

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN II)
Northern and Central California, Nevada, and Utah
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Prepared for

DEPARTMENT OF THE NAVY
Southwest Division
Naval Facilities Engineering Command
San Diego, California

FINAL
GROUNDWATER BENEFICIAL USE DETERMINATION FOR A-AQUIFER
PARCELS C, D, AND E
HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

DS.0011.14442

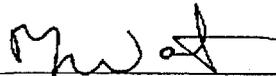
April 12, 2001

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REVISED FINAL GROUNDWATER BENEFICIAL
USE DETERMINATION FOR A-AQUIFER PARCELS
C,D, AND E

DATED 10 AUGUST 2001

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**GROUNDWATER BENEFICIAL USE DETERMINATION FOR A-AQUIFER
PARCELS C, D, AND E
HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA
APRIL 12, 2001**

INTRODUCTION

This technical memorandum evaluates total dissolved solid (TDS) data analyzed from groundwater in the A-aquifer at Hunters Point Shipyard (HPS) Parcels C, D, and E for potential beneficial use in accordance with federal and state TDS water quality criteria. The TDS data set used in this evaluation consists of the maximum TDS concentrations collected from A-aquifer wells to date, including recent data collected in August and October 2000, as well as Parcel D data collected in February 2001. The attached table presents all available A-aquifer TDS data for Parcels C, D, and E. A contour map of the maximum TDS concentrations detected in A-aquifer groundwater is presented as Figure 1. Additional Parcel C and E data is currently being collected, and will be presented in the Phase II groundwater data gaps information package. If necessary, the beneficial use determinations for Parcels C and E will be updated based on this additional information.

PURPOSE AND OBJECTIVE

The purpose of this document is to evaluate A-aquifer groundwater in Parcels C, D, and E, determine its potential beneficial use, and classify it according to federal and state criteria. The objectives of this evaluation are to:

- Compile and evaluate all available TDS data from the A-aquifer wells.
- Generate a maximum TDS isoconcentration map.
- Classify the A-aquifer in Parcels C, D, and E according to the federal and state criteria.

The results of this evaluation will be incorporated in the Parcels C, D, and E revised feasibility study (FS) reports.

CLASSIFICATION REGULATIONS

Two criteria, federal and state, were used in this evaluation. The federal criteria are summarized in U.S. Environmental Protection Agency's (EPA) "Guidelines for Groundwater Classification under the EPA Groundwater Protection Strategy" (1988). The Federal criteria classify groundwater as Class I, II, or III. Class I groundwater is an irreplaceable source of drinking water or is ecologically vital. Class II

groundwater is a current or potential source of drinking water that has other beneficial uses. Class III groundwater is not a potential source of drinking water and is of limited beneficial use. EPA considers Class I and II groundwater as potentially potable if the following criteria are met:

- The TDS concentration is less than 10,000 milligrams per liter (mg/L).
- A minimum well yield of 150 gallons per day (gpd) or 0.14 gallon per minute (gpm) is achievable.

Under California State Water Resources Control Board Resolution No. 88-63 (1988), all groundwater is potentially suitable for municipal or domestic supply, unless at least one of the following conditions applies:

- The TDS concentration exceeds 3,000 mg/L **and** [emphasis added] it is not reasonably expected by Regional Boards to supply a public water system, or
- There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either best management practices or best economically achievable treatment practices, or
- The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gpd.

Based on the above regulations and for the purposes of this Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) cleanup action, the following decision rules are considered for the determination of the potential beneficial use of groundwater at HPS:

- Areas with TDS concentrations greater than 10,000 mg/L will not be considered suitable for municipal or domestic water supply in accordance with the state criteria and will be considered Class III groundwater in accordance with the federal criteria.
- Areas with TDS concentrations between 10,000 and 3,000 mg/L will not be considered suitable for municipal or domestic water supply in accordance with the State criteria and will be considered Class II groundwater in accordance with the Federal criteria. These areas will be evaluated further in the revised FS reports.
- Areas with TDS concentrations less than 3,000 mg/L will be considered suitable for municipal or domestic water supply in accordance with the state criteria and will be considered Class II groundwater in accordance with the federal criteria. These areas will be evaluated further in the revised FS reports.

Once the determination of groundwater classification has been made as stated in this document using the above decision rules, groundwater contamination in Class II areas will be evaluated in the revised FS reports using site-specific factors (SSF) to determine appropriate remedial alternatives and cleanup

criteria for the purposes of a CERCLA groundwater cleanup decision. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) preamble allows for the application of SSFs to determine appropriate remediation goals for Class I and II groundwater. Groundwater areas meeting the state criteria will also be further evaluated in the revised FS reports; however, the Navy understands that the state guidance does not cite SSFs, as in the NCP preamble.

For the groundwater classification to be made in accordance with this document, it is assumed that the A-aquifer in Parcels C, D, and E may be capable of a yield of at least 150 gpd for a short period of time. It is questionable, however, that the A-aquifer can sustain a steady pumping rate of 150 gpd for an extended period without deterioration of water quantity and quality. The revised FS reports may further evaluate whether a yield of 150 gpd is sustainable in the Class II A-aquifer areas and whether a yield of 200 gpd is sustainable in groundwater meeting the state criteria.

GROUNDWATER EVALUATION

Figure 1 presents concentration isopleths showing areas of the base that have exhibited maximum TDS concentrations below 3,000; between 3,000 and 10,000; and above 10,000 mg/L. The contours are based on the maximum detected TDS concentration measured at each monitoring well location. The distribution of TDS concentrations in excess of 10,000 mg/L form a pattern that may be the result of saltwater intrusion along utility lines as well as aquifer heterogeneities. TDS concentrations below 3,000 mg/L occur in several isolated areas in the north-central and western portions of Parcels C and D.

Figure 2 is another interpretation of the maximum TDS data that presents proposed beneficial use areas. The evaluation shown on Figure 2 eliminates TDS isopleths caused by anomalous data points and presents a more generalized interpretation of the remaining isopleths. Isolated areas of low TDS concentrations may be related to water supply line leaks. Locations of water supply line repairs completed subsequent to the August 2000 sampling are shown on Figures 1 and 2. Inland areas exhibiting high TDS concentrations are likely the result of bay water encroachment through storm water outfalls. Regardless of the specific causes for the anomalous TDS data points, a water supply well placed in the anomalous area eventually would pump water that is representative of the surrounding aquifer. Therefore, the generalized interpretation presented on Figure 2 is considered practical and reasonable.

CONCLUSIONS

Figure 2 summarizes areas that are considered potential beneficial use and areas that are not considered potential beneficial use in accordance with the federal and state criteria.

Federal Criteria Determination

None of the A-aquifer groundwater in Parcels C, D, and E is considered a Class I groundwater.

A-aquifer groundwater in the zone with TDS concentrations above 10,000 mg/L as shown on Figure 2 is considered Class III groundwater in accordance with the federal classification criteria. Remedies and cleanup goals selected for groundwater in these areas will be evaluated based on this consideration.

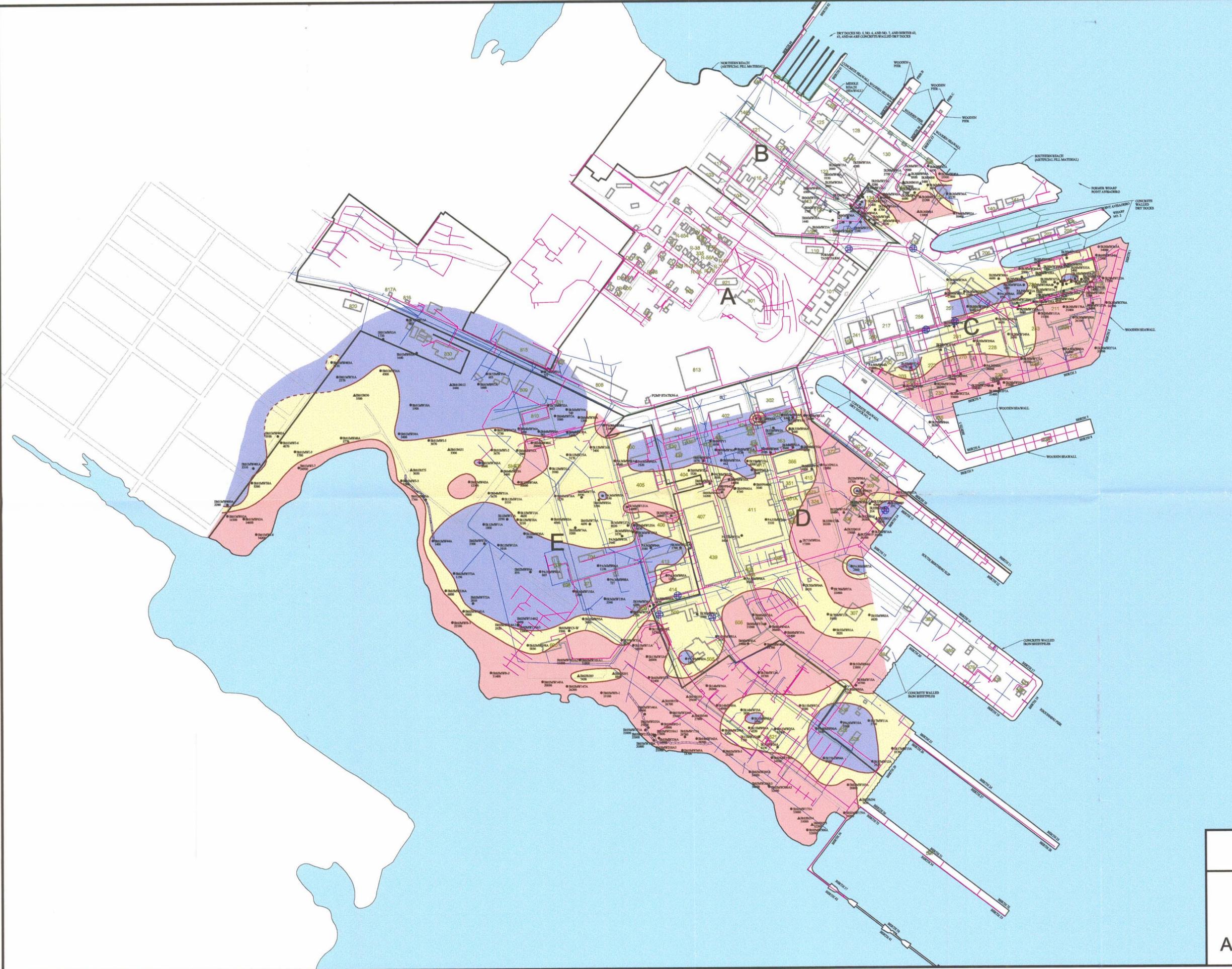
For the remaining portions of the site, A-aquifer groundwater is considered Class II groundwater in accordance with federal classification criteria (see Figure 2). For these portions of the site, SSFs will be evaluated in the FS to determine appropriate remedial alternatives and cleanup criteria for the purposes of CERCLA groundwater cleanup decisions.

