Department of Toxic Substances Control

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October 15, 2003

Mr. F. Andrew Piszkin
BRAC Environmental Coordinator
Base Realignment and Closure
Marine Corps Air Station El Toro
7040 Trabuco Road
Irvine, California 92618

APPROVAL OF CLOSURE REPORT FOR FORMER TEMPORARY ACCUMULATION AREA (TAA) 651A, FORMER MARINE CORPS AIR STATION (MCAS) EL TORO

Dear Mr. Piszkin:

The Department of Toxic Substances Control (DTSC) has reviewed the subject document dated January 7, 2003 and the additional information package including revised pages dated October 8, 2003. The report summarizes the results of the additional November 12, 2002 field activities and results for site assessment performed at TAA 651A. The storage unit was a metal shed located in the northwestern quadrant of the station on the loading dock of building 651. The loading dock is a portland cement concrete structure surrounded by concrete berms, approximately 6 inches high. TAA 651A was identified as Solid Waste Management Unit (SWMU) 165 during the development of the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) prepared for MCAS El Toro. Two soil samples were collected beneath the sump at 18 and 36 inches below ground surface and the samples were analyzed for volatile organic compounds (VOCs), Semi-VOCs, total petroleum (TPH) as gasoline, TPH as diesel, pesticides, and metals.

Based on the results from the 2002 site assessment, the sampling analytical results were below residential cleanup goals. DTSC concurs with the findings and conclusions of the report and we hereby approve it.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at www.dtsc.ca.gov.
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If you have any questions, please contact me at (714) 484-5449.

Sincerely,

Rafat A. Abbasi, P.E.,
Senior Engineer
Office of Military Facilities

cc: Ms. Nicole Moutoux
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File: etSWtr8October2003TAA651Arevpages.doc

TRANSMITTAL

Date: 8 October 2003

From: Lynn Marie Hornecker

To: Rafat Abbasi
State of California Environmental Protection Agency
Department of Toxic Substances Control (DTSC), Region 4
Site Mitigation Branch, Base Closure Unit
5796 Corporate Avenue
Cypress, CA 90630

Subj: Former Temporary Accumulation Area (TAA) 651A
Former Marine Corps Air Station (MCAS), El Toro

Transmitted are the revised pages of the text and revised Tables 4-1 and 4-2 for the Closure Report for TAA 651A dated January 2003. A discussion of arsenic was added to Section 4.4 and Section 5.0 in the text and arsenic was added to Tables 4-1 and 4-2.

Please do not hesitate to call me if you have questions pertaining to this transmittal.

Thank you very much.

Attachments:
Revised pages 4-2, 5-1 & 5-2 of text and revised Tables 4-1 and 4-2 (Shaw 2003)

CF w/atchs:

Andy Piszkin (MCAS El Toro BEC)

CSO MCAS El Toro

Project File (MCAS El Toro) w/o attachment

4.3 Toxicity Assessment

The PRGs incorporate the toxicity values from the Integrated Risk Information System, the Health Effects Assessment Summary Tables, and the National Center for Environmental Assessment. Cancer PRGs incorporate cancer toxicity values and the noncancer PRGs incorporate the toxicity values for chronic health affects other than cancer (EPA, 2002). Both cancer risk and noncancer hazards were evaluated in this screening risk assessment.

4.4 Risk Characterization

The PRGs are concentrations calculated using standard exposure factors that are protective of humans, including sensitive groups, over a lifetime. These PRG concentrations pose acceptable cancer risk or non-cancer hazard under the exposure scenarios evaluated.
Generally, a cancer risk of 10^{-6} and a non-cancer hazard index (HI) of 1.0 or less are considered acceptable levels of exposure. Therefore, the PRG concentrations are calculated to the lower end of the acceptable cancer risk range of 10^{-6} and to a non-cancer hazard index of 1.0.

Cancer risk is calculated by dividing the site concentration by the PRG for each chemical. The ratios are added and the sum is then multiplied by 10^{-6}. The hazard index is calculated by dividing the site concentration by the PRG for each chemical and adding the resultant ratios.

Although maximum concentrations for chemicals detected at the site are used for this risk screening, comparisons are not made to maximum detected background concentrations. To maintain a conservative estimate of background risk, the 95th quantile background concentrations calculated for the Station (BNI, 1996b) are used to calculate background contributions to cancer risk.

At former TAA 651A, arsenic and chromium were only detected carcinogens at maximum concentration of 4.23 "J" and 16.3 mg/kg respectively. However, both arsenic and chromium were not detected above station's established background concentration of 6.86 and 26.9 mg/kg respectively. The summed cancer risk for soil under the potential future residential scenario after subtracting background is less than 10^{-6} (Table 4-1). The net cancer risk for the current industrial scenario after subtracting background is also less than 10^{-6} (Table 4-2).

