



PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

One Drexel Plaza
3001 Market Street
Philadelphia, PA 19104-2897
Tel: 215•222•3000
Fax: 215•222•3588

N62269.AR.000559
NAWC WARMINSTER
5090.3a

March 2, 1999

WARM 9608.002.01

Mr. Lonnie Monaco
Naval Facilities Engineering Command (NAVFACENGCOM)
Northern Division
Environmental Contracts Branch, Mail Stop No. 82
10 Industrial Highway
Lester, PA 19113

**RE: Review Comments
Summary Report for Area B Groundwater Monitoring
Former NAWC Warminster**

Dear Mr. Monaco:

Pennoni Associates, Inc. ("Pennoni"), on behalf of Warminster Township, has reviewed the report entitled *Summary Report for Area B Groundwater Monitoring* dated October 1998 which was prepared by Tetra Tech NUS, Inc. Based on our review we offer the following comments:

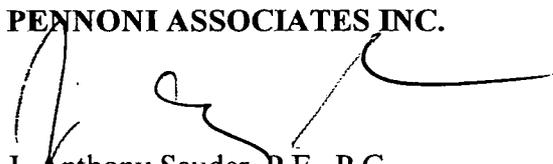
1. Groundwater flow direction is presented as shallow (i.e., less than 60 feet), intermediate (i.e., 60 to 110 feet), and deep (i.e., 110 to 160 feet). However, there is no discussion of the screened interval with respect to the dip and the geology of the Stockton Formation. It would be more clear if this report discussed the strike and dip of the bedding and the strike/dip of fractures, if known, to justify the hydrogeologic units. The United States Geological Survey (USGS) report entitled "Geohydrology and Distribution of Volatile Organic Compounds in Ground Water in the Casey Village Area, Bucks County, Pennsylvania" uses intervals of 18 to 64 feet and 48 to 106 feet to present their data. It is not clear whether the same hydrogeologic units are being evaluated in the two (2) reports.
2. An aquifer test was conducted by the USGS in Casey Village in October 1996. Well BK-2799 was pumped for 5-6 hours with a drawdown of 57 feet maintained. This well was pumped at a flow rate of 3.7 gallons per minute. The USGS confirms that this alters the groundwater flow direction in the two (2) zones they identified with geophysical surveys. The potential migration pathways influencing the plume identified as surrounding HN-61 and HN-49 need to be evaluated. Pumping of several potable wells in Casey Village would increase the cone of depression; therefore groundwater flow under non-pumping conditions should not be used to determine from where the source originated. It is premature to conclude that the HN-49 contamination has originated off-base.

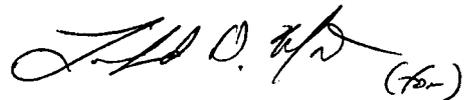
3. In Figure 2-2, "Potentiometric Surface - Intermediate Groundwater (Well Depth Range 60-110 feet)", the groundwater elevation for HN-61I was used even though the screened interval is stated as 110-124.5 feet in Table 2-1. It is unclear how the decision was made to use HN-61I and not HN-61S with a screened interval of 81-95.5 feet. The shallow versus intermediate designation is further complicated by the designation of HN-49I (screened interval: 55-75 feet) as "intermediate" when it is actually shallower than HN-61S (screened interval: 81-95.5 feet) which is designated as "shallow".

Should you have any questions concerning the above comments, please do not hesitate to contact us.

Very truly yours,

PENNONI ASSOCIATES INC.


J. Anthony Sauder, P.E., P.G.
Senior Hydrogeologist


Kevin J. Davis, P.E.
Manager, Environmental Services

cc. Robert Camarata, Warminster Township