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Baker

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May 3, 1999

U. S. Environmental Protection Agency
Region II Headquarters Chief RCRA Caribbean Section
290 Broadway - 22nd Floor
New York, NY 10007-1866

Attention: Ms. Nicoletta DiForte

Re: Contract N62470-89-D-4814
Navy CLEAN, District III
Contract Task Order (CTO) 0277
RCRA HSWA Permit Number PR2170027203
U. S. Naval Station Roosevelt Roads
Response to EPA Comment Letter of February 12, 1999

Dear Ms. DiForte:

Baker Environmental, Inc. is pleased to provide you, on behalf of the Navy, responses to the comments contained in your February 12, 1999 letter. The comments are addressed, in the paragraphs that follow, in the order provided in your letter.

EPA Comment

AOC D Revised Risk Assessment (Attachment #6), SWMU #26, and Other Issues

EPA's contractor, TechLaw, Inc., has reviewed those portions of your response covering AOC D (Ensenada Honda sediments), SWMU #26 (Building 544 area), and several other issues. TechLaw's comments are enclosed. EPA will approve the determination, given in Attachment #6 of your response, that there are no unacceptable human health risks from AOC D. That determination is based on excluding the data from sediment samples adjacent to SWMU #2 (Langley Drive Disposal Site) and adjoining the oil Power Plant cooling water tunnel entrance in Puerca Bay, form the AOC D risk evaluation. EPA concurs with that approach, provided that the sediments that adjoin SWMU #2 (Langley Drive Disposal Site) are addressed as part of the CMS for that SWMU, and the contaminated sediments adjoining the old Power Plant cooling water tunnel in Puerca Bay are addressed as part of the SWMU #45 (outside areas of old Power Plant and associated structures) CMS. Pursuant to my letter of November 24, 1998, CMS workplans for SWMUs #2 and #45 (and also SWMU #1, not discussed here) are required to be submitted by February 18, 1999.

Response

The Navy proposed that the sediments associated with SWMU 2 and SWMU 45 be removed from AOC D. A revised risk assessment was performed on the remaining sediments of AOC D and the results showed no significant risk was present. The EPA has agreed with the removal of SWMU 2 and 45 sediments from AOC D. The two areas will be addressed in the Corrective Measures Study (CMS) to be performed for these units.

The CMS workplans for SWMUs2 and 45 were submitted in conjunction with the OU 3/5 revised RFI report on April 1, 1999.

EPA Comment

In addition, within 30 days of your receipt of this letter, please submit a written response addressing those issues discussed in the enclosed TechLaw comments concerning SWMU #26 (comment regarding page 7 of your response), site-wide dioxin detections (comments regarding page 9 and 10 of your responses), and Attachment #4 of your response.

See responses to TechLaw comments below.

TechLaw Comments

4.0 SPECIFIC COMMENTS

Pages 6 and 7
The original comment suggested that background samples may not be representative of naturally occurring conditions since the presence of semi-volatile organic compounds (SVOCs) indicate impacts from anthropogenic activity. The original comment does not imply that true naturally derived, beryllium is not present at the subject location. The response does not provide any additional data to support the appropriateness of the specific background sample locations. The presence of SVOCs calls the appropriateness of the sample locations into question, which demands a stronger technical argument to support the assertion that the beryllium is non-anthropogenic. If data regarding the local geology support the argument that the beryllium is naturally occurring, then EPA is willing to consider such data and modify the current position on this issue, if warranted. Nonetheless, field notes and documentation/photographs regarding the specific location, matrix, and surrounding area of each sample should be provided for review. Any evidence which suggests anthropogenic impact should be described. The presence of anthropogenic materials associated with beryllium must also be considered.

TechLaw Comment

Page 7
The response indicates that the Navy would like to reuse SWMU 26 with no conditions. The no action approach presented in the Additional Investigations Report is based on the restriction of no future residential use. The original comment simply noted the apparent contradiction in the document. The response provides the required clarification; however, the response is contrary to the best interests of the Navy as it would put naval personnel and their families at risk, should the area be developed for residential use with no further action. If the risk characterization results indicate that residential scenarios and exposure pathways present a risk, then this must not be ignored. Note that the presence of risk may not preclude development as residential housing as appropriate mitigative action can be implemented to allow such land use. Development of this site into residential land use with out appropriate mitigative action would be a mistake.

