



# California Regional Water Quality Control Board

## San Francisco Bay Region



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TREASURE ISLAND  
SSIC NO. 5090.3.A

Gray Davis  
Governor

Date: November 3, 1999  
File No. 2169.6013 (CRM)

Commanding Officer  
Engineering Field Activity, West  
Naval Facilities Engineering Command  
900 Commodore Drive  
San Bruno, CA 94066-2402  
Attention: Mr. Ernesto Galang

**Subject: Protection of the Saltwater Aquatic Beneficial Uses of San Francisco Bay at Naval Station Treasure Island, San Francisco, California**

Dear Mr. Galang:

### Introduction

On October 27, 1999 Regional Board staff (Board staff) sent a letter to the Navy regarding technical work plans for site investigation at several Corrective Action Plan (CAP) and Underground Storage Tank (UST) sites. Board staff asserted in the letter *"...it is likely that contaminants are being discharged to San Francisco Bay at CAP Site 14/22, CAP Site 15, and CAP Site 25, and possibly UST Site 227...in some cases, the concentration of one or more contaminants exceeds numerical values that are considered to be protective of the beneficial uses of saltwater aquatic organisms...the Navy should immediately initiate appropriate actions to abate this condition in a prompt and reasonable manner."*

During the Base Closure Team (BCT) meeting on November 1, 1999 Board staff again asserted that contaminants are likely being discharged to San Francisco Bay at concentrations exceeding numerical values for protection of the saltwater aquatic beneficial uses. Per the Navy's request, this letter provides a listing and brief rationale for the sites at Treasure Island where Board staff believes contaminants are likely being discharged to San Francisco Bay at levels that are currently impacting the saltwater aquatic beneficial uses.

In developing the list of sites, Board staff has reviewed several technical documents submitted by the Navy. These documents include the Onshore Remedial Investigation Report (1997); Groundwater Status Report (1999); technical work plans for additional site investigation at CAP and UST Sites (1999); and, remedial investigation work plan for the inactive fuel pipeline sites (1999). In some cases, Board staff may have mistakenly omitted contaminants or monitoring points near the shoreline where contaminants are being discharged to San Francisco Bay. We encourage the Navy to review this letter and then thoroughly review the available technical information to fully discern areas at Treasure Island where the saltwater aquatic beneficial uses are likely being impacted.

*California Environmental Protection Agency*

### **Development of Cleanup Goals**

On October 29, 1999 Board staff sent a letter to your office regarding the development of remedial decisions for areas of degraded ground water at Treasure Island. The letter provides a lengthy discussion regarding the development of ground water cleanup goals. It is important to reiterate here that protection of the saltwater aquatic beneficial use is not the only factor to consider in developing cleanup goals for ground water at Treasure Island.

The sites identified in this letter should be given the highest priority for remedial actions because the saltwater aquatic beneficial use is an existing use at Treasure Island. Future cleanup strategies for all sites must be protective of all beneficial uses that are existing uses, including implementation of the Containment Zone provisions of State Water Resources Control Board Resolution (SWRCB Res.) No. 92-49. Considering that it would be unreasonable to place deed restrictions or other controls on the saltwater aquatic habitat, all remedial decisions must be protective of the saltwater aquatic beneficial use at Treasure Island. Future technical and economic analyses that are completed for all sites in accordance SWRCB Res.'s No. 68-16 and 92-49 may result in more restrictive cleanup goals.

### **Point of Compliance for Protection of the Saltwater Aquatic Environment**

The Regional Board has established "ecological protection zones" for other sites where contaminants are being discharged, or are likely to be discharged, into aquatic environments. The focus of the ecological protection zone is to provide some distance from the shoreline whereby monitoring can be conducted to fully demonstrate protection of the saltwater aquatic beneficial use. The distance from the shoreline (i.e., point of compliance) must provide a reasonable buffer so that corrective measures can be taken in the case where cleanup goals are violated and actions are necessary to prevent impacts to the saltwater aquatic beneficial use. In no case would the Regional Board establish the point of compliance at the shoreline.

Factors to consider in developing the point of compliance include the influence of tides on the local hydrology. In developing the list of sites provided in this letter, Board staff generally reviewed data for monitoring points within 100 feet of the shoreline. This distance is consistent with the tidal studies conducted for Treasure Island, and provided Board staff with an initial screening for sites that are likely impacting the saltwater aquatic beneficial use. In no way should this be considered as the Regional Board's position regarding the future point of compliance for remedial decisions at Treasure Island.

