



# Sharpe Army Depot, California

## Environmental Restoration Program

### Second Quarter 2021 RPM Meeting



April 22, 2021



# 1. First Quarter 2021 RPM Meeting Review

## Sharpe 2Q21 RPM Meeting

### Meeting Minutes

- Draft RPM meeting minutes distributed via email on Feb 11, 2021, for review and comment.
  - USEPA, DTSC, and CVWB had no comments.
- Final meeting minutes distributed via email on Mar 22, 2021.

### Action Item Review

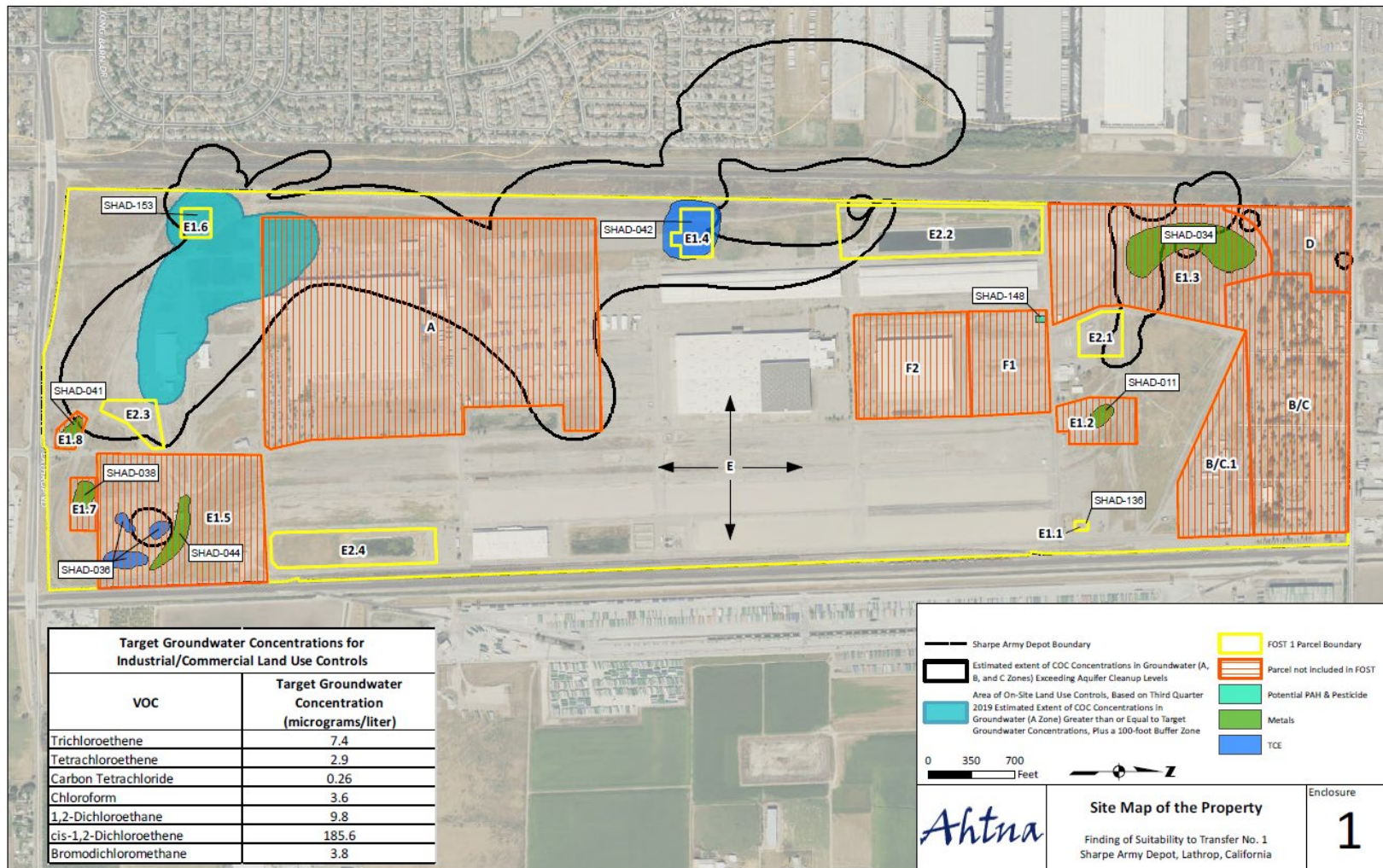
Action Item Number	Action Item Description	Target Date	Responsible Office	Notes
04282016-02	The Army to update the regulatory agencies on their position regarding PFCs on a quarterly basis.	Quarterly RPM Mtgs.	Army	
01202021-01	The Army and Ahtna will determine what needs to be done regarding presenting the 1,2-DCA data during future RPM meetings.	April 22, 2021	Army/Ahtna	1,2-DCA information has been included in this presentation.





