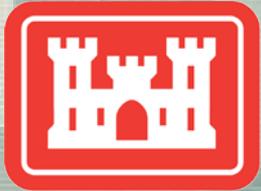


Second Five-Year Review

U.S. Army Corps of Engineers



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Purpose of a Five-Year Review

- Evaluates the following questions:
 - ▶ Is the remedy at a site protective of human health and environment?
 - ▶ Is the remedy functioning as intended?
 - ▶ Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives still valid?
 - ▶ Has other information surfaced that could affect protectiveness of the remedy?



Second Five-Year Review

Conclusions

- Remedy for Operable Unit 2 (Groundwater) is protective of human health and the environment.
- **No issues** related to current site operations, conditions, or activities.
- **No recommendations** or follow-up actions.
- Next Five-Year Review will begin in 2019.



Second Five-Year Review

To review the report, please visit:

- Project Website

www.nwk.usace.army.mil/Missions/Environmental/EnvironmentalProjects/NOP.aspx

- Mead Public Library

- ▶ 316 South Vine Street, Mead, NE 68041



Questions

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this Constitution



2013 Containment Evaluation



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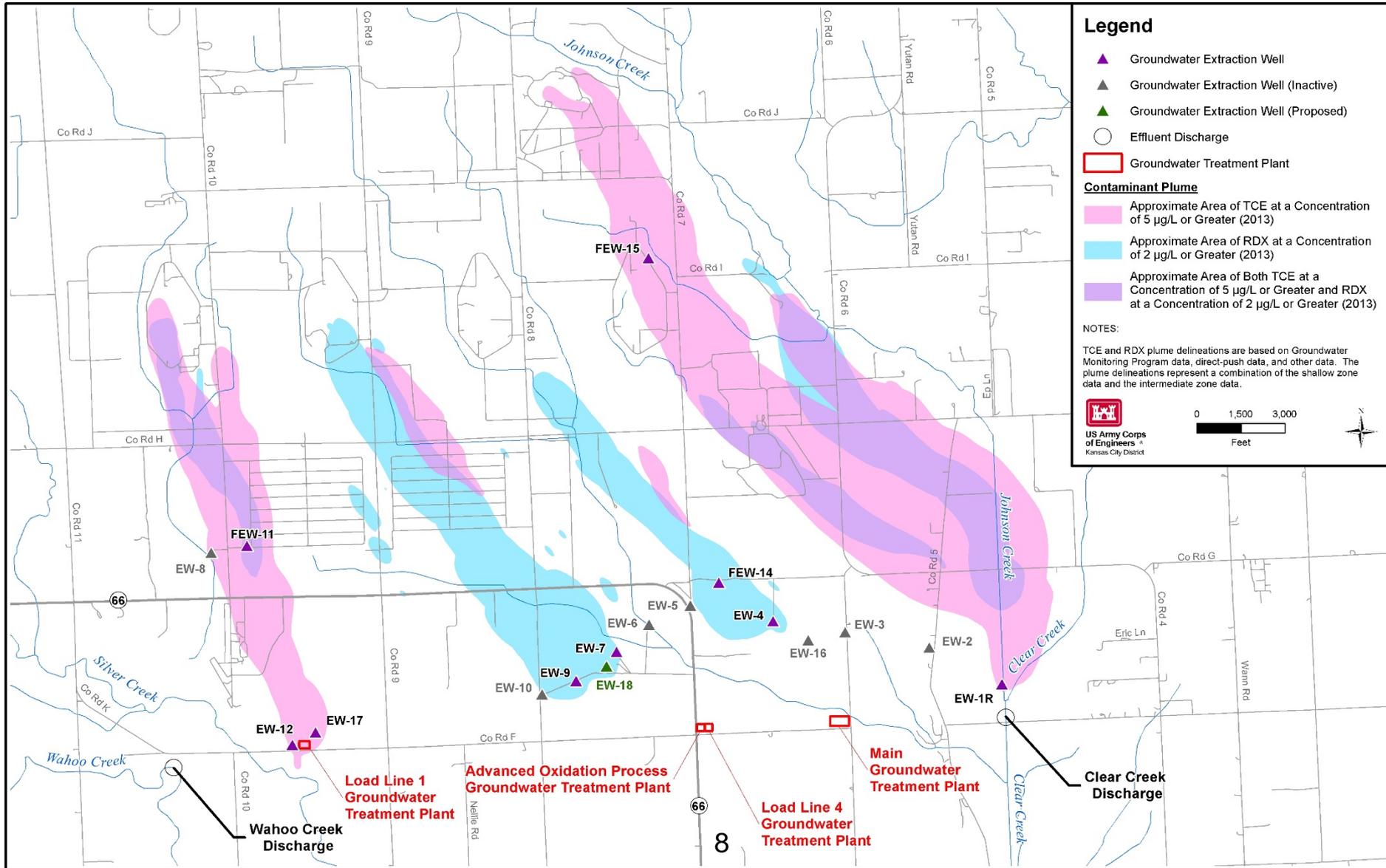
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The Containment Evaluation

