CLEAR CREEK ASSOCIATES

*Practical Solutions*
*In Groundwater Science*

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Via Electronic Mail

July 11, 2016

Mr. Darryl Crossman, City Manager
City of Litchfield Park
214 W. Wigwam Boulevard
Litchfield Park, AZ 85340

**Re: Monthly Update, PGA-North Superfund Site**

Dear Mr. Crossman:

As requested, following is a brief update on activities at the Phoenix-Goodyear Airport (PGA) North Superfund Site for the period from May 2016 through early June 2016.

LITCHFIELD PARK WELL & TIERRA VERDE LAKE SAMPLING

Clear Creek will sample the supply well in August, 2016. The next sampling event of the City's well by Crane Co. is scheduled for February, 2017.

RECENT MONITOR WELL RESULTS

Figure 1, attached, is a summary of recent monitoring results for the northern portion of the Site. The results from the May 2016 sampling event are generally consistent with prior results. Figure 2 is an updated plume boundary map based on the May 2016 sampling results. Other than seasonal variations that are observed at the Site, plume conditions in the northern portion of the Site are relatively stable as a result of sustained operation of the groundwater remediation systems. Notable findings or exceptions for the May results are summarized below.

- At EPA MW-63A, located on the west side of Litchfield Road, approximately 500 feet north of Van Buren, TCE concentrations were observed at 41.7 ug/L, consistent with the previous months' concentration. Prior to installation of new extraction well EA-10, the overall TCE concentration trend in the well was increasing. Since extraction at EA-10 well has been implemented, the TCE concentration trend appears to have stabilized rather than continuing on an increasing trend.

- At EPA MW-10A, located approximately 850 north of EPA MW-7A, TCE concentrations were 6.3 and 3.8 ug/L down from the prior month's result of 26 ug/L – generally consistent with the seasonal variation observed in this well due related to regional pumping patterns. The overall decreasing trend previously observed in this well appears to be stabilizing. A TCE concentration of 66 ug/L is observed in monitoring well EPA MW-58A, located approximately 400 feet to the northeast between EPA MW-10A and Goodyear supply well COG-03 and have remained generally consistent at the magnitude since early 2015.
- At EPA MW-7A, located on Loma Linda Blvd east of Los Robles Drive, TCE concentrations were 53.8 ug/L, up slightly from February's results of 45.4. A seasonal pattern has been observed in this well with an overall increasing TCE concentration trend.
- At EPA MW-48A, located on Litchfield Road north of Celebrate Life Way, TCE was observed at 62.9 ug/L, down from February's result of 120 ug/L. Although a decreasing trend has been observed at this well, the magnitude of change observed between February and May is atypical. Additional results are necessary to determine if the May results are anomalous.
- At EPA MW-62A, located on Litchfield Road between Palm Valley Blvd and Thomas Road, TCE was observed at 59.5 ug/L, down from February's result of 114 ug/L. Historically, variable results have been observed in tis well likely due to variations in operations of the remediation extraction wells and regional pumping patterns; however, concentrations are overall lower than the peak concentration of 289 ug/L observed in November 2014.
- At EPA MW-68A, located on Litchfield Road approximately 200 feet north of Yuma Road/Western Avenue, TCE concentrations at 24.8 ug/L up from the prior month's result of 16.4 ug/L. The results suggest that the TCE plume from the historical injection of treated water likely extends across the administrative boundary between the PGA-North and PGA-South Sites and could potentially be drawn into the PGA-South extraction wells. Additional groundwater monitoring wells are planned to be installed to delineate the plume in the southeastern portion of the Site.

CONDUIT WELL UPDATE

Monitoring results for irrigation well 27C collected from Subunit A sample (above the inflatable packer) were 2.7 ug/L. Concentrations in Subunit A have been below the aquifer water quality standard of 5 ug/L since March 2015. TCE concentrations in the deeper (Subunit C) sample were 4.0 ug/L in May,

consistent with recent months' results. TCE concentrations in the deeper port appear to have stabilized near to slightly below the aquifer water quality standard or 5 ug/L since August 2015. The next sampling event is scheduled for August 2016.

SOURCE AREA INVESTIGATION & REMEDIATION

Crane Co completed the borings to collect the soils samples to be used for the microcosm studies to be performed by ASU to support the bioremediation portion of the on-site focused source area remediation program. Once initiated, the microcosm studies will take several months to complete.

GROUNDWATER INVESTIGATION

Crane Co. has plans to install two additional monitoring wells north of Yuma Road – one well to be located east of Litchfield Road and one to the west of Litchfield Road. The wells are intended to bound the lateral extent of the plume in the southeastern portion of the Site.

PLUME CONTAINMENT

A water level contour map for May 2016 is included as Figure 3. Hydraulic containment in the north and northeast portions of the Site is being maintained by the combined operation of the groundwater extraction and reinjection systems. Approximately 11% of the water extracted from the EA-06/EA-07 treatment system was utilized by Goodyear for park irrigation; this is consistent with the usage seen last year. Average flow rates in the injection wells for May were 190 gpm, 221 gpm, and 137 gpm in IA-11, IA-12 and IA-15, respectively, (Figure 4). The average reported flow rates for IA-07 and IA-08 for May were 143 and 169 gpm, respectively, which are generally consistent with the previous months' rates (Figure 4). Groundwater elevations in the vicinity of injection well IA-12 decreased from the previous month's monitoring event, with water level decreases noted in wells EPA MW-35A, EPA MW-39A, EPA MW-40A, EPA MW-45A, EPA MW-53A, and EPA MW-59A (Figure 5). Average flow rates, based on operational uptime, for the off-site extraction wells are shown on Figure 6. The operational uptime for the EA-06/EA-07 treatment system was consistent with the prior month. The average reported flow rates for EA-06, EA-07, and EA-08 for May were 416 gpm, 197 gpm, and 318 gpm, respectively, consistent with the previous months' flow rates. In May, the average reported flow rates for on-site extraction wells EA-09 and EA-10 were 153 gpm and 132 gpm, respectively (Figure 6). Operation of new extraction well EA-10 has enhanced capture along Van Buren at the northern portion of the former Unidynamics property.

As noted above, the results from recently installed wells indicate that the plume boundary is neither fully defined nor fully contained in the Southeastern portion of the Site. As results of the groundwater investigation have become available. Crane Co. has re-directed treated water from the Main Treatment System, located on the former Unidynamics property, away from the southern injection well s and to surficial use in the vegetated plots and to the shallow infiltration gallery. The objective is to spread the injected water over a larger area and reduce the hydraulic gradient in the southeastern portion of the site in order to minimize spreading of the observed contamination.

* * * * *

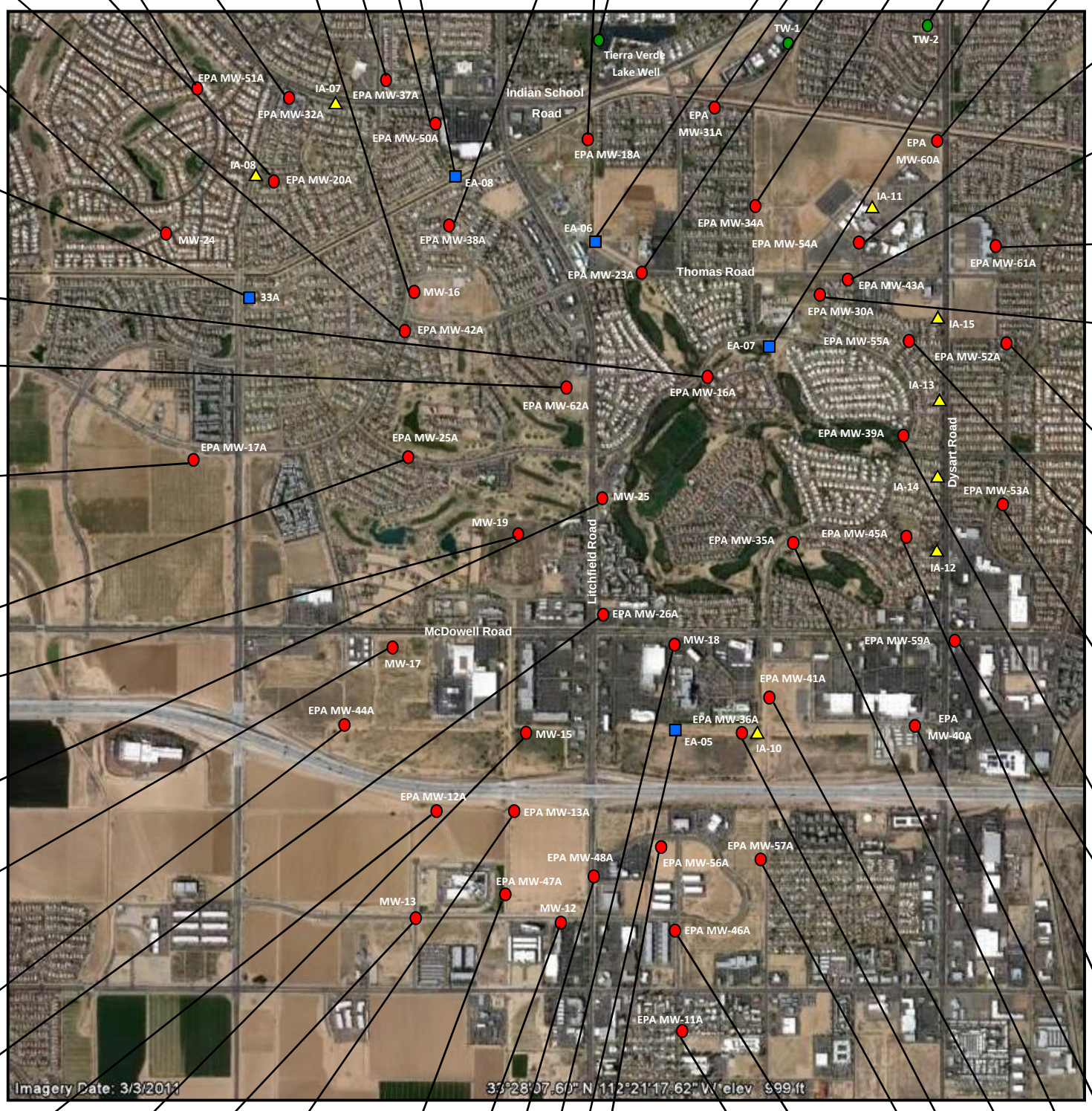
Sincerely,
**Clear Creek Associates, PLC**

