



DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST  
1220 PACIFIC HIGHWAY  
SAN DIEGO, CA 92132-5190

5090  
Ser RAE30.TM/064  
February 22, 2012

Ms. Kelly Dorsey  
California Environmental Protection Agency  
California Regional Water Quality Control Board  
Mitigation & Cleanup Unit  
9174 Sky Park Court, Suite 100  
San Diego, CA 92123-4340

Mr. Tayseer Mahmoud  
California Environmental Protection Agency  
Department of Toxic Substances Control  
Brownfields and Environmental Restoration Program  
5796 Corporate Avenue  
Cypress, CA 90630

Mr. Martin Hausladen  
U. S. Environmental Protection Agency  
Region IX, Code SFD-8-B  
75 Hawthorne Street  
San Francisco, CA 94105-3901

SUBJECT: MEETING MINUTES FOR THE 106<sup>th</sup> FEDERAL FACILITIES  
AGREEMENT (FFA) MEETING DATED JANUARY 19<sup>th</sup>, 2012,  
MARINE CORPS BASE CAMP PENDLETON

Dear Ms. Dorsey, Mr. Mahmoud, Mr. Hausladen:

Enclosed are the minutes to the Marine Corps Base, Camp Pendleton Federal Facilities Agreement (FFA) meeting Number 106, held on January 19<sup>th</sup>, 2012. Should you have questions, please call me at (619) 532-1502.

Sincerely,

A handwritten signature in red ink that reads "Theresa Morley".

THERESA MORLEY  
Lead Remedial Project Manager  
By direction

5090  
Ser OPAE.TM/064  
February 22, 2012

Enclosures: (1) 106<sup>th</sup> FFA Teleconference Minutes  
(2) 106<sup>th</sup> FFA Teleconference Agenda  
(3) Sign in Sheet  
(4) Deliverables/Fieldwork Spreadsheets  
(5) FFA Schedule  
(6) Site 1D Decision Flow Chart  
(7) Site 1119 Project Update  
(8) Site 62 ESI Sampling Results

Copy to: CG, MCB Camp Pendleton (Attn: ACOS, Environmental  
Security - Mr. Joe Murtaugh)

**PROJECT NOTE NO. 56**

**SUBJECT: Marine Corps Base (MCB) Camp Pendleton Federal Facilities Agreement (FFA) Meeting (No. 106)**

**DATE HELD: 19 Jan 2012**

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**Attendees:**

Theresa Morley (Naval Facilities Engineering Command Southwest [NAVFAC SW]), Adam Hill (NAVFAC SW), Joseph Murtaugh (MCB Camp Pendleton), Martin Hausladen (United States Environmental Protection Agency [USEPA or EPA]), Tayseer Mahmoud (California [Cal] EPA/Department of Toxic Substances Control [DTSC]), Kimberly Day (DTSC), Steve Griswold (Parsons), Dan Griffiths (Parsons), Lauri Roché, (Parsons) and Josh Sacker (Parsons).

Attendees by Teleconference: Bill Mabey (Tech Law); Kelly Dorsey (San Diego Regional Water Quality Control Board [RWQCB or Water Board]), Cheryl Prowell (RWQCB), Beatrice Griffey (RWQCB), Gino Yekta (Cal-Recycle), and Aaron Heidt (Brady and Associates).

**Introduction and Status of Deliverables and Fieldwork**

A one-day meeting was held in the Parsons Pasadena office to update the FFA Team (Team) on program status. Refer to attached sign-in sheet and agenda.

Following introductions, Ms. Morley discussed the planned deliverables and fieldwork (refer to attached deliverables spreadsheet). Items that are marked final will be removed from the next version of the deliverables spreadsheet. Several of the items listed were discussed in presentations during this FFA meeting. Ms. Morley did not have access to the latest version of the deliverable spreadsheet during the meeting, but the updated version was sent to meeting attendees several days after the meeting and is attached to these minutes.

In reviewing the status of deliverables and field work, Ms. Morley said that field work on Site 33 (52 Area Armory), Site 1D, and 22/23 pilot study well installation are all scheduled to start on February 6, 2012. Site 33 field work will involve relocating utility lines. Remedial investigation (RI) activities were added at Site 1D in response to comments from RWQCB. The Site 150 Site Investigation (SI) Work Plan is final and after field work was conducted, the results indicated a remedial investigation at Site 150 was recommended. For Site 1114, an Engineering Evaluation/Cost Analysis (EE/CA)

has been completed and remediation is scheduled to be awarded, but it may be postponed due to funding constraints and the prioritization of other higher risk sites. The Site 1115 Work Plan is in progress. For Site 7, the Annual Groundwater Monitoring Report is final. Also for Site 7, the Responses to Comments (RTCs) were discussed on the Technical Addendum for gas collection control system (GCCS) Design during the FFA meeting. The last well at Site 7 is being installed today. For Site 62 (the former Asphalt Batch Plant), the Environmental Site Inspection (ESI) Work Plan is final. For 22/23 Area Groundwater, the Design Information for Pilot Study (document) is going final. Also, the Removal Action Work Plan is going final. For Site 1116, the Action Memorandum agency comments are due January 20, 2012. Responses to DTSC comments on the Ground Water Monitoring Report for 12 Area Site 13 are in preparation, The Site 1119 Draft RI delivery date may change following today's presentation/discussion.

Kelly Dorsey (RWQCB) requested that an implementation tab for responses to comments be included on the deliverable spreadsheet. Ms. Morley stated that this was not an FFA required date and did not want to have to commit to specific dates, but will include these as "unofficial" dates.

### **Site 150**

Ms. Morley presented the investigation results from recent field work conducted at Site 150 (refer to attached slides). Following the discussion of results, Ms. Morley said that the Navy is recommending an RI at the site following the current SI. Groundwater contamination at the site appears to be more significant than indicated by the soil gas contamination based on the SI data. In the presentation, the data tables show "to be determined (TBD)" or "--" in lieu of the Project Screening Levels (PSLs) where these chemical constituents were not originally identified as chemicals of concern (COCs). PSLs have not yet been identified or determined for these chemicals, but will be in the final SI report. There is some evidence that the source of the contamination was a small release, and it appears that volatile organic compounds (VOCs) in groundwater are affecting soil gas, rather than vice versa. The Navy may fund additional work at Site 150 and some other high priority sites instead of remediation at Site 1114 because Site 1114 is not an immediate risk.

Ms. Day indicated that the units on the slides for soil gas should be reviewed because µg/L is not typical for reporting soil gas. Ms. Dorsey indicated that the vinyl chloride screening level is high. Ms. Prowell indicated that this vinyl chloride screening level is not based on drinking water. Mr. Hill said that the screening levels were based on the site being adjacent to the ocean. There was some discussion about the site not being directly connected to ocean, but to the boat basin, and that the ocean plan is possibly not applicable. The California toxics rule was also mentioned in relation to possible PSLs. Ms. Griffey indicated that PSLs for this site need to be re-visited during the follow-up RI because of the potential beneficial use of the water, which includes recreational use and use for Marine Corps training in the boat basin.

## **Site 1D**

Ms. Morley discussed the decision tree for the upcoming Site 1D field work (see attached). A question was raised regarding what person will represent each agency with the “observational approach” planned for the site. The regulatory contacts include Martin Hausladen from the USEPA, Tayseer Mahmoud from the DTSC, and Beatrice Griffey from the RWQCB. The contractor will use the SDVJV website to post real-time information during the investigation. In addition, NAVFAC has been talking to the Space and Naval Warfare Systems Command (SPAWAR) about conducting a trial or test of newly developed field equipment during this investigation. The SPAWAR test would involve the use of backpacks equipped with gas chromatography/mass spectrometer (GC/MS) to provide real time field data. Field work is planned to begin on February 6, 2012. Ms. Morley asked that she be notified of any conflicts that would prevent access to agency input for real time decisions during the field work.

## **Site 7**

Mr. Hill explained the overall approach to conduct an air injection test at two locations as a method to control methane gas at the site. Mr. Hill submitted RTCs in mid-December following the conference call with DTSC, RWQCB, and Cal-Recycle to discuss Mr. Yekta’s comments to Navy’s RTCs, and then received additional agency comments from DTSC and RWQCB. Ms. Dorsey questioned why the approach changed. She commented that injection of air in to GP-9 will reduce methane concentrations at probes but not stop migration of methane away from center of landfill. Mr. Hill indicated that the Navy is not trying to artificially reduce concentrations by injecting air and diluting methane; they are trying to promote degradation of the methane. Ms. Dorsey indicated that the air injection will be similar to pouring clean water down a contaminated well and inducing dilution.

Ms. Dorsey asked if the radius of influence (ROI) of adjacent wells would overlap, and Mr. Hill indicated that they would not. Mr. Hill indicated that Geosyntec believes the ROI will be 40 to 50 feet per well. Ms. Dorsey questioned the efficacy of this approach, given that there are gaps in coverage based on ROIs not overlapping. Mr. Hill indicated that based on discussions with Geosyntec, the injection will have an affect outside of the 40 to 50 foot ROI. Ms. Dorsey indicated there was no real point to bringing one or two wells into compliance by injecting the air and that the injection would not affect the areas outside of the ROI. Mr. Hill indicated that GP-9 has historically gone in and out of compliance and that the results from the latest monitoring event were in compliance.

Mr. Hill indicated that the probes in the housing area will be monitored. Ms. Dorsey indicated that these housing area probes were not designated as compliance wells. Mr. Hill indicated that Geosyntec’s opinion is that these housing area probes can function as compliance probes, even though they were not designated as such. Ms. Dorsey is concerned that we are losing our compliance wells because the treatment will affect baseline conditions at GP-9 and they will no longer be useful for comparison with historical data. These proposed injection wells will cease being compliance points and become remediation wells or points for monitoring injection. Mr. Hill stated that air

injection wells were covered by Title 27 and Title 27 does not require replacement of compliance wells being treated with air injection.