State Criteria Determination

Groundwater in the zone with TDS concentrations below 3,000 mg/L as shown on Figure 2 is considered to be of potential beneficial use in accordance with the state criteria. All other areas are considered to not have potential beneficial use in accordance with the state criteria.

Based on available information, the B-aquifer and bedrock water-bearing zone below the B-aquifer are both considered to be potential beneficial use aquifers. As such, groundwater cleanup decisions for the A-aquifer will be made to ensure that contaminated groundwater does not migrate vertically into deeper aquifers.

Freshwater line repair operations are ongoing at the site. These activities may affect TDS concentration distributions in the future. Additional TDS data are being collected from Parcels C and E as part of the Phase II groundwater data gaps sampling. This additional information will be evaluated as part of the Phase II groundwater data gaps data package and may be included in a revised "Beneficial Use Determination." A separate study will be conducted for the B-aquifer, if necessary.



Legend

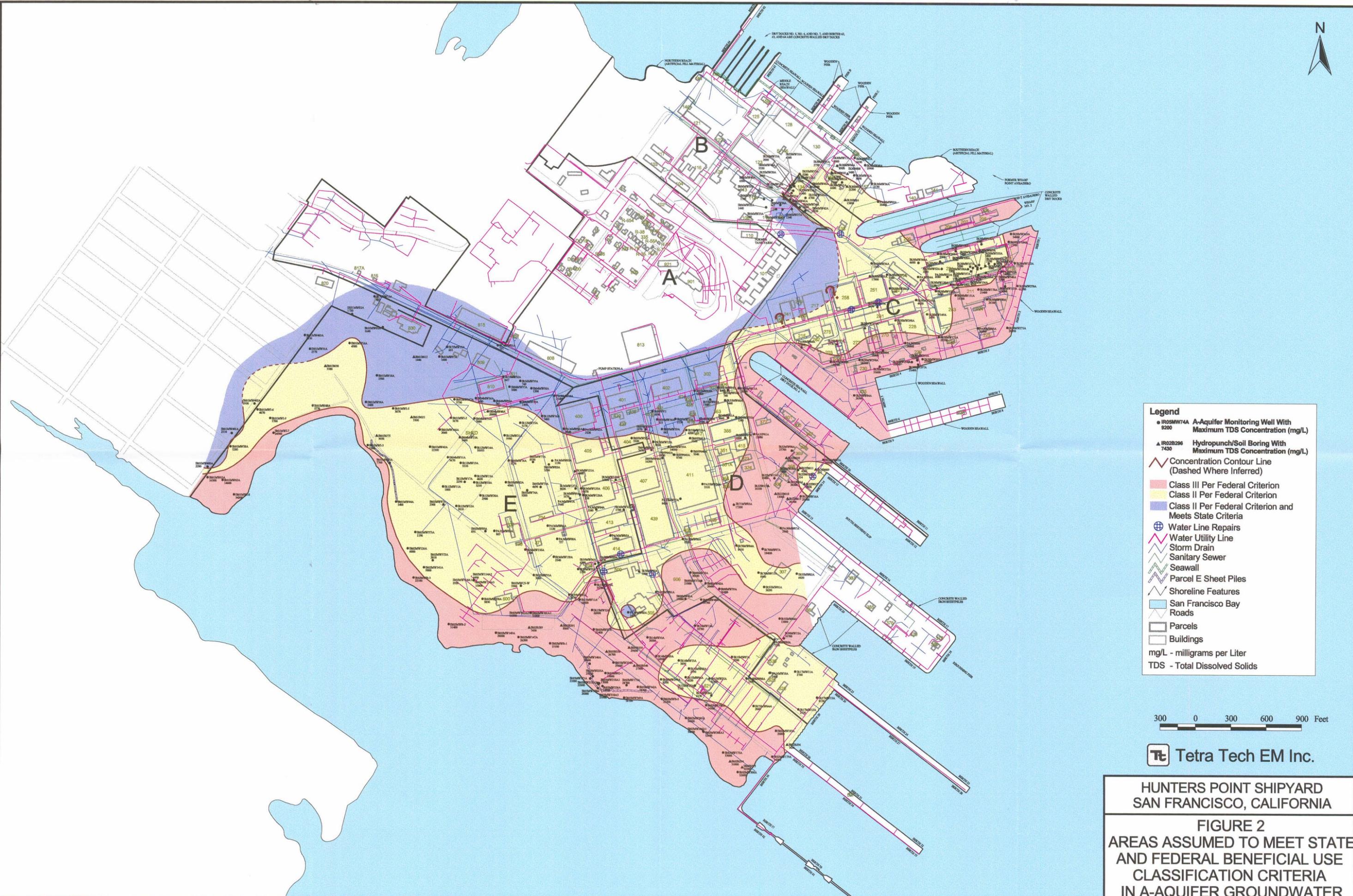
- IR05M74A 9200 A-Aquifer Monitoring Well With Maximum TDS Concentration (mg/L)
- ▲ IR02B296 7430 Hydropunch/Soil Boring With Maximum TDS Concentration (mg/L)
- Concentration Contour Line
- Red TDS Concentration $\geq 10,000$ mg/L
- Yellow TDS Concentration $< 10,000$ mg/L, but $> 3,000$ mg/L
- Blue TDS Concentration $< 3,000$ mg/L
- ⊕ Water Line Repairs
- Water Utility Line
- Storm Drain
- Sanitary Sewer
- Seawall
- Parcel E Sheet Piles
- Text Outside
- San Francisco Bay
- Roads
- Parcels
- Buildings
- mg/L - milligrams per Liter
- TDS - Total Dissolved Solids



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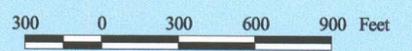
HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

FIGURE 1
MAXIMUM TDS
CONCENTRATIONS IN
A-AQUIFER GROUNDWATER



Legend

- IR05MW74A 9200 A-Aquifer Monitoring Well With Maximum TDS Concentration (mg/L)
- ▲ IR02B296 7430 Hydropunch/Soil Boring With Maximum TDS Concentration (mg/L)
- Concentration Contour Line (Dashed Where Inferred)
- Class III Per Federal Criterion
- Class II Per Federal Criterion
- Class II Per Federal Criterion and Meets State Criteria
- ⊕ Water Line Repairs
- Water Utility Line
- Storm Drain
- Sanitary Sewer
- Seawall
- Parcel E Sheet Piles
- Shoreline Features
- San Francisco Bay
- Roads
- Parcels
- Buildings
- mg/L - milligrams per Liter
- TDS - Total Dissolved Solids



Tetra Tech EM Inc.

HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

FIGURE 2
AREAS ASSUMED TO MEET STATE
AND FEDERAL BENEFICIAL USE
CLASSIFICATION CRITERIA
IN A-AQUIFER GROUNDWATER

TABLE 1

RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
 A-AQUIFER
 HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
 (Page 1 of 23)

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
Monitoring Well Groundwater Samples					
B	IR-06	IR06MW22A ^a	6/12/1990	965	
			7/15/1991	1,080	
			1/6/1992	947	
			8/18/2000	1,440	
		IR06MW23A	6/13/1990	606	
			6/13/1990	630	
			1/7/1991	433	
			1/7/1991	454	
			7/16/1991	608	
			7/16/1991	618	
			10/10/1991	440	
			10/10/1991	660	
			1/7/1992	518	
			1/7/1992	535	
			1/24/1992	520	
		IR06MW27A	6/12/1990	1,240	
			7/16/1991	1,140	
			1/7/1992	1,000	
		IR06MW30A	6/12/1990	839	
			6/12/1990	883	
			1/4/1991	823	
			1/4/1991	843	
			7/15/1991	814	J
			7/15/1991	967	
			1/9/1992	802	
		1/9/1992	802		
		IR06MW32A ^a	6/12/1990	2,500	
	1/7/1991		1,820		
	7/17/1991		2,090		
	1/10/1992		1,490		
	8/18/2000		1,500		
	IR06MW35A	6/11/1990	1,570		
1/4/1991		1,700			
7/17/1991		1,650			
1/8/1992		1,640			
4/27/1999		1,380			
IR06MW59A2	10/6/2000	1,610			
IR-20	IR20MW01A	5/19/1993	1,640		
		5/19/1993	1,780		
		9/7/1993	2,670		
		9/7/1993	2,750		
		1/11/1994	2,500		

TABLE 1
RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
(Page 2 of 23)