Thomas R. Suriano, R.G.
Principal Hydrogeologist

Attachments:

| | |
|---|---|
| Figure 1: | Recent Analytical Results |
| Figure 2: | TCE Plume in Subunit A, May 2016 |
| Figure 3: | Groundwater Elevation Contour Map, May 2016 |
| Figure 4: | Average Injection Rates |
| Figure 5: | Groundwater Elevations in Monitor Wells near IA-12 |
| Figure 6: | Average Extraction Rates |

cc: (e-copies)
Sonny Culbreth – City of Litchfield Park
Carla Reece – City of Litchfield Park
Terri Roth – City of Litchfield Park
Woody Scoutten – EPS Group




| EPA MW-32A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | <0.20 |

| EPA MW-37A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-50A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 4.1 |

| EPA MW-18A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| Tierra Verde Lake Well | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-23A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 133 |

| EPA MW-34A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 0.51 |

| EPA MW-51A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 5.1 |

| MW-16 | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 41.2 |

| EA-08 | | |
|---|---|---|
| Mar | Apr | May |
| 29.6 | 27.1 | 33.7 |

| EPA MW-31A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| Liberty Water TW-2 | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-20A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | <0.20 |

| EPA MW-38A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 73.3 |

| EA-06 | | |
|---|---|---|
| Mar | Apr | May |
| 97 | 79 | 100 |

| EA-07 | | |
|---|---|---|
| Mar | Apr | May |
| 6.9 | 6.6 | 7.2 |

| EPA MW-42A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 19.2 (18.3) |

| EPA MW-60A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| MW-24 | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-54A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | <0.20 |

| 33A | | |
|---|---|---|
| Mar | Apr | May |
| 30.6 | 33.1 | 26.3 |

| EPA MW-43A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-16A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 61.7 |

| EPA MW-61A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-62A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 59.5 |

| EPA MW-30A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | <0.20 |

| EPA MW-17A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-52A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-25A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 10.7 |

| EPA MW-55A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | <0.20 |

| MW-19 | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 19.6 |

| EPA MW-53A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| MW-25 | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 40.1 |

| EPA MW-39A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| MW-17 | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-59A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | <0.20 |

| EPA MW-44A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-45A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA-MW-26A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-40A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA-MW-12A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-11A | | |
|---|---|---|
| Mar | Apr | May |
| <0.19 | <0.19 | 0.40 |

| EPA MW-35A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | <0.20 |

| EPA MW-47A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 66.2 |

| EPA MW-56A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 33.3 |

| EPA MW-46A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | <0.19 |

| EPA MW-41A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | <0.20 |

| MW-15 | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 10.9 |

| MW-12 | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 86 |

| EA-05 | | |
|---|---|---|
| Mar | Apr | May |
| 45.4 | 48.2 | - |

| EPA MW-57A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-36A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| MW-13 | | |
|---|---|---|
| Mar | Apr | May |
| - | - | - |

| EPA MW-13A | | |
|---|---|---|
| Mar | Apr | May |
| - | 766 (767) | 159 (151) |

| EPA MW-48A | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 62.9 |

| MW-18 | | |
|---|---|---|
| Mar | Apr | May |
| - | - | 32.9 |

## EXPLANATION

- Monitoring well location
- Production well location
- Extraction well location
- Injection well location

Sep — Sample Date (Month)

20 — TCE concentration in µg/L by EPA Method 8260B.

Notes: Duplicate samples in parentheses. Results in Red are in excess of 5 µg/L. Results in Blue are less than 5 µg/L.

N

# Recent Analytical Results
# PGA-North Site

Goodyear, Arizona

Figure 1

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# PGA North Superfund Site

# Goodyear, Arizona

## Legend

- Extraction Well
- Injection Well
- Monitor Well Subunit A
- Supply Well

TCE Contours, 5, 100, and 1,000 ug/L

MW-19
19.6
Well Name
TCE Concentration (in ug/L)

ND - Not Detected
NS - Not Sampled

0 0.5 1
Miles

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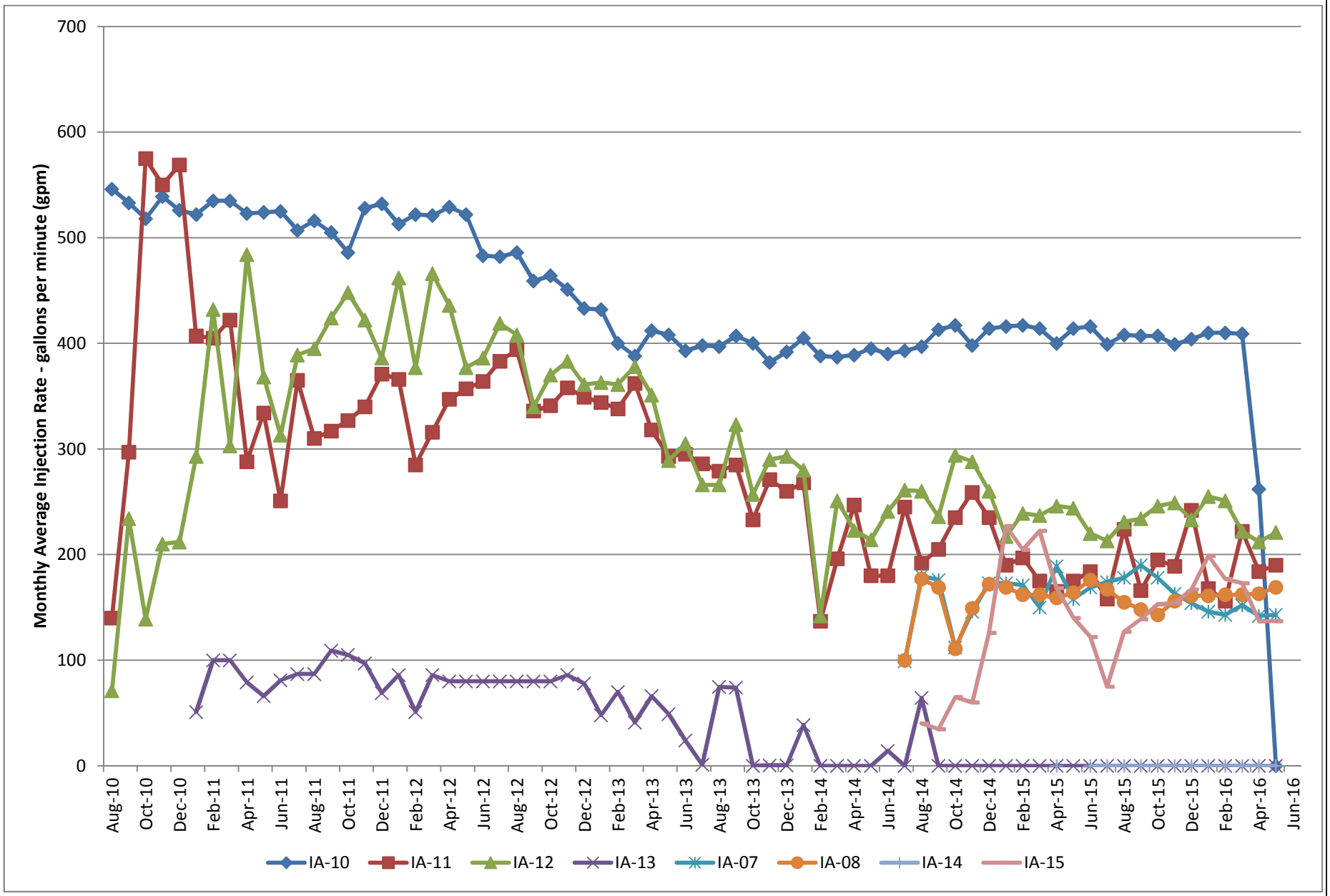
# Figure 2