Mr. Yekta was in agreement with Ms. Dorsey that the wells in the housing area are not compliance wells because they are not deep enough and are not installed to the total depth of the waste. Mr. Yekta is concerned about the methane gas being pushed away from GP-9 and diluting the methane around the well. Mr. Yekta does not believe the Navy's intention is to dilute the methane, but that is going to be the end result. Mr. Yekta believes the air injection will mask the true methane concentrations and the true distribution of methane gas. Mr. Mahmoud noted that the Navy requested that compliance point be moved from GP-10 to GP-9 and that the agencies agreed to this request. Mr. Yekta added that GP-10 had water in the well, and so the compliance point was moved to GP-9.

Mr. Hill indicated that the Navy understands the agency concerns, but requests to proceed with the injection study so that this approach can be evaluated. Mr. Hausladen asked what the timeframe was for the injection testing. Mr. Hill indicated that it would last 1 to 1.5 years. Mr. Hausladen asked if the landfill was in compliance now, and Mr. Hill indicated the landfill was currently in compliance. Mr. Hausladen suggested that the Navy and their consultant consider ways to shorten the performance time. Ms. Dorsey indicated more injection points could be installed to decrease the performance time. Mr. Hill noted that the planned approach included the use of solar-powered vent flares at the landfill to increase the venting of methane gas.

Mr. Hausladen asked what was the worst case scenario, short of the landfill catching on fire? What if the agencies agree to allow the pilot study for a while? Mr. Yekta indicated that an unsuccessful pilot study could make it more difficult and costly to monitor and mitigate the methane gas and could extend the closure process. Mr. Hausladen suggested letting the air injection proceed with controls on the Navy (i.e., a performance schedule). Mr. Hausladen indicated that the Navy was not going anywhere, and that they could be held accountable for any lack of performance or negative effects of the air injection. Mr. Yekta stated that Cal-Recycle is not keeping the Navy from doing what they want to do, but cautioned that the treatment may not achieve the stated objectives and may make the problem larger and more difficult to mitigate. Ms. Dorsey agreed that the test might not work and might make the problem worse.

Ms. Morley indicated the Navy wants to try the air injection testing and evaluate the outcome. Mr. Hausladen asked who the receptors are. Mr. Yekta said that Cal-Recycle is not concerned about receptors; but they needed to consider the gas migration issue and needed to remedy the methane gas where it occurs in the middle of the landfill waste. Mr. Yekta indicated that this approach was not successful at other sites in San Diego. Mr. Hausladen stated that the risk was on the Navy. Mr. Yekta said he would like to have a reasonable timeline for evaluating if treatment is working. Ms. Dorsey stated the timeline should address all applicable wells, not just the injection wells, and suggested that a contingency plan should be formulated in case the results of the test indicate objectives were not achieved and to address potential gas migration induced by test. Mr. Hausladen suggested that Navy talk to their contractors to determine the timeline. Mr. Hill said they will include the timeline in the RTCs. Mr. Mabey suggested that this might be a topic for further discussion at the next FFA meeting. Mr. Hausladen

and Ms. Morley stated that they are hoping the issues will be resolved before the next FFA meeting. Ms. Dorsey suggested submitting RTCs in “track-changes” mode to expedite the review process.

Mr. Yekta asked who would be performing the monitoring, and Mr. Hill indicated monitoring would be performed by Trevet, independent of the air injection to be performed by Geosyntec. Mr. Yekta was satisfied that the monitoring would be performed independently of the implementation to avoid potential conflicts of interest. Mr. Hill, responding to Ms. Dorsey’s inquiry, indicated that vegetation would be maintained at the Site. Mr. Hill responded to Mr. Yekta’s comment to conform to Air Pollution Control District (APCD) requirement for an Engineering Evaluation, but Mr. Hill indicated that NAVFAC did not have a mechanism to pay the APCD for their evaluation. After some discussion of possible funding options, Mr. Hausladen indicated that the Navy would need to resolve the funding issue so that they could proceed with the APCD engineering evaluation. Mr. Yekta indicated he would contact the APCD to determine ability to staff the engineering evaluation. The Navy stated they would submit RTCs back to agencies with an approach as soon as possible.

## **Site 62**

Mr. Heidt provided his presentation on the preliminary ESI sampling results remotely via teleconference (slides attached). During the previous Site Inspection, Trench TP-18 was not placed where it was initially intended. Therefore, for this Expanded Site Inspection the new trench TP-22 was excavated to cover the data gaps and chase the stained/discolored soil. Additional samples were collected and then the excavation was backfilled in accordance with the sampling and analysis plan (SAP). Arochlor-1242 is still reported slightly above the Risk Screening Thresholds (RSTs), but concentrations are decreasing with depth. All total polychlorinated biphenyl (PCBs) were below ecological RSTs. Attempts were made to sample below the one sample above RSTs, but could not be advanced using a hand auger through the formation.

Synthetic precipitation leaching procedure (SPLP) results were reported above 2010 Tap Water Regional Screening Levels (RSLs), however, the soil is not in direct contact in groundwater. Groundwater is 9 feet below waste (based on groundwater level encountered during excavation in 2003) and so the leaching potential test may not be applicable. Ms. Dorsey inquired about what is proposed next. Ms. Morley indicated that it may be necessary to conduct a risk assessment and or modeling to pursue no further action (NFA). Ms. Dorsey questioned the reliability of 2003 groundwater information obtained from the excavation. Ms. Morley indicated the Navy would have to go back and look at the groundwater levels. Ms. Day inquired about how easily PCBs would leach from the sandstone underlying the known contamination, and suggested if the leachability is low, that would be an argument supporting NFA. Mr. Mabey stated that the 1242-Arochlor could be highly weathered and that the test results may not be representative of actual conditions. Mr. Mabey indicated that a PCB congener analysis was required to determine which specific types of Arochlor is present. Ms. Day stated that the decision for NFA should not be determined based on SPLP analyses, and

wondered if the SPLP was filtered prior to analysis. Ms. Day stated that PCBs were not soluble and it is surprising to see PCBs in the leachate test. Ms. Morley stated she would get agency input on the SPLP analysis. Mr. Heidt indicated that the congener analysis had been performed, and that the Navy will transmit these results to Mr. Mabey and Ms. Day for review. The agencies agreed to proceed using the existing congener analysis.

### **Site 1119**

Mr. Griswold summarized the RI field investigation and the preliminary groundwater results (see attached slides). He noted that supply well 26016 was never completed as a production well due to initial trichloroethene (TCE) detections of approximately 11 µg/L during an initial high capacity pump test. Supply well 26018 has had historic hits of about 2 µg/L of TCE and this was consistent with U.S. Geological Survey (USGS) depth-specific sampling, and the liquid granulated activated carbon (LGAC) influent monitoring. The highest detected TCE concentration in 26018 was 2.6 µg/L. There are TCE detections in new monitoring wells 1119-MW-1 and 1119-MW-4, with a maximum concentration of 32 µg/L, and concentrations generally increasing with depth in both these locations. Mr. Mabey asked if the Navy was considering redefining the limits of Site 1119. Ms. Morley said this would require further discussion, but that was a possibility. Ms. Morley indicated that additional wells would need to be installed to better determine the source area, and that work at Site 1114 may be deferred due to the relative risk. Ms. Morley said that this additional data would be collected before the RI is submitted for Site 1119. Ms. Day asked if there is evidence of TCE degradation, and Mr. Griffiths said there is very little degradation based on the groundwater analytical results. Mr. Hausladen asked about the potential for sources up Rattlesnake Canyon. Mr. Griswold indicated that it was a possibility, and that is one of the areas where an additional well would likely be installed. Ms. Morley also indicated that some residual contamination at former Sites 3/3A is a potential source of the TCE in the Site 1119 wells. Ms. Morley indicated that it was encouraging to have found some contamination which could lead to discovery of a tangible source. Ms. Morley indicated that she will need to resolve the funding situation and then come back to the FFA team with new well locations in a work plan addendum. Ms. Morley indicated she will revise the RI schedule for the next meeting.

### **Meeting Wrap-up and Schedule for Next Meeting**

The next FFA Meeting is scheduled to be held at Camp Pendleton on Thursday, May 17, 2012.



**MCB Camp Pendleton  
106<sup>th</sup> FFA Meeting Agenda**

**Parsons Office  
100 W. Walnut Street, Pasadena**

**January 19<sup>th</sup>, 2012**

- |                    |  |
|--------------------|--|
| <b>0900 – 0915</b> | <b>Welcome and Introductions (Navy)</b>  |
| <b>0915 – 0930</b> | <b>Project Deliverables and Planned/In Progress Field Work Status (Navy)</b>                 |
| <b>0930 – 1000</b> | <b>Site 150 – Investigation Results from Recent Field Work (Navy)</b>                        |
| <b>1000 – 1030</b> | <b>Site 7 – Comments on Technical Memorandum to Install Gas Collection System (Navy)</b>     |
| <b>1030 – 1045</b> | <b>Break</b>   |
| <b>1045 – 1115</b> | <b>Discussion of Site 1D Field Decision Tree (Navy)</b>                                      |
| <b>1115 – 1145</b> | <b>Site 1119 - Investigation Results from Recent Field Work (Parsons)</b>                    |
| <b>1145 – 1245</b> | <b>Lunch</b>   |
| <b>1245 – 1315</b> | <b>Site 62 - Investigation Results from Recent Field Work (Richard Brady and Associates)</b> |
| <b>1315 – 1330</b> | <b>Meeting Conclusion / Action Items</b>   |

# PARSONS

CLIENT 106<sup>th</sup> FFA Meeting Sign In JOB NO. \_\_\_\_\_ SHEET \_\_\_\_\_ OF \_\_\_\_\_  
 SUBJECT \_\_\_\_\_ BY \_\_\_\_\_ DATE 1/19/12  
 CKD. \_\_\_\_\_ REVISION \_\_\_\_\_

NAME	ORGANIZATION	TELEPHONE / E-MAIL
Josh Sacker	PARSONS	626-440-6191 josh.sacker@parsons.com
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Adam Hill	NAVFAC SW	619-532-4340 adam.j.hill@navy.mil
Dan Griffiths	Parsons	3037641940 daniel.f.griffiths@parsons.com

Note: Attendees by teleconference:  
 (see meeting notes)

Bill Mabey	Tech Law
Kelly Dorsey	RWQCB
Chevy Prouell	RWQCB
Beatrice Griffey	RWQCB
Glno Yekta	Cal-Recycle
Aaron Heidt	Brady & Associates