### **Numerical Values for Protection of Aquatic Beneficial Uses**

Numerical values have been established for a variety of organic and inorganic constituents to protect the beneficial uses of saltwater aquatic environments. Table One lists the promulgated numerical values for the majority of contaminants that appear to have been detected in the ground

water near the shoreline at Treasure Island Naval Station. These values include acute and chronic toxicity for aquatic organisms, and human health for consumption of aquatic organisms.

Primarily, these numerical values have been assembled from (1) the California Ocean Plan; (2) the USEPA National Ambient Water Quality Criteria (AWQC) for Saltwater Aquatic Life Protection; and, (3) USEPA Water Quality Criteria developed pursuant to Section 304(a) of the Clean Water Act. Note that ambient levels for metals in ground water at Treasure Island have not been developed, and could be "naturally" higher than some values promulgated for protection of the saltwater aquatic beneficial use.

**Table One - Promulgated Numerical Values for  
Protection of Saltwater Aquatic Beneficial Uses**  
(all values in µg/L)

Constituent	CA Ocean Plan for Human Health (c)	USEPA AWQC for Human Health (d)	USEPA AWQC for Saltwater Acute Toxicity	USEPA AWQC for Saltwater Chronic Toxicity	USEPA AWQC for Marine Life (a)	USEPA CMC (f)	USEPA CCC (g)	CA Ocean Plan for Marine Life (b)	Protection of Aquatic Life at Site 12, Treasure Island (e)
Tetrachloroethene	99	8.85	10,200	450					
1,1,1 trichloroethane	540,000		31,200						
Trichloroethene	27	81							
Vinyl chloride	36	525	2,000						
Cis - 1,2 dichloroethene				224,000					
Chlorobenzene		21,000		160	129			570	
Toluene		200,000	6,300	5,000				85,000	
Ethylbenzene		29,000	430					4,100	
Trans - 1,2 dichloroethene		140,000		224,000					
1,2 dichloroethane	130	99	113,000						
1,1 dichloroethene	7,100	3.2	116,000						
Benzene	5.9	71	5,300						
Lead (h)					8.1	210	8.1	2	
Nickel (h)		4,600			8.2	74	8.2	5	
Copper (h)					2.4	4.8	3.1	3	
Arsenic (h)		0.14	2,319		36	69	36	8	
Fluorene	.0088 (i)	14,000	300 (j)						
Pyrene	.0088 (i)	11,000	300 (j)						
n-nitrosodiphenylamine	2.5	16							
Anthracene	.0088 (i)	110,000	300 (j)						
4,4 DDT	.00017	.00059 (k)				0.13	0.001		
Heptachlor epoxide	.00072	.00036							
Acenaphthene	.0088 (i)	2,700	300 (j)						
4,4 DDE	.00017	.00059 (k)							
Endrin		.81			.0023			.002	
PCBs	.000019 (m)	.000045 (l)	10		.03 (l)				
Total petroleum hydrocarbons									1,400

- (a) 4-day average for continuous concentration
- (b) 6-month median value
- (c) 30-day average; aquatic organism consumption only
- (d) one in one-million cancer risk; aquatic organism consumption only
- (e) the numerical value for TPH was informally approved by Board staff and the Navy as being protective of the saltwater aquatic beneficial use for Site 12 at Treasure Island. The value is included here for reference only. No formal or informal decisions have been made regarding the applicability of the value for other areas at Treasure Island
- (f) USEPA estimate of the highest concentration of a material in surface water to which an aquatic community can be briefly exposed to without resulting in an unacceptable risk (EPA 822-Z-99-001, April 1999)
- (g) USEPA estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed to indefinitely without resulting in an unacceptable risk (EPA 822-Z-99-001, April 1999)
- (h) filtered samples; conversion factors (CF) required for some metals to account for hardness
- (i) numerical value represents the sum of acenaphthylene, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluorene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene
- (j) generic numerical value for PAHs
- (k) value is based on one in one-million cancer risk
- (l) applies separately to Aroclor 1242, 1254, 1221, 1232, 1248, 1260, and 1016; based on one in one-million cancer risk
- (m) based on the sum of PCBs

### **Impacts to the Saltwater Aquatic Beneficial Use**

Table Two lists various sites at Treasure Island where contaminants have been detected in the ground water near the shoreline above numerical limits established for protection of the saltwater aquatic beneficial use. Also listed are pipeline removal sites where data indicates the presence of free phase petroleum products near the shoreline.