# May 2016

July 2016

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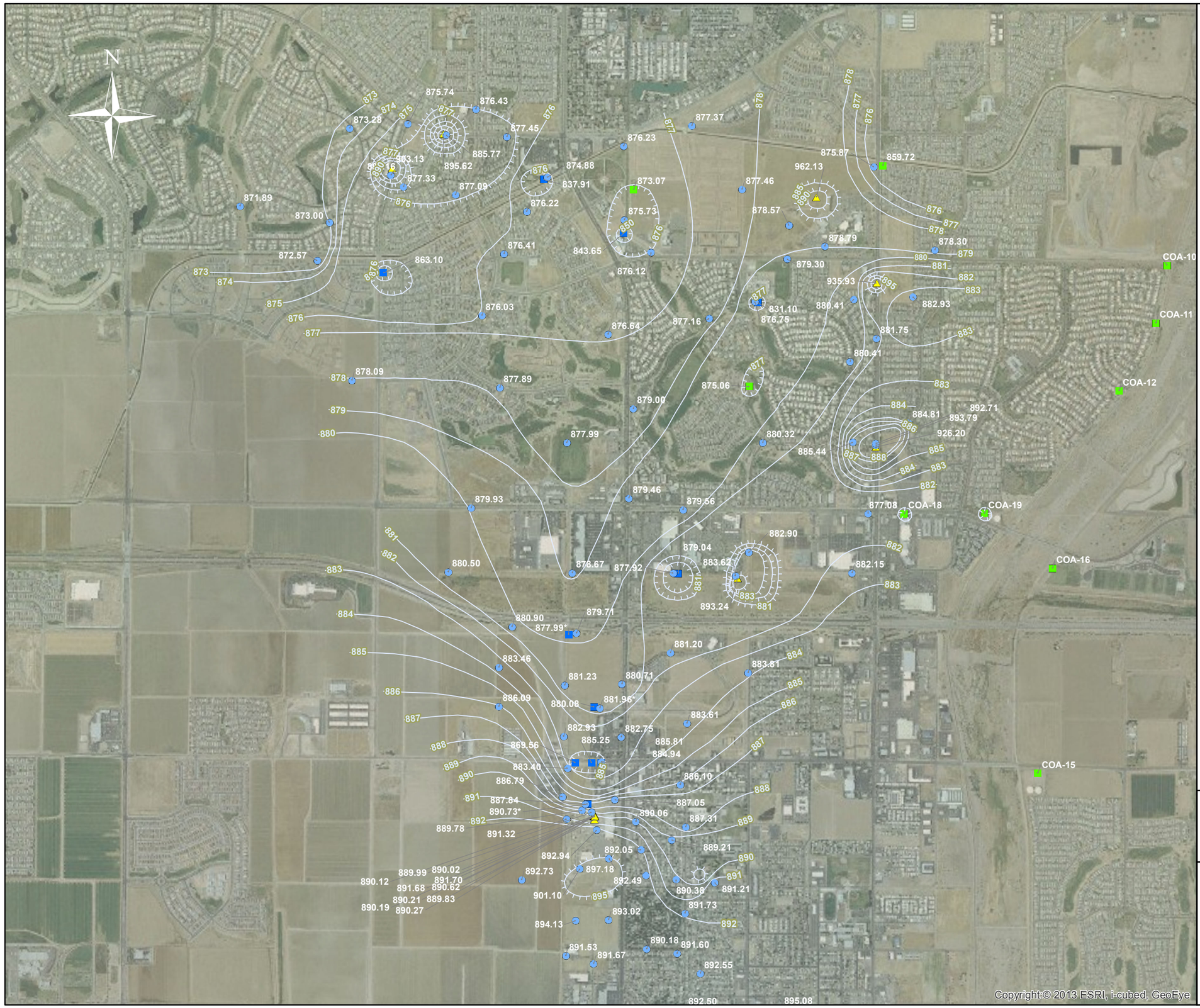
# PGA-North Average Injection Rates

| Approved | Date | Author | Date | File Name | Figure |
|---|---|---|---|---|---|
| TRS | | GJM | 6/27/16 | Injection Rates_2 | 4 |




# PGA North Superfund Site

## Goodyear, Arizona

### Legend

- Extraction Well
- Injection Well
- Monitor Well
- Supply Well
- Groundwater Elevation Contours (feet above mean sea level) 1-foot Interval

* indicates value not used for contouring

0 1,000 2,000 3,000 4,000 Feet

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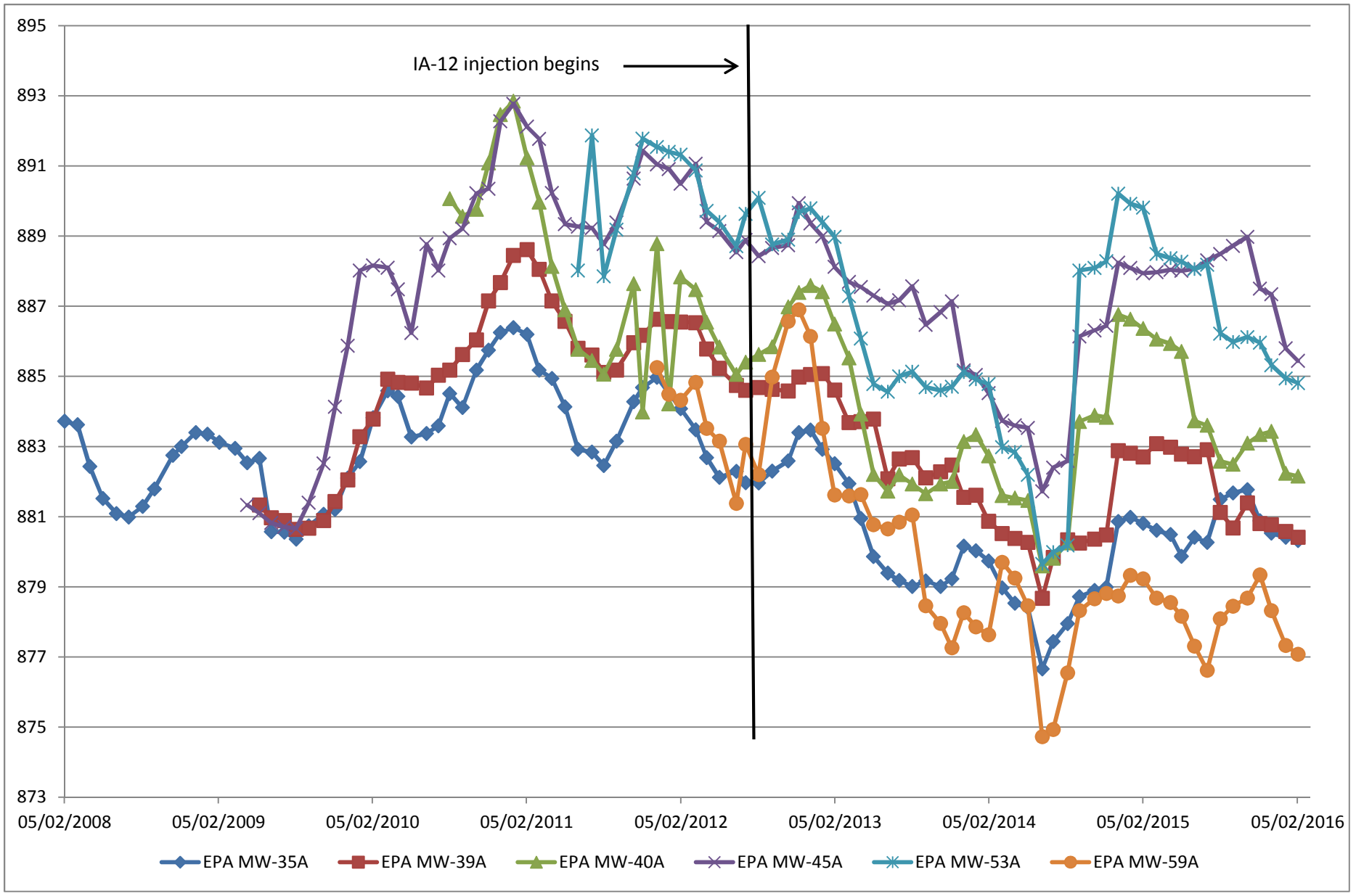
# Figure 3
# Groundwater Elevation Contour Map
# May 2016

