Naval Facilities Engineering Command

BRAC PMO West

Parcel C Remedial Action
Project Update for Parcel C (RU-C1, C4, and C5)
Hunters Point Naval Shipyard
San Francisco, California

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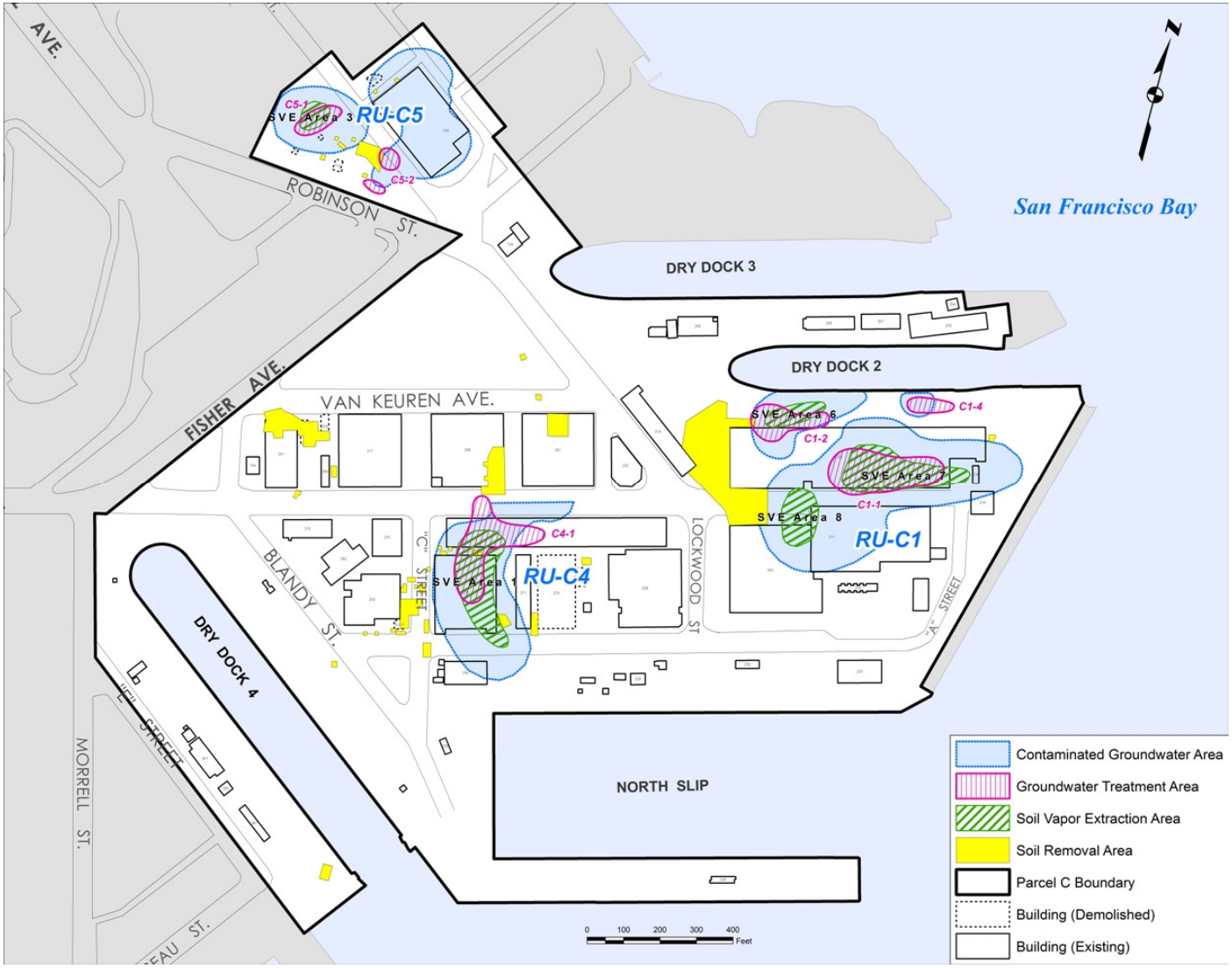
Contracted Support to NAVFAC BRAC PMO

BCT Meeting July 2, 2014

Agenda

- Groundwater – Initial Performance Monitoring Results
- SVE – Overview and Photos of Completed Systems
- Schedule – Upcoming Activities

Parcel C GW Injection Locations at RU-C1, C4 and C5; and SVE System Locations (SVE Areas 1, 3, 6, 7, and 8)



Summary of In-situ Bioremediation Injections (RU-C1, C4 & C5) Completed February – April 2014

Plume	ZVI (lb.)	Lactate (gals)	Lactate & Water (gals)	SDC 9 Bacteria (liters)	Molasses (gals)
C1-1	9,350	2,300	28,420	76	-
C1-2	5,950	5,950	13,720	24	-
C1-4	-	-	-	-	750
C4-1	10,200	2,000	24,500	200	-
C5-1	-	640	7,840	20	-
C5-2	-	-	-	-	750
TOTAL	25,500	10,890	74,480	250	1,500

Post-Injection Groundwater Sampling Schedule (RU-C1, C4 & C5)

- **Overall Post-Injection GW sampling schedule for RU-C1, C4 & C5:**
  - **March 2014 through March 2015**

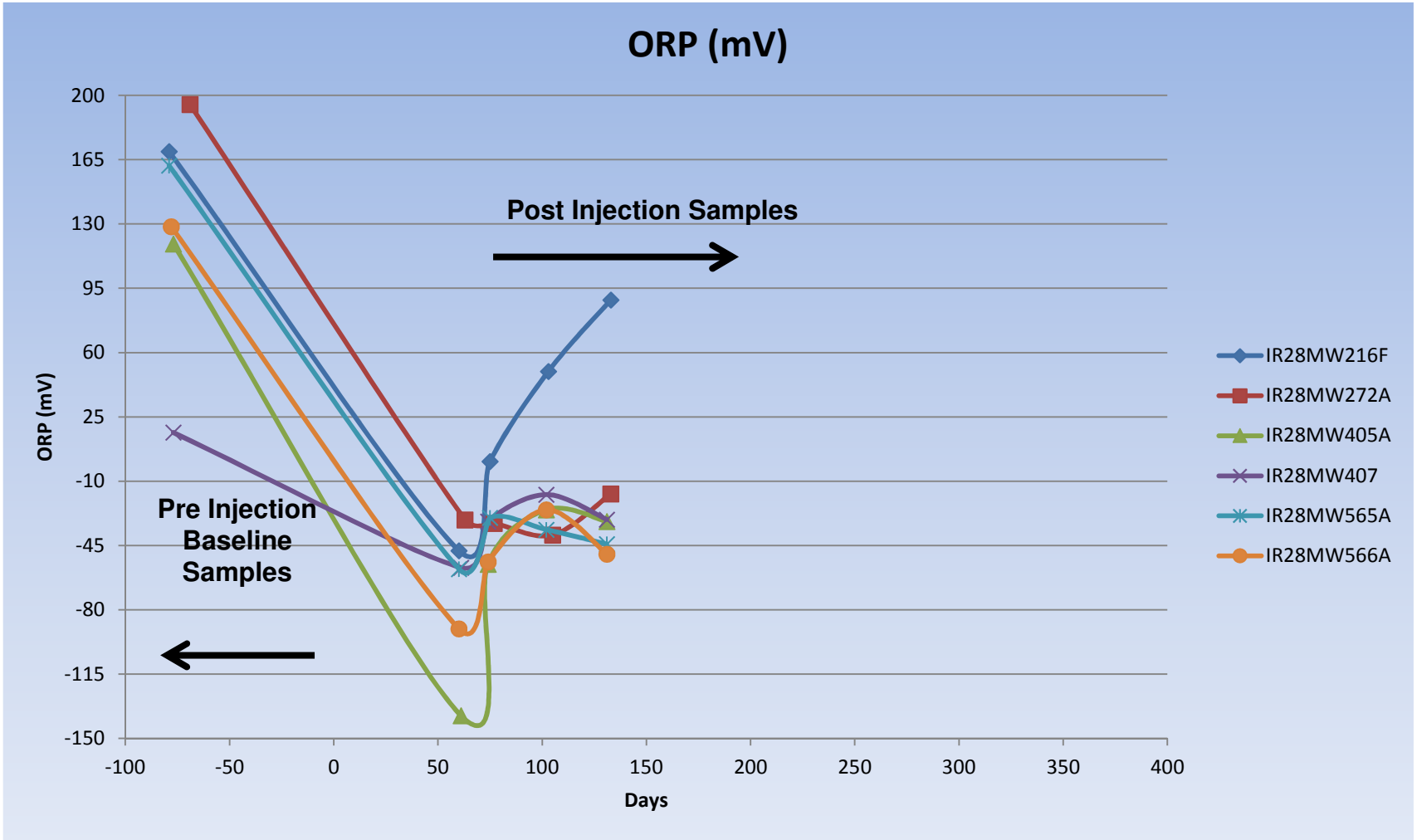
- **Sampling schedule for each GW Injection Area:**
  - **2 Bi-weekly events (1 event every 2 weeks = 1 month of sampling)**
  - **4 Monthly events (1 event each month = 4 months of sampling)**
  - **2 Quarterly events (1 event every 3 months = 6 months of sampling)**

