To: **Base Realignment and Closure Cleanup Team**

From: **Hamide Kayaci**
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Date: **June 20, 2012**

Subject: **Groundwater Analytical Results Exceeding Remediation Goals or Trigger Levels**
First Quarter 2012 (1Q2012)
Hunters Point Naval Shipyard, San Francisco, California

Introduction

This memorandum presents a summary of validated analytical results that exceeded Remediation Goals or Trigger Levels in groundwater samples collected during the First Quarter 2012 (January to March 2012 (1Q2012) at Hunters Point Naval Shipyard (HPNS) in San Francisco, California. This sampling event was conducted consistent with:

- *Amended Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan) for Basewide Groundwater Monitoring Program, Hunters Point Shipyard, San Francisco, California* (CE2-Kleinfelder Joint Venture, April 2011)
- *Final Addendum 2 to Amended Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan) for Basewide Groundwater Monitoring Program, Hunters Point Shipyard, San Francisco, CA.* (CE2-Kleinfelder Joint Venture, July 2011)
- *Final Addendum 3 to Amended Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan) for Basewide Groundwater Monitoring Program, Hunters Point Shipyard, San Francisco, CA.* (CE2-Kleinfelder Joint Venture, February 2012)

Remediation Goals

Remediation Goals (RGs) are analyte-specific and location-specific numerical criteria, specified in Comprehensive Environmental Response and Compensation Liability Act of 1980 (CERCLA) documents prepared for HPNS including: Feasibility Study (FS) reports, Records of Decision (RODs), and/or Remedial Action Monitoring Plans (RAMPs). The RGs are based on exposure scenarios (i.e., residential, industrial, and/or construction worker) presented in those documents.

Trigger Levels

Trigger Levels (TLs) are analyte-specific and location-specific numerical criteria for groundwater, derived for the protection of the environment (e.g., surface water quality) from nomographs, based on distance of the well from the point of surface water discharge. HPNS CERCLA documents also refer to

the following other numerical criteria, which are grouped herein into the TL category of action limits: "Protection of the Environment," "Migration of Surface Water to the Bay," "Screening Levels," and "Aquatic Evaluation Criteria."

Current Remediation Goals and Trigger Levels

Current (as of the date of this Memorandum) RGs and TLs are specified in the following HPNS CERCLA documents:

- *Final Remedial Action Monitoring Plan – Parcel B - Excluding Installation Restoration Sites 7 and 18, Hunters Point Shipyard* (Chadux-Tetra Tech EM Inc. Joint Venture [ChaduxTt], December 10, 2010)
- *Final Remedial Action Monitoring Plan – Installation Restoration Sites 7 and 18 - Parcel B, Hunters Point Shipyard* (Chadux Tt, January 8, 2010)
- *Final Record of Decision for Parcel C, Hunters Point Shipyard* (Navy, September 30, 2010)
- *Final Remedial Action Monitoring Plan, Parcel D-1, Hunters Point Shipyard* (Chadux Tt, February 11, 2011)
- *Draft Feasibility Study Report for Parcel E* (Environmental/Remediation Resources Group [ERRG], 2009b). The subsequent *Draft Final Feasibility Study Report for Parcel E* (ERRG, 2011b) removed some groundwater RGs relative to the Draft FS Report, because it is anticipated that RGs will, in the future, be based on soil gas data (not groundwater data). Because the soil gas-based versus groundwater-based RGs discussion has not yet resulted in a final direction, analytical data for the current semiannual reporting period are compared to the groundwater-based RGs, presented in the Draft FS Report.
- *Final Remedial Investigation/Feasibility Study Report for Parcel E-2, Hunters Point Shipyard* (ERRG, May 2011)
- *Final Remedial Action Monitoring Plan - Parcel G, Hunters Point Shipyard* (Chadux Tt, October 4, 2010)
- *Final Remedial Action Monitoring Plan, Parcels UC-1 and UC-2, Hunters Point Shipyard* (Chadux Tt, December 22, 2010)

Table 1 presents the analytical results that exceeded RGs or TLs in the referenced sampling event.