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier	
B	IR-20	IR20MW06A	9/8/1993	8,910		
			1/12/1994	8,490	J	
			1/12/1994	8,920	J	
		IR20MW11A	5/21/1993	6,670		
			5/21/1993	6,680		
			9/8/1993	2,840		
			1/11/1994	2,790		
	IR20MW17A	6/6/1995	3,000			
	IR-26	IR26MW36A	6/6/1995	2,130		
		IR26MW40A	6/6/1995	19,900		
		IR26MW41A	6/6/1995	3,090		
	IR-46	IR46MW41A	8/1/1995	6,330		
			8/1/1995	6,630		
	IR-50	PA50MW02A	6/15/1995	10,400		
C	IR-25	IR06MW34A	6/13/1990	4,720		
			1/4/1991	5,040		
			7/15/1991	4,930		
			1/9/1992	3,680		
			4/27/1999	2,720		
			8/16/2000	4,740		
			IR06MW40A	6/13/1990	5,120	
				1/4/1991	5,920	
				7/17/1991	5,600	
				7/17/1991	5,670	
		10/10/1991		6,500		
		1/9/1992		3,800		
		1/24/1992		2,000		
		4/27/1999		4,320		
		8/23/2000		6,200		
		IR06MW41A		6/11/1990	2,620	
			6/11/1990	2,780		
			1/3/1991	3,050		
			7/16/1991	3,760		
			1/8/1992	3,530		
			1/8/1992	3,640		
			5/6/1999	4,200		
			8/16/2000	6,480		
			IR06MW42A	6/13/1990	3,330	
				1/8/1991	3,820	
		7/16/1991		2,400		
		10/11/1991		2,500		
		1/10/1992		2,190		
		1/10/1992		2,220		
		1/24/1992		1,900		
		5/6/1999		603		

TABLE 1

RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
 A-AQUIFER
 HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
 (Page 3 of 23)

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
C	IR-25	IR06MW44A	10/31/1991	9,330	
			1/7/1992	6,290	
			1/28/1998	1,500	
			1/28/1998	1,600	
			4/27/1999	1,160	
		8/17/2000	3,860		
		IR06MW45A	10/31/1991	4,180	
			1/13/1992	6,800	
			5/6/1999	4,200	
			8/16/2000	14,000	
		IR25MW11A	6/7/1995	1,580	
			4/27/1999	964	
		IR25MW15A1	5/26/1995	2,880	
			2/5/1998	1,600	
			5/6/1999	1,070	
			8/17/2000	1,760	
		IR25MW15A2	5/26/1995	10,400	
			5/26/1995	10,500	
			2/5/1998	9,900	
			4/27/1999	10,200	
			4/27/1999	10,400	
		8/16/2000	11,400		
		IR25MW16A	6/1/1995	6,180	
			6/1/1995	6,420	
			4/27/1999	61	
			8/17/2000	6,440	
			8/17/2000	6,700	
	IR25MW17A	6/2/1995	3,670		
		5/6/1999	4,060		
		8/10/2000	5,280	J	
	IR25MW18A	1/29/1998	4,200		
	IR25MW19A	1/29/1998	2,000		
	IR25MW20A	1/29/1998	3,800		
IR25MW22A	1/23/1998	420			
IR-28	IR28MW122A	6/21/1995	1,020		
		6/21/1995	17,200		
		8/3/2000	6,800	J	
	IR28MW123A	6/12/1995	19,000		
		3/20/1996	15,600		

TABLE 1

RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
 A-AQUIFER
 HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
 (Page 4 of 23)

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
C	IR-28	IR28MW124A	8/2/1995	16,600	
			8/2/1995	17,400	
			4/29/1999	13,800	
			4/29/1999	13,900	
			4/29/1999	14,500	
			4/29/1999	14,500	
			4/29/1999	14,500	
			4/29/1999	14,700	
			4/29/1999	14,800	
			8/7/2000	17,900	J
		IR28MW125A	6/13/1995	4,070	
			8/22/2000	4,740	
		IR28MW126A	6/12/1995	5,510	
			6/12/1995	5,920	
			3/19/1996	4,580	
		IR28MW127A	8/7/2000	5,100	J
			6/8/1995	2,350	
		IR28MW128A	8/22/2000	3,480	
			6/13/1995	7,140	
		IR28MW129A	6/27/1995	3,130	
		IR28MW136A	6/8/1995	4,510	
			1/28/1998	3,600	
			8/9/2000	3,080	J
		IR28MW149A	6/13/1995	2,490	
		IR28MW150A	8/1/1995	25,400	
			8/3/2000	26,100	J
		IR28MW151A	6/29/1995	15,100	
			8/7/2000	11,800	J
		IR28MW155A	6/13/1995	4,980	
			8/23/2000	5,640	
		IR28MW169A	6/22/1995	3,670	
			6/22/1995	4,420	
			8/14/2000	880	
		IR28MW170A	6/29/1995	21,000	
			6/29/1995	21,400	
			8/3/2000	16,600	J
		IR28MW171A	6/9/1995	10,000	
			6/9/1995	9,850	
			8/4/2000	28,000	J
			8/4/2000	28,100	J
		IR28MW200A	8/1/1995	16,600	
			8/16/2000	18,800	

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RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
 A-AQUIFER
 HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
 (Page 5 of 23)

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
C	IR-28	IR28MW217A	6/19/1995	5,880	
			4/28/1999	9,670	
			8/4/2000	340	J
		IR28MW268A	4/5/1996	5,900	
		IR28MW269A	5/8/1996	22,200	
			4/29/1999	14,100	
			4/29/1999	22,500	
			4/29/1999	22,800	
			4/29/1999	23,200	
			4/29/1999	23,600	
			4/29/1999	24,100	
			8/22/2000	34,000	
			IR28MW270A	5/6/1996	24,000
		IR28MW270A	8/4/2000	30,700	J
			8/4/2000	31,900	J
		IR28MW271A	5/3/1996	20,700	
		IR28MW272A	4/26/1996	22,700	
			8/17/2000	33,600	
		IR28MW286A	4/4/1996	1,660	
			8/14/2000	480	
		IR28MW287A	5/7/1996	5,380	
			8/14/2000	1,740	
		IR28MW290A	4/5/1996	293	
		IR28MW293A	5/1/1996	19,100	
			5/1/1996	20,500	
			8/23/2000	32,900	
		IR28MW294A	5/7/1996	10,400	
		IR28MW295A	5/9/1996	21,600	
		IR28MW297A	5/7/1996	21,400	
		IR28MW298A	4/5/1996	4,430	
			5/6/1996	10,300	
			4/28/1999	731	
			8/14/2000	320	
			8/14/2000	380	
		IR28MW308A	4/17/1996	2,680	J
			5/21/1996	3,530	
			6/24/1996	1,100	
			1/23/1998	3,300	
			1/23/1998	4,200	
			8/14/2000	4,600	

TABLE 1
RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
 (Page 6 of 23)

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
C	IR-28	IR28MW311A	4/19/1996	5,400	J
			5/28/1996	7,520	
			6/27/1996	2,810	
			6/27/1996	2,930	
			4/28/1999	3,720	
			8/9/2000	1,880	J
		IR28MW327A	1/28/1998	3,200	
		IR28MW328A	1/27/1998	3,100	
		IR28MW329A	1/27/1998	2,900	
		IR28MW330A	1/28/1998	3,300	
		IR28MW331A	1/28/1998	3,300	
			8/8/2000	2,680	J
		IR28MW333A	1/26/1998	2,100	
		IR28MW334A	1/27/1998	3,400	
		IR28MW335A	1/26/1998	3,400	
		IR28MW336A	1/26/1998	3,500	
		IR28MW337A	1/28/1998	3,500	
		IR28MW339A	1/26/1998	2,500	
			8/4/2000	3,520	J
		IR28MW340A	1/26/1998	3,200	
		IR58MW31A	6/21/1995	17,800	
			1/23/1998	760	
			4/28/1999	786	
			8/11/2000	460	J
			8/11/2000	740	J
		PA28MW50A	6/15/1995	3,720	
			8/7/2000	2,520	J
		PA28MW51A	6/15/1995	3,400	
			6/15/1995	3,970	
			8/3/2000	6,080	J
		PA28MW52A	6/15/1995	1,000	
		PA28P02A	3/9/1993	26,000	
		PA28P03A	3/8/1993	14,000	
	PA28P04A	3/9/1993	830		
		6/9/1995	381		
	IR-29	IR29MW48A	8/2/1995	26,600	
			4/28/1999	26,700	J
		IR29MW57A	6/23/1995	1,970	
			4/28/1999	721	
			8/22/2000	720	
IR29MW84A		4/26/1996	20,300		

TABLE 1

RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier	
C	IR-50	PA50MW03A	3/25/1996	17,400		
			8/9/2000	31,300	J	
		PA50MW04A	3/26/1996	4,090		
			4/28/1999	4,660		
			8/8/2000	23,700	J	
	IR-58	IR58MW26A	8/8/2000	23,800	J	
			6/16/1995	259		
			6/16/1995	262		
			8/21/2000	1,360		
D	IR-08	IR08MW37A	7/11/1990	17,700		
			7/11/1990	19,900		
			1/3/1991	17,300		
			1/3/1991	18,600		
			7/10/1991	13,500		
			7/10/1991	18,800		
			11/7/1991	20,000		
			11/7/1991	21,000		
			12/19/1991	18,600		
			3/17/1992	5,200		
			IR08MW38A	7/10/1990	13,700	
				1/3/1991	20,100	
				7/10/1991	11,600	
		11/7/1991		370		
		12/20/1991		19,600		
		IR08MW39A		7/10/1990	13,800	
			1/3/1991	16,200		
			7/10/1991	14,500		
			11/7/1991	8		
			12/20/1991	26,400		
			12/20/1991	26,000		
			IR08MW40A	7/10/1990	14,700	
		7/10/1990		15,200		
		1/4/1991		18,700		
		7/10/1991		17,700		
		11/7/1991		17,000		
		12/19/1991		17,700		
		12/19/1991		18,200		
		3/17/1992		17,000		
		3/17/1992		17,000		