Post-Injection GW Samples collected in RU-C1, C4 & C5 through June 16, 2014

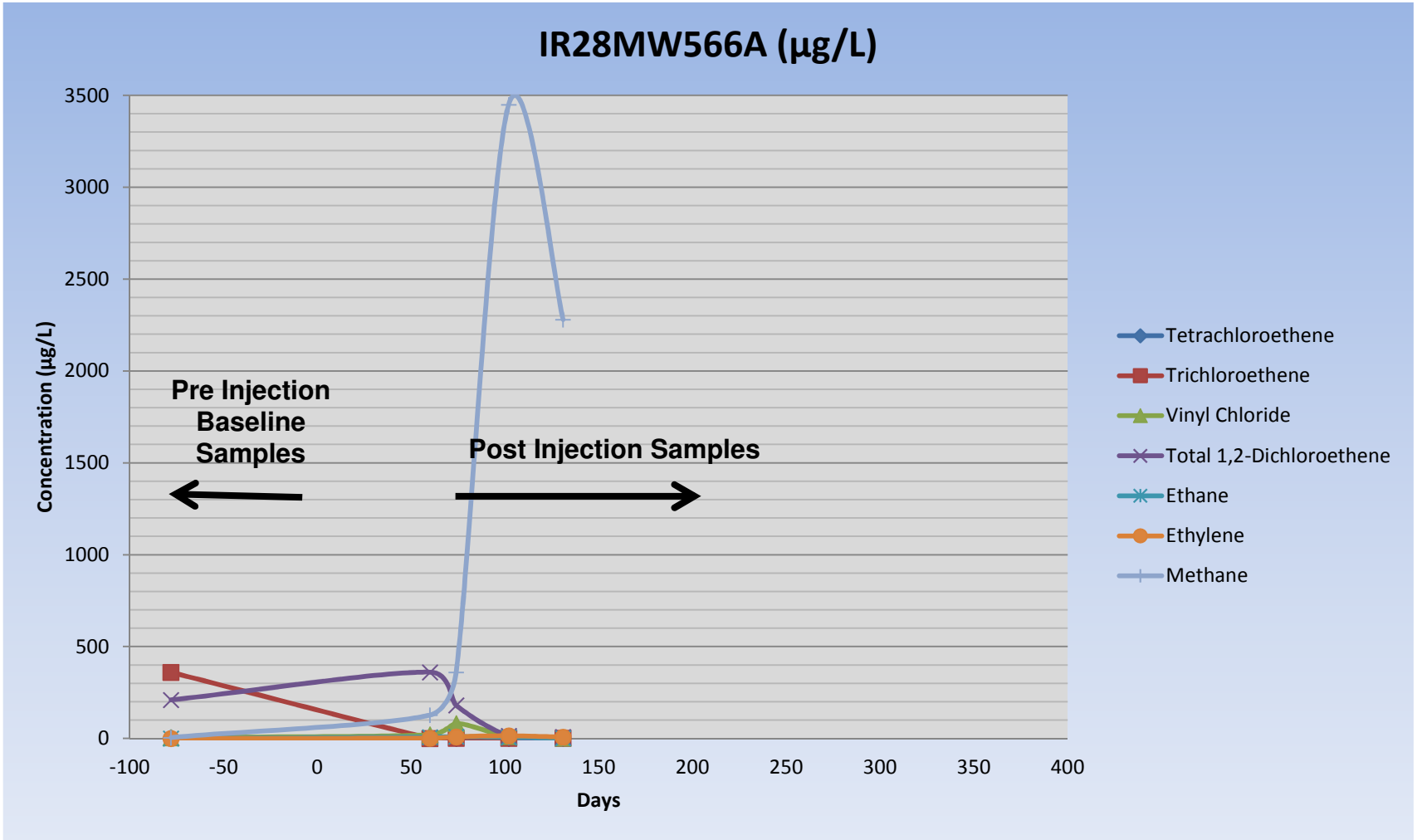
- C1-1: Sampling started May 5, 2014
  - Collected 2 bi-weekly samples & 1 monthly sample
- C1-2: Started April 23, 2014
  - Collected 2 bi-weekly samples & 1 monthly sample
- C1-4: Started May 5, 2014
  - Collected 2 bi-weekly samples & 1 monthly sample
- C4-1: Started March 24, 2014
  - Collected 2 bi-weekly samples & 2 monthly samples
- C5-1: Started May 19, 2014
  - Collected 2 bi-weekly samples
- C5-2: Started May 19, 2014
  - Collected 2 bi-weekly samples

