

Shannon Road El Camino del Cerro WQARF Site

Community Advisory Board Meeting
October 10, 2023

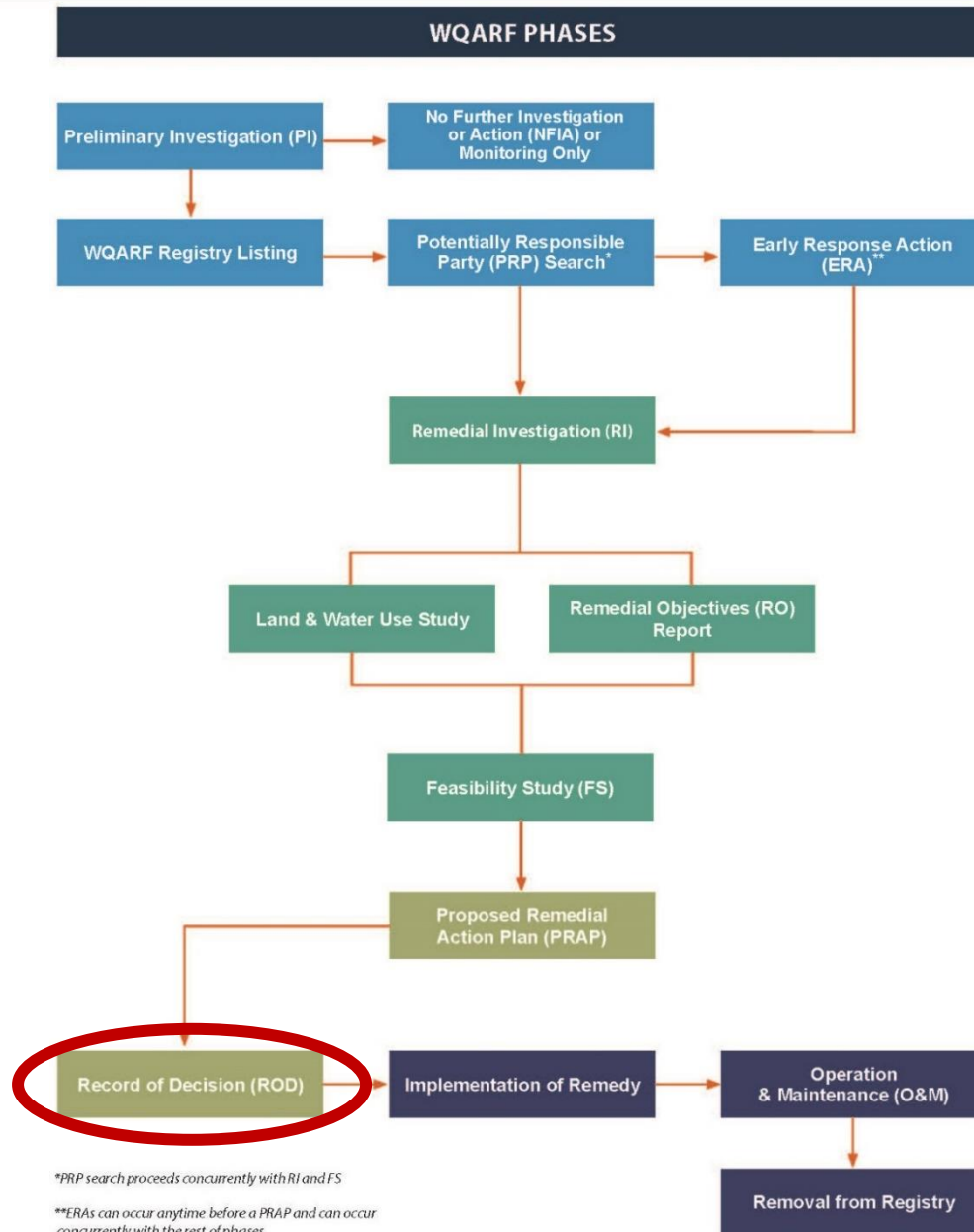


Clean Air, Safe Water,
Healthy Land for Everyone



- Water Quality Assurance Revolving Fund (WQARF) Process
- 2nd Quarter 2023 Groundwater Monitoring
- South Shannon Wellhead Treatment Upgrade