TABLE 1
RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier	
D	IR-08	IR08MW41A	7/11/1990	7,390		
			1/4/1991	2,360		
			7/11/1991	11,400		
			11/7/1991	19,000		
			12/19/1991	14,600		
			3/17/1992	13,000		
			3/17/1992	14,000		
		IR08MW42A	10/7/1991	20,400		
			10/7/1991	20,600		
			12/20/1991	18,900		
	IR-09	IR09MW31A	4/24/1990	2,060		
			1/2/1991	2,130		
			7/9/1991	1,360		
			12/17/1991	1,670		
			8/17/2000	900		
			2/2/2001	370		
			IR09MW35A	4/25/1990	2,310	
				4/25/1990	2,360	
				1/2/1991	2,960	
				1/2/1991	3,040	
		7/8/1991		4,140	J	
		7/8/1991		4,260	J	
		10/25/1991		7,900		
		10/25/1991		8,100		
		12/16/1991		9,910		
		12/16/1991		9,940		
		IR09MW36A	2/21/1992	14,000		
			2/21/1992	14,000		
			8/23/2000	11,000		
			8/23/2000	10,900		
			2/1/2001	7,730		
			4/25/1990	1,380		
			1/2/1991	6,640		
			7/9/1991	6,560		
		IR09MW37A	12/16/1991	7,670		
			4/25/1990	1,020		
			1/3/1991	1,870		
			7/9/1991	1,280		
			12/17/1991	1,340		

TABLE 1
RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
D	IR-09	IR09MW38A	4/24/1990	910	
			4/24/1990	923	
			1/3/1991	910	
			7/8/1991	856	J
			10/25/1991	840	
			12/17/1991	896	
			2/21/1992	810	
		IR09MW39A	10/7/1991	662	
			12/18/1991	642	
		IR09MW44A	10/8/1991	3,700	
			12/18/1991	6,180	
			12/18/1991	6,350	
			8/23/2000	15,800	
			8/23/2000	16,200	
		IR09MW52A	1/30/2001	14,200	
			3/18/1996	5,520	
		IR09P040A	5/13/1996	785	
			10/8/1991	3,410	
			10/8/1991	3,450	
		IR09P041A	12/17/1991	3,530	
			12/17/1991	3,540	
			10/7/1991	2,160	
		IR09P042A	12/17/1991	1,980	
			10/8/1991	2,830	
			12/18/1991	2,720	
		IR09P043A	10/8/1991	7,430	
			12/18/1991	8,760	
			10/6/2000	6,960	
			2/7/2001	6,400	
		IR09PPY1	4/24/1990	787	
			1/3/1991	808	
			7/9/1991	748	
			7/9/1991	782	
	12/16/1991		1,050		
	10/17/2000		1,380		
	2/2/2001		1,010		
	IR-16	PA16MW18A	2/2/2001	2,500	
	IR-17	IR17MW11A	2/28/1992	2,080	
			9/16/1992	2,650	
			9/16/1992	2,760	
			2/2/2001	1,300	
		IR17MW12A	2/27/1992	2,160	
			9/17/1992	2,160	
		2/1/2001	2,320		

TABLE 1
RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier	
D	IR-17	IR17MW13A	2/28/1992	5,210		
			2/28/1992	6,290		
			9/17/1992	6,540		
			2/1/2001	8,130		
	IR-22	IR22MW07A	5/18/1993	20,800		
			5/18/1993	24,300		
			9/9/1993	29,000		
			1/14/1994	13,400		
			2/1/2001	24,900		
			IR22MW08A	5/6/1993	25,700	
				9/9/1993	24,000	
		1/13/1994		12,900	J	
		IR22MW15A	2/19/2001	19,300		
			5/4/1993	12,000		
			5/4/1993	12,700		
			9/9/1993	15,500		
			1/13/1994	19,600	J	
		IR22MW16A	2/1/2001	5,750		
			5/6/1993	11,800		
			5/6/1993	15,300		
			9/9/1993	18,700		
	1/14/1994		11,800			
	1/14/1994		12,400			
	2/19/2001		29,500			
	IR22MW20A	1/31/2001	7,360			
	IR-33	IR33MW61A	4/28/1999	657		
			4/28/1999	676		
			8/1/2000	760	J	
			2/5/2001	540		
			2/5/2001	520		
		IR33MW62A	4/28/1999	1,670		
			8/2/2000	10,800	J	
			2/6/2001	1,340	U	
		IR33MW64A	4/28/1999	1,360		
			8/1/2000	800	J	
			2/6/2001	920		
		IR33MW65A	4/28/1999	579		
			8/1/2000	1,360	J	
			2/8/2001	510		
		IR33MW66A	4/28/1999	1,960		
			4/28/1999	2,000		
8/1/2000			7,440	J		
2/8/2001	2,010					
IR33MW116A	4/4/1996	4,200				
PA33MW36A	3/11/1996	3,310				

TABLE 1

RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier	
D	IR-34	PA33MW37A	8/16/2000	6,220		
			2/7/2001	8,430		
		IR34MW01A	4/28/1999	1,320		
			8/3/2000	1,660	J	
			2/8/2001	2,060		
			4/28/1999	1,240		
		IR34MW36A	10/4/2000	2,920		
			10/4/2000	2,800		
			2/8/2001	2,310		
		IR34MW37A	10/4/2000	6,600		
	2/8/2001		6,300			
	IR-35	PA35P01A	3/8/1993	15,000		
	IR-38	IR38MW03A	8/22/2000	5,900		
			2/7/2001	2,410		
	IR-39	IR39MW33A	3/29/1996	8,870		
		IR39MW35A	3/18/1996	1,150		
		IR39MW36A	3/18/1996	6,290		
		PA39MW01A	3/14/1996	3,210		
		PA39MW02A	3/14/1996	1,420		
	IR-50	IR50MW15A	2/21/2001	10,700		
			PA50MW05A	3/19/1996	1,160	
			4/30/1996	2,580		
			2/19/2001	7,250		
		PA50MW06A	3/12/1996	8,520		
		PA50MW07A	3/20/1996	2,860		
			5/2/1996	2,590		
			2/19/2001	6,670		
		PA50MW08A	3/13/1996	1,690		
		PA50MW09A	3/21/1996	2,540		
			5/2/1996	109		
		PA50MW11A	3/14/1996	2,560		
			4/28/1999	4,070		
			8/2/2000	16,200	J	
	2/8/2001		2,700			
	PA50MW12A	3/19/1996	5,050			
	IR-55	IR55MW01A	3/15/1996	3,820		
			2/7/2001	1,950		
		IR55MW02A	2/7/2001	6,020		
		IR55MW04A	3/15/1996	13,800		
	IR-70	IR70MW04A	2/7/2001	8,410		
		IR70MW07A	2/7/2001	18,400		
		IR70MW11A	2/7/2001	5,900		
IR-71	IR71MW03A	8/2/2000	17,200	J		
		2/6/2001	9,870			

TABLE 1
RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
E	IR-01	IR01MW03A	1/10/1992	1,730	
			8/17/1992	1,670	
			8/17/1992	1,680	
		IR01MW05A	5/5/1992	1,550	
			5/5/1992	1,640	
			7/23/1992	1,510	
		IR01MW07A	8/17/1992	1,020	
			3/26/1991	747	
			11/25/1991	1,600	
			1/10/1992	877	
			1/10/1992	881	
			2/4/1992	940	
			2/4/1992	950	
			8/17/1992	1,410	
		IR01MW16A	5/5/1992	1,480	
			7/22/1992	4,250	
			7/22/1992	4,260	
		IR01MW18A	8/18/1992	4,300	
			5/6/1992	1,390	
			5/6/1992	420	
			7/23/1992	1,860	
			7/23/1992	1,900	
		IR01MW31A	8/18/1992	1,730	
			5/8/1992	2,250	
			5/8/1992	2,250	
			7/22/1992	2,330	
			8/19/1992	2,330	
		IR01MW366A	8/19/1992	2,370	
			5/15/1996	2,060	
		IR01MW367A	5/14/1996	3,730	
		IR01MW38A	1/16/1992	2,210	
			1/16/1992	2,280	
			8/18/1992	2,400	
		IR01MW400A	9/12/1996	1,780	
			10/15/1996	1,590	
			10/15/1996	2,280	
			11/14/1996	1,950	
		IR01MW401A	7/8/1996	2,280	
			9/12/1996	2,310	
			11/14/1996	2,240	
		IR01MW402A	6/28/1996	3,810	
			9/3/1996	3,410	
9/3/1996	4,260				
11/14/1996	5,950				

TABLE 1

RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
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HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
E	IR-01	IR01MW403A	7/1/1996	1,650	
			9/3/1996	3,110	
			11/15/1996	2,530	
		IR01MW42A	1/9/1992	12,000	
			1/9/1992	12,300	
			7/9/1992	10,100	
			8/18/1992	11,000	
		IR01MW43A	3/22/1991	4,360	
			11/22/1991	8,200	
			1/9/1992	4,000	
			2/4/1992	7,700	
			8/18/1992	3,350	
			8/18/1992	3,380	
			3/19/1996	2,390	
		IR01MW44A	3/25/1991	695	J
			3/25/1991	748	J
			1/20/1992	995	
			8/20/1992	1,390	
			8/20/1992	1,400	
		IR01MW48A	3/19/1996	1,170	
			1/22/1992	5,760	
			11/22/1991	5,500	
			1/22/1992	5,730	
			2/4/1992	5,400	
			7/9/1992	5,150	
		IR01MW58A	8/19/1992	5,770	
			3/25/1991	4,300	J
			11/22/1991	4,900	
			11/22/1991	5,200	
			1/20/1992	4,190	
			1/20/1992	4,580	
			2/4/1992	5,100	
		IR01MW62A	8/20/1992	3,400	
			1/21/1992	8,910	
			1/21/1992	9,090	
			7/21/1992	11,800	
		IR01MW63A	8/20/1992	14,600	
			1/22/1992	15,500	
			7/20/1992	15,000	
			7/20/1992	15,400	
		IR01MWI-2	8/20/1992	16,500	
1/9/1992	3,670				
7/6/1992	3,370				
		8/21/1992	3,360		

