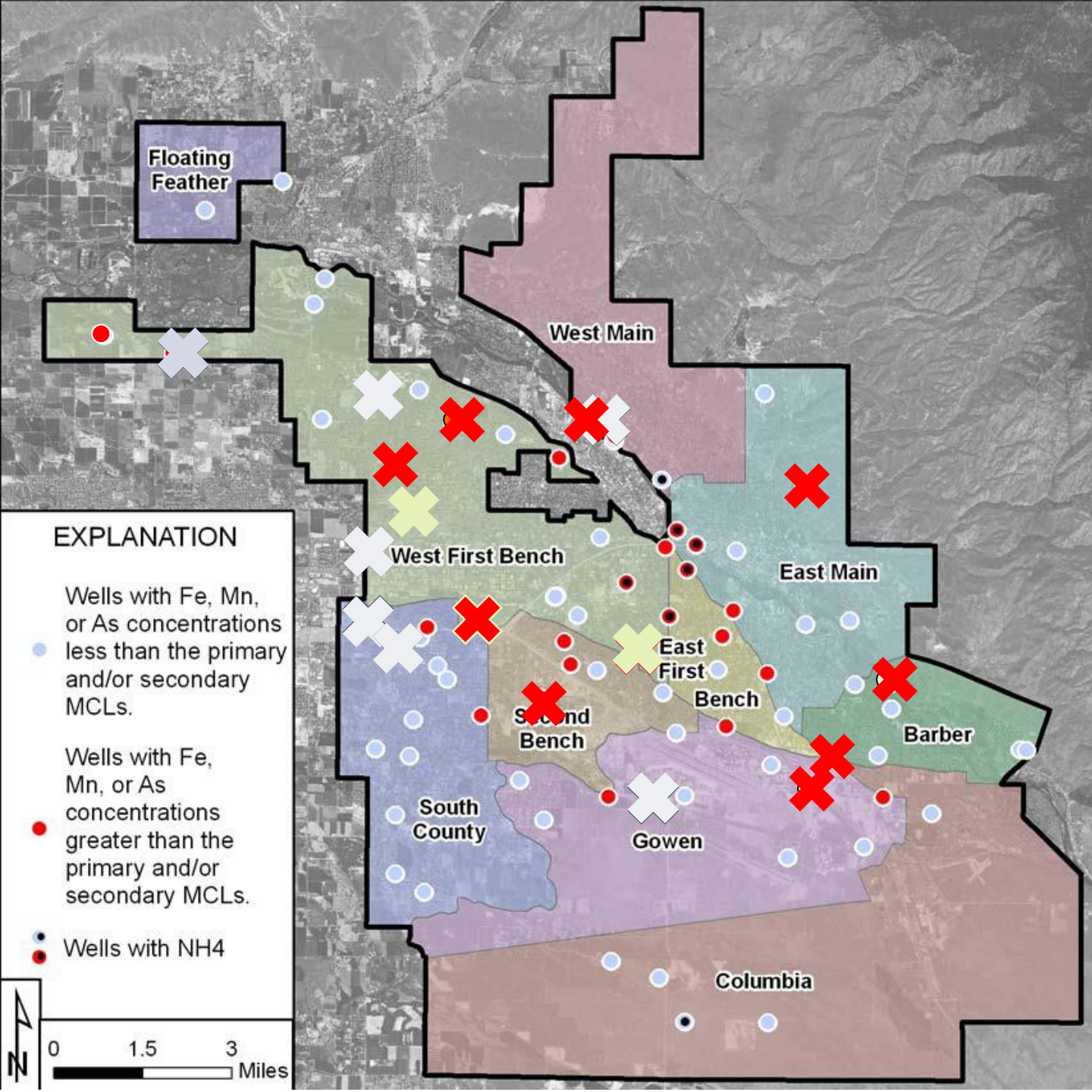
EXPLANATION

Wells with Fe, Mn, or As concentrations less than the primary and/or secondary MCLs.

Wells with Fe, Mn, or As concentrations greater than the primary and/or secondary MCLs.

Wells with NH4





EXPLANATION

Wells with Fe, Mn, or As concentrations less than the primary and/or secondary MCLs.



Wells with Fe, Mn, or As concentrations greater than the primary and/or secondary MCLs.