MCB Camp Pendleton Deliverables Spreadsheet

Date: 1/19/12

Item	Document	Contractor	Status	Date Due	Agency Comments	Response Received From:		
				to Agencies	Due By	EPA	DTSC	RWQCB
1	Remedial Action Closure Report for OU4 Site 1D for Soil - Burn Ash Site	SDV	FINAL	12/21/10	2/21/11	X	X	X
2	Site Inspection Work Plan for Site 150 - SEERMA Site	SDV/TEC	FINAL	3/3/11	5/3/11**	X	X	X
3	Remedial Investigation Report for Site 1114 - 41 Area Arroyo	Trevet	FINAL	4/29/11	6/29/11	X	X	X
4	Annual Groundwater Monitoring Report - Site 7 - Box Canyon	Trevet	FINAL	6/13/11	8/9/11	NC	28-Jul	1-Aug
5	Data Gap Analysis Work Plan for Site 1D - Burn Ash Site	SDV	FINAL	6/22/11	8/22/11	23-Aug	15-Aug	8-Aug
6	ESI Work Plan for Site 62 - Asphalt Batch Plant	RBA	FINAL	8/1/11	9/29/11	NC	19-Sep	27-Sep
7	Memo to File for Site 7 - Box Canyon	Trevet	FINAL	8/11/11	10/10/11	NC	13-Sep	29-Sep
8	Technical Addendum for GCCS Design	Trevet/Geosyntech	RTCs with agencies	8/19/11	soon	NC	13-Sep	19-Sep
9	Design Information for Pilot Study 22/23 Area GW	RBA/Geosyntech	FINAL	8/24/11	10/24/11	24-Oct	20-Oct	18-Oct
10	Removal Action Work Plan - Site 33 (52 Area Armory)	Shaw	FINAL (need document)	8/31/11	10/28/11	NC	27-Oct	28-Oct
11	Pilot Study Tech Memo - Site 1115 FSSG Lot	Parsons	RTCs with agencies	9/16/11	11/13/11	NC	11-Nov	14-Nov
12	SI Addendum Work Plan for Site 1116 - 14 Area Groundwater	ECM	Responding to agency comments	10/5/11	12/5/11	NC	2-Dec	7-Nov
13	Pilot Study Tech Memo - Site 21 Oxidation Pond	Parsons	Responding to agency comments	10/18/11	12/19/11	NC	15-Dec	6-Jan
14	Groundwater Monitoring Report - 12 Area Site 13	SDV	Responding to agency comments	10/18/11	12/19/11	NC	6-Dec	NC
15	Site Inspection Report for Site 1117 - 15/16 Area Groundwater	ERRG	Responding to agency comments	11/2/11	1/2/12	NC	3-Jan	5-Jan
16	Site 21 Pilot Study WP Addendum - Oxidation Pond	Parsons	With agencies	11/15/11	1/13/12	17-Jan	11-Jan	18-Jan
17	Action Memorandum for Site 1116 - 3 subsites (EE/CA as an appendix)	SDV	With agencies	11/21/11	1/20/12		18-Jan	
18	ROD for NFA at Site 1111	SDV	With agencies	12/22/11	2/20/12			
19	Annual Maintenance Report - Site 7 Box Canyon	Trevet	Preparing pre-draft	1/27/12				

MCB Camp Pendleton Deliverables Spreadsheet

Date: 1/19/12

Item	Document	Contractor	Status	Date Due to Agencies	Agency Comments Due By	Response Received From:		
						EPA	DTSC	RWQCB
20	Work Plan to Collect Data - Site 1115 FSSG Lot	Parsons	Addressing Navy comments	2/3/12				
21	ROD for 22/23 Area Groundwater	Parsons	Preparing pre-draft	3/23/12				
22	SAP for Well Siting Study - 22/23 Area Groundwater	Parsons	Preparing pre-draft	4/15/12				
23	Project Completion Report - 12 Area Site 13	SDV	Needs to be awarded	5/19/12				
24	Report for NMOCs - Site 7 Box Canyon	Trevet	Preparing pre-draft	6/7/12				
25	Annual Groundwater Monitoring Report - Site 7 - Box Canyon	Trevet	After March sampling event	6/12/12				
26	SI Report for Site 150 - SEERMA Site	TEC	Lab Data is being validated	6/15/12				
27	Data Gap Analysis Report for Site 1D - Burn Ash Site	SDV	After field work	7/9/12				
28	Work Plan Addendum for Site 1119 - 26 Area Groundwater	Parsons	Field data is being evaluated	7/11/12				
29	ESI Report for Site 62 - Asphalt Batch Plant	RBA	Field data is being evaluated	8/16/12				
30	ESI Work Plan for Site 1118 - 21/26/52 Area Groundwater	ECM	Needs to be awarded	8/27/12				
31	RI Work Plan - Site 1D Groundwater	RBA	After data gap analysis field work	10/10/12				
32	RI/FS for Site 1115 - FSSG Lot	Parsons	Follows results of field investigation	10/31/12				
33	Removal Action Work Plan - Site 1116 14 Area Groundwater	ECM	Follows results of field investigation	11/14/12				
34	Work Plan for EISB - 22/23 Area Groundwater	Battelle	Needs to be awarded					
35	EE/CA and AM for Site 1114 - 41 Area Arroyo	Battelle	Needs to be awarded					

Agencies have commented

## MCB Camp Pendleton Fieldwork Spreadsheet

Date: 1/19/12

Item	Field Work	Planned Start Date	Planned Completion Date
1	Field Work for Site 1119 (26 Area GW)	1-Jun-11	complete in late Oct
2	Field Work for Site 62 ESI	5-Dec-11	complete in Dec
3	Field Work for Site 150 - SEERMA Site	5-Dec-11	14-Dec-11
4	Field Work for Site 1D Data Gap Analysis	tentative - 6 Feb	20-Feb-12
5	Field Work for 22/23 Area Groundwater ZVZ Pilot Study	2/6 - 2/8: Well Installations 2/13 - 2/15: Well Develop/Survey 2/20 - 2/24: Baseline GW Event/Slug Test April - Install PRB	early May
7	Field Work for Site 33 Remedial Action	6-Feb-12	14-Jun-12
6	Field Work for Site 1116 ESI		
8	Install GCCS System		
9	Field Work for Site 21 Pilot Study		
11	Field Work for Site 1118 ESI		

FFA Schedule for Draft Documents – January 19, 2012

Original schedule was agreed to by all FFA signatories at the May 17, 2011 FFA meeting. Updates are made every four months, prior to the FFA meetings. Dates marked with an asterisk are tentative, based on funding and subject to change. Once funding becomes available for a site, the date will be updated and the asterisk removed. Items in italics represent field work and are not enforceable.

**Site 6 (Site number is for funding purposes only) – 22/23 Area Groundwater**

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This site consists of VOC plumes in the groundwater under the 22 and 23 Areas. Various industrial activities have historically taken place in the 22 and 23 Areas. An RI/FS was completed in January 2011. The Proposed Plan outlined the various alternatives from the FS and proposed the preferred alternative which is a combination of alternatives 2, 3 and 4. Alternative 2 includes Land Use Controls and Long-Term Monitoring, Alternative 3 involves an Alternate Water Supply and Alternative 4 is Source Area Treatment via In-Situ Technologies. A public comment period and public meeting for the Proposed Plan were held in July/August 2011. A Record of Decision is being prepared. To evaluate the effectiveness of the remedies proposed for Alternative 4, two pilot studies are planned: a Zero Valent Zinc Permeable Reactive Barrier is planned for the TCP plume; and, Enhanced InSitu Bioremediation is planned for the TCE plume.

- |   |            |
|---|------------|
| – Proposed Plan   | complete   |
| – Geotechnical and Design Information for ZVZ PRB Pilot Study | complete   |
| – <i>Implementation of ZVZ PRB Pilot Study</i>                | 2/6/2012   |
| – Record of Decision  | 3/23/2012  |
| – Well Siting Study Sampling and Analysis Plan                | 4/16/2012  |
| – Work Plan for Enhanced InSitu Bioremediation (EISB)         | 9/10/2012* |

**\*\*POST ROD Site 7 – Box Canyon Landfill**

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This site is a CAMU situated above an old municipal landfill. This site is post-ROD. The selected remedy was an EvapoTranspiration (ET) cap with land use controls. The site must be fenced and signed. Annual inspections are made in relation to the monitoring systems, cover maintenance, drainage/erosion control, cracks, settlement and movement and vegetation growth. Additionally, groundwater monitoring wells are sampled every year and gas probes are sampled according to the percent of methane in the probe. The groundwater monitoring results and the annual maintenance activities are summarized in annual reports. The methane results are emailed to the FFA team monthly.

- |   |           |
|---|-----------|
| – Memo to File for Site 7 (pv panels)               | complete  |
| – Annual Groundwater Monitoring Report              | complete  |
| – Fieldwork for Non Methane Organic Compounds       | complete  |
| – Memo To File                                      | complete  |
| – Annual Post Closure Maintenance Report (for CY11) | 1/27/2012 |
| – Report for Non Methane Organic Compounds          | 6/7/2012  |
| – Annual Groundwater Monitoring Report              | 6/12/2012 |

## **12 Area Site 13 – Former Building 1280 and 1283**

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This site is the site of a former UST and has some low level concentrations of VOCs in groundwater. An RI/FS has been completed for the site but the site has not progressed further in the CERCLA process. Due to an impending construction project through the site, contaminated soil and groundwater were removed from the area to be impacted by construction. A year of groundwater monitoring has been completed and a Project Completion Report will be awarded soon.

- Groundwater Monitoring Report in agency review
  - **Technical Report for Soil Removed in Support of the MILCON** **5/19/2012\***
  - **Proposed Plan for No Further Action** **5/19/2013\***
  - **Record of Decision** **5/19/2014\***
- Dates were changed since no budget was signed until the 2<sup>nd</sup> quarter of the fiscal year**

## **Site 21 – 14 Area Surface Area Impoundment**

---

This site was a former oxidation pond near a maintenance facility which has some low levels of VOCs in groundwater. A Remedial Investigation has been completed for the site, but not a Feasibility Study. Currently a pilot study to evaluate the effectiveness of in-situ bioremediation of chlorinated solvents at low concentrations in groundwater is in planning. A Technical Memorandum reporting on the effectiveness of the first year of the pilot study is in agency review.