TABLE 1
RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
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HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
E	IR-01	IR01MWI-3	1/16/1992	3,300	
			7/6/1992	3,230	
			7/6/1992	3,270	
			8/24/1992	3,120	
			3/19/1996	2,680	
		IR01MWI-5	1/16/1992	3,070	
			7/9/1992	2,890	
			7/9/1992	2,970	
			8/21/1992	2,800	
		IR01MWI-6	1/20/1992	960	
			7/9/1992	3,910	
			8/21/1992	4,070	
		IR01MWI-7	1/21/1992	23,600	
			7/10/1992	24,900	
			8/21/1992	20,900	
		IR01MWI-8	1/27/1992	28,600	
			8/21/1992	34,200	
			3/21/1996	15,100	
		IR01MWI-9	1/21/1992	3,700	
			7/6/1992	2,670	
	8/21/1992		2,800		
	8/21/1992		2,870		
	IR-02	IR02MW101A1	1/7/1992	31,300	
			1/7/1992	31,800	
			7/8/1992	2,280	
			8/24/1992	2,640	
		IR02MW101A2	1/8/1992	13,800	
			7/9/1992	15,500	
			8/25/1992	14,400	
		IR02MW114A1	1/15/1992	2,920	
			2/21/1992	2,400	
			7/7/1992	2,350	
			8/27/1992	2,760	
			3/8/1993	2,300	
		IR02MW114A2	1/13/1992	3,390	
			7/10/1992	4,490	
			8/25/1992	4,370	
		IR02MW114A3	1/14/1992	12,100	
			7/8/1992	15,800	
8/26/1992			12,400		
IR02MW126A		1/6/1992	29,700		
		7/8/1992	4,700		
	7/8/1992	5,640			
	8/25/1992	6,000			

TABLE 1

RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
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Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
E	IR-02	IR02MW141A	5/7/1992	5,350	
			5/7/1992	5,590	
			7/21/1992	8,800	
			7/21/1992	8,820	
			8/25/1992	9,150	
			8/25/1992	9,800	
		IR02MW146A	1/30/1992	28,800	
			1/30/1992	33,000	
			3/26/1996	20,100	
			5/29/1996	19,800	
			5/29/1996	20,100	
		IR02MW147A	1/15/1992	21,600	
			7/10/1992	26,200	
			8/25/1992	24,000	
		IR02MW149A	3/21/1991	18,500	
			1/10/1992	15,200	
			8/25/1992	20,000	
		IR02MW173A	1/29/1992	28,700	
			1/29/1992	27,700	
			3/26/1996	19,800	
			5/30/1996	18,800	
		IR02MW175A	1/14/1992	30,200	
			7/10/1992	28,500	
			7/10/1992	28,600	
			8/25/1992	33,000	
		IR02MW179A	11/7/1991	32,000	
			1/14/1992	27,400	
			3/18/1992	23,000	
			3/18/1992	23,000	
			6/9/1992	30,600	
			8/25/1992	34,200	
		IR02MW183A	1/14/1992	14,400	
			1/14/1992	15,500	
			6/9/1992	20,800	
			8/26/1992	18,300	
		IR02MW196A	3/21/1991	13,800	
			3/21/1991	14,100	
			1/8/1992	11,800	
			8/26/1992	10,200	
		IR02MW206A1	1/8/1992	26,700	
6/9/1992	31,300				
8/25/1992	34,600				

TABLE 1
RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
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Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier	
E	IR-02	IR02MW206A2	1/8/1992	30,600		
			6/8/1992	30,800		
			8/26/1992	32,600		
		IR02MW209A	11/7/1991	33,000		
			11/7/1991	34,000		
			1/8/1992	31,600		
			1/8/1992	32,100		
			3/18/1992	29,000		
			3/18/1992	29,000		
			6/8/1992	31,200		
			6/8/1992	31,300		
			8/26/1992	32,000		
			IR02MW298A	7/8/1992	5,080	
				8/27/1992	5,830	
		3/22/1996		1,200		
		IR02MW299A	7/6/1992	6,030		
			8/26/1992	8,350		
			3/21/1996	988		
		IR02MW300A	4/26/1999	1,630		
			7/6/1992	30,100		
			8/26/1992	32,600		
		IR02MW372A	3/20/1996	12,700		
			5/10/1996	2,010		
			5/10/1996	1,190		
		IR02MW373A	5/10/1996	1,190		
			IR02MW87A	3/26/1991	2,300	
				1/6/1992	2,200	
		8/24/1992		1,750		
		IR02MW89A	1/22/1992	824		
			7/21/1992	795		
			8/24/1992	895		
		IR02MW93A	3/22/1991	2,820		
			1/6/1992	2,530		
			1/6/1992	3,060		
			8/24/1992	2,010		
		IR02MW97A	3/21/1991	16,700		
			1/15/1992	19,500		
			1/15/1992	19,900		
			8/24/1992	20,500		
			8/24/1992	21,400		

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RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
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 HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier	
E	IR-02	IR02MWB-1	10/25/1991	19,000		
			1/13/1992	16,400		
			1/13/1992	17,200		
			2/21/1992	17,000		
			2/21/1992	17,000		
			7/7/1992	19,000		
			7/7/1992	19,100		
			8/27/1992	19,000		
		IR02MWB-2	10/25/1991	20,000		
			1/7/1992	30,300		
			2/21/1992	12,000		
			2/21/1992	9,900		
			7/7/1992	31,400		
			8/27/1992	30,800		
		IR02MWB-3	11/25/1991	14,000		
			1/20/1992	22,100		
			2/4/1992	20,000		
			7/10/1992	8,880		
			8/27/1992	11,700		
			8/27/1992	15,200		
		IR02MWB-5	1/21/1992	25,200		
			6/9/1992	25,000		
			6/9/1992	25,200		
			8/28/1992	23,000		
		IR02MWC5-W	10/25/1991	9,400		
			2/21/1992	9,500		
		IR-03	IR03MW218A1	11/7/1991	17,000	
				1/24/1992	12,400	
	1/24/1992			4,130		
	3/18/1992			3,600		
	7/9/1992			8,520		
	IR03MW218A2		1/15/1992	21,100		
			7/9/1992	22,600		
			8/27/1992	21,800		
	IR03MW218A3		11/7/1991	23,000		
			1/16/1992	23,900		
			3/18/1992	22,000		
			7/9/1992	21,100		
			8/27/1992	22,600		
	IR03MW224A		1/23/1992	29,600		
7/24/1992			26,200			
8/28/1992			27,300			
8/28/1992			28,100			

TABLE 1

**RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
(Page 18 of 23)**

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
E	IR-03	IR03MW225A	1/28/1992	24,400	
			1/28/1992	25,600	
			4/3/1996	22,700	
			6/19/1996	22,400	
			1/27/1992	6,270	
		IR03MW226A	1/27/1992	6,650	
			7/24/1992	13,700	
			7/24/1992	14,800	
			8/27/1992	13,200	
			7/6/1992	28,200	
		IR03MW342A	8/28/1992	25,200	
			3/21/1996	7,470	
			3/21/1996	8,070	
			5/20/1996	18,700	
		IR03MW369A	5/16/1996	20,800	
		IR03MW370A	5/16/1996	21,000	
		IR03MW371A	5/16/1996	21,000	
			5/16/1996	21,000	
		IR03MWO-1	1/23/1992	16,400	
			1/23/1992	17,000	
	7/9/1992		18,800		
	8/28/1992		18,700		
	IR-04	IR04MW09A	2/13/1992	870	
			6/15/1992	981	
		IR04MW13A	2/12/1992	3,460	J
			2/12/1992	3,310	J
			6/17/1992	3,260	
			6/17/1992	3,350	
		IR04MW31A	2/12/1992	3,670	J
			6/17/1992	3,100	
		IR04MW35A	2/12/1992	1,440	J
			6/15/1992	7,080	
		IR04MW36A	2/13/1992	1,190	
			2/13/1992	1,210	
			6/17/1992	1,490	
		IR04MW37A	2/14/1992	1,060	
			2/14/1992	1,070	
			6/15/1992	1,070	
			6/15/1992	1,080	
		IR04MW38A	11/25/1991	1,200	
			2/4/1992	1,000	
2/14/1992			1,150		
6/17/1992	922				
IR04MW39A	2/13/1992	1,410			
	6/15/1992	1,490			

TABLE 1

RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
(Page 19 of 23)

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
E	IR-04	IR04MW40A	11/25/1991	16,000	
			11/25/1991	18,000	
			2/4/1992	20,000	
			2/13/1992	7,530	
			6/17/1992	10,600	
			3/19/1993	1,930	
	IR-05	IR05MW73A	2/11/1992	4,680	J
			6/19/1992	4,690	
		IR05MW74A	10/25/1991	8,800	
			10/25/1991	9,200	
			2/11/1992	9,200	J
			2/21/1992	8,500	
			6/18/1992	8,370	
		IR05MW76A	2/11/1992	3,470	J
			2/11/1992	3,570	J
			6/19/1992	2,310	
		IR05MW77A	6/19/1992	2,580	
			10/25/1991	5,700	
			2/10/1992	8,630	J
			2/10/1992	8,890	J
			2/21/1992	8,100	
		IR05MW82A	6/18/1992	8,930	
			2/11/1992	4,650	J
		IR05MW85A	6/18/1992	4,960	
			6/18/1992	3,150	
			6/18/1992	3,180	
			7/24/1992	2,980	
	7/24/1992		3,280		
	IR-11	IR11MW25A	3/21/1996	2,380	
			8/23/1990	31,800	
		IR11MW26A	4/26/1999	4,200	
			8/21/1990	6,130	
			11/7/1991	4,400	
3/17/1992			3,200		
9/17/1992			3,880		
4/26/1999			403		
IR11MW27A		8/21/1990	7,750		
		4/26/1999	5,200		
IR-12	IR12MW11A	2/24/1992	1,800		
		3/22/1996	1,770		

TABLE 1

RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
(Page 20 of 23)