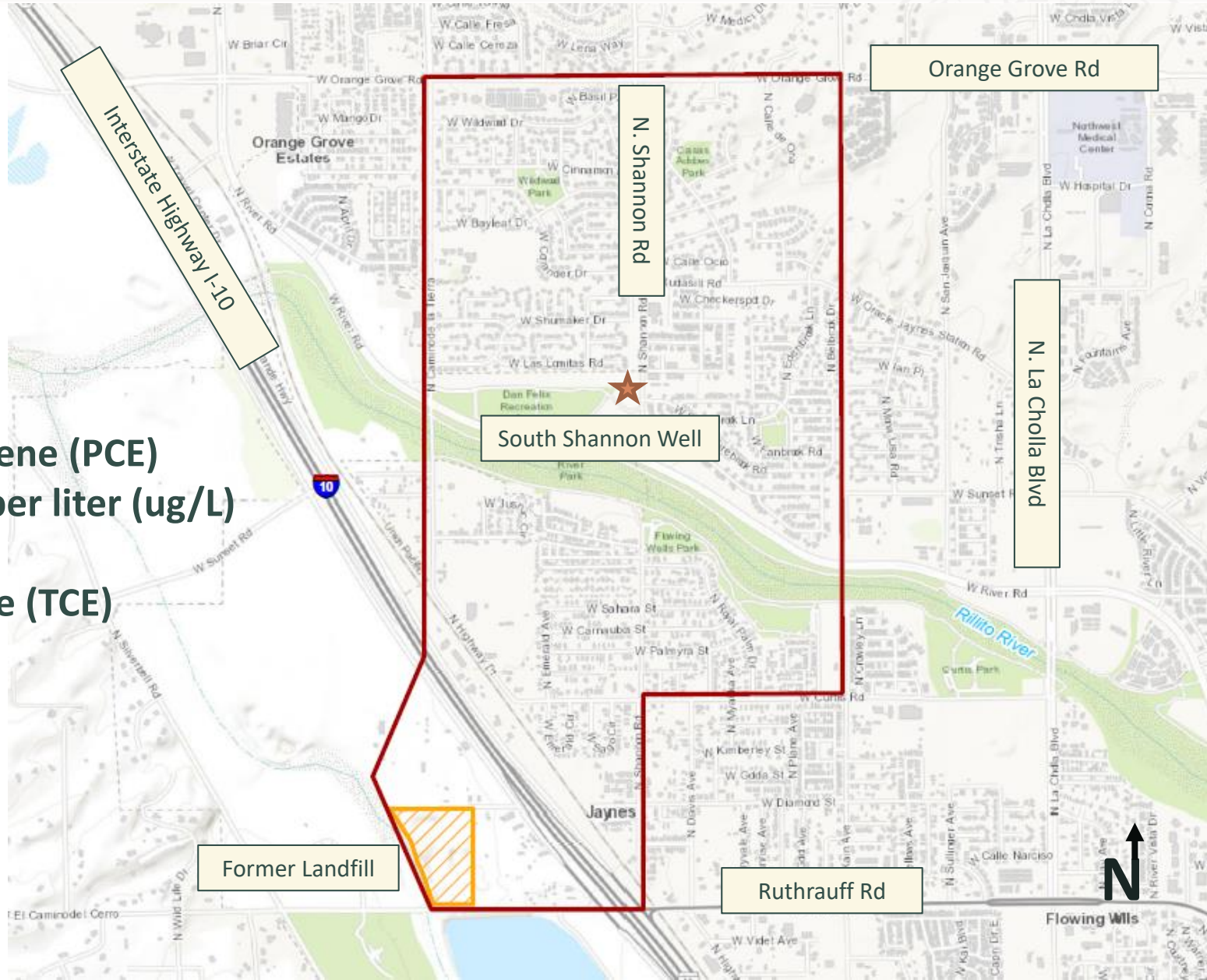
WQARF Process



*PRP search proceeds concurrently with RI and FS

**ERAs can occur anytime before a PRAP and can occur concurrently with the rest of phases

Site Location Map



Contaminants:

Tetrachloroethene (PCE)
5 micrograms per liter (ug/L)

