

**20th Street and Factor Avenue
Water Quality Assurance Revolving Fund (WQARF) Site
Community Advisory Board (CAB) Meeting**

**Wednesday, September 10, 2014
6 p.m. - 8 p.m.
Yuma County Main Library, Conference Room
2951 S. 21st Drive
Yuma, Arizona**

MINUTES

CAB Members Present: Russell McCloud, Greg Ferguson, Kyle Smith, Silvia Gunderman, Miriam Thornton, Richard Loebig, David Villareal

CAB Members Absent: Karl Enockson

ADEQ Staff Present: Caroline Oppleman, Community Involvement Coordinator (CIC); Scott Goodwin, Project Manager

Members of Public Present: Earnesto Alfarue; Gary Knight, City Councilman, City of Yuma

1. Call to Order/Introductions

Russell McCloud called the meeting to order at 6:00 p.m. and initiated introductions by all present.

2. CAB Meeting Minutes Review/Vote: 5/15/13, 8/14/13, 1/29/14, and 3/26/14

Greg Ferguson motioned to approve CAB meeting minutes dated 5/15/13, 8/14/13, 1/29/14, and 3/26/14, provided no CAB members wished to request changes. Silvia Gunderman seconded the motion; all in favor, none opposed, all minutes were approved unanimously with no changes.

3. CAB Comments/Vote: Community Involvement Plan (CIP) and Charter

The CAB discussed whether all members had received the CIP. Mr. Ferguson proposed that given the CAB's challenges with quorum, he would like to see a motion to approve the CIP even if all CAB members have not reviewed the CIP. Mr. McCloud accepted the motion. The CAB then discussed who received and reviewed the plan. Miriam Thornton motioned to approve the CIP, which was seconded by David Villareal. All were in favor with none opposed and no comments; the CAB voted unanimously to approve the CIP.

Ms. Thornton motioned to approve the CAB charter, which was seconded by Mr. Ferguson. All were in favor with none opposed and no comments; the CAB voted unanimously to approve the charter.

4. Review Second Quarter 2014 Soil Vapor Data (ADEQ Presentation)

Scott Goodwin presented the second quarter 2014 soil vapor data. He began by stating that the 2011 and 2014 data do not indicate any problems. He then discussed the direction of groundwater flow by zone and indicated that he would be focusing on the upper groundwater zone because what's impacting the area further away from the facility is vapor coming off the groundwater. Mr. Goodwin then reviewed zone details as follows:

- "A" zone: northwest trend; upper part of the aquifer flow to the west; little impact passed 18a which is less than 5 parts per billion; cyanide confined to area around property.
- "B" zone: northwest trend; contamination troubles us in this zone because groundwater moves fastest in this zone and we are concerned about nearby school wells.
- "C" zone: good news; when the process began there was some contamination in C; now it's non-existent.

Mr. Goodwin gave the following points regarding residential soil vapor concentrations:

- EPA's March 2012 guidance about residential soil vapor screening levels is what ADEQ is using to identify what is and isn't a concern regarding vapors. The EPA guidance says there is a conservatively protective outdoor target level [300 parts per billion (ppb) for tetrachloroethene]; if you find outdoor levels above this target, then you may have to collect samples indoors.
- Soil vapor concentrations are compared to the lowest or most conservative number of the cancer screening level or non-cancer hazard index.
- Data indicate there is no issue regarding vapor concentrations in the residential area.

Mr. Goodwin gave the following points regarding commercial areas:

- ADEQ reviewed the shallow vapor concentrations to determine if there is an issue.
- Vapor concentrations increase with depth indicating the vapor source mostly is the groundwater plume.
- Recent data indicate the highest vapor concentrations are near the source area buildings.
- Indoor air already was sampled at the commercial property and passed.

Mr. Goodwin stated he is confident there is no vapor threat to houses or the industrial area coming from the groundwater and added:

- Additional vapor probes were installed and samples collected to test for volatile organic compounds, as well as hydrogen cyanide (HCN) for some.
- ADEQ is probably finished looking for HCN; we saw it a long time ago and have not seen it since.

5. Review Proposed Remedial Objectives (ROs) Report (ADEQ Presentation/Discussion)

Mr. Goodwin reviewed the ROs for soil and groundwater that were developed based on CAB comments, which call for restoring and protecting the use of the groundwater supply (protecting to drinking water standards). Mr. Villareal asked whether adsorbents would be used to treat the

groundwater; Mr. Goodwin replied that the groundwater could be treated with carbon if a pump and treat approach is selected.

Mr. Goodwin shared the following points:

- The remedial investigation (RI) predicts if we do nothing, the plume will impact school wells currently used for irrigation.
- Now that the RI is complete, ADEQ is moving into the feasibility study (FS) and will task the ADEQ contractor with developing an FS designed to prevent the plume from impacting the school wells, which also may include an early response action (ERA).
- Whether the contractor recommends pump and treat, treat in place or treat with carbon remains to be seen.
- When ADEQ receives the contractor's recommendations, the FS will be drafted, and will describe what actions will be taken.
- ADEQ presently is switching its procurement process to a new system called best value.
- Tetra Tech no longer is the contractor for the site.

When asked how much area could be needed to pump and treat and what would be done with the treated water, Mr. Goodwin replied that he does not yet know but that it likely will be injected back into the subsurface. He added that treat in place uses innocuous chemicals for treatment but it's not as dependable for well protection. The treatment methods will be evaluated using a cost-benefit analysis. Mr. Goodwin said that pump and treat can capture all water moving downgradient where treatment in place may not. Mr. Goodwin said he will have to rely on the new contractor to decide which treatment is the better way to go.

Because the ROs say groundwater needs to be protected to drinking water standards, the school wells are a priority. Regarding what the worst case scenario would be, Mr. Goodwin indicated that the school wells could be abandoned and an alternate, safe source of water would need to be provided for the irrigation currently provided by the school wells.

In response to a question about the timetable for the project, Mr. Goodwin indicated that the area of affected groundwater is moving about 100 feet per year. When asked if the contamination will degrade over time, Mr. Goodwin stated that cyanide is breaking down within 500 feet of the property but the chlorinated solvents don't break down easily. In response to a question about whether there will be more actions at property, Mr. Goodwin said he doesn't expect more now that the cyanide disposal areas have been capped. Responding to a question about what effects recent heavy rains could have and information about adjacent properties draining on the site, Mr. Goodwin stated that something will need to be done regarding sediments coming onto the property from the south side.

6. Community Involvement Coordinator Transition/Housekeeping (ADEQ-led Discussion)

Ms. Oppleman requested that CAB members let her know about community involvement items previously in progress of which she may not be aware to facilitate the community involvement coordinator transition. Ms. Oppleman informed the CAB about the online information repository, ADEQ records center, and how to arrange for document review accommodations. Ms. Oppleman requested CAB input on a new meeting location. Silvia Gunderman shared that the 16th Street and Arizona Avenue Bank location could be an option. Greg Ferguson indicated that the County may have other CAB meeting venue options (e.g., health department, development). The CAB agreed

that the bank venue is acceptable and Ms. Oppleman will follow up with Ms. Gunderman to confirm availability and meeting details.

7. Call to the public

No comments.

8. Future Meeting Plans/Agenda (Discussion)

Next meeting tentatively is scheduled for January 14, 2015 at a possible new location to be determined. Agenda topics will include:

- CAB membership [co-chair nominations/vote, membership application (Alfarue and Knight) and termination review/vote]
- Status of Emergency Response Action
- CAB charter update per member/co-chair vote

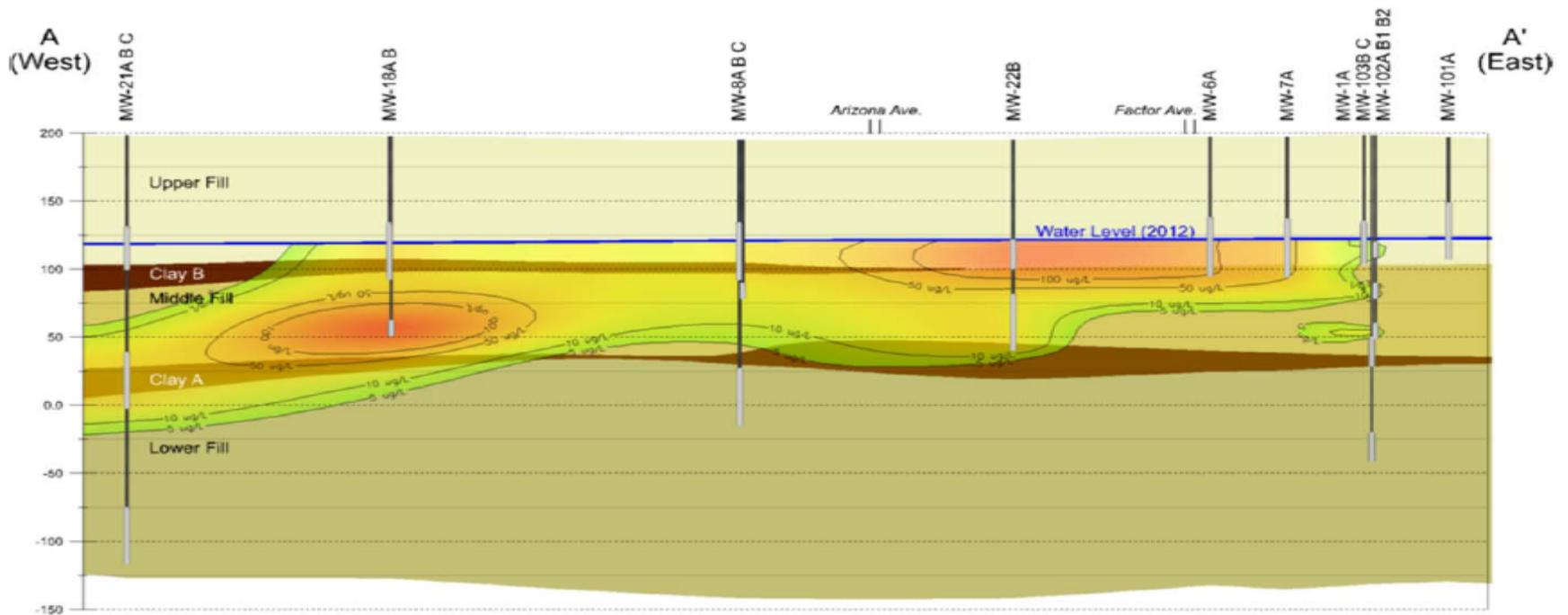
Mr. McCloud adjourned the meeting at 6:57 p.m.

