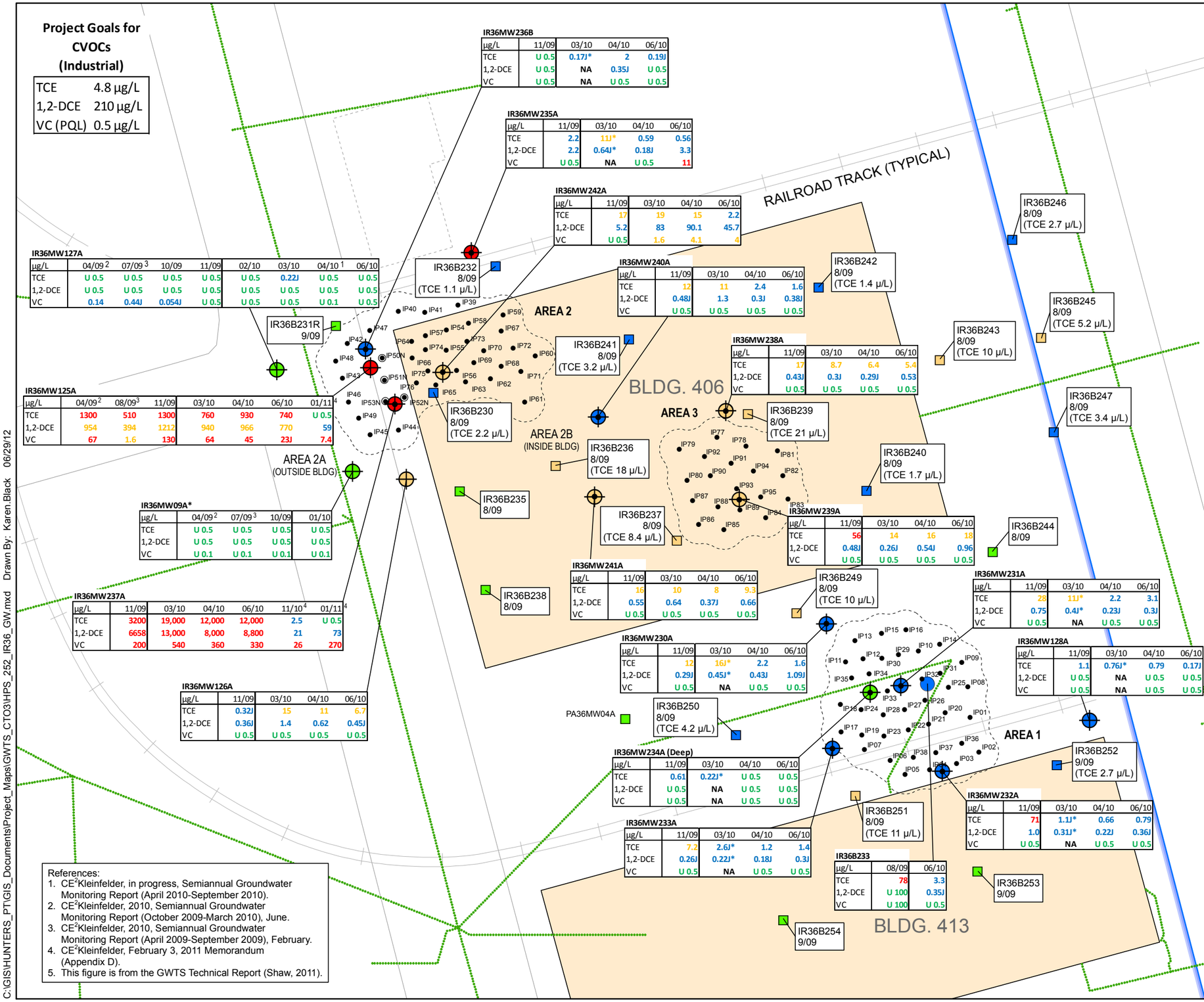

Project Goals for CVOCs (Industrial)