- U.S. Army Corps of Engineers evaluates containment annually at the former Nebraska Ordnance Plant site.
- Determines whether the hydraulic containment system is capturing the Operable Unit 2 Record of Decision contaminants of concern in groundwater that are above the Final Target Groundwater Cleanup Goals.



Hydraulic Containment System



Legend

- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Effluent Discharge
- Groundwater Treatment Plant

Contaminant Plume

- Approximate Area of TCE at a Concentration of 5 µg/L or Greater (2013)
- Approximate Area of RDX at a Concentration of 2 µg/L or Greater (2013)
- Approximate Area of Both TCE at a Concentration of 5 µg/L or Greater and RDX at a Concentration of 2 µg/L or Greater (2013)

NOTES:

TCE and RDX plume delineations are based on Groundwater Monitoring Program data, direct-push data, and other data. The plume delineations represent a combination of the shallow zone data and the intermediate zone data.

US Army Corps of Engineers
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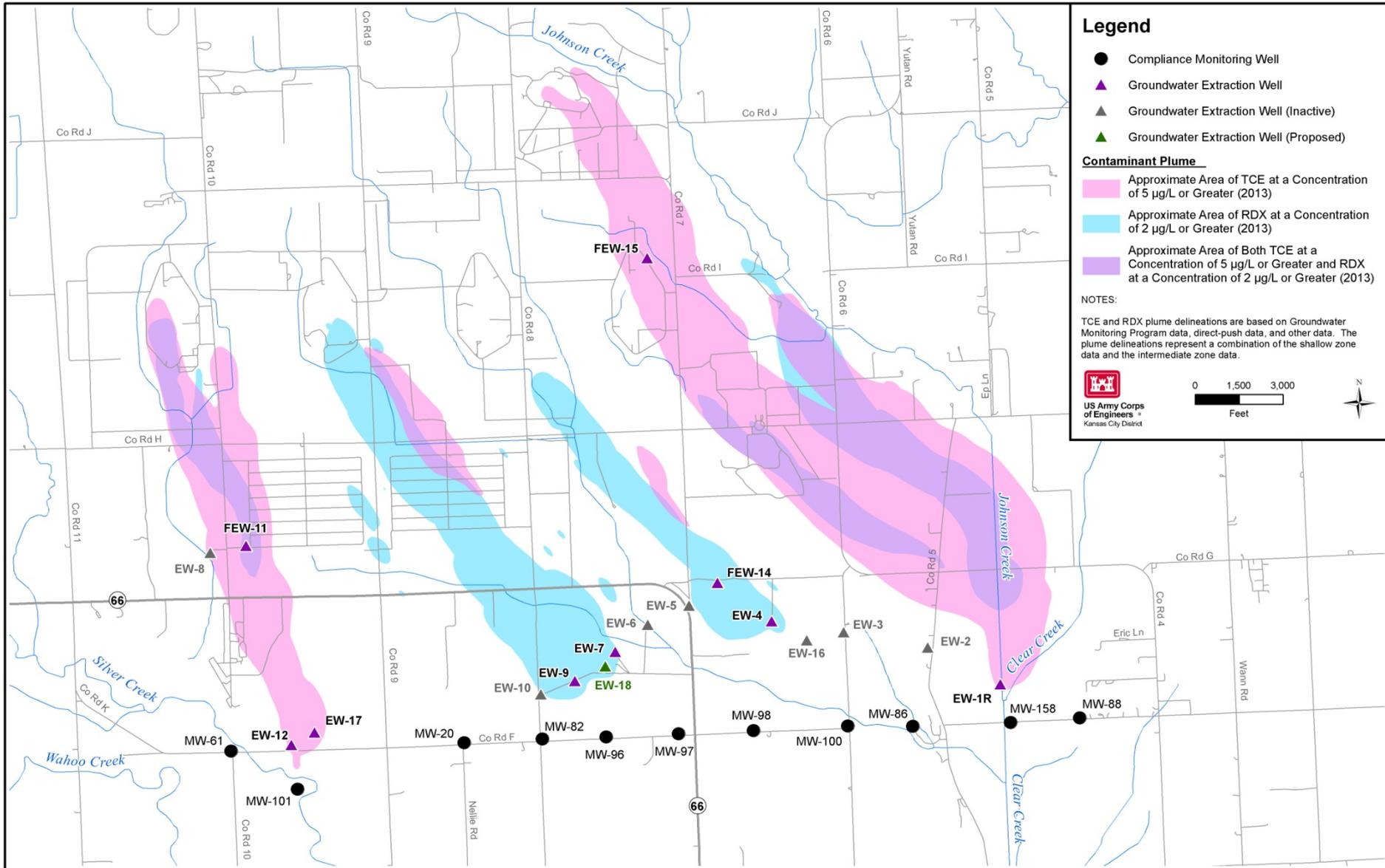
Evaluating Containment

PRIMARY TOOL

- Containment is determined from **chemical data** collected from compliance monitoring wells that are downgradient of the plumes.
- If contaminants of concern are **not detected above the Final Target Groundwater Cleanup Goals** in the compliance monitoring wells, then containment is met.