## 2. Property Transfer

### Sharpe 2Q21 RPM Meeting





## 2. Property Transfer

### Sharpe 2Q21 RPM Meeting

Parcel Number	Parcel Name	FOST
A	AAFES B550	NA
B/C	ARNG Academy	NA
B/C.1	ARNG South	NA
D	ARNG West	NA
E	Excess	1
E1.1	SHAD-136	1
E1.2	SHAD-011	2
E1.3	SHAD-034	2
E1.4	SHAD-042	1
E1.5	SHAD-036, SHAD-044	2
E1.6	SHAD-153	1
E1.7	SHAD-038	2
E1.8	SHAD-041	2
E2.1	North Balloon Treatment Plant	1
E2.2	Central Area Treatment Plant and Percolation Ponds	1
E2.3	B627 South Balloon Treatment Plant	1
E2.4	B404 Pond	1
F1	SHAD-148	NA
F2	AAFES B240	NA

Refer to Slide 4 for a map of parcel locations.

AAFES = Army and Air Force Exchange Service

ARNG = Army National Guard

SHAD = Sharpe Army Depot



## 2. Property Transfer

### Sharpe 2Q21 RPM Meeting

#### **Proposed parcel boundaries account for:**

- Current or planned use:
  - AAFES
  - ARNG Discovery ChalleNGe Academy
  - ARNG
- Areas of historic or current soil contamination
- Locations of active remedial systems
- Land use controls (LUCs)
- Future remedial system infrastructure:
  - Solar panel arrays for groundwater treatment
  - Expansion of B404 Pond



## 2. Property Transfer

### Sharpe 2Q21 RPM Meeting

#### Property Transfer Actions

- *Operating Properly and Successfully (OPS) Demonstration* concurrence received from EPA on Nov 17, 2020.
- Site Survey:
  - Parcel boundaries
  - Army remedial system infrastructure (pipelines, electrical, treatment facilities, etc.) – geophysical survey in progress
- *Environmental Condition of Property (ECP) Report Update* issued Nov 30, 2020.
  - Identifies changes in conditions since previous ECP report (2014)
  - Identifies environmental conditions prior to property disposal
- *Finding of Suitability to Transfer (FOST)*:
  - Documents Army's determination that property is suitable for transfer by deed under CERCLA
  - Draft issued Oct 12, 2020, comments received from CVWB on Nov 19, 2020 and EPA on Nov 27, 2020, responses under review at ELD



## 3. Groundwater Monitoring Program

### Sharpe 2Q21 RPM Meeting

#### 2020 FFA Annual Progress Report

- The unsigned *Final 2020 FFA Annual Progress Report* was distributed for RTC approval on April 21, 2021.
  - New OU 1 Recommendations
    - Proceed with installation of replacement extraction well EWA1R.
    - Revise sampling frequency for two MWs included in the groundwater monitoring program: MW310D (semi-annual to annual) and MW539C2 (annual to semi-annual).
  - No new OU 2 Recommendations

#### Annual LUC Inspection and Burrowing Owl Monitoring

- 2021 non-breeding season monitoring was completed on Jan 13, 2021.
- 2021 breeding season monitoring is scheduled for Jul 13, 2021.
- 2021 LUC inspections are scheduled for Jul 2021.



## 3. Groundwater Monitoring Program

### Sharpe 2Q21 RPM Meeting

#### Quarterly Groundwater Monitoring and Reporting

- 4Q20 Monitoring and Reporting
  - Quarterly monitoring event – Three wells sampled
  - Monitoring was conducted on Oct 13, 2020.
  - The *4Q20 Letter Report* was distributed on Feb 1, 2021.
- 1Q21 Monitoring and Reporting
  - Semi-annual monitoring event – 114 wells sampled
  - Monitoring was conducted Jan 25–Feb 3, 2021.
  - The *1Q21 Letter Report* is scheduled for distribution on Apr 30, 2021.
- 2Q21 Monitoring and Reporting
  - Quarterly monitoring event – Five wells scheduled for sampling
  - Monitoring scheduled for April 26, 2021.
  - The *2Q21 Letter Report* is scheduled for distribution on Jul 30, 2021.