Plume C4-1 Injection Locations

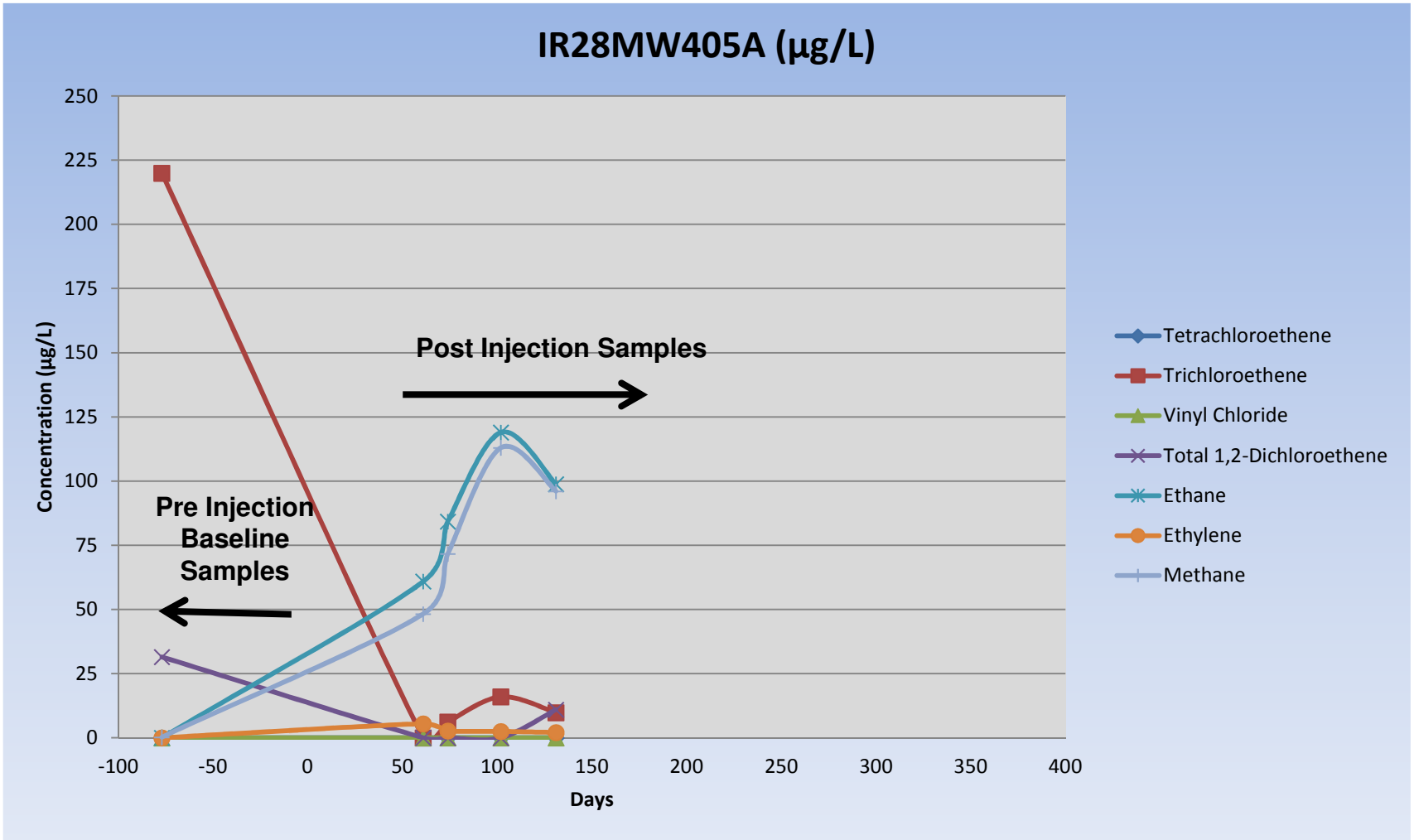
ORP Trends in Groundwater in Plume C4-1



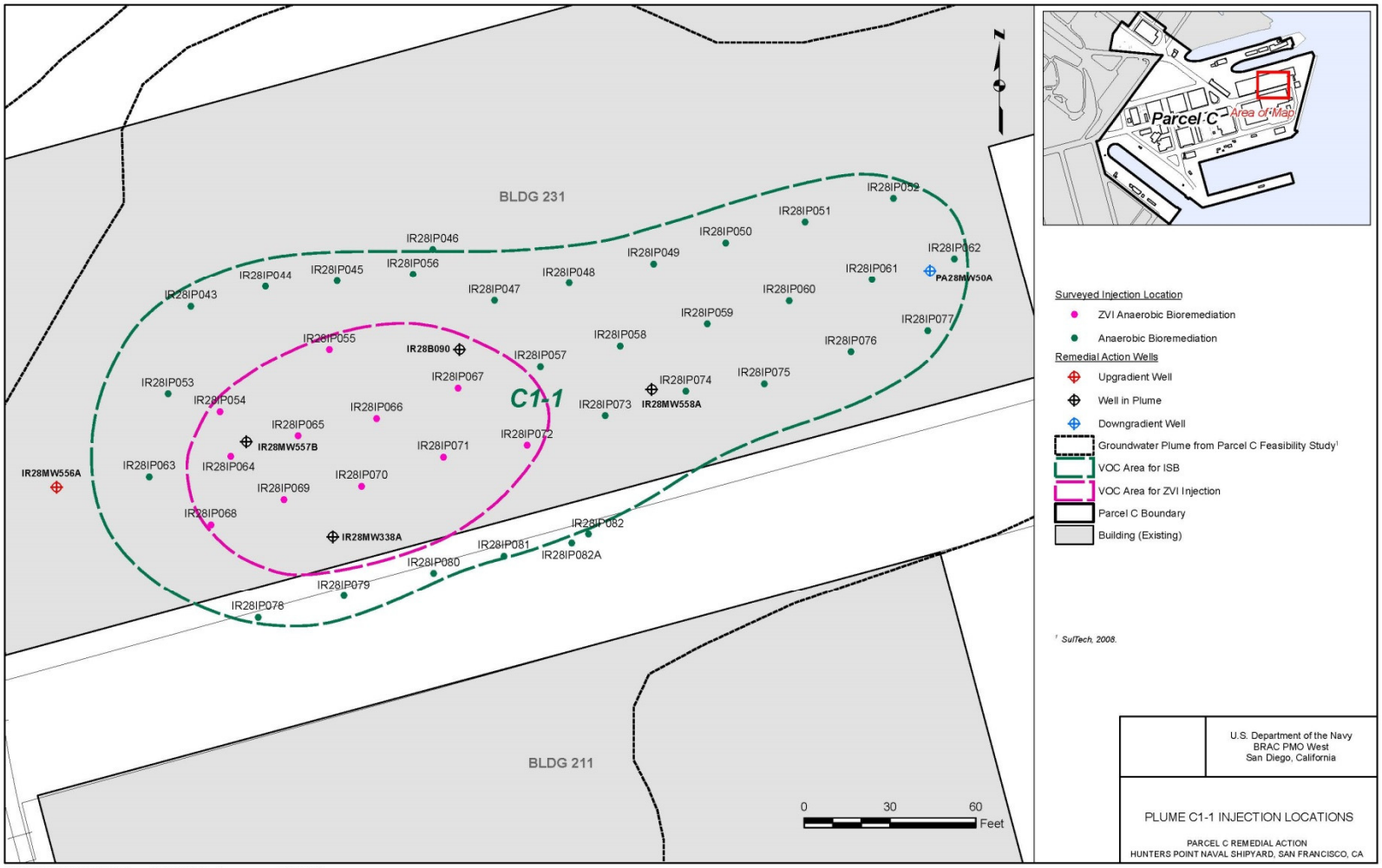
Groundwater Concentration Trends at IR28MW566A (RU-C4-1)



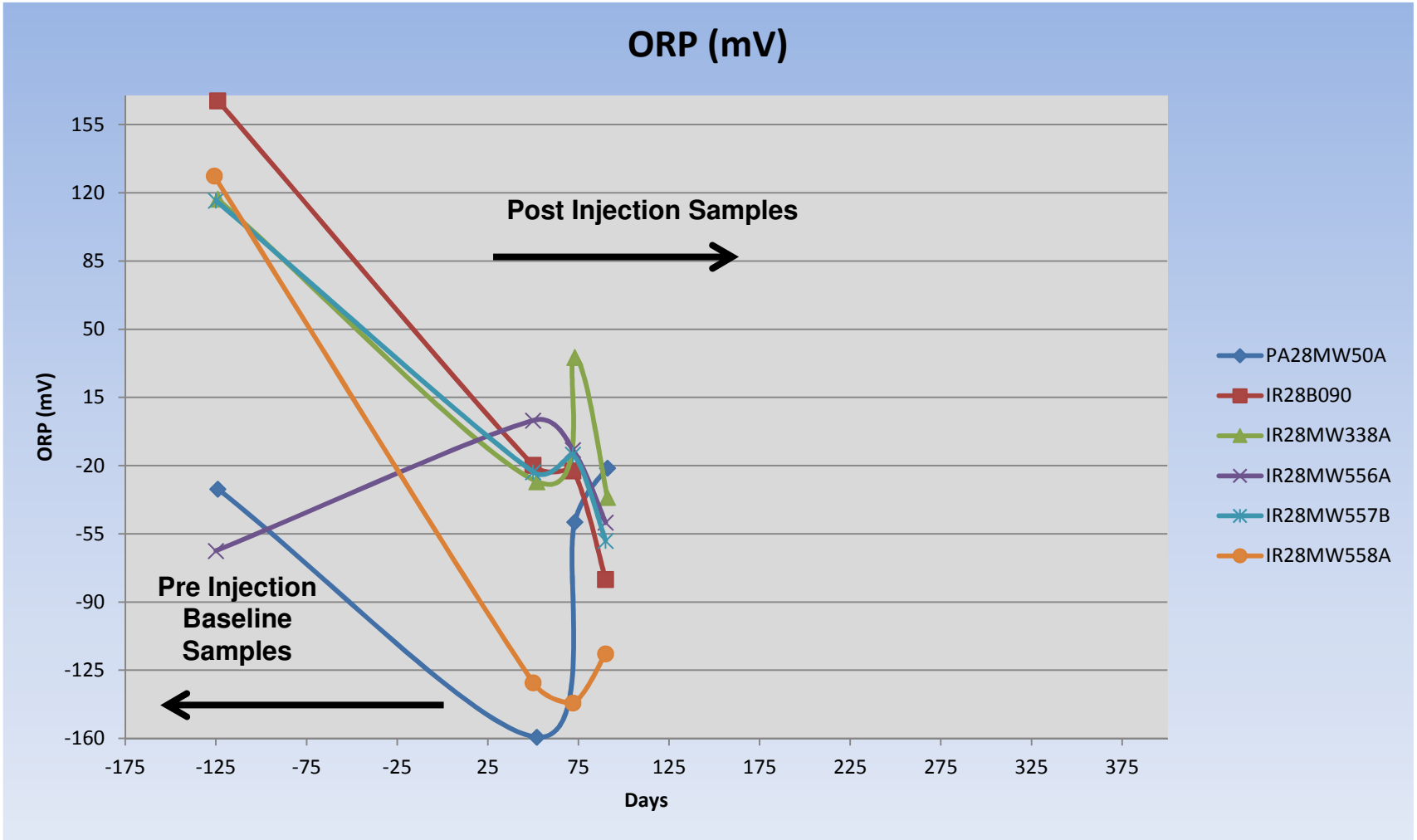
Groundwater Concentration Trends in IR28MW405A (RU-C4-1)