This list of sites is not intended to address all contaminants that have been detected in the ground water near the shoreline. The list does provide examples where Board staff believes, based on the values included in Table One above, that contaminants are likely being discharged to San Francisco Bay at levels that are impacting the saltwater aquatic beneficial uses. This list should be used by the Navy as a tool to begin prioritization of site activities to eliminate impacts to the saltwater aquatic beneficial uses of San Francisco Bay in a prompt and reasonable manner.

**Table Two – Contaminants in Ground Water near the  
Shoreline at Treasure Island at Concentrations  
Greater than Saltwater Beneficial Use Standards**

Treasure Island Sites (e)	Constituents Detected at Concentrations > Beneficial Use Standards (b)	Monitoring Points (c)
IR Site 11	TPH, nickel, lead	MW-02, MW-05, MW-07
IR Site 12	Arsenic (f)	MW-22, MW-05, MW-08, MW-11, MW-20, MW-17, MW-18, MW-13
IR Site 21	Tetrachloroethene (PCE), trichloroethene (TCE), vinyl chloride, 1,1 dichloroethene (1,1 DCE)	MW-03A, MW-03B, MW-04A, MW-04B
IR Site 24 (a)	PCE, TCE, 1,1 DCE, vinyl chloride	MW-05, 24-HP17
CAP Site 15	TPH	15-MW01, 15-HP016, 15-HP013
CAP Site 14/22	TPH, arsenic, copper	22-MW-02, 14-MW-01, 14-MW-02, 14-HP023, 22-HP018
CAP Site 25 (d)	TPH, arsenic, benzene, lead	143-MW-1, B-1, B-2, B-3, B-4, B-5, B-7, 25-MW02, 25-HP013, 25-HP014, 25-HP017
UST 227	TPH – free product	227-W1
Pipeline D1- Area 3	TPH – free product	SCAPS data
Pipeline D1 – Area 4	TPH – free product	SCAPS data

- (a) concentrations of contaminants at the shoreline for IR Site 24 may not currently exceed AWQC. However, fate and transport analysis suggests that the plume will substantially migrate into San Francisco Bay.
- (b) may not be a comprehensive listing of contaminants detected at concentrations greater than beneficial use standards; ambient levels for metals in ground water have not been determined
- (c) may not be a comprehensive listing of all monitoring points where contaminants were detected near the shoreline at concentrations greater than AWQC
- (d) includes USTs 143 and 180C
- (e) this listing of sites is based on available data and may not be all inclusive of sites at Treasure Island where contaminants are being discharged to San Francisco Bay at concentrations greater than saltwater AWQC
- (f) lead has also been detected at elevated concentrations in soil and in unfiltered ground water samples; the 1998 ground water sampling events did not include lead in the laboratory analysis for unfiltered samples at IR Site 12

### **Polynuclear Aromatic Hydrocarbons (PAHs) and Pesticides**

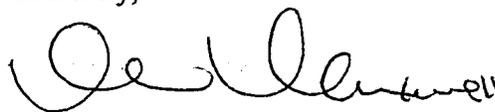
In developing this letter, Regional Board staff did not review the Onshore Remedial Investigation Report (1997) in detail regarding PAHs and pesticides in ground water. As referenced in Table One above, these constituents have extremely low numerical criteria for protection of saltwater aquatic beneficial uses. Board staff suggests that the Navy review available data for PAHs and pesticides to ensure that contaminants are not being discharged to San Francisco Bay at levels greater than the values referenced in Table One above.

**Closing**

Board staff has identified several sites at Treasure Island where we believe that contaminants are being discharged to San Francisco Bay at concentrations exceeding numerical values established to protect the aquatic beneficial use. The Navy has scheduled a meeting with the Base Closure Team for December 14, 1999 to discuss priorities and strategic planning for future investigation and remedial activities at Treasure Island. Board staff highly recommends that the Navy be prepared to discuss these sites during the meeting. For those sites that the Navy concurs with Board staff's assertion, the Navy should be prepared to provide a tentative schedule for abating conditions that are causing an impact to the existing aquatic beneficial uses. For those sites where the Navy does not concur, the Navy should provide a tentative schedule for providing information presenting the Navy's position.

If you have questions regarding these comments, please feel free to call me at (510) 622-2377.

Sincerely,



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