- Pilot Study Tech Memo in agency review
  - Site 21 Pilot Study Work Plan Addendum in agency review
  - *Second Phase of Pilot Study Field Work* 4/16/2012
  - **Feasibility Study** **4/15/2013\***
  - **Proposed Plan** **4/15/2014\***
  - **Record of Decision** **4/15/2015\***
- Dates were changed as a result of the September 15, 2011 FFA meeting**

## **Site 33 – 52 Area Armory**

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Gun cleaning in the armory contributed to a PCE plume downgradient of the armory. A Remedial Investigation and Feasibility Study have been completed for this site. An Engineering Evaluation/Cost Analysis and Non-Time Critical Action Memorandum have also been completed. The preferred remedy is excavation of the source material, including groundwater which would then be treated and disposed of in the sanitary sewer system.

- Removal Action Work Plan in agency review
- *Removal Action (geophysical worked started 15 Nov 11)* 2/6/2012
- Removal Action Completion Report 10/25/2013\*

- Proposed Plan 11/15/2014\*
- Record of Decision 11/15/2015\*

### **Site 150 – 21 Area, Location 1**

---

This site became an IR site recently after a discovery investigation conducted based on information gained from a former Marine stationed at Camp Pendleton. During the discovery investigation, one location had vinyl chloride in soil gas that exceeded risk screening criteria. Field work for the Site Inspection has located groundwater contamination. This will move the site to the Remedial Investigation phase.

- Fieldwork complete
  - Site Inspection Report 6/15/2012
  - **Remedial Investigation Work Plan 4/21/2013\***
  - **Field Work for Remedial Investigation 4/21/2014\***
  - **Remedial Investigation Report 2015\***
  - **Proposed Plan 2016\***
  - **Record of Decision 2017\***
- Dates changed (RI added) as a result of the SI field work**

### **Site 1003 (Site number is for funding purposes only) – Site 1D Groundwater**

---

This site is a former burn ash site and has undergone a Remedial Investigation and Feasibility Study for soil only. A ROD was signed documenting the selected remedy consisting of excavation and off-base disposal of contaminated soil. During the remedial action a cell with 90 drums and drum fragments containing liquid and solid chemicals was discovered. The drums were removed but the material in the drums had reached groundwater. A Remedial Action Closure Report was completed to close out the soil portion of the site, but the groundwater contamination remains to be addressed. As an interim measure, until funding could be secured for further investigation, 650,000 gallons of the groundwater was pumped from the site, treated and disposed of in the base sanitary sewer system. This lowered the concentrations of contaminants in groundwater, however, additional work is planned.

- Data Gap Analysis for Groundwater Work Plan complete
  - *Fieldwork* 2/6/2012
  - Data Gap Analysis Report 7/9/2012
  - **Remedial Investigation for Groundwater Work Plan 10/10/2012**
  - **Field work for RI 3/9/2013\***
  - **RI/FS Report 3/11/2014\***
  - **Proposed Plan 2015\***
  - **Record of Decision 2016\***
- Dates changed (RI added) as a result of agency comments**



## **Site 1111 – 26 Area Ash and Debris Disposal Area**

---

This burn ash site was remediated and four quarters of groundwater monitoring have been completed. The site was revegetated and a report was written summarizing the actions that had been completed to date, and why the site qualified for unrestricted land use.

- Proposed Plan for No Further Action complete
- Record of Decision for NFA in agency review

## **Site 1114 – 41 Area Arroyo**

---

This site was created to investigate the PCE concentrations in one well that used to be associated with IR Site 9 (closed). A Site Inspection was carried out and described low-level concentrations of TPH and vinyl chlorides in soil gas and groundwater. A Remedial Investigation was conducted to validate the findings of the SI and to complete a risk assessment for the site. The EPA did not agree with the proposed NFA, therefore the site will move to the remediation phase.

- Remedial Investigation Report complete
  - **Engineering Evaluation/Cost Analysis & Action Memorandum** 9/18/12\*
  - **Removal Action Work Plan** 2013\*
  - **Removal Action** 2013\*
  - **Removal Action Completion Report** 2014\*
  - Proposed Plan 2015\*
  - Record of Decision 2016\*
- Dates were changed as a result of NFA rejection**

## **Site 1115 – 13 Area FSSG Lot**

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There are two plumes underneath the parking lot at this site, one shallow and one deep, containing chlorinated solvents and benzene. A Remedial Investigation and Feasibility Study are needed for the site. A pilot study to evaluate the effectiveness of in-situ bioremediation of chlorinated solvents in groundwater was completed. The technology was successful, but the site geology limited its effectiveness. A Technical Memorandum detailing the pilot study is in agency review. A work plan to collect more data is in agency review; the results will be included in a Remedial Investigation/Feasibility Study.

- Tech Memo in agency review
  - **Work Plan to collect additional data for site** 2/3/2012
  - **Field work to collect additional data** 8/8/2012
  - **Remedial Investigation/Feasibility Study** 10/31/2012
  - **Proposed Plan** 10/31/2013\*
  - **Record of Decision** 10/31/2014\*
- Dates were changed as a result of the September 15, 2011 FFA meeting**

### **Site 1116 – 14 Area Groundwater**

---

Nine USTs were transferred from the UST Program to the IR Program due to low-levels of chlorinated solvents. A Site Inspection was completed and six of the sites do not warrant further action under the IR Program. The three other sites will be remediated. An EE/CA and Action Memo were sent, along with a work plan for limited investigation to close data gaps, to the agencies for review. Once the field work for the limited investigation is complete, a work plan to remediate the sites will be prepared.

- Engineering Evaluation/Cost Analysis(3 subsites – Moving Forward) in agency review
- Action Memorandum (3 subsites – Moving Forward) in agency review
- Removal Action Work Plan (3 subsites – Moving Forward) 11/14/2012
- *Interim Removal Action* (3 subsites – Moving Forward) 5/14/2013\*
- Removal Action Completion Report (3 subsites – Moving Forward) 2014\*
- Proposed Plan for No Further Action (6 subsites – NFA) 2015\*
- Record of Decision (6 subsites – NFA) 2016\*

### **Site 1117 – 15/16 Area Groundwater**

---

Six USTs were transferred from the UST Program to the IR Program due to low-levels of chlorinated solvents. The agencies have reviewed the Site Inspection Report recommending NFA for many of the subsites, or transfer out of the CERCLA program, back to the UST program based on petroleum contamination only.

- Fieldwork complete
- Site Inspection Report in agency review
- Proposed Plan 12/18/2012\*
- Record of Decision 12/18/2013\*

### **Site 1118 – 21/26/52 Area Groundwater**

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Three USTs were transferred from the UST Program to the IR Program due to low-levels of chlorinated solvents. The Site Inspection report was reviewed by the regulatory agencies and additional work, including a soil gas investigation, is needed to verify if no further action is appropriate for these sites.

- Extended Site Inspection (ESI) Work Plan 8/27/2012
- *Field work* 2/27/2013\*
- ESI Report 9/27/2013\*
- Proposed Plan 5/27/2014\*
- Record of Decision 1/27/2015\*

## **Site 1119 – 26 Area Groundwater**

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This site was created to investigate the source or sources of chlorinated solvents in the 26 Area production wells. Field work for the Remedial Investigation has been completed and lab data is in data validation. TCE had been discovered at two of the wells and further investigation is needed to delineate extent of contamination and to locate the source, if possible..

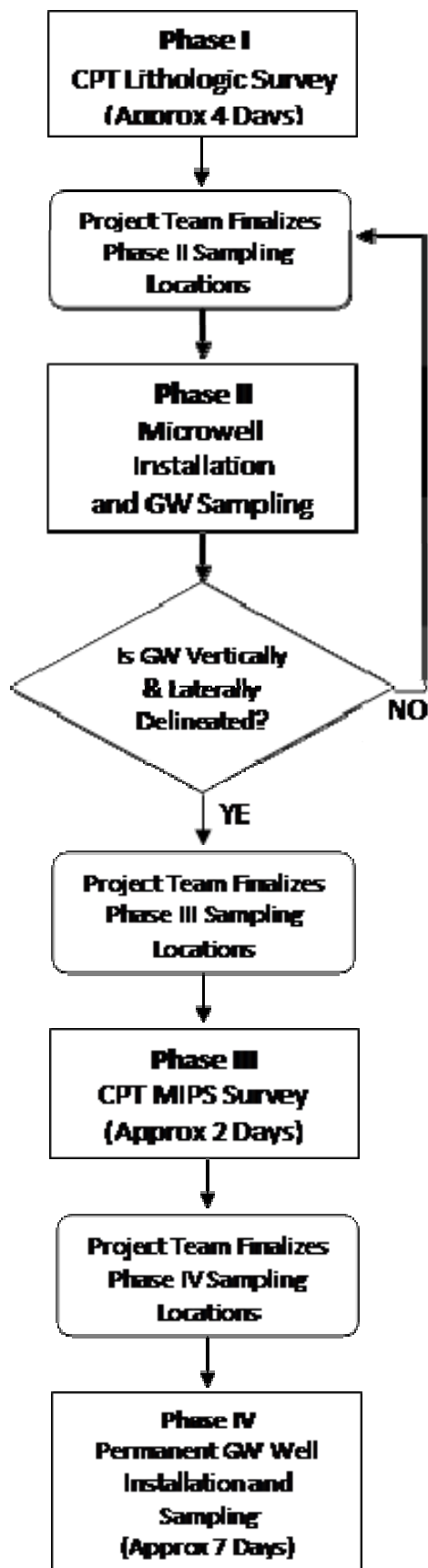
- Fieldwork complete
  - **Work Plan Addendum to Delineate Source** **7/11/2012**
  - **Additional Field Work** **1/15/2013\***
  - **RI/FS Report** **6/7/2013\***
  - **Proposed Plan** **2014\***
  - **Record of Decision** **2015\***
- Dates changed as a result of the Jan 19, 2011 FFA meeting**

## **Site 62 – Asphalt Batch Plant**

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This site was created when a transformer containing PCBs tipped over and spilled. A Site Inspection was performed, however data was missing and further investigation was needed. An Extended Site Inspection was conducted and the lab data is in data validation.