Response

The Navy has revised the risk assessment for SWMU 26.

Results of the original risk assessment indicated that future potential residents adults exposed to COCs in surface soil will have an incremental lifetime cancer risk (ILCR) value of 1.2×10^{-4}. This ILCR value exceeds USEPA's generally acceptable risk range of 1×10^{-6} to 1×10^{-4}.

Approximately 98 percent of this elevated ILCR value in the original risk assessment was attributed to the inorganic beryllium, a chemical for which there is now no promulgated oral cancer slope factor (IRIS - April, 1999). The slope factor was retracted because of uncertainty in the toxicological database used in it's development. Beryllium does, however, have a promulgated reference dose (RfD), by which noncarcinogenic human health effects can be evaluated. Based on this evaluation, beryllium does not produce potential adverse noncarcinogenic health risks as a result of potential residential exposure for adults or children. In addition, unacceptable risks were not derived for on-site construction workers, the most likely current potential receptor group for this SWMU.

As a result, no unacceptable human health risks can be identified by a review of the additional investigation baseline risk assessment conducted for this SWMU and no further action is, therefore, necessary to protect human health at SWMU 26. Attachment 1 to this letter provides the necessary new risk assessment calculations.

TechLaw Comment

Pages 9 and 10
The response does not provide sufficient information to address concerns regarding the detection of dioxin at various sites at NSRR. The response indicates that the Navy agrees with EPA's assessment that dioxin has been detected at levels suggesting risk and that the detections are not entirely consistent with historical uses of the sites. Therefore, consideration of the dioxin detections is appropriate.

Information is presented in Attachment 8 which suggests that dioxin may be linked to herbicides. The Navy hypothesizes that historic use of herbicides at NSRR and in the surrounding areas may have acted as the dioxin source. However, no supporting information is presented. Furthermore, the Navy has not considered all potential sources of dioxin. The information in Attachment 8 also indicates that dioxin may result from the burning or heating of chlorophenates and pyrolysis of polychlorinated biphenyls. Therefore, the incinerator formerly used at NSRR must be considered as a potential source and downwind areas of the incinerator may be impacted by dioxin deposition.

The response suggests that a basewide dioxin sampling program would be too costly and would not derive commensurate value. The response also indicates that an investigation would identify low levels of dioxin which would exhibit environmental risks, but would not require remediation based on a cost benefit analysis. EPA partially concurs with the statement concerning the value of a basewide sampling program as described in the response, since the program as described would not provide data that answers questions of interest to EPA. EPA is primarily concerned with the following: 1) the history of all potential onsite sources (e.g., on-site operation of the former incinerator, herbicide types and application practices), 2) environmental information affecting the

migration and fate of dioxin (e.g., wind direction, soil type, etc.), and 3) an analysis of these historical and environmental information in the context of the existing dioxin database.

The results of this analysis would form the basis for a hypothesis concerning the likely presence of dioxin contamination and would form the basis for a sampling plan, if needed, to verify the hypothesis. It is very unlikely that a data gathering and analysis program structured in this way would be as costly as the plan for a site-wide approach as discussed by the Navy.

Once the conceptual model of dioxin contamination is established, then meaningful steps can be taken to address EPA's ultimate concern, the protection of site workers and/or future site users. As indicated in the information referenced by the Navy and presented in Attachment 8, workers potentially exposed to dioxin should be equipped with adequate protective equipment.

Response

The Navy is presently reviewing the occurrence of dioxin and dioxin non-detects in sampling events to date. All the available data will be reviewed including:

- dioxin occurrence in samples;
- dioxin non-detects in samples; and
- potential source areas.

A summary of the data for the station will be prepared. This information will be provided to the EPA by June 30, 1999.

TechLaw Comment

Attachment 4
Attachment 4 presents general information regarding concentrations in soil. The information describing selenium-rich conditions in Puerto Rico appears applicable to NSRR. The information, however, does not present selenium concentrations. In addition, the majority of soil information presented in Attachment 4 is for the conterminous United States and does not appear appropriate for assessment of conditions at NSRR. Additional data concerning the concentrations of native constituents in the environment in Puerto Rico would be helpful in bringing this issue to closure.