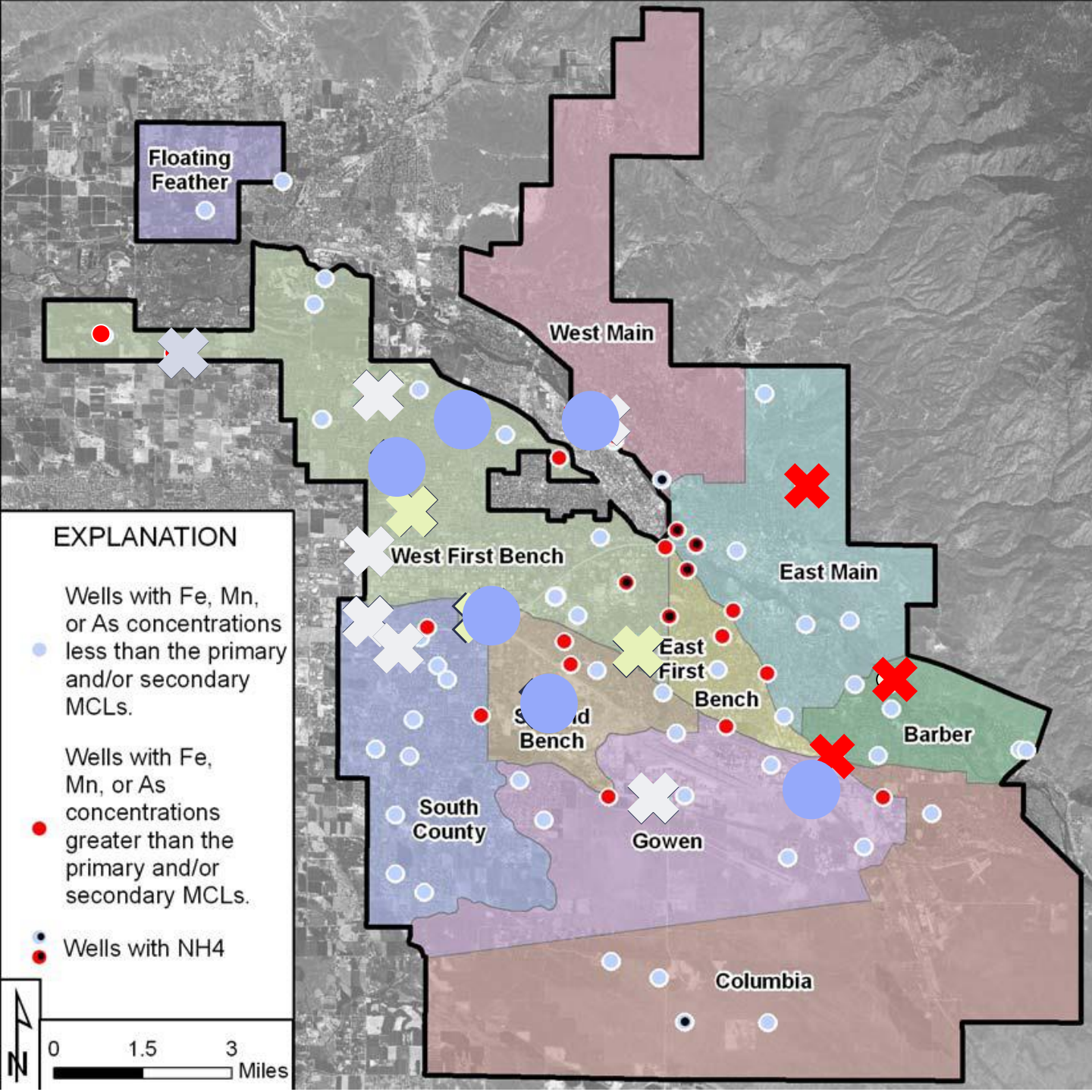


Wells with NH4



-  Decommission
-  Treat Fe/Mn
-  Re-drill





EXPLANATION

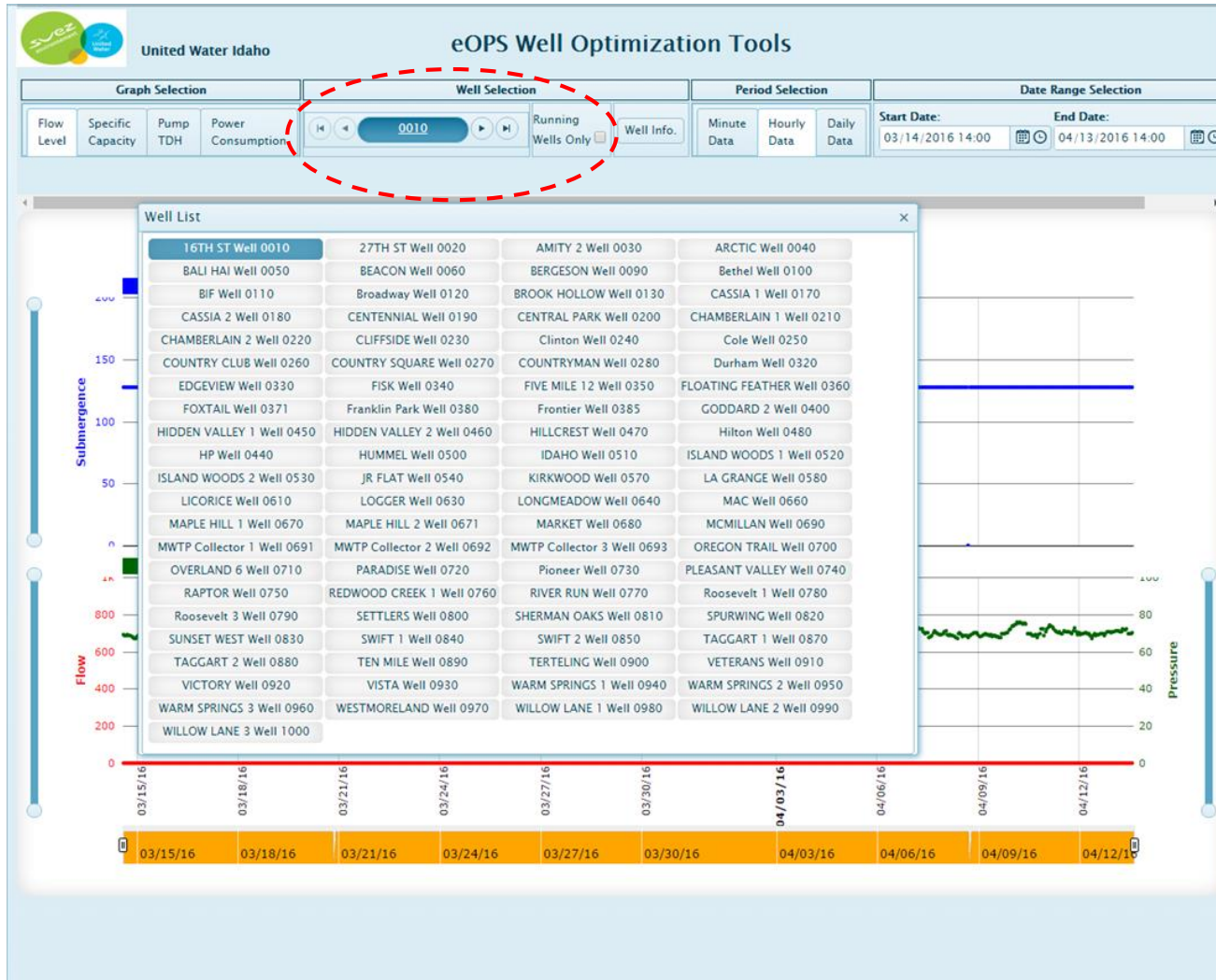
Wells with Fe, Mn, or As concentrations less than the primary and/or secondary MCLs.

Wells with Fe, Mn, or As concentrations greater than the primary and/or secondary MCLs.