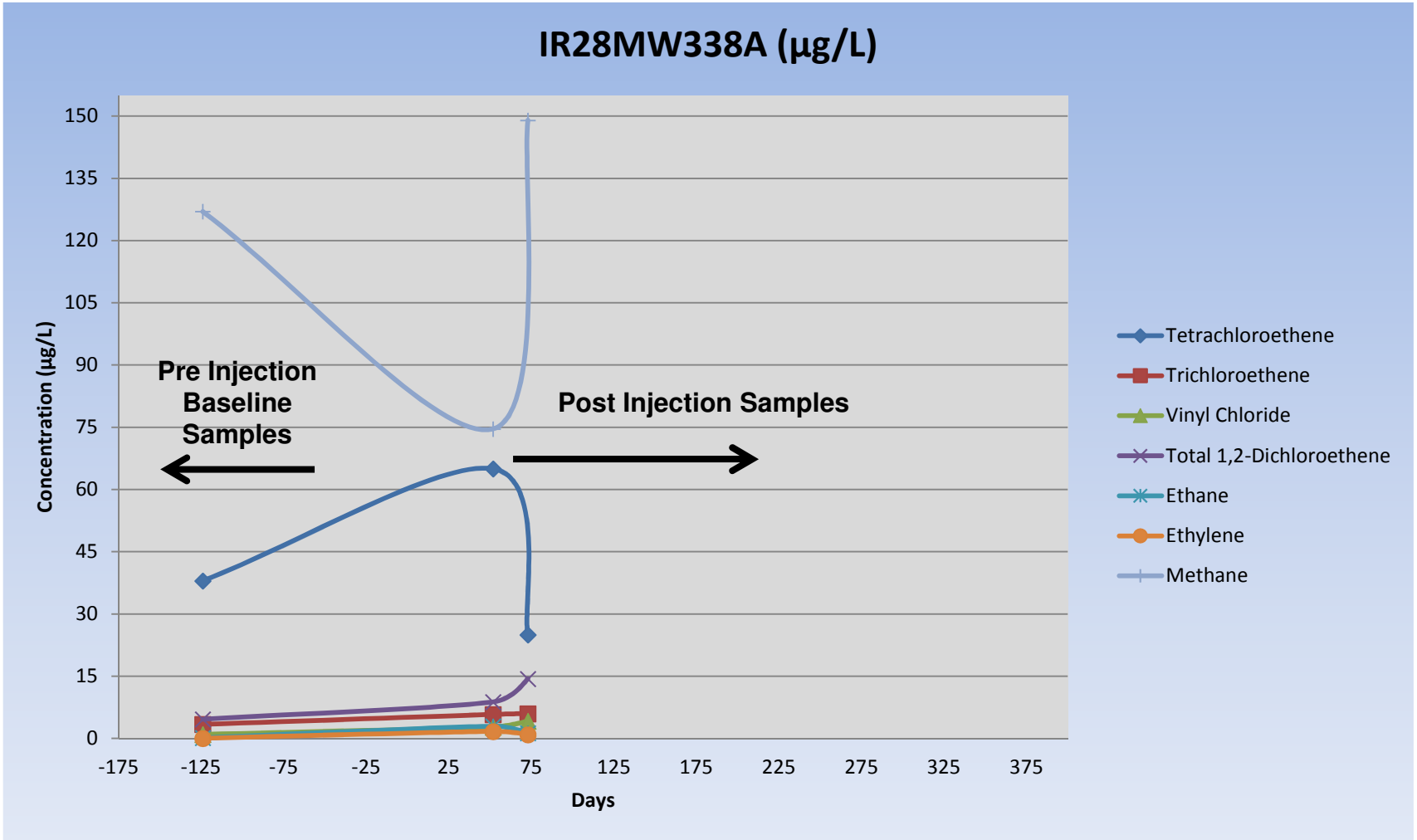
Plume C1-1 Injection Locations



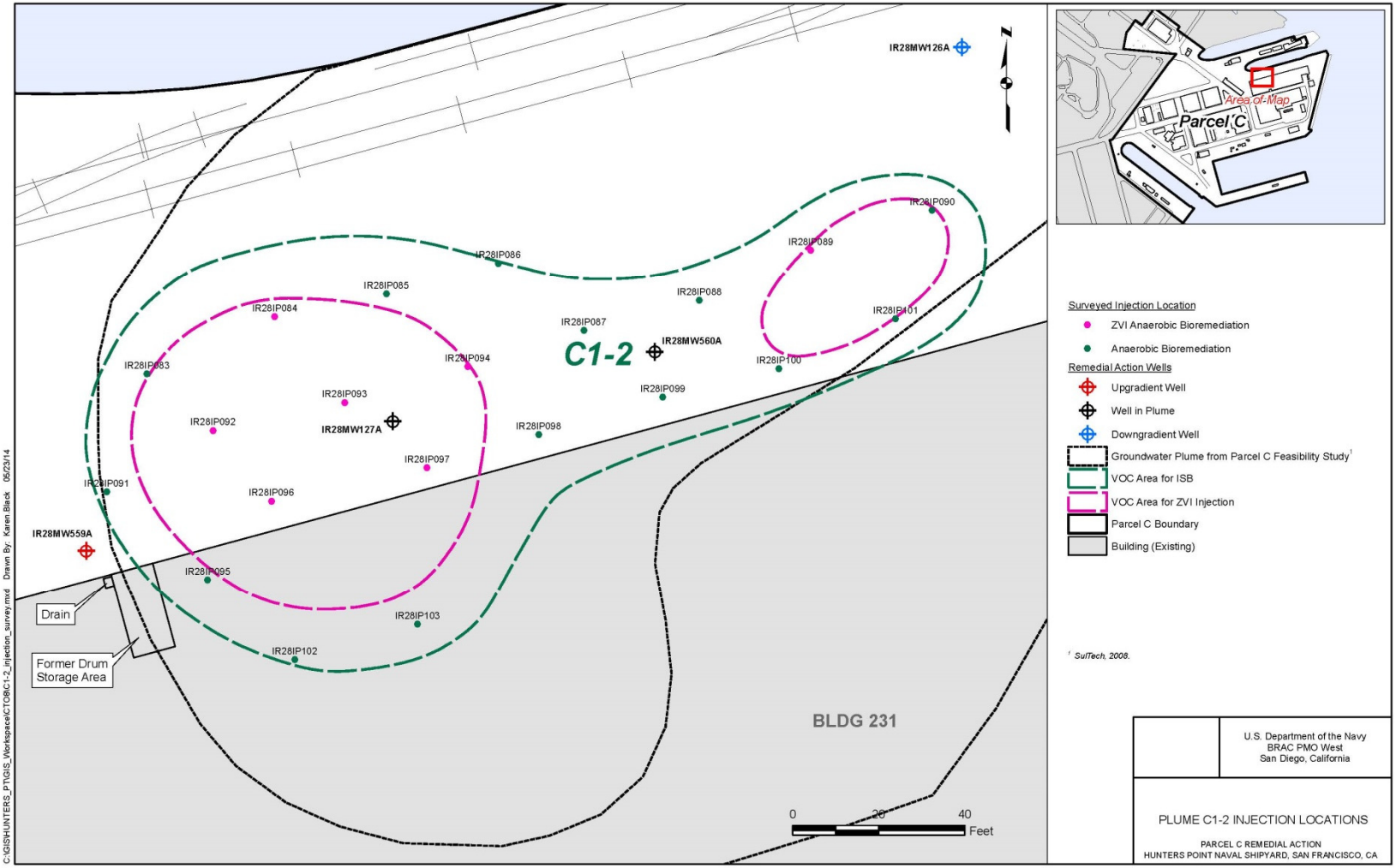
ORP Trend in Groundwater in Plume C1-1



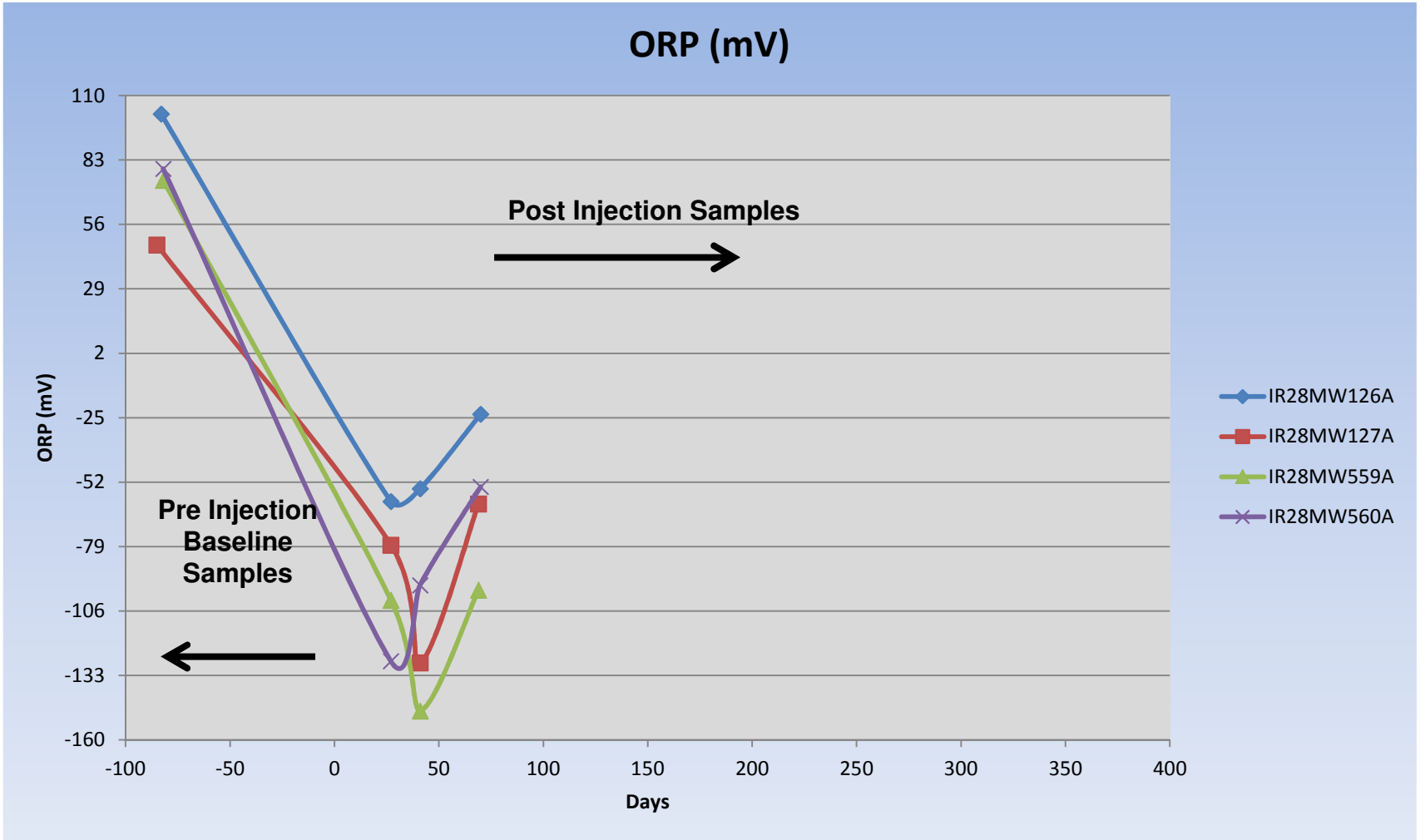
Groundwater Concentration Trends at IR28MW338A (RU-C1-1)



