MEMORANDUM

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SSIC # 5090.3

DATE: May 17, 1994
TO: Andy Piszkin - Navy SWDIV
FROM: Roy Herndon

SUBJECT: Comments to Correspondence Dated 5/10/94 from EPA and Cal/EPA to Bret Raines, SWDIV

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1) Source Control vs. Containment for Shallow On-Base VOCs

EPA and Cal/EPA have requested the Navy to include a Source Control Approach to its list of FS alternatives to evaluate. They refer to memos from Jacobs Engineering dated 12/22/93 and 12/23/93 which state that the containment approach would not optimize removal of "residual sources" and that "it is always cheaper to remove high concentrations of VOCs from a smaller flow than to remove low concentrations from a larger flow."

I cannot comment specifically on these memos, as I did not receive copies of them. However, it has always been my recommendation that, if the Navy elects to perform on-site extraction, it should target mass removal over a short duration as its primary objective, keeping total flow to a minimum. Areas with concentrations over 500 ppb should be considered the key locations to target. It appears that sufficient data are available to delineate these areas. The lack of reliable aquifer test data in the shallow aquifer and the unknown short- and long-term response of the shallow aquifers to pumping of the deep aquifers by the desalter wells should preclude the Navy from relying too heavily or specifically on model simulations. A good possibility exists that pumping of the desalter wells will lower water levels substantially in the shallow aquifer (because of hydraulic connection) to the point that shallow extraction well flow rates will be severely curtailed -- possibly before the higher concentrations reach the extraction wells if they were located too far downgradient in a containment configuration. This is a risk the Navy should seriously consider.

I do not understand fully the regulators' comment that the source control approach will require more hydrogeologic information. The current water quality data seem sufficient to understand the general location of high concentration areas. It appears to me that what CH2M Hill needs most is shallow aquifer test data to verify actual flow rates.

At this point, I am confused as to exactly what the Navy expects to "contain" if VOC concentrations of 50 to 100 ppb already exist at the base boundary at wells IDP-1 and -2. The Navy and CH2M Hill need to respond technically (not just legally) to these issues before they can determine whether additional scenarios should be added to the FS.

2. Capture of the Off-Station Portion of the TCE Plume

a. Clarification of Production Wells at Toe of Plume:

The Irvine Company (TIC) currently operates wells TIC-108 and TIC-113 along Culver Drive at the toe of the TCE plume. IRWD plans to complete piping and begin production from its new well IRWD-78 at Warner and Culver in November 1994. The Woodbridge North Lake well will continue to pump on average about 300 gpm into North Lake.

b. It is my understanding that CH2M Hill's model indicated that the leading edge of the plume (as defined by the 0.5 ppb concentration) would be captured by these non-potable use production wells. In addition, the flow rates used by CH2M Hill for the former well TIC-78 were only about 350 acre-feet/year. Recent discussions with IRWD indicate that they plan to pump their new well IRWD-78 an average of about 3,000 acre-feet/year, which will result in a larger plume capture area in this vicinity.

c. Whether or not these wells are owned or "under the control" of the Navy, they exist and will continue to pump, unless it can be demonstrated that they are seriously detrimental to the cleanup of the VOC plume. In actuality, these wells appear to aid in the capture of the VOC plume without tax payer funding.

One of the greatest uncertainties in the plume capture issue is future groundwater conditions in the Irvine subbasin. Both OCWD's and CH2M Hill's models clearly demonstrate that TCE plume capture will be affected by future circumstances which will remain outside the control of the Navy (e.g. drought/local recharge, water pricing, basin production/management policies and strategies -- both east and west of Culver Drive). Therefore, it is unreasonable and futile to try to develop alternatives that eliminate these uncertainties.

I strongly recommend that the Navy use the flexibilities inherent in an Interim ROD remedial action plan to take an observational approach to the Irvine Desalter well capture zone as it develops over a number of years, rather than consider redundant and costly "backup" wells, pipelines, and treatment facilities.