Trichloroethene (TCE)
5 ug/L

***1,4 Dioxane**
0.35 ug/L

2023 Q2 Groundwater Elevation



IMAGERY SOURCE: Nearmap, 05/16/2021

- SHALLOW GROUNDWATER MONITORING WELL
- SHALLOW GROUNDWATER MONITORING WELL - NOT MEASURED
- GROUNDWATER ELEVATION CONTOUR (CONTOUR INTERVAL = 1 FOOT)
- GROUNDWATER ELEVATION CONTOUR, INFERRED
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW AND GRADIENT (FEET PER FOOT)
- SITE BOUNDARY

LOCATION ID
SRC-W388 2080.14

GROUNDWATER ELEVATION
(feet above mean sea level)

NM: Not Measured
- Groundwater elevations were measured on 4/3/2023 and 4/4/2023

Scale: 0 400 800 1,600 Feet

WQARF: Water Quality Assurance Revolving Fund

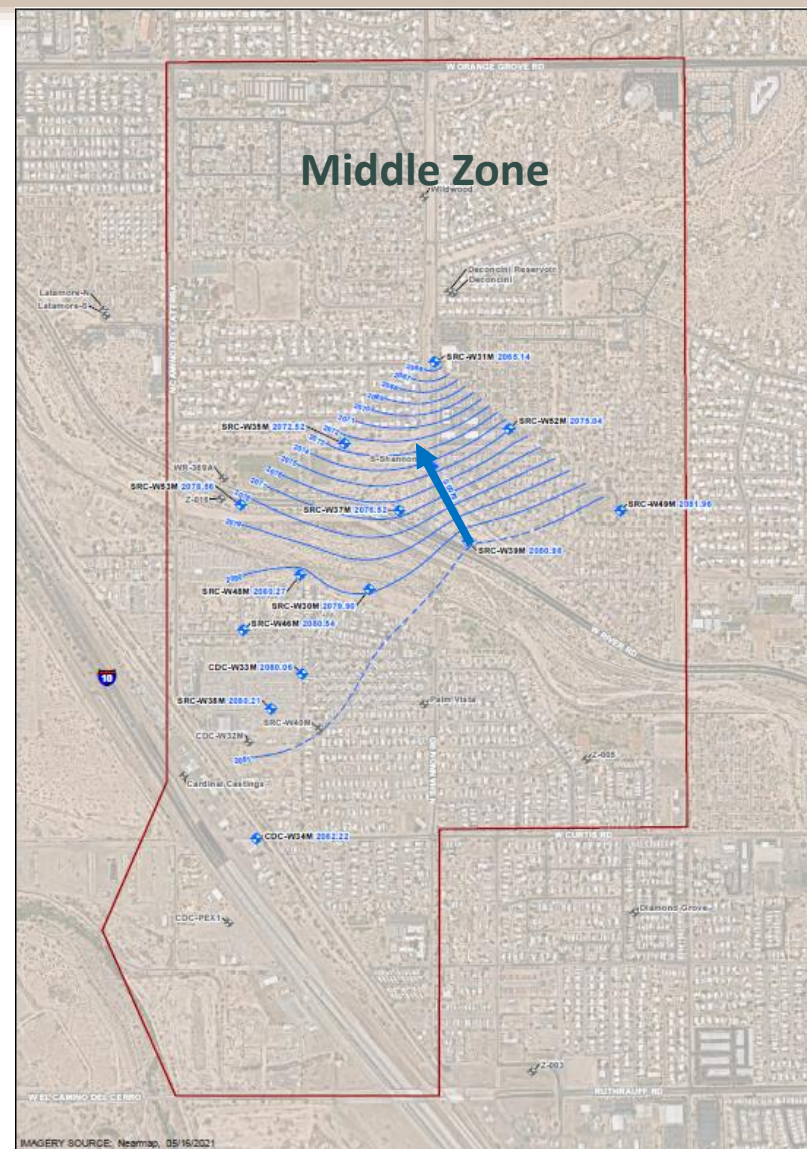
Groundwater Elevations
Shallow Zone
April 2023

Shannon Rd/EI Camino del Cerro WQARF Site
Tucson, Arizona

Geosyntec consultants

Figure 2

Process June 2023



IMAGERY SOURCE: Nearmap, 05/16/2021

- MEDIUM GROUNDWATER MONITORING WELL
- MEDIUM GROUNDWATER MONITORING WELL - NOT MEASURED
- GROUNDWATER ELEVATION CONTOUR (CONTOUR INTERVAL = 1 FOOT)
- GROUNDWATER ELEVATION, INFERRED CONTOUR (CONTOUR INTERVAL = 1 FOOT)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW AND GRADIENT (FEET PER FOOT)
- SITE BOUNDARY