Response

The Navy is in the process of gathering information regarding soil background conditions in Puerto Rico. Efforts are being made to collect:

- Published data;
- Information available from university sources; and
- Data which can be made available from other sites, in similar geologic terrain, that are under varying regulatory programs.

Some information has been obtained and more is being tracked. Much of the material obtained to date is the result of a recent trip to Puerto Rico by a Baker employee.

It is the Navy's intent to obtain as much detail as possible regarding background soil conditions and present it to EPA in a coherent manner. This data will be provided no later than May 28, 1999. With the background issue at SWMU 26 apparently resolved, there are no sites pending for which background is a significant issue.

EPA Comment

CMS Workplans [Outlines] for SWMU 13, SWMU 46/AOC C area, and SWMU 31/32 area

EPA approves the "streamlined" CMS outlines [for presumptive remedies] for SWMUs #13, SWMU 46/AOC C area, and SWMU 31/32 area, submitted with your response (these were requested by my September 15, 1998 letter), as satisfying the CMS workplan requirements for those three areas. However, CMS [Final] Reports must still be submitted for those areas. The following modifications to the submitted CMS workplans [outlines] must be incorporated into the CMS [Final] Reports and/or the CMI [Corrective Measures Implementation] Design and Workplans for the three areas:

1. The CMS [Final] Reports should not include the [Presumptive] Remedy Design or Project Close-out Report. Pursuant to the requirements of Module III of the facility's 1994 RCRA operating Permit, and EPA guidance (refer to the Final RCRA Corrective Action Plan, dated May 1994, publication # EPA 520-R-94-004) those two items correspond respectively to the Corrective Measures Implementation (CMI) Design and Workplan and the CMI Final Report. The CMI Design and Workplan may either be submitted concurrently with the CMS Final Report, or, to avoid possible resubmittal if the remedy recommended in the CMS Final Report is not approved as submitted, following EPA's approval of the CMS Final Report. Public Notice of the proposed remedy would be done following submission of an acceptable CMS Report and CMI Design and Workplan.

2. Besides confirmatory environmental sampling (to confirm clean-up), the CMI Design and Workplans must include a discussion of sampling of the remediation wastes for waste characterization pursuant to 40 CFR Part 261 Subpart C requirements, and a discussion of how the remediation wastes will be managed and disposed of, or treated. The CMI Final report [Project Close-out report] should then include the results of such waste characterization, and documentation of that characterization and the disposal and/or treatment of the remediation wastes.

3. The CMI Design and Workplans must include a schedule for implementing and reporting. That schedule should conform with the generic requirements of Module III and Appendix C of the facility's 1994 RCRA Permit.

Please submit the CMS [Final] Reports for these three areas (SWMUs #13, SWMU 46/AOC C, and SWMU 31/32 area) within 60 days of your receipt of this letter. The Submitted CMS Reports must set proposed final clean-up standards tor each area, that are protective of human health and the environment, and evaluate whether the recommended presumptive remedies will achieve those standards.

Response

The EPA comment letter approved the CMS Workplans previously submitted. It also requested the submission of CMS [Final] Reports for the three areas. The CMS reports for SWMU 13 and SWMU 46/AOC C have

been combined into one document and provided as Attachment 2 to this letter. Three copies are included for your use. It should be noted that the applicable RCRA language has been employed in the document as appropriate.

Based on the available data for SWMU 31/32, site specific cleanup levels could not be established at this time. As a result, a streamlined CMS has not been developed for this site.

The Navy proposes to perform additional sampling in the area of the dioxin detections to accomplish a twofold purpose. First, samples will be obtained from previous sampling locations and subjected to analysis for the specific dioxin congeners. This will provide more specific information for the development of potential cleanup levels. Second, samples will be obtained from points further away from the building in an effort to quantify the affected area. A work plan for this sampling will be submitted for EPA review by May 28, 1999.

