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LETTER REGARDING FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
REVIEW AND COMMENTS ON PROPOSED RECREATIONAL SOIL CLEANUP TARGET
LEVEL (SCTL) TECHNICAL MEMO BUILDING 148 AND STUDY AREA (SA) 56 AND AREA C
SOUTHWEST NTC ORLANDO FL

2/18/2013

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION



**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

BOB MARTINEZ CENTER
2600 BLAIRSTONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT
GOVERNOR

JENNIFER CARROLL
LT. GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

February 18, 2013

BRAC PMO SE
Attn: Mr. Art Sanford
4130 Faber Place Drive
Suite 202
North Charleston, SC 29405

RE: Proposed Recreational Soil Cleanup Target Level Technical Memo, Building 148 and Study Area 56, Area C Southwest, Naval Training Center Orlando, Orlando, Florida

Dear Mr. Sanford:

The Department has reviewed the Proposed Recreational Soil Cleanup Target Level (SCTL) Technical Memo, Building 148 and Study Area 56, Area C Southwest, Naval Training Center Orlando, dated January 24, 2013 (received January 25, 2013), prepared and submitted by Tetra Tech, Inc. The Department's contracted risk assessors with the University of Florida Center for Environment & Human Toxicology have provided comments on the Technical Memo in letters dated January 31, 2013 and February 12, 2013 (attached). In their letter of January 31, 2013, their fourth comment references age dependent adjustment factors (ADAFs) that are in accordance with EPA's adopted methods for assessing risk from carcinogens that recognizes the special sensitivity of children to chemicals with a mutagenic mode of action. The Department's currently promulgated rules regarding risk assessments were written before EPA adopted ADAFs and if the intent is to strictly adhere to the Department's rules, the proposed alternative site-specific recreational SCTL of 0.4 mg/kg is correct for the specified child exposure scenario.

If you have any concerns regarding this letter, please contact me at (850) 245-8997.

Sincerely,

David P. Grabka, P.G.
Remedial Project Manager
Federal Programs Section
Bureau of Waste Cleanup

CC: Teresa Grayson, Tetra Tech, Oak Ridge, TN
Marianne Sweeney, AECOM, Orlando, FL

KAW

DOD_14_3543

www.dep.state.fl.us

February 12, 2013

Ligia Mora-Applegate
Bureau of Waste Cleanup
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Follow-up to the proposed recreational SCTLs at the Naval Training Center, Orlando (Orange County, DOD_14_3543)

Dear Ms. Mora-Applegate:

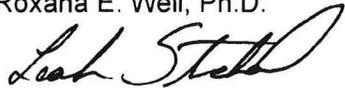
This is a follow-up to our letter dated January 31st, 2013 regarding the proposed recreational soil cleanup target level (SCTL) for benzo(a)pyrene (BaP) at the Naval Training Center, Orlando. Our letter pointed out that a site-specific SCTL for BaP that includes an age dependent adjustment factor (ADAF) consistent with current U.S. EPA guidance (USEPA 2005) would be 1.2E-01 mg/kg. If the intent is not to include the ADAF, the alternative site-specific SCTL of 0.4 mg/kg in the *Proposed Recreational Soil Cleanup Target Level, Technical Memorandum for Area C Southwest, Naval Training Center, Orlando, Florida* (prepared by Tetra Tech, and dated January 24th, 2013) is correct for the specified child exposure scenario. Consistent with the approach promulgated in Chapter 62-780, F.A.C., the maximum soil concentration for BaP for an area where the 95% UCL is calculated would be 1.2 mg/kg (three times the alternative CTL). Also per Chapter 62-780, the use of an alternative SCTL would require that additivity of BaP with other carcinogens present be addressed.

Please let us know if you have any questions regarding these comments.

Sincerely,



Roxana E. Weil, Ph.D.



Leah D. Stuchal, Ph.D.



Stephen M. Roberts, Ph.D.

References:

U.S. EPA (2005) *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*. Risk Assessment Forum, Washington, DC



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

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TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT GOVERNOR

JENNIFER CARROLL LT. GOVERNOR

HERSCHEL T. VINYARD JR. SECRETARY

MEMORANDUM

TO: David Grabka, PG I
Federal Programs Section, BWC

THROUGH H: Brian Dougherty, Administrator
Program & Technical Support Section, BWC

X [Signature] 2/1/2013
BTD

FROM: Ligia Mora-Applegate, Environmental Consultant
Program & Technical Support Section, BWC

X [Signature] 1/31/2013

SUBJECT: Naval Training Center, Area C, Lake Druid Site
Orlando, Orange County, Florida
Proposed Site-Specific Recreational Soil Cleanup Target Level for
Benzo(a)Pyrene, dated 1/24/13
Site ID#: DOD_14_3543

DATE: January 31st, 2013

At your request I have reviewed the Proposed Recreational Soil Cleanup Target Level, Technical Memorandum for Area C Southwest, Naval Training Center, Orlando, Florida. The report was prepared by Tetra Tech and is dated January 24th 2013. Area C Southwest is a 19.73-acre property, part of the former Naval Training Center (NTC). This property was given to the City of Orlando in 2009, for use as a public recreational area and park. through the Federal Lands to Parks Program of the United States Department of Interior, National Park Service, for Public Park and public recreation area purposes.