LOCATION ID
SRC-W38M 2080.21

GROUNDWATER ELEVATION
(feet above mean sea level)

NM: Not Measured
- Groundwater elevations were measured on 4/3/2023 and 4/4/2023

Scale: 0 400 800 1,600 Feet

WQARF: Water Quality Assurance Revolving Fund

Groundwater Elevations
Medium Zone
April 2023

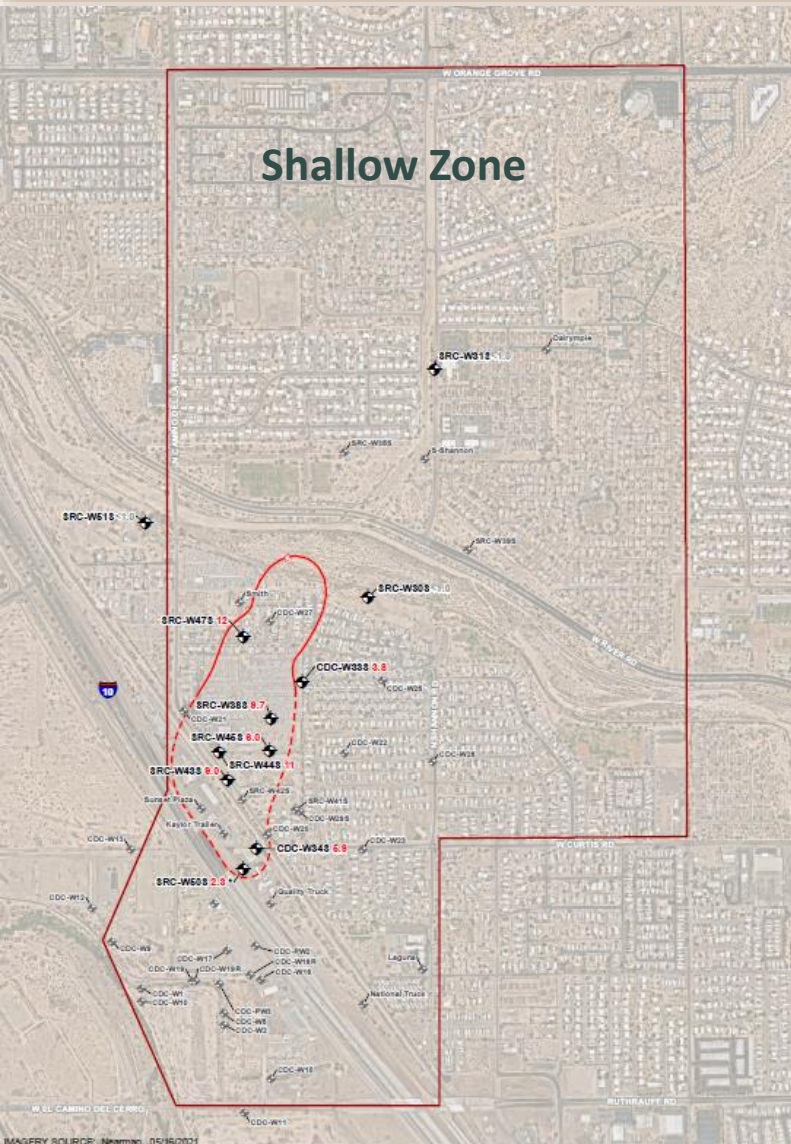
Shannon Rd/EI Camino del Cerro WQARF Site
Tucson, Arizona