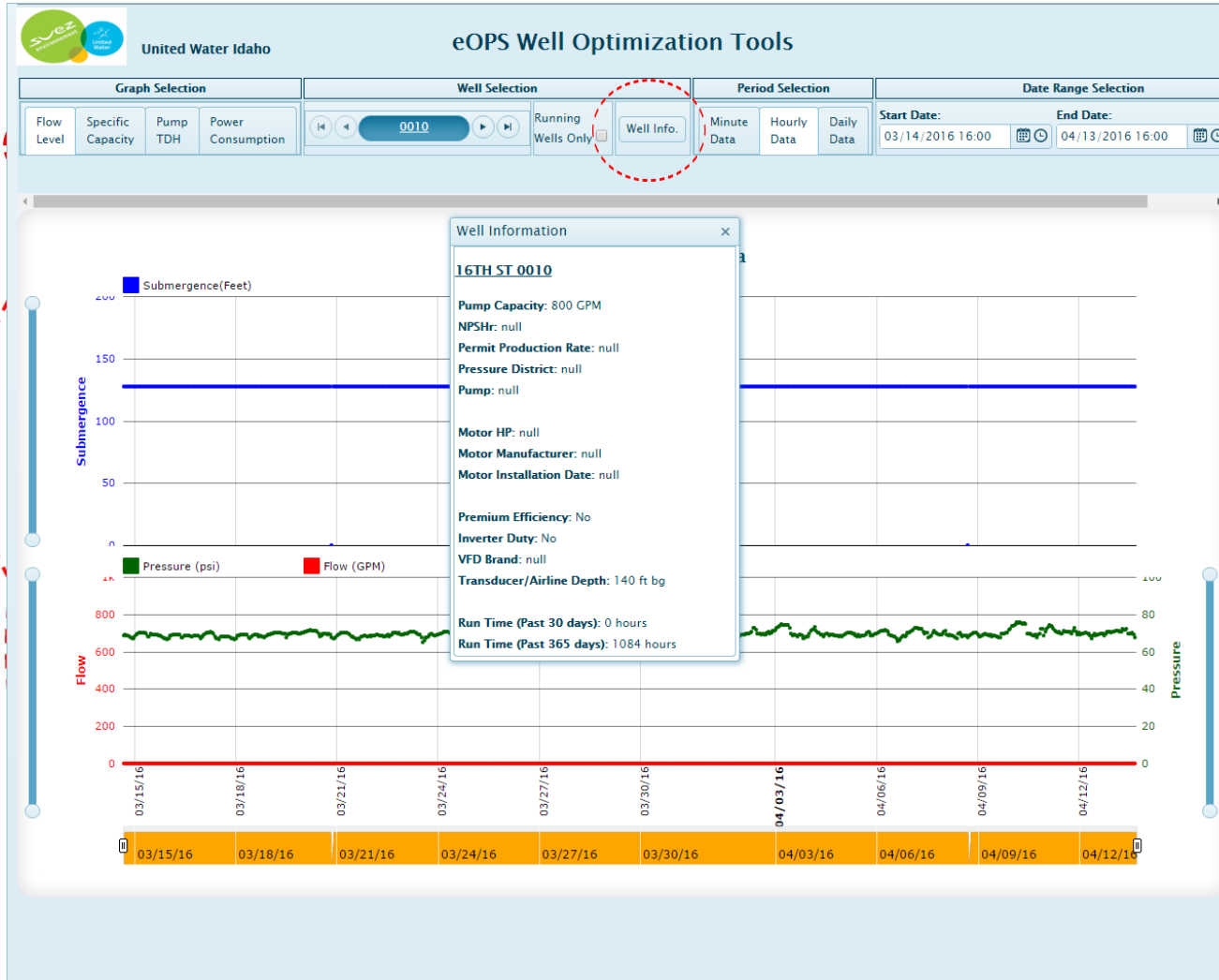
Wells with NH4

-  Decommission
-  Treat Fe/Mn
-  Re-drill
-  ASR

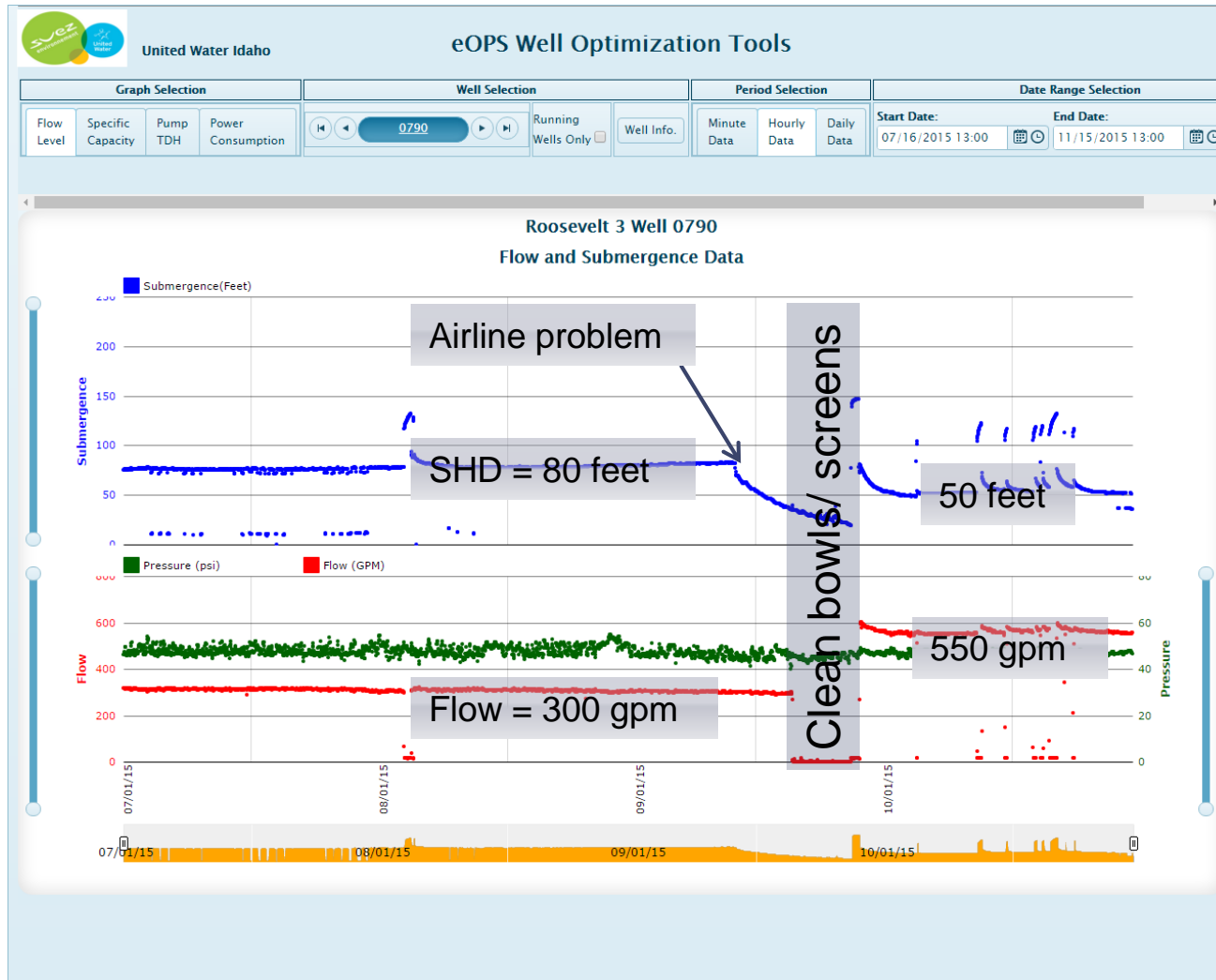
Well Op Tool Features



Features