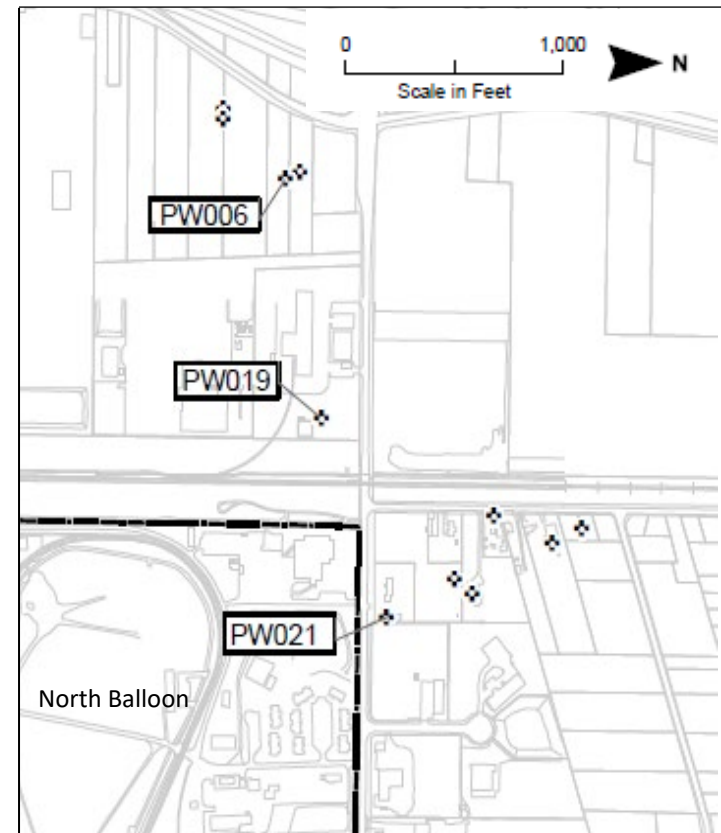


## 3. Groundwater Monitoring Program

### Sharpe 2Q21 RPM Meeting

#### Off-Depot PW Status

- PW006 – Residential and Commercial
  - TCE has been detected above the notification level in the past, but there have been no notification level exceedances since 2016.
  - TCE was detected at 0.76 µg/L in 3Q20 and 1.1 µg/L in 1Q21, both below the notification level of 1.25 µg/L.
  - Sampling is conducted semi-annually, but if the TCE concentration increases to above the notification level again, the sampling frequency may be increased.





## 3. Groundwater Monitoring Program

### Sharpe 2Q21 RPM Meeting

#### Off-Depot PW Status (Continued)

- PW019 – Industrial
  - A small chloroform plume (3.5 µg/L in 3Q20), above the ACL (0.5 µg/L) but below the trigger level (40 µg/L), has been present since 2017 but appears stabilized by operation of EWNC4R.
  - Sampling is conducted semi-annually; however, the pump was not functional during the 1Q21 groundwater monitoring event. Efforts to contact the well owner and determine their plans for the well are ongoing.
  - The plume is anticipated to be captured by the new extraction well planned for the SHAD-007 & -008 area.
- PW021 – Residential with GAC Treatment System
  - 1Q21 analytical data indicate that the treatment system is functioning as designed.
  - Maintenance needs are evaluated on a quarterly basis.



### 3. Groundwater Monitoring Program Sharpe 2Q21 RPM Meeting

#### Groundwater Monitoring Well Installation and Decommission

- A *Final Well Installation Work Plan* for five monitoring wells recommended in the *2018 FFA Annual Progress Report* was submitted on Oct 14, 2020.
  - Well installation is scheduled to begin Jun 1, 2021.
- No monitoring wells are currently scheduled for decommissioning.



## 4. OU 1 Groundwater Treatment Systems Sharpe 2Q21 RPM Meeting

### Groundwater Treatment System Operation

	<u>Jan 2021</u>	<u>Feb 2021</u>	<u>Mar 2021</u>
<b>North Balloon (NB)</b>	98% <sup>a,b</sup>	99% <sup>g,h</sup>	>99% <sup>i</sup>
<b>Central Area (CA)</b>	98% <sup>b,c,d</sup>	99% <sup>g,h</sup>	99% <sup>i,j</sup>
<b>South Balloon (SB)</b>	96% <sup>b,e,f</sup>	99% <sup>g,h</sup>	>99% <sup>i,k</sup>

<sup>a</sup> NB GWTP was offline briefly Jan 3 due to a software issue.

<sup>b</sup> All GWTPs were offline Jan 26-27 due to a power surge and subsequent power failure. Four extraction wells in the South Balloon did not shut down with the GWTP due to a communications issue, causing a release of ~20,000 gal of untreated water from the air stripper. The water entered the storm drain system, mixed with stormwater, and was processed at the Wastewater Treatment Plant. The regulators were notified via email on Jan 27, 2021.