Geosyntec consultants

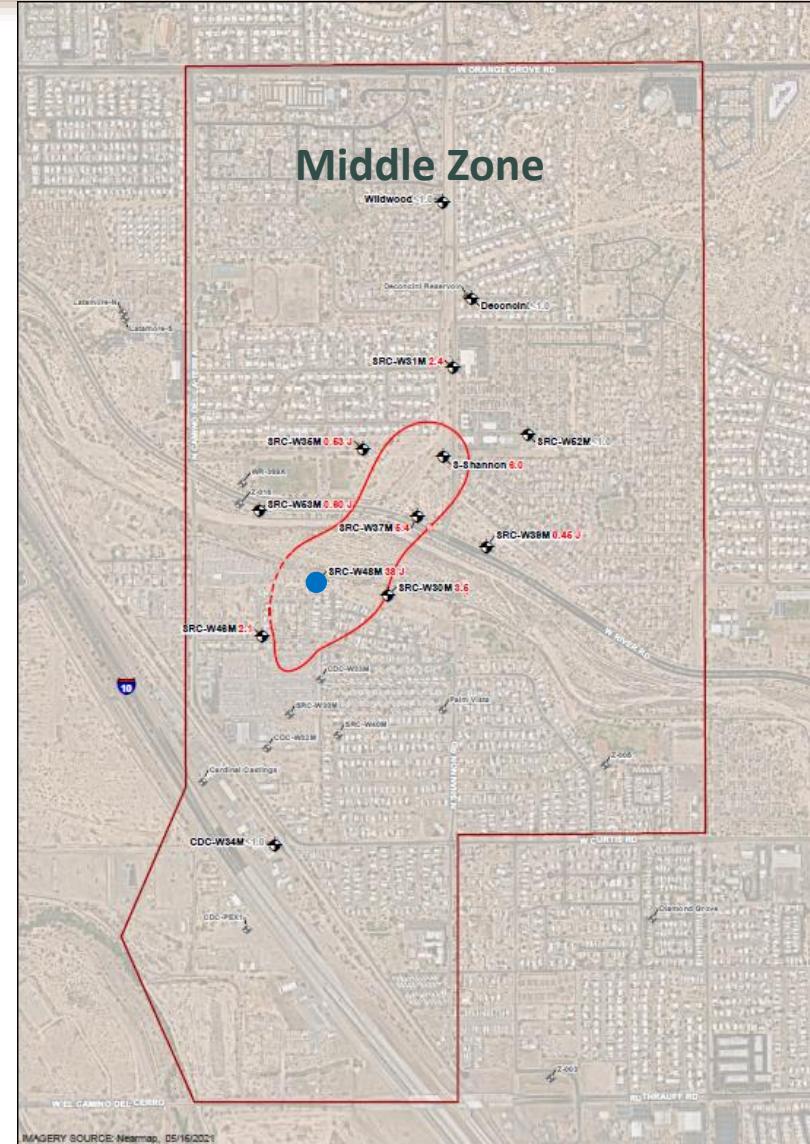
Figure 3

Process June 2023

2023 Q2 Tetrachloroethene Concentrations



High(●) :
38 ug/L
(SRC-W48M)



IMAGERY SOURCE: Nemap, 05/16/2021

SHALLOW GROUNDWATER MONITORING WELL
 SHALLOW GROUNDWATER MONITORING WELL - NOT SAMPLED
 PCE CONCENTRATION CONTOUR
 PCE CONCENTRATION CONTOUR, INFERRED
 SITE BOUNDARY

LOCATION ID
SRC-W38S 9.7
 PCE CONCENTRATION (ug/l)

* Contours generated from 3D model including this location; the location lies inside of contour due to sample depth
 - For locations where a duplicate sample was collected, the highest result value is shown
 - Grey values indicate a sample where PCE was not detected above the laboratory reporting limits
 - The Arizona Aquifer Water Quality Standard for PCE is 5 ug/l
 - Shallow wells were sampled on 4/30/2023 and 4/4/2023

Tetrachloroethene (PCE) Concentrations
Shallow Zone
April 2023

Shannon Rd/EI Camino del Cerro WQARF Site
Tucson, Arizona

Geosyntec
consultants

Phoenix June 2023

Figure 4

IMAGERY SOURCE: Nemap, 05/16/2021

MEDIUM GROUNDWATER MONITORING WELL
 MEDIUM GROUNDWATER MONITORING WELL - NOT SAMPLED
 PCE CONCENTRATION CONTOUR
 PCE CONCENTRATION CONTOUR, INFERRED
 SITE BOUNDARY

LOCATION ID
SRC-W48M 38 J
 PCE CONCENTRATION (ug/l)