Table 1. Exceedances of RGs or TLs (1Q2012)

Well ID	Parcel	Target Analyte	RG (µg/L)	TL[1] (µg/L)	Result Exceeding RG or TL (µg/L)
IR10MW59A	B	Vinyl chloride	0.5	*Not established*	13
IR10MW61A	B	Vinyl chloride	0.5	*Not established*	9.5
IR10MW71A	B	Trichloroethene	2.9	*Not established*	7.5
IR20MW17A	B	Vinyl chloride	0.5	*Not established*	3.4
IR26MW41A	B	Dichlorodifluoromethane	14	*Not established*	17
IR26MW49A	B	Mercury	0.68	0.6	2.2
IR26MW51A	B	Mercury	0.68	0.6	0.86
IR06MW22A	C	Benzene	0.5	*Not established*	1.2
		Tetrachloroethene	0.54	*Not established*	1.1
		Trichloroethene	2.9	*Not established*	5.2
		Vinyl chloride	0.5	*Not established*	80
IR06MW40A	C	Vinyl chloride	0.5	*Not established*	5
IR06MW59A1	C	Tetrachloroethene	0.54	*Not established*	8.3
		Trichloroethene	2.9	*Not established*	21
		Vinyl chloride	0.5	*Not established*	7.8
IR25MW11A	C	1,4-Dichlorobenzene	2.1	*Not established*	21 J
		Benzene	0.5	*Not established*	1.9 J
		Vinyl chloride	0.5	*Not established*	0.97
IR25MW16A	C	Vinyl chloride	0.5	*Not established*	3.8
IR25MW17A	C	1,2-Dichloroethane	2.3	*Not established*	2.6
IR25MW62A	C	1,2-Dichloroethane	2.3	*Not established*	2.6
		1,4-Dichlorobenzene	2.1	*Not established*	16
		Benzene	0.5	*Not established*	0.98
		Tetrachloroethene	0.54	*Not established*	2.8
		Trichloroethene	2.9	*Not established*	6.2
		Vinyl chloride	0.5	*Not established*	5.0

Table 1. Exceedances of RGs or TLs (1Q2012)

Well ID	Parcel	Target Analyte	RG (µg/L)	TL[1] (µg/L)	Result Exceeding RG or TL (µg/L)
IR25MW63A	C	1,4-Dichlorobenzene	2.1	*Not established*	1,700
		2-Methylnaphthalene	24	*Not established*	34
		Benzene	0.5	*Not established*	34 J
		Chlorobenzene	390	*Not established*	11,000
		Naphthalene	3.6	*Not established*	120 J
		Tetrachloroethene	0.54	*Not established*	40 J
		Trichloroethene	2.9	*Not established*	78 J
		Vinyl chloride	0.5	*Not established*	930
IR25MW64A	C	1,4-Dichlorobenzene	2.1	*Not established*	110
		Benzene	0.5	*Not established*	28 J
		Chlorobenzene	390	*Not established*	3,900
		Naphthalene	3.6	*Not established*	27 J
		Vinyl chloride	0.5	*Not established*	82 J
IR25MW65B	C	1,2-Dichlorobenzene	2,600	*Not established*	3,200 J
		1,4-Dichlorobenzene	2.1	*Not established*	700 J
		2,4-Dimethylphenol	730	*Not established*	4,800
		4-Methylphenol	182	*Not established*	2,200
		Benzene	0.5	*Not established*	25
		Chlorobenzene	390	*Not established*	950 J
		Naphthalene	3.6	*Not established*	200 J
		Vinyl chloride	0.5	*Not established*	49
IR25MW66B	C	Arsenic	10	*Not established*	18.7
IR25MW68A	C	1,4-Dichlorobenzene	2.1	*Not established*	20 J
		Benzene	0.5	*Not established*	0.94 J
		Vinyl chloride	0.5	*Not established*	3.2
IR28EW01A	C	Vinyl chloride	0.5	*Not established*	1.4
IR28IW901A	C	Vinyl chloride	0.5	*Not established*	6.7

Table 1. Exceedances of RGs or TLs (1Q2012)