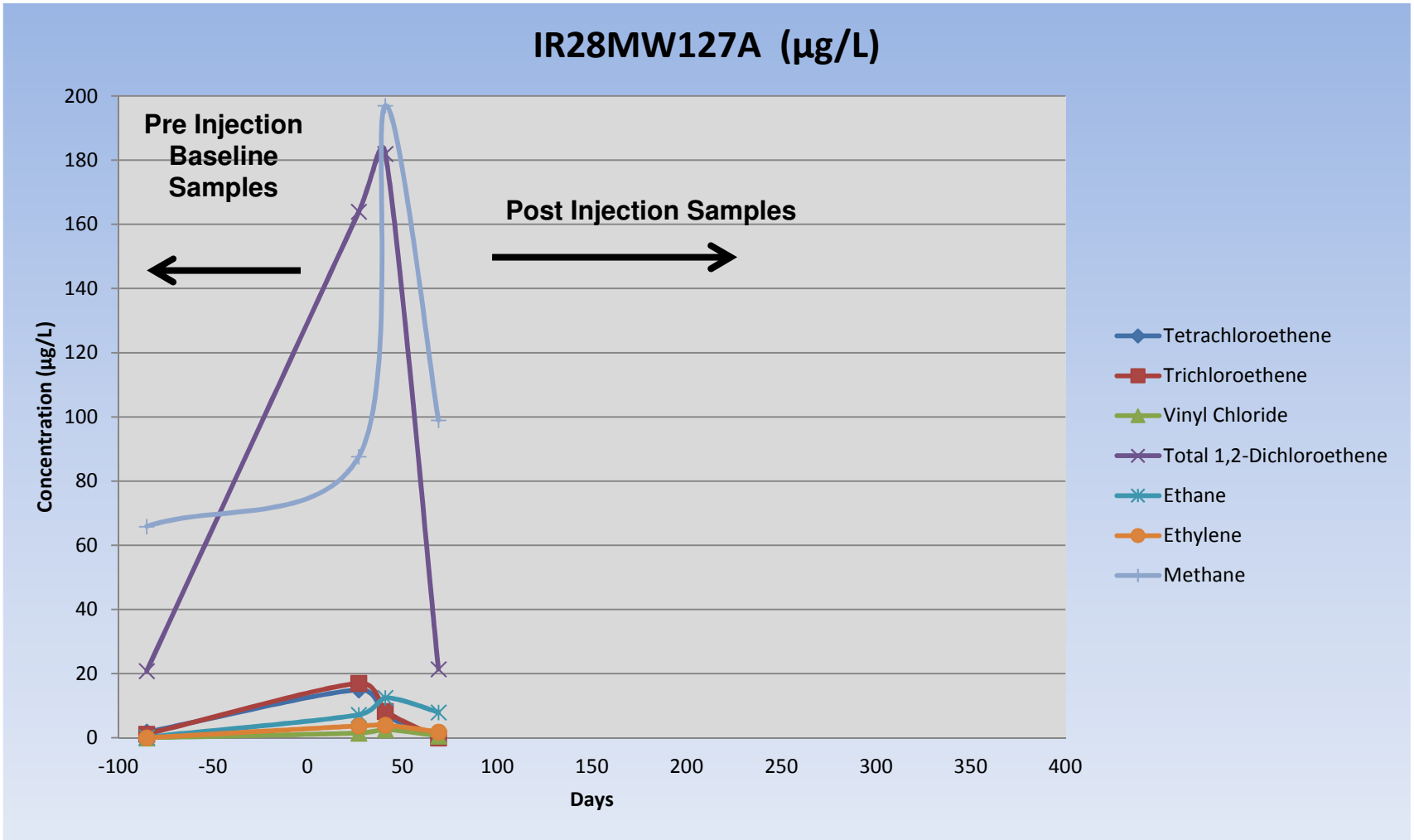
Plume C1-2 Injection Locations



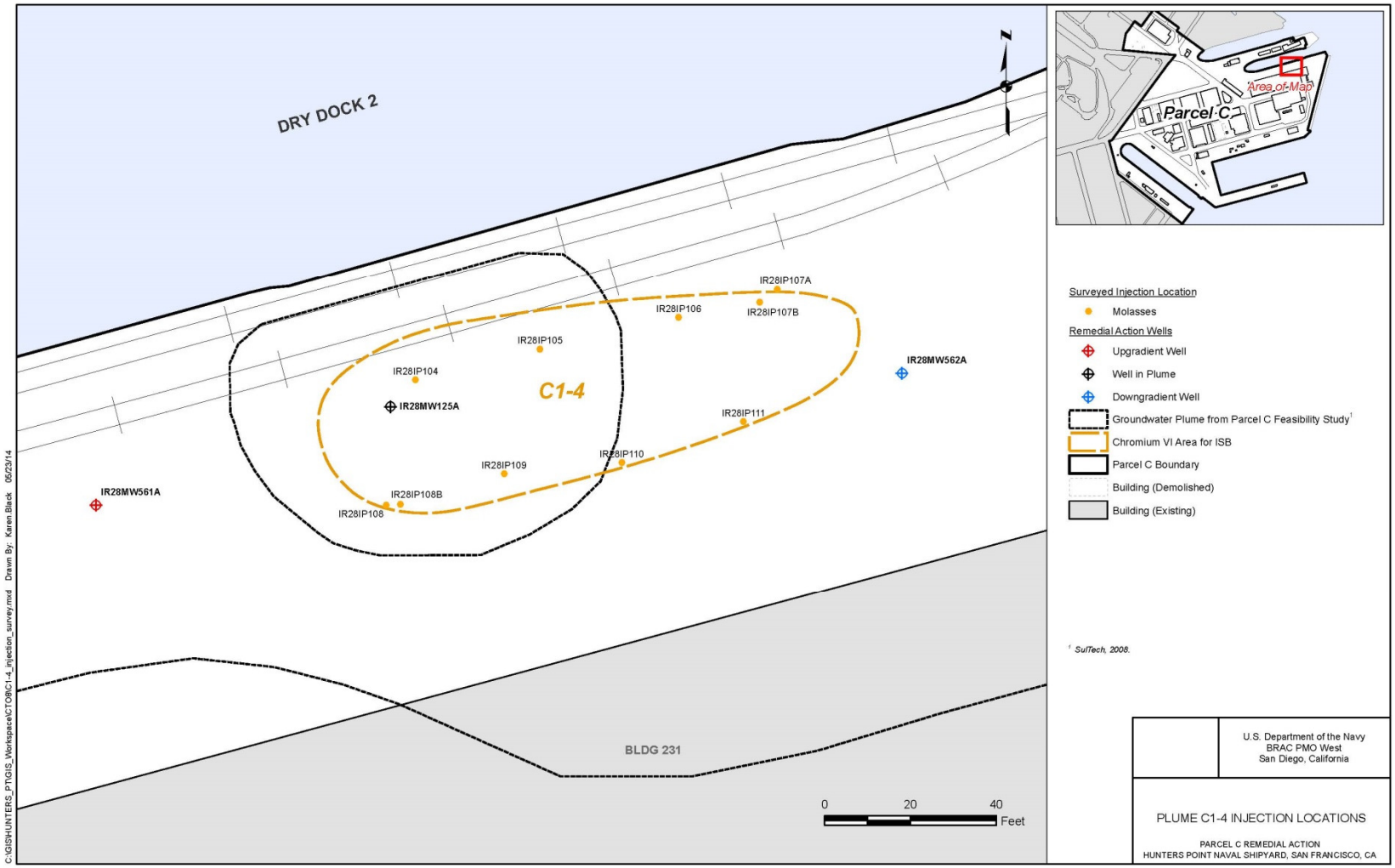
ORP in Groundwater in Plume C1-2



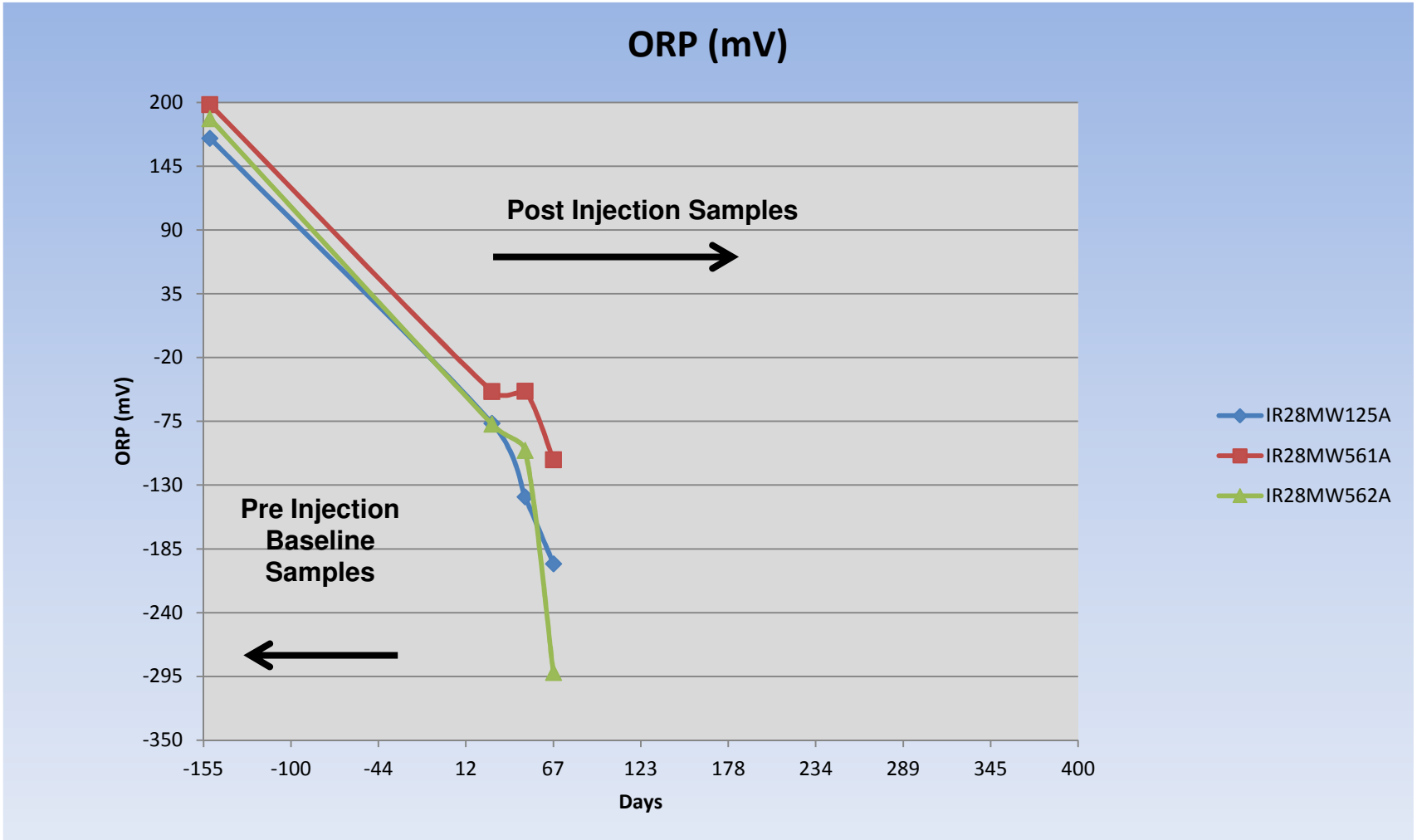
Groundwater Concentration Trends at IR28MW127A (RU-C1-2)



