RESPONSE TO COMMENTS ON THE SAMPLING SUMMARY REPORT FOR THE BLUE HOLE, TRAINING AREA 6C

1. EPA
2. ADEM

EPA COMMENTS

RESPONSE TO COMMENTS FROM THE U.S. ENVIRONMENTAL PROTECTION AGENCY ON THE DRAFT SAMPLING SUMMARY REPORT FOR THE BLUE HOLE, TRAINING AREA 6C FORT McCLELLAN, CALHOUN COUNTY, ALABAMA

Comments from Doyle T. Brittain, Senior Remedial Project Manager, dated June 8, 2001.

General Comments

Comment 1: **The Environmental Protection Agency (EPA) has reviewed and approves the subject document.**

Response 1: Comment noted.

ADEM COMMENTS

RESPONSE TO COMMENTS FROM THE ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT ON THE FINAL SAMPLING SUMMARY REPORT FOR THE BLUE HOLE, TRAINING AREA 6C, DATED AUGUST 6, 2001 FORT McCLELLAN, CALHOUN COUNTY, ALABAMA

Comments from Stephen A. Cobb, Chief, Hazardous Waste Branch, Land Division, dated July 25, 2002.

General Comments

Comment 1: **The Alabama Department of Environmental Management (ADEM or the Department) has reviewed the above referenced document. Draft findings related to the subject document were discussed at the Base Realignment and Closure Team (BCT) review meeting on May 3, 2002. During the meeting, the Department provided its comments on the Blue Hole Training Area 6C in an interactive manner so that the Army and its consultants could begin resolving the Department's comments. As documented in the meeting minutes issued August 6, 2001 by IT Corporation, the Army recommended a No Further Action (NFA) designation for this site. Based on elevated contaminant levels detected in environmental media at the site, ADEM stated that it was premature to make such a designation and recommended that Fort McClellan conduct further sampling to support the Army's request for an NFA designation. Fort McClellan concluded that further sampling was not warranted but elected to perform a Human Health and Ecological (HH/Eco) Risk Assessment.**

Response 1: The following is a chronology of the investigation of the Blue Hole, Training Area 6C (as documented in the BCT minutes):

May 2001 – BCT agreed to conditional NFA, pending site inspection to confirm that everyone agrees on the location of the Blue Hole. The site visit confirmed that the Blue Hole is located within area 6C. After visiting the site, EPA and ADEM agreed that NFA was appropriate for this site.

December 2001 – ADEM requests that additional samples be collected. The meeting minutes reflect that both the Army and EPA disagree with ADEM. They both feel the site has been adequately investigated and support the NFA agreed to at the May 2001 meeting.

June 2002 – Although the site was discussed, the BCT agreed to put off a "final" decision until the July 2002 meeting.

July 2002 – The BCT agreed that IT would revise the final report to indicate the BCT's site management decision not to collect additional samples and to release the site for military training reuse rather than unrestricted reuse. It was also agreed that the PRA would be revised to explain the biased sampling.

The week following the July 2002 BCT meeting, ADEM issued written comments requesting additional samples. It should be noted that the preliminary risk assessment (PRA) was performed at the request of ADEM and EPA – not Fort McClellan. Furthermore, the PRA only evaluated potential human health risk. No ecological risk issues were identified by the BCT because of the site's small areal extent, close proximity to a road, and projected reuse as a military training area.

Comment 2: **Concentrations of certain metals (aluminum, barium, and manganese) exceeded ESVs but were below established background levels. Chromium and lead were detected at concentrations exceeding ESVs and established background levels. Based on its relatively high concentration levels in sediment samples, arsenic appears to be the major constituent of concern at the Blue Hole site. In sediment samples, the arsenic concentration exceeded the SSSL, ESV and background level.**

Response 2: As noted by the reviewer, arsenic is the only COC identified in sediment in the Blue Hole. Arsenic was quantified at 14.9 mg/kg and 89.1 mg/kg in the two samples of sediment taken for this evaluation. The lower concentration falls within the range of background, but the higher concentration exceeds the range of background by approximately four-fold, resulting in the selection of arsenic as a site-related chemical, although no rationale is apparent for its release at this site. Also as noted by the reviewer, the concentration exceeded the SSSL for recreational site user or residential exposure, resulting in arsenic being selected as a COPC and being evaluated in the PRA. The PRA, however, showed that the cancer risk fell within the risk management range, supporting the recommendation for no further action.