Reviewing well operation

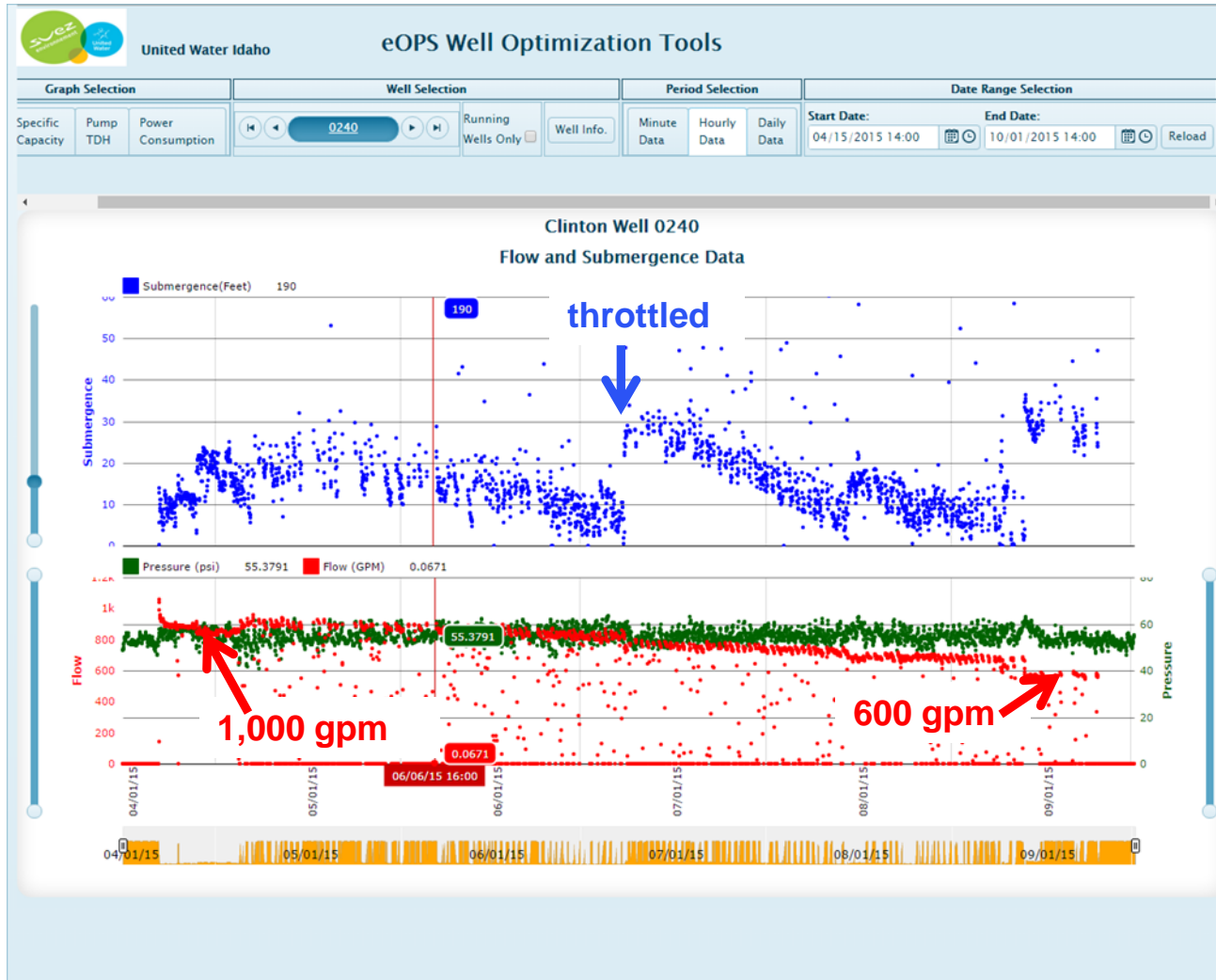


Tracking well performance decline

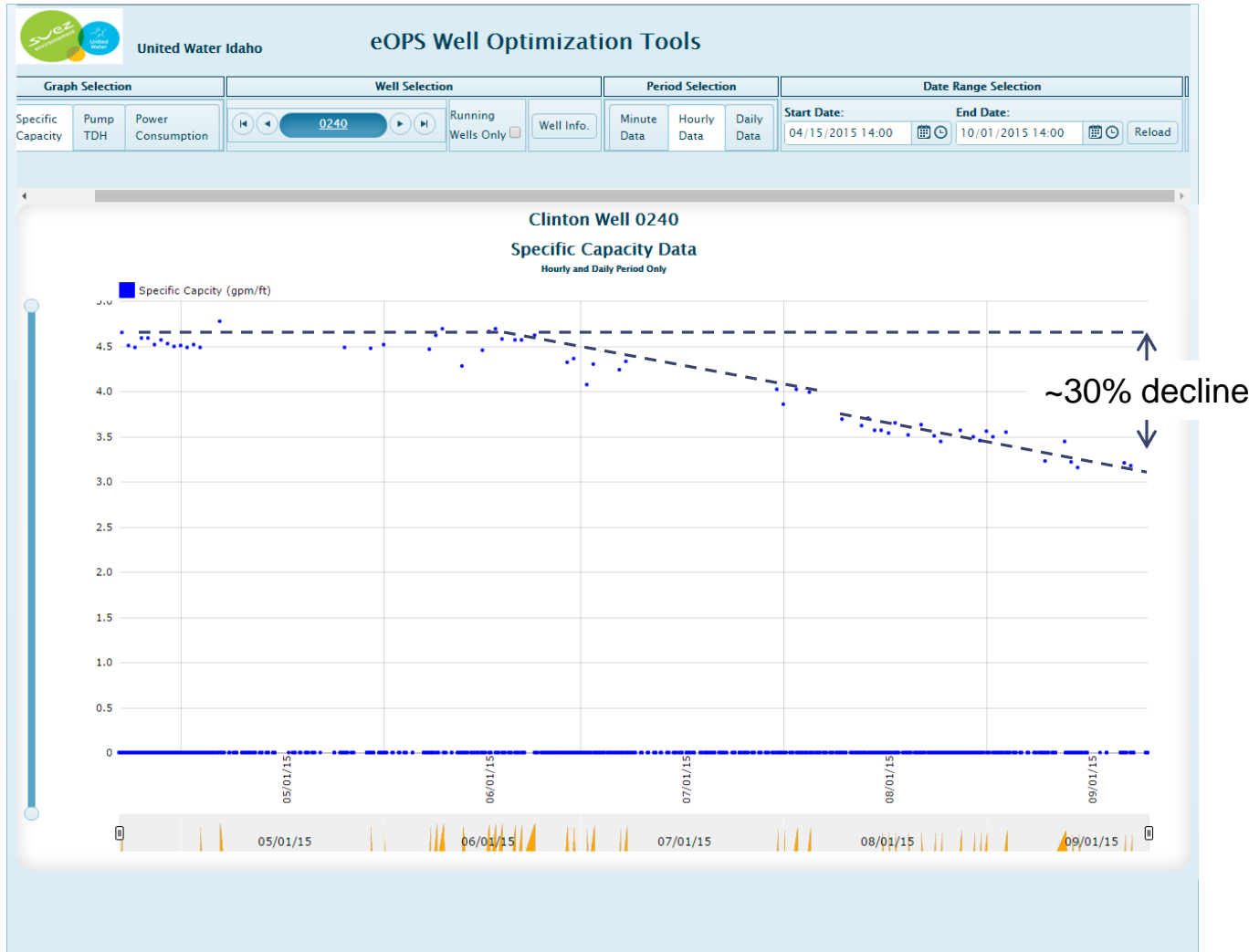


Suez Clinton well

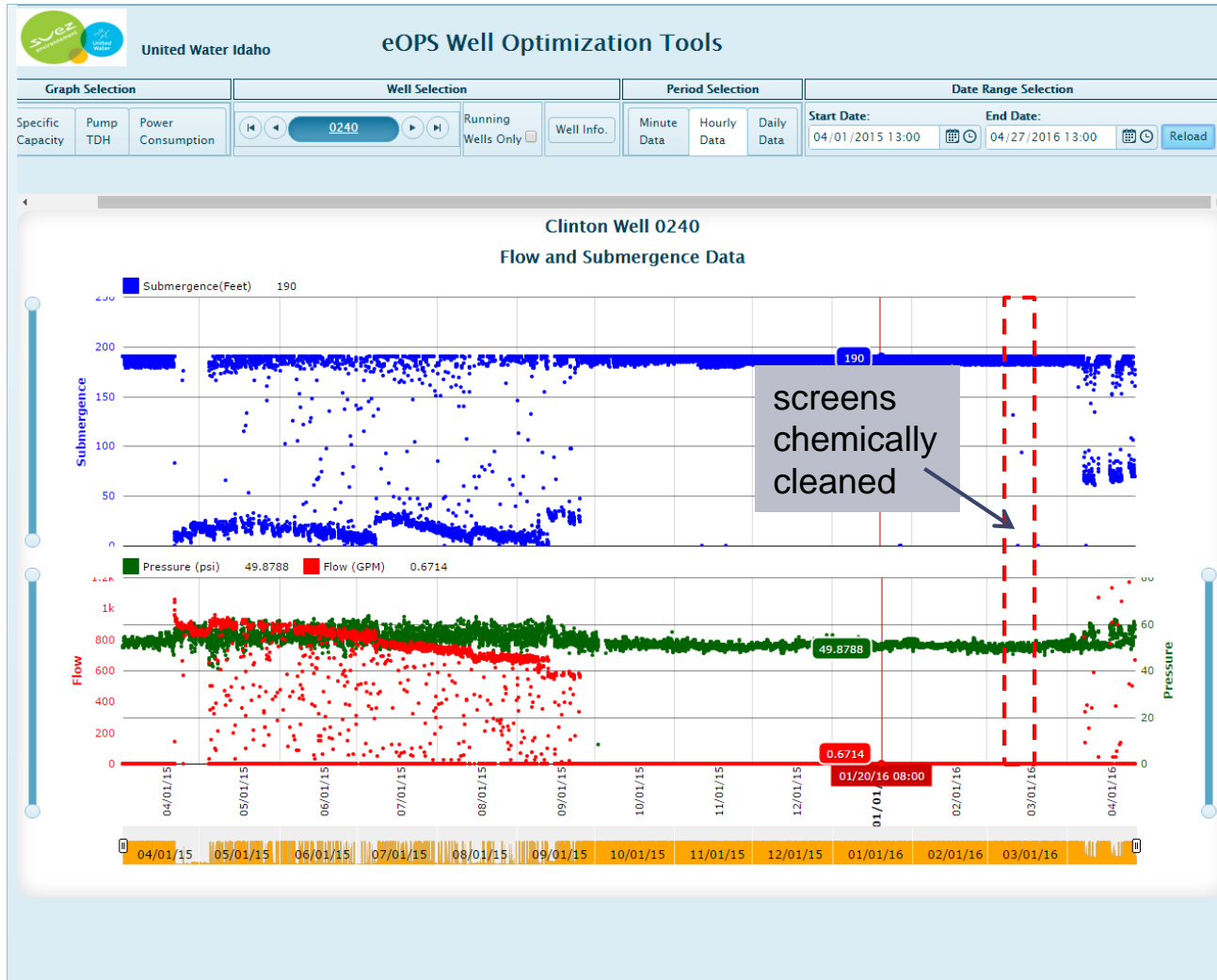