Well ID	Parcel	Target Analyte	RG (µg/L)	TL[1] (µg/L)	Result Exceeding RG or TL (µg/L)
IR28IW902A	C	cis-1,2-Dichloroethene	210	*Not established*	700
		Tetrachloroethene	0.9	*Not established*	2.6
		Trichloroethene	4.8	*Not established*	15
		Vinyl chloride	0.5	*Not established*	5,600
IR28IW903A	C	Tetrachloroethene	0.9	*Not established*	1.6
		Trichloroethene	4.8	*Not established*	9.2
		Vinyl chloride	0.5	*Not established*	3.2
IR28MW151A	C	Vinyl chloride	0.5	*Not established*	51
IR28MW190F	C	Carbon tetrachloride	0.5	*Not established*	41
		Chloroform	0.7	*Not established*	21
		Trichloroethene	2.9	*Not established*	3.9
IR28MW200A	C	Trichloroethene	2.9	*Not established*	7.3
IR28MW211F	C	1,2-Dichloroethane	2.3	*Not established*	3.2
		Trichloroethene	2.9	*Not established*	5.3
		Vinyl chloride	0.5	*Not established*	52
IR28MW354A	C	cis-1,2-Dichloroethene	210	*Not established*	270
		Trichloroethene	4.8	*Not established*	52
		Vinyl chloride	0.5	*Not established*	140
IR28MW355F	C	Chloroform	0.7	*Not established*	3.0
		Trichloroethene	2.9	*Not established*	34
IR28MW475A	C	Vinyl chloride	0.5	*Not established*	820
IR28MW916A	C	Vinyl chloride	0.5	*Not established*	48
IR28MW919A	C	Vinyl chloride	0.5	*Not established*	20
IR28MW921A	C	Vinyl chloride	0.5	*Not established*	0.57
IR28MW931A	C	Vinyl chloride	0.5	*Not established*	220
IR28MW932A	C	Vinyl chloride	0.5	*Not established*	5.1
IR28MW933A	C	Vinyl chloride	0.5	*Not established*	15

Table 1. Exceedances of RGs or TLs (1Q2012)

Well ID	Parcel	Target Analyte	RG (µg/L)	TL[1] (µg/L)	Result Exceeding RG or TL (µg/L)
IR28MW934A	C	cis-1,2-Dichloroethene	210	*Not established*	8,700
		Tetrachloroethene	0.9	*Not established*	100
		Trichloroethene	4.8	*Not established*	4,100
		Vinyl chloride	0.5	*Not established*	19,000
IR28MW936A	C	Vinyl chloride	0.5	*Not established*	1.0
IR02MW373A	E	Copper	*Not established*	28	981
		Lead	*Not established*	14.4	24.8
		Nickel	*Not established*	96.5	1,020
		Zinc	*Not established*	81	10,600
IR02MWB-2	E	Nickel	*Not established*	96.5	499
IR04MW39A	E	Trichloroethene	2.9	*Not established*	5.2
IR12MW19A	E	1,1-Dichloroethane	6.5	*Not established*	13
IR36MW237A	E	Vinyl chloride	0.5	*Not established*	2.4
IR36MW239A	E	Vinyl chloride	0.5	*Not established*	0.89
IR01MW366B	E-2	Arsenic	10	*Not established*	14.5
IR01MW38A	E-2	Ammonia	*Not established*	25	18,700
		Cyanide	*Not established*	1.0	5.3 J
IR01MW403B	E-2	1,2-Dichloroethane	0.5	*Not established*	1.0
IR01MW48A	E-2	Ammonia	*Not established*	25	23,000 J
IR01MW60A	E-2	Ammonia	*Not established*	25	14,100
IR01MW63A	E-2	Cyanide	*Not established*	1.0	7.3 J
IR01MW64A	E-2	Ammonia	*Not established*	25	4,500
		Total TPH [2]		6,949	7,213
IR33MW64A	G	Chloroform	1.0	*Not established*	1.3
IR71MW03A	G	Tetrachloroethene	0.54	*Not established*	9.7
		Trichloroethene	2.9	*Not established*	3.4

Table 1. Exceedances of RGs or TLs (1Q2012)

Well ID	Parcel	Target Analyte	RG (µg/L)	TL[1] (µg/L)	Result Exceeding RG or TL (µg/L)
IR06MW54F	UC-2	Carbon tetrachloride	0.5	*Not established*	7.0
		Chloroform	1.0	*Not established*	2.0

Notes

[1] Includes the following numerical criteria identified in HPNS CERCLA documents: "Protection of the Environment," "Migration to Surface Water of the Bay," "Screening Levels," and "Aquatic Evaluation Criteria."
[2] Includes gasoline-, diesel-,and motor oil-range TPH.

Abbreviations and Acronyms

J: Analyte analyzed, but result is an estimated value due to concentration reported between the quantitation limit and the method detection limit
RG: Remediation Goal
TL: Trigger Level
TPH: Total Petroleum Hydrocarbons
µg/L: micrograms per liter (equivalent to parts per billion)

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