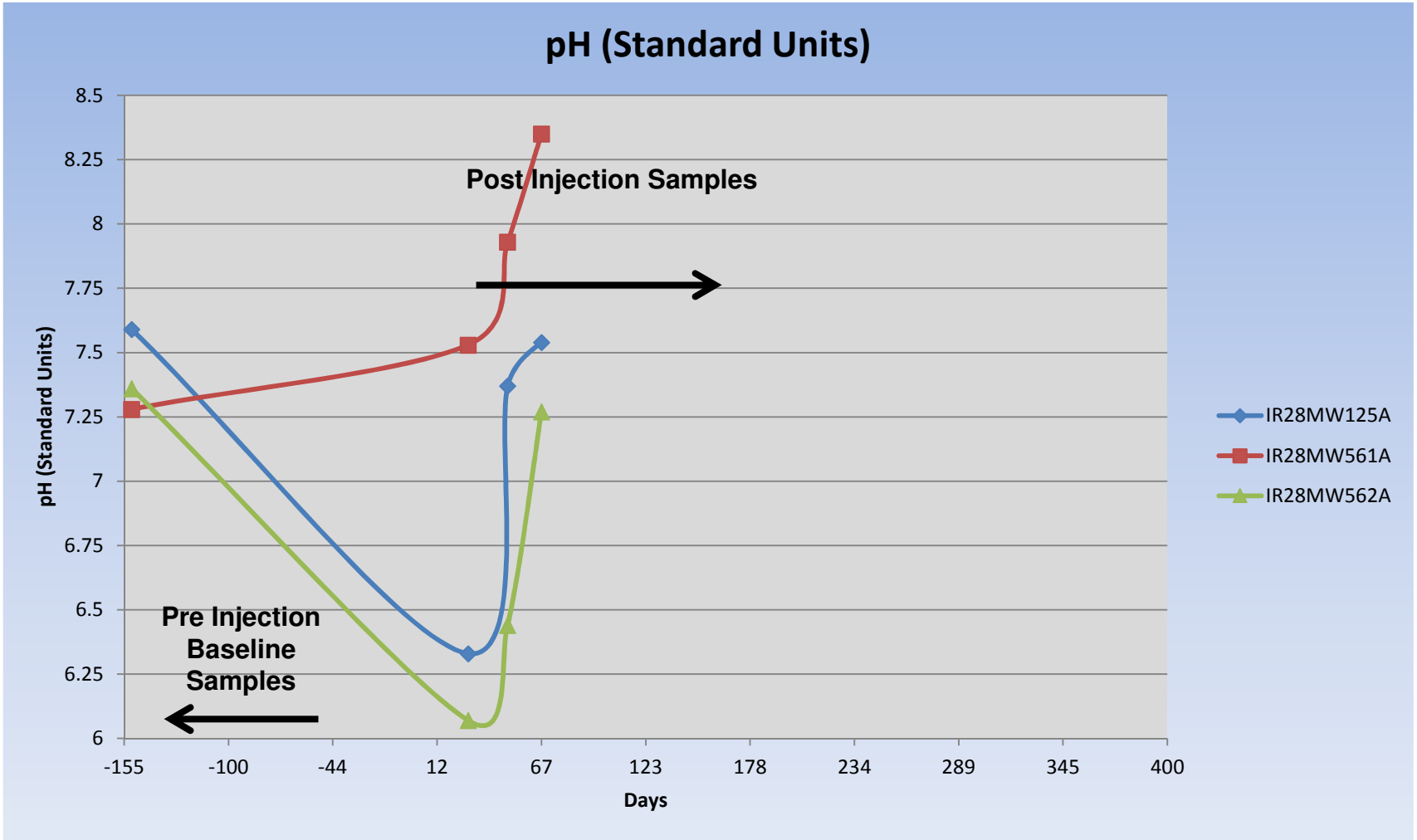
Plume C1-4 Injection Locations



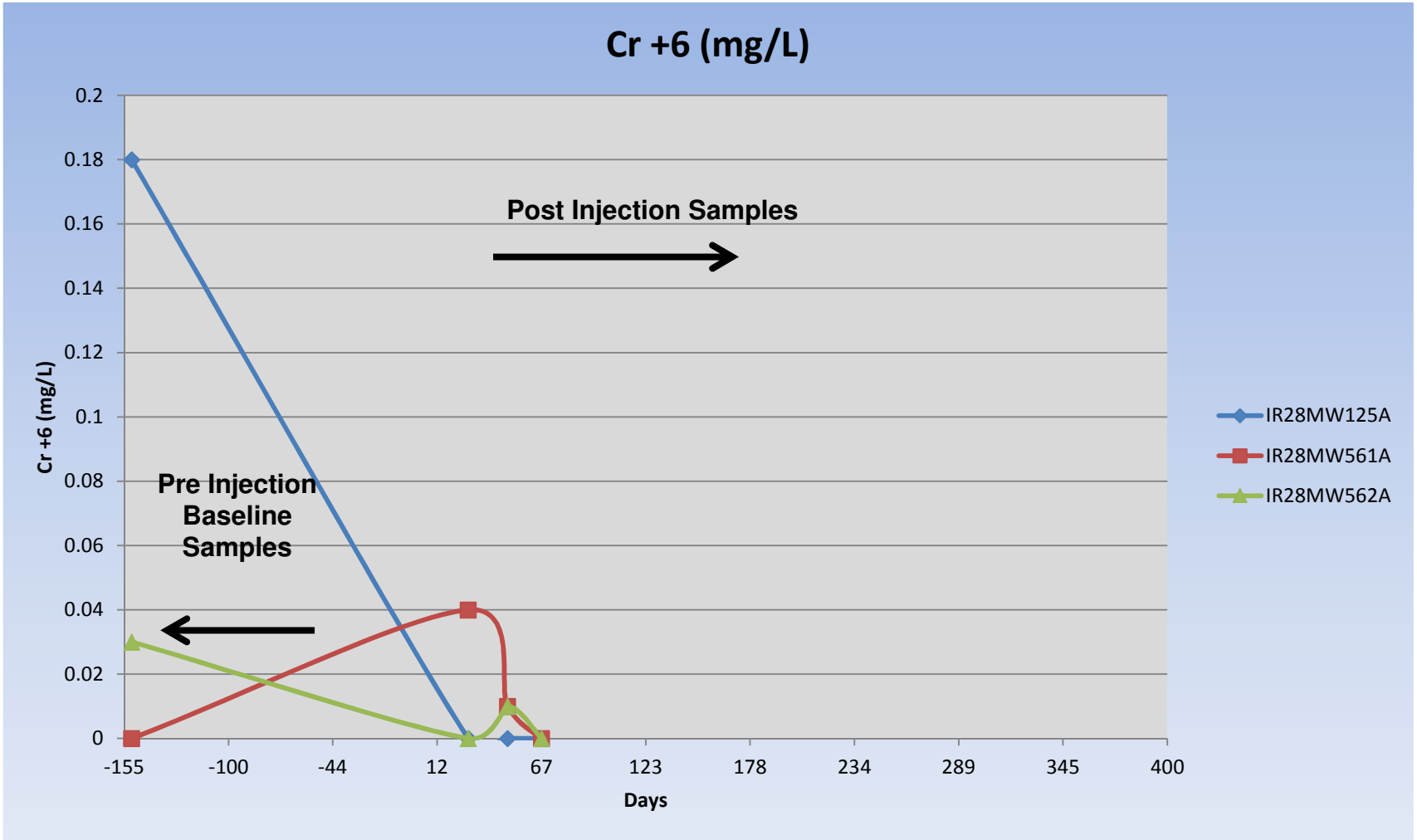
ORP Trend in Groundwater in Plume C1-4



