



# Superfund Site Operational Challenges Requiring RO Plant Addition

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Water Sustainability through Stewardship, Innovation and People

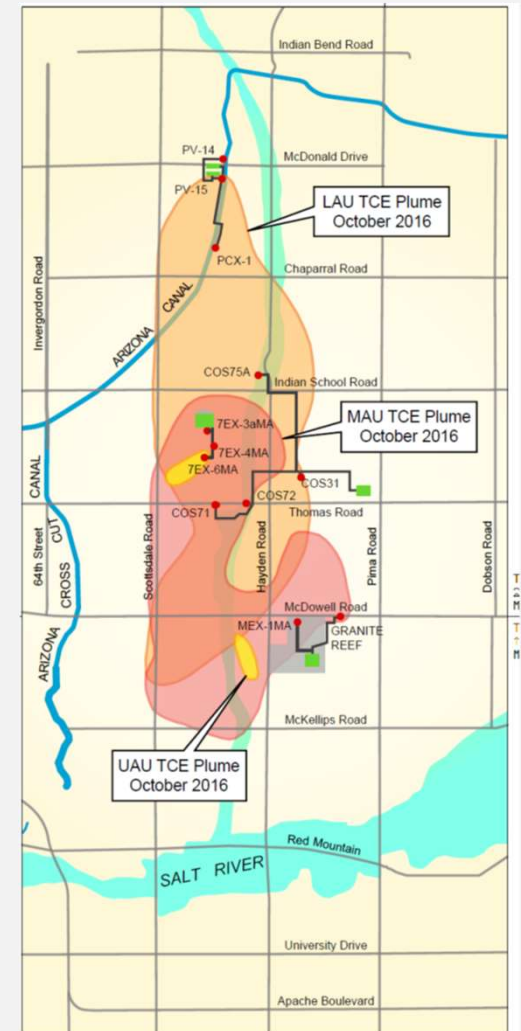


# NIBW History

- Contamination discovered in October 1981 - Wells shut down
- Placed on CERCLA National Priority List in 1983
- Named North Indian Bend Wash (NIBW) Superfund Site due to the Indian Bend Wash being the closest physical feature. There is an associated SIBW in Tempe.
- Primary contaminant is Trichlorethylene (TCE), used as a solvent
- Oversight provided by US EPA, ADEQ and Maricopa County
- 12 source areas investigated
- Four Potentially Responsible Parties identified and required to pay cost of clean-up
  - Motorola Solutions, Siemens, GlaxoSmithKline (Participating Companies)
  - SRP

# NIBW Superfund Site Aquifer Units

- Upper Alluvial Unit (UAU) – 120 to 160 feet
- Middle Alluvial Unit (MAU) – 360 to 660 feet
- Lower Alluvial Units (LAU) – Below 700 feet



# NIBW Superfund Site Extraction Wells, Pipelines, Treatment Facilities

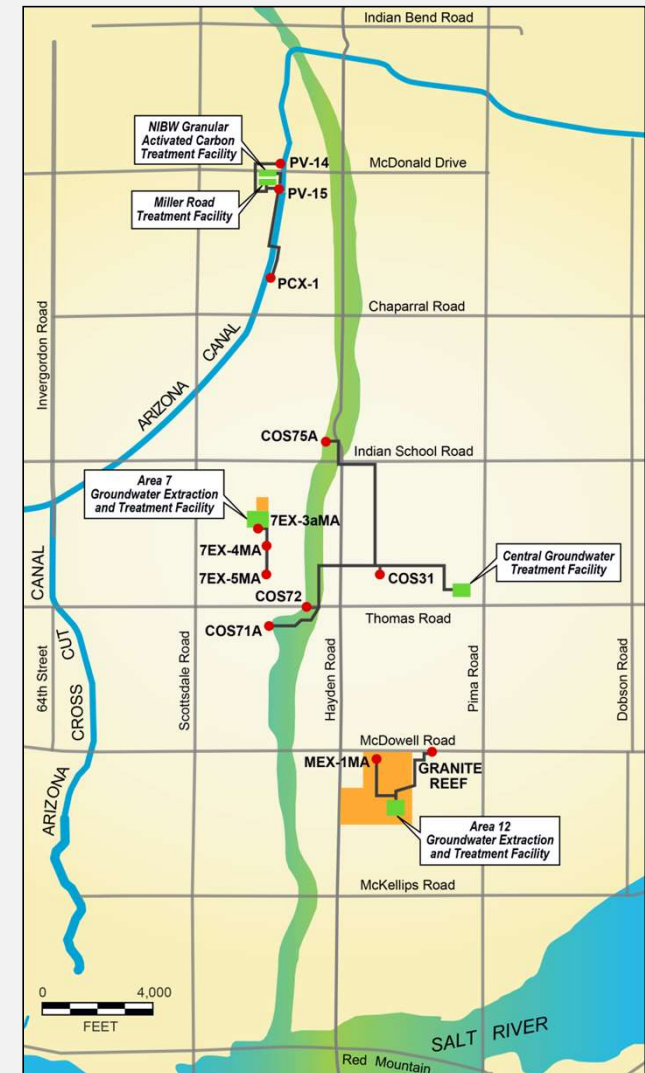
NGTF (NIBW Granular Activated Carbon Treatment Facility)