<sup>c</sup> CA GWTP was offline briefly on Jan 21 for pitot tube replacement.

<sup>d</sup> CA GWTP was offline briefly on Jan 28 for potentiometer installation.

<sup>e</sup> SB GWTP was offline Jan 27-28 to troubleshoot communications issues.

<sup>f</sup> SB GWTP was offline briefly Jan 29 for pitot tube relocation and troubleshooting.

<sup>g</sup> All GWTPs were offline briefly at different times for work on the potentiometers.

<sup>h</sup> All GWTPs were offline for one hour for treatment system failure testing.

<sup>i</sup> All GWTPs were offline for one hour for treatment system failure testing after addressing issues found during the previous tests.

<sup>j</sup> CA GWTP was offline briefly on Mar 2 for antenna installation.

<sup>k</sup> SB GWTP was offline briefly on Mar 5 to remove the pump test tie-in from the SHAD-153 EW installation.





## 4. OU 1 Groundwater Treatment Systems Sharpe 2Q21 RPM Meeting

### O&M Status – Optimization/Upgrades (Jan-Mar 2021)

- South Balloon GWTP VPN was replaced (Jan)
- EWB1 level transducer was replaced (Feb)
- EWCC1 antenna was replaced (Feb)
- EWCC1, EWNC2R and EWNA6 antenna conduits were repaired (Feb)
- South Balloon communications network was tested and adjusted (Feb)
- VFD was installed at EWNA6 (Mar)
- EWNB6 transformer, VFD, PLC, and antenna were replaced (Mar)
- EWCAB1, EWNB2, EWNA6 and EWNC4R pressure gauges were replaced (Mar)
- EWCAB2 analog input card was replaced (Mar)
- New antennas were installed at the CA GWTP and EWCC5/6 and EWCA2/CC3R control panels (Mar)



## 4. OU 1 Groundwater Treatment Systems

### Sharpe 2Q21 RPM Meeting

#### O&M Status – Compliance (Jan-Mar 2021)

- Effluent analytical and field results complied with the substantive Waste Discharge Requirements (WDR) for land disposal (percolation ponds) for all VOC analyses. pH exceeded effluent standards at the SB GWTP on Feb 2, 2021, and at the CA and NB GWTPs on Mar 30, 2021.

#### O&M Status – Percolation Pond Usage (Jan-Mar 2021)

	<b>B240 East <u>Pond</u></b>	<b>B240 West <u>Pond</u></b>	<b>CA South <u>Pond</u></b>	<b>CA North <u>Pond</u></b>	<b>B404 <u>Pond</u></b>
North Balloon (NB)	✓	✓	✓	✓	
Central Area (CA)			✓	✓	
South Balloon (SB)					✓



## 4. OU 1 Groundwater Treatment Systems

### Sharpe 2Q21 RPM Meeting

#### O&M Status – Extraction Well Operation Status

- Currently operating 31 of 32 extraction wells scheduled for operation, average total flow of ~538 gpm.

North Balloon <u>~160 gpm</u>		Central Area <u>~248 gpm</u>		South Balloon <u>~130 gpm</u>	
EWNA6	EWNC5	EWCA1	EWCC1	EWA5	EW2
EWN1	EWNC6	EWCA2	EWCC2	<del>EWA11</del> <sup>a</sup>	EW3
EWN2		EWCA2	EWCC3R	EWB1	EW4
EWN5		EWCB2	EWCC4	EWB2	EWCA1
EWN6		EWCB3	EWCC5	EWB4	EWCB1
EWNC4R		EWCB5	EWCC6	EW1	
		EWCB6			

<sup>a</sup> EWA11 is offline due to manganese buildup.



## 4. OU 1 Groundwater Treatment Systems

### Sharpe 2Q21 RPM Meeting

#### O&M Status – Extraction Well Operation Status (Cont.)

- Well Shutdowns – Jan-Mar 2021
  - EWCAB2 was offline Nov 21-Jan 19 due to a pump issue and subsequent repair. EWCAB2 was also offline intermittently during Jan-Mar due to a VFD analog input card issue.
  - Several South Balloon wells were offline intermittently during Jan-Feb due to radio communication issues: EWA5, EWB1, EWB2, EWC1, EWC2, and EWC3.
  - EWCB6 was offline Jan 6, 8-22, and 27-29 due to a wiring short.
  - EWNA6 was offline Jan 14-15 and 18-20 due to a pressure transducer issue.
  - Several Central Area wells were offline intermittently during Jan-Mar: EWCB3, EWCC6, EWNA6, EWCB1, and EWCA1.
  - EWCA2 and EWCC3R were offline intermittently Jan 19-31 due to pressure in the conveyance lines caused by increased flow from newly operating wells EWCC5 and EWCC6.
  - EWCB5 was offline Jan 28-29 due to check valve failure.