- The S-Shannon concentration shown represents the diluted concentration of PCE, while the undiluted concentration is modeled to be 13.9 ug/l
 - For locations where a duplicate sample was collected, the highest result value is shown
 - Grey values indicate a sample where PCE was not detected above the laboratory reporting limits
 - The Arizona Aquifer Water Quality Standard for PCE is 5 ug/l
 - Medium wells were sampled on 4/30/2023, 4/4/2023, and 4/5/2023

Tetrachloroethene (PCE) Concentrations
Medium Zone
April 2023

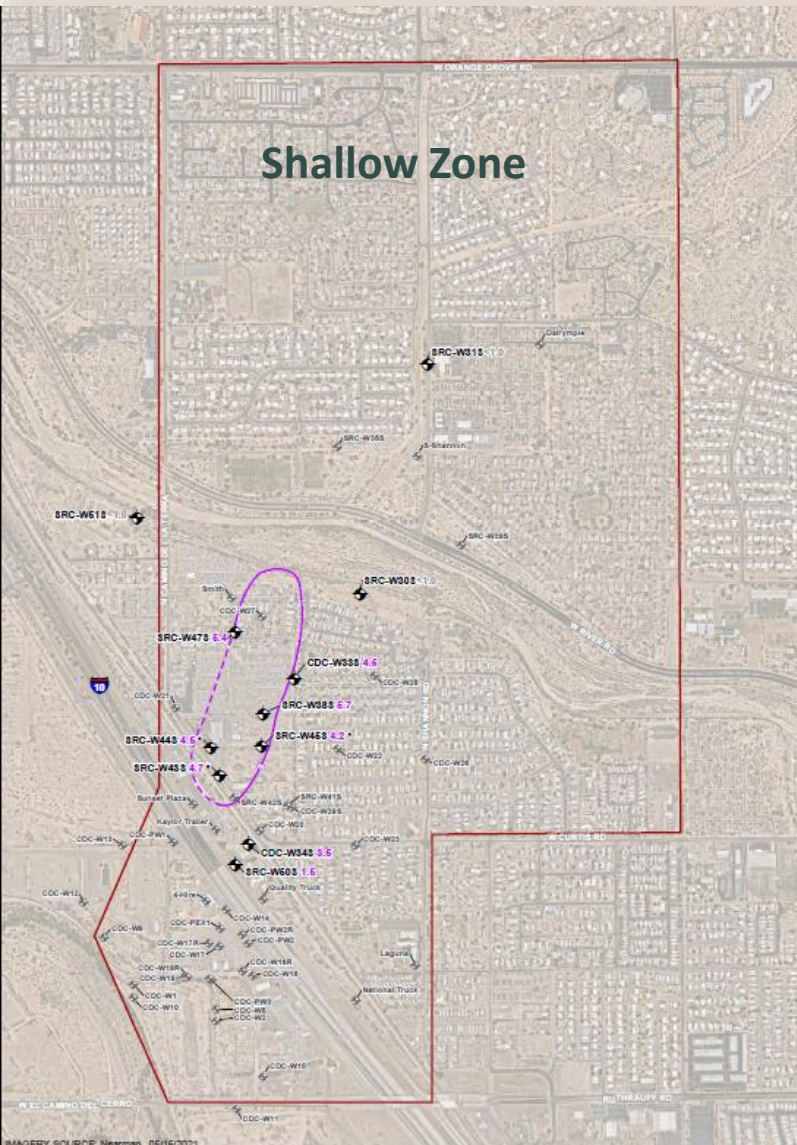
Shannon Rd/EI Camino del Cerro WQARF Site
Tucson, Arizona