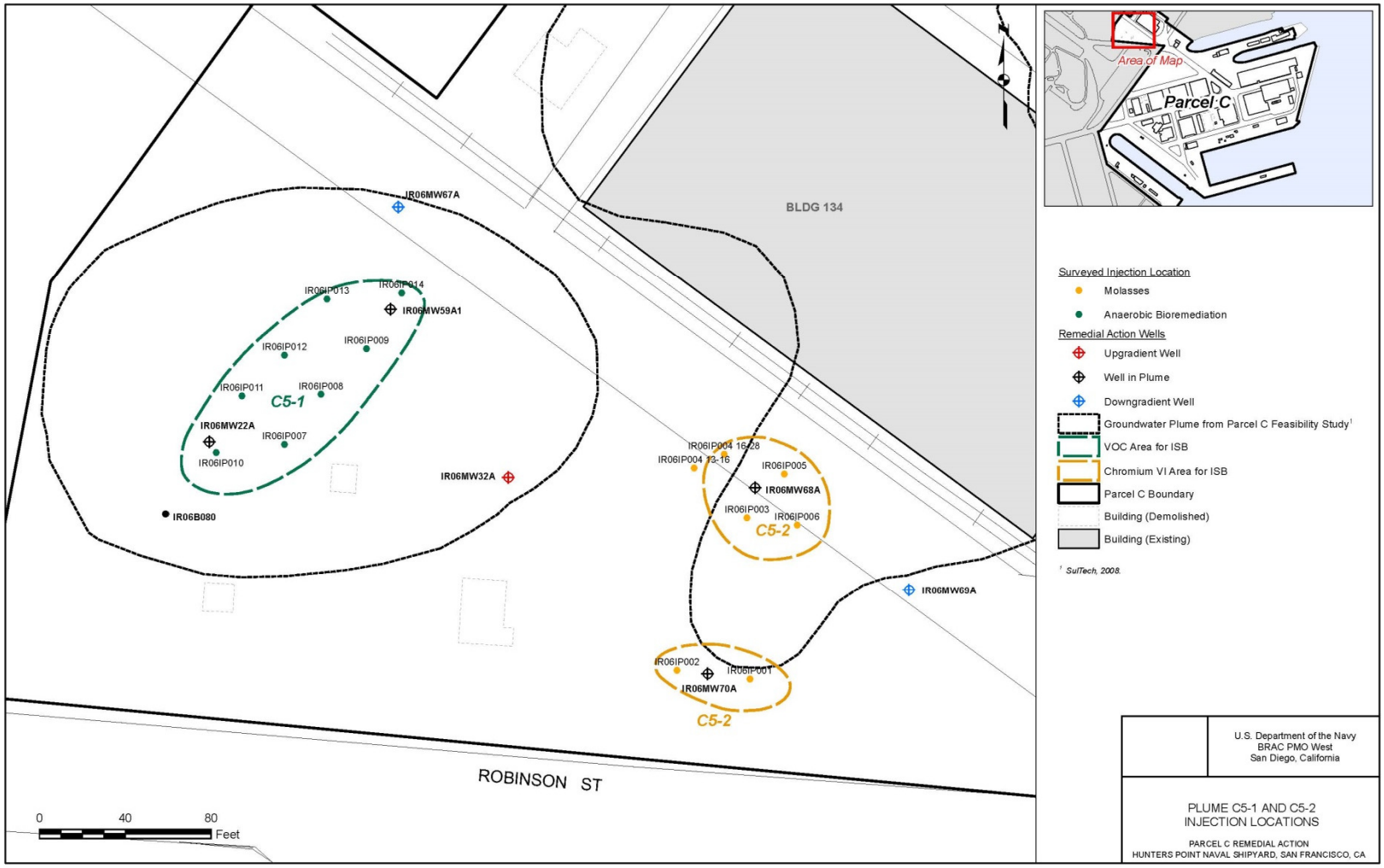
pH in Groundwater in Plume C1-4



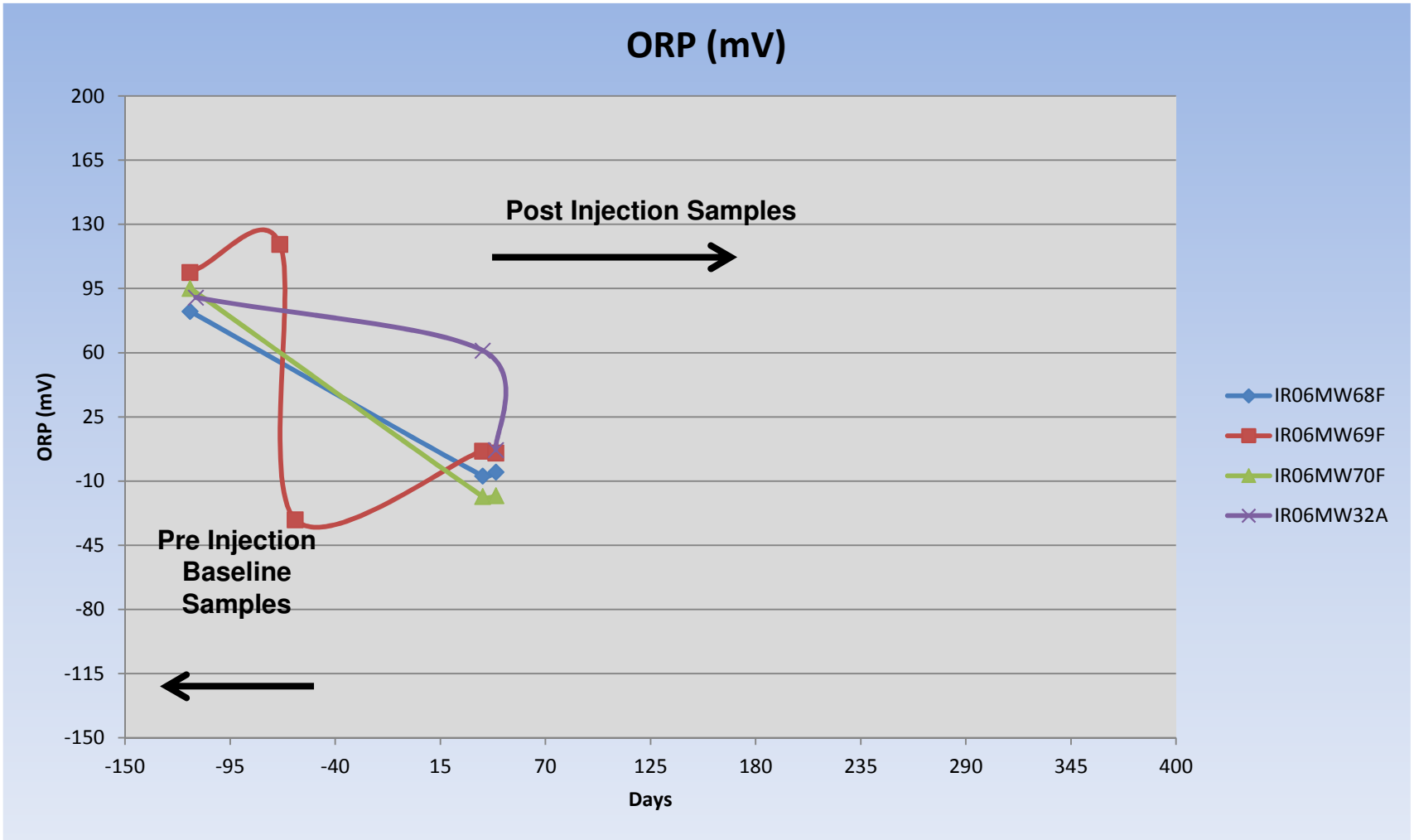
Hexavalent Chrome Concentration Trend in Plume C1-4