- Extended Site Inspection Work Plan complete
- Fieldwork complete
- Extended Site Inspection Report 8/16/2012
- Proposed Plan 5/1/2013\*
- Record of Decision 5/1/2014\*



# Review of Field Investigation and Status of SI

## IR SITE 150 MCB CAMP PENDLETON

106<sup>th</sup> FFA MEETING  
19 JANUARY 2012



## Agenda/Objectives

- Work Plan Approach
- Review of Field Decisions
- Conceptual Site Model
- Next Steps
- Summary

## Site Map



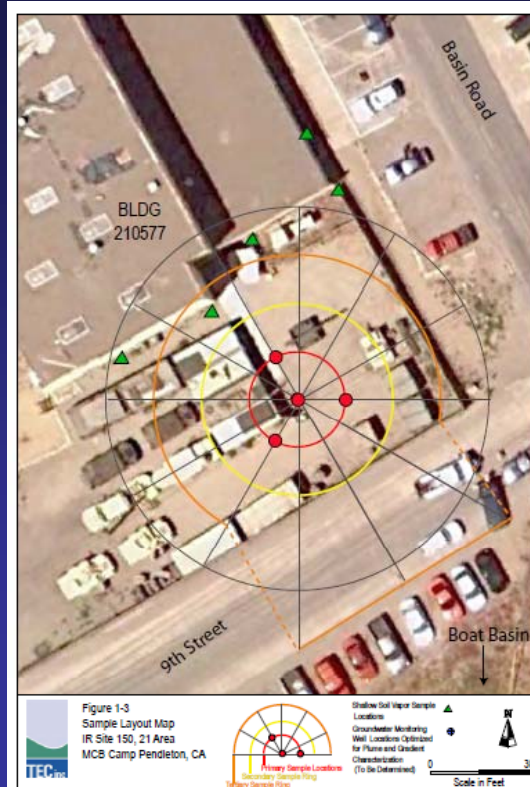
3

## Planned Approach

- Work Plan Presented Interactive Phased Field Decision Making
  - Three phases of decision making between Navy/Marine Corps and regulatory decision makers
- Tiered Sample Collection
  - Groundwater, Soil Gas locations in three tiered rings spaced at increasing distance from center point
- Grab Groundwater from 10 Temporary Wells
- Soil Gas
  - Samples at each temporary well location – 2 depths
  - Additional collection at 5 locations, one depth each location along southern building perimeter
- Soil
  - VOC/GRO analysis – 10 total samples
  - Five geotechnical samples to support site specific modeling for indoor air
- Groundwater from Monitoring Wells
  - 3 Permanent monitoring wells

4

# Site Map Showing Planned Approach



5

## Implementation

- Initial Start of Field Work – 05 Dec 2011; Second start 03 January 2012
- Water Line Breach and Associated Decision Making
  - Water line was hit Monday Dec 5
  - Discussion with regulatory agencies lead to waiting at least 6 - 8 days prior to re-initiating field work;
  - soil moisture content and ability to draw sample also means for establishing conditions okay for sample collection
  - Revised schedule with holidays allowed 4 weeks for system equilibration without precipitation events
- Interactive Phased Field Decision Making
  - Interactive decision making over three days
  - Multiple calls per day
  - All regulatory agencies represented during phone calls



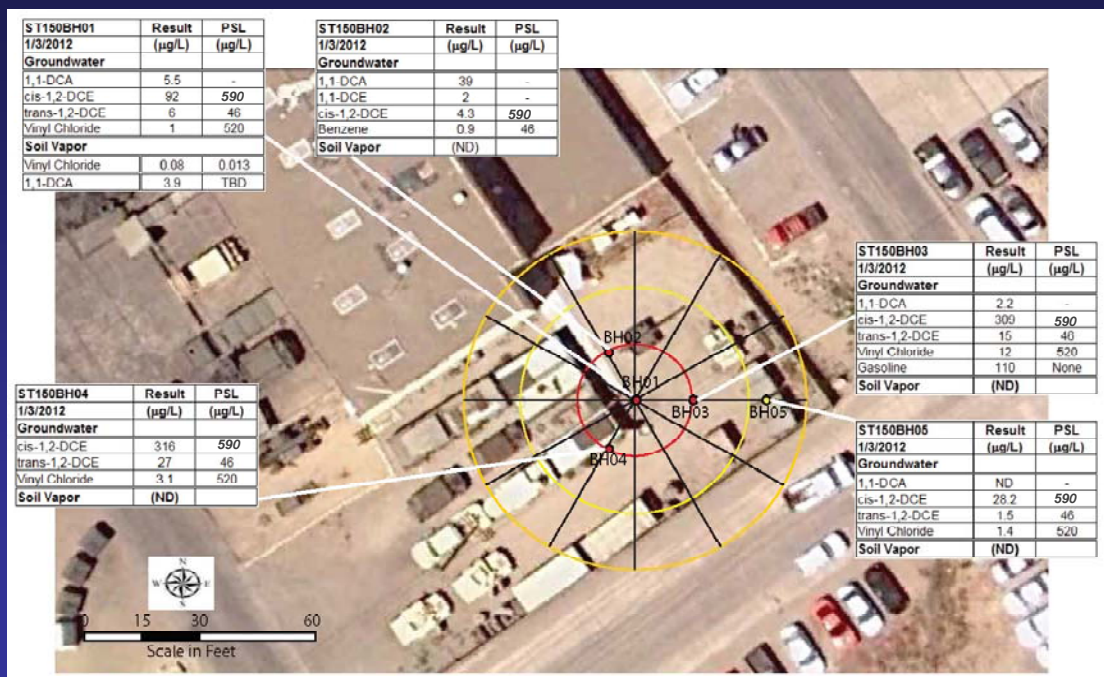
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# Phased Sampling

- Grab Groundwater from Temporary Wells
  - Ten locations
  - Four in first tier locations; other locations deviated from other two tiers identified in work plan based on field findings
- Soil Gas
  - Two sample depths at each temporary well location – one location could not obtain sample due to moisture at 8 feet bgs (BH05)
  - Additional soil gas sampling for fixed lab analysis collected at one depth from five locations along southern building perimeter
- Soil
  - Five soil samples collected and submitted for VOC/GRO analysis
  - Five geotechnical samples collected from two layers (above clay, clay) to support site specific modeling for indoor air
- Groundwater from Monitoring Wells
  - Three permanent monitoring wells installed based primarily on temporary well groundwater results
  - Wells will be surveyed and multiple water level measurements have been taken to evaluate tidal influence

7

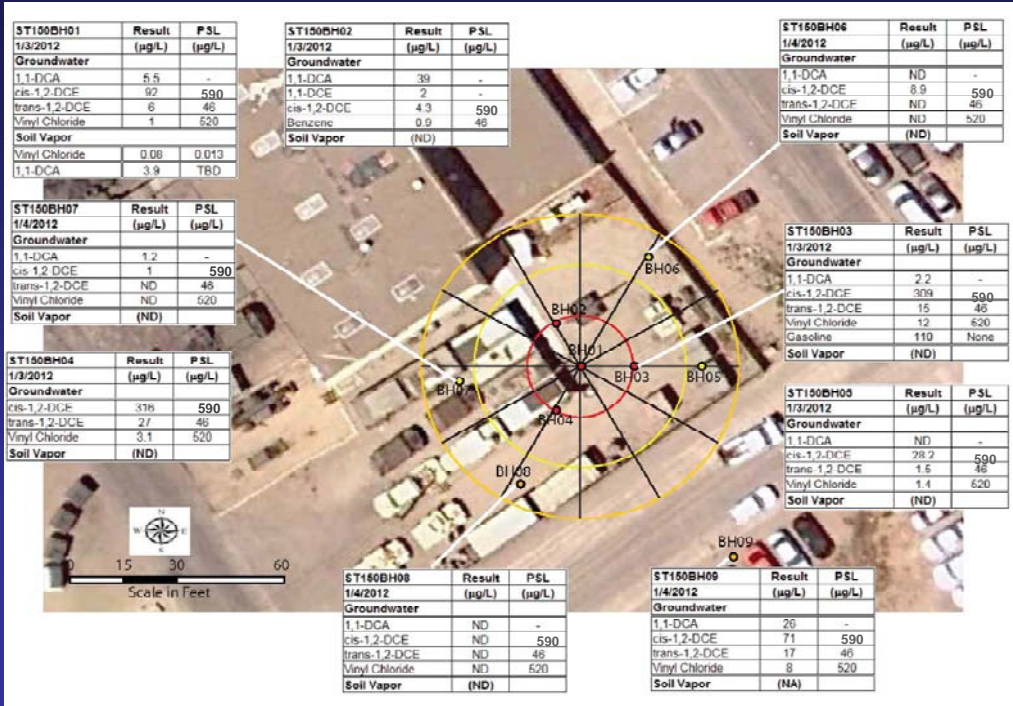
# Day 1 Results Summary and Decision Information