July 2016

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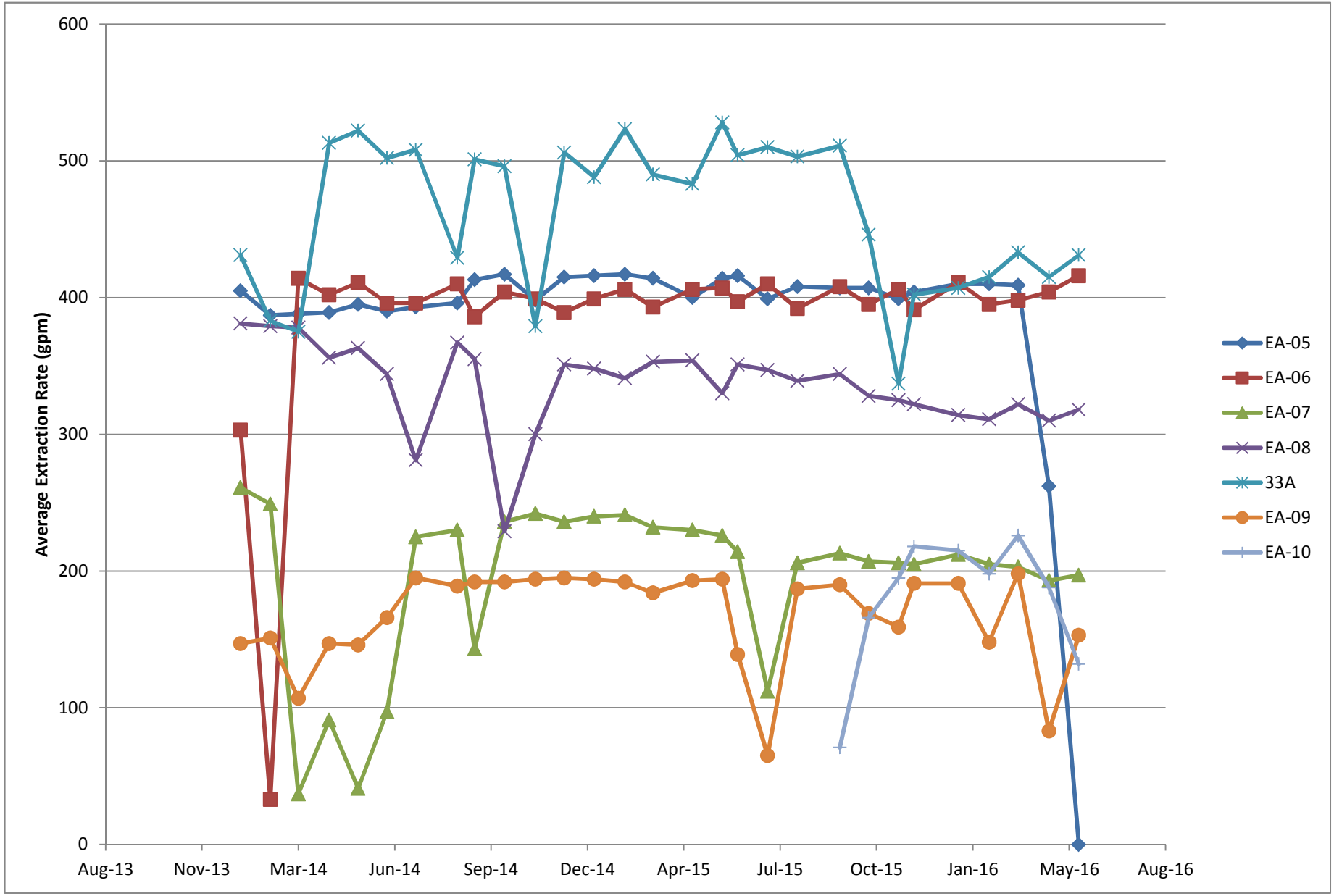
**Groundwater Elevations in Monitor Wells Near IA-12**

| Approved | Date | Author | Date | File Name | Figure |
|---|---|---|---|---|---|
| TRS | | GJM | 6/27/16 | Injection Rates_2 | 5 |

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**PGA-North Avereage Extraction Rates**

| Approved | Date | Author | Date | File Name | Figure |
|---|---|---|---|---|---|
| TRS | | GJM | 6/27/16 | Injection Rates_2 | 6 |

In accordance with the agreement between the City of Litchfield Park and Crane Co., please find relevant portions of the May 2016 Groundwater Monthly Report and Remediation System Performance Summary as it pertains to the northeast and northwest portions of the Subunit A trichloroethene (TCE) plume associated with the Phoenix-Goodyear Airport-North (PGA-North) Superfund Site in Goodyear, Arizona.

As part of the Environmental protection Agency (EPA) approved Long Term Monitoring Optimization (LTMO) that evaluated concentration trends and plume stability using both quantitative and qualitative methods, the monitor wells in the Northeast and Northwest Areas are sampled for TCE on a quarterly basis in February, May, August, and November. The LTMO process was a collaborative effort between Matrix New World, EPA, Arizona Department of Environmental Quality, and PGA-North Stakeholders. Monthly groundwater level measurements will continue to be collected to ensure that hydraulic capture and plume containment is occurring.

The Northeast Area Subunit A TCE plume groundwater remediation systems consist of three groundwater extraction wells (EA-05, EA-06, and EA-07), and six groundwater injection wells (IA-10, IA-11, IA-12, IA-13, IA-14, and IA-15). These remediation systems were installed to remove TCE mass from groundwater, maintain an effective hydraulic barrier west of Dysart Road, protect the water supply wells in the area, reduce TCE concentrations in the area, and ultimately restore the Subunit A aquifer. The groundwater pumped from extraction well EA-05 is treated at the EA-05 groundwater treatment system (GTS) and re-injected into injection well IA-10. The groundwater pumped from extraction wells EA-06 and EA-07 is treated at the EA-06 GTS and currently re-injected into injection wells IA-11, IA-12, and IA-15. Injection wells IA-11 and IA-12 came online in August 2010, injection well IA-13 came online in January 2011. In August 2014, all flow from IA-13 was diverted to injection well IA-15. Injection well IA-14 is installed and connected to the system, but currently is not being used due to the effective hydraulic barrier that is currently being provided by the three injection wells IA-11, IA-12, and IA-15.

The Northwest Area Subunit A TCE plume groundwater remediation systems consist of two groundwater extraction wells (33A and EA-08) and two groundwater injection wells (IA-07 and IA-08). Extraction well 33A came online in 1997, and extraction well EA-08 came online in December 2011. The groundwater pumped from 33A is treated at the 33A GTS, and is used for irrigation by the Palm Valley Lakes Golf Course, or is discharged to the Roosevelt Irrigation District (RID) canal. The groundwater pumped from EA-08 is treated at the EA-08 GTS, and is conveyed to injection wells IA-07 and IA-08 to provide a hydraulic barrier in the Northwest Area, protect water supply wells, and reduce the size of the plume.

The average groundwater extraction and injection rates for the Northeast and Northwest Area remediation system wells during May 2016 are summarized below:

*Northeast Area*

- EA-05 – 0 gallons per minute (gpm). Well was down for rehabilitation.
- EA-06 – 416 gpm
- EA-07 – 197 gpm
- IA-10 – 0 gpm. Well was down for rehabilitation.
- IA-11 – 190 gpm

- IA-12 – 222 gpm
- IA-15 – 137 gpm

*Northwest Area*
- 33A – 431 gpm
- EA-08 – 318 gpm
- IA-07 – 143 gpm
- IA-08 – 169 gpm

## A. Treatment Systems and TCE Mass Removal

### EA-05 GTS

During this reporting period, EA-05 GTS was shut down for well rehabilitation on the EA-05 extraction well and IA-10 injection well.

### EA-06 GTS

During this reporting period, approximately 24.7 Mgals of groundwater were extracted from extraction wells EA-06 and EA-07, and treated at the EA-06 GTS; removing 10.8 pounds of TCE.

### EA-08 GTS

During this reporting period, approximately 12.8 Mgals of groundwater were extracted and treated at the EA-08 GTS; removing 3.6 pounds of TCE.

### 33A GTS

During this reporting period, approximately 17.4 Mgals of groundwater were extracted and treated at the 33A GTS; removing approximately 3.8 pounds of TCE.

## B. Northeast Area Subunit A Groundwater Quality and Plume Extent

The February/May 2016 analytical results indicate that the northeast portion of the Subunit A TCE plume continues to be delineated by monitor wells EPA MW-18A, EPA MW-30A, EPA MW-31A, EPA MW-34A, EPA MW-35A, EPA MW-36A, EPA MW-39A, EPA MW-40A, EPA MW-41A, EPA MW-43A, EPA MW-45A, EPA MW-52A, EPA MW-53A, EPA MW-54A, EPA MW-55A, EPA MW-59A, EPA MW-60A, EPA MW-61A, and IR-34B (Figure 1). Groundwater samples collected from these wells continue to exhibit TCE concentrations that are either below the laboratory detection limit or are less than the United States Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL) of 5 micrograms per liter (µg/L).