Compliance Monitoring Wells



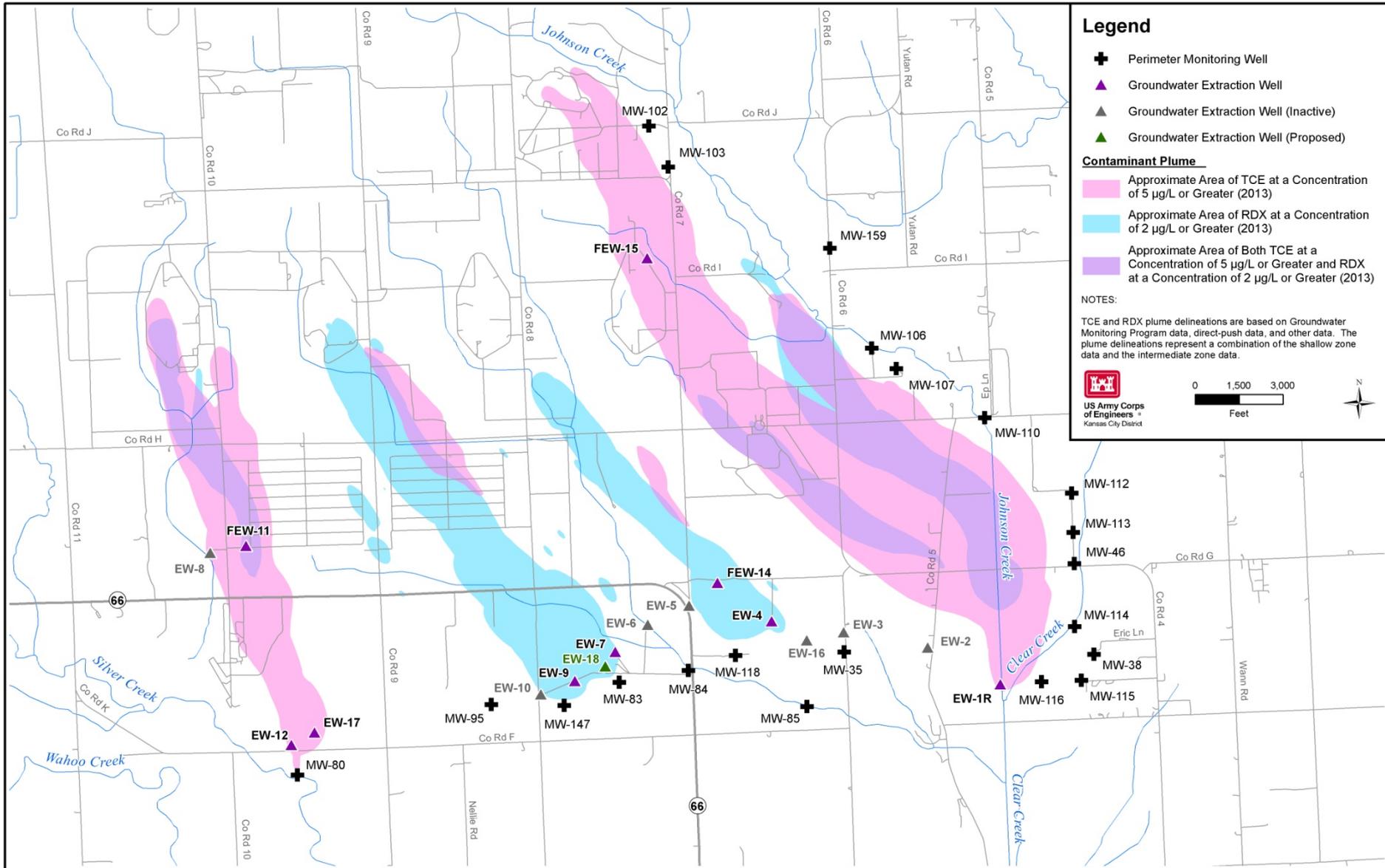
Evaluating Containment

SECONDARY TOOL

- **Perimeter wells** are located at the perimeter of the contaminant plumes and are monitored on a semi-annual basis.
- **Groundwater transport modeling** is performed to evaluate general performance or effectiveness of the hydraulic containment system.



