



ENSAFE INC

ENVIRONMENTAL AND MANAGEMENT CONSULTANTS

5724 Summer Trees Drive • Memphis, Tennessee 38134 • Telephone 901-372-7962 • Facsimile 901-372-2454 • www.ensafe.com

May 26, 2004

Commander
Attn: James Reed/18812JR
NAVFAC EFD SOUTH
2155 Eagle Drive
P.O. Box 190010
North Charleston, SC 29419-9010

Subject: CTO-0094; NSA Mid-South, AOC A, Millington, Tennessee

Document Transmittal – *Responses to USEPA Comments on the AOC A Corrective Measures Study Report (Rev.1)*

Reference: Contract N62467-89-D-0318 (CLEAN II)

Dear Sir:

This letter is provided to document submittal of *Responses to USEPA Comments on the AOC A Corrective Measures Study Report (Rev.1)*. The document has been distributed as shown on the attached NSA Mid-South RFI Distribution List.

If you have any questions or comments of a technical nature, please contact me at 901/372-7962. Comments or questions of a contractual nature should be directed to Debra Blagg at the same number.

Sincerely,

EnSafe Inc.

A handwritten signature in black ink, appearing to read "John Stedman, Jr.", written over a horizontal line.

By: John Stedman, Jr.
Task Order Manager

Enclosures: As Stated

cc: Contracts File: CTO-0094 (w/out enclosure)
Project File: 0094-001-14-430-00 (w/out enclosure)
Other: See attached NSA Mid-South Distribution List

**NSA MID-SOUTH AOC A
CORRECTIVE MEASURES STUDY REPORT (REV. 1)
RESPONSES TO USEPA COMMENTS
May 26, 2004**

Comment # 1:

Section 3.2 AOC A Groundwater Remedial Goal Options

The text states that the remedial goals for groundwater are MCLs. MCLs are appropriate where the residual risk or cumulative risk of constituents present in groundwater does not exceed 10E-4. However, if multiple constituents are present at a point of compliance well that causes the cumulative risk to exceed 10E-4, the remedial goals should be modified to fall within the 10E-4 to 1-E-6 risk range.

Response

EnSafe contends that MCLs are the appropriate remedial goals for AOC A. Information to support this was presented at the March 2004 BCT Meeting. For your convenience, a copy of the meeting presentation has been attached.

Comment # 2

Page 5-46 System Design

The text describes and illustrates the system design which is appropriate for addressing the hot spot areas down gradient of the hot spot areas. In addition, groundwater contamination beyond the property line should be addressed. Based on the past few sampling events, chlorinated solvent concentrations continue to increase in wells beyond the property boundary. The CMS should mention that a plan for addressing off-site contamination will be developed if the BCT determines that action is needed based on sampling results. Implementing the enhanced in-situ bioremediation at the property boundary is a viable remedy if deemed necessary.

Response

As discussed in the AOC A Interim Measures Work Plan (EnSafe, November 10, 2003), semi-annual progress reports will include recommendations for system modifications. If sampling results indicate additional corrective measures are warranted to address off-site migration of contaminants, these modifications may include implementing enhanced in-situ bioremediation at the property boundary.

Comment # 3

Page 5-49 states that wells along the perimeter of the plume will be sampled annually. Because contaminant concentrations continue to increase along the perimeter of the plume which is beyond the property boundary, the wells should be sampled on the same schedule as the targeted area. Sampling frequency should continue until monitoring data indicate the plume is no longer migrating off-site.

Response

Five perimeter wells will be sampled quarterly for volatile organic compounds using SW8260B. Details of this sampling are included in the Interim Measures Work Plan.

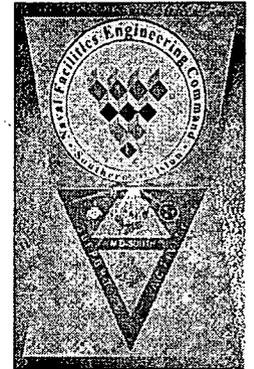
creative thinking. custom solutions.

Cleanup Goals, Cumulative Risk, and Maximum Contaminant Levels (MCLs)

NSA Mid-South AOC A

Presented by:
EnSafe

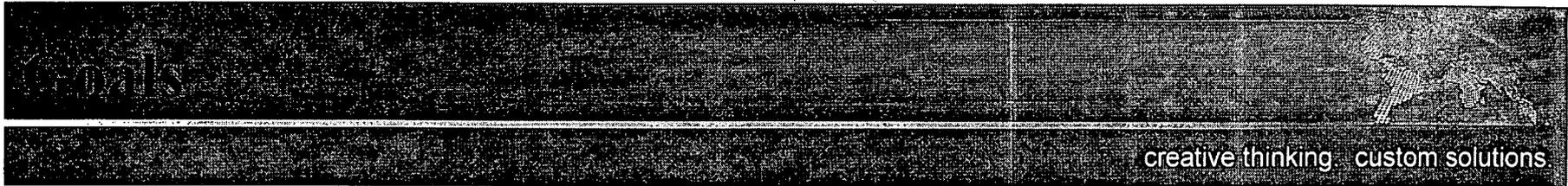
March 24, 2004



ENSAFE

engineering | environment | health & safety | technology

a global professional services company.