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
E	IR-12	IR12MW12A	11/25/1991	600	
			2/4/1992	410	
			2/4/1992	460	
			2/24/1992	549	
			9/21/1992	1,010	
			9/21/1992	984	
		IR12MW13A	2/24/1992	1,160	
			2/24/1992	1,300	
			9/22/1992	3,830	
			9/22/1992	4,020	
		IR12MW14A	11/25/1991	1,200	
			2/4/1992	1,000	
			2/25/1992	10,600	
			9/22/1992	1,800	
		IR12MW15A	2/25/1992	2,730	
			9/18/1992	3,170	
		IR12MW16A	2/25/1992	3,850	
			9/24/1992	7,400	
		IR12MW17A	9/24/1992	2,290	
			3/22/1996	1,270	
		IR12MW18A	9/24/1992	3,210	
			9/24/1992	3,210	
			3/25/1996	1,750	
			3/25/1996	1,760	
		IR12MW19A	9/25/1992	5,100	
			9/25/1992	5,510	
			3/25/1996	2,640	
		IR12MW20A	9/25/1992	2,900	
	3/25/1996		1,210		
	IR12MW21A	9/23/1992	9,980		
		4/2/1996	4,390		
		5/2/1996	4,080		
	IR-13	IR13MW10A	10/25/1991	21,000	
			2/21/1992	20,000	
			2/25/1992	22,000	
			2/25/1992	24,700	
			9/18/1992	35,700	
		IR13MW11A	2/26/1992	3,230	
			9/17/1992	10,600	
			9/17/1992	2,430	
IR13MW12A		10/25/1991	26,000		
		2/21/1992	3,600		
		2/26/1992	2,970		
		9/18/1992	25,100		
	9/18/1992	5,510			

TABLE 1

RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
(Page 21 of 23)

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier	
E	IR-14	IR14MW09A	11/27/1991	14,600		
			11/27/1991	14,900		
			2/26/1992	8,340		
				2/26/1992	9,130	
		IR14MW10A	11/7/1991	14,000		
			11/22/1991	19,300		
			11/22/1991	20,500		
			2/26/1992	9,280		
			3/17/1992	8,000		
		IR14MW12A	11/20/1991	8,800		
			2/26/1992	9,400		
			9/16/1992	18,700		
		IR14MW13A	9/23/1992	3,750		
			9/23/1992	3,890		
			4/2/1996	1,970		
			5/9/1996	1,730		
			4/26/1999	1,560		
		IR-15	IR15MW06A	11/20/1991	4,220	
	2/27/1992			3,530		
	4/26/1999			1,560		
	IR15MW07A		11/20/1991	5,780		
			11/20/1991	5,950		
			2/27/1992	3,300		
			2/27/1992	3,450		
			9/16/1992	8,580		
	IR15MW08A		9/24/1992	2,790		
			3/28/1996	1,780		
			3/28/1996	1,900		
			4/26/1999	2,520		
	IR-36	IR36MW09A	3/15/1996	3,570		
		IR36MW121A	3/13/1996	14,000		
			4/24/1996	11,600		
			6/4/1996	11,600		
			6/4/1996	12,400		
		IR36MW122A	3/13/1996	15,900		
			4/25/1996	14,400		
			6/3/1996	16,800		
		IR36MW125A	3/15/1996	963		
			4/26/1996	1,070		
		IR36MW126A	3/15/1996	504		
4/29/1996			558			
IR36MW127A		3/15/1996	6,670			
		4/29/1996	8,020			

TABLE 1

RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
 A-AQUIFER
 HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
 (Page 22 of 23)

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier	
E	IR-36	IR36MW128A	3/14/1996	1,780		
			4/22/1996	1,730		
		IR36MW135A	3/15/1996	1,200		
		IR36MW139A	3/28/1996	2,540		
		PA36MW01A	3/11/1996	4,140		
		PA36MW02A	3/11/1996	2,520		
		PA36MW03A	3/11/1996	1,190		
		PA36MW04A	3/11/1996	2,380		
		PA36MW05A	3/11/1996	12,600		
		PA36MW06A	3/19/1996	1,120		
		PA36MW07A	3/12/1996	7,160		
		PA36MW08A	3/12/1996	723		
				3/12/1996	727	
		IR-39	PA39MW03A	3/20/1996	857	
				5/23/1996	867	
				5/23/1996	869	
		IR-50	PA50MW10A	10/15/1996	1,580	
				11/14/1996	21,100	
				11/14/1996	21,400	
		IR-56	IR56MW39A	5/15/1996	749	
		IR-72	IR72MW32A	5/15/1996	667	
				IR72MW33A	5/15/1996	603
		IR-73	IR73MW04A	5/13/1996	1,750	
				5/13/1996	2,060	
		IR-74	IR74MW01A	7/12/1996	684	
				9/4/1996	608	
				11/15/1996	721	
		IR-76	IR76MW13A	7/12/1996	492	
				9/4/1996	477	
				11/15/1996	440	

TABLE 1
RESULTS OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER SAMPLES
A-AQUIFER
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
(Page 23 of 23)

Parcel	IR Site	Station	Sample Date	Result (mg/L)	Qualifier
Grab Groundwater Samples					
B	IR-20	IR20B008	5/10/1993	5,460	
			5/10/1993	5,480	
		IR20B010	5/11/1993	17,500	
			5/11/1993	17,800	
		IR20B012	5/7/1993	21,200	
		IR20B016	5/5/1993	13,600	
5/5/1993	13,800				
D	IR-22	IR22B009	5/12/1993	268	
			5/12/1993	297	
		IR22B010	5/18/1993	2,420	
		IR22B011	5/18/1993	3,980	
			5/18/1993	4,360	
		IR22B012	5/13/1993	178	
			5/13/1993	214	
		IR22B013	5/17/1993	3,780	
			5/17/1993	3,820	
		IR22B014	5/3/1993	20,000	
			5/3/1993	20,300	
		IR22B017	5/19/1993	10,100	
			5/19/1993	9,800	
		IR22B018	5/18/1993	13,000	
IR22B019	5/3/1993	20,100			
E	IR-01	IR01B012	5/12/1992	1,440	
		IR01B021	5/7/1992	3,300	
		IR01B030	5/12/1992	3,380	
		IR01B275	6/26/1992	3,050	
			6/26/1992	3,050	
	IR-02	IR02B289	6/16/1992	7,430	
		IR02B291	6/17/1992	8,860	
		IR02B294	6/24/1992	31,000	
		IR02B295	6/24/1992	32,200	
	IR-03	IR03B338	6/25/1992	7,430	
			6/22/1992	26,700	
			6/23/1992	29,600	
			6/23/1992	27,800	

Notes: Shaded cells indicate the maximum total dissolved solids concentration for each station.

- a The well was destroyed by excavation and replaced.
- IR Installation Restoration
- J Quantity estimated
- mg/L Milligrams per liter
- MW Monitoring well
- PA Preliminary assessment
- U Not detected

**HUNTERS POINT SHIPYARD
GROUNDWATER BENEFICIAL USE EVALUATION, PARCELS C, D, AND E
RESPONSE TO COMMENTS FROM
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**

This document presents the Navy's responses to comments from the California Regional Water Quality Control Board (RWQCB) on the "Groundwater Beneficial Use Evaluation, Parcels C, D, and E, Hunters Point Shipyard, San Francisco, California," dated November 17, 2000. The comments addressed in the following document were received from RWQCB on November 29, 2000.

RESPONSES TO RWQCB

General Comments

1. **Comment:** In particular, we take exception to the Navy's erroneous citation of State Water Resources Control Board Resolution 88-63. The Navy's evaluation incorrectly states that the criteria for a potential drinking water source are:
- "TDS concentrations exceed 3,000 mg/L (5,000 uS/cm, electrical conductivity)"
 - "It is not reasonably expected by Regional Boards to supply a water system."

Please revise this section of the evaluation to reflect that all groundwater and surface waters in the state should be considered a potential source of drinking water except where:

- a. The total dissolved solids (TDS) exceed 3,000 mg/L and (emphasis added) it is not reasonably expected by Regional Boards to supply a public water system, or
- b. There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either best management practices or best economically achievable treatment practices, or
- c. The water source does provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

Response: The citation of State Water Resources Control Board Resolution 88-63 has been revised as requested.

2. **Comment:** In addition, we are concerned that the document title does not reflect the true nature of the beneficial use evaluation as it relates to the beneficial uses of the B- and bedrock aquifers at the site. Please revise the document to reflect that the beneficial use evaluation pertains only to the A-aquifer, and that based on our current understanding, all deeper groundwater at the site is considered to be a potential source of drinking water. As such, all

remedial efforts for the A-aquifer should be designed to ensure that pollution does not migrate into deeper aquifers. In the event that pollution is encountered in deeper aquifers, drinking water standards will be the applicable cleanup goals.

Response:

The title of the document has been changed to "Groundwater Beneficial Use Determination for A-Aquifer Groundwater, Parcels C, D, and E, Hunters Point Shipyard, San Francisco, California." The conclusions have also been revised to clarify that, based on our current understanding, the B-aquifer is considered a potential beneficial use aquifer. Groundwater cleanup decisions for the A-aquifer will be designed to ensure that contamination does not migrate into deeper aquifers.

**HUNTERS POINT SHIPYARD
GROUNDWATER BENEFICIAL USE EVALUATION PARCELS C, D, AND E
RESPONSE TO COMMENTS
FROM U.S. ENVIRONMENTAL PROTECTION AGENCY**

This document presents the Navy's responses to comments from the U.S. Environmental Protection Agency (EPA) on the "Groundwater Beneficial Use Evaluation Parcels C, D, and E, Hunters Point Shipyard (HPS), San Francisco, California," dated November 17, 2000. The comments addressed in the following document were received from EPA on December 5, 2000. Note that these responses to comments were issued in draft form on February 8, 2001. The Navy has subsequently revised the response to general comment 3 to reflect recent technical findings regarding well IR01MW43A in Parcel E.