*This meeting was recorded on a digital device as a record of the proceedings. To listen to recording, or for additional information about the content of this meeting, contact:
ADEQ: Caroline Oppleman at 602-771-6890.*



20th Street & Factor Avenue
Water Quality Assurance Revolving Fund
Site
Community Advisory Board Meeting
September 10, 2014

P:\WPFILE\1303_046\2013\1303_046_2013\Fig 4 - Data B1 Report\B1R_Figures



TITLE: TOTAL VOC CONTAMINATION ALONG A-A'
FOURTH QUARTER 2012

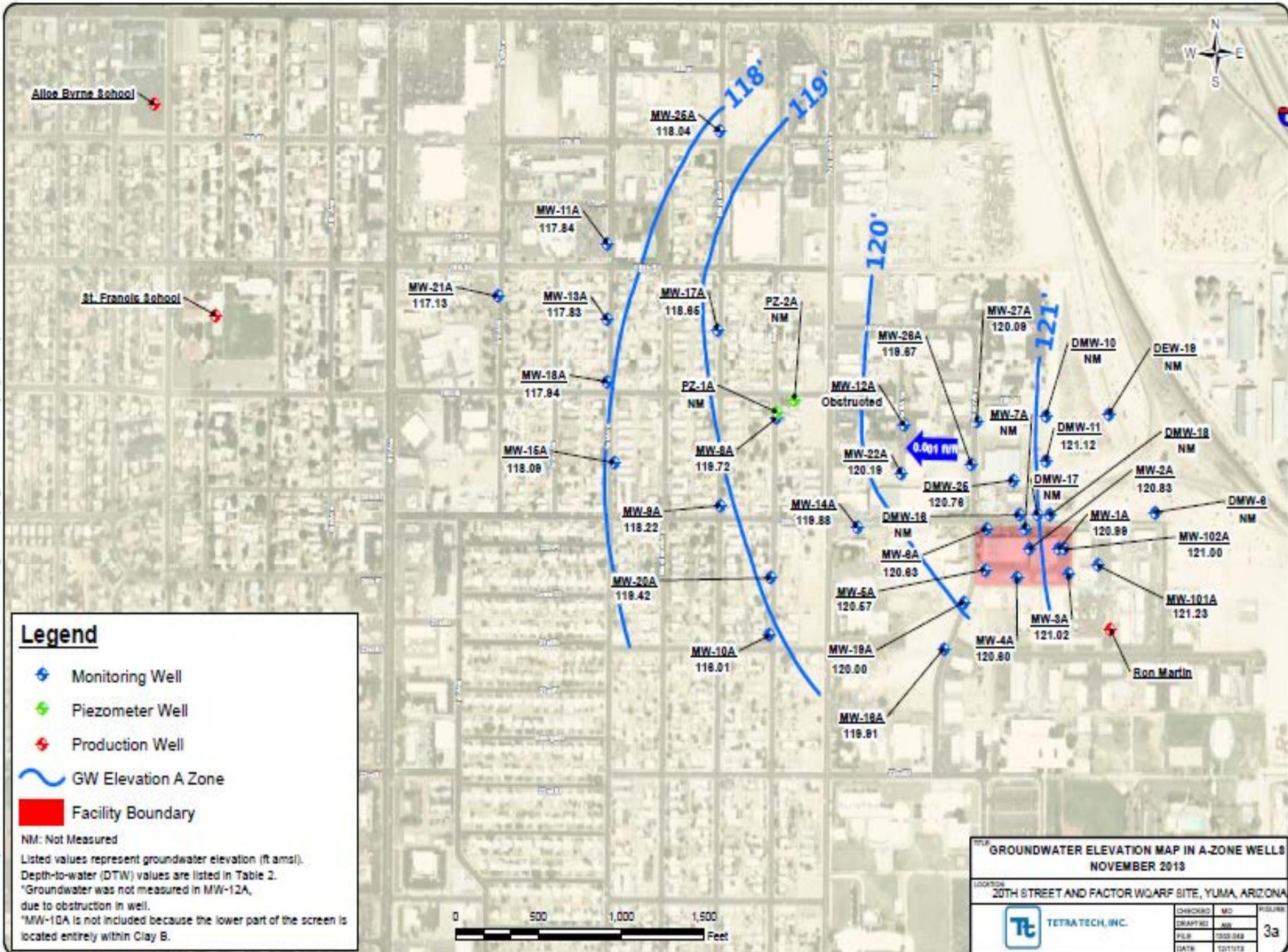
LOCATION:
20TH AND FACTOR WQARF SITE, YUMA, ARIZONA



TETRA TECH

APPROVED	MO	FIGURE
DRAFTED	CG	
PROJECT#	1303.046	5-20
DATE:	05/09/13	

P:\WPFILES\AA\Projects\303 049 20th & Factor PZ014\Task 4.3 - GW Monitoring and Sampling\Groundwater Sampling\GIS Maps



Legend

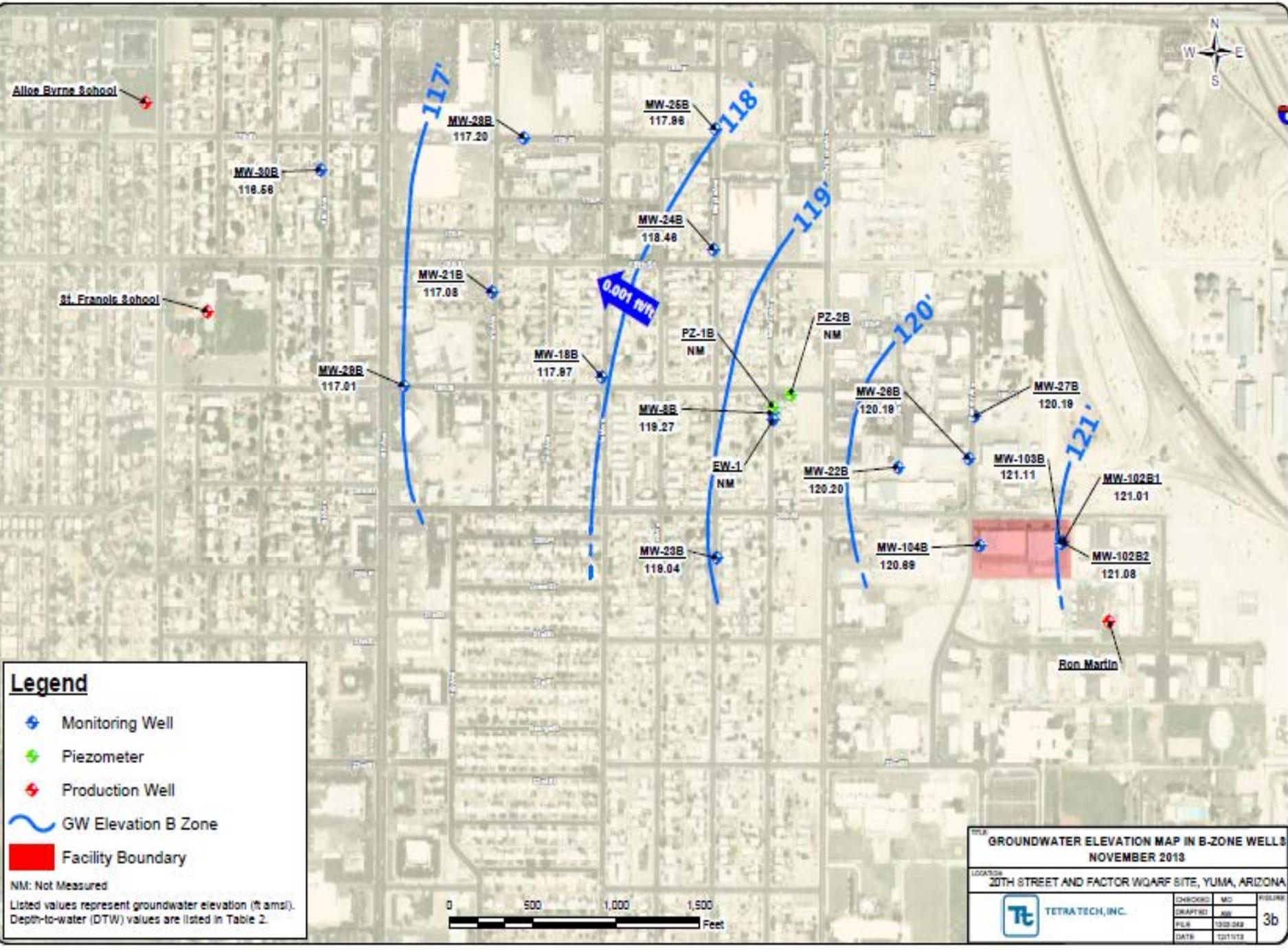
- Monitoring Well
- Piezometer Well
- Production Well
- GW Elevation A Zone
- Facility Boundary