## 4. OU 1 Groundwater Treatment Systems Sharpe 2Q21 RPM Meeting

### O&M Status – Extraction Well Operation Status (Cont.)

- Well Shutdowns – Jan-Mar 2021 (Cont.)
  - EWCC1 was offline Feb 1-9 and 16-23 due to a radio communication issue. As communications at other wells were linked through EWCC1, other wells were affected: EWCB6, EWCA2, EWCC5, EWCC6, and EWCB3.
  - EWB4 was offline Feb 9-16 to prevent interference during development and pump test activities for the two newly installed wells EWA12 and EWC5.
  - EWNA6, EWC2, and EWC4 were shut down from Feb 19-22 due to a communication issue found during GWTP failure testing.
  - EWCB6 was offline Mar 3-9 and 26-31 due to thermal overloading issues.
  - EWA11 was offline Mar 11 onwards due to manganese buildup.
  - EWCB3 was offline intermittently during Mar 23-30 due to pump cycling, until programming and level transducer adjustments were made.



## 4. OU 1 Groundwater Treatment Systems Sharpe 2Q21 RPM Meeting

### O&M Status – Extraction Well Installation & Decommission

- The *Final Well Installation and Decommissioning Work Plan* was submitted on Oct 18, 2017.
  - Decommission three non-operating extraction wells.
    - EWNA8 was decommissioned in Apr 2019.
    - EWNA1 and EWNA3 were decommissioned in Nov 2020.
  - Install two C Zone extraction wells off-depot, west of the Central Area.
    - EWCC5 and EWCC6 were installed in Sep 2019.
    - The UPRR access agreement was received in Oct 2020 and conveyance/conduit installation and electrical/communications hook-ups were completed Nov 2020-Jan 2021.
- The *Groundwater Well Installation and Decommissioning Report* is scheduled for submittal on Apr 26, 2021, with comments due on May 26, 2021.



## 4. OU 1 Groundwater Treatment Systems Sharpe 2Q21 RPM Meeting

### O&M Status – Extraction Well Installation & Decommission (Cont.)

- The *Final Well Installation Work Plan* for two new SHAD-153 extraction wells (A and C Zone) was submitted on May 20, 2020.
  - Installation of EWA12 and EWC5 was completed on Feb 16, 2021.
  - Installation of associated new conveyance and conduit lines was completed on Apr 14, 2021.
  - Electrical/communications hook-ups and pump installation are scheduled to be completed by Jun 1, 2021.
- The *Final Well Installation Work Plan* for a new SHAD-007 & -008 extraction well and replacement for EWA1 was submitted on Oct 14, 2020.
  - Well installation is anticipated to begin in 3Q21.



## 5. SHAD-036 SVE RD/RA Sharpe 2Q21 RPM Meeting

### SVE System Operation

- Jan – Mar 2021 Soil Vapor Treatment System removal efficiency was 98.9%.

	<u>Time Online</u>	<u>Average Flow</u>	<u>Volume Treated</u>	<u>COC Mass Removed</u>
<b>Jan 2021</b>	96.8% <sup>a</sup>	325 scfm	14,040,000 scf	0.258 lbs
<b>Feb 2021</b>	100%	325 scfm	13,104,000 scf	0.250 lbs
<b>Mar 2021</b>	100%	325 scfm	14,508,000 scf	0.151 lbs
		<b>1Q21 Total:</b>	<b>42,508,000 scf</b>	<b>0.659 lbs</b>
		<b>Total since Oct 2016:</b>	<b>712,756,380 scf</b>	<b>29.43 lbs</b>