RESPONSES TO EPA

**General
Comments**

- 1. Comment:** **Page 1. Objective and Purpose. The objective and purpose of this document is not to "delineate TDS zones in comparison with Federal and State criteria." but to "classify the A aquifers on parcels C, D and E according to the Federal and State criteria."**

The Navy should make the groundwater classification designation first, and then refer to the use of Site Specific Factors (SSFs) as part of the Feasibility Study (FS) evaluation of technologies. The aquifer classification system is a set standard used for all federal environmental programs and not exclusively reserved for CERCLA. In some circumstances other compelling site specific factors may be used in deciding what level of cleanup is needed for an aquifer, but these site specific factors in no way affect the classification of an aquifer. As currently written, the draft Groundwater Beneficial Use Evaluation document presents groundwater TDS values but the Navy does not make a groundwater beneficial use determination. Clearly, much of the groundwater at HPS can be classified as a Class II aquifer under the federal classification criteria. In the draft final document, the determination of groundwater beneficial use on Parcels C, D and E must be made.

- Response:** The text in the first sentence of the second paragraph on page 1 has been revised to state: "The purpose of this document is to classify the A-aquifer in Parcels C, D, and E according to Federal and State criteria."

The conclusions section of this document will be revised to clearly identify which areas are determined to have beneficial uses based on the evaluation. Furthermore, as part of this determination, groundwater in the A-aquifer will be classified as a Class I, II, or III based on the results of the evaluation. Text regarding when and how site-specific factors (SSF) will be used will follow the previously mentioned text regarding the groundwater classification.

2. **Comment:** Page 2 should be revised. We would suggest, deleting all text after the first two bullets at the top of page 2. This is the text that starts with "According to the National..." through the remainder of this section which ends with a bullet that says "...revised FS reports."

Then, please insert the following text, after the bullets on the top of page 2:

"Under California State Water Resources Control Board (SWRCB) Resolution No. 88-63, all groundwater is potentially suitable for municipal or domestic supply, unless:

- **the total dissolved solids (TDS) exceed 3,000 mg/l- and (emphasis added) it is not reasonably expected by Regional Boards to supply a public water system, or**
- **there is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either best management practices or best economically achievable treatment practices, or**
- **the water source does provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day. (Please note: this is only a suggestion for the purposes of organization of the document, we would defer to the RWQCB (Brad Job) for the exact wording).**

For the purposes of CERCLA response actions, EPA's guidelines are used to classify groundwater because EPA guidelines are more protective than state criteria and the State of California does not have an EPA-approved comprehensive state groundwater protection plan.

Once the determination of groundwater classification has been made as part of this deliverable using the criteria listed above, other site specific factors (SSFS) will be evaluated in the feasibility study to determine appropriate remedial alternatives and cleanup criteria for the purposes of a CERCLA groundwater cleanup decision. For the purposes of a CERCLA cleanup decision, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) preamble allows for the application of the SSF to determine appropriate remediation goals for Class I and II groundwaters."

Response: In accordance with the agreement reached during the January 9, 2001, Base Realignment and Closure Cleanup Team meeting and during the conference call with EPA on January 30, 2001, the Navy recommends that the following text be incorporated into the section titled, "Classification Regulation" of the revised beneficial use determination document. In summary, the bulk of the EPA's recommended text is incorporated as follows. The text that starts with "according to the National" through the remainder of this section, which ends with a bullet that says "revised FS reports," will be deleted as recommended. The reference to SWRCB Resolution No. 88-63 will be revised exactly as recommended by the Regional Water Quality Control Board (RWQCB) and EPA in their comments.

Two deviations from EPA's recommended text are proposed. First, EPA's paragraph stating that EPA's criteria should be used for groundwater classification purposes should be deleted. Second, the Navy's decision rule paragraph should be retained. The Navy understands that EPA's guidelines are more protective than State criteria and that the State of California does not have an EPA-approved comprehensive state groundwater protection plan. The Navy believes, however, that it is necessary to retain the State criteria in the classification because the evaluation in the revised FS reports based on State guidance will differ significantly compared to the evaluation based on Federal guidance. In particular, State guidance does not cite SSFs as in the NCP preamble. Both criteria are included in the decision rule paragraph.

Recommended text

Under California State Water Resources Control Board (SWRCB) Resolution No. 88-63 (1988), all groundwater is potentially suitable for municipal or domestic supply unless at least one of the following applies:

- The total dissolved solids (TDS) exceed 3,000 milligrams per liter (mg/L) and (emphasis added) it is not reasonably expected by Regional Boards to supply a public water system, or
- There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either best management practices or best economically achievable treatment practices, or
- The water source does provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day (gpd).

Based on the previous regulations and for the purposes of this Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) cleanup action, the following decision rules are made for the determination of the potential beneficial use of groundwater at HPS:

- Areas with TDS concentrations greater than 10,000 mg/L will not be considered suitable for municipal or domestic water supply per the State criteria and will be considered Class III groundwater per the Federal criteria.
- Areas with TDS concentrations between 3,000 mg/L and 10,000 mg/L will not be considered suitable for municipal or domestic water supply per the State criteria and will be considered Class II groundwater per the Federal criteria. These areas will be further evaluated in the revised FS reports.
- Areas with TDS concentrations less than 3,000 mg/L will be considered potentially suitable for municipal or domestic water supply per the State criteria and will be considered Class II groundwater per the Federal criteria. These areas will be further evaluated in the revised FS reports.

Once the groundwater classification has been made as part of this document using the above decision rules, groundwater contamination in Class II areas will be evaluated in the revised FS reports using SSFs to determine appropriate remedial alternatives and cleanup criteria for the purposes of a CERCLA groundwater cleanup decision. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) preamble allows for the application of SSFs to determine appropriate remediation goals for Class I and II aquifers. Groundwater areas meeting the State criteria will also be further evaluated in the revised FS reports; however, it is understood that the State guidance does not cite SSFs as in the NCP preamble.

For the purposes of the groundwater classification to be made as part of this deliverable, it is assumed that the A-aquifer in Parcels C, D, and E may be capable of a yield of at least 150 gallons per day (gpd) for a short period of time. It is questionable, however, that the A-aquifer can sustain a steady pumping rate of 150 gpd for an extended period of time without deterioration of water quantity and water quality. The revised FS reports may document an evaluation of whether a yield of 150 gpd is sustainable in the Class II A-aquifer areas (and whether a yield of 200 gpd is sustainable in groundwater areas meeting the State criteria).

3. Comment:

While we agree that the Navy can use the highest TDS value for the determination process, EPA has some concerns about using data collected as far apart as the years 1990 and 2000 in the same data set to make decisions. It might be more appropriate to resample all of the wells the Navy is using to determine the aquifer classification so that all of the data is from the same year. Let's discuss.

Further, we do have some questions regarding the accuracy of the TDS values that are very high in one sampling event and much lower in subsequent sampling events. For example:

IR01MW43A. The result used was 77,000 mg/L, but this result is clearly anomalous because three prior results and three subsequent results were less than 10,000 mg/L. It appears that a decimal point may have been displaced in this anomalous high value, and it should not be used. Further justification for discarding this result is that all of the TDS concentrations for nearby well IR01MW44A are below 3,000 mg/L.

IR02MW126A. 29,700 mg/L was used, but subsequent duplicate sampling results were both below 10,000 mg/L.

IR03MW218A1. This well appears to have declining TDS values, but the first and highest result of 17,000 mg/L was used. There are three subsequent results below 10,000 mg/L.

IR14MW10A. 20,500 mg/L was used, but there are two subsequent sampling rounds below 10,000 mg/L.

IR58MW298A. The TDS concentration of 10,300 mg/L was used but more recent results are all less than 1,000 mg/L.

IR58MW31A. The TDS concentration of 17,800 mg/L was used when more recent results are all less than 1,000 mg/L.

Response: The Navy agrees that there are some data with anomalously high TDS results; however, the Navy believes that using data from a single year would not be representative of the natural TDS fluctuations resulting from drought or excessive rainfall. To address the potentially anomalous TDS data, a review of the TDS results will be conducted to determine whether the highest TDS result is representative for contouring purposes. If anomalous TDS data are deemed inappropriate for contouring, Figures 1 and 2 will be revised accordingly. In addition, the Navy would like to clarify that all TDS data has been thoroughly reviewed and meets the quality assurance/quality control standards for the Remedial Investigation.

For example, the anomalously high TDS result at well IR58MW31A is not supported by TDS concentrations in the surrounding wells; therefore, the TDS result at the well is not used for contouring purposes on Figure 2. However, the Navy believes that the elevated TDS data cited by EPA at several Parcel E wells are representative of site conditions based on elevated TDS data at surrounding wells and proximity to San Francisco Bay.

The Navy response from February 8, 2001 stated that the 77,000 mg/L result at well IR01MW43A had been verified (from the project database). However, upon review of the raw laboratory data and recalculation it has been determined that this is a database error. The correct result is 7,700 mg/L. The project database and the final beneficial use document have been updated to reflect this correction.

The Navy believes that the TDS concentration at well IR01MW43A is anomalously low because the TDS concentrations at nearby well IR01MW42A was greater than 10,000 mg/L for four sampling rounds. In addition, TDS concentrations exceed 10,000 mg/L at 28 of the 31 near-shore wells (less than 100 feet from the shoreline) at Parcel E. Well IR01MW43A is planned for re-sampling during the Phase II groundwater data gaps investigation (GDGI). Also Figure 2 will be revised as appropriate based on a review of anomalous TDS data and based on TDS data from samples currently being collected for the Phase II GDGI.

4. **Comment:** EPA does not necessarily agree with the Navy's interpretation for Parcel D and E groundwater as shown on Figure 2. For example, a lot of well data presented in Figure 1 indicated that much of Parcel D groundwater proximate to the Bay also meets the criteria of a class II aquifer. However, in Figure 2, many of these lower TDS values are dropped and the Navy concludes that much of the TDS data in this portion of Parcel D is not accurate and can therefore be ignored (e.g., wells for IR sites 55, 50, 22, and 17). While the Navy briefly alludes on page 3 to leaking water lines as a possible cause, additional evidence to support this conclusion must be provided. Further, the TDS data cited for this portion of Parcel D is largely 4 to as much as 10 years old, with no resampling since 1993-94 at IR-22, no resampling at PA50MW07A and IR55MW01A since 1996 and no resampling of the IR 17 wells since 1992. Yet these results are dropped in Figure 2.