NM: Not Measured
 Listed values represent groundwater elevation (ft amsl).
 Depth-to-water (DTW) values are listed in Table 2.
 *Groundwater was not measured in MW-12A, due to obstruction in well.
 *MW-10A is not included because the lower part of the screen is located entirely within Clay B.



TITLE GROUNDWATER ELEVATION MAP IN A-ZONE WELLS NOVEMBER 2013		
LOCATION 20TH STREET AND FACTOR WHARF SITE, YUMA, ARIZONA		
TETRATECH, INC.	CHECKED	MC
	DRAWN	AW
	FILE	1303048
DATE	12/1/13	PAGES 3a

PMWSP-LESMA, Project 1303.066 20th & Factor F1201 47 task 4.3 - GW Monitoring and Sampling Groundwater Sampling GIS Map



Legend

- Monitoring Well
- Piezometer
- Production Well
- GW Elevation B Zone
- Facility Boundary

NM: Not Measured
 Listed values represent groundwater elevation (ft amsl).
 Depth-to-water (DTW) values are listed in Table 2.



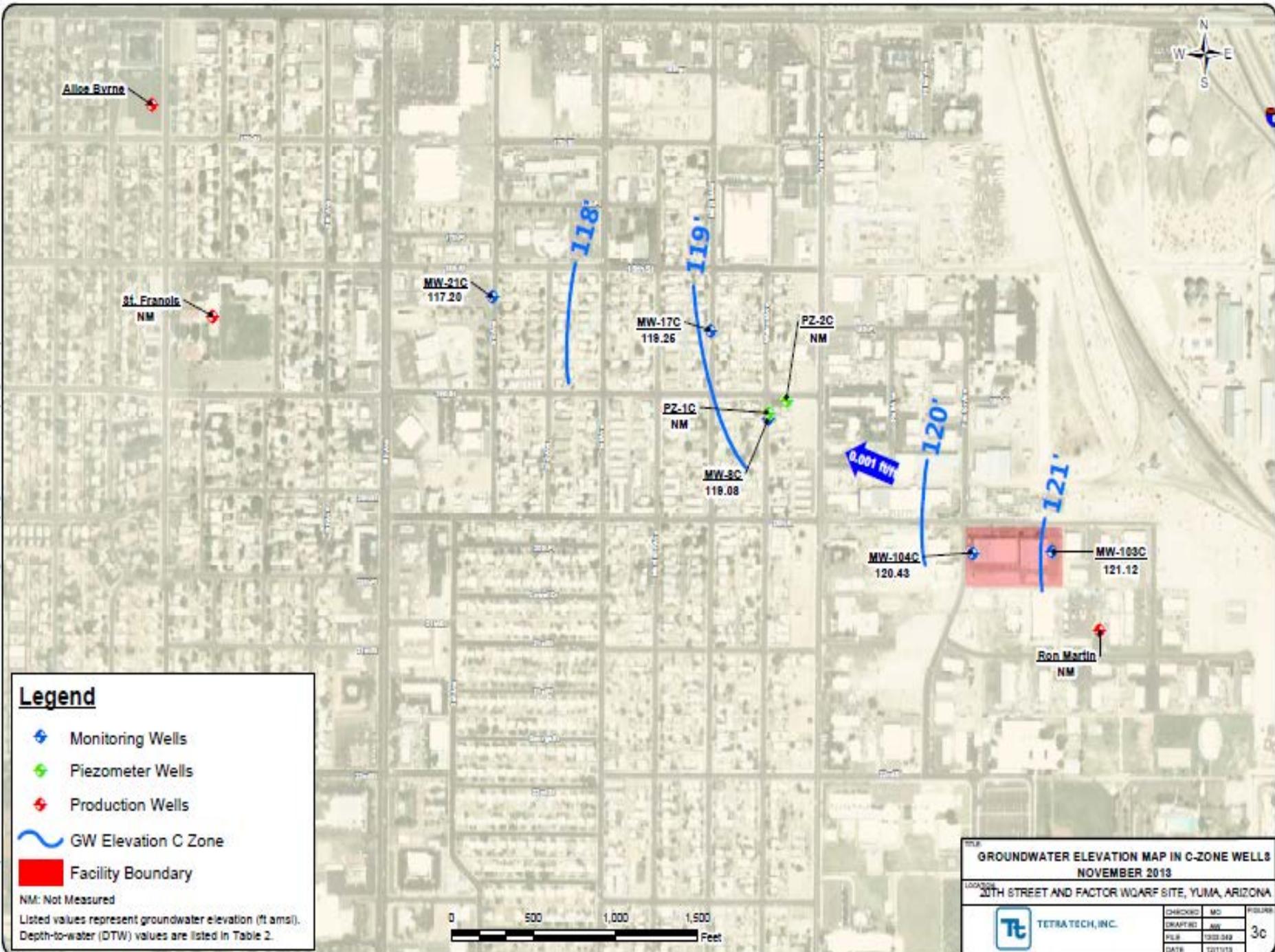
TITLE
GROUNDWATER ELEVATION MAP IN B-ZONE WELLS
NOVEMBER 2013

LOCATION
20TH STREET AND FACTOR WQARF SITE, YUMA, ARIZONA

	CHECKED: MD	FILE NO:
	DRAWN: AG	1303.066
	DATE: 12/11/13	

3b

P:\WPFILES\A Projects\1303 049 20th & Factor FY2014\Task 4.3 - GW Monitoring and Sampling\Groundwater Sampling\0318 Maps



Legend

- Monitoring Wells
- Piezometer Wells
- Production Wells
- GW Elevation C Zone
- Facility Boundary

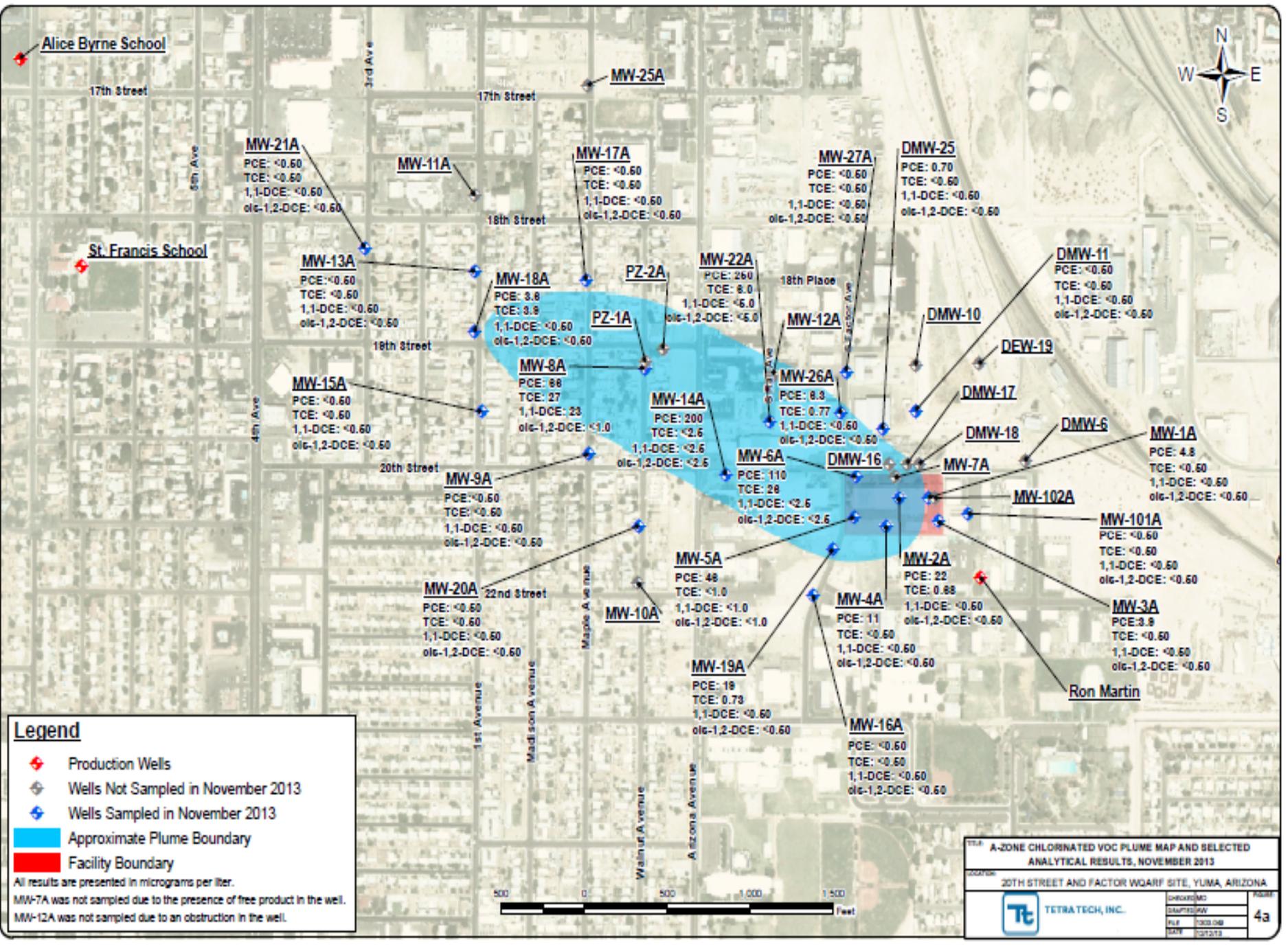
NM: Not Measured
 Listed values represent groundwater elevation (ft amsl).
 Depth-to-water (DTW) values are listed in Table 2.



GROUNDWATER ELEVATION MAP IN C-ZONE WELLS
 NOVEMBER 2013

LOCATION: 20TH STREET AND FACTOR WHARF SITE, YUMA, ARIZONA

	CHECKED	MC	FIGURE 3c
	DRAWN	JW	
	FILE	1303.049	
	DATE	12/11/13	



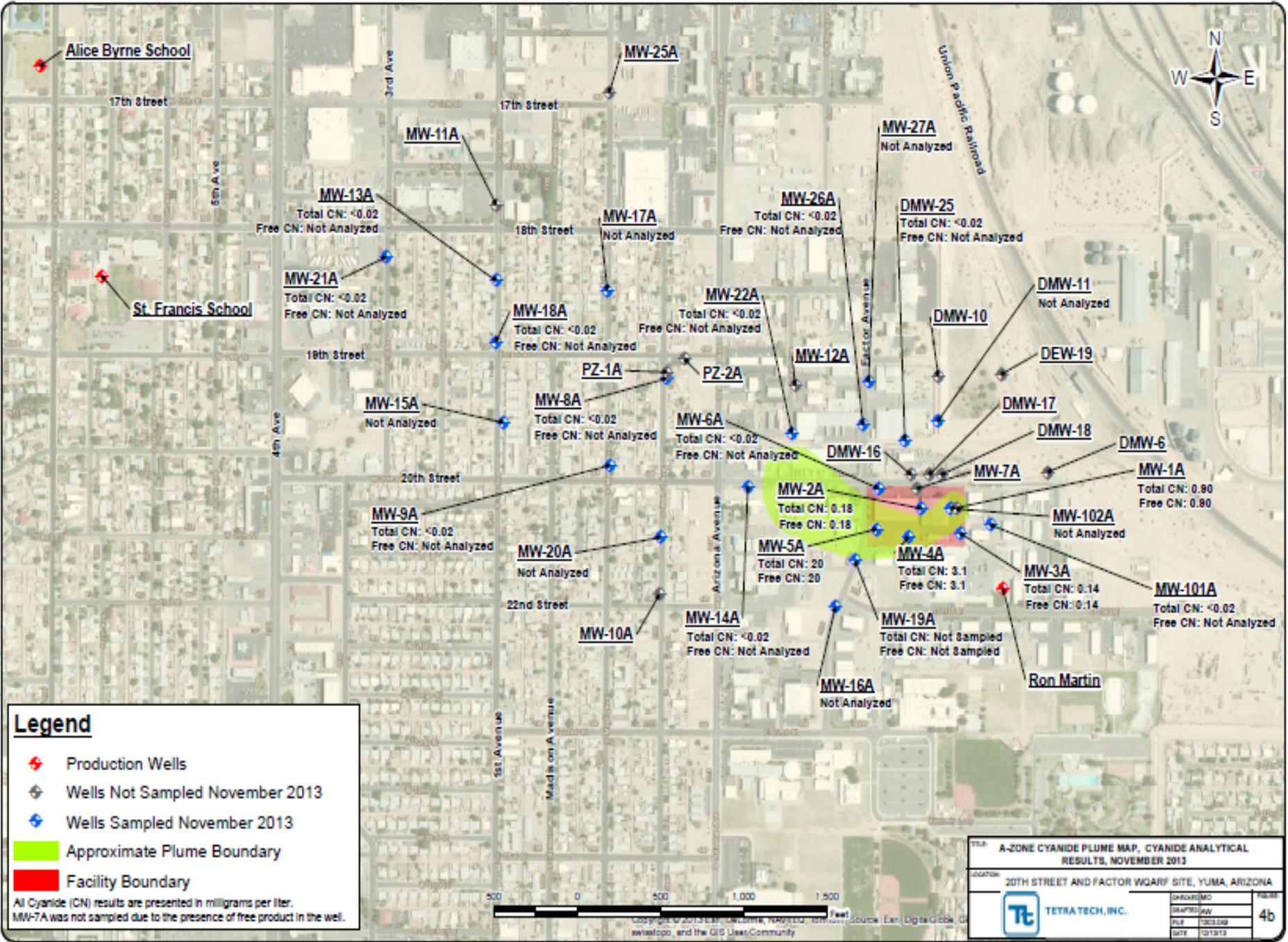
Legend

- ◆ Production Wells
- ◆ Wells Not Sampled in November 2013
- ◆ Wells Sampled in November 2013
- Approximate Plume Boundary
- Facility Boundary

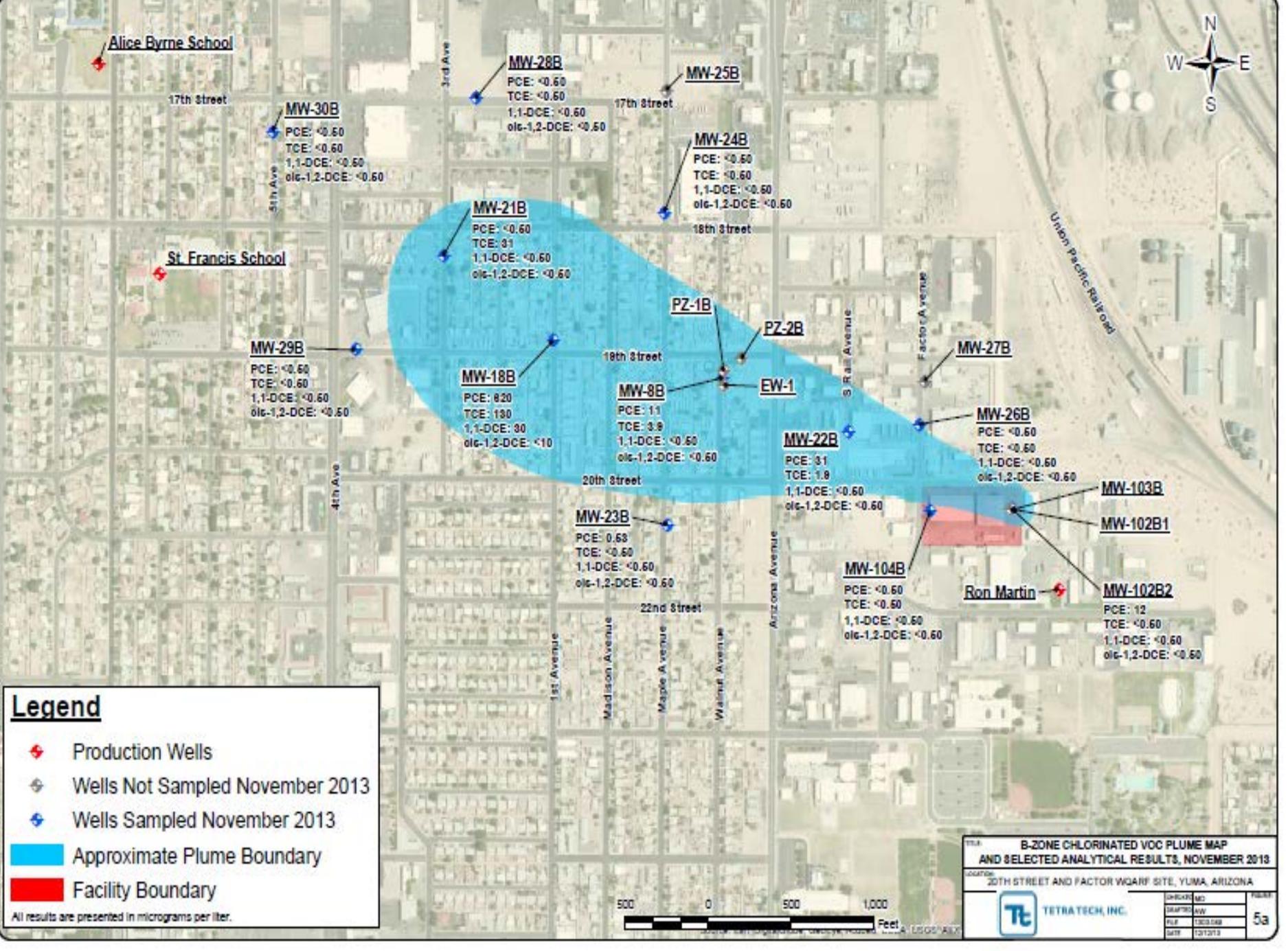
All results are presented in micrograms per liter.
 MW-7A was not sampled due to the presence of free product in the well.
 MW-12A was not sampled due to an obstruction in the well.



A-ZONE CHLORINATED VOC PLUME MAP AND SELECTED ANALYTICAL RESULTS, NOVEMBER 2013	
20TH STREET AND FACTOR WQARF SITE, YUMA, ARIZONA	
	TETRA TECH, INC.
DATE: 12/13/13 BY: J23213	PAGE: 43



TITLE A-ZONE CYANIDE PLUME MAP, CYANIDE ANALYTICAL RESULTS, NOVEMBER 2013	
LOCATION 20TH STREET AND FACTOR WQARF SITE, YUMA, ARIZONA	
TETRA TECH, INC.	DRAWN BY: JAV CHECKED BY: JAV DATE: 12/18/13
4b	



Legend

- Production Wells
- Wells Not Sampled November 2013
- Wells Sampled November 2013
- Approximate Plume Boundary
- Facility Boundary

All results are presented in micrograms per liter.

MW-28B
 PCE: <0.60
 TCE: <0.60
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

MW-25B
 PCE: <0.60
 TCE: <0.60
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

MW-30B
 PCE: <0.60
 TCE: <0.60
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

MW-24B
 PCE: <0.60
 TCE: <0.60
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

MW-21B
 PCE: <0.60
 TCE: 31
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

St. Francis School

MW-29B
 PCE: <0.60
 TCE: <0.60
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

MW-18B
 PCE: 820
 TCE: 130
 1,1-DCE: 30
 ois-1,2-DCE: <10

MW-8B
 PCE: 11
 TCE: 3.9
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

PZ-1B

PZ-2B

EW-1

MW-22B
 PCE: 31
 TCE: 1.8
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

MW-27B

MW-26B
 PCE: <0.60
 TCE: <0.60
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

MW-23B
 PCE: 0.63
 TCE: <0.60
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

MW-104B
 PCE: <0.60
 TCE: <0.60
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

Ron Martin

MW-103B

MW-102B1

MW-102B2
 PCE: 12
 TCE: <0.60
 1,1-DCE: <0.60
 ois-1,2-DCE: <0.60

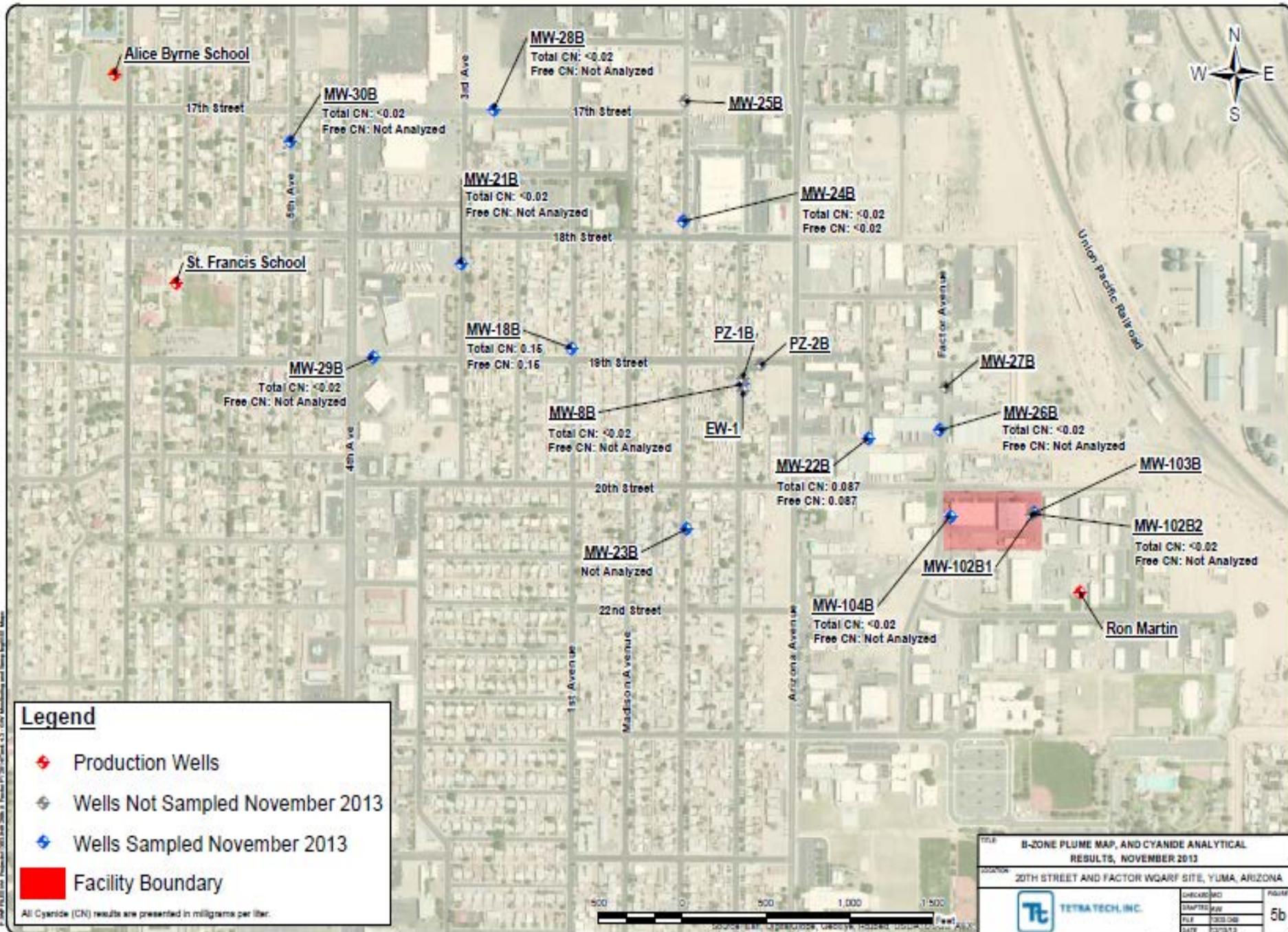
B-ZONE CHLORINATED VOC PLUME MAP AND SELECTED ANALYTICAL RESULTS, NOVEMBER 2013

LOCATION: 20TH STREET AND FACTOR WARE SITE, YUMA, ARIZONA

DATE: 11/13/13	SCALE: 1" = 100'
FILE: 1303.08	DATE: 11/13/13
REV: 131213	

Tt TETRA TECH, INC.

5a



Legend

- ◆ Production Wells
- ◆ Wells Not Sampled November 2013
- ◆ Wells Sampled November 2013
- Facility Boundary

All Cyanide (CN) results are presented in milligrams per liter.

TITLE B-ZONE PLUME MAP, AND CYANIDE ANALYTICAL RESULTS, NOVEMBER 2013		
LOCATION 20TH STREET AND FACTOR WQARF SITE, YUMA, ARIZONA		
TETRA TECH, INC.	DATE: 11/20/13 DRAWN BY: [unclear] FILE: 1303_040 DATE: 11/20/13	PAGE: 5b



Alice Byrne

PCE: <0.60
TCE: <0.60
1,1-DCE: <0.60
cis-1,2-DCE: <0.60
Total CN: <0.02
Free CN: Not Analyzed

St. Francis

PCE: <0.60
TCE: <0.60
1,1-DCE: <0.60
cis-1,2-DCE: <0.60
Total CN: <0.02
Free CN: Not Analyzed

MW-21C

PCE: <0.60
TCE: <0.60
1,1-DCE: <0.60
cis-1,2-DCE: <0.60
Total CN: <0.02
Free CN: Not Analyzed

MW-17C

PZ-1C

PZ-2C

MW-8C

PCE: 4.8
TCE: 2.0
1,1-DCE: <0.60
cis-1,2-DCE: <0.60
Total CN: <0.02
Free CN: Not Analyzed

MW-103C

PCE: 1.1
TCE: <0.60
1,1-DCE: <0.60
cis-1,2-DCE: <0.60
Total CN: <0.02
Free CN: Not Analyzed

MW-104C

Ron Martin

Legend

- Production Wells
- Wells Not Sampled November 2013
- Wells Sampled November 2013
- Facility Boundary

VOC results are presented in micrograms per liter.
Cyanide (CN) results are presented in milligrams per liter.



TITLE: C-ZONE MAP, SELECTED ANALYTICAL RESULTS, NOVEMBER 2013

LOCATION: 20TH STREET AND FACTOR WQARF SITE, YUMA, ARIZONA

DATE	11/07/13
FILE	200349
DRYER	JW
CHECKED	MD

6

SOURCE: ESRI, DIGITALGLOBE, GEBCO, HERE, HOUDR, USGS, USGS-REX

Soil Vapor Screening Levels (SVSLs) are risk-based concentrations considered protective of human health should the chemical(s) detected in the soil vapor migrate into an occupied structure.

Per the EPA Office of Solid Waste and emergency Response (OSWER) 2012 guidance, SVSLs are generally developed by dividing an acceptable risk-based concentration of a particular chemical in indoor air by an attenuation factor.

An attenuation factor represents the reduction in vapor concentrations between a subsurface source and indoor air. In a March 2012 publication, the EPA recommended using a default sub slab soil vapor attenuation factor for slab-on-grade construction of 0.03. For the compounds of concern, the SVSL is calculated as:

$$\text{SVSL} = \frac{\text{The allowed indoor air level (from EPA Regional Screening Levels)}}{\text{The attenuation factor}}$$

The PCE indoor air screening level (1 in 1 million risk level) is 9.4 micrograms per cubic meter (ug/m³),

$$\text{Therefore, PCE SVSL} = \frac{9.4 \text{ ug/m}^3}{0.03} = \mathbf{313 \text{ ug/m}^3}$$

The TCE indoor air screening level (1 in 1 million risk level) is 0.43 ug/m³,

$$\text{Therefore, TCE SVSL} = \frac{0.43 \text{ ug/m}^3}{0.03} = \mathbf{14.3 \text{ ug/m}^3}$$

The Non cancer Hazardous Index, (HI) must also be evaluated.

The PCE indoor air screening level for an HI of 1 is 42 ug/m³, and the TCE screening level for an HI of 1 is 2.1 ug/m³.

$$\text{Therefore, PCE HI SVSL} = \frac{42 \text{ ug/m}^3}{0.03} = \mathbf{1,400 \text{ ug/m}^3}$$

$$\text{Therefore, TCE HI SVSL} = \frac{2.1 \text{ ug/m}^3}{0.03} = \mathbf{70 \text{ ug/m}^3}$$

Commercial Soil Vapor Screening Levels

The PCE commercial indoor air screening level (1 in 100,000 risk level) is 470 ug/m³,

$$\text{Therefore, PCE Commercial SVSL} = \frac{470 \text{ ug/m}^3}{0.03} = \mathbf{15,667 \text{ ug/m}^3}$$

The TCE commercial indoor air screening level (1 in 100,000 risk level) is 30 ug/m³,

$$\text{Therefore, TCE Commercial SVSL} = \frac{30.0 \text{ ug/m}^3}{0.03} = \mathbf{1,000 \text{ ug/m}^3}$$

The Non cancer HI must also be evaluated.

The PCE commercial indoor air screening level for an HI of 1 is 180 ug/m³, and the TCE commercial indoor screening level for an HI of 1 is 8.8 ug/m³.

$$\text{Therefore, PCE Commercial HI SVSL} = \frac{180 \text{ ug/m}^3}{0.03} = \mathbf{6,000 \text{ ug/m}^3}$$

$$\text{Therefore, TCE Commercial HI SVSL} = \frac{8.8 \text{ ug/m}^3}{0.03} = \mathbf{293.3 \text{ ug/m}^3}$$

Summary Table for Soil Vapor Screening Levels

Compound	Residential Cancer Risk	Residential HI	Commercial Cancer Risk	Commercial HI
PCE	313	1,400	15,670	6,000
TCE	14	70	1,000	293
HCN	N/A	28	N/A	117

Bold = driving concentration

Units ug/m³

HI = Hazard Index

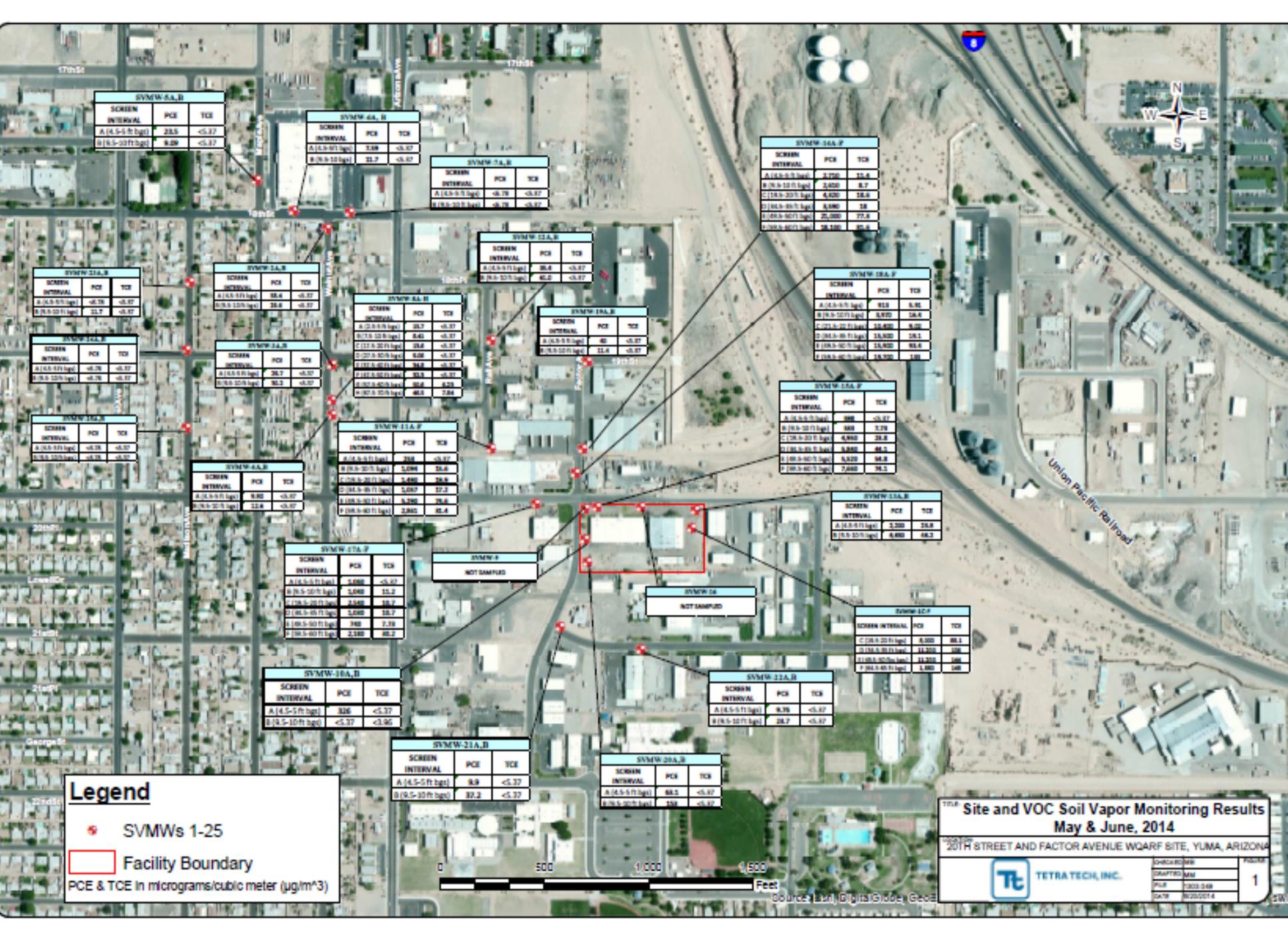
N/A = Not applicable



Additional 2014 Soil Vapor Sampling

In May 2014, ADEQ installed seven additional permanent soil vapor wells. Samples were collected and analyzed for volatile organic compounds (VOCs) from 23 vapor wells and hydrogen cyanide was analyzed from 11 vapor wells.

No hydrogen cyanide was detected above the detection limit of 2.54 ug/m³. No concentrations of PCE or TCE exceed screening levels.