Perimeter Monitoring Wells

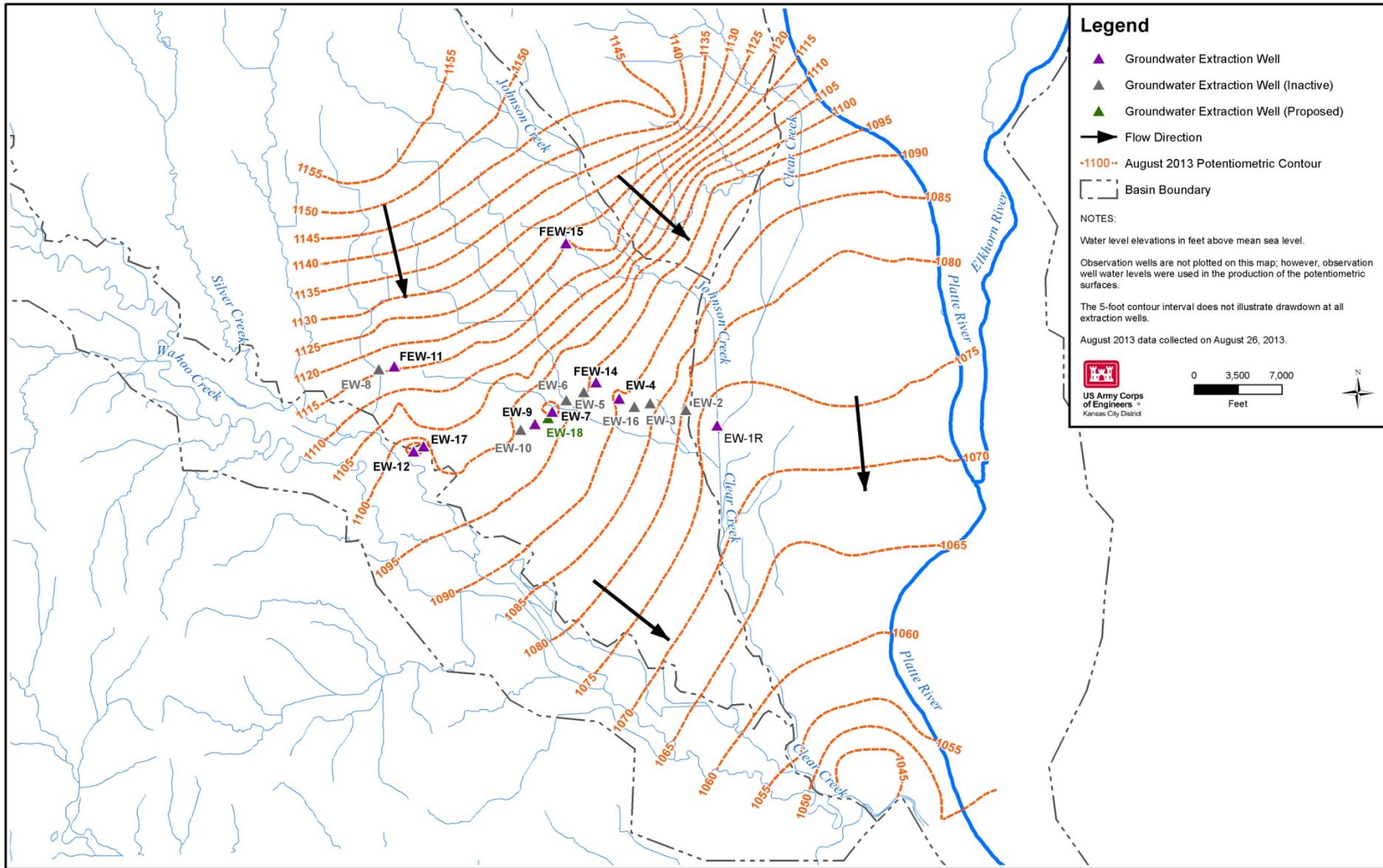


Evaluating 2013 Containment

- Information collected and evaluated:
 - [Water Levels](#) - 348 monitoring wells twice a year
 - [Groundwater Samples](#) - 33 compliance wells and 57 perimeter wells
 - [Drinking Water Samples](#) - 74 water supply wells
 - [Pumping Rates](#) - Extraction Wells, Metropolitan Utilities District, Lincoln Water System, the Village of Mead, the City of Ashland, and the University of Nebraska-Lincoln Agricultural and Research Development Center.



2013 Groundwater Flow



Groundwater Monitoring

- Groundwater data will continue to be collected during the annual Groundwater Monitoring Program from:
 - Water Supply Wells
 - Select Monitoring Wells
 - Compliance Monitoring Wells
 - Perimeter Monitoring Wells



2013 Containment Evaluation Conclusions

- Containment has been achieved for 2013.
- No contaminants of concern were detected in any of the compliance wells and the perimeter wells above the Final Target Groundwater Cleanup Goals in 2013.