In May 2011, in preparation for site development, Building 148, the former Cold Storage Building located at Area C SW, was demolished by the City of Orlando. Following demolition, the soil beneath the building was stockpiled and sampled prior to disposal by the City of Orlando's environmental consultant, Professional Services Industries, Inc. Figure 1 shows the location of Building 148 within Area C. The Navy received a Notice of Environmental Claim letter dated July 22, 2011 from George Schlossberg, City of Orlando legal, officially notifying the Navy of the surface soil sampling results from Building 148 that indicated concentrations of polycyclic aromatic hydrocarbons (PAHs) and dieldrin greater than

Florida Department of Environmental Protection (FDEP) soil cleanup target levels (SCTLs) and requesting a reply as to how the Navy intended to address these matters.

The objective of this report was to develop a site-specific Alternative Soil Cleanup Target Level (ASCTL) for recreational use at this Site.

This document describes the basis for the development of an ASCTL for carcinogenic PAHs (as total BaP equivalents) for a recreational land use. The ASCTL was calculated using exposure assumptions under a recreational scenario, and listed a child (ages 3 to 17) as the receptor of concern for the site. A site-specific SCTL for BaP of 0.4 mg/kg was concluded to be protective of human health for the Area C Southwest property. This ASCTL could have been acceptable if mutagenicity and also additivity would have been considered.

The 95% upper confidence limit (95% UCL) on the mean will be used as the exposure point concentration (EPC) and will be compared with the site-specific recreational ASCTL for management decisions. Tetra Tech is proposing that if the 95% UCL for the park is below the ASCTL, the maximum soil concentration on-site does not exceed 1.2 mg/kg (3 times the proposed SCTL), the cumulative carcinogenic risk is less than 1×10^{-6} , and the hazard index is less than 1, then the site will be acceptable for recreational use.

There are several exposure units in this site (playground area, community garden, bike trail, dog walk etc. etc.) for which 95% UCLs would need to be calculated.

Per Chapter 62-780 F.A.C., cumulative carcinogenic risks need to be considered, and since an ASCTL will be used, 95% UCLs calculated and there are two carcinogenic contaminants of concern (COCs), additivity needs to also be considered.

The University of Florida's comments are attached. I concur with them and recommend that all of their comments be addressed.

We are available to discuss our comments with you, the Navy and the contractors.

If you have any questions, please contact me at 245-8992.

January 31st, 2013

Ligia Mora-Applegate
Bureau of Waste Cleanup
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Review of the Proposed Recreational Soil Cleanup Target Level, Naval Training Center, Orlando (Orange County, DOD_14_3543)

Dear Ms. Mora-Applegate:

We have reviewed at your request the *Proposed Recreational Soil Cleanup Target Level, Technical Memorandum for Area C Southwest, Naval Training Center, Orlando, Florida*. This report was prepared by Tetra Tech and is dated January 24th 2013. Area C Southwest is a 19.73-acre property, part of the former Naval Training Center (NTC). This property was transferred to the City of Orlando in 2009, for use as a public recreational area and park. The document presents the technical basis for the development of an alternative Soil Cleanup Target Level (SCTL) for carcinogenic PAHs (as total BaP equivalents) based upon recreational land use. The alternate SCTL was calculated using exposure assumptions under a recreational scenario, and listed a child (ages 3 to 17) as the receptor of concern for the site. A site-specific SCTL for BaP of 0.4 mg/kg was concluded to be protective of human health for the Area C Southwest property. The 95% upper confidence limit (95% UCL) on the mean will be used as the exposure point concentration (EPC) and will be compared with the site-specific alternative SCTL for management decisions. Tetra Tech proposed that if the 95% UCL for the park is below the alternative SCTL, the maximum soil concentration on-site does not exceed 1.2 mg/kg (3 times the proposed alternative SCTL), the cumulative carcinogenic risk is less than 1×10^{-6} , and the hazard index is less than 1, then the site will be acceptable for recreational use.

We have the following comments on the document:

1. The EPC for soil will be evaluated as the 95% UCL. Although it is appropriate to average the contaminant concentrations for soil based on the assumption that a person may be equally and randomly exposed to the contaminants over an area, the exposure units must be clearly defined based on proposed future activities. The Lake Druid Park Master Plan 04 indicates that the site will have several potential exposure units including a playground, community garden, and open play area among others. Exposure to soil in each of these areas may be different, and some park users may confine their visits to only one of the areas.

Consequently, these areas should be considered separately, and the EPC should be calculated for each area.

