1515 Arboretum Drive, SE
Grand Rapids, Michigan 49546
(616) 575-3824

45 Belden Place, 4th Floor
San Francisco, California 94104
(415) 773-0400

FISHBECK, THOMPSON, CARR & HUBER, INC.
Engineers * Scientists * Architects * Constructors
in association with:

S.S. PAPADOPULOS & ASSOCIATES, INC.
Environmental and Water Resource Consultants

February 10, 2016

Mr. Bruce H. Wolfe
Attention: Mr. Roger Papler
California Regional Water Quality Control Board (RWQCB)
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Ms. Melanie Morash
U.S. Environmental Protection Agency (USEPA)
75 Hawthorne Street, SFD-7-3
San Francisco, CA 94105

Subject: **Work Plan for Third Injection Event**
Full-Scale Enhanced Reductive Dechlorination (ERD) Treatability Study
Former Teledyne Semiconductor/Spectra-Physics Site
1300 Terra Bella Avenue and 1250 Middlefield Road, Mountain View, California

Dear Mr. Papler and Ms. Morash:

Attached is the Work Plan for the Third Injection Event of the Full-Scale ERD Treatability Study for the Former Teledyne Semiconductor/Spectra-Physics Site located in Mountain View, California. This work plan has been prepared by Fishbeck, Thompson, Carr & Huber, Inc. (FTCH) and S.S. Papadopulos & Associates, Inc., on behalf of TDY Industries, LLC. (TDY).

To date, the findings of the Full-Scale ERD Treatability Study have indicated dramatic reductions in VOCs resulting from the first and second injections. This assessment was supported by the RWQCB at a meeting held with TDY on September 2, 2015. However, it was noted that two performance monitoring wells at the former Semiconductor property, MW-23US and MW-20LI, continue to exhibit elevated concentrations of trichloroethene (TCE). In a follow-up email to the meeting (issued September 14, 2015), the RWQCB stated that special local remediation may need to be conducted at these two locations.

The attached Work Plan has been prepared to address those two areas and is being submitted for your approval. The Work Plan proposes to use injection and recirculation of additional emulsified soybean oil in the identified areas of residual TCE. Three new injection wells will also be installed to improve distribution of the carbon substrate within the area of highest TCE concentration.

We are respectfully requesting a rapid review and approval of the Work Plan by February 26, 2016. The work will be conducted using the same procedures and materials used during previous injection events. It is our goal to complete the new well installations and ERD injections by mid-April 2016. This expedited schedule will allow approximately two months of post-injection time to occur before the next routine semi-annual groundwater monitoring event.

Please contact either of the undersigned if you have any questions or require additional information.

Sincerely,

FISHBECK, THOMPSON, CARR & HUBER, INC.

Michael D. Colvin, CPG
Project Manager

S.S. PAPADOPULOS & ASSOCIATES, INC.

Michael T. Rafferty, P.E. (C 44916)
Principal Engineer

Attachments
By email and FedEx
cc/att: Mr. Ray Ledbetter – USEPA (By email)
Ms. Holly Hadlock – USEPA (By email)
Mr. Edgard Bertaut - TDY Industries, LLC. (By email)
Mr. Rick Podlaski – Thermo Fisher Scientific (By email)
Ms. Erica Kalve – Arcadis (By email)

WORK PLAN FOR THIRD INJECTION EVENT
FULL-SCALE ENHANCED REDUCTIVE DECHLORINATION (ERD) TREATABILITY STUDY
TELEDYNE SEMICONDUCTOR/SPECTRA PHYSICS SITE
MOUNTAIN VIEW, CALIFORNIA

PREPARED FOR:

TDY INDUSTRIES, LLC

PITTSBURGH, PENNSYLVANIA
AND
THERMO FISHER SCIENTIFIC
WALTHAM, MASSACHUSETTS

FEBRUARY 10, 2016
PROJECT NO. G100464B3

1515 Arboretum Drive, SE
Grand Rapids, Michigan 49546
616.575.3824
www.ftch.com
Fishbeck, Thompson, Carr & Huber, Inc.
engineers | scientists | architects | constructors

TABLE OF CONTENTS

1.0 INTRODUCTION 1
- 1.1 Background 1
- 1.2 Objective 2
- 1.3 Report Structure 2

2.0 CURRENT GROUNDWATER CONDITIONS 2

3.0 WELL DESIGN AND INSTALLATION METHODS 3
- 3.1 Well Installations 3
- 3.2 Well Sampling 4

4.0 INJECTION DESIGN 4
- 4.1 Injection Areas 5
  - 4.1.1 Lower Intermediate Zone 5
  - 4.1.2 Shallow Zone 5
  - 4.1.3 Upper Shallow Zone 5
- 4.2 Dosage 5
- 4.3 Delivery of Carbon Source 6

5.0 SCHEDULE 6

LIST OF FIGURES

Figure 1 VOC and TOC Analytical Results – Shallow Zone – December 2015
Figure 2 VOC and TOC Analytical Results – Lower Intermediate Zone – December 2015

LIST OF TABLES

Table 1 Volatile Organic Compound Data Summary for Selected Injection Wells

LIST OF ABBREVIATIONS/ACRONYMS

bgs	below ground surface
ERD	enhanced reductive dechlorination
FTCH	Fishbeck, Thompson, Carr & Huber, Inc.
HSA	hollow-stem auger
LI	lower intermediate
MW	monitoring well
OM	organic matter
PID	photoionization detector
RWQCB	California Regional Water Quality Control Board, San Francisco Bay Region
SCVWD	Santa Clara Water Valley District
Semiconductor	Teledyne Semiconductor
SSP&A	S.S. Papadopulos and Associates, Inc.
TCE	trichloroethene
TDY	TDY Industries, LLC
US	upper shallow
VOC	volatile organic compound

1.0 INTRODUCTION

Fishbeck, Thompson, Carr and Huber, Inc. (FTCH) in association with S.S. Papadopulos and Associates, Inc. (SSP&A) has prepared this Work Plan on behalf of TDY Industries, LLC (TDY) for the implementation of a limited third injection event associated with the full-scale enhanced reductive dechlorination (ERD) treatability study for the Teledyne Semiconductor (Semiconductor) and Spectra-Physics Lasers, Inc. Site, located at 1300 Terra Bella Avenue and 1250 West Middlefield Road, Mountain View, California, respectively.

1.1 BACKGROUND

A Work Plan for the full-scale ERD treatability study at the former Semiconductor property was prepared by FTCH and SSP&A in 2010 (FTCH/SSPA 2010). The Work Plan and its associated addenda (FTCH 2010a, 2010b) were approved by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) on January 31, 2011. The full-scale ERD treatability study was implemented during 2011 and the findings indicated a high degree of success at destroying volatile organic compound (VOC) mass at the former Semiconductor property. Approximately two years following the first injection event, a comprehensive performance monitoring event was completed to assess the continued efficacy of the reductive dechlorination and determine if and where additional carbon substrate was required to maintain or elevate ERD activity. During this evaluation, three areas were identified: the South Area, where there was evidence to suggest that residual significant VOC mass was still present; the North Area, where appreciable decreases in VOC concentration were observed, however, ERD activity was waning; and, the Northwest Area, where ERD activity was hindered by limited hydraulic connectivity and additional organic matter (OM) and recirculation was recommended. The findings obtained from this monitoring event and the recommendations for a second injection event were reported in the *Full-Scale ERD Treatability Study Performance Status Report and Injection Plan* (FTCH 2013). This second injection event occurred during November 2013 and January and February 2014.

To date, the findings have indicated dramatic reductions in VOCs resulting from the first and second injections. This assessment was supported by the RWQCB at a meeting held with TDY on September 2, 2015. However, it was noted that two performance monitoring wells at the former Semiconductor property continue to exhibit elevated concentrations of trichloroethene (TCE):

- MW-23US - an Upper Shallow Zone well and the southernmost (upgradient) performance monitoring location.
- MW-20LI – a Lower Intermediate Zone well also located in the southern (upgradient) portion of the Site.

In a follow-up email to the meeting (issued September 14, 2015), the RWQCB stated that special local remediation may need to be conducted at these two locations. In response to this comment, TDY and FTCH

discussed possible additional remedial work to destroy the TCE. Although other remedial alternatives were discussed, the overall effectiveness of ERD at this site is irrefutable; hence, future efforts should consider means to improve its performance in the areas of the two identified wells.

Of the two wells, MW-20LI represents the more significant area of residual VOC mass based on its TCE concentration relative to MW-23US (3,200 versus 290 micrograms per liter, respectively, based on the November 2015 sampling results). The reason for the low ERD response at MW-20LI appears to be the result of the limited amount of sand layers in the Lower Intermediate Zone in this area and reduced connectivity with surrounding injection/recirculation wells.

1.2 OBJECTIVE

The objective of this third injection event is to overcome the hydrostratigraphic limitations posed by the subsurface conditions in the vicinity of MW-20LI and boost ERD activity in this area as well as the MW-23US area. This Work Plan presents our recommended approach to infill injection wells in close proximity to MW-20LI and complete a limited third injection event to more aggressively attack the remaining VOC mass.

1.3 REPORT STRUCTURE

The remainder of this Work Plan is structured into the following sections:

Section 2.0 – Presents the recent groundwater performance monitoring results and rationale for this Work Plan.
Section 3.0 – Presents the proposed injection well installation activities.
Section 4.0 – Describes the designed injection event.
Section 5.0 – Presents the project schedule for the implementation of this Work Plan.

2.0 CURRENT GROUNDWATER CONDITIONS

In preparation of the third injection, an expanded sampling event of select injection wells was performed in the two areas discussed above. Twelve injection wells were sampled during the November 2015 semiannual performance monitoring event in order to assess the degree of ERD progress in wells surrounding MW-23US and MW-20LI. It had been two years since the last injection, thus, it was believed these wells would provide a reasonable assessment of ERD activity in the areas. Since MW-19S is co-located with MW-20LI and significant daughter compound concentrations remain at MW-19S, nearby shallow injection wells in this area were also sampled. The analytical results from the Shallow Zone and Upper Shallow Zone injection wells and Lower Intermediate Zone injection wells are presented in Table 1 and on Figures 1 and 2, respectively. The findings are summarized below:

MW-23US – The two injection wells directly upgradient of MW-23US (i.e., A-25US and A-26US) contained only trace concentrations of VOCs. This indicates that ERD has been very effective in the immediate areas surrounding those injection wells; however, the ERD "front" has not migrated northward to MW-23US. Although the average linear groundwater velocity is more than sufficient to have reached MW-23US, there may be heterogeneities that have allowed for the transported amendments to bypass MW-23US.

MW-19S – The analytical results from MW-19S indicate that ERD activity within the Shallow Zone remains robust with significant generation of ethane and ethene. Data from the surrounding injection wells also indicate that ERD activity has been successful in destroying nearly all the VOC mass. Thus, conditions in this area within the Shallow Zone continue to be highly favorable to ERD. Also note that data collected during December 2014 from sampling of A-8S and A-15S are included on the figure and indicate successful ERD at these locations.

MW-20LI – The analytical results suggest that the area of elevated VOCs appears to be limited to the immediate vicinity of MW-20LI; concentrations of VOCs in all of the nearby injection wells that were sampled exhibit non-detectable to trace levels.

3.0 WELL DESIGN AND INSTALLATION METHODS

3.1 WELL INSTALLATIONS

FTCH is recommending the installation of three additional Lower Intermediate Zone injection wells at the approximate locations shown on Figure 2. The addition of these wells should enhance delivery of emulsified soybean oil to the target zone and help to overcome the low permeability and limited hydraulic connectivity in the area.

Well installation permits will be obtained from the Santa Clara Water Valley District (SCVWD) prior to drilling. The well numbers will continue from the last exterior well installed in the southern area (i.e., B-29LI, B-30LI, and B-31LI). The wells will be drilled using the standard hollow-stem auger method. Soil samples will be collected continuously from approximately 40 feet below ground surface (bgs) to the proposed total depth of 72 feet bgs. Soil samples will be logged by an experienced geologist and screened for the presence of VOCs using a photoionization detector (PID). A soil description/well construction log will be generated for each location and include all lithologic observations, PID readings, and well construction details.

Wells will be constructed of 4-inch-diameter, Schedule 80 polyvinyl chloride screens and casing. The anticipated screen interval is from 52 to 72 feet bgs; however, if lithological or field screening observations suggest a more beneficial position for the well screen, minor modifications to the screened interval may occur as long as the modifications are compliant with SCVWD regulations. Wells will be constructed with a filter pack placed in the interval from the base of the well screen to 2 feet above the top of the well screen.

An approximately two-foot-thick bentonite seal will be placed above the filter pack followed by a high solids bentonite grout to approximately 2 feet bgs. The bentonite grout will be placed using a tremmie pipe positioned slightly above the bentonite pellet seal to provide a continuous seal. A flush-mounted protective well cover will be cemented in place around each well. Each well will be completed with a locking well seal to prevent tampering and infiltration of rain or surface water into the well. Each well will be developed until free of suspended sediment to provide injection/extraction wells suitable for ERD remediation.

All soil cuttings generated during the drilling process will be temporarily staged in a roll-off box. They will then be properly characterized and disposed offsite at a licensed facility. A temporary decontamination pad will be constructed for steam cleaning of drill equipment. The decontamination water and well development water will be placed in the onsite storage container for later transport and treatment at a licensed disposal facility.

3.2 WELL SAMPLING

Contemporaneous with the new well installations, existing injection wells A-8S and A-15S will again be sampled for VOCs. The purpose of the sampling is verify that little or no rebound of VOCs has occurred since the December 2014 sampling event and whether additional injection of carbon substrate is warranted for the Shallow Zone at these locations.

4.0 INJECTION DESIGN

After 4-1/2 years of active remediation, analytical results at two monitoring wells, MW-20LI and MW-23US, indicate that significant concentrations of TCE remain in two small areas in the southern portion of the Site. ERD has not been successful at MW-20LI due to low conductivity soils associated with this monitoring point. Although the current TCE concentration at MW-23US is approximately one-half of its pre-injection value, the analytical data continue to suggest weak ERD activity.

B-15S, was among 12 injection wells sampled during the November 2015 monitoring event and found to have significant concentrations of cis-1,2-dichloroethene and vinyl chloride. While this result indicates robust ERD activity and the concentration of total organic carbon at this well remains acceptable, injecting additional carbon substrate at B-15S will not add significant cost to this mobilization and will provide support for complete mineralization of the chlorinated VOCs at this location.

In most cases, water for injection will be provided from wells adjacent to the injection well, establishing a recirculation loop. This procedure is consistent with the methods employed during the first and second injection events. Recirculation loops will be used to inject and distribute the amendments where possible. If adjacent wells are not capable of providing sufficient water for injection, supplementary wells will be

utilized as injection water sources. Carbon substrate, a buffering solution and a nutritional supplement (amendments) will be delivered to the injection well through an injection point installed in the injection hose.

4.1 INJECTION AREAS

Six wells will be injected during this event. The wells are distributed in three stratigraphic zones as described below. All of the injections will occur in the southern portion of the site.

4.1.1 LOWER INTERMEDIATE ZONE

Injection and recirculation of the carbon substrate will use the three new Lower Intermediate Zone wells: B-29LI, B-30LI, and B-31LI. Pumps will be placed in two of the three wells for groundwater extraction. The third well will serve as the injection well. The discharge from the extraction wells will be combined and routed to the injection well. After delivery of the amendments, the extraction wells will be run for 24 hours to recirculate the amended groundwater. The process will be repeated until injection and recirculation have been completed at all three wells.

4.1.2 SHALLOW ZONE

Additional injection/recirculation of water will be conducted at B-10S, B-15S, and B-16S and depending on the analytical results, possibly A-8S and/or A-15S. Based on the low production rates from the adjacent injection well, B-18S, additional water will be obtained from other injection wells in the area.

4.1.3 UPPER SHALLOW ZONE

During the last injection event, A-25US received/recirculated 9,555 gallons of water; while A-26US only received 1,152 gallons. The third injection event will more evenly distribute the water between the two wells through higher injection rates and/or longer recirculation (i.e., greater than 24 hours).

4.2 DOSAGE

Each injection well will receive 92 gallons of EOS 450 (equivalent to 375 pounds of OM). This is approximately 15% more than the volume of EOS 450 delivered to the existing injection wells during the November 2013 injection event. A buffer and nutritional supplements will be injected into each well during the EOS 450 injection. The EOS dose is subject to change pending information that will be obtained during installation of the three new wells.

4.3 DELIVERY OF CARBON SOURCE

The third injection event will employ the same field procedures used during the 2011 and the 2013/2014 injection events with modifications. Emulsified soy bean oil (EOS 450) will again be used at the carbon substrate. CoBupH Mg ($MgOH_2$), will be used as the buffering agent and Vitamin B12 will be provided to support ERD metabolism. Delivery and subsurface distribution of the substrate will be accomplished through multiple recirculation loops between specified wells and supplemental water provided by onsite injection wells. The design volume of water per injection well is a minimum of 10,000 gallons. Consistent with past injections, the three newly installed injection wells will be inoculated with the BAC-9 culture approximately 4 to 6 weeks following injection of the carbon substrate.

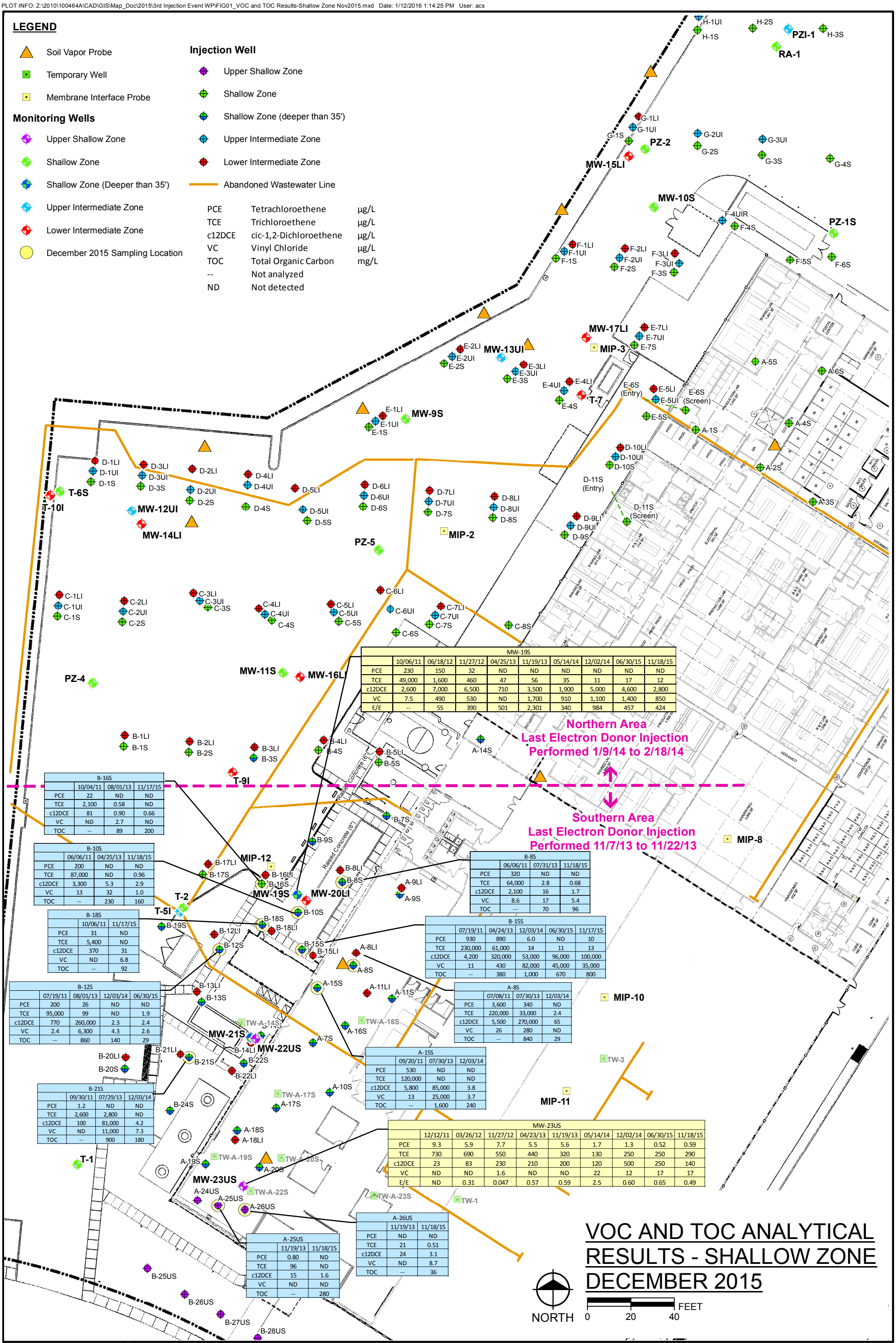
5.0 SCHEDULE

Implementation of this Work Plan will first consist of completing the well installations. This task is currently scheduled to occur during early March 2016 and is anticipated to require up to two weeks to complete.

The injection event will follow on the completion of the drilling work. It is tentatively scheduled to occur during mid-March to early April. The actual field work is expected to require 1-1/2 weeks to complete. The injection of substrate and amendments will occur during daytime working hours. As during the first injection event, a security guard will be onsite during the nighttime and weekend hours to oversee the recirculation period. The guard will be instructed how to turn individual pumps off, or the entire system off if necessary.

The obtaining of well permits and scheduling of the field work and delivery of supplies is presently in progress. The RWQCB will be notified of the schedule as the work progresses.

PLOT INFO: Z:\2010\100464A\CAD\GIS\Map_Doc\2015\3rd Injection Event WP\FIG01_VOC and TOC Results-Shallow Zone Nov2015.mxd Date: 1/12/2016 1:14:25 PM User: acs



MW-19S	10/06/11	06/18/12	11/27/12	04/25/13	11/19/13	05/14/14	12/02/14	06/30/15	11/18/15
PCE	230	150	32	ND	ND	ND	ND	ND	ND
TCE	49,000	1,600	460	47	56	35	11	17	12
c12DCE	2,600	7,000	6,500	710	3,500	1,900	5,000	4,600	2,800
VC	7.5	490	530	ND	1,700	910	1,100	1,400	850
E/E	--	55	390	501	2,301	340	984	457	424

B-16S	10/04/11	08/01/13	11/17/15
PCE	22	ND	ND
TCE	2,100	0.58	ND
c12DCE	81	0.90	0.66
VC	ND	2.7	ND
TOC	--	89	200

B-10S	06/06/11	04/25/13	11/18/15
PCE	200	ND	ND
TCE	87,000	ND	0.96
c12DCE	3,300	5.3	2.9
VC	13	32	1.0
TOC	--	230	160

B-18S	10/06/11	11/17/15
PCE	31	ND
TCE	5,400	ND
c12DCE	370	31
VC	ND	6.8
TOC	--	92

B-12S	07/19/11	08/01/13	12/03/14	06/30/15
PCE	200	26	ND	ND
TCE	95,000	99	ND	1.9
c12DCE	770	260,000	2.3	2.4
VC	2.4	6,300	4.3	2.6
TOC	--	860	140	29

B-21S	09/30/11	07/29/13	12/03/14
PCE	1.2	ND	ND
TCE	2,600	2,800	ND
c12DCE	100	81,000	4.2
VC	ND	11,000	7.3
TOC	--	900	180

B-8S	06/06/11	07/31/13	11/18/15
PCE	320	ND	ND
TCE	64,000	2.8	0.68
c12DCE	2,100	16	1.7
VC	8.6	17	5.4
TOC	--	70	96

B-15S	07/19/11	04/24/13	12/03/14	06/30/15	11/17/15
PCE	930	890	6.0	ND	10
TCE	230,000	61,000	14	11	13
c12DCE	4,200	320,000	53,000	96,000	100,000
VC	11	430	82,000	45,000	35,000
TOC	--	380	1,000	670	800

A-8S	07/08/11	07/30/13	12/03/14
PCE	3,600	340	ND
TCE	220,000	33,000	2.4
c12DCE	5,500	270,000	65
VC	26	280	ND
TOC	--	840	29

A-15S	09/20/11	07/30/13	12/03/14
PCE	530	ND	ND
TCE	120,000	ND	ND
c12DCE	5,800	85,000	3.8
VC	13	25,000	3.7
TOC	--	1,600	240

MW-23US	12/12/11	03/26/12	11/27/12	04/23/13	11/19/13	05/14/14	12/02/14	06/30/15	11/18/15
PCE	9.3	5.9	7.7	5.5	5.6	1.7	1.3	0.52	0.59
TCE	730	690	550	440	320	130	250	250	290
c12DCE	23	83	230	210	200	120	500	250	140
VC	ND	ND	1.6	ND	ND	22	12	17	17
E/E	ND	0.31	0.047	0.57	0.59	2.5	0.60	0.65	0.49

A-25US	11/19/13	11/18/15
PCE	0.80	ND
TCE	96	ND
c12DCE	15	1.6
VC	ND	ND
TOC	--	280

A-26US	11/19/13	11/18/15
PCE	ND	ND
TCE	21	0.51
c12DCE	24	3.1
VC	ND	8.7
TOC	--	36

VOC AND TOC ANALYTICAL RESULTS - SHALLOW ZONE DECEMBER 2015

Former Teledyne Semiconductor Site
Mountain View, California

Work Plan for 3rd Injection Event

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PROJECT NO. G100464M
FIGURE NO. 1

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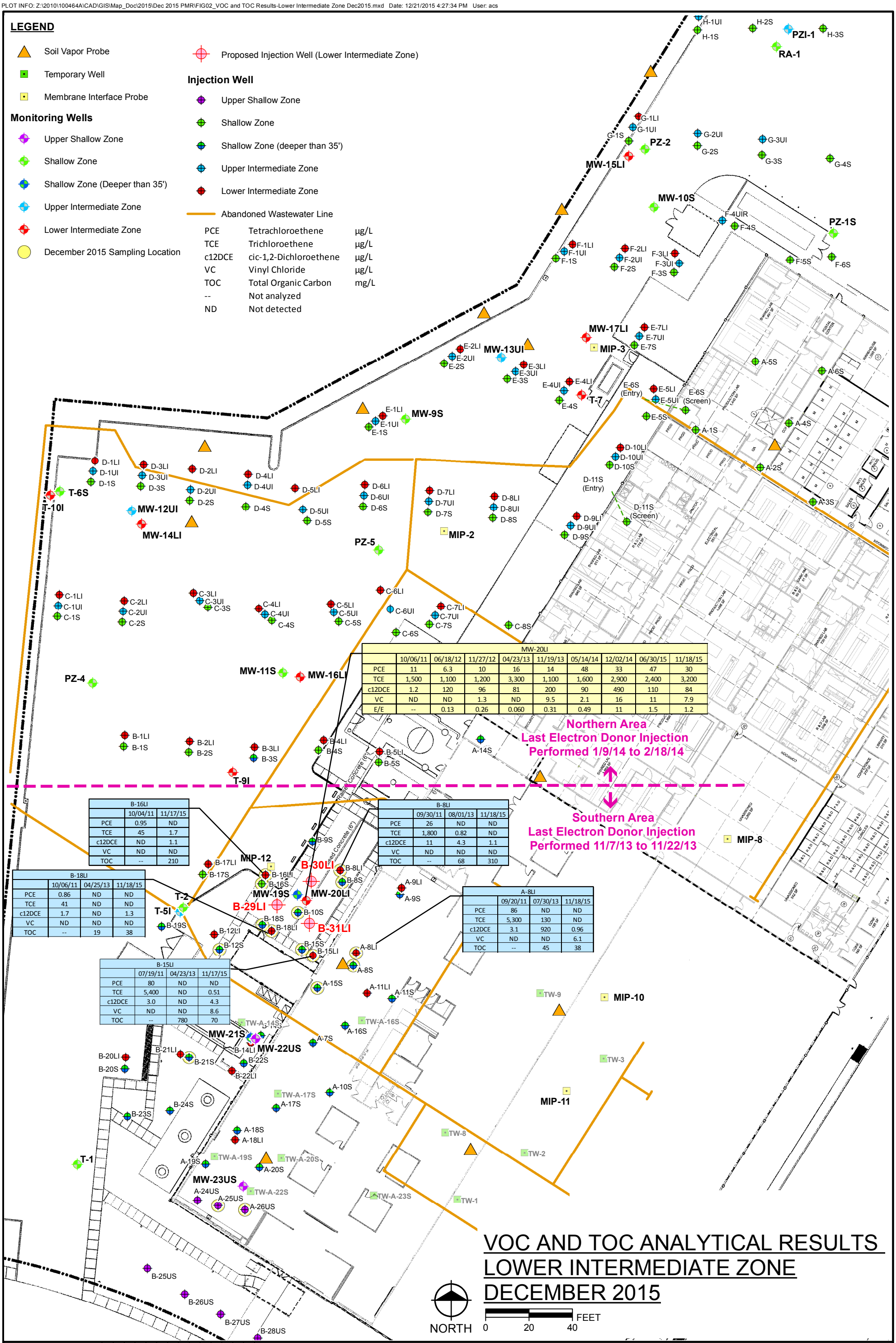
PLOT INFO: Z:\2010\100464A\CAD\GIS\Map_Doc\2015\Dec 2015 PMR\FIG02_VOC and TOC Results-Lower Intermediate Zone Dec2015.mxd Date: 12/21/2015 4:27:34 PM User: acs



MW-20LI	10/06/11	06/18/12	11/27/12	04/23/13	11/19/13	05/14/14	12/02/14	06/30/15	11/18/15
PCE	11	6.3	10	16	14	48	33	47	30
TCE	1,500	1,100	1,200	3,300	1,100	1,600	2,900	2,400	3,200
c12DCE	1.2	120	96	81	200	90	490	110	84
VC	ND	ND	1.3	ND	9.5	2.1	16	11	7.9
E/E	--	0.13	0.26	0.060	0.31	0.49	11	1.5	1.2