Tracking well performance decline



Tracking well performance decline



Evaluating effectiveness of maintenance



Evaluating effectiveness of maintenance

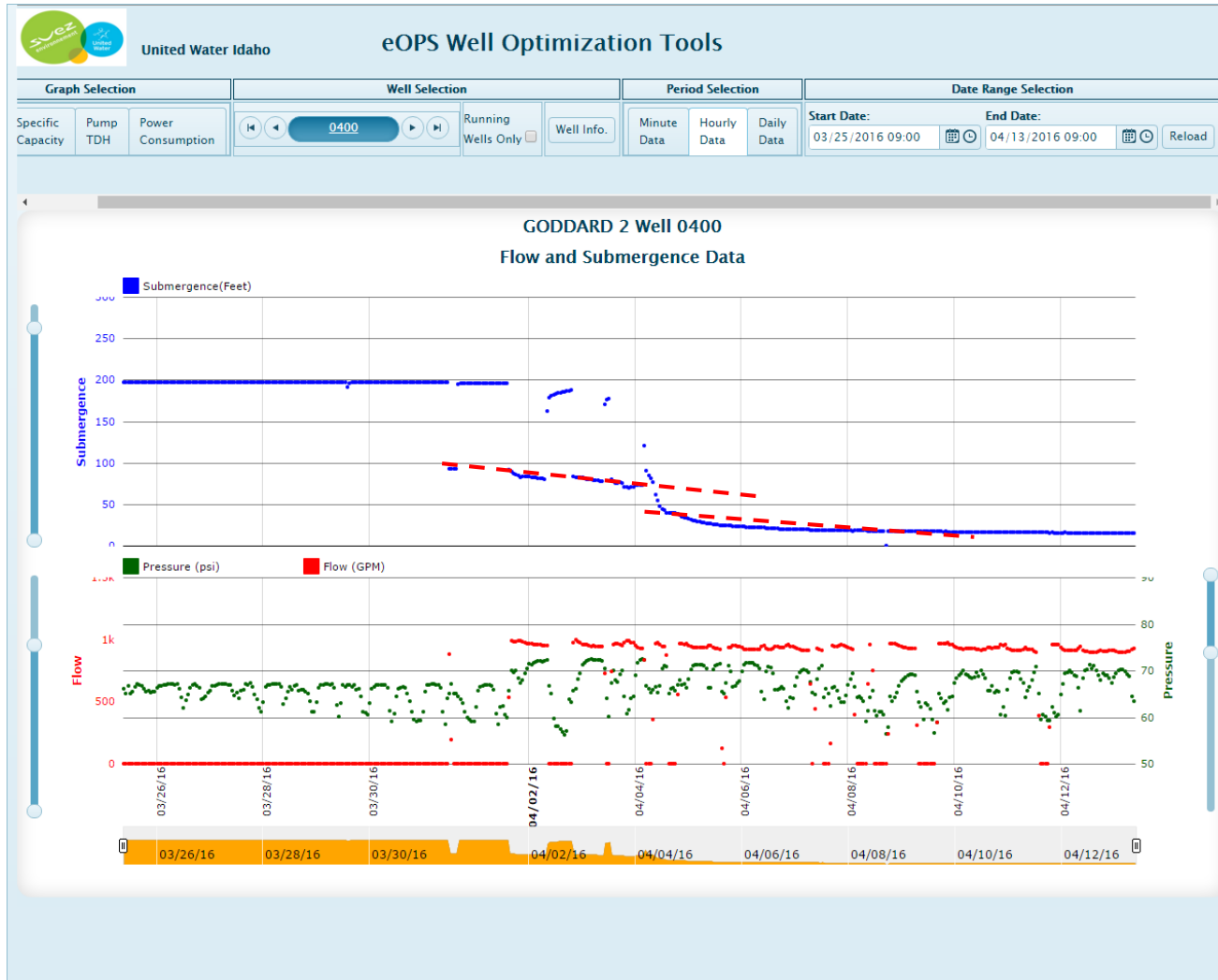