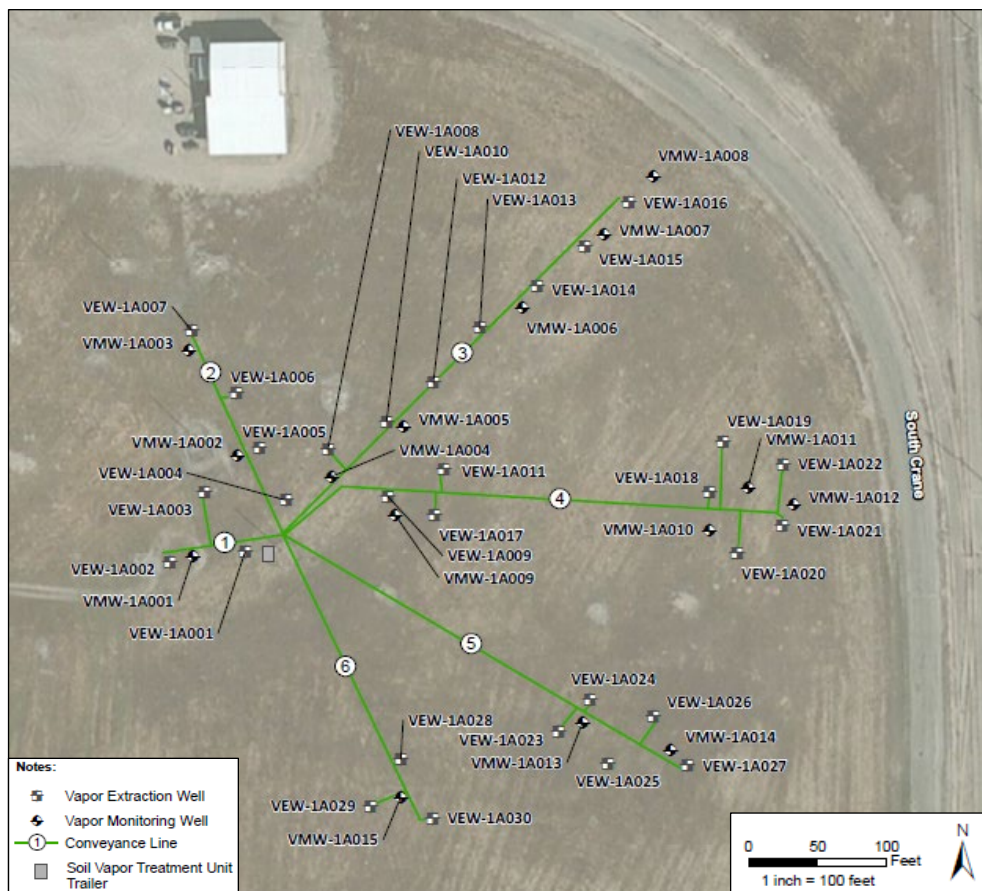
<sup>a</sup> Jan 2021 downtime due to an issue with the started relay.





## 5. SHAD-036 SVE RD/RA Sharpe 2Q21 RPM Meeting

### SVE O&M Status – Extraction Well Operation Status



- Currently operating 12 of the 30 vapor extraction wells – wells on all legs are turned on.
- Operations are adjusted based on site conditions and monitoring results.
- Approximately 1,615 gallons of water has been purged from the system since Nov 2016.
  - Condensation is produced during the wet season only.



## 5. SHAD-036 SVE RD/RA Sharpe 2Q21 RPM Meeting

### SVE O&M Status – Compliance

- Jan – Mar 2021
  - Post treatment emissions complied with the emissions limit set by the San Joaquin Valley Air Pollution Control District (2 lbs/day for total VOCs).

### SVE O&M Status – Monitoring

- Monthly monitoring of active extraction wells.
- Quarterly monitoring of all extraction and monitoring wells.
  - 1Q21 monitoring was conducted Mar 16-19, 2021.
- Concentrations have decreased to below the cleanup level and are asymptotic. Results are included in quarterly reports.
- A rebound shutdown is recommended and will be conducted according to the 2018 *Final Rebound Monitoring Work Plan*.
  - Baseline monitoring is scheduled for May 24-28, 2021, followed by a 6-month shutdown.



## 6. Other Items

### Sharpe 2Q21 RPM Meeting

#### OU 1 In Situ RD/RA South Balloon and Central Area

- The 2014 OU 1 ESD enhanced the groundwater remedy within situ remediation of VOCs in the A/B aquitard using potassium permanganate ( $\text{KMnO}_4$ ) via hydraulic fracturing. The remedy was implemented in Jun-Jul 2015 in the Central Area and South Balloon target areas.
- Post-treatment monitoring
  - Three years of monitoring demonstrated a slow spread of the remedy. The 2018-2020 FFA Annual Reports recommended:
    - Additional in situ or alternative treatment in the South Balloon.
    - Continued monitoring under the groundwater monitoring program to determine long-term treatment effectiveness.
  - Several extraction wells adjacent to the target areas have developed excessive manganese buildup:
    - EWA5, EWA11, and EWCAB2 were treated with descaler and redeveloped in Dec 2019.
    - EWCAB1 was treated with descaler and redeveloped in Jan 2020.
    - EWA11 is showing signs of additional manganese buildup (Mar 2021).