Please do not hesitate to call either myself at (412) 269-2065 or Mr. Christopher T. Penny, the Navy Technical Representative, at (757) 322-4815, if you have any questions regarding this letter or attachments.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Thomas C. Fuller
Activity Coordinator

TCF/lp

cc: Mr. Christopher T. Penny - LANTDIV (3 copies)
Mr. Isreal Torres - PREQB (2 copies)
Ms. Madeline Rivera - NSRR (5 copies)
Mr. John Tomik - CH_2M Hill (1 copy)

ATTACHMENT 1
SWMU 26 Risk Assessment

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SURFACE SOIL IN SWMU 26
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cs*IR*CF*FI*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
IR	Ingestion Rate (mg/d)	100	200	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
FI	Fraction of soil ingested from site	1	1	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	24	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	8760	2190	

				Adult						Young Child					
				Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	CSFo /(mg/kg/d	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.16	1.5	0.0003	5.448E-07	8.2E-07	100.0%	1.59E-06	0.005297	17.3%	1.2712E-06	6.7E-09	100.0%	1.48E-05	0.049437	17.3%
Beryllium	1.13	NA	0.002	5.307E-07	--	--	1.55E-06	0.000774	2.5%	1.2384E-06	--	--	1.44E-05	0.007224	2.5%
Vanadium	125.7	NA	0.007	5.904E-05	--	--	0.000172	0.024599	80.2%	0.00013775	--	--	0.001607	0.229589	80.2%
				Total ILCR:	8.2E-07	100.0%	HI:	0.03067	100.0%	Total ILCR:	6.7E-09	100.0%	HI:	0.28625	100.0%

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
DERMAL CONTACT WITH SURFACE SOIL IN SWMU 26
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cs*CF*AF*ABS*A*EF*ED)/(BW*AT)
ILCR = CDI*CSFd
HQ = CDI/RfDd

Parameter	Description	Adult	Young Child	
DAD	Dermally absorbed dose (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	2006	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	24	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	8760	2190	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILC	DAD (mg/kg/d)	HQ	% Contrib. HI	DAD (mg/kg/d)	ILCR	% Contrib. Total ILC	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.16	0.032	1.5789474	0.000285	9.24E-07	1.5E-06	100.0%	2.7E-06	7.7E-10	0.6%	4.08E-07	6.4E-07	100.0%	4.76E-06	1.4E-09	0.6%
Beryllium	1.13	0.01	NA	0.002	2.81E-07	--	--	8.2E-07	1.6E-09	1.3%	1.242E-07	--	--	1.45E-06	2.9E-09	1.3%
Vanadium	125.7	0.01	NA	0.0014	3.13E-05	--	--	9.13E-05	1.3E-07	98.1%	1.382E-05	--	--	0.000161	2.3E-07	98.1%
					Total ILCR	1.5E-06	100.0%	HI:	1.3E-07	100.0%	Total ILCR:	6.4E-07	100.0%	HI:	2.3E-07	100.0%

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SURFACE SOIL IN SWMU 26
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Ca*RR*ET*EF*ED)/(BW*AT)
Where: Ca = Cs * (1/PEF)

ILCR = CDI*CSFi
HQ = CDI/RfDi

Parameter	Description	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFi	Inhalation cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDi	Inhalation reference dose (mg/kg/d)	CS	CS	
Ca	Concentration of chemical in air as fugitive dusts (mg/m3)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
PEF	Particulate emission factor (m3/kg)	1.32E+09	1.32E+09	
RR	Respiration rate (m3/hr)	0.83	0.83	
ET	Exposure time (hrs/d)	24	24	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	24	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	8760	2190	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	Ca (mg/m3)	CSFi 1/(mg/kg/d	RfDi (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.16	8.79E-10	15.1	NA	8.222E-11	1.2E-09	64.9%	2.4E-10	--	--	9.592E-11	1.4E-09	64.9%	1.12E-09	--	--
Beryllium	1.13	8.56E-10	8.4	5.7E-06	8.009E-11	6.7E-10	35.1%	2.34E-10	1.3E-15	100.0%	9.344E-11	7.8E-10	35.1%	1.09E-09	6.2E-15	100.0%
Vanadium	125.7	9.52E-08	NA	NA	8.909E-09	--	--	2.6E-08	--	--	1.039E-08	--	--	1.21E-07	--	--
					Total ILCR:	1.9E-09	100.0%	HI:	1.3E-15	100.0%	Total ILCR:	2.2E-09	100.0%	HI:	6.2E-15	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ATTACHMENT 2
CMS Report for SWMUs 13, and 46/AOC C
Provided under separate cover