TCE	4.8 µg/L
1,2-DCE	210 µg/L
VC (PQL)	0.5 µg/L

IR36MW236B

µg/L	11/09	03/10	04/10	06/10
TCE	U 0.5	0.17J*	2	0.19J
1,2-DCE	U 0.5	NA	0.35J	U 0.5
VC	U 0.5	NA	U 0.5	U 0.5

IR36MW235A

µg/L	11/09	03/10	04/10	06/10
TCE	2.2	11J*	0.59	0.56
1,2-DCE	2.2	0.64J*	0.18J	3.3
VC	U 0.5	NA	U 0.5	11

IR36MW242A

µg/L	11/09	03/10	04/10	06/10
TCE	17	19	15	2.2
1,2-DCE	5.2	83	90.1	45.7
VC	U 0.5	1.6	4.1	4

IR36MW127A

µg/L	04/09 [2]	07/09 [3]	10/09	11/09	02/10	03/10	04/10 [1]	06/10
TCE	U 0.5	U 0.5	U 0.5	U 0.5	U 0.5	0.22J	U 0.5	U 0.5
1,2-DCE	U 0.5	U 0.5	U 0.5	U 0.5	U 0.5	U 0.5	U 0.5	U 0.5
VC	0.14	0.44J	0.054J	U 0.5	U 0.5	U 0.5	U 0.1	U 0.5

IR36MW240A

µg/L	11/09	03/10	04/10	06/10
TCE	12	11	2.4	1.6
1,2-DCE	0.48J	1.3	0.3J	0.38J
VC	U 0.5	U 0.5	U 0.5	U 0.5

IR36MW238A

µg/L	11/09	03/10	04/10	06/10
TCE	17	8.7	6.4	5.4
1,2-DCE	0.43J	0.3J	0.29J	0.53
VC	U 0.5	U 0.5	U 0.5	U 0.5

IR36MW125A

µg/L	04/09 [2]	08/09 [3]	11/09	03/10	04/10	06/10	01/11 [4]
TCE	1300	510	1300	760	930	740	U 0.5
1,2-DCE	954	394	1212	940	966	770	59
VC	67	1.6	130	64	45	23J	7.4

IR36MW09A*

µg/L	04/09 [2]	07/09 [3]	10/09	01/10
TCE	U 0.5	U 0.5	U 0.5	U 0.5
1,2-DCE	U 0.5	U 0.5	U 0.5	U 0.5
VC	U 0.1	U 0.1	U 0.1	U 0.1

IR36MW237A

µg/L	11/09	03/10	04/10	06/10	11/10 [4]	01/11 [4]
TCE	3200	19,000	12,000	12,000	2.5	U 0.5
1,2-DCE	6658	13,000	8,000	8,800	21	73
VC	200	540	360	330	26	270

IR36MW126A

µg/L	11/09	03/10	04/10	06/10
TCE	0.32J	15	11	6.7
1,2-DCE	0.36J	1.4	0.62	0.45J
VC	U 0.5	U 0.5	U 0.5	U 0.5

IR36MW239A

µg/L	11/09	03/10	04/10	06/10
TCE	56	14	16	18
1,2-DCE	0.48J	0.26J	0.54J	0.96
VC	U 0.5	U 0.5	U 0.5	U 0.5

IR36MW241A

µg/L	11/09	03/10	04/10	06/10
TCE	16	10	8	9.3
1,2-DCE	0.55	0.64	0.37J	0.66
VC	U 0.5	U 0.5	U 0.5	U 0.5

IR36MW231A

µg/L	11/09	03/10	04/10	06/10
TCE	28	11J*	2.2	3.1
1,2-DCE	0.75	0.4J*	0.23J	0.3J
VC	U 0.5	NA	U 0.5	U 0.5

IR36MW230A

µg/L	11/09	03/10	04/10	06/10
TCE	12	16J*	2.2	1.6
1,2-DCE	0.29J	0.45J*	0.43J	1.09J
VC	U 0.5	NA	U 0.5	U 0.5

IR36MW128A

µg/L	11/09	03/10	04/10	06/10
TCE	1.1	0.76J*	0.79	0.17J
1,2-DCE	U 0.5	NA	U 0.5	U 0.5
VC	U 0.5	NA	U 0.5	U 0.5

IR36MW234A (Deep)