## 6. Other Items

### Sharpe 2Q21 RPM Meeting

#### 1,2-DCA at PW049

- The 2011 *Memorandum for Record - DLA Position on 1,2-DCA Detection at PW049* concluded that locations of COC plumes, groundwater flow directions, and analytical results from upgradient wells indicate 1,2-DCA at PW049 did not originate at Sharpe.
  - Based on evidence from:
    - Quarterly groundwater monitoring events, especially at MW412 and MW488 guard well clusters (upgradient).
    - Hydropunch sampling near Roth Road in 1997 and 2007–2008.
  - Data suggests 1,2-DCA originated near PW022 (upgradient) rather than Sharpe, or the degradation of TCE and PCE plumes emanating from Sharpe.
    - The PW022 area was owned by H&M Transport. Remedial action was taken in 1994 and 1995 to remove diesel fuel contamination in soil.
    - 1,2-DCA was used as a fuel additive from the 1920's to 1980's.
    - The northern portion of Sharpe was used for housing and administration from the 1940's to 1960's.



## 6. Other Items

### Sharpe 2Q21 RPM Meeting

#### 1,2-DCA at PW049 (Cont.)

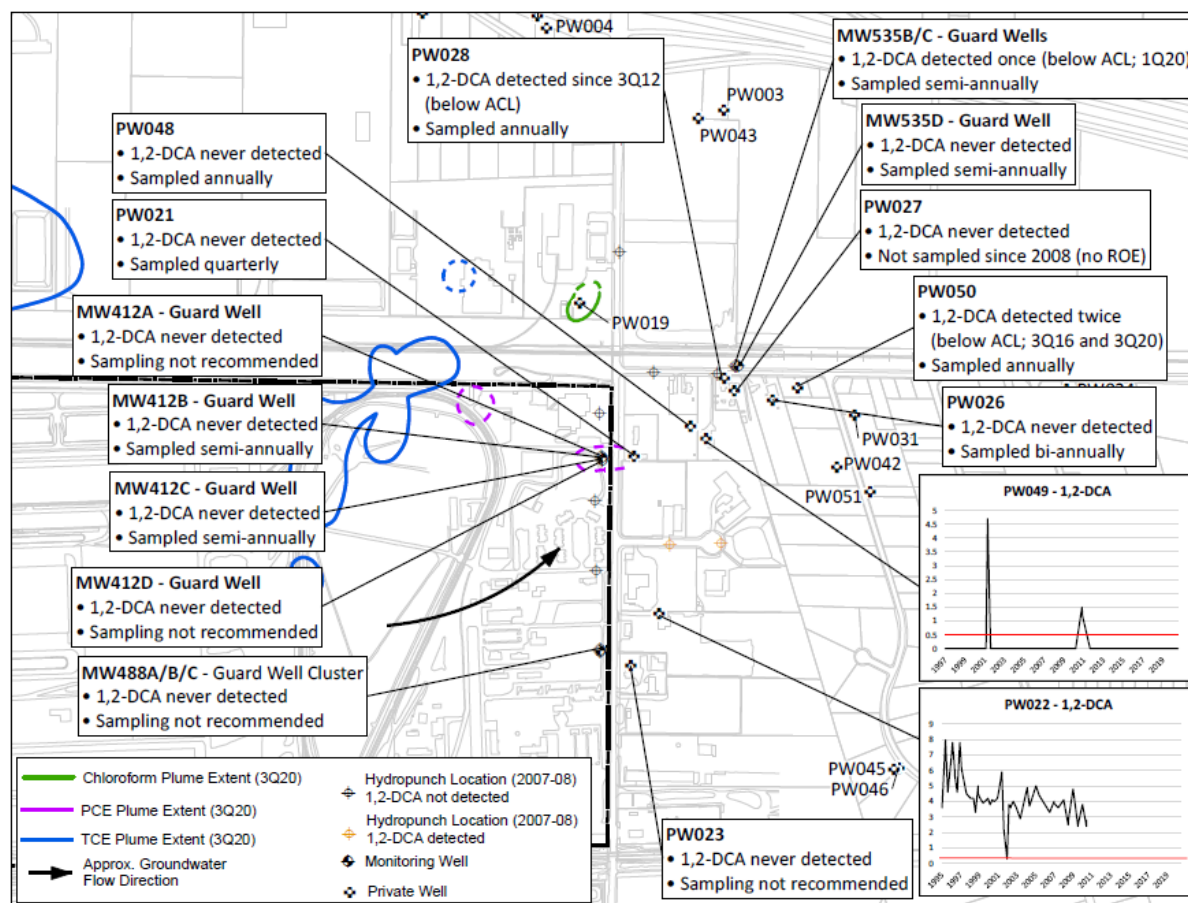
- Recent data indicates 1,2-DCA is migrating in a northwesterly direction from the PW022 area.
  - Detected at PW022 since 1990.
  - Not detected at PW049 until 2Q01 and not detected since 4Q10.
  - Not detected at MW535B/C (downgradient of PW049) until 1Q20.
  - Not detected at PW023 (upgradient of PW022), and the MW488 or MW412 well clusters (upgradient and cross-gradient of PW049).
  - Not detected at any upgradient Hydropunch sample location.
  - Only detected onsite within the TCE and PCE plumes along the western North Balloon (cross-gradient of PW049).
  - No PCE or TCE detected at PW022 or PW049, except for low concentrations at PW049 in 2003 and 2005.
  - No intermediates involved in the degradation of TCE and PCE to 1,2-DCA detected at PW022 or PW049. Current modeling suggests that natural attenuation is not a significant part of the groundwater remedy.