Identification of impacts from pumping wells

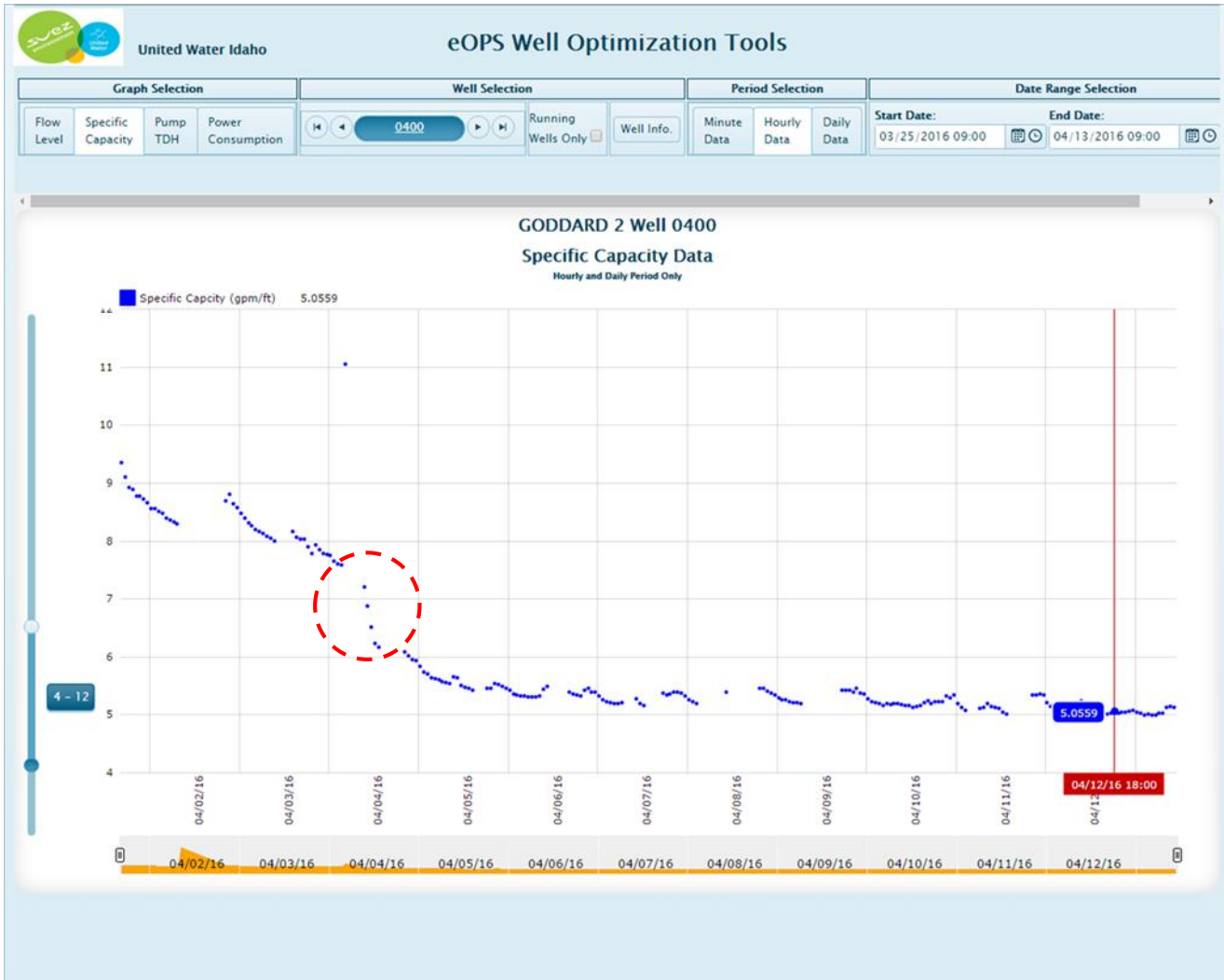


Suez Goddard well

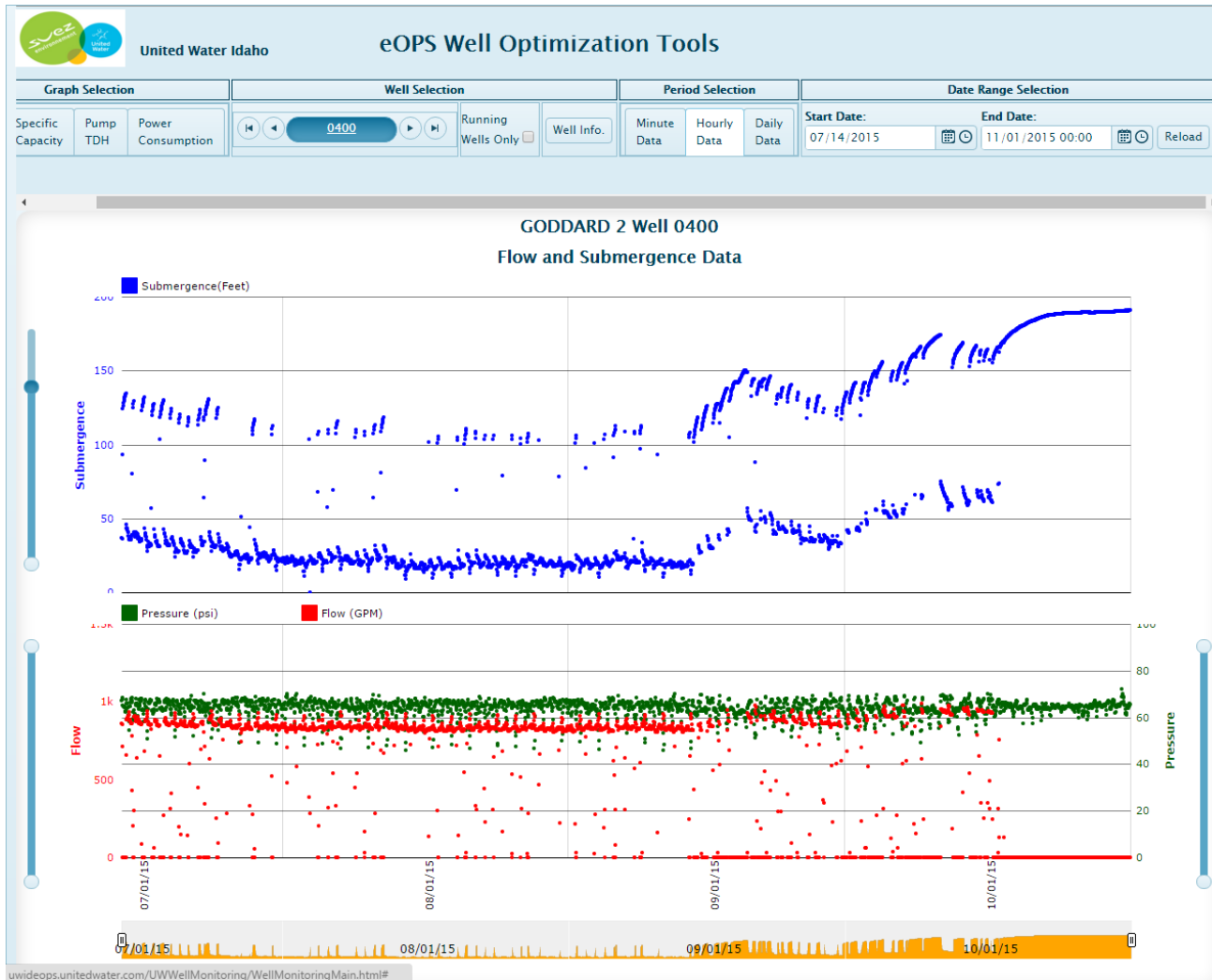
Identification of well interference effects