SVMW-5A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	28.5	<5.37
B (5.5-10 ft bgl)	8.09	<5.37

SVMW-6A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	3.88	<5.37
B (5.5-10 ft bgl)	22.7	<5.37

SVMW-7A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	<6.78	<5.37
B (5.5-10 ft bgl)	<6.78	<5.37

SVMW-16A,F

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	3.778	25.4
B (5.5-10 ft bgl)	2.659	8.7
C (10.5-20 ft bgl)	4.829	28.4
D (15.5-35 ft bgl)	5.889	28
E (19.5-40 ft bgl)	25.009	77.4
F (24.5-40 ft bgl)	28.209	81.4

SVMW-12A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	86.4	<5.37
B (5.5-10 ft bgl)	85.2	<5.37

SVMW-18A,F

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	92.8	5.95
B (5.5-10 ft bgl)	5.925	28.4
C (10.5-20 ft bgl)	22,400	9.28
D (15.5-35 ft bgl)	22,400	28.1
E (19.5-40 ft bgl)	22,400	28.4
F (24.5-40 ft bgl)	22,400	28

SVMW-21A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	<6.78	<5.37
B (5.5-10 ft bgl)	21.7	<5.37

SVMW-14A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	28.4	<5.37
B (5.5-10 ft bgl)	28.8	<5.37

SVMW-8A,B

SCREEN INTERVAL	PCB	TCE
A (2.5-3 ft bgl)	25.7	<5.37
B (3.5-10 ft bgl)	8.82	<5.37
C (12.5-20 ft bgl)	28.8	<5.37
D (17.5-30 ft bgl)	8.88	<5.37
E (22.5-35 ft bgl)	28.8	<5.37
F (27.5-35 ft bgl)	28.8	<5.37
G (32.5-40 ft bgl)	8.88	8.82
H (37.5-40 ft bgl)	48.8	28.8

SVMW-19A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	40	<5.37
B (5.5-10 ft bgl)	22.4	<5.37

SVMW-13A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	<6.78	<5.37
B (5.5-10 ft bgl)	<6.78	<5.37

SVMW-10A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	28.7	<5.37
B (5.5-10 ft bgl)	85.2	<5.37

SVMW-9A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	288	<5.37
B (5.5-10 ft bgl)	1,088	28.4
C (10.5-20 ft bgl)	4,488	28.8
D (15.5-35 ft bgl)	1,087	27.2
E (20.5-30 ft bgl)	5,788	28.4
F (25.5-40 ft bgl)	2,882	25.4

SVMW-17A,F

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	388	<5.37
B (5.5-10 ft bgl)	888	2.78
C (10.5-20 ft bgl)	4,888	28.8
D (15.5-35 ft bgl)	5,888	48.4
E (19.5-40 ft bgl)	5,828	48.8
F (24.5-40 ft bgl)	7,888	28.2

SVMW-12A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	<6.78	<5.37
B (5.5-10 ft bgl)	<6.78	<5.37

SVMW-6A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	9.82	<5.37
B (5.5-10 ft bgl)	22.4	<5.37

SVMW-15A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	2,288	28.8
B (5.5-10 ft bgl)	4,888	48.2

SVMW-17A,F

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	2,888	<5.37
B (5.5-10 ft bgl)	5,888	25.2
C (10.5-20 ft bgl)	2,888	28.2
D (15.5-35 ft bgl)	2,888	28.2
E (19.5-40 ft bgl)	288	2.28
F (24.5-40 ft bgl)	2,888	48.2

SVMW-9
NOT SAMPLED

SVMW-16
NOT SAMPLED

SVMW-13A,F

SCREEN INTERVAL	PCB	TCE
C (10.5-20 ft bgl)	8,288	48.2
D (15.5-35 ft bgl)	11,288	28
E (19.5-40 ft bgl)	11,288	28
F (24.5-40 ft bgl)	1,888	28

SVMW-10A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	328	<5.37
B (5.5-10 ft bgl)	<5.37	<5.37

SVMW-21A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	6.78	<5.37
B (5.5-10 ft bgl)	28.7	<5.37

SVMW-21A,B

SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	9.8	<5.37
B (5.5-10 ft bgl)	37.2	<5.37

SVMW-20A,B

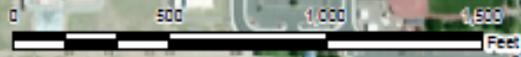
SCREEN INTERVAL	PCB	TCE
A (4.5-5 ft bgl)	88.2	<5.37
B (5.5-10 ft bgl)	28	<5.37

Legend

★ SVMWs 1-25

□ Facility Boundary

PCB & TOE In micrograms/cubic meter (µg/m³)



Tetra Tech Site and VOC Soil Vapor Monitoring Results May & June, 2014

20TH STREET AND FACTOR AVENUE WQARF SITE, YUMA, ARIZONA



DATE	06/20/2014
PROJECT	20TH STREET AND FACTOR AVENUE WQARF SITE, YUMA, ARIZONA
CLIENT	TECHNOLOGICAL SERVICES, INC.
SCALE	AS SHOWN
NO. OF PAGES	1

Source: Esri, DigitalGlobe, GeoEye

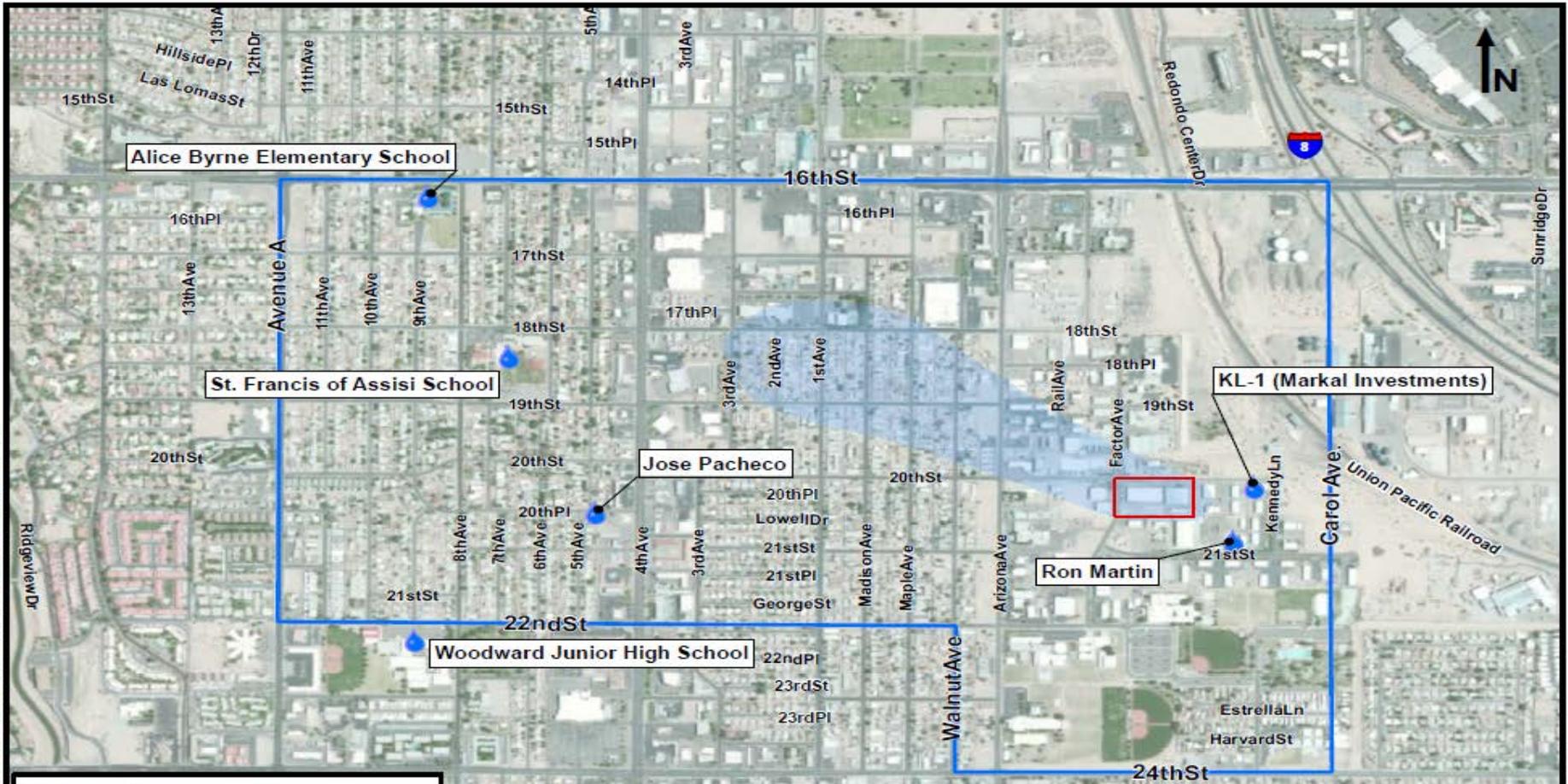
Based on comments from the Community Advisory Board, the Remedial Objectives for soils at the Site are:

To restore soil conditions to the remediation standards for non-residential or residential use specified in A.A.C. R18-7-203 (specifically background remediation standards prescribed in R18-7-204, predetermined remediation standards prescribed in R18-7-205, or site specific remediation standards prescribed in R18-7-206) that are applicable to the hazardous substances identified. This action is needed for the present time and for as long as the level of contamination in the soil threatens its use as a residential or non-residential property.

Based on comments from the Community Advisory Board, the Remedial Objectives for groundwater at the Site are:

To restore and protect for the use of the groundwater supply by private well owners in the vicinity of the site from contamination at the site. This action is currently needed and will be needed for as long as private well owners use water for domestic use. This action is currently needed and will be needed as long as private well owners use water for irrigation. This action will be needed should the City of Yuma develop groundwater resources in the area of the site for municipal drinking water uses. This action will be needed for as long as the level of contamination in the groundwater threatens the use of the regional groundwater for municipal drinking water uses.