In the Northeast Area, since injection of treated groundwater commenced, TCE concentration trends for key performance monitor wells continue to indicate that the Subunit A plume has been reduced in size. For example:

- Historically, TCE concentrations in EPA MW-35A, (Figure 2) typically peaked during the winter and spring months in response to rising groundwater levels related to the reduced pumping schedules from local irrigation and supply wells. In February 2010, TCE was reported at a concentration of 48 µg/L in EPA MW-35A. However, since the injection of treated water began into injection wells IA-12, IA-13, and most recently IA-15 (August 2014), TCE concentrations have been reduced by two

orders of magnitude in this well, and continue to remain low; the most recent (May 2016) TCE concentration for this well was below the laboratory detection limit of 0.20 µg/L.

- In IR-34B, TCE was reported at a concentration of 180 µg/L in July 2009. However, since the initiation of injection of treated water into wells IA-11, IA-12, IA-13, and most recently IA-15, TCE concentrations have been reduced. The most recent (May 2016) TCE concentration for this well is 2.7 µg/L, which is below the MCL of 5 µg/L.
- In monitor wells EPA MW-39A, EPA MW-40A, EPA MW-45A, EPA MW-55A and EPA MW-59A the most recent (February/May 2016) TCE concentrations are below the laboratory detection limit of 0.20 µg/L (Figure 1).
- In monitor well EPA MW-30A (Figure 2), TCE concentrations have decreased from 29 µg/L in August 2010 to below the laboratory detection limit of 0.20 µg/L in May 2016;
- In monitor well EPA MW-43A (Figure 2), TCE concentrations have decreased from 6.3 µg/L in August 2010 to below the laboratory detection limit of 0.20 µg/L in February 2016.
- In monitor well EPA MW-54A (Figure 2), TCE concentrations have decreased from 28 µg/L in October 2010 to below the laboratory detection limit of 0.20 µg/L in May 2016.

The TCE concentration trends for Northeast Area wells continue to demonstrate that the plume in this area is defined and has continued to decrease in size as a result of the extraction operations at EA-05, EA-06, and EA-07 and the reinjection of treated groundwater into injection wells IA-10, IA-11, IA-12, and IA-15.

**C. Northwest Area Subunit A Groundwater Quality and Plume Extent**

The February/May 2016 analytical results indicate that the northwest portion of the Subunit A TCE plume is delineated by monitor wells MW-17, EPA MW-17A, EPA MW-20A, EPA MW-21A, EPA MW-32A, EPA MW-37A, and MW-24 (Figure 1). Groundwater samples collected from these wells exhibit TCE concentrations that are either below the laboratory detection limit or are less than the EPA MCL of 5 µg/L.

In the EA-08 GTS area, since the startup of extraction well EA-08 in December 2011, TCE concentrations in key performance monitor well (EPA MW-50A) continue to indicate TCE mass in the area has been reduced. For example:

- In sentinel monitor well EPA MW-50A, TCE concentrations have decreased from 19 µg/L in October 2010 to 4.1 µg/L in May 2016 (Figure 1).

In the 33A GTS area, Northwest Area sentinel wells continue to indicate that the plume is defined to concentrations less than the laboratory reporting limit, or less than the MCL.

- In monitor well EPA MW-51A, the TCE concentration was 5.1 µg/L in May 2016 (Figure 1). Based on concentration trend data, as the injection of treated water to injection wells IA-07 and IA-08 continue, TCE concentrations in this well may occasionally increase to levels slightly above the MCL, but over time concentrations are expected to be reduced.
- In interior monitor well MW-16, the May 2016 TCE concentration was 41.2 µg/L (Figure 1). Due to the interior location of the well, the aquifer dynamics in this area, and the historic high TCE mass in the area, TCE concentrations may remain above the MCL and may occasionally spike as shown in Figure 3.

**D. Groundwater Elevations and Flow Directions**

*Northeast Area*

The May 2016 groundwater elevations in key Northeast Area monitor wells (EPA MW-30A, EPA MW-34A, EPA MW-35A, EPA MW-39A, EPA MW- 43A, EPA MW-45A, EPA MW-54A, and EPA MW-55A) continue to indicate an effective hydraulic barrier and groundwater mound west of Dysart Road that is maintained by the injection of treated groundwater into injection wells IA-11, IA-12, and IA-15 (Figure 4 and Figure 5). Additionally, groundwater elevations and the local potentiometric surface calculated for May 2016 continue to demonstrate that the operation of the extraction and injection wells in this area are maintaining groundwater flow directions away from the Litchfield Park and COA water supply wells in the area and toward extraction wells EA-06 and EA-07 (Figure 6).

*Northwest Area*

In the Northwest Area, the extraction operations at 33A, EA-08, and injection wells IA-07 and IA-08 are the dominant potentiometric features. Although water levels in monitor wells in the northwest area have declined along with regional water levels, groundwater elevations in key monitor wells PZ-16, PZ-17, EPA MW-3A, EPA MW-20A, EPA MW-32A, and EPA MW-37A continue to indicate that an effective hydraulic barrier has been developed in the Northwest Area by the injection of treated water into IA-07 and IA-08 (Figure 7). The small gap in hydraulic capture that had previously existed between extraction wells 33A and EA-08 has been eliminated by the injection of treated water into these wells.

**E. Activities Planned for July 2016**

- Continued operation and maintenance of the existing groundwater treatment systems.
- Quarterly groundwater sampling and monthly water level measurements of key performance and plume delineation monitor wells north of I-10.
- Continue to evaluate water levels, TCE concentrations, and groundwater flow directions in the northeast area. Make flow rate adjustments to the injection wells as necessary to maintain hydraulic control and protect water supply wells.
- Monitor and evaluate the mounding from the injection of treated water from extraction well EA-08 to new injection wells IA-07 and IA-08.

**Harry Brenton, RG**
Director of Hydrogeological Services

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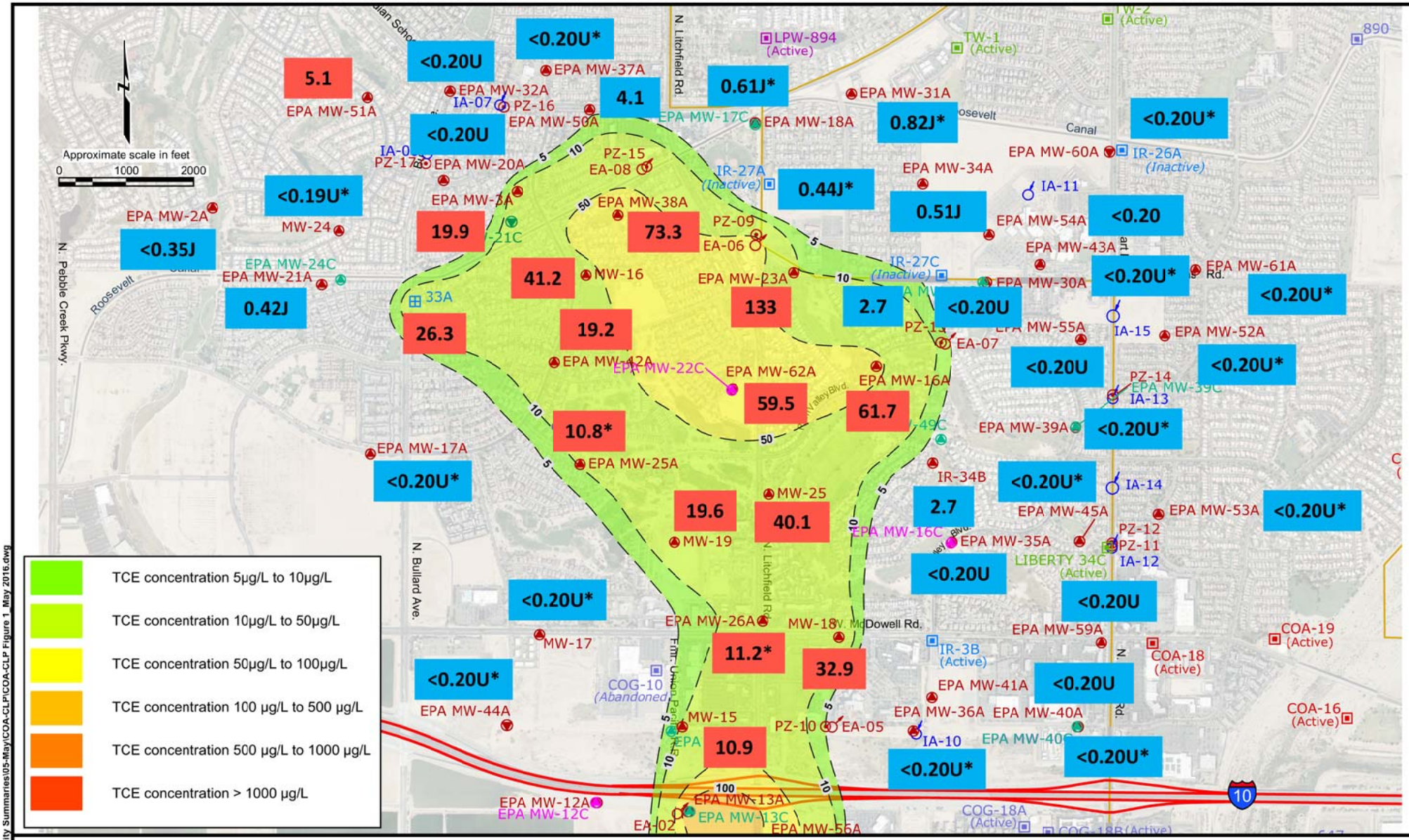