B-16LI	10/04/11	11/17/15
PCE	0.95	ND
TCE	45	1.7
c12DCE	ND	1.1
VC	ND	ND
TOC	--	210

B-8LI	09/30/11	08/01/13	11/18/15
PCE	26	ND	ND
TCE	1,800	0.82	ND
c12DCE	11	4.3	1.1
VC	ND	ND	ND
TOC	--	68	310

B-18LI	10/06/11	04/25/13	11/18/15
PCE	0.86	ND	ND
TCE	41	ND	ND
c12DCE	1.7	ND	1.3
VC	ND	ND	ND
TOC	--	19	38

A-8LI	09/20/11	07/30/13	11/18/15
PCE	86	ND	ND
TCE	5,300	130	ND
c12DCE	3.1	920	0.96
VC	ND	ND	6.1
TOC	--	45	38

B-15LI	07/19/11	04/23/13	11/17/15
PCE	80	ND	ND
TCE	5,400	ND	0.51
c12DCE	3.0	ND	4.3
VC	ND	ND	8.6
TOC	--	780	70

VOC AND TOC ANALYTICAL RESULTS LOWER INTERMEDIATE ZONE DECEMBER 2015

PROJECT NO. G100464M

FIGURE NO. 2

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Former Teledyne Semiconductor Site
Mountain View, California

December 2015 Performance Monitoring

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Table 1 - Volatile Organic Compound Data Summary for Selected Injection Wells
Former Teledyne Semiconductor Spectra Physics Site
Mountain View, California
November 2015

Aquifer Unit	Monitoring Location	Collection Date	cis-1,2-Dichloroethene (µg/L)	Tetrachloroethene (µg/L)	Trichloroethene (µg/L)	Vinyl chloride (µg/L)	Total VOCs (µg/L)
Shallow Zone	A-8S	07/08/11	5,500	3,600	220,000	26	244,881
		07/30/13	270,000	340	33,000	280	308,650
		12/03/14	65		2.4		126
	A-15S	09/20/11	5,800	530	120,000	13	127,182
		07/30/13	85,000			25,000	112,238
		12/03/14	3.8			3.7	172
	A-25US	11/19/13	15	0.80	96		812
		11/18/15	1.6				7.3
	A-26US	11/19/13	24		21		66
		11/18/15	3.1		0.51	8.7	13
	B-8S	06/06/11	2,100	320	64,000	8.6	67,338
		07/31/13	16		2.8	17	127
		11/18/15	1.7		0.68	5.4	62
	B-10S	06/06/11	3,300	200	87,000	13	91,033
		04/25/13	5.3			32	145
		11/18/15	2.9		0.96	1.0	35
	B-12S	07/19/11	770	200	95,000	2.4	96,772
		08/01/13	260,000	26	99	6,300	281,211
		12/03/14	2.3			4.3	229
		06/30/15	2.4		1.9	2.6	262
	B-15S	07/19/11	4,200	930	230,000	11	238,201
		04/24/13	320,000	890	61,000	430	432,590
		12/03/14	53,000	6.0	14	82,000	136,642
		06/30/15	96,000		11	45,000	148,460
		11/17/15	100,000	10	13	35,000	138,533
	B-16S	10/04/11	81	22	2,100		2,261
		08/01/13	0.90		0.58	2.7	45
		11/17/15	0.66				10
	B-18S	10/06/11	370	31	5,400		5,851
		11/17/15	31			6.8	93
	B-21S	09/30/11	100	1.2	2,600		2,707
		07/29/13	81,000		2,800	11,000	95,757
		12/03/14	4.2			7.3	44
Lower-Intermediate Zone	A-8LI	09/20/11	3.1	86	5,300		5,973
		07/30/13	920		130		1,050
		11/18/15	0.96			6.1	12
	B-8LI	09/30/11	11	26	1,800		1,979
		08/01/13	4.3		0.82		27
		11/18/15	1.1				71
	B-15LI	07/19/11	3.0	80	5,400		5,909
		04/23/13					314
		11/17/15	4.3		0.51	8.6	40
	B-16LI	10/04/11		0.95	45		49
		11/17/15	1.1		1.7		84
	B-18LI	10/06/11	1.7	0.86	41		50
		04/25/13					14
		11/18/15	1.3				1.9

Footnotes & Abbreviations:
An empty cell indicates the compound was not detected at that location.