Additional Comments

Comment 1: **ADEM believes additional sampling is necessary for Fort McClellan to properly characterize the site.**

RESPONSE TO COMMENTS FROM THE ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT ON THE FINAL SAMPLING SUMMARY REPORT FOR THE BLUE HOLE, TRAINING AREA 6C, DATED AUGUST 6, 2001 FORT McCLELLAN, CALHOUN COUNTY, ALABAMA

Response 1: The reviewer provides no reason for the belief that additional sampling is necessary, nor is any information provided regarding the medium or media to sample, the number of samples to take, or the location(s) for the additional sampling. Please see response to General Comment 1, which details the chronology of the BCT deliberations. The reference to "biased sampling" in the July 2002 minutes refers to discussions in which it was shown that the surface water and sediment samples were taken from the two areas where surface water was most persistent. These are the areas where exposure to surface water and sediment is likely to be most frequent and most intense, and where the highest levels of constituents from runoff or erosion are most likely to be found. In other words, the risk estimates are likely to be biased high by limiting sampling to these two areas. Additional sampling, particularly if spread over a larger area, would most likely reduce the risk estimates for two reasons: (1) It is likely that most samples would yield arsenic concentrations lower than the maximum of 89.1 mg/kg from sample location TA6CBH-SW/SD01, and (2) a larger number of samples would permit calculating a conservative estimate of average for use in the PRA, rather than defaulting to the maximum detection.

Based on discussions with ADEM and EPA during the July 2002 BCT meeting, no additional sampling will be conducted at the Blue Hole.

Comment 2: **All sediment and surface water samples were collected within the boundary of the Blue Hole. Samples should also be collected from the surface drainage creek upgradient of the Blue Hole.**

Response 2: This appears to be a request to collect upgradient samples for the purpose of establishing site-specific background. It is unclear why site-specific background would need to be established. It is possible that site-specific background would show that the levels of arsenic identified in sediment were naturally occurring, which the site-wide background data base does not do, but the PRA was sufficient to show that the arsenic did not represent an unacceptable risk.

Comment 3: **Although a comparison is made to SSSLs, no site-specific background samples were actually collected at this site. It is unclear if the established SSSLs adequately represent this site.**

Response 3: There is no relationship between the representativeness of SSSLs and background; site-specific or otherwise. The SSSLs are as representative for the Blue Hole as for any site, unless site-specific physical characteristics are such that exposure is likely to be significantly greater or lesser than that on which the recreational and residential site-user scenario is based.

Comment 4: **Quality Assurance/Quality Control (QA/QC) samples should be collected during the investigation.**

Response 4: Based on discussions with ADEM and EPA during the July 2002 BCT meeting, no additional sampling will be conducted at the Blue Hole.

Comment 5: **Based on the revised sampling data set, Fort McClellan should re-assess its recommendation for this site and prepare an updated risk assessment.**

Response 5: Please see responses to Additional Comments 1 and 2.

Comment 6: **Fort McClellan should particularly resolve the elevated arsenic levels found to be present at this site.**

Response 6: It is unclear what would constitute resolution in this context. The source of arsenic is unlikely to be proven, and additional sampling is unlikely to help. As stated in the Final Sampling Summary Report, arsenic is not associated with the fire pots previously used at the site. Small naturally occurring localizations of high levels of arsenic are common where small amounts of various sulfide minerals are found (ATSDR, 2000). In addition, benthic sediment is known to adsorb naturally occurring arsenic from overlying surface water (ATSDR, 2000). As noted above, the sediment samples were taken from the locations where water is most persistent and this phenomenon is most likely to result in elevated arsenic concentrations. The investigation, however, is adequate to resolve the issue of toxicity associated with arsenic in sediment. The PRA demonstrated that adverse effects are unlikely.

Reference:

Agency for Toxic Substances and Disease Registry (ATSDR), 2000, ***Update Toxicological Profile for Arsenic***, U.S. Department of Health and Human Services, Atlanta, Georgia, September, on line.