8

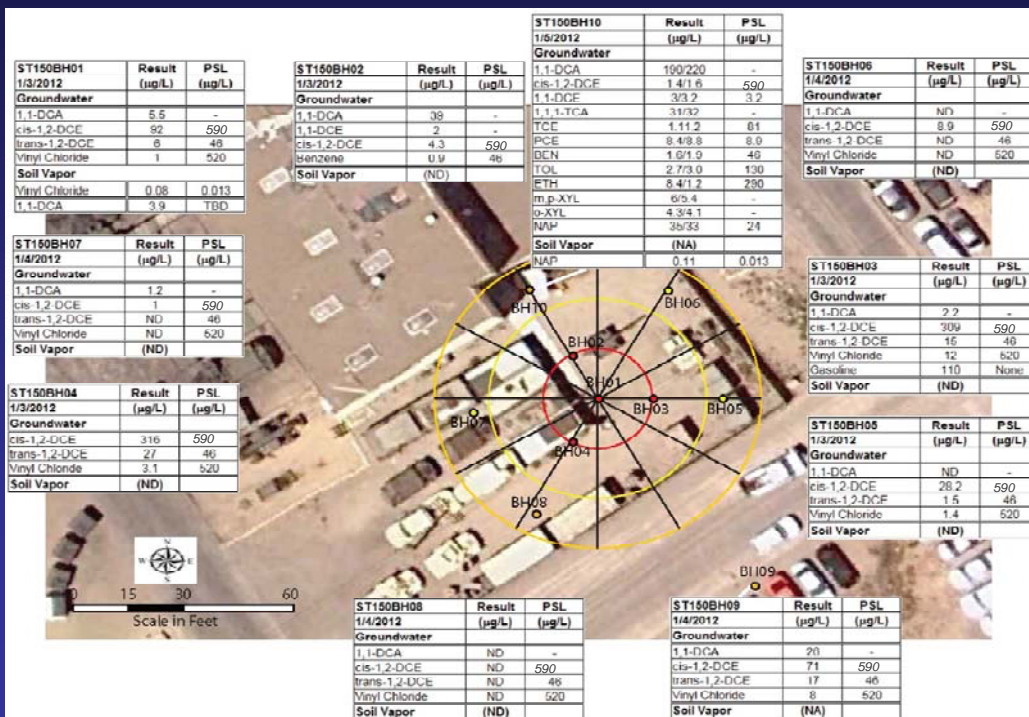


# Day 2 Results Summary and Decision Information



9

# Day 3 Results Summary and Decision Information



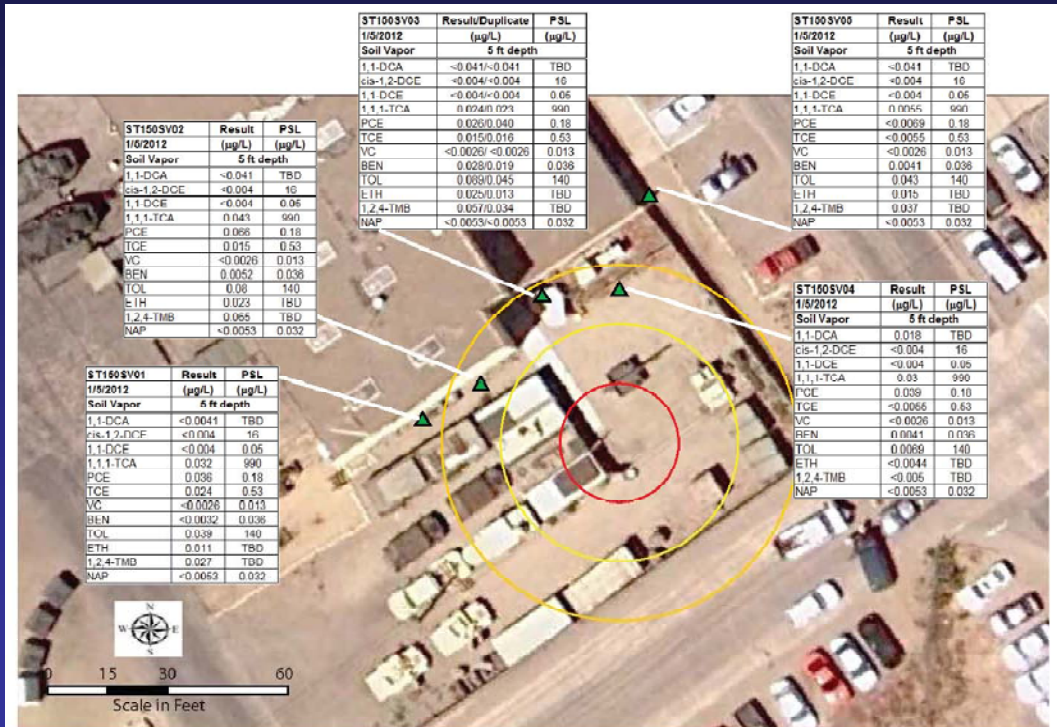
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# Final Permanent Monitoring Well Location Summary



11

# Soil Gas Results Summary



12

## Conceptual Site Model - Preliminary Observations

- Source May Be Drain/Dry Well On Site
- Continuous Clay Layer
  - Approximately 2 – 10 feet thick
  - Possible confining layer for groundwater
  - Potential barrier to groundwater to soil gas pathway
- Groundwater
  - Observed potential evidence of tidal influence
  - Still waiting on survey data for determining gradient directions



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## Conceptual Site Model - Preliminary Observations (continued)

- Some Evidence for Degradation of Chlorinated Solvents
  - Parent chlorinated solvents (PCE, TCE) evident in soil gas and groundwater near source
  - Degradation products (e.g., cis-1,2-DCE, VC) away from source
- Building 210577 Characteristics
  - Used for storage & maintenance of vehicles for 3<sup>rd</sup> amphibious assault battalion
  - Open bays on west side; a few office space on east side for maintenance administration

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## Next Steps

- Formalize Site Conceptual Model
- Prepare Review, Finalize SI Report
- Navy Review Results and Begin Planning of Next Phase of Work
- Review Preliminary Planning with Regulatory Agencies
- Inputs to Decision Making Will Be Key for Successful Next Phase of Work

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## Summary

- Navy implemented successful multi-phased approach with interaction from all parties
- Various chemicals were detected in groundwater and soil gas; most detections were below screening levels
- Further work will be required beyond SI

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# MARINE CORPS BASE CAMP PENDLETON



**COMMENTS/  
QUESTIONS?**





# MCB CAMP PENDLETON SITE 1119 PROJECT UPDATE

19 January 2012

106<sup>th</sup> FFA Meeting

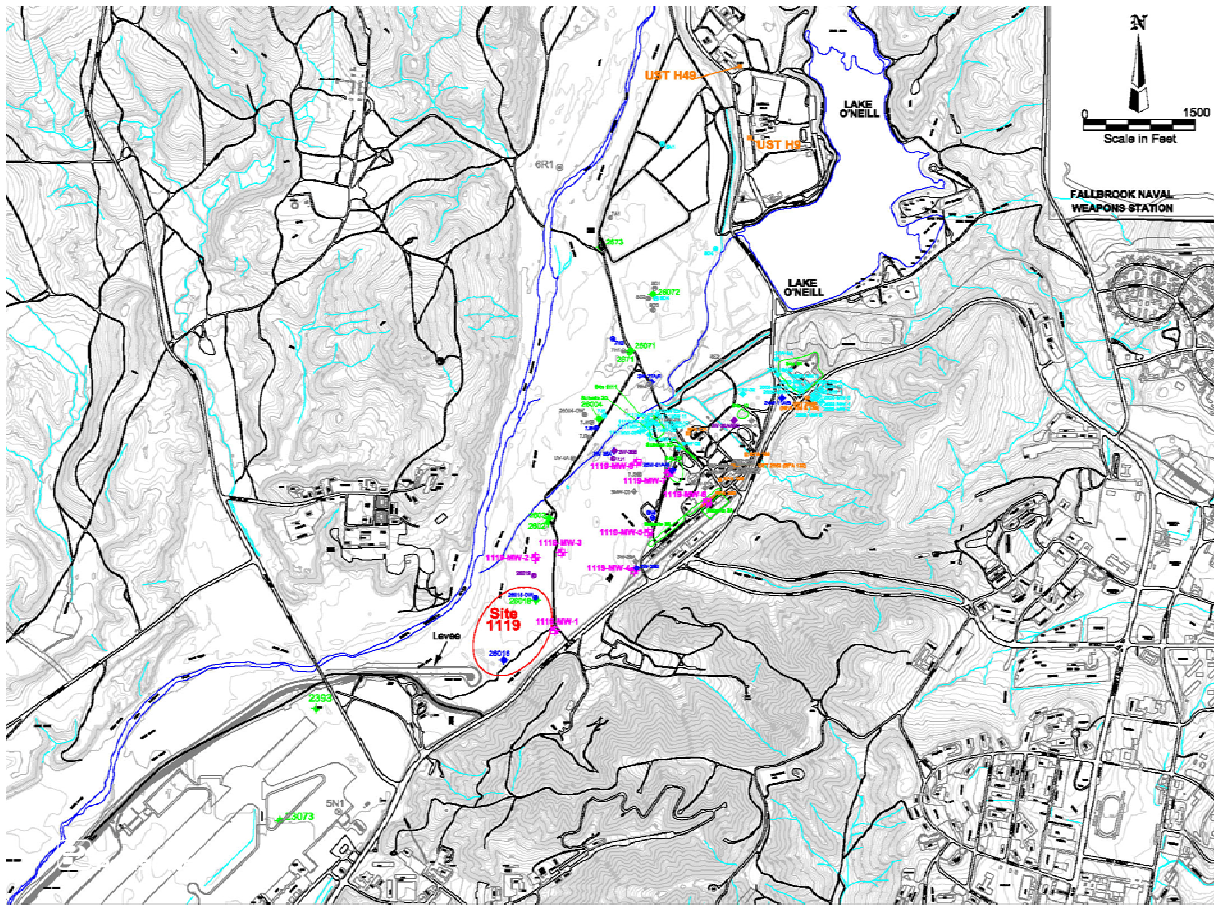


## SITE 1119

### Site Overview

- ❖ Defined as groundwater in the vicinity of Base wells 26016 and 26018.
- ❖ Previous groundwater detections in 26016 included 11 micrograms per liter ( $\mu\text{g/L}$ ) of TCE during a constant discharge test conducted by CDM in 2008 and 0.51  $\mu\text{g/L}$  of TCE in a USGS sample at 65 ft bgs collected in 2009.
- ❖ USGS testing at 26016 also reported 1,2,3-TCP at 0.0064  $\mu\text{g/L}$  in the 80-foot depth specific sample. Low level *cis*-1,2-DCE was also detected at 65 ft bgs (0.45  $\mu\text{g/L}$ ). No other analytical results have indicated the presence of 1,2,3-TCP in wells 26016 or 26018.
- ❖ Sampling at production well 26018 has indicated multiple TCE detections, with a maximum detection of 2.6  $\mu\text{g/L}$  collected by FMD in 2009, and multiple detections of approximately 2  $\mu\text{g/L}$ , including recent samples tested as part of the liquid-phase granular activated carbon (LGAC) operations at well 26018. These detections were consistent with test results (2.1  $\mu\text{g/L}$ ) from a surface discharge sample collected by the USGS in 2009.