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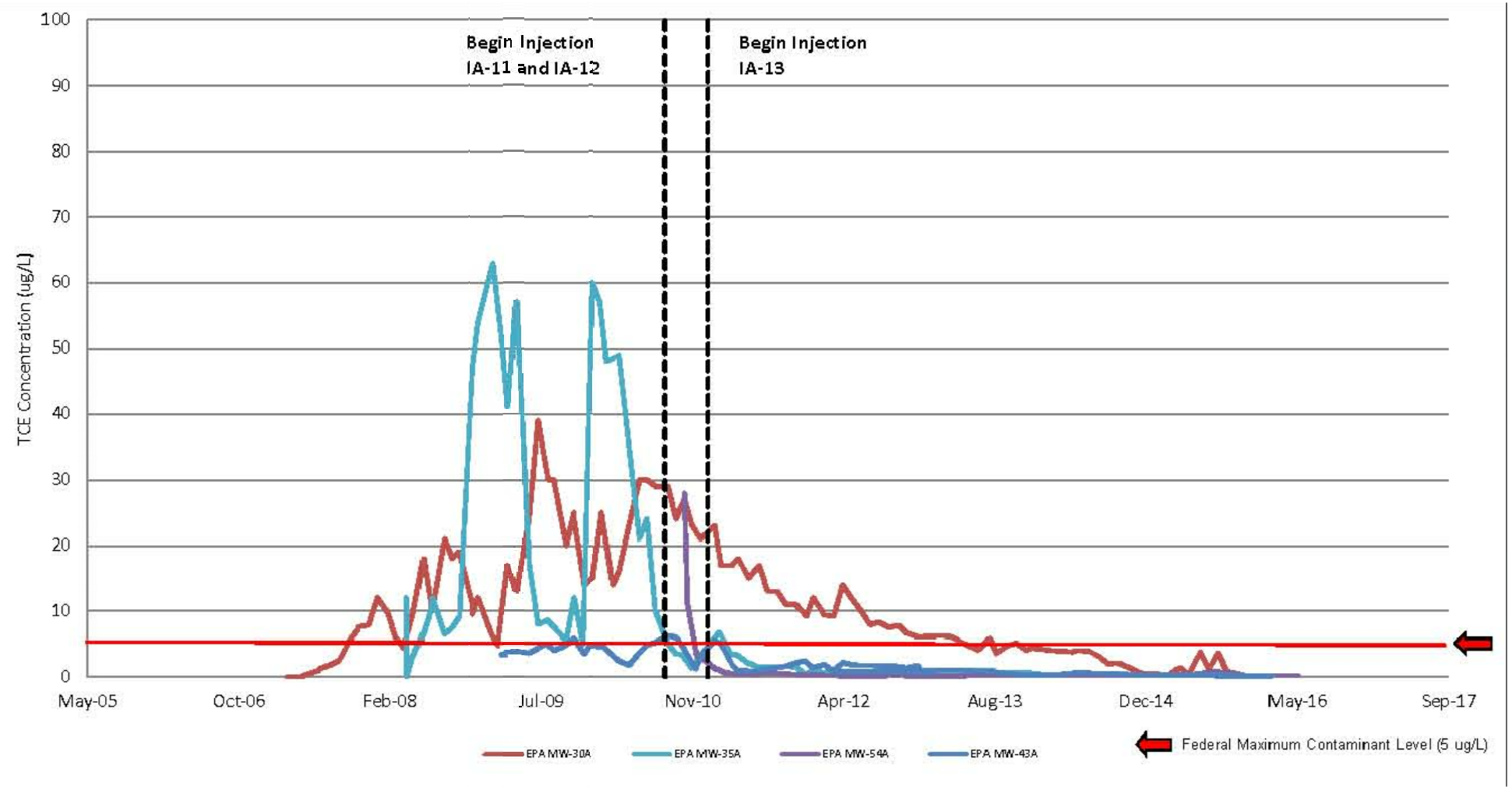
# SUBUNIT A TCE CONCENTRATIONS AND GROUNDWATER CONTOURS NORTH OF I-10 MAY 2016

| DRAWN BY: | DESIGNED BY: | APPROVED BY: | PROJECT NUMBER: |
|---|---|---|---|
| AR | JLM | HB | 16-100E |
| DATE: 06-30-16 | DATE: 06-30-16 | DATE: 06-30-16 | SCALE: 1" = 2000' |

FIGURE NUMBER: 1

# TCE Concentrations EPA MW-30A, EPA MW-35A, EPA MW-43A, and EPA MW-54A
## Phoenix-Goodyear Airport-North
## Goodyear, AZ

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TCE TREND GRAPHS-PERFORMANCE
MONITOR WELLS - SUBUNIT A
NORTHEAST AREA

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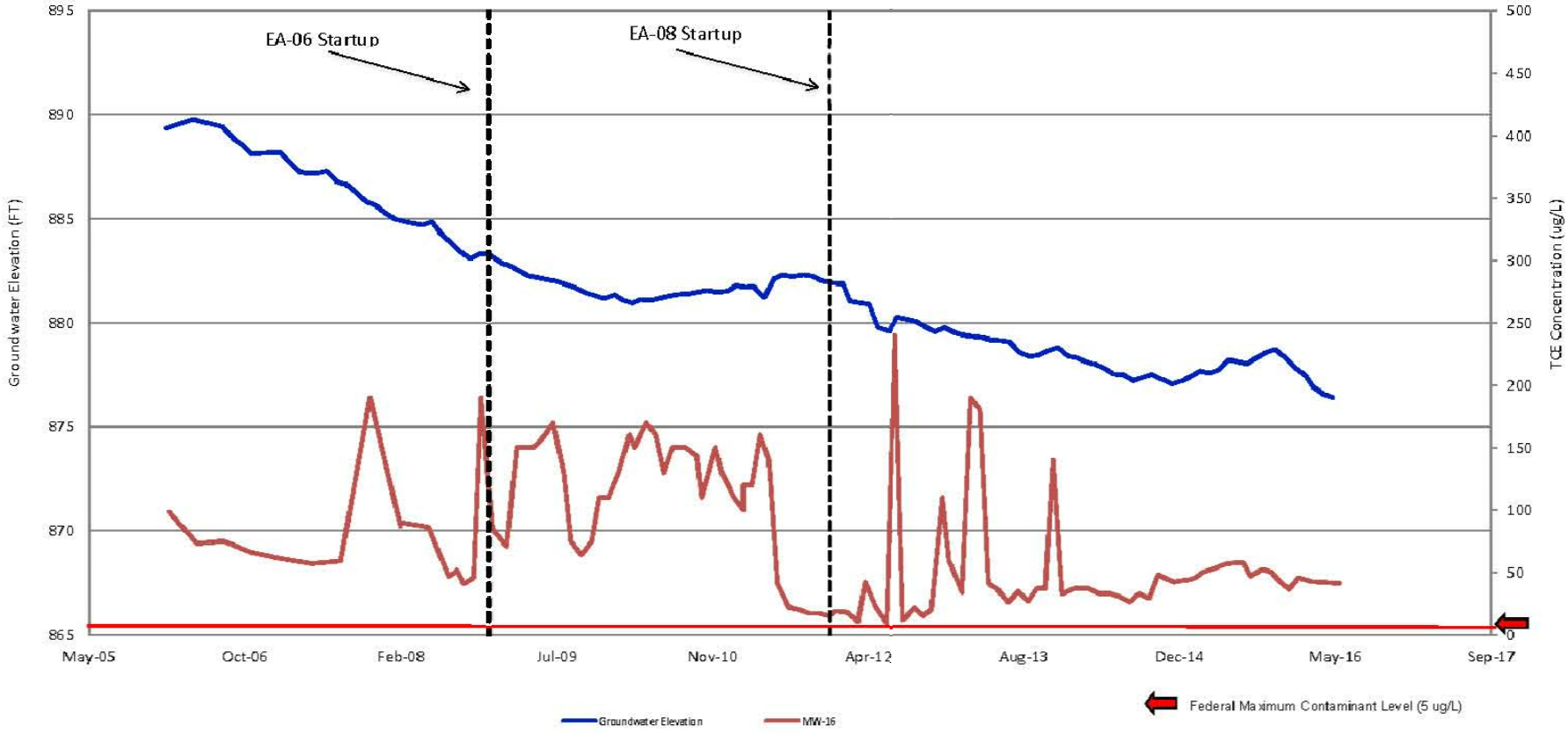
|---|---|---|---|
| AR | JLM | HB | 15-100E |
| DATE: 06-30-16 | DATE: 06-30-16 | DATE: 06-30-16 | SCALE: NONE |