Resolve EPA's comment on the AOC A CMS report

Affirm existing agreement with EPA

- Obtain approval letter for the AOC A CMS report from EPA

Acceptable Risk

creative thinking. custom solutions

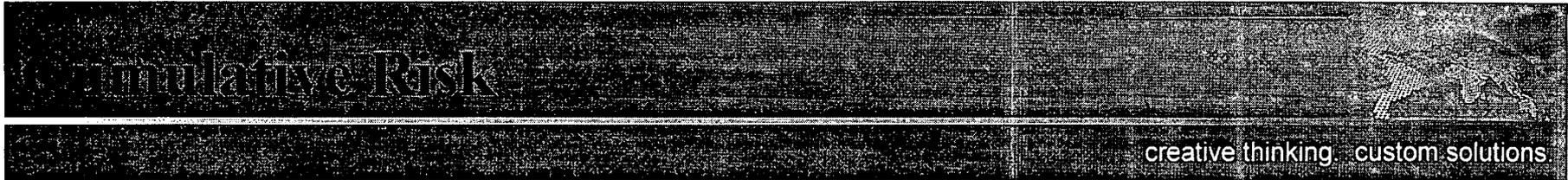
The upper bound of EPA's acceptable risk range is 1-in-10,000, also written in scientific notation as $1E-4$.

The threshold of cumulative risk is $1E-4$, in accordance with 40CFR300.430.

USEPA Region 9 Preliminary Remediation Goals (PRGs) are concentrations based on 1E-6 excess risk.

For carcinogens, the *ratio of MCL to PRG* can be used to roughly estimate cumulative risk using risk based PRGs as follows:

$$\text{Excess Cancer Risk} = \frac{\text{MCL} \times 1\text{E-6}}{\text{PRG}}$$



The risks below were calculated based on ratios with corresponding PRGs.

Chemical	MCL (mg/L)	PRG (mg/L)	Excess Risk at MCL
Tetrachloroethylene	0.005	0.00066	8E-6
Trichloroethylene *	0.005	0.000028	2E-4
Dichloroethylene **	0.007	0.061	Not Applicable
Total	--	--	2E-4

* Depending on the isomer, the MCL for DCE ranges from 0.007 mg/L to 0.1 mg/L.; the PRG ranges from 0.061 mg/L to 0.34 mg/L; not classified as a carcinogen; the hazard quotient of DCE would be less than 1.0.

** The carcinogen assessment summary for this substance has been withdrawn following further review. A new carcinogen summary is in preparation by the CRAVE Work Group. The PRG is based on a provisional slope factor. See <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=23249> for additional information.

PRGs were obtained from <http://www.epa.gov/region09/waste/sfund/prg/index.htm>

Risk is not applicable for DCE because the available information is not sufficient to assess human risk; 1,1-DCE is a class C (probable) carcinogen; 1,2-DCE compounds are class D (<http://www.epa.gov/iris/index.html>)



Remedial Goal Options vs. Remedial Levels

creative thinking custom solutions

- **Remedial Goal Options (RGOs)** are concentrations developed based on risk during the baseline risk assessment. These concentrations and others are considered when risk managers discuss their options.
- **Remedial Levels** are concentrations that are agreed upon after the information in the risk assessment is reviewed, along with other available information. Remedial Levels are used as cleanup goals.

<http://www.epa.gov/region4/waste/ots/healthbul.htm#hhrisk>

- In late 1996/early 1997, the Navy, EPA, TDEC, and USGS considered using MCLs as the remedial levels for NSA MidSouth groundwater.
- This was discussed within EPA to determine whether additional assessment would be necessary to document risks posed by groundwater. EPA agreed that MCLs were appropriate remedial levels and that additional documentation was not necessary.

Decision

The Navy, EPA, TDEC, and USGS decided to use MCLs as the remedial levels for NSA MidSouth.

MCLs should be used as remedial levels at AOC A because:

- 1) MCLs are supposed to be protective of human health.
- 2) NSA MidSouth is not a CERCLA site; EPA determined that there is no requirement to document baseline groundwater risks. MCLs were agreed upon remedial levels.
- 3) NSA MidSouth reports and work plans used MCLs as remedial levels and have been approved by EPA, including the work plan for AOC A.
- 4) Cumulative risks posed by MCLs at AOC A are similar to EPA's upper bound acceptable risk level.
 - 1) 40CFR300.430 indicates $1E-4$ is the upper bound acceptable risk level.
 - 2) OSWER Directive 9355.0-30 states that the $1E-4$ upper bound limit is not a discreet line.
- 5) It is unlikely that anyone will use AOC A groundwater as drinking water.