# SITE 1119

## Fieldwork Update

**July 2011 - Measured water levels in 47 existing wells. Wells at Former USTs H9, H49, and 2653 no longer exist. Additional OWR wells were identified. Needed to pull old pumps in order to sample.**

**Collected groundwater samples at wells 26016 and 26018-OW at multiple depths using passive diffusion bags (PDBs) and hydrasleeves.**

**Collected initial groundwater samples from 12 existing wells (4 others could not be sampled during breeding season).**



# SITE 1119

## Fieldwork Update (continued)

**August 2011 -** Meeting held on 29 August with NAVFAC, MCB Camp Pendleton ES, Office of Base Water Resources, FMD, and Stetson Engineers to review results to date and adjust planned new monitoring well locations.

New well locations determined based on initial groundwater sampling results and review of data from Stetson Engineers, including depth to bedrock and alluvial thickness maps. Summary email sent to Team.

**September 2011 -** Based on review of additional well data provided at meeting, two additional existing OWR wells (7J1 and 26019) were sampled using passive diffusion bags (PDBs).



# SITE 1119

## Fieldwork Update (continued)

**October 2011 -** Toad fencing installed at three locations.





# SITE 1119

## Fieldwork Update (continued)

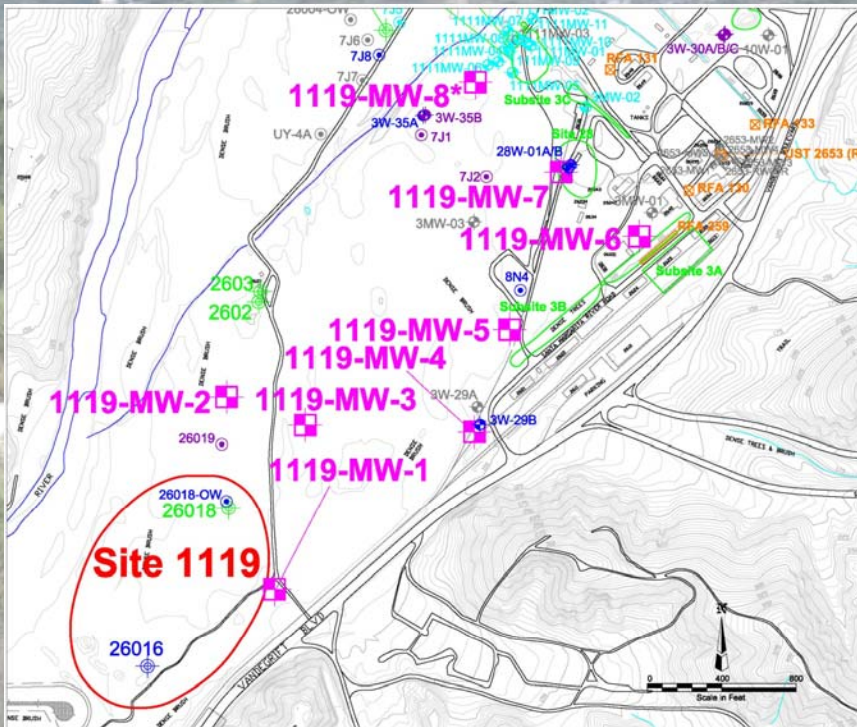
November 2011 - Installed 26 new monitoring wells at 8 locations.

- Began well development.



# SITE 1119

## New Well Locations



# SITE 1119

## Fieldwork Update (continued)

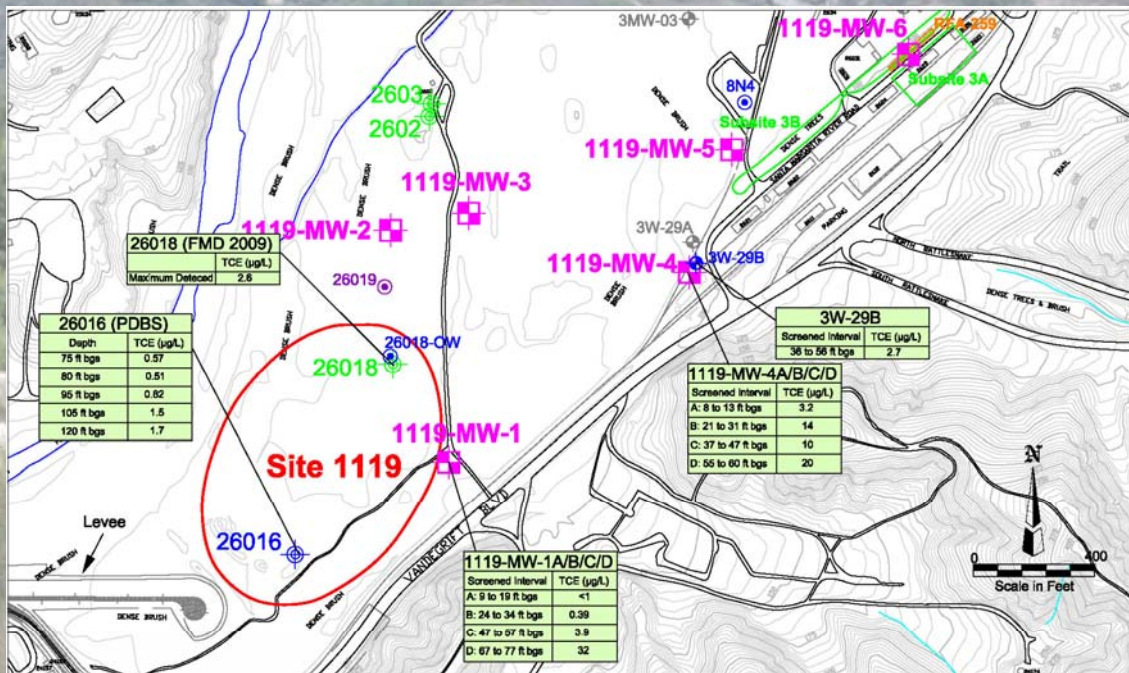
December 2011 - Completed well development.

Collected groundwater samples from the 26 new wells and 4 existing wells that could not be sampled during the breeding season (bringing the total to 78 groundwater samples collected from discrete well screens and PDBs and hydrasleeves).



# SITE 1119

## Preliminary TCE Detections



# SITE 1119

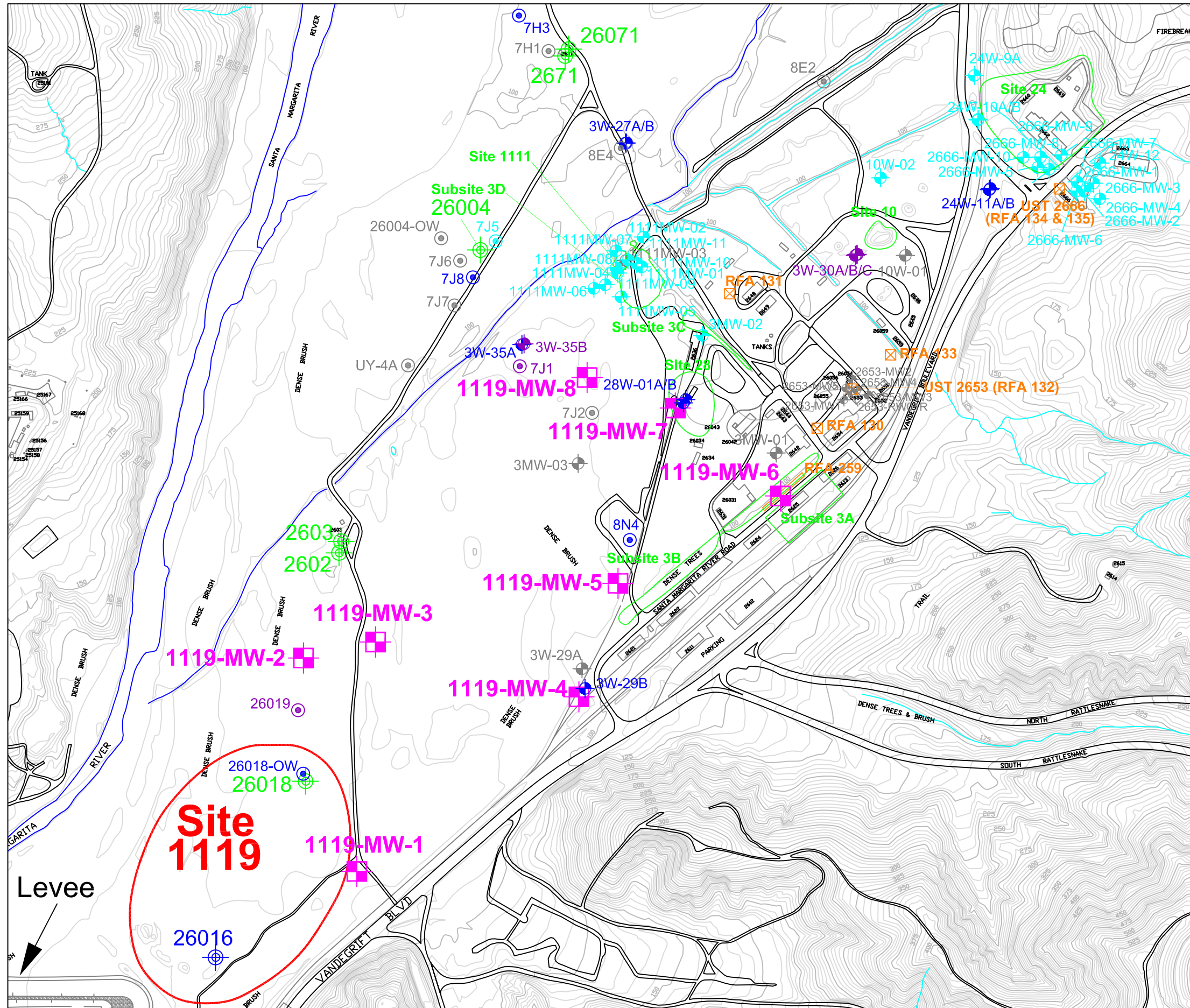
## Fieldwork Summary

- ❖ TCE detected in new monitoring wells MW-1 and MW-4 at multiple depths.
- ❖ TCE concentrations increase with depth (closer to bedrock).
- ❖ Highest concentrations along southeast edge of valley (i.e., southeast edge of aquifer), limited to downstream of Rattlesnake Canyon.
- ❖ Possible source area at Rattlesnake Canyon confluence.
- ❖ Higher concentrations historically detected in Well 26016 than in 26018; Well 26016 is closer to southeast edge of valley.
- ❖ The various locations where VOCs were not detected helps to isolate the potential source location of TCE at Site 1119 (i.e., former sites in a large upgradient portion of the basin are not contributing sources).