FIGURE NUMBER: 2

# MW-16 GROUNDWATER LEVELS and TCE CONCENTRATIONS (2006 - 2016)
## Phoenix-Goodyear Airport-North
## Goodyear, AZ

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GROUNDWATER ELEVATION & TCE CONCENTRATION TRENDS
MW-16

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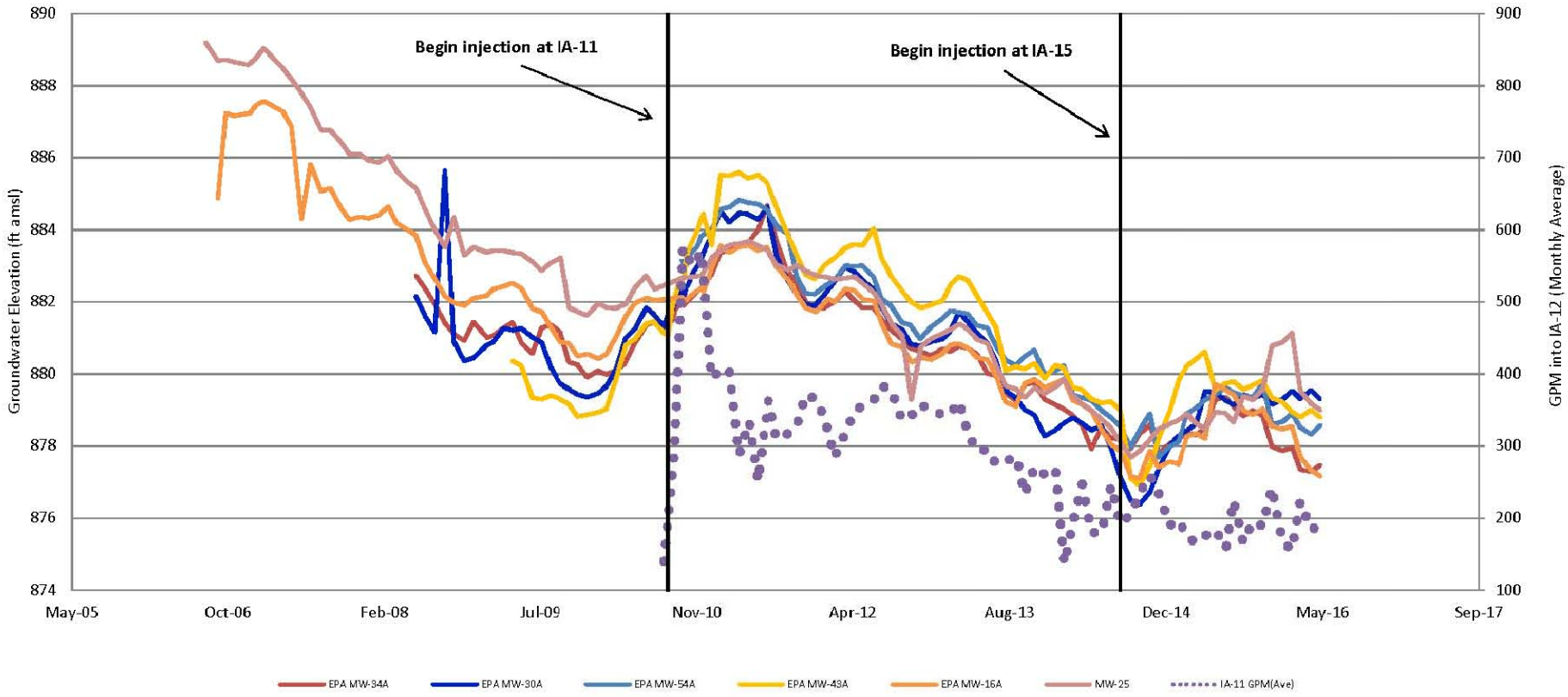
|---|---|---|---|
| AR | JLM | HB | 15-100E |
| DATE: 06-30-16 | DATE: 06-30-16 | DATE: 06-30-16 | SCALE: NONE |

FIGURE NUMBER: 3

# Hydrograph - IA-11 Area Wells
# Phoenix-Goodyear Airport-North
# Goodyear, AZ

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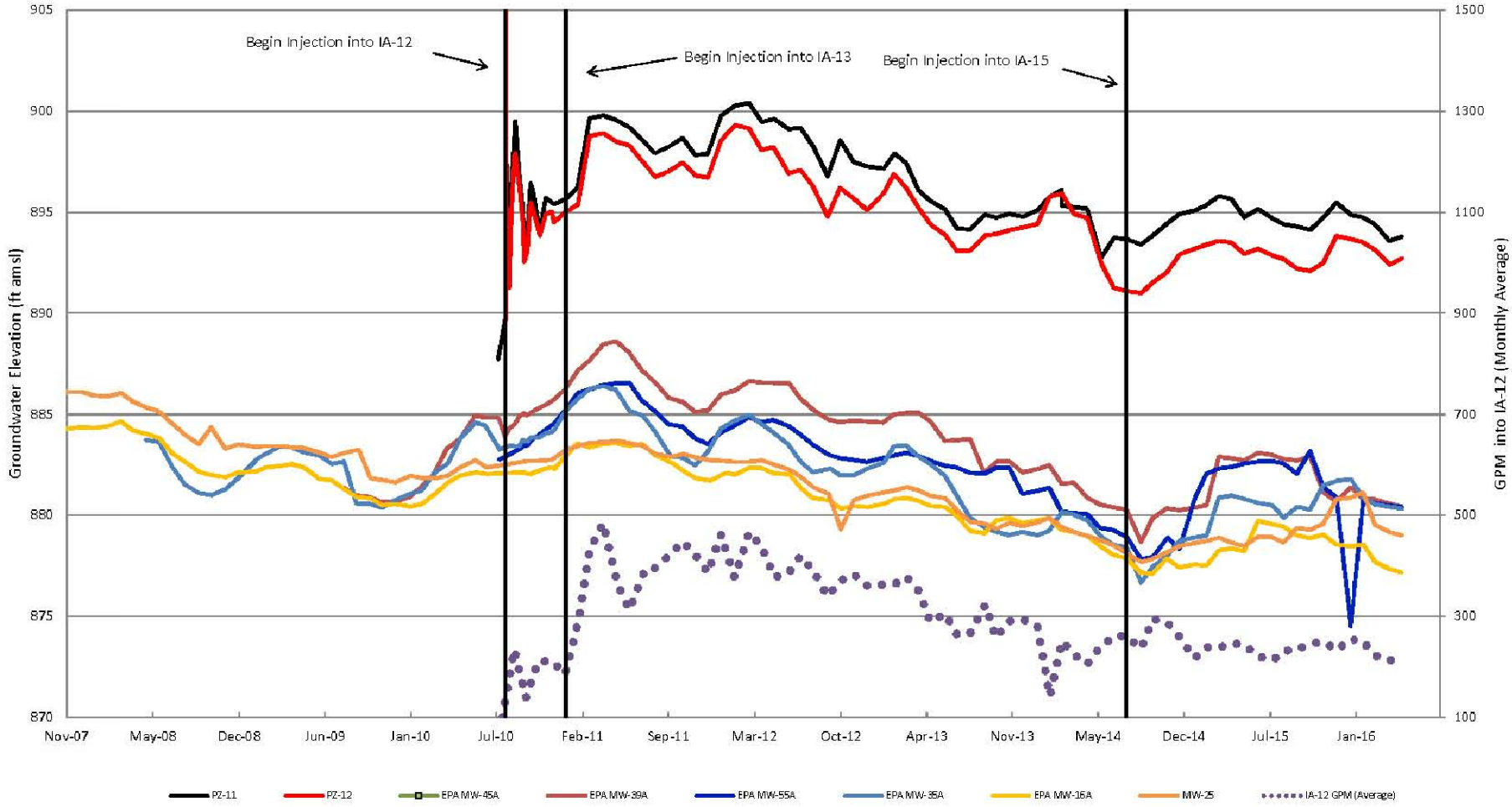
NE AREA SUBUNIT A GROUNDWATER
ELEVATION TRENDS
INJECTION WELL IA-11 AREA

| DRAWN BY: | DESIGNED BY: | APPROVED BY: | PROJECT NUMBER: |
|---|---|---|---|
| AR | JLM | HB | 15-100E |
| DATE: 06-30-16 | DATE: 06-30-16 | DATE: 06-30-16 | SCALE: NONE |