µg/L	11/09	03/10	04/10	06/10
TCE	0.61	0.22J*	U 0.5	U 0.5
1,2-DCE	U 0.5	NA	U 0.5	U 0.5
VC	U 0.5	NA	U 0.5	U 0.5

IR36MW233A

µg/L	11/09	03/10	04/10	06/10
TCE	7.2	2.6J*	1.2	1.4
1,2-DCE	0.26J	0.22J*	0.18J	0.3J
VC	U 0.5	NA	U 0.5	U 0.5

IR36B233

µg/L	08/09	06/10
TCE	78	3.3
1,2-DCE	U 100	0.35J
VC	U 100	U 0.5

IR36MW232A

µg/L	11/09	03/10	04/10	06/10
TCE	71	1.1J*	0.66	0.79
1,2-DCE	1.0	0.31J*	0.22J	0.36J
VC	U 0.5	NA	U 0.5	U 0.5

References:
1. CE²Kleinfelder, in progress, Semiannual Groundwater Monitoring Report (April 2010-September 2010).
2. CE²Kleinfelder, 2010, Semiannual Groundwater Monitoring Report (October 2009-March 2010), June.
3. CE²Kleinfelder, 2010, Semiannual Groundwater Monitoring Report (April 2009-September 2009), February.
4. CE²Kleinfelder, February 3, 2011 Memorandum (Appendix D).
5. This figure is from the GWTS Technical Report (Shaw, 2011).

Legend

- Existing Monitoring Well
- Temporary Monitoring Well
- Grab Sample Location - Pre- and Post-Injection
- Grab Sample Location - Pre-Injection Only (with detected TCE concentrations)
- Microscale ZVI Injection Point
- Nanoscale ZVI Injection Point

Sampling Results
Color represents highest CVOC concentration relative to PG, based on most recent sample date

- > 10 x PG
- U - PG
- PG - 10 x PG
- U (Undetected)

CVOC Concentration in Groundwater (µg/L)

	Pre-Injection Characterization	Post-Injection Sampling			
Units	µg/L	11/09	01/10	02/10	03/10	Sample Date
Analyte	PCE	0.36J	U 0.5	U 0.5	U 0.5	Results

The ZVI-injection period was from 12/10/09 through 12/17/09

- Storm Drain Line
- Parcel E Boundary
- Building (Demolished)
- Building (Existing)

CVOC	Chlorinated Volatile Organic Compound
GWTS	Groundwater Treatability Study
J	Estimated Concentration Below Reporting Limit
J*	Estimated Result for Sample Stored above 4°C and Analyzed past the Holding Time
NA	Not Analyzed
µg/L	Micrograms per Liter
PG	Project Goal
PQL	Practical Quantitation Limit
TCE	Trichloroethene
1,2 DCE	Sum of cis 1,2-dichloroethene and trans 1,2-dichloroethene
VC	Vinyl chloride
U	Undetected

0 50 100 Feet

N

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San Diego, California

FIGURE 6
IR36 AREA PRE- AND POST-INJECTION CVOCs DETECTED ABOVE PGs IN GROUNDWATER AND ZVI INJECTION LOCATIONS

PARCEL E GWTS ADDITIONAL INVESTIGATION WORK PLAN
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

C:\GIS\HUNTERS_PT\GIS_Documents\Project_Maps\GWTS_CTO3\HPS_252_IR36_GW.mxd Drawn By: Karen.Black 06/29/12