



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203-0001

June 24, 1997

Mr. Philip Otis
U.S. Department of the Navy
Northern Division - NAVFAC
10 Industrial Highway
Code 1811/PO - Mail Stop 82
Lester, PA 19113-2090

RECEIVED
JUL 01 1997
EPA Engineering, Science, and Technology
New England Operations

Re: Navy's assessment of the Adequacy of Groundwater Investigation for Site 11 at the former Naval Construction Battalion Center (NCBC) Davisville, Rhode Island

Dear Mr. Otis:

Pursuant to § 7.6 of the NCBC Federal Facility Agreement (FFA), the Environmental Protection Agency's (EPA) has reviewed the above referenced documents. Please find our comments enclosed. Please note that these comments have already been sent via e-mail, the content has not changed.

Groundwater flow direction determined by the background groundwater study (final report dated September 6, 1996) indicates that any residual groundwater contamination would be present in groundwater flowing south westerly in a general direction from the north western corner of Building 390 to Building S-8. The downgradient groundwater in this portion of the site has not been sampled. EPA agrees with the Navy that remnant groundwater contamination should be expected to remain near the source area and be identified within the site boundary, therefore, in our enclosed comments we make recommendations for field soil and groundwater sampling to determine if there is a larger source south of sampling location B-10, within the Site 11. This limited site investigation will clear the questions surrounding residual contamination at Site 11.

In reviewing the Site 11 current data set, EPA has determined that the suspected source near B-10 would not impact the land surrounding building S-32 and therefore the S-32 EBST need not be modified from its current form.

I look forward to continuing to work with the BCT on finalizing the SOW for the limited field work for the former Naval Construction Battalion Center, Davisville. If you have any questions, please contact me at (617) 573-5736.

Sincerely,

A handwritten signature in cursive script, appearing to read "Christine Williams".

Christine A.P. Williams, RPM
Federal Facilities Superfund Section



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Enclosure

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EPA reviewed the Navy's assessment of Site 11 submitted on June 11, 1997 in an effort to determine whether the data, as collected to date, is adequate to characterize the extent of contamination at the site, and determine whether there is need for further investigation. More supporting documentation is required to support the Navy's conclusion. Primarily, the Navy has to document their understanding of the location of the source area for an adequate evaluation of the adequacy of the monitoring data to identify contamination emanating from the source.

Evaluation of Existing Data:

There are two primary issues that need to be addressed to determine whether an adequate evaluation of the site has occurred. These issues are; 1) is the location of the source area adequately documented, and 2) is the investigative efforts performed sufficient to identify possible contamination emanating from the source. These issues are discussed further.

Issue 1- Location of Source Area: This area was reportedly utilized as a fire training area on a sporadic basis from the mid 1940's to 1955. Although the area has been used in the past for vehicle and heavy equipment storage, as confirmed on aerial photographs, no visual documentation is available which would unequivocally confirm this area's use as a fire training area. Numerous surface soil and boring samples were collected in the Site 11 Area, with most of the samples located in the southern half of the site where, based on previous investigations and aerial photographic evidence indicate the possibility of the source. Over 30 soil locations were placed at Site 11, primarily in the southern half of the site. These soil sample locations consisted of both surface and subsurface samples. The contaminants primarily identified consisted of PAHs which would be expected to be found at a fire training area, but also consistent with an area used as an equipment and vehicle storage area. The following observations/conclusions related to the soil sample data are noted.

Little VOC contamination was identified in either surface or subsurface soil samples. The occurrence of PAHs in surface soil samples indicated low concentrations found sporadically, but over a widespread area, which appears more consistent with the area being used for vehicle and equipment storage than as a fire training area.

In nearly all locations where subsurface soil samples were collected, the surface soil sample collected at those location exhibited higher PAH concentrations. This observation seems more indicative of contamination from use as a vehicle and equipment storage area where the machinery may have been leaking oil than would be expected to be encountered at a fire training area which was reportedly used some 40 years ago. With a fire training area, it would be expected that contaminant concentrations would be deeper because of the practice of burning and volatilizing the oil near the surface.

The highest PAH concentration (approximately 28 ppm) was detected at soil boring location B-10, which was typically an order of magnitude higher than the majority of other PAH data found in the other soil boring locations. This may potentially represent the general location of the fire training area, if Site 11 was actually used for fire fighting training exercises.

Based on the analytical data collected and a review of aerial photographs, it appears that extensive efforts have been expended in an attempt to confirm/document the location of the fire fighting training area. The coverage of the soil sampling investigation is comprehensive in the southern half of Site 11 where it was suspected that the fire fighting training area was located. However, because of the relatively few groundwater monitoring points in the downgradient of the area of the suspected source area (B-10), further efforts to pinpoint the presence or absence and potential size of the source area near soil boring B-10 are needed. The need for this investigative effort is described below.