Reduction in specific capacity due to influence of another pumping well



Well interference

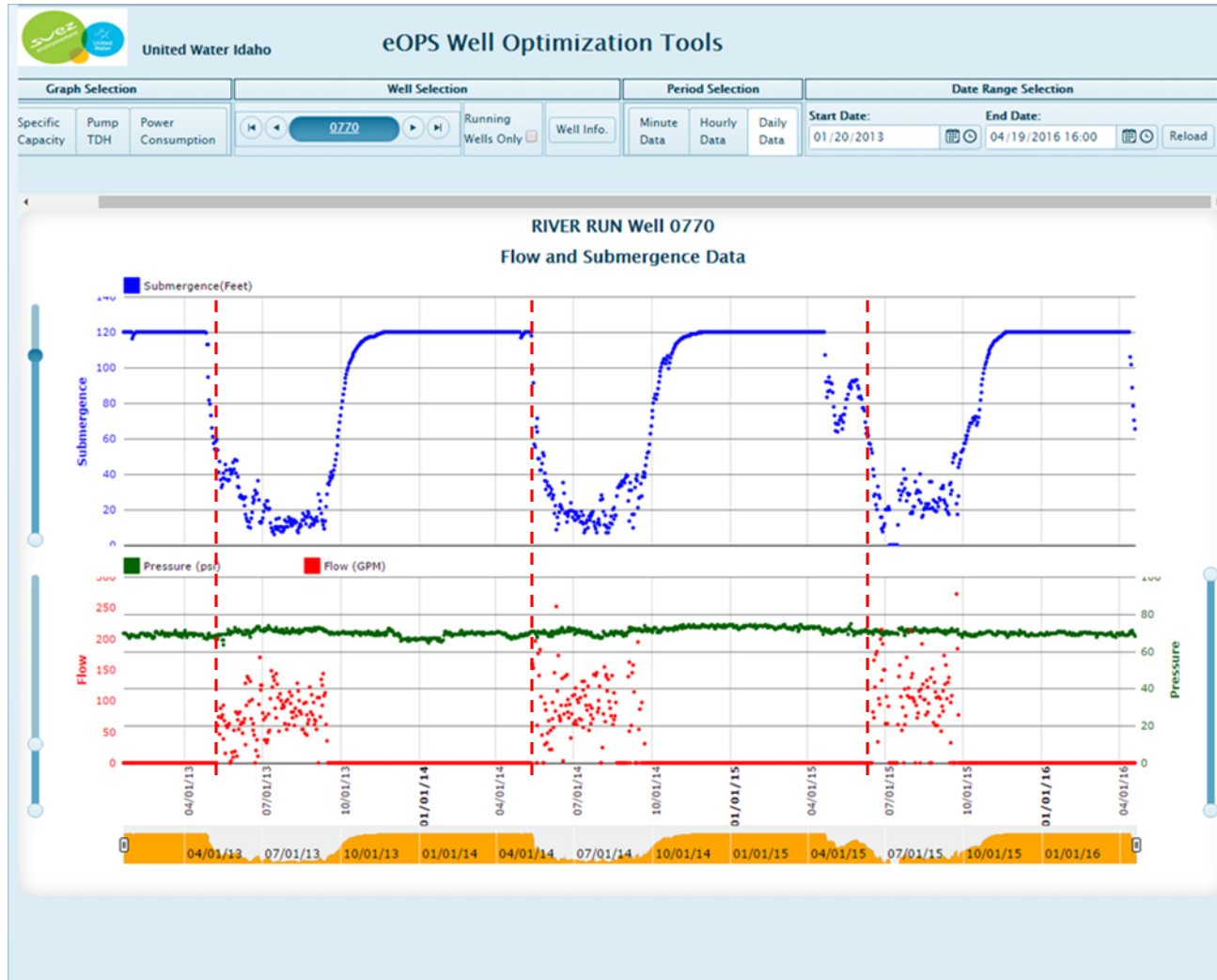


Impacts from pumping wells – another example

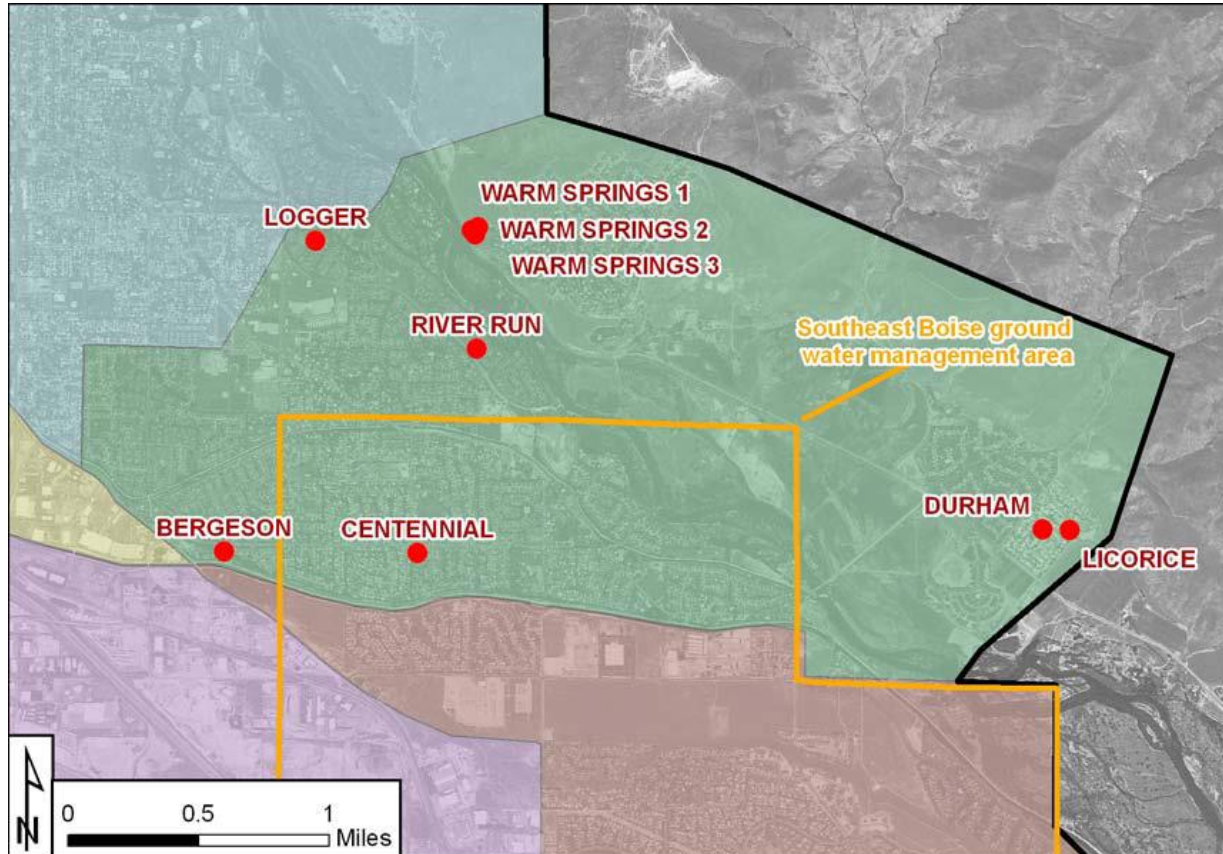


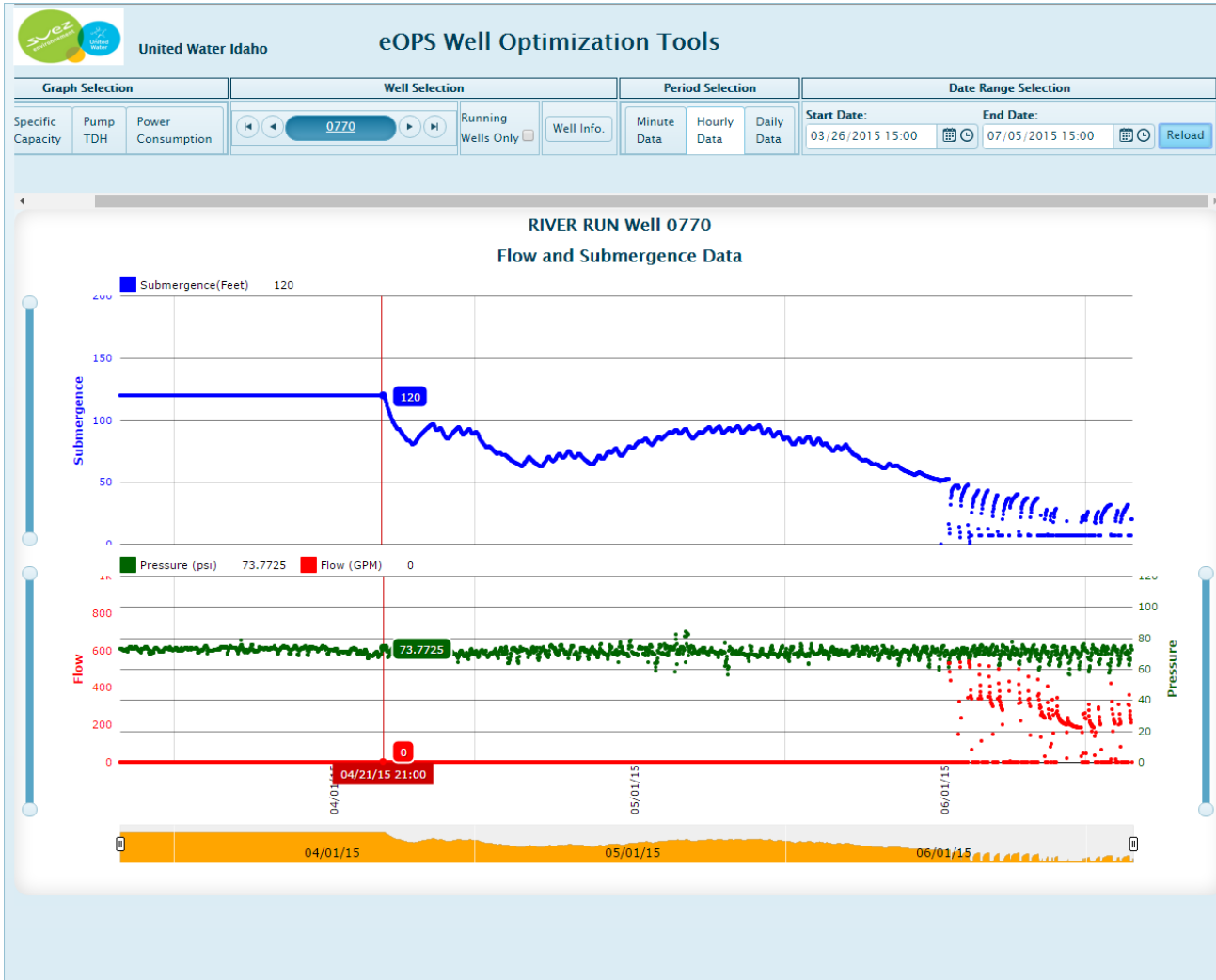
Suez River Run well

Impacts from pumping wells – another example



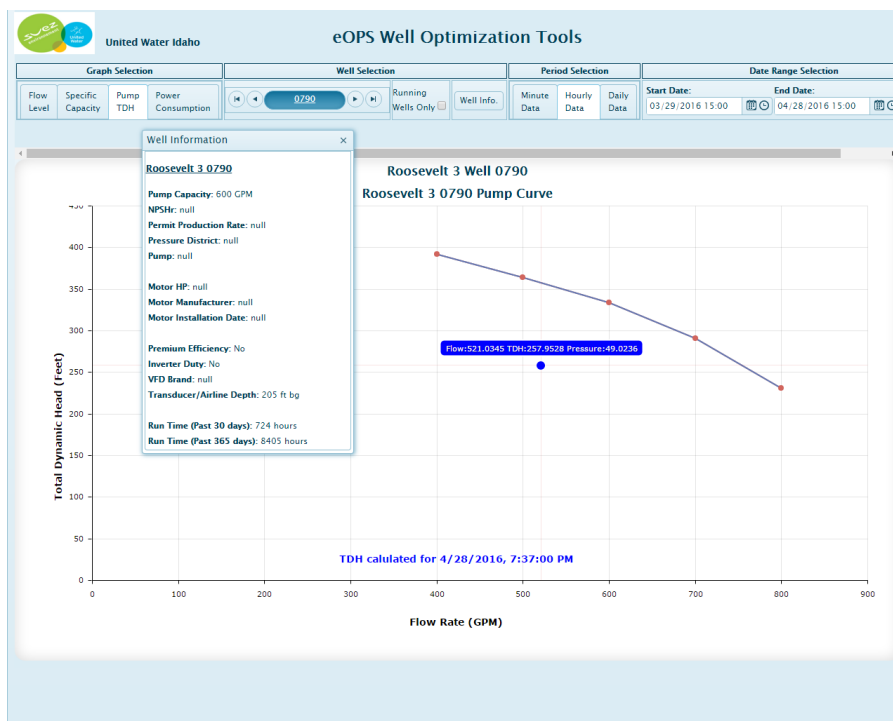
Impact from pumping well – another example