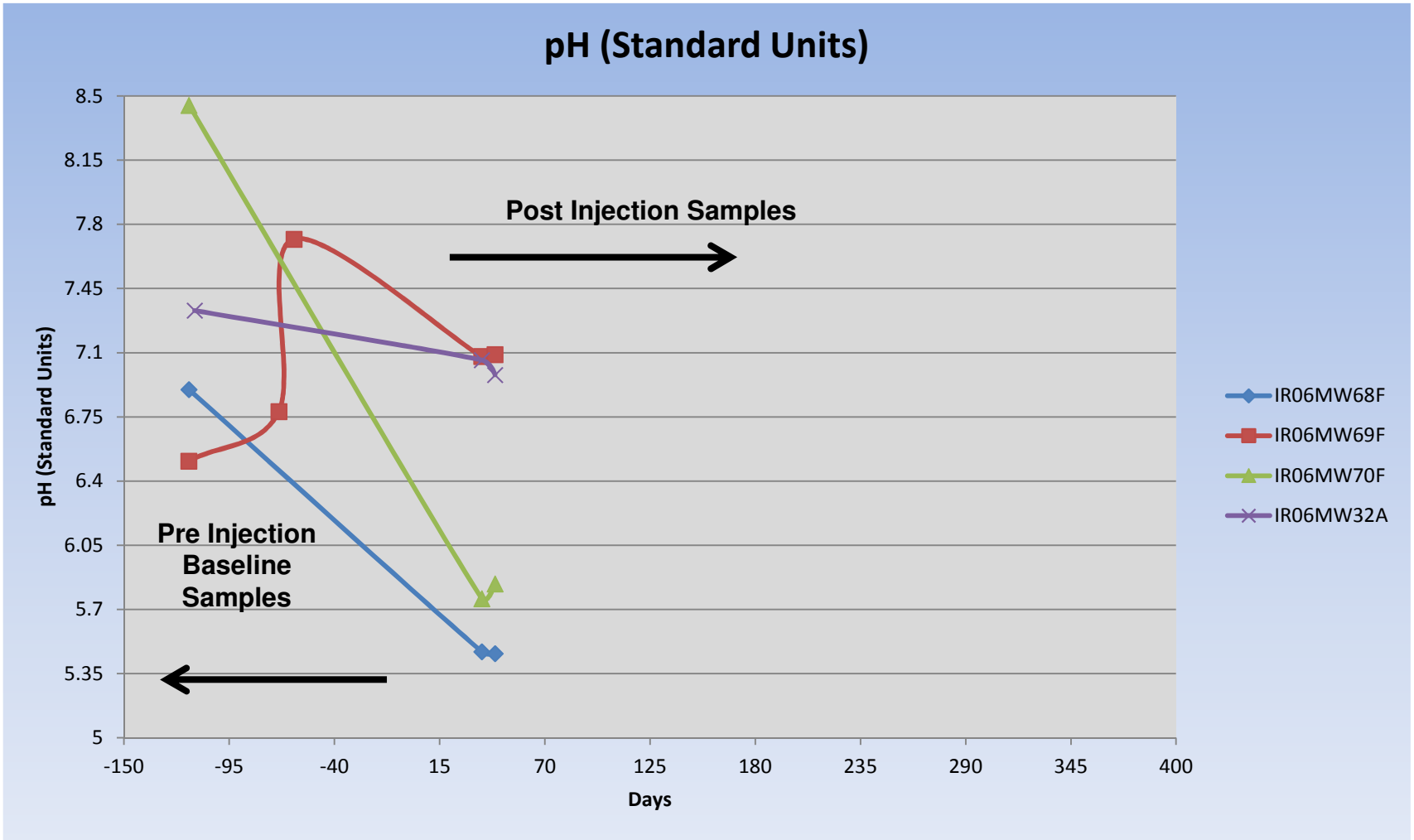
Plumes C5-1 and 5-2 Injection Locations



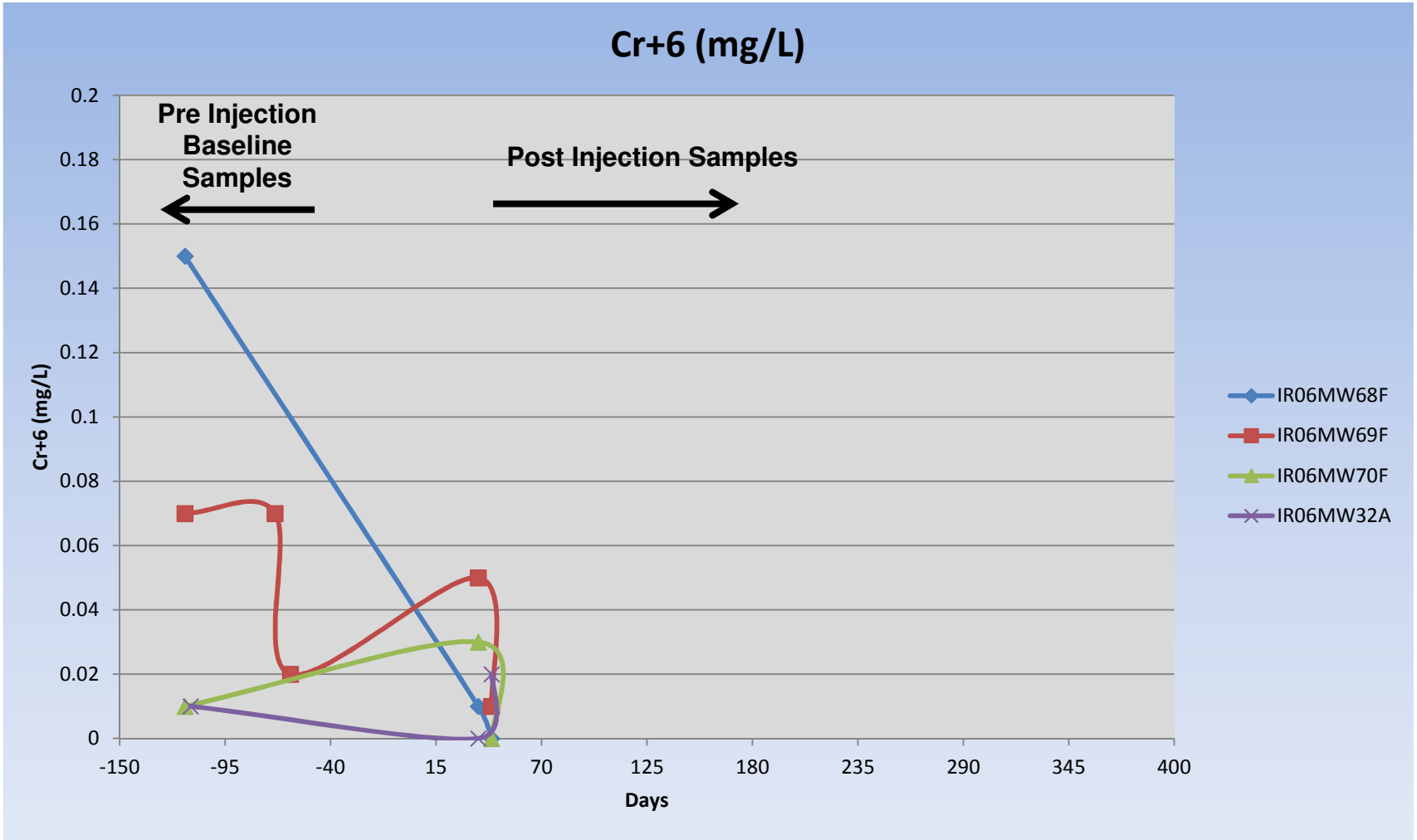
ORP Trend in Plume C5-2



Plume C5-2 pH


pH (Standard Units)
8.5
8.15
7.8
7.45
7.1
6.75
6.4
6.05
5.7
5.35
5
pH (Standard Units)
-150
-95
-40
15
70
125
180
235
290
345
400
Days
Post Injection Samples
Pre Injection Baseline Samples
IR06MW68F
IR06MW69F
IR06MW70F
IR06MW32A

Plume C5-2 - Hexavalent Chromium Concentration Trends



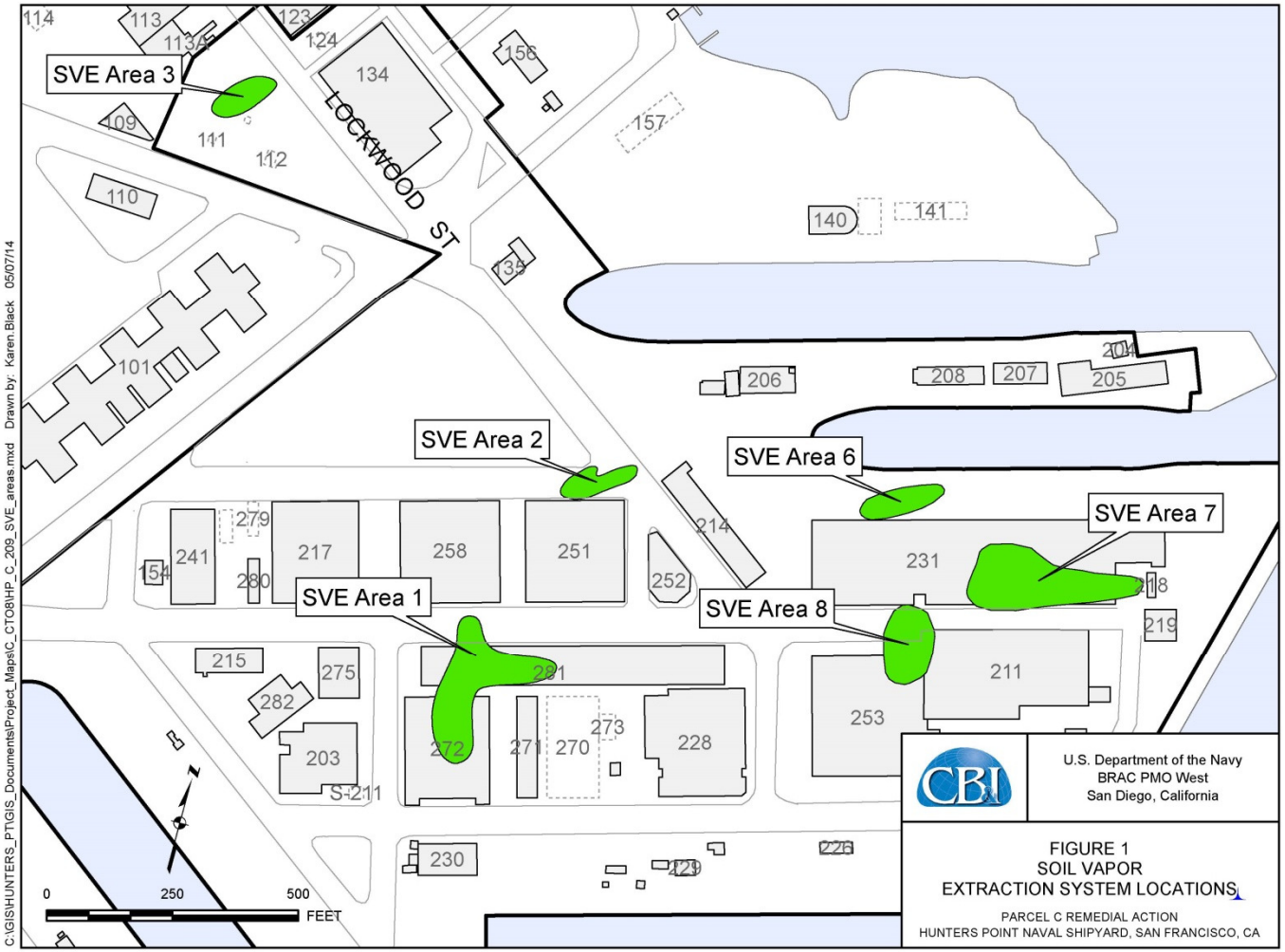
Post-Injection Groundwater Sampling Take Away Points (RU-C1, C4 & C5)

- **Initial Post-Injection GW data look favorable:**
  - **Achieving conditions favorable to anaerobic biodegradation**
  - **Showing parent VOC reduction trends**
  - **Demonstrating methane & ethane production**

- **GW sampling will continue through March 2015**

- **Regular progress updates will be provided at BCT meetings**

Overview of SVE Areas in Parcel C
(RU-C1, C4 & C5 by CB&I; RU-C2 by Alliance)



Completed SVE System for Treatment of Area 3 (RU-C5)

SVE System for Treatment of Areas 6 and 7 (RU-C1)

Schedule - Upcoming Activities (RU-C1, C4, and C5)

- **SVE Systems:**
  - **BCT comments on draft SVE O&M Plan due July 7, 2014**
  - **Anticipate starting SVE system O&M in late July 2014**
  - **Initial duration of SVE system O&M is 4 months**

- **Groundwater Post-Injection Performance Monitoring:**
  - **Overall sampling schedule: March 2014 through March 2015**
  - **C4-1: Monthly sampling complete 08/01/14**
  - **C1-1, C1-2, C1-4, C5-1 and C5-2: Monthly complete by 9/6/14**
  - **C1-1, C1-2, C1-4, C4-1, C5-1, C5-2: Quarterly complete by 3/13/15**