Wells in the Vicinity of the Site



Legend

- Houston Intl. Facility Boundary
- Approximate Plume Boundary
- Community Involvement Area (CIA)

*Woodward Junior High School is located outside CIA but was sampled in 1998 & 2002



Source: Esri
swisstopo, a

TITLE: Water Well Users in the Site Vicinity	
LOCATION: 20th Street and Factor Avenue WQARF Site Yuma, Arizona	
	CHECKED: CJ
	DRAFTED: AW
	FILE: 1303.049
	DATE: 05/12/2014
FIGURE: 1	

D:\P\WPFILES\IAA Projects\1303.049 20th & Factor FY2014\Task 3 - Complete RI Report\FINAL R\Figures\GIS Files

Questions?

Contact Information

Scott Goodwin, Project Manager
Remedial Projects Section

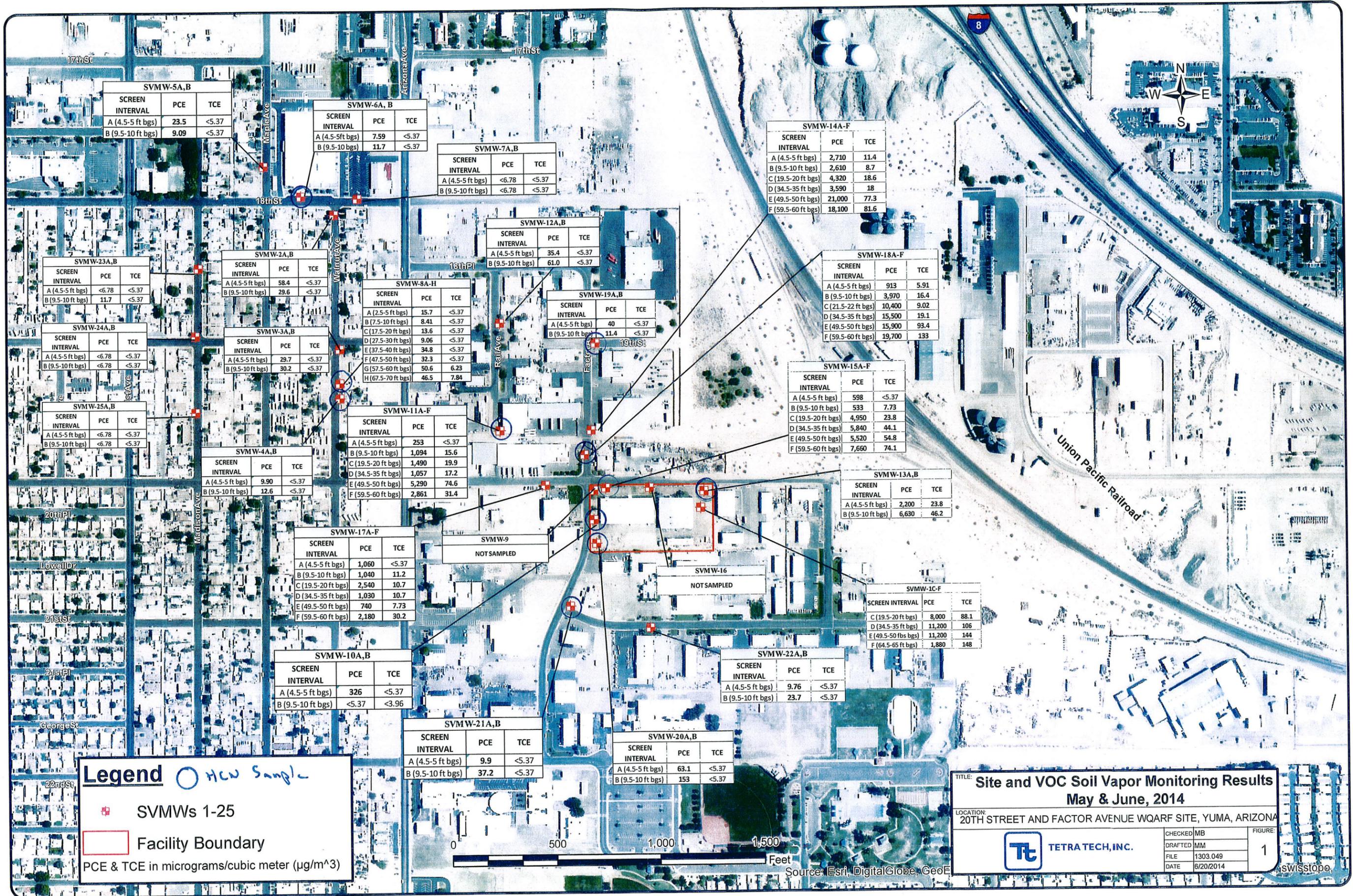
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Caroline Oppleman, Community Involvement Coordinator
Remedial Projects Section

co2@azdeq.gov

(602) 771-6890, 1800-234-5677 ext 771-6890



SVMW-5A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	23.5	<5.37
B (9.5-10 ft bgs)	9.09	<5.37

SVMW-6A, B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	7.59	<5.37
B (9.5-10 ft bgs)	11.7	<5.37

SVMW-7A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	<6.78	<5.37
B (9.5-10 ft bgs)	<6.78	<5.37

SVMW-14A-F

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	2,710	11.4
B (9.5-10 ft bgs)	2,610	8.7
C (19.5-20 ft bgs)	4,320	18.6
D (34.5-35 ft bgs)	3,590	18
E (49.5-50 ft bgs)	21,000	77.3
F (59.5-60 ft bgs)	18,100	81.6

SVMW-23A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	<6.78	<5.37
B (9.5-10 ft bgs)	11.7	<5.37

SVMW-2A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	58.4	<5.37
B (9.5-10 ft bgs)	29.6	<5.37

SVMW-8A-H

SCREEN INTERVAL	PCE	TCE
A (2.5-5 ft bgs)	15.7	<5.37
B (7.5-10 ft bgs)	8.41	<5.37
C (17.5-20 ft bgs)	13.6	<5.37
D (27.5-30 ft bgs)	9.06	<5.37
E (37.5-40 ft bgs)	34.8	<5.37
F (47.5-50 ft bgs)	32.3	<5.37
G (57.5-60 ft bgs)	50.6	6.23
H (67.5-70 ft bgs)	46.5	7.84

SVMW-12A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	35.4	<5.37
B (9.5-10 ft bgs)	61.0	<5.37

SVMW-18A-F

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	913	5.91
B (9.5-10 ft bgs)	3,970	16.4
C (21.5-22 ft bgs)	10,400	9.02
D (34.5-35 ft bgs)	15,500	19.1
E (49.5-50 ft bgs)	15,900	93.4
F (59.5-60 ft bgs)	19,700	133

SVMW-24A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	<6.78	<5.37
B (9.5-10 ft bgs)	<6.78	<5.37

SVMW-3A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	29.7	<5.37
B (9.5-10 ft bgs)	30.2	<5.37

SVMW-19A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	40	<5.37
B (9.5-10 ft bgs)	11.4	<5.37

SVMW-15A-F

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	598	<5.37
B (9.5-10 ft bgs)	533	7.73
C (19.5-20 ft bgs)	4,950	23.8
D (34.5-35 ft bgs)	5,840	44.1
E (49.5-50 ft bgs)	5,520	54.8
F (59.5-60 ft bgs)	7,660	74.1

SVMW-25A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	<6.78	<5.37
B (9.5-10 ft bgs)	<6.78	<5.37

SVMW-4A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	9.90	<5.37
B (9.5-10 ft bgs)	12.6	<5.37

SVMW-11A-F

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	253	<5.37
B (9.5-10 ft bgs)	1,094	15.6
C (19.5-20 ft bgs)	1,490	19.9
D (34.5-35 ft bgs)	1,057	17.2
E (49.5-50 ft bgs)	5,290	74.6
F (59.5-60 ft bgs)	2,861	31.4

SVMW-13A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	2,200	23.8
B (9.5-10 ft bgs)	6,630	46.2

SVMW-17A-F

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	1,060	<5.37
B (9.5-10 ft bgs)	1,040	11.2
C (19.5-20 ft bgs)	2,540	10.7
D (34.5-35 ft bgs)	1,030	10.7
E (49.5-50 ft bgs)	740	7.73
F (59.5-60 ft bgs)	2,180	30.2

SVMW-9
NOT SAMPLED

SVMW-16
NOT SAMPLED

SVMW-1C-F

SCREEN INTERVAL	PCE	TCE
C (19.5-20 ft bgs)	8,000	88.1
D (34.5-35 ft bgs)	11,200	106
E (49.5-50 ft bgs)	11,200	144
F (64.5-65 ft bgs)	1,880	148

SVMW-10A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	326	<5.37
B (9.5-10 ft bgs)	<5.37	<3.96

SVMW-22A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	9.76	<5.37
B (9.5-10 ft bgs)	23.7	<5.37

SVMW-21A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	9.9	<5.37
B (9.5-10 ft bgs)	37.2	<5.37

SVMW-20A,B

SCREEN INTERVAL	PCE	TCE
A (4.5-5 ft bgs)	63.1	<5.37
B (9.5-10 ft bgs)	153	<5.37