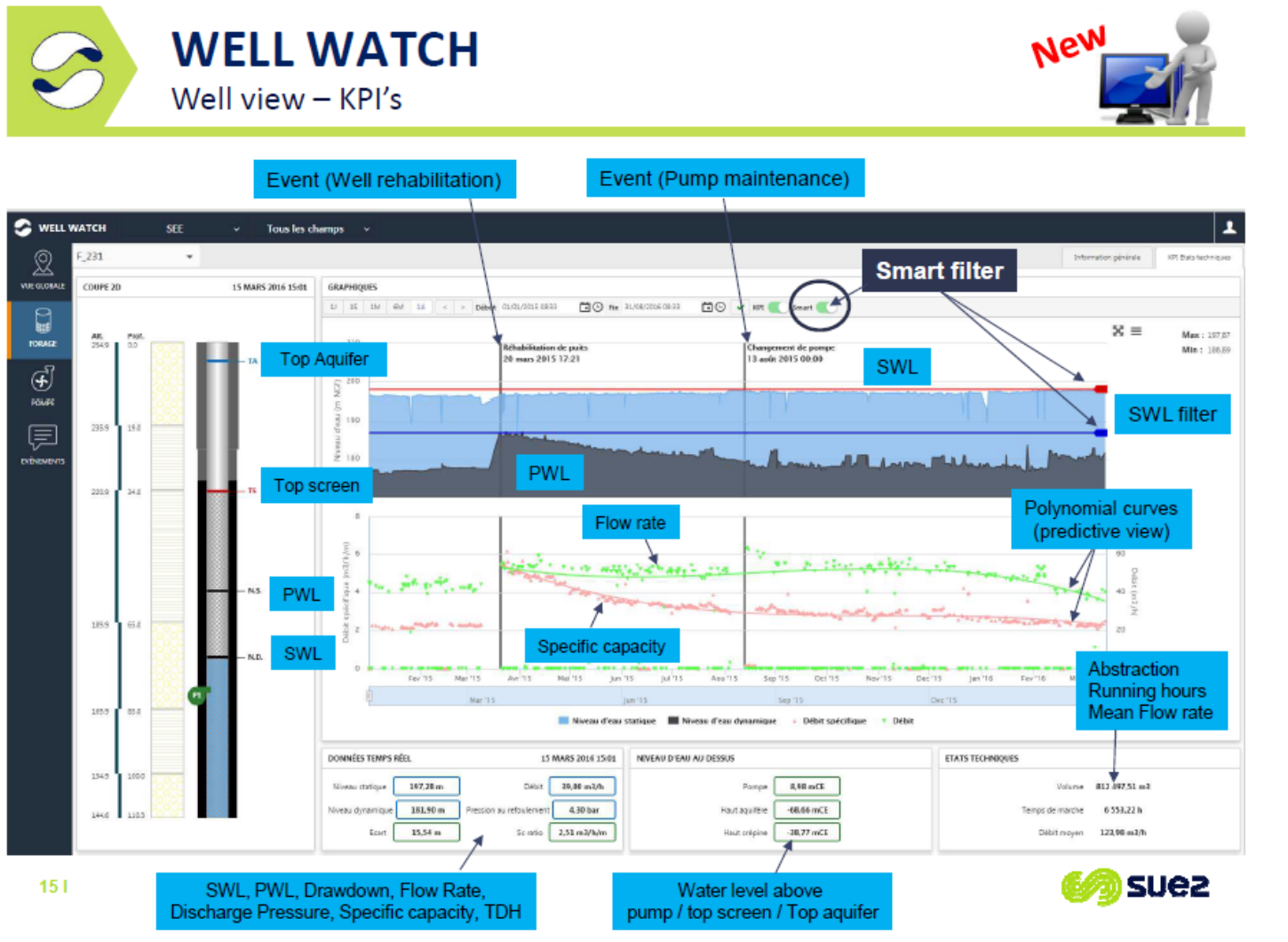


Improving Suez Water Idaho's tracking of well performance

- In a nut shell: Current tool use = we look for a problem to fix
- One planned action is to translate observations from Well Op Tool into work orders in GIS-based asset management system
- Well Op Tool can aid electrical efficiency improvements

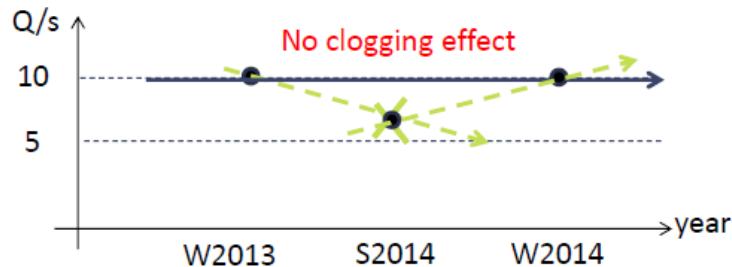
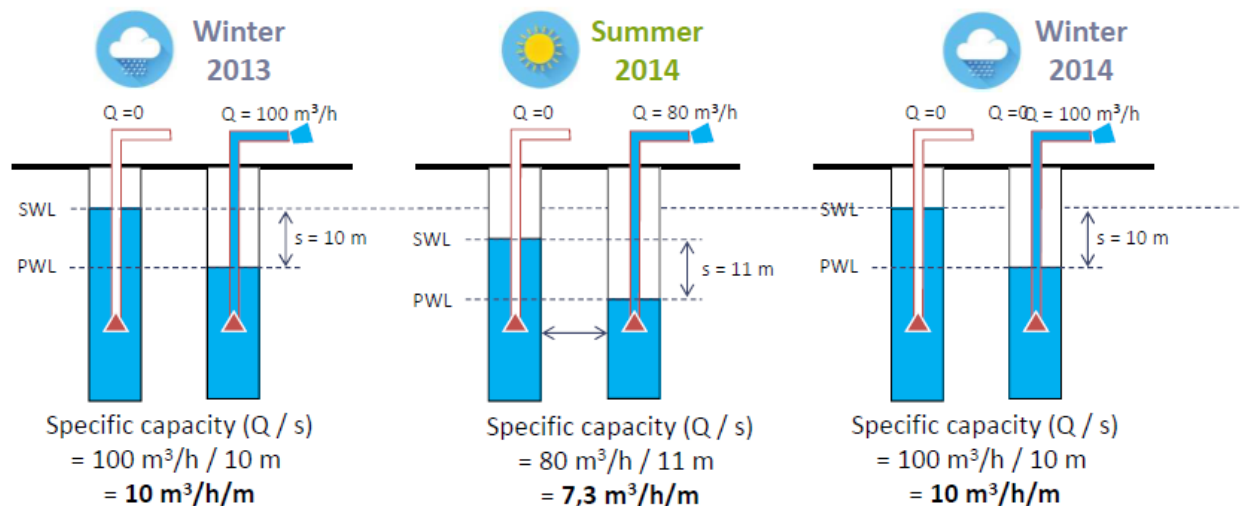


More advanced tool soon available



Well Watch being readied

> Focus on « Smart filter » button



If you look Q/s evolution between W2013 and S2014, you can think that a clogging effect appeared, but in fact, this evolution is linked with a low SWL (summer).

SMART FILTER permit to compare Q/s point with the same SWL > in that case, you can compare Q/s point



Thank you