Geosyntec
consultants

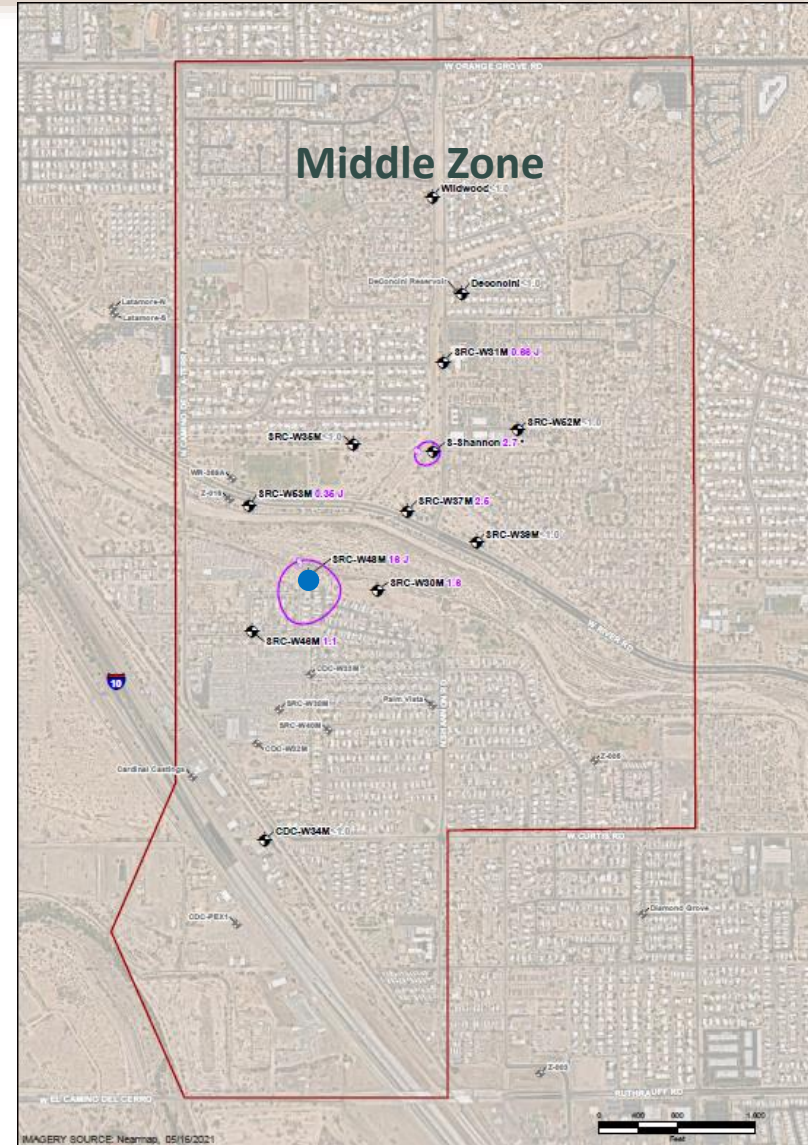
Phoenix June 2023

Figure 5

2023 Q2 Trichloroethene Concentrations



High(●) :
16 ug/L
(SRC-W48M)



<ul style="list-style-type: none"> SHALLOW GROUNDWATER MONITORING WELL SHALLOW GROUNDWATER MONITORING WELL - NOT SAMPLED TCE CONCENTRATION CONTOUR, INFERRED TCE CONCENTRATION CONTOUR SITE BOUNDARY 	<p>IMAGERY SOURCE: Nearmap, 05/16/2021</p> <p>0 400 800 1200 Feet</p> <p>Trichloroethene (TCE) Concentrations Shallow Zone April 2023 Shannon Rd/EI Camino del Cerro WQARF Site Tucson, Arizona</p> <p>Geosyntec consultants</p> <p>Figure 6</p> <p>Phoenix June 2023</p>
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<p>LOCATION ID</p> <p>SRC-W388 6.7</p> <p>TCE CONCENTRATION (ug/L)</p>	<p>* Contours generated from 3D model including the location; this location lies inside of contour due to sample depth</p> <p>- For locations where a duplicate sample was collected, the highest result value is shown</p> <p>- Gray values indicate a sample where TCE was not detected above the laboratory reporting limits</p> <p>- The Arizona Aquifer Water Quality Standards for TCE is 5 ug/L</p> <p>- Shallow wells were sampled on 4/20/23 and 4/26/23</p>
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<ul style="list-style-type: none"> MEDIUM GROUNDWATER MONITORING WELL MEDIUM GROUNDWATER MONITORING WELL - NOT SAMPLED TCE CONCENTRATION CONTOUR TCE CONCENTRATION CONTOUR SITE BOUNDARY 	<p>IMAGERY SOURCE: Nearmap, 05/16/2021</p> <p>0 400 800 1200 Feet</p> <p>Trichloroethene (TCE) Concentrations Middle Zone April 2023 Shannon Rd/EI Camino del Cerro WQARF Site Tucson, Arizona</p> <p>Geosyntec consultants</p> <p>Figure 7</p> <p>Phoenix June 2023</p>
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<p>LOCATION ID</p> <p>SRC-W48M 18 J</p> <p>TCE CONCENTRATION (ug/L)</p>	<p>* The S-Shannon concentration shown represents the diluted concentration of TCE, while the undiluted concentration is modeled to be 63 ug/L</p> <p>- For locations where a duplicate sample was collected, the highest result value is shown</p> <p>- Gray values indicate a sample where TCE was not detected above the laboratory reporting limits</p> <p>- The Arizona Aquifer Water Quality Standards for TCE is 5 ug/L</p> <p>- Medium wells were sampled on 4/20/23, 4/26/23, and 4/27/23</p>
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2023 Q2 1,4-Dioxane Concentrations