## 6. Other Items

### Sharpe 2Q21 RPM Meeting

## 1,2-DCA at PW049 (Cont.)







## 6. Other Items

### Sharpe 2Q21 RPM Meeting

#### SHAD-011, -034, -038, & -044 Waste Characterization

- Initial field work to delineate lead and chromium (total and hexavalent) in soil was completed in Nov 2017. The *Final Waste Characterization Report* was distributed in Aug 2018 and recommended additional delineation for lead and hexavalent chromium.
- Step-out field work was completed in Nov 2018 and Feb 2019. SHAD-011, -034, and -044 required further delineation of lead and hexavalent chromium. The *Final Waste Characterization Report Addendum* was distributed on Oct 10, 2019.
- Additional delineation to the lead (320 mg/kg) and hexavalent chromium (6.2 mg/kg) screening levels was conducted in Apr-May 2020, Sep-Oct 2020, and Dec 2020. An additional step-out sampling event is scheduled for May 3-6, 2021.



## 6. Other Items

### Sharpe 2Q21 RPM Meeting

#### SHAD-041

- Field work to delineate surface and subsurface gamma radiation, and subsurface chromium, hexavalent chromium, lead, dioxin/furans, PCBs, PAHs, and Radium 226 in soil was completed Oct 2017 per the *Final RI/FS Work Plan*. Results showed:
  - Risk based screening level exceedances of Radium 226.
  - Limited ecological soil screening level exceedances of lead and dioxin/furans.
- The *Final RI/FS Report* was submitted May 31, 2019.
- The *Draft Final Proposed Plan* is scheduled for submittal on Apr 26, 2021, with comments requested by May 26, 2021.
- The virtual public meeting and public comment period are expected to be held in Jun 2021. Dates will be determined after regulatory approval of the Draft Final Proposed Plan.



## 6. Other Items

### Sharpe 2Q21 RPM Meeting

#### SHAD-148 RI/FS

- The *Final RI/FS Work Plan* for delineation of metals and PAHs in groundwater and metals, PAHs, and dieldrin in soil was submitted on Mar 17, 2021.
- Initial sampling was completed in Mar 2021. Data is being evaluated to determine if step-out sampling is required.



## 7. FFA Schedule

### Sharpe 2Q21 RPM Meeting

#### Status

- Monthly meetings were conducted on:
  - Feb 18, 2020
  - Mar 30, 2020
- See FFA Document Schedule handout



## 8. Discussion and Takeaways

### Sharpe 2Q21 RPM Meeting

#### Discussion

- PFCs update

#### Takeaways

- Communications at the Central Area and South Balloon GWTs have improved since 1Q21. Additional upgrades are planned to further improve communications.
- New SHAD-153 extraction wells EWA12 and EWC5 are expected to begin operating in Jun 2021.
- Five new monitoring wells are scheduled for installation in Jun 2021.
- The SHAD-036 SVETS rebound study is expected to begin in May 2021.
- Comments on the Draft Final Proposed Plan for SHAD-041 are requested by May 26, 2021. The virtual public meeting and public comment period are expected to be held in Jun 2021.
- Initial SHAD-148 RI/FS sampling was conducted in Mar 2021.



## 9. Closing Discussion

### Sharpe 2Q21 RPM Meeting

#### Closing Discussion

- Action Item Review
- Upcoming Monthly Teleconferences
  - May 20, 2021
  - Jun 17, 2021
- Next RPM Meeting: Jul 22, 2021