# SITE 1119

## Questions?





**Legend**

- Site 1119 Boundary
- Former IR Site Boundary
- Former UST or RFA Site
- ⊕ Production Well
- Observation Well Not Included in Program
- Observation Well Sounded June 2011
- Observation Well Sounded June 2011 and Sampled July 2011
- Groundwater Monitoring Well Previously Destroyed or Damaged
- ⊕ Groundwater Monitoring Well Sounded June 2011
- ⊕ Groundwater Monitoring Well Sounded June 2011 and Sampled July 2011
- Proposed Observation Well to Sample After Breeding Season
- ⊕ Proposed Groundwater Monitoring Well to Sample After Breeding Season
- ⊕ Proposed New Groundwater Monitoring Well to Install

N

0 500 1000

Scale in Feet

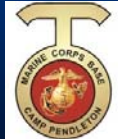
**Figure 1**  
**Site 1119**  
**Proposed Groundwater Monitoring**  
**Well Locations**

MCB Camp Pendleton, California  
**PARSONS**  
 Pasadena, CA

# IR Site 62

## Preliminary ESI Sampling Results

FFA Meeting - January 19, 2012



1

## Brief History of IR Site 62

- 1980 – Surface spill of approx. 200 gallons of PCB oil
- Early 2000 – Potential impact observed during Arroyo Toad habitat restoration
- Late 2000 – Limited shallow soil assessment
- 2002 – Site Evaluation conducted to assess extent of impacts
- 2003 – IDW Excavation conducted to remove remaining impacted soil
- 2009 – SI conducted to assess residual impacts

2

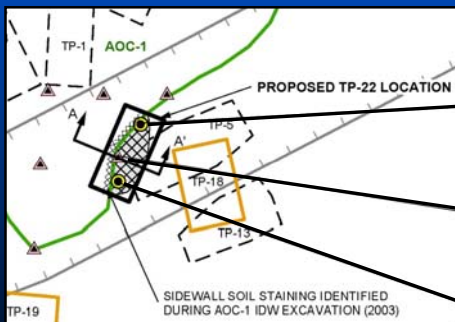
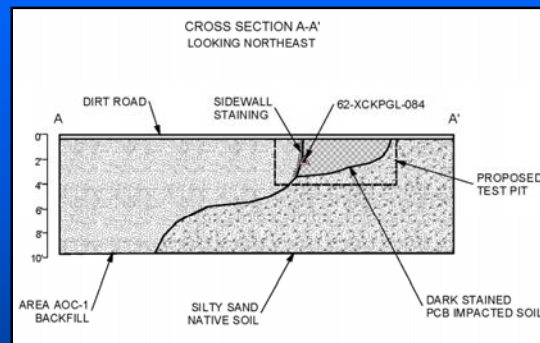


# Expanded SI Technical Approach

- Fill Remaining Data Gaps
  - One Test Pit Positioned to Encompass 3 Data Gap locations
  - Judgmental Sampling Approach: 1 sample approx. every 8 feet along floor and sidewalls
  - 24-hour PCB analysis
  - Over-excavation at RST exceedances
- Conduct Revised Risk Screening

5

## Proposed Test Pit 22



Sample ID	Date	Type	Depth	A-1242	A-1248	A-1260
62-SS-01	8/25/2010	DB	1.0	510U	<b>2800</b>	<b>1300</b>

Sample ID	Date	Type	Depth	A-1242	A-1248	A-1260
62XCKPGL-0084	1/29/2003	DS	1.0	<b>760J</b>	4.6UJ	130J

Sample ID	Date	Type	Depth	A-1242	A-1248	A-1260
62-SS-02	8/25/2010	DB	1.0	510U	<b>4800</b>	<b>1700</b>

6

# Initial Excavation



7

# Initial Excavation (cont.)



8



# Backfill from Previous Excavations

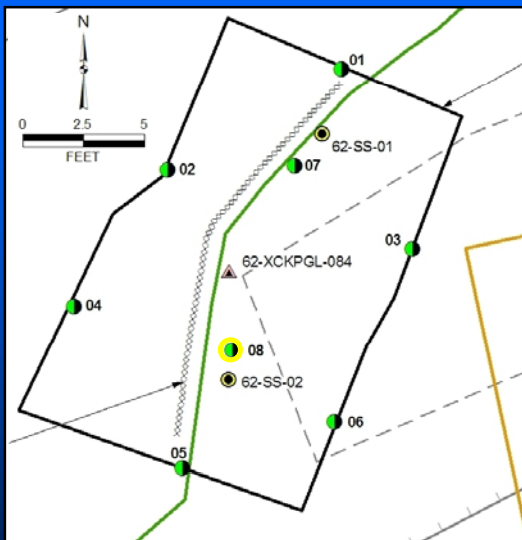


BACKFILL FROM TP-5



BACKFILL FROM AOC-1

# Initial Confirmation Sample Results



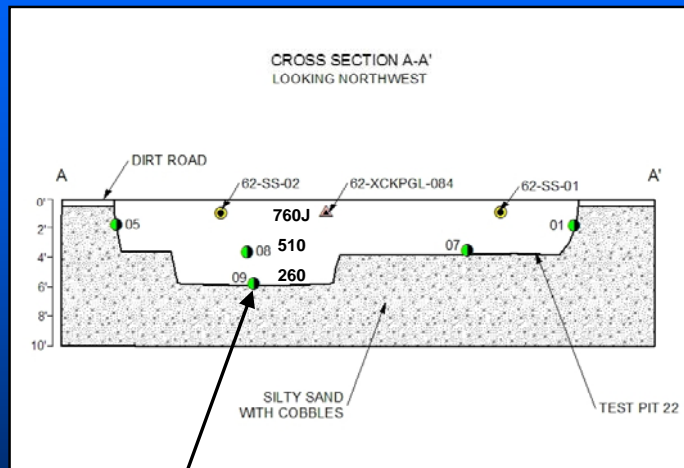
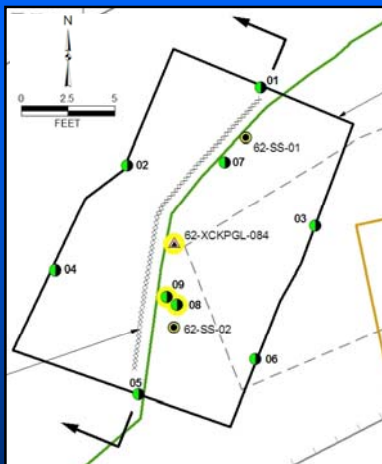
Sample ID	Depth (ft bgs)	Analyte	A-1242	A-1248	A-1260
			RST	220	220
62XCKPGL-0084	1.0	ug/kg	<b>760J</b>	4.6UJ	130J
62-SS-01	1.0	ug/kg	510U	<b>2800</b>	<b>1300</b>
62-SS-02	1.0	ug/kg	510U	<b>4800</b>	<b>1700</b>
CP62-TP22-S-01	2.0	ug/kg	58	52U	49J
CP62-TP22-S-02	2.0	ug/kg	52U	52U	52U
CP62-TP22-S-03	2.0	ug/kg	28J	54U	22J
CP62-TP22-S-04	2.0	ug/kg	27J	53U	47J
CP62-TP22-S-05	2.0	ug/kg	43J	53U	29J
CP62-TP22-S-06	2.0	ug/kg	22J	52U	52U
CP62-TP22-S-07	4.0	ug/kg	35J	53U	23J
CP62-TP22-S-08	4.0	ug/kg	<b>510</b>	52U	<b>360</b>

# Over-Excavation



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# Over-Excavation (cont.)



Sample ID	Depth (ft bgs)	Analyte	A-1242	A-1248	A-1260
		RST	220	220	220
CP62-TP22-S-09	6.5	ug/kg	<b>260</b>	52U	110

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# Preliminary Results

## In-Place Soil PCB Results

Sample ID	Depth (ft bgs)	Analyte	A-1016	A-1221	A-1232	A-1242	A-1248	A-1254	A-1260	Total PCBs
		RST	3900	140	140	220	220	220	220	371
CP62-TP22-S-01	2.0	ug/kg	52U	52U	52U	58	52U	52U	49J	28
CP62-TP22-S-02	2.0	ug/kg	52U	52U	52U	52U	52U	52U	52U	7U
CP62-TP22-S-03	2.0	ug/kg	54U	54U	54U	28J	54U	54U	22J	24
CP62-TP22-S-04	2.0	ug/kg	53U	53U	53U	27J	53U	53U	47J	32
CP62-TP22-S-05	2.0	ug/kg	53U	53U	53U	43J	53U	53U	29J	31
CP62-TP22-S-06	2.0	ug/kg	52U	52U	52U	22J	52U	52U	52U	12
CP62-TP22-S-07	4.0	ug/kg	53U	53U	53U	35J	53U	53U	23J	24
CP62-TP22-S-09	6.5	ug/kg	52U	52U	52U	260	52U	52U	110	216

## SPLP Results

Sample ID	Analyte	A-1016	A-1221	A-1232	A-1242	A-1248	A-1254	A-1260
	Tap Water RSL (2010)	0.96	0.034	0.034	0.034	0.034	0.034	0.034
CP62-TP22-S-09	ug/L	0.54U	0.54U	0.54U	1.3	0.54U	0.54U	0.54U

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# Preliminary Results Summary

- The extent of PCBs above human health and ecological RSTs are assessed; except A-1242
- Concentrations of A-1242 (260 ug/kg) slightly above the human health RST (220 ug/kg) remain at the bottom of the over-excavation (approximately 6.5 feet bgs)
- Concentrations of A-1242 are decreasing with depth
- The preliminary SPLP result of A-1242 (1.3 ug/L) is greater than the Tap Water RSL (0.034 ug/L) at the bottom of the over-excavation (approximately 6.5 feet bgs)
- Groundwater was encountered at approximately 16 feet bgs during the 2003 excavation

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# Questions?