Compounds that were detected at former TAA 651A that contribute to the non-cancer HI include aluminum, barium, beryllium, cadmium, cobalt, copper, manganese, vanadium, and zinc. The summed non-cancer hazard index for soil under the potential future residential scenario after subtracting background is less than 1.0 (Table 4-1). For the industrial scenario, the non-cancer hazard index is 0.50 (Table 4-2).

5.0 Conclusions and Recommendations

The following conclusions are based upon existing background information, previous field investigations, and IT's confirmation soil sampling analytical results and screening level risk assessment calculations:

- During the RFA, a visual inspection was conducted at SWMU 164 (wash rack) in 1991 and sampling visit was conducted in 1992. The wash rack coincides with the location of the former TAA 651A. The RFA documentation indicates that SWMU 165, drum storage area that corresponds to TAA 651A is located on the wash rack, SWMU 164. The RFA sampling visit included two 60-foot angle soil borings immediately adjacent to and southwest edge of the loading dock, SWMU 164. Soil samples were collected from two 60-foot angle borings during the RFA field-sampling visit. The RFA documentation (JEG 1993) recommended *"no further action"* (NFA) based on the field sampling activities for SWMU 164.
- During a site visit at TAA 651A site in August and September 2002, representatives from SWDIV, Station, IT, and the DTSC visually inspected the bottom of the drain sump located in the middle of the loading dock. Concrete sump was blind with no signs of any cracks, stains, or spills. During the inspection the Navy agreed to collect samples beneath or near the sump.
- On November 12, 2002, IT collected 2 confirmation soil samples from one hand auger boring located at the bottom of the sump.
- The detected carcinogens in soil were arsenic and chromium, which were evaluated to determine the risk associated with their presence for present or anticipated future land uses. The maximum concentration of arsenic in soil was detected at 4.23 "J" mg/kg, which is above residential PRG value of 0.39 mg/kg but below Station's established background concentration of 6.86 mg/kg. The maximum concentration of chromium in soil was detected at 16.3 mg/kg in soil, which is below the residential PRG value of 210 mg/kg and Station's established background concentration of 26.9 mg/kg.
- Other metal compounds detected at former TAA 651A that were evaluated for non-cancer HI contribution include aluminum, barium, beryllium, cadmium, cobalt, copper, manganese, vanadium, and zinc.
- The residential and industrial risk calculations for former TAA 651A resulted in a site-related net cancer risk less background risk of less than 10^{-6}. The residential and industrial non-cancer HI's ~~less background risk~~ was less than 1.0.

The objectives of this project are considered to be achieved, since former TAA 651A is no longer used for storage of drums. Confirmation soil sampling was conducted at former

TAA 651A to verify that concentrations of contaminants were at or below acceptable background or health-risk based concentrations.

Based on the information provided, closure goals were achieved with respect to soil for former TAA 651A; therefore, former TAA 651A (also known as SWMU 165) should be identified as "closed" in next Base Realignment and Closure Business Plan Update.

Table 4-1
Residential Risk Screening Worksheet for Soil
Former TAA 651A

Detected Chemical	Maximum TAA 651A Soil Concentration (mg/kg)	MCAS El Toro Background Concentration[a] (mg/kg)	CANCER			NON-CANCER		
			Residential PRG[b] (mg/kg)	TAA 651A Maximum Ratio[c]	MCAS El Toro Background Ratio[d]	Residential PRG[e] (mg/kg)	TAA 651A Maximum Ratio[f]	MCAS El Toro Background Ratio[f]
METALS								
Aluminum	19900	14800	NE	NE	NE	7.6E+04	2.62E-01	1.95E-01
Arsenic	4.23	6.86	3.9E-01	1.08E+01	1.08E+01	2.2E+01	1.92E-01	3.12E-01
Barium	160	173	NE	NE	NE	5.4E+03	2.96E-02	3.20E-02
Beryllium	.733	0.669	NE	NE	NE	1.5E+02	4.89E-03	4.46E-03
Cadmium	.642	2.35	NE	NE	NE	3.7E+01	1.74E-02	6.35E-02
Chromium	16.3	26.9	2.1E+02	7.76E-02	1.28E-01	NE	NE	NE
Cobalt	8.8	6.98	NE	NE	NE	4.7E+03	1.87E-03	1.49E-03
Copper	10.3	10.5	NE	NE	NE	2.9E+03	3.55E-03	3.62E-03
Manganese	278	8370	NE	NE	NE	1.8E+03	1.54E-01	4.65E+00
Vanadium	51.6	71.8	NE	NE	NE	5.5E+02	9.38E-02	1.31E-01
Zinc	54.5	77.9	NE	NE	NE	2.3E+04	2.37E-03	3.39E-03
Subtotal sum of ratios				1.09E+01	1.10E+01		7.62E-01	5.40E+00
MCAS EL TORO BACKGROUND RISK RATIOS			**CANCER RISK**		**1.10E-05**	**NON-CANCER HAZARD INDEX**		**5.40**
TAA 651A SUMMED RISK			**CANCER RISK**	**1.09E-05**		**NON-CANCER HAZARD INDEX**	**0.76**	
TAA 651A RISK LESS BACKGROUND RISK (NET RISK			**NET CANCER RISK**	**$<1x10^6$**				