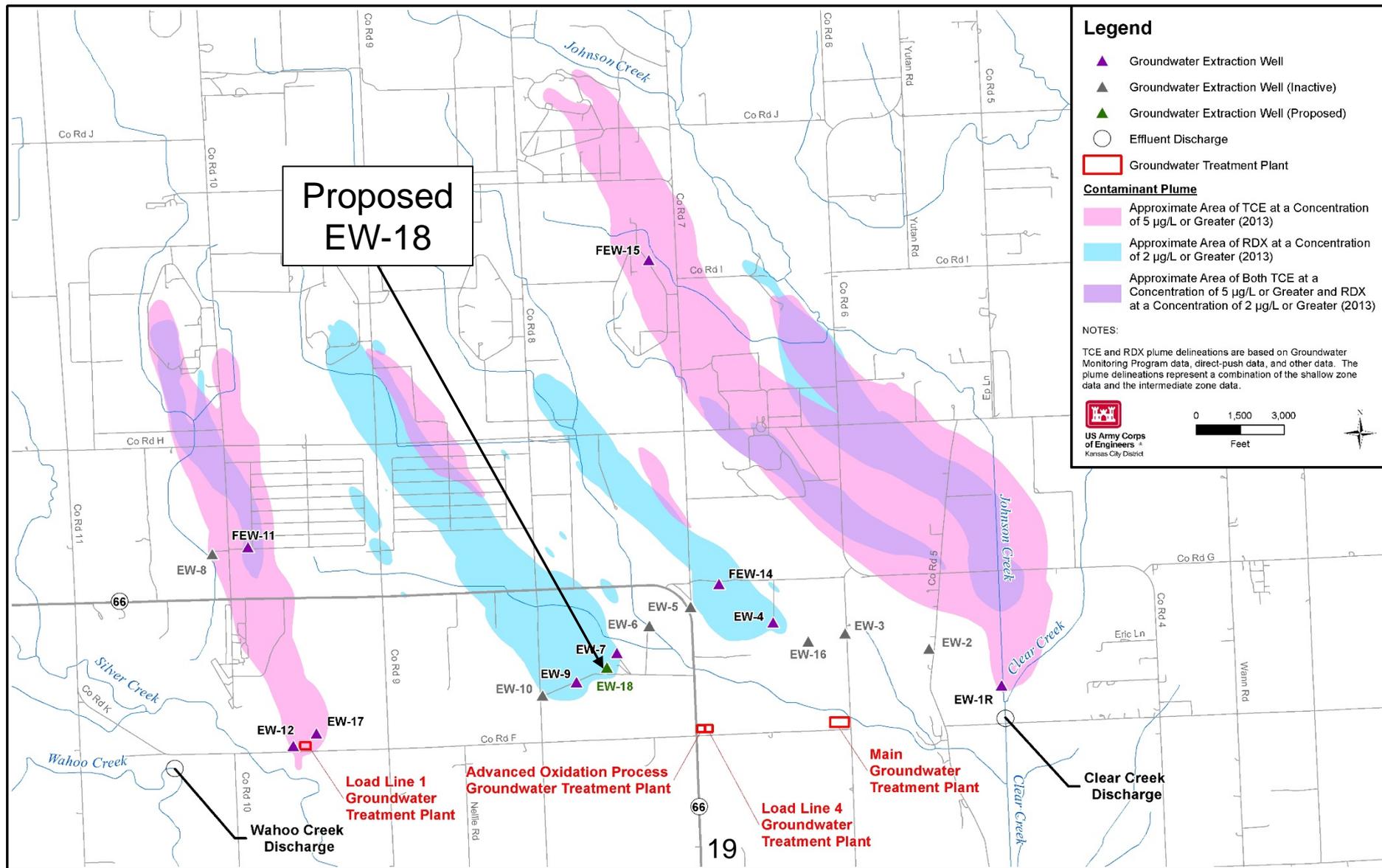


2014 Updates

- Individual ultraviolet treatment systems were installed for five extraction wells (EW-4, EW-7, EW-9, FEW-11, and FEW-14).
- Main groundwater treatment plant was taken offline in April 2014.
- New extraction well (EW-18) will be installed in the Load Line 2 plume to provide additional containment. The final location will be based on the results of a geophysical survey.



Proposed EW-18 Location



Legend

- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Effluent Discharge
- Groundwater Treatment Plant

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