High(●):
4.0 ug/L
(SRC-W505)



IMAGERY SOURCE: Nearmap, 05/16/2021

- SHALLOW GROUNDWATER MONITORING WELL
- MEDIUM GROUNDWATER MONITORING WELL - NOT SAMPLED
- 1,4-DIOXANE CONCENTRATION CONTOUR, INFERRED
- SITE BOUNDARY

For locations where a duplicate sample was collected, the highest result value is shown.
Gray values indicate a sample where 1,4-dioxane was not detected above the laboratory reporting limit.
Arizona Aquifer Water Quality Standard has not been established for 1,4-dioxane. Instead, the USEPA cancer risk level for 1,4-dioxane in drinking water of 0.39 ug/l was used for screening purposes.
Shallow wells were sampled on 4/30/2023 and 4/6/2023.

1,4-Dioxane Concentrations
Shallow Zone
April 2023
Shannon R8E1 Camino del Cerro WQARF Site
Tucson, Arizona

Geosyntec consultants

Figure 8

Phonics June 2023

IMAGERY SOURCE: Nearmap, 05/16/2021

- MEDIUM GROUNDWATER MONITORING WELL
- MEDIUM GROUNDWATER MONITORING WELL - NOT SAMPLED
- 1,4-DIOXANE CONCENTRATION CONTOUR, INFERRED
- SITE BOUNDARY

For locations where a duplicate sample was collected, the highest result value is shown.
Gray values indicate a sample where 1,4-dioxane was not detected above the laboratory reporting limit.
Arizona Aquifer Water Quality Standard has not been established for 1,4-dioxane. Instead, the USEPA cancer risk level for 1,4-dioxane in drinking water of 0.39 ug/l was used for screening purposes.
Shallow wells were sampled on 4/30/2023, 4/6/2023, and 4/8/2023.

1,4-Dioxane Concentrations
Medium Zone
April 2023
Shannon R8E1 Camino del Cerro WQARF Site
Tucson, Arizona

Geosyntec consultants

Figure 9

Phonics June 2023

IMAGERY SOURCE: Nearmap, 05/16/2021

- MEDIUM GROUNDWATER MONITORING WELL
- MEDIUM GROUNDWATER MONITORING WELL - NOT SAMPLED
- 1,4-DIOXANE CONCENTRATION CONTOUR, INFERRED
- SITE BOUNDARY

For locations where a duplicate sample was collected, the highest result value is shown.
Gray values indicate a sample where 1,4-dioxane was not detected above the laboratory reporting limit.
Arizona Aquifer Water Quality Standard has not been established for 1,4-dioxane. Instead, the USEPA cancer risk level for 1,4-dioxane in drinking water of 0.39 ug/l was used for screening purposes.
Shallow wells were sampled on 4/30/2023, 4/6/2023, and 4/8/2023.

1,4-Dioxane Concentrations
Medium Zone
April 2023
Shannon R8E1 Camino del Cerro WQARF Site
Tucson, Arizona

Geosyntec consultants

Figure 9

Phonics June 2023

- Goal: Improve hydraulic control
- Increase gallons per minute (gpm) of water produced by South Shannon Well



South Shannon Well

- Current production rate ~320 gpm
- Target production rate >600 gpm



Existing carbon treatment vessels 10

South Shannon Wellhead Treatment Upgrade

- Advanced oxidation treatment via hydrogen peroxide and ultraviolet light



Ultraviolet light chamber



Hydrogen Peroxide dosing equipment

South Shannon Wellhead Treatment Upgrade

- Completion anticipated in November



Ongoing treatment system upgrade

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**Clean Air, Safe Water,
Healthy Land for Everyone**