MRTF (Miller Road Treatment Facility)

CGTF (Central Groundwater Treatment Facility)

Area 7 (Source Area)

Area 12 (Source Area)



# Central Groundwater Treatment Facility (CGTF)

- Three air stripping towers
- Owned and operated by the City of Scottsdale
- Began treating water in 1994
- Treats water from up to four wells
- Two 5-million gallon reservoirs
- Treated water is received into Scottsdale drinking water system



# “North” Groundwater Treatment Facility – (NGTF)

- Four GAC contract trains
- Owned by Motorola Solutions, operated by city staff
- Treats water from one well previously treated at Miller Road Treatment Facility
- Started treating water in 2012 discharging to the Arizona Canal
- Began bringing treated water to Scottsdale drinking water system in early 2014
- Treated water is received into Scottsdale drinking water system through the Chaparral Water Treatment Plant



# Remedy Success

- 5.5 billion gallons of water treated in 2018
  - Total of 125 billion gallons since 1994
- 2,000 pounds of TCE removed in 2018 from groundwater
  - Total of 92,700 pounds since 1994
- 10,000 pounds of TCE removed from soils
- 93% reduction in UAU plume area since 2001 with 98% reduction in VOC mass since 1994
- Only 1 of 65 UAU monitor wells still shows low detection



But.....Remedy will continue for 60+ years

# What has changed?

- Increased well concentrations from non-superfund contaminants
  - Nitrate
  - Arsenic
  - Hardness
  - 1,4 Dioxane
    - Not identified in Record of Decision to date

# Impacts to CGTF

- One well taken out of service due to nitrate over MCL
- Must operationally blend for 1,4 dioxane
- All wells require blending to reduce hardness
- Multiple wells approaching 80% MCL for arsenic
- One non-remedy well out of service for arsenic over MCL.



For years staff have juggled competing blending plans

## Impacts to NGTF

- Well over 80% MCL for arsenic
- Proposed additional well just under 80% MCL for arsenic
- May need to consider arsenic treatment or treatment through Chaparral Plant



# New Thomas Road Groundwater Treatment Facility

- Reverse Osmosis Facility adjacent to CGTF
- Will treat split stream of flow from lead well
- Needed to remove regulated and emerging contaminants
  - Side benefit – reduction of hardness down to system average
- Built to allow expansion



# Financial Impacts

- Cost responsibility for treatment not related to superfund is unclear
- City paying full cost for TGTF for one well
  - \$26.5 million
  - One remedy well will remain shut down unless another party wants to pay expansion costs

# Regulatory Impacts

- Made clear that RO Plant is not part of superfund
  - Plant/process only regulated under drinking water program
- City Rule 19 status complicates city position
- Local beneficial use
- Agencies and one stakeholder concerned about loss of well shutdown for nitrate
  - Perceived impact to remedy
  - Outcome still pending

# Conclusion

- Superfund remedy must continue
- Inorganic concentrations threaten future of wells
- Financial responsibility is uncertain
- Reclaiming use of wells at a superfund site is getting more difficult

# Questions