FIGURE NUMBER: 4

# Hydrograph - IA-12 and IA-13 Area Wells
## Phoenix-Goodyear Airport-North
## Goodyear, AZ

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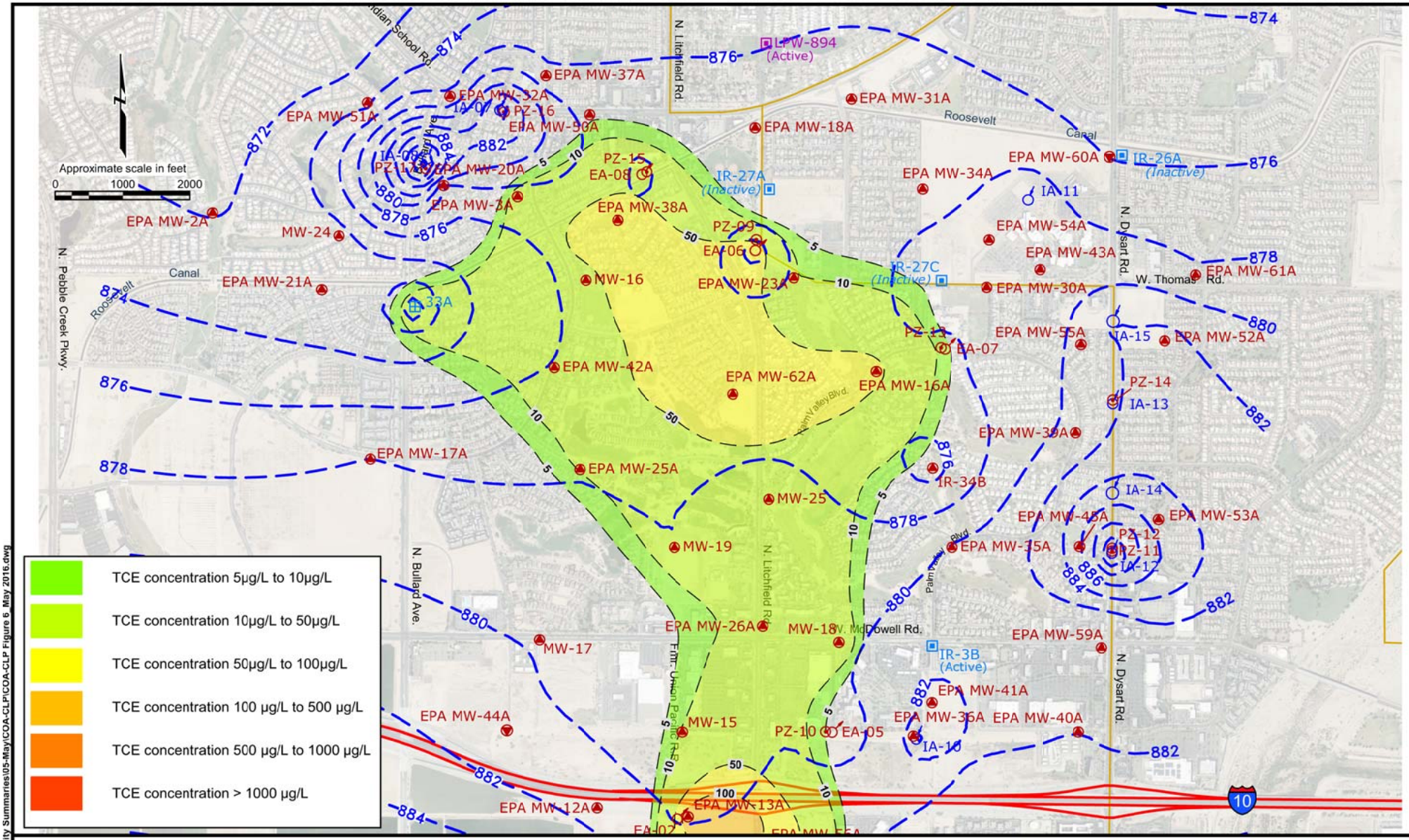
NE AREA SUBUNIT A GROUNDWATER ELEVATION TRENDS
INJECTION WELL IA-12 and IA-13 AREA

| DRAWN BY: | DESIGNED BY: | APPROVED BY: | PROJECT NUMBER: |
|---|---|---|---|
| AR | JLM | HB | 15-100E |
| DATE: 06-30-16 | DATE: 06-30-16 | DATE: 06-30-16 | SCALE: NONE |

FIGURE NUMBER: 5




## Explanation

882 — Potentiometric Isocontour showing groundwater elevation in feet above MSL; dashed where inferred

— — Isocontour showing TCE concentration in µg/L. Dashed where inferred. Based on May 2016 data.

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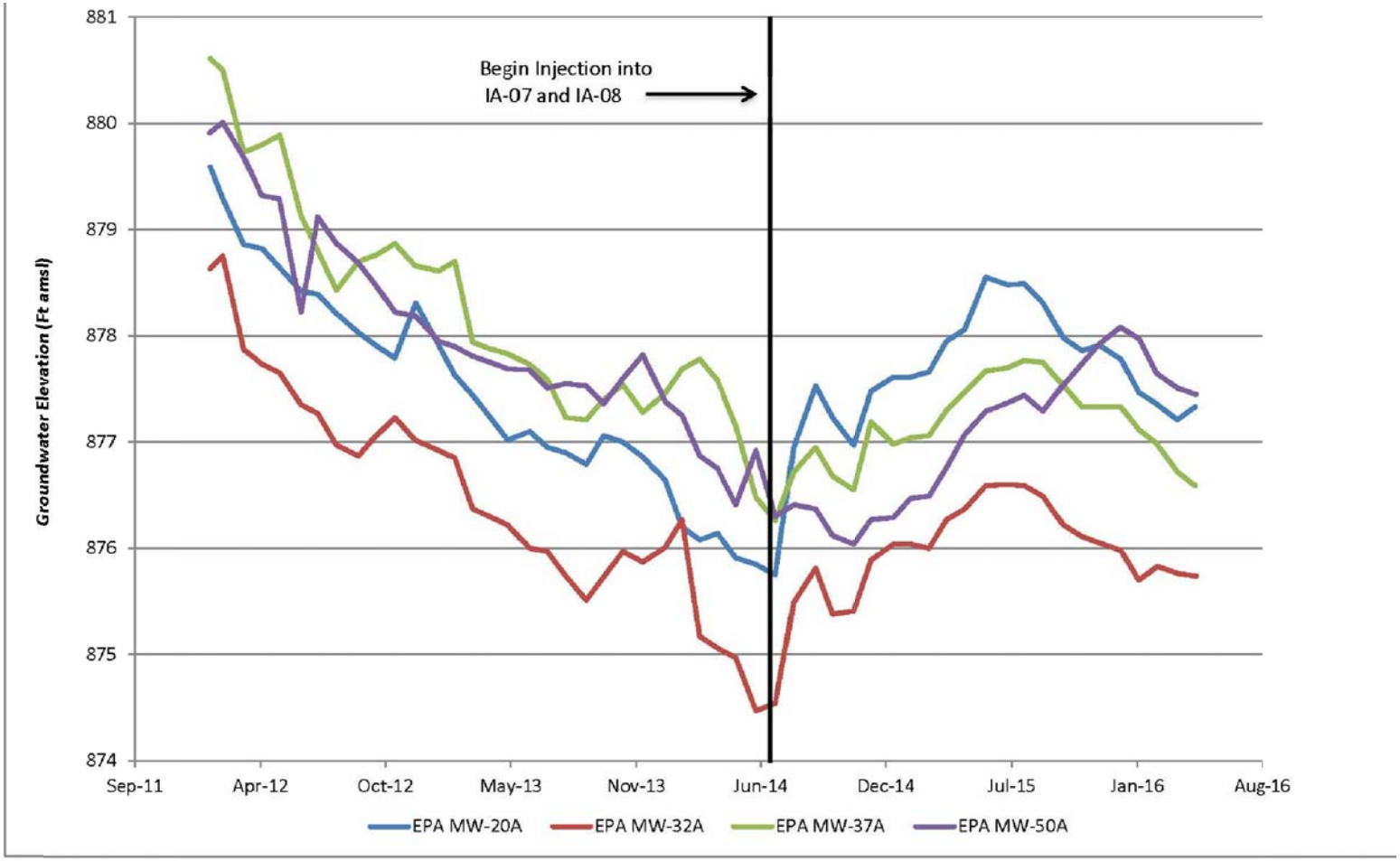
# SUBUNIT A GROUNDWATER CONTOURS AND TCE PLUME NORTH OF I-10 MAY 2016

FIGURE NUMBER: 6

| DRAWN BY: | DESIGNED BY: | APPROVED BY: | PROJECT NUMBER: |
|---|---|---|---|
| AR | JLM | HB | 15-100E |
| DATE: 06-30-16 | DATE: 06-30-16 | DATE: 06-30-16 | SCALE: 1" = 2000' |

# Hydrograph - IA-07 and IA-08 Area Wells
# Phoenix-Goodyear Airport-North
# Goodyear, AZ

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NW AREA SUBUNIT A GROUNDWATER
ELEVATION TRENDS
INJECTION WELL IA-07 and IA-08 AREA

| DRAWN BY: | DESIGNED BY: | APPROVED BY: | PROJECT NUMBER: |
|---|---|---|---|
| AR | JLM | HB | 16-100E |
| DATE: 06-30-16 | DATE: 06-30-16 | DATE: 06-30-16 | SCALE: NONE |

FIGURE NUMBER:
7