2. The report assumes that the recreational receptor will only be exposed to surface soil, and therefore proposes the use of alternative CTLs for delineating the extent of contaminants only in the top six inches of soil. The Lake Druid Park Master Plan 04 (Figure 2) indicates that the site will have a community garden. Use of this area as a garden, could expose the receptors to soil deeper than six inches below ground surface (bgs). Moreover, future land use may result in an expansion of the garden area or the addition of structures to the park resulting in deeper soil being brought to the surface. Unless digging in all areas of the park is precluded by an institutional control, soil throughout the top two feet and below (if necessary) should be evaluated.
3. Based on BaP equivalent concentrations in soil 0-6 and 6-24 inches bgs, the extent of contamination both horizontally and vertically does not appear to have been delineated. It is important to note that contaminants should be delineated to the lowest applicable CTL. Unless there is a compelling argument that the CTL for BaP in all tracts of land adjacent to this site is equal or higher than the CTL used here, BaP, should be delineated to the unrestricted (i.e., residential) CTL of 0.1 mg/kg.
4. The alternative BaP SCTL was calculated using methods taken directly from the FDEP Technical Report for Development of Cleanup Target Levels for Chapter 62-777, F.A.C. After that guidance document was finalized, the U.S.EPA adopted methods for assessing risk from carcinogens that recognizes the special sensitivity of children to chemicals with a mutagenic mode of action. This sensitivity is taken into account in the risk assessment process through the use of age dependent adjustment factors (ADAFs) (U.S. EPA, 2005) to modify the cancer potency value for mutagenic carcinogens such as the carcinogenic PAHs. Because the recreational scenario envisioned for this property includes potential exposure of children and the chemicals of concern are carcinogenic PAHs, the use of ADAFs in calculated excess cancer risk would be applicable. Given the proposed age range of park users (3 to 14 years of age), an ADAF of 3 would be used. The BaP CTL for soil for the proposed recreational scenario including the ADAF would be **1.2E-01 mg/kg**. Consistent with the approach promulgated in Chapter 62-780, F.A.C., the maximum soil concentration limit for BaP for an area where the 95% UCL is calculated would be **3.6E-01 mg/kg** (three times the alternative CTL). The formula for calculating this CTL and the input values are shown in the figure and table below.

$$SCTL_{park_mut} = \frac{TR \times BW \times AT}{(EF \times FC) \times \left[\begin{aligned} & \left[IR_o \times CF \times \left[\frac{(ED_{0-2} \times CSF_o \times 10) + (ED_{2-6} \times CSF_o \times 3)}{(ED_{6-16} \times CSF_o \times 3) + (ED_{16-30} \times CSF_o \times 1)} \right] + \right. \\ & \left. SA \times AF \times DA \times CF \left[\frac{(ED_{0-2} \times CSF_d \times 10) + (ED_{2-6} \times CSF_d \times 3)}{(ED_{6-16} \times CSF_d \times 3) + (ED_{16-30} \times CSF_d \times 1)} \right] + \right. \\ & \left. IR_i \times \left(\frac{1}{VF} + \frac{1}{PEF} \right) \times \left[\frac{(ED_{0-2} \times CSF_i \times 10) + (ED_{2-6} \times CSF_i \times 3)}{(ED_{6-16} \times CSF_i \times 3) + (ED_{16-30} \times CSF_i \times 1)} \right] \right] \end{aligned} \right]}$$

Symbol	Definition (units)	Value
SCTL _{mut}	Soil Cleanup Target Level Mutagen (mg/kg)	
TR	Target Cancer Risk (unitless)	1.0E-6
BW	Body Weigth (kg)	39
AT	Averaging Time Carcinogens (days)	25550
EF	Exposure Frequency (day/year)	200
FC	Fraction from Contaminated Source (unitless)	1
ED ₀₋₂	Exposure Duration first phase (year)	0
ED ₂₋₆	Exposure Duration second phase (year)	3
ED ₆₋₁₆	Exposure Duration third phase (year)	10
ED ₁₆₋₃₀	Exposure Duration fourth phase (year)	1
CSF _o	BaP Cancer Slope Factor (oral) (mg/kg/day) ⁻¹	7.3
CSF _d	BaP Cancer Slope Factor (dermal) (mg/kg/day) ⁻¹	14.6
CSF _i	BaP Cancer Slope Factor (inhalation) (mg/kg/day) ⁻¹	3.1
CF	Conversion Factor (mg/kg)	1.00E-06
SA	Exposed Surface Area (cm ² /day)	4200
AF	Soil Adherence Factor (mg/cm2)	0.11
DA	Dermal Absorption Factor (unitless)	0.01
IRo	Intake Rate (oral) (mg/day)	129
IRi	Intake Rate (inhalation) (m3/day)	12.2
VF	Volatilization Factor	1.92E+07
PEF	Particulate Emission Factor	1.24E+09

5. There are two carcinogens present in soil at the site, carcinogenic PAHs and dieldrin. Because 95% UCL concentrations will be compared with CTLs, and because one of the CTLs is an alternative (i.e., not default) value, potential additive effects of the carcinogens will need to be considered as required by Chapter 62-780. F.A.C.

Please let us know if you have any questions regarding these comments.

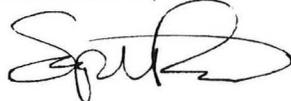
Sincerely,



Roxana E. Weil, Ph.D.



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References:

U.S. EPA (2005) *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*. Risk Assessment Forum, Washington, DC