[a] *MCAS El Toro Background upper threshold limit concentrations from Final Technical Memorandum Background and Reference Levels, Bechtel National, Inc. 1996.*

[b] *Residential soil PRG for cancer from the EPA Region 9, November, 2002 list.*

[c] *The Ratio is determined by dividing the Concentration by the respective PRG.*

[d] *Where the background concentration exceeds the maximum concentration the background ratio was defaulted to the maximum ratio.*

[e] *Residential soil PRG for non-cancer from the EPA Region 9, November, 2002 list.*

[f] *The Ratio is determined by dividing the Concentration by the respective PRG. No ratios were calculated for chemicals detected below background levels.*

mg/kg - Milligrams per kilogram.

NE - Not established/No entry.

PRG - Preliminary remediation goal.

Table 4-2
Industrial Risk Screening Worksheet for Soil
Former TAA 651A

Detected Chemical	Maximum TAA 651A Soil Concentration (mg/kg)	MCAS El Toro Background Concentration[a] (mg/kg)	CANCER			NON-CANCER		
			Industrial PRG[b] (mg/kg)	TAA 651A Maximum Ratio[c]	MCAS El Toro Background Ratio[d]	Industrial PRG[e] (mg/kg)	TAA 651A Maximum Ratio[f]	MCAS El Toro Background Ratio[f]
METALS								
Aluminum	19900	14800	NE	NE	NE	7.6E+04	2.62E-01	1.95E-01
Arsenic	4.23	6.86	2.6E+02	1.63E-02	1.63E-02	2.6E+02	1.63E-02	2.64E-02
Barium	160	173	NE	NE	NE	5.4E+03	2.96E-02	3.20E-02
Beryllium	.733	0.669	NE	NE	NE	1.9E+03	3.86E-04	3.52E-04
Cadmium	.642	2.35	NE	NE	NE	4.5E+02	1.43E-03	5.22E-03
Chromium	16.3	26.9	4.5E+02	3.62E-02	5.98E-02	NE	NE	NE
Cobalt	8.8	6.98	NE	NE	NE	4.7E+03	1.87E-03	1.49E-03
Copper	10.3	10.5	NE	NE	NE	2.9E+03	3.55E-03	3.62E-03
Manganese	278	8370	NE	NE	NE	3.2E+04	8.69E-03	2.62E-01
Vanadium	51.6	71.8	NE	NE	NE	1.4E+04	3.69E-03	5.13E-03
Zinc	54.5	77.9	NE	NE	NE	1.0E+05	5.45E-04	7.79E-04
Subtotal sum of ratios				5.25E-02	7.60E-02		3.28E-01	5.31E-01
MCAS EL TORO BACKGROUND RISK RATIOS			CANCER RISK		7.60E-08	NON-CANCER HAZARD INDEX		0.53
TAA 651A SUMMED RISK			CANCER RISK	5.25E-08		NON-CANCER HAZARD INDEX	0.33	
TAA 651A RISK LESS BACKGROUND RISK (NET RISK)			NET CANCER RISK	$<1x10^6$				

[a] *MCAS El Toro Background upper threshold limit concentrations from Final Technical Memorandum Background and Reference Levels, Bechtel National, Inc. 1996.*

[b] *Residential soil PRG for cancer from the EPA Region 9, November, 2002 list.*

[c] *The Ratio is determined by dividing the Concentration by the respective PRG.*

[d] *Where the background concentration exceeds the maximum concentration the background ratio was defaulted to the maximum ratio.*

[e] *Residential soil PRG for non-cancer from the EPA Region 9, November, 2002 list.*

[f] *The Ratio is determined by dividing the Concentration by the respective PRG. No ratios were calculated for chemicals detected below background levels.*

mg/kg - Milligrams per kilogram.

NE - Not established/No entry.

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