For Parcel E, it appears that the area that meets Federal criterion (Figure 2) should be extended to include much of IR-02 and part of IR-01. For example, the area that meets Federal criteria should be extended to include: IR01MW44A, IR01MW373A, IR01MWI41A, IR01MW372A, and IR02MWI14A, IR02MWI41A, IR02MW373A, IR02MW372A, IR02MW87A and IR02MW114A2. If the anomalous high result for IR02MW126A is discarded, this well would also be included in this area. Also, there is an area in the southeast (IR-11, IR-14, IR-15, and IR-17 wells) where the TDS concentration is below 10,000 mg/L; this area is behind a sea wall and should be depicted as meeting Federal criterion on Figure 2. This area should include wells: IR14MW13A, IR17MW13A, IR15MW06A, IR02MW299A, IR15MW07A, PA50MW08A, IR15MW08A, IR73MW04A, IR11MW26A, IR17MW11A, IR11MW27A. The above locations are examples of where TDS values are below the 10,000 mg/L, however, there may be additional locations with TDS concentrations below 10,000 mg/L that are not specifically mentioned here but should be included in the revisions to Figure 2.

Response: Figure 2 has been revised based on EPA's comment and discussions during the conference call with EPA on January 30, 2001. New TDS data will be collected as part of the Phase II GDGI, and the results will be incorporated as appropriate.

Note that based on the January 30th conference call, the Navy is collecting TDS data at the following existing monitoring wells: PA16MW18A, IR17MW11A, IR17MW12A, IR17MW13A, IR22MW20A, PA50MW05A, PA50MW07A, IR50MW15A, IR55MW01A, IR55MW02A, IR70MW04A, IR70MW07A, AND IR70MW11A. New TDS data for Parcel D will be included in the revised beneficial use determination document, currently scheduled for submittal on March 21, 2001. New TDS data for Parcel C and E will not be available until June 2001 and will be included in a supplemental beneficial use determination document currently scheduled for submittal on June 23, 2001.

5. Comment: Page 3, first paragraph. The Navy states that TDS concentrations greater than 10,000 mg/l may be related to, among other things, "water line leaks". Then in the second paragraph on page 3, the Navy states that "isolated areas of low TDS may be related to water supply line leaks." The Navy concludes that water line leaks could cause both high TDS and low TDS values in the surrounding groundwater. This needs to be clarified and supported. EPA can understand how fresh water leaks could reduce TDS of adjacent groundwater but how does it result in higher TDS. Also, as said above, additional evidence such as actual field observations and measurements, must be cited to support the Navy's conclusions about the impacts of leaking water lines on groundwater.

Response: The text on the first paragraph of Page 3 (section titled "Groundwater Evaluation") will be revised to delete references to the potential for water line leaks as potential sources of elevated TDS concentrations. The revised statement will read "The distribution of TDS concentrations in excess of 10,000 mg/L form a complex pattern that may be related to saltwater intrusion along utility lines or aquifer heterogeneities."

6. **Comment:** Page 3, Conclusions. In the first paragraph, please make the conclusions based on comment 1 above. For example, refer to the figure and state which portions of the aquifer meet Class I, II or III designations. The remainder of the text can follow as written.

Response: The conclusions will be revised based on comment 1 and will refer to the Class II and III groundwater areas identified in Figure 2. The conclusions will state that no Class I groundwater areas are present at HPS. The response to comment 1 explains the revised decision rules that apply beneficial use determination.

**HUNTERS POINT SHIPYARD
GROUNDWATER BENEFICIAL USE EVALUATION, PARCELS C, D, AND E
RESPONSE TO COMMENTS FROM
LENNAR/BAYVIEW HUNTERS POINT PARTNERS**

This document presents the Navy's responses to comments from Lennar/Bayview Hunters Point Partners (Lennar/BVHP) on the "Groundwater Beneficial Use Evaluation, Parcels C, D, and E, Hunters Point Shipyard (HPS), San Francisco, California," dated November 17, 2000. The comments addressed in the following document were received from Lennar/BVHP on December 18, 2000.

RESPONSES TO LENNAR/BVHP

General Comments

- 1. Comment:** The Navy uses the highest historical TDS concentration to represent site conditions. It would be more likely representative of long term future site conditions and certainly more conservative to use the opposite approach and use the lowest concentration data point. The Lennar/BVHP team believes that using the lowest measured TDS value would yield an appropriate analysis as the TDS concentration is likely to decrease with time. This is likely to occur as sewer lines are repaired, the pumping of site groundwater is decreased and the movement of the saltwater onto the site throughout the existing leaky sewers is eliminated (either through the Navy's actions or the developer's as the site is developed). As the repairs are made and the groundwater pumping decreased, the existing groundwater gradients that are inward (from the Bay onto Hunters Point) will reverse, and change to outward (towards the Bay) across the entire base. This should result in an overall decrease in TDS at the site with time as fresh water migrates through these areas. We ask that the Navy create a comparative analysis using this methodology (posting and contouring the lowest TDS concentrations) to assess whether it would significantly change the interpretation.

Response: The U.S. Environmental Protection Agency (EPA) and the Regional Water Quality Control Board (RWQCB) concur with the Navy's approach to use the maximum total dissolved solids (TDS) concentration to assist in determining potential beneficial use of A-aquifer groundwater. In addition, the Navy disagrees with the Lennar/BVHP team's assertion that using the lowest TDS concentrations values is (1) more representative of long-term site conditions and (2) an appropriate analysis to determine potential beneficial use. Large quantities of fresh water (estimated at up to 1,000,000 gallons per month) are being leaked from water supply lines at HPS. As the Navy's ongoing effort to repair water supply lines continues, A-aquifer groundwater TDS concentrations may increase with time.

Further, the Lennar/BVHP team's assertion that TDS concentrations will decrease with time assumes that significant saltwater intrusion into the A-aquifer is currently being caused by pumping at Pump Station A. The TDS data collected at the site does not support this position. In particular, an extensive depression in the A-aquifer groundwater surface is located in large portions of

Parcels D and E, presumably caused by pumping of the sanitary sewer system. The TDS concentrations within the majority of the groundwater surface depression are well below 10,000 milligrams per liter (mg/L), and there are several areas with TDS concentrations less than 3,000 mg/L between Pump Station A and the shoreline. Based on this observation and given the large quantities of fresh water currently being leaked to the subsurface, it is likely that the fresh water line leaks are more significant than the influx of saltwater from sanitary sewer or storm drain lines.

In addition, the use of the maximum TDS concentration at a given well to determine potential beneficial use is appropriate since it represents the worst-case scenario for a given well to supply drinking water. Worst-case scenarios may occur during drought or result from excessive pumping, and such scenarios are the only realistic situations that would prompt consideration of HPS groundwater as a drinking water source. The Navy does not believe that a comparative analysis using the lowest TDS concentrations will benefit the program.

2. **Comment:** **Many of the TDS data points that the Navy is relying upon to represent TDS contours were collected during 1990/1991 and have not been re-validated by current sampling results. In addition, many of the locations have been sampled have been samples only once, and may not be representative of actual conditions at the particular locations as there are no other data with which to compare the result. Lastly, several well samples exhibited the highest concentration that was not consistent with the historical TDS concentration range for that well (for example, see wells IR06MW45A, IR28MW122A, and IR58MW31A). The Navy states that additional A-aquifer TDS data collection is proposed to be part of its phase II data gaps groundwater sampling. To address the above stated concerns, we propose that the Navy re-sample wells that are currently represented by only 1 data point, are only represented by older 1990/1991 data, or where the data points used in its contouring is not consistent with the historical range for that well.**

Response: The Navy acknowledges the concerns identified by Lennar/BVHP and notes that similar concerns were identified by EPA during their review of the subject document. Please refer to the Navy's responses to EPA comments 3 and 4 for clarification of the Navy's position.

New TDS data will be collected as part of the Phase II groundwater data gaps investigation (GDGI), and the results will be incorporated as appropriate. New TDS data for Parcel D will be included in the revised beneficial use determination document, currently scheduled for submittal on March 21, 2001. New TDS data for Parcel C and E will not be available until June 2001 and will be included in a supplemental beneficial use determination document currently scheduled for submittal on June 23, 2001.

3. **Comment:** **The Navy has improperly quoted the Regional Water Quality Control Board resolution 88-63. The Navy's letter implies that groundwater may not be considered potentially suitable for municipal or domestic supply based solely upon the expectation by Regional Boards for the groundwater to supply a water system.**

The accurate quote from resolution 88-63 is:

“a. The total dissolved solids (TDS) exceed 3,000 mg/L (5,000 uS/cm, electrical conductivity) and it is reasonably expected by Regional Boards to supply a public water system, or...”

In other words, in order to disqualify a groundwater resource from beneficial use under Resolution 88-63, *both* conditions must be met before the groundwater can be considered non-suitable or potentially non-suitable for municipal or domestic supply.

Response: The citation of State Water Resources Control Board Resolution 88-63 has been revised as requested by the RWQCB and the EPA.

- 4. Comment:** The Navy's Figure 2 "Areas Assumed to Meet State and Federal TDS Criteria in A-Aquifer Groundwater" misrepresents the extent of TDS. In several instances on Parcels C, D, and especially on Parcel E, the Navy has without technical justification moved the boundary between areas that "do not meet Federal or State criteria" and "meets only Federal Criteria" too far inland. The Navy's interpretation is not practical or reasonable and the Navy should either adjust these boundary lines to more accurately represent the data or eliminate Figure 2 from its report.

Response: The Navy notes that similar concerns were identified by EPA during their review of the subject document. Figure 2 has been revised based on EPA's comment and discussions during a conference call with EPA on January 30, 2001. A revised Figure 2 is presented as an attachment to the responses to comments for reference purposes.