Issue 2 - adequacy of investigative efforts to identify the migration of possible contamination from the site. This issue primarily addresses the adequacy of groundwater monitoring locations to identify contamination from the source area. For the purposes of addressing this issue, the fire fighting training area is assumed to be in the general vicinity of soil boring B-10 where the highest concentrations of PAHs were identified in both the surface and subsurface locations. The following observations/conclusions concerning groundwater monitoring at the site are noted.

Minimal to no groundwater contamination was identified at the site. The primary constituents identified above screening criteria included inorganic compounds; magnesium, potassium, calcium, iron, and sodium. While there were numerous PAHs identified in the soil analytical data, only Bis (2-ethylhexylphthalate) (BEHP) was identified in one shallow groundwater location at 14 ug/l. This is not site related in that BEHP is often identified as a laboratory contaminant.

However, the adequacy of the existing monitoring well network to identify contamination emanating from the site is questionable. Based on the soil boring data which appears to indicate that the source of the fire fighting training may have been located in the vicinity of soil boring 10, then only one well cluster out of nine well locations is located in a relatively downgradient position. Most of the other wells near the source area are either side gradient or upgradient. As depicted in Figures 7-3 and 7-7 of the RI report, well cluster MW-6 is the only well downgradient of the suspected source area. If the exact source area is slightly south of soil boring B-10, as depicted on the groundwater flow direction map (Figure 7-7), the possibility of the plume missing the monitoring well network all together exists.

It is recommended that the Navy perform additional investigation in the vicinity of soil boring 10 to confirm the extent of the elevated contamination near soil boring 10 in an effort to pinpoint the boundaries of the possible source area using field analytical techniques and collect shallow and deep groundwater samples (monitoring wells or hydro probes or field grab samples) southwest of building 390 near the intersection of Moscrip Avenue and Middletown St. If the "source" area is at just south of B-10, the MW58-1 is not directly downgradient, but side gradient.

The issue concerning the possibility of a relict groundwater plume existing which has migrated past the monitoring well network in place and proposed above is highly unlikely if no remnant contamination is documented in groundwater near the site. However, there are no deep downgradient wells which can confirm this analytically. Two items for consideration when evaluating the possibility of such a scenario are 1) the possibility of such a plume existing, and 2)

the possibility of identifying such a plume today.

Item 1: Assuming that the monitoring well network at the site is adequately positioned to identify groundwater contaminant migration from the site, which is questionable (see above). The fact that no groundwater contamination exists identifying the primary COCs (PAHs) in these wells would indicate that no groundwater contamination existed from the site, or that groundwater contamination from the site has completely migrated past these wells leaving no trace of their existence at the source area. While the issue of time (approximately 40 years since the last supposed use as a fire fighting training area) does support the possibility of the flushing of the plume past the monitoring well network, EPA agrees with the Navy position that regardless of this timeframe and given that there is no documentation which would indicate any type of remedial or removal effort was undertaken to eliminate the source of groundwater contamination, remnant groundwater contamination should be expected to remain near the source area and be identified in the existing monitoring well network, if these wells are actually downgradient of the source area. The fact that essentially no groundwater contamination of concern was identified at the site indicates that the possibility of a groundwater plume of any magnitude being present downgradient of the site is unlikely. However, as stated above the adequacy of the monitoring well network near the site to detect contamination from the source area is questionable.

Item Two: Identification of a relict plume. Assuming that this relict plume existed and has migrated past the current monitoring well network. With respect to this site, the chances of identifying such a plume is more difficult for several reasons:

1. The time in which natural processes (dilution and microbial degradation) have had to affect the plume;
2. The lack of sufficient groundwater gradient data to adequately analyze groundwater flow;
3. The possibility of contamination from other potential source areas skewing identification of contamination from Site 11; and
4. The possibility that the plume has flushed completely into Mill Creek.

The probability of detecting such a plume with the addition of one or two wells significantly downgradient of the site appears low, (wells at EBS #88 and MW58-1). It is recommended that efforts, as stated above to confirm the location of the source and collect groundwater samples immediately downgradient of the suspected source be initiated prior to any attempt to find a relict plume downgradient. As is stated above, it is EPA's opinion that if a groundwater plume exists at the site, remnant contamination should remain near the source. It is EPA's opinion that the chances of confirming the presence of this contamination is significantly greater near the source than a downgradient deep plume, given the same number of monitoring points, based on the limitations mentioned above.

SPECIFIC COMMENTS: