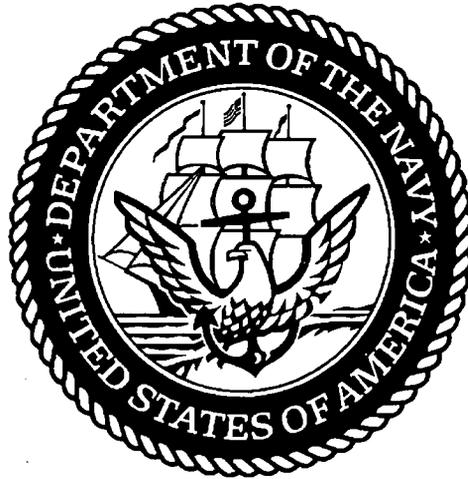


ACTION MEMORANDUM



REMOVAL OF SOILS CONTAMINATED WITH POLYCHLORINATED BIPHENYLS (PCBs) SITE 1 - PRIVET ROAD COMPOUND

Prepared For
NAVAL AIR STATION JOINT RESERVE BASE
WILLOW GROVE, PENNSYLVANIA 19090-5010

By
NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY
MAIL STOP 82
LESTER, PENNSYLVANIA 19113-2090

MAY 1999

ACTION MEMORANDUM
Site 1 – Privet Road Compound
NASJRB Willow Grove, Pennsylvania

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**ACTION MEMORANDUM FOR THE
REMOVAL OF SOILS CONTAMINATED WITH
POLYCHLORINATED BIPHENYLS (PCBs)
SITE 1 - PRIVET ROAD COMPOUND
AT
NAVAL AIR STATION JOINT RESERVE BASE (NASJRB)
WILLOW GROVE, PENNSYLVANIA**

1.0 PURPOSE

The purpose of this Action Memorandum is to document the necessity to conduct a removal action to remove soils contaminated with polychlorinated biphenyls (PCBs) from Site 1 – Privet Road Compound located within the Naval Air Station Joint Reserve Base (NASJRB) Willow Grove, Pennsylvania. The Department of the Navy is identified as the lead agency pursuant to Executive Order 12580 and has written this Action Memorandum to describe the relevant site conditions of Site 1, the components of the removal action, and the rationale for selecting the preferred alternative.

NASJRB Willow Grove is located in Horsham Township, Montgomery County in southeastern Pennsylvania and is approximately fifteen miles north of the City of Philadelphia.

An investigation was performed at Site 1 in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300, which indicated that hazardous substances were present which potentially posed a threat to human health and the environment due to the presence of PCB-contaminated soils.

2.0 SITE CONDITIONS AND BACKGROUND

SITE DESCRIPTION

The Privet Road Compound, which lies within a heavily developed section of the installation, is adjacent to the Willow Grove Air Reserve Facility and is comprised of a fenced area that is approximately one half acre in size. The fenced compound is covered with Dense Grade Aggregate (DGA) and is currently used to store construction and maintenance equipment. However, the historic waste-handling area is suspected to extend beyond the limits of the fenced compound and once covered a total of more than 2 acres including the present location of the Bowling Alley (Building 192) and the parking area.

The Navy tested soils throughout Site 1 since it was reported that electrical transformers were historically stored at the Privet Road Compound and there was a potential that the transformers may have leaked fluids containing PCBs. Analytical results indicated that PCBs were present in surface soils and shallow subsurface soils.

Soil and well borings consistently encountered a variably thick overburden section underlain by weathered sandstone. The overburden consisted of sandy silt, silty sand, and silty clay. The thickness of the overburden (or the depth to the top of the weathered bedrock) ranged from approximately 4 feet in the vicinity east of Privet Road to about 9 feet in the northeastern corner of the compound. Gravel-rich fill material was encountered within 2 feet of the surface at most location within the former compound, but was not encountered beyond the limits of the suspected waste area.

RELEASE OR THREATENED RELEASE OF A HAZARDOUS SUBSTANCE, POLLUTANT OR CONTAMINANT

Activities at Site 1 have resulted in the release of PCBs into the soils presumably through spills of transformer oil. PCBs are considered a hazardous substance as defined by Section 101 (14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

NPL STATUS

NASJRB Willow Grove has been listed on the National Priorities List (NPL) since September 1995.

MAPS, PICTURES, AND OTHER GRAPHIC REPRESENTATIONS

Attachments are located at the end of this Action Memorandum and include the following:

- Figure 1 - Site Location Map
- Figure 2 - Immunoassay Sampling Locations
- Figure 3 - Laboratory Results confirming Immunoassay Concentrations
- Figure 4 - Soil Boring Locations
- Figure 5 - Locations where PCBs exceed 1 ppm
- Figure 6 - PCB Ranges (Excavation Plan)

OTHER ACTIONS TO DATE

Previous actions include the completion of a Phase I Remedial Investigation (RI) Report in February 1993. A Phase II RI Workplan was issued in May 1997 and fieldwork commenced that summer. The primary goal of the Phase II RI was to fill data gaps that were identified in the Phase I RI Report at several Installation Restoration (IR) sites including Privet Road. Analytical data was collected and the Navy issued a Draft Phase II RI Report in April 1998. This draft report is currently being reviewed by the regulatory community as well as by members of Willow Grove's Restoration Advisory Board (RAB).

3.0 THREAT TO PUBLIC HEALTH OR WELFARE AND THE ENVIRONMENT

Results of the human health risk assessment that was conducted as part of the RI indicated that a slight risk existed that was above the EPA's acceptable risk range for exposure to PCBs in site soils. Conditions at the Privet Road Compound do pose a threat to human health, welfare, and the environment. Section 300.415 of the NCP, 40 CFR Section 300.415, outlines the factors to be considered in determining the appropriateness of a removal action. Under Section 300.415, paragraphs (b) (2) (i) (iv) (viii) apply to the situation that currently exists at this site. They are as follows:

THREATS TO PUBLIC HEALTH OR WELFARE

300.415 (b)(2)(i): "Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants"

The Privet Road Compound is a combination of a partially grassy field that is occasionally mowed and a fenced area that is DGA-based and is used as a storage area for construction and maintenance equipment. The equipment storage area is surrounded by a secured chain link fence. Disturbance of the site soils during dry conditions could potentially cause air borne dust and create an inhalation exposure. Although the compound is fenced, dermal contact is possible by anyone using the equipment within the compound. The vegetation in the contaminated area does not appear to be stressed.

THREATS TO THE ENVIRONMENT

300.415 (b)(2)(iv): "High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate"

Analytical results regarding PCB contamination in surface soil samples taken from Site 1 indicate a high frequency of positive detections with 230 parts per million (ppm) being the maximum concentration detected. There is the potential that the contamination would migrate as surface runoff from precipitation resulting in additional exposures. These additional exposures could be from dermal contact with soil, inhalation of dust, or ingestion of soil.

300.415 (b)(2)(v): "Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released"

The average annual precipitation in this area is 44.5 inches. The average annual snowfall is 21.5 inches. This moderately high amount indicates that surface runoff could cause PCB contaminated sediments to migrate down gradient especially if the vegetative cover were to be disturbed by site development. There are no storm drain inlets immediately down gradient of the contaminated area.

4.0 ENDANGERMENT DETERMINATION

Actual or threatened release of pollutants and contaminants from this site, if not addressed by implementing the response action selected and described in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment. Human studies of short-term exposures to PCBs show that skin irritations such as acne-like lesions and rashes can occur in PCB exposed workers. Other studies of occupational exposure suggest that PCBs may cause liver cancer. Reproductive and developmental effects may also be related to occupational exposure and eating contaminated fish. The role of PCBs in producing cancer and, reproductive and developmental effects in humans has not been clearly delineated; but EPA considers PCBs to be probable cancer causing chemicals in humans. Although the site is located in a commercial portion of the station and terrestrial habitat was concluded to be minimal in extent and quality, ecological risk screening identified a potential risk to receptors (from PCBs in the soil). Excess risk to ecological receptors would apparently be ameliorated sufficiently by PCB remedial action such as contaminated soil removal.

5.0 PROPOSED ACTIONS

The primary objective of this removal action is to totally eliminate the threat to human health and the environment by removing all soils that were found to contain PCBs at a concentration in excess of EPA's risk-based concentration for a residential scenario which is 1.0 ppm. The treatment of PCB-contaminated soils at this site would mitigate potential risks to human and ecological receptors and will result in the elimination of any land use restrictions that might inhibit this area's ability to be used for future expansion.

Although there are several alternative technologies available that would achieve the clean-up goal of 1 ppm, the Navy's experience with regards to the remediation of PCB-contaminated soils is that, in the majority of cases, excavation and landfill disposal is the most expedient and cost effective alternative. However, the Navy does recognize that cost effectiveness is only one of the many criteria that require evaluation in order to determine what the overall best treatment technology might be. Therefore, the Navy has chosen the three most common treatment technologies that have been successfully utilized at other Naval installations to remediate PCB-contaminated soils and has evaluated each alternative with regards to short term effectiveness, long term effectiveness, reduction of toxicity, mobility and volume and cost effectiveness. This detailed analysis of alternatives is discussed in the paragraphs below and is based on the current site conditions that exist at IR Site 1 -- Privet Road Landfill.

DESCRIPTION OF ALTERNATIVE TECHNOLOGIES

Several assumptions were taken into consideration to assess the feasibility of the three most common technological methods that the Navy utilizes for the remediation of PCB-contaminated soils. First, it has been assumed that for those alternatives shown below that require off-site disposal of soil, that an approved landfill will be utilized that is within 60 miles of NASJRB Willow Grove. Second, that the incinerator that is discussed under Alternative 1 is located in Model City, New York, approximately 404 miles from NASJRB Willow Grove. Finally, that the quantities of soil that require treatment and/or disposal are approximately 1,200 CY (Cubic Yards) which is equivalent to 1,800 T (Tons of soil) using a conversion factor of 1.5 Tons/CY.

Alternative 1 – Incineration of PCB contaminated soils

Alternative 1 includes bulk excavation of soils containing elevated levels of PCBs. In accordance with TSCA regulations, the contaminated soils would be excavated and transported to an offsite incineration facility.

Short - Term Effectiveness

During implementation, Alternative 1 would not pose any significant risks to the local community or the on site workers. Work zones would be established during site preparation which will meet the specific requirements for the excavation of PCB contaminated soils.

On site workers would wear appropriate PPE. There would also be a temporary personnel decontamination station established during the project. Erosion barriers would be installed around the perimeter of the area of excavation. In addition, berms or swales would be constructed to prevent infiltration or runoff of storm water during implementation. Transport vehicles would be equipped with sealed tailgates and tarped prior to leaving the site to prevent any possible intrusion of outside contamination during transport and would also prevent spillage or escape of PCB-contaminated soils during transport.

Long - Term Effectiveness

After the removal action is completed, the concentration of any PCBs that may be remaining at the site will be below 1.0 ppm. Any PCBs remaining within the site soils would be at concentrations below 1.0 ppm and would occur at a depth of at least 2 feet below grade and subsequently be covered with soil and re-vegetated. Therefore, there would be no remaining risk to human health or the environment and no need for any associated restrictions on site use.

Reduction of Toxicity, Mobility, or Volume

Alternative 1 includes the excavation and off site incineration of approximately 1,200 cubic yards of PCB-contaminated soil. Alternative 1 would permanently reduce the toxicity of PCBs through offsite thermal destruction. With this process destruction efficiencies of 99.99% are commonly achieved.

Cost

The estimated cost for Alternative 1 is \$7,236,272. The items that were assumed in the cost estimate are shown in Table 1 and include bulk loading of soil into trucks, a minimum charge for shipment of PCB waste, an incineration charge, and a transportation charge. The transportation costs assumed that 61 round trips would be required between Model City, New York and NASJRB Willow Grove. The unit costs that were used came from the 1996 Means Environmental Construction Catalog and include overhead and profit. Therefore, the final cost was increased by a factor of 2% per year in order to reflect 1999 costs.

Alternative 2 – Low Temperature Thermal Desorption

Alternative 2 is a remediation process that would remove the PCBs from the ground in a vacuum like process. This process allows the contaminants to be treated without having to haul soil from the site to a landfill for disposal. Efficiency of the process typically ranges from 95 to greater than 99 percent.

Short Term Effectiveness

Alternative 2 should not pose any significant risks to the local community or on site workers during the implementation process. On site workers would be protected from risks through appropriate use of PPE. During any excavation risks to offsite residents would be minimized by use of dust suppressants to control potential emissions. Treated soils may be redeposited on site or used as landfill cover. The PCBs would be thermally destroyed on site, or collected, condensed and thermally destroyed offsite.

Long Term Effectiveness

After the removal action is completed, the concentration of any PCBs that may be remaining at the site will be below 1.0 ppm. Any PCBs remaining within the site soils would be at concentrations below 1.0 ppm and would occur at a depth of at least 2 feet below grade and subsequently be covered with soil and re-vegetated. Therefore, there would be no remaining risk to human health or the environment and no need for any associated restrictions on site use.

Reduction of Toxicity, Mobility, or Volume

Alternative 2 includes the excavation and on or off site treatment of 1,200 cubic yards of PCB-contaminated soil. Alternative 2 would permanently reduce the toxicity of PCBs.

Cost

The estimated cost for Alternative 2 would be \$843,107. The items that were assumed in the cost estimate are shown in Table 1 and include a wheel loader, a pretreatment systems operations cost, minimum mobilization and demobilization charges, costs for a direct firing low temperature desorption process, a triple tray vibrating screening unit, a 34' auto inclined conveyor and the use of filter press for moisture reduction. Since all contaminants would be removed from the site there would be no continued maintenance at the site and no associated disposal costs or concerns. The unit costs that were used came from the 1996 Means Environmental Construction Catalog and include overhead and profit. Therefore, the final cost was increased by a factor of 2% per year in order to reflect 1999 costs.

Alternative 3 - Excavation and Landfill Disposal

Alternative 3 would address soil where PCB levels are greater than 1ppm. The soil would be excavated and transported offsite to an approved landfill.

Short Term Effectiveness

Alternative 3 would not pose any significant risks to the local community or on site workers during implementation. Appropriate PPE would protect on site workers from any risks posed by contaminated soils. During excavation dust suppressants would protect the surrounding area and residents from dust emissions. During transport of contaminated soil all transport vehicles will be equipped with sealed tailgates and tarped to prevent spillage or escape of PCB contaminated soil.

Long Term Effectiveness

After the removal action is completed, the concentration of any PCBs that may be remaining at the site will be below 1.0 ppm. Any PCBs remaining within the site soils would be at concentrations below 1.0 ppm and would occur at a depth of at least 2 feet below grade and subsequently be covered with soil and re-vegetated. Therefore, there would be no remaining risk to human health or the environment and no need for any associated restrictions on site use.

Reduction of Toxicity, Mobility, and Volume

Since all the PCB contaminated soil would be removed from the area any further risk to human health and environment would be insignificant. Also, no restrictions of use of land would be necessary since any risks would be negligible.

Cost

The estimate for excavation and landfill disposal of PCB contaminated soil is \$670,495. The items that were used in the cost estimate are shown in Table 1 and include bulk loading of contaminated soil into trucks, a minimum charge for shipment of bulk waste, transportation of PCB waste, truck wash out and landfill fees. These items and their associated unit costs were taken from a subcontractor's proposal who has been given a contract to perform remedial actions for the Navy. Based on previous experience, the Navy felt that this alternative would end up being the preferred alternative and contracted the services of Foster Wheeler Environmental Corporation to submit a proposal that would implement this alternative. These proposed costs were submitted based on the contractor's review of site conditions, amount of soil expected to require excavation and typical landfill charges.

**TABLE 1
COST ESTIMATES**

ALTERNATIVE 1: INCINERATION

<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Cost</u>	<u>Total</u>
Bulk solid waste loading into truck	CY	1,200	2.06	\$2,472
PCB waste minimum charge for shipment	EA	120	2,616.17	\$313,940
Transport bulk solid waste per mile	MI	49,288	3.32	\$163,636
Incineration of PCB contaminated soil	LB	3,545,600	1.79	<u>\$6,346,624</u>
SUBTOTAL				\$6,826,672
2% per year inflation for 3 years				<u>\$409,600</u>
TOTAL				<u>\$7,236,272</u>

ALTERNATIVE 2: LOW TEMPERATURE THERMAL DESORPTION

<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Cost</u>	<u>Total</u>
Wheel loader	HR	128	70.10	\$8,973
Pretreatment system operating labor cost	DAY	16	237.83	\$3,805
Min mobilization/demobil. Charge (<=1000mi)	EA	1	390,642.35	\$390,642
Direct Firing, Low Temp. Therm. Desorp.	TON	1,800	89.80	\$161,820
6' x 20' Triple tray vib. Screening unit	EA	1	66,189.16	\$66,189
Use of filter press, moisture reduction	TON	1,800	85.95	\$154,710
34' Auto incl.conveyor, 25 deg., 24" Belt	EA	1	9,244.87	<u>\$9,245</u>
SUBTOTAL				\$795,384
2% per year inflation for 3 years				<u>\$47,723</u>
TOTAL				<u>\$843,107</u>

ALTERNATIVE 3: EXCAVATION AND LANDFILL DISPOSAL

<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Cost</u>	<u>Total</u>
Bulk solid waste loading into Truck	CY	1,200	2.06	\$2,472
Bulk waste minimum shipping charge	EA	61	356.75	\$21,762
Transport bulk solid waste per mile	MI	7,320	3.32	\$24,302
Truck wash out	EA	61	178.38	\$10,881
Landfill solid bulk waste	CY	1,200	158.82	<u>\$190,583</u>
TOTAL				<u>\$250,000</u>

In addition to the criteria items discussed above for the three different alternative methods of remediation, additional consideration was made with regards to intrusion time at the site for each method, the amount of disruption that would occur to base operations, and the Navy's experience with each method. Based on these additional factors and the analysis provided above, the Navy feels that Excavation with Landfill Disposal will be the most complete and cost effective alternative.

6.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)

The Removal Action set forth in this Action Memorandum will comply with the following applicable or relevant and appropriate environmental and health requirements:

Toxic Substances Control Act (TSCA) - PCB Spill Cleanup Policy (40 CFR 761 Subpart G) - This policy establishes the criteria the EPA uses to determine the adequacy of the clean-up of spills resulting from the release of materials containing PCBs at concentrations of 50 ppm or greater.

Resource Conservation and Recovery Act (RCRA) - Preparedness and Prevention (40 CFR 264-30-264.37) - this regulation outlines requirements, safety equipment, and spill control for hazardous waste facilities. Part of the regulation includes a requirement that the facility be designed, maintained, constructed, and operated to minimize the possibility of an unplanned release that could threaten human health or environment.

RCRA - Contingency Plan and Emergency Procedures (40 CFR 264.50-264.56) - This regulation outlines the requirement for emergency procedures to be used following explosions, fires, etc.

RCRA - Land Disposal Restrictions (40 CFR 268) - The soils excavated will be considered waste subject to LDRs.

RCRA - Standards Applicable to Generators of Hazardous Waste - For any wastes shipped off-site, the material must be properly contained, accurately marked and labeled, and the transporter must display proper placards. All waste shipments must be accompanied by an appropriate manifest.

Occupational Safety and Health Act (OSHA) - General Industry Standards (29 CFR Part 1910) Monitoring will be performed where warranted by site conditions and proper respiratory equipment will be worn if it is not possible to maintain the work atmosphere below regulated levels. Workers performing activities would be required to have completed specific training requirements.

OSHA - Record Keeping, Reporting, and Related Regulations (29 CFR 1904) - These requirements apply to all site contractors and subcontractors, and must be followed during all site work.

Department of Transportation (DOT) Rules for Transportation of Hazardous Materials (49 CFR Parts 107, 171-172.558) - Contaminated material will be packaged, manifested, and transported to a licensed off-site disposal facility in compliance with these regulations.

Solid Waste Management Act, Title 25 of the Pennsylvania Code, Chapter 75, Subchapter 75 (25 Pa. Code S75.75.21 - 75.38) General Standards - Sets forth provisions relative to municipal and residual waste; applies to any person, municipality, county, or authority, storing, collecting, transporting, processing or disposing of non-hazardous waste.

Solid Waste Management Act, Title 25 of the Pennsylvania Code, Chapter 75, Subchapter 287 (25 Pa. Code S287) General Standards - Standards for Collection, Storage and Transportation of Residual Waste - Definition of PCB contamination and specifies general procedures and rules for persons who manage or handle residual waste.

Solid Waste Management Act, Title 25 of the Pennsylvania Code, Chapter 75, Subchapter 299 (25 Pa. Code S299) Standards for Collection, Storage and Transportation of Residual Waste - Definition of PCB contamination and specifies general procedures and rules for persons who manage or handle residual waste.

Worker and Community Right to Know Act, Title 34 of the Pennsylvania Code, Subchapter 303 (34 Pa. Code S303) - Requirement to notify workers and public of any environmental hazards.

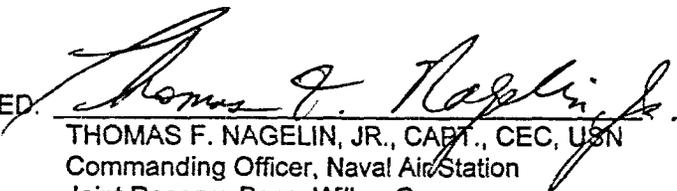
7.0 ENFORCEMENT

This site is regulated under the Comprehensive, Environmental, Response, Compensation, and Liability Act (CERCLA). Although the Department of the Navy is the lead agency for removal actions at this facility, the lead regulatory agency is the United States Environmental Protection Agency, Region III with support from the Pennsylvania Department of Environmental Protection (PADEP) and all environmental actions are first reviewed by these regulatory agencies prior to the Navy's implementation.

8.0 OUTSTANDING POLICY ISSUES

There are no outstanding policy issues associated with this site or this removal action.

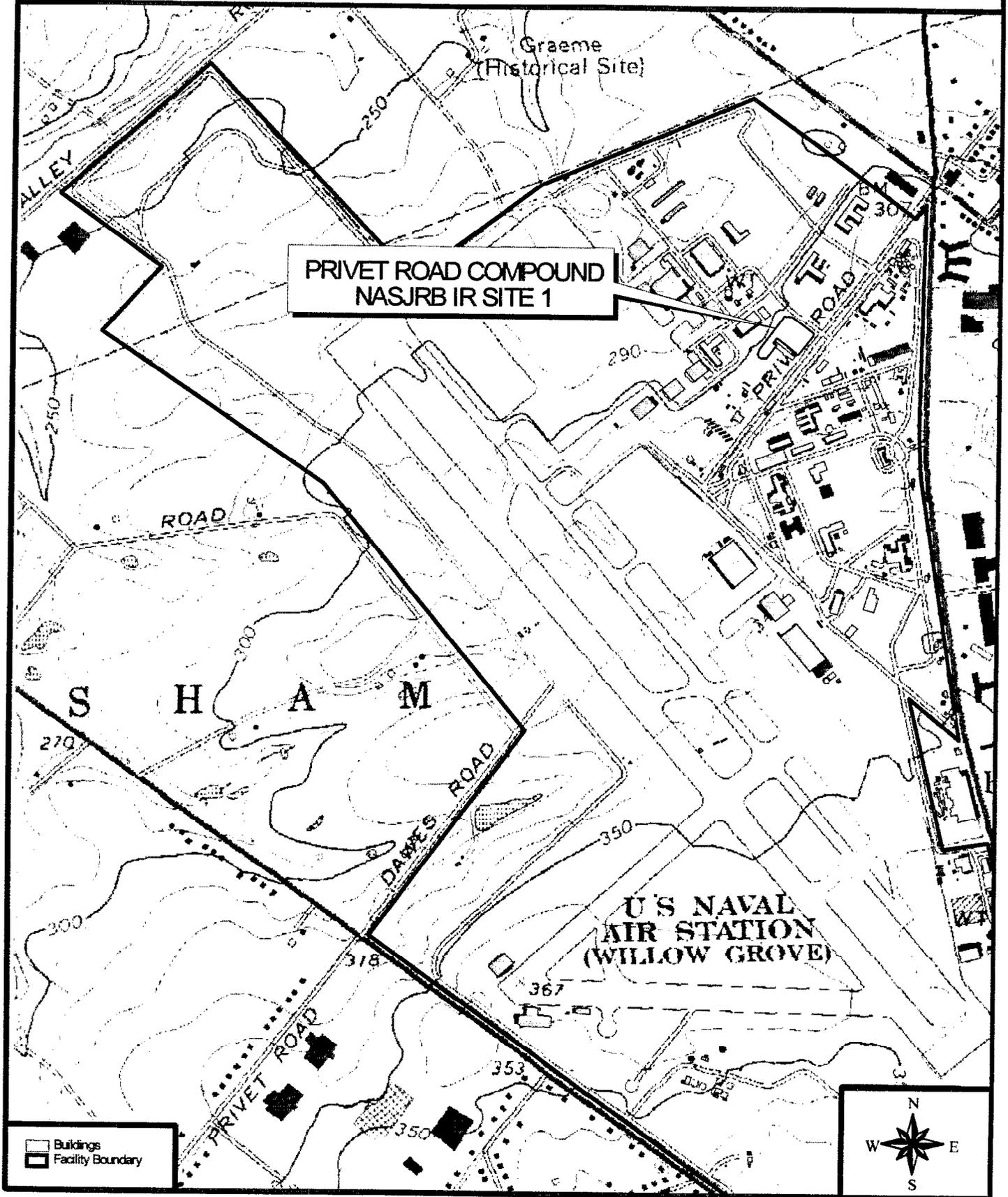
APPROVED.

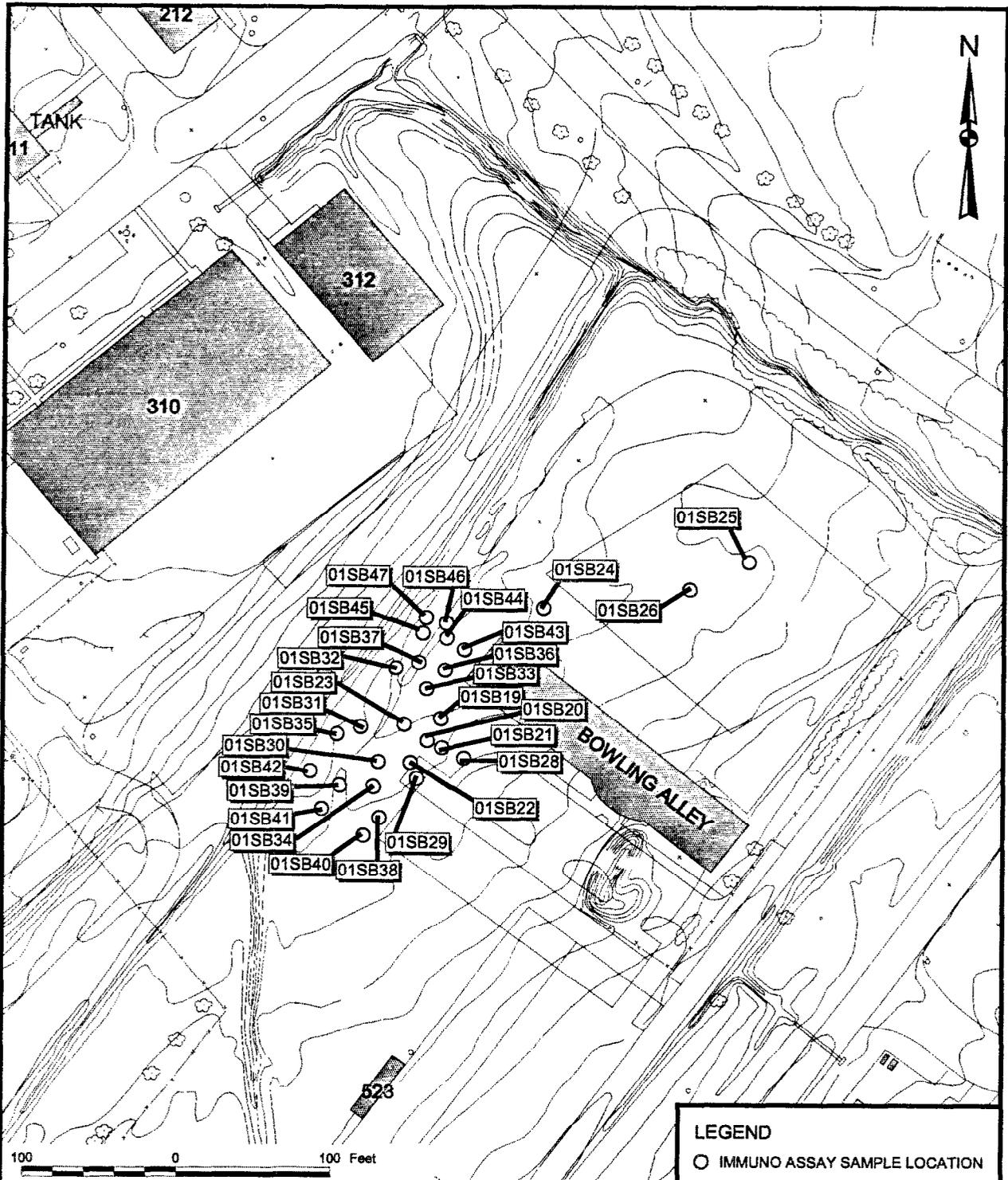

THOMAS F. NAGELIN, JR., CAPT., CEC, USN
Commanding Officer, Naval Air Station
Joint Reserve Base, Willow Grove

19 MAY 99
DATE

ATTACHMENT A
FIGURES

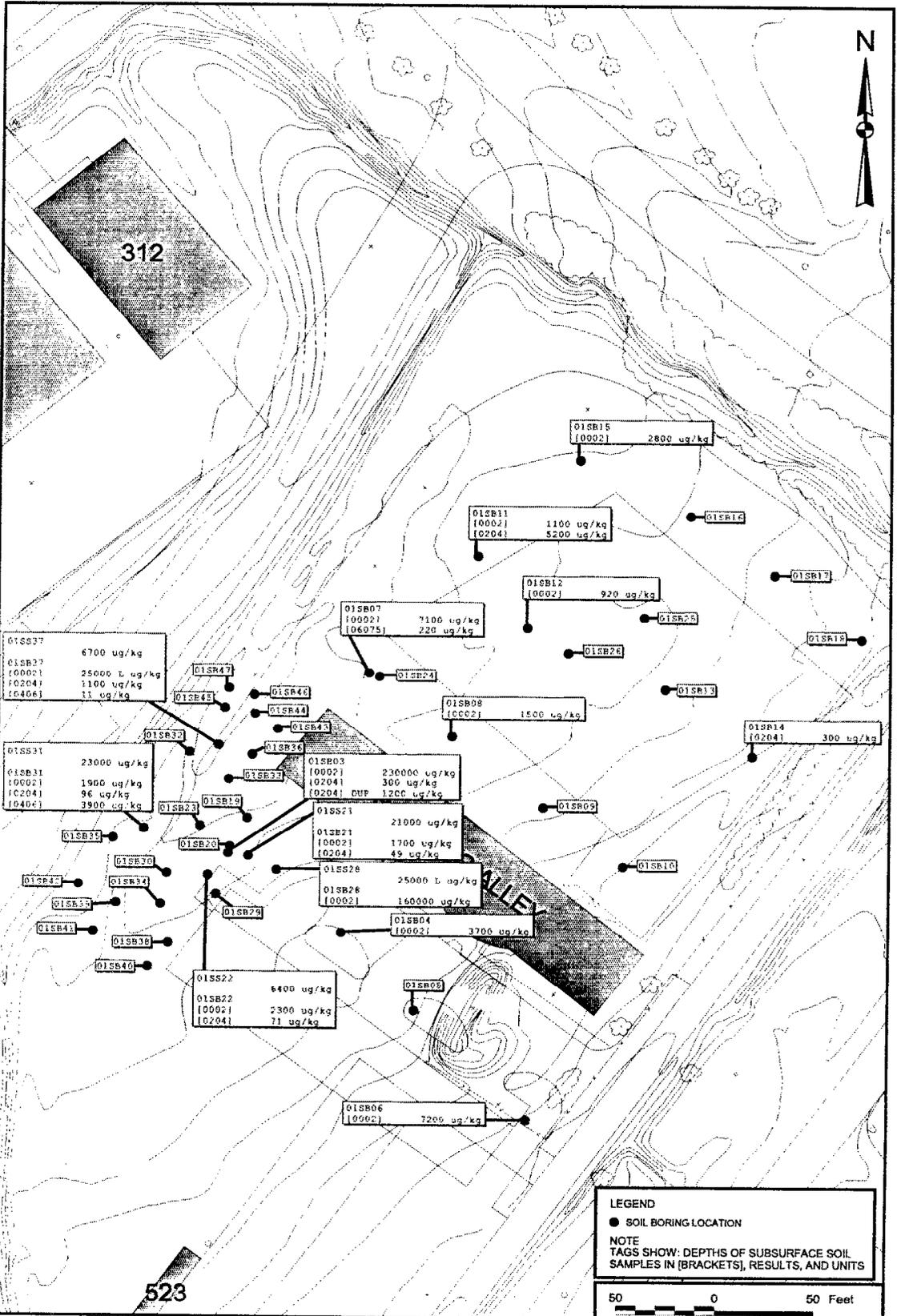
FIGURE 1 - SITE LOCATION MAP





LEGEND
 ○ IMMUNO ASSAY SAMPLE LOCATION

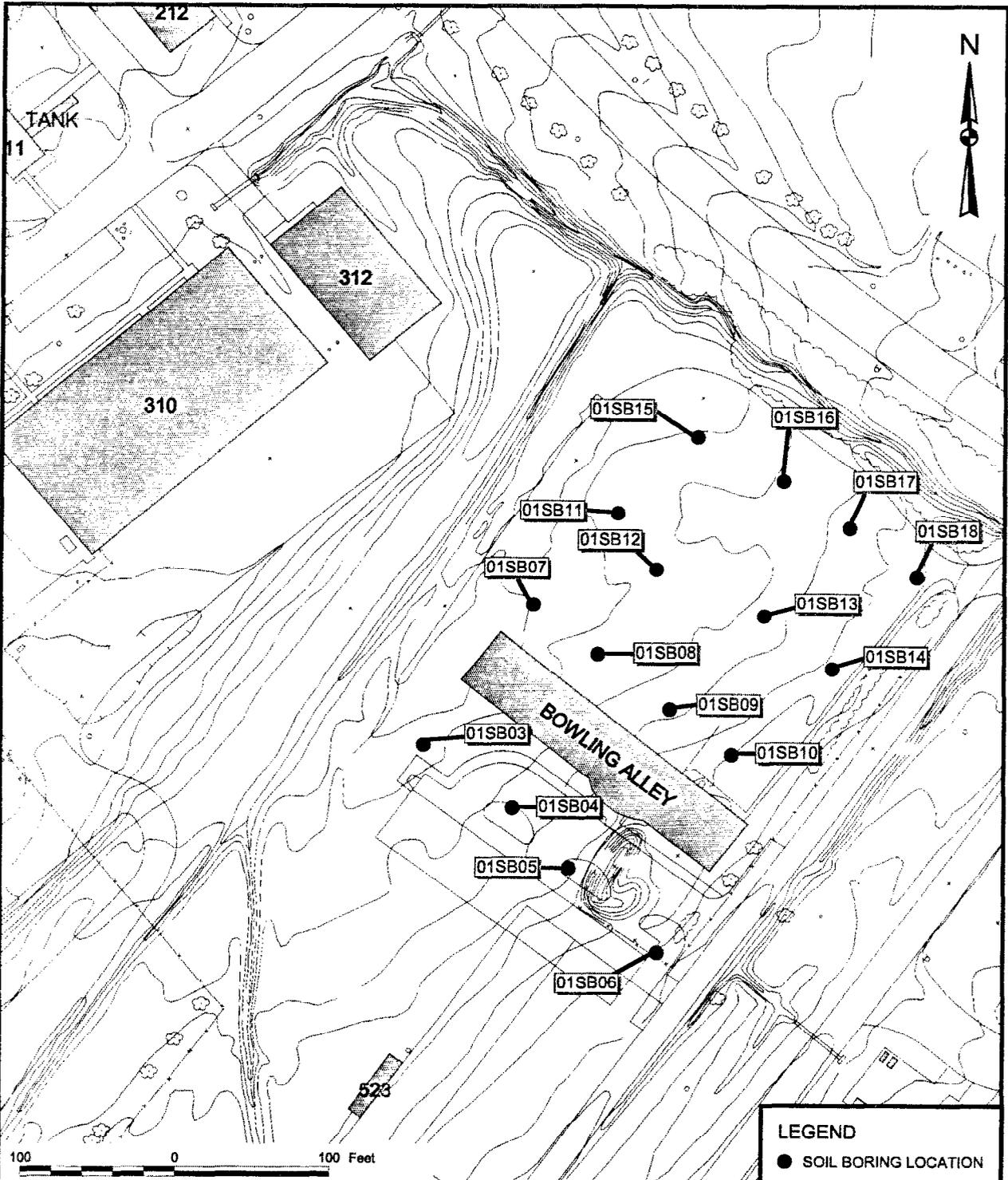
DRAWN BY D. PERRY	DATE 11-FEB-99	Tetra Tech NUS, Inc.	CONTRACT NUMBER 5466	OWNER NO. ---
CHECKED BY	DATE		APPROVED BY	DATE
COST/SCHEDULE-AREA		IMMUNO ASSAY SAMPLE LOCATIONS SITE 1 - PRIVET ROAD NASJRB WILLOW GROVE	APPROVED BY	DATE
SCALE			DRAWING NO.	REV
AS NOTED			FIGURE 2	0



DRAWN BY D. PERRY	DATE 11-FEB-99
CHECKED BY	DATE
COBI/SCHEDULE AREA	
SCALE AS NOTED	

Tetra Tech NUS, Inc.
PCB RESULTS BY DEPTH (LABORATORY RESULTS ONLY)
 SITE 1 - PRIVET ROAD
 NAS, IRB WILLOW GROVE

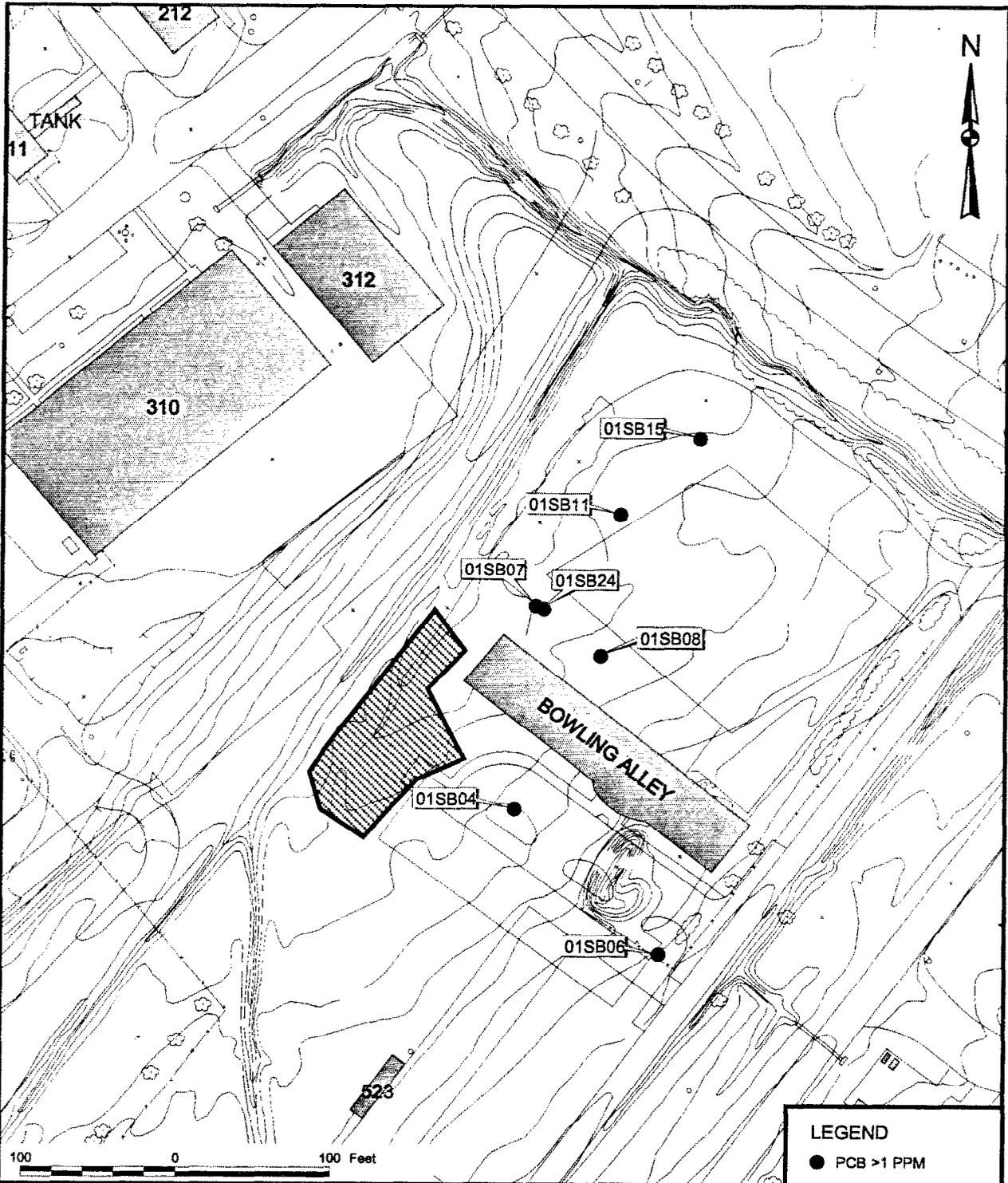
CONTRACT NUMBER 5486	OWNER NUMBER
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO FIGURE 3	REV 0



LEGEND
 ● SOIL BORING LOCATION

DRAWN BY S. TABLER	DATE 3/23/98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 5466	OWNER NO. ---
CHECKED BY	DATE		APPROVED BY	DATE
COST/SCHEDULE-AREA		SOIL BORING LOCATIONS SITE 1 - PRIVET ROAD NASJRB WILLOW GROVE	APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 4	REV 0

P:\GIS\WILLOW\SITE 1\APR 24-FEB-99 DNP SITE 1 SOIL BORING LOCATIONS LAYOUT



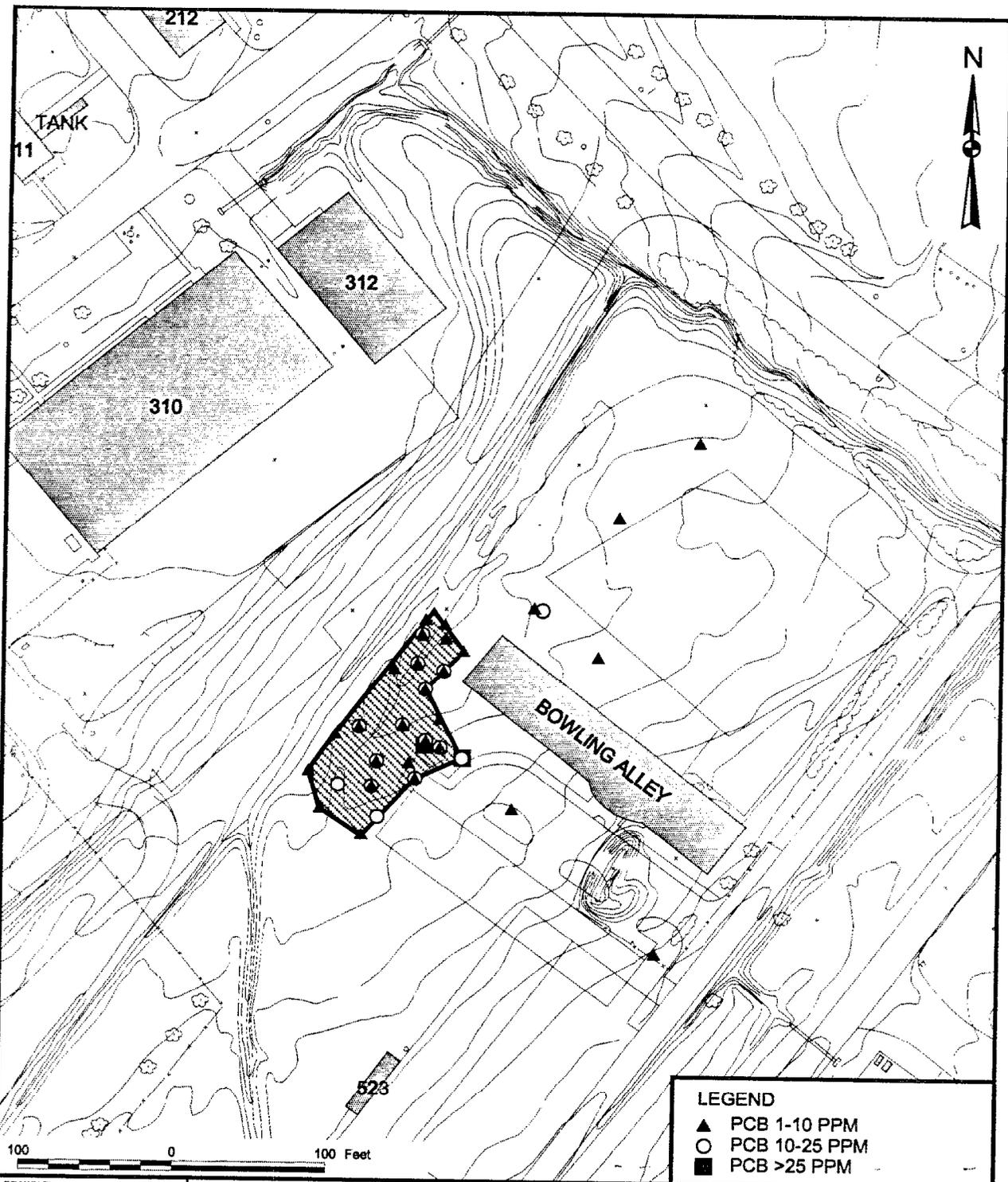
LEGEND
 ● PCB >1 PPM

DRAWN BY D. PERRY	DATE 11-FEB-99
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	

Tetra Tech NUS, Inc.

LOCATIONS WITH PCBs GREATER THAN 1 PPM
 SITE 1 - PRIVET ROAD
 NASJRB WILLOW GROVE

CONTRACT NUMBER 5466	OWNER NO.
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO FIGURE 5	REV 0



LEGEND	
▲	PCB 1-10 PPM
○	PCB 10-25 PPM
■	PCB >25 PPM

DRAWN BY D. PERRY	DATE 10-FEB-98	 Tetra Tech NUS, Inc.	CONTRACT NUMBER 5466	OWNER NO ---
CHECKED BY	DATE		APPROVED BY	DATE
COST/SCHEDULE-AREA		PCB RANGES SITE 1 - PRIVET ROAD NASJRB WILLOW GROVE	APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 6	REV 0

P:\GIS\WILLOW\SITE 1\APR 24-FEB-98 DNP PCB RANGES LAYOUT

ATTACHMENT B
RESPONSES TO REGULATORY COMMENTS ON
DRAFT ACTION MEMORANDUM

**COMMENT RESPONSES FROM NORTHERN DIVISION, NAVFAC
REGARDING
DRAFT ACTION MEMORANDUM AND DRAFT WORKPLAN
FOR PCB REMOVAL ACTION AT SITE 1 - PRIVET ROAD COMPOUND
NASJRB WILLOW GROVE, PENNSYLVANIA**

Upon acceptance of the following responses to your comments, the Draft Workplan will be revised accordingly and a Final Workplan issued. Initiation of the removal action will commence shortly after issuance of the Final Workplan.

COMMENTS FROM U.S. EPA, REGION III DATED DECEMBER 15, 1998:

COMMENT: To help our review of the PCB Removal Action Memo/Workplan, can you forward the following:

- 1) Attachments 1, 2 and 3 (or Figures 1, 2 and 3) referred to on Page 3 of the Removal Action Memo.
- 2) Figure 1 referred to in the Foster Wheeler Workplan of 9/15/98
- 3) The following info referred to on page 4-9 of the Draft Phase II RI of 4/98:
 - Map with the 28 locations where surface soil samples were collected for TCL and/or PCB immunoassay analysis (Figure 4-1 does not provide these locations as indicated)
 - Map indicating any subsurface soil sample locations not provided on the map referenced directly above

RESPONSE: A revised Action Memo is being forwarded reflecting changes to the Action Memo's format. The figures listed below have also been added to the Action Memo in order to address your comments.

- **Figure 1** shows the site location of the Privet Road Compound
- **Figure 2** shows all of the locations where immunoassay test kits were used during the Phase 2 RI to screen the extent of PCB contamination
- **Figure 3** is a "Tag Map" showing laboratory-generated analytical results for those soil borings that were sent for laboratory analysis. This approach is consistent with the Phase 2 RI workplan that called for a percentage of the immunoassay samples to be sent for laboratory verification. Figure 3 is a compilation of both the Phase 1 and Phase 2 RI efforts. For those locations where a "Tag" is not shown means that the location is either an immunoassay location or a non-detect result from laboratory analysis
- **Figure 4** shows all Phase 1 and Phase 2 RI soil boring locations. All samples taken from these locations were sent for laboratory analysis
- **Figure 5** shows the limits of excavation for the highly concentrated PCB locations as well as the seven "spot" locations where PCBs were detected above the 1.0 ppm cleanup goal.
- **Figure 6** shows the locations and ranges of PCB detections, both from immunoassay testing and laboratory analysis.

In addition, a table of analytical results for all soil boring and immunoassay locations has been attached to this comment response document. This table along with Figures 5 and 6 will be used in the revised version of the Site 1 PCB Removal Action Workplan.

FOLLOW-UP COMMENT: Please also provide any available information regarding the target "cleanup levels" and the basis/rationale for the levels; (Neither the Action Memo nor the Workplan provide this info).

RESPONSE: The target cleanup level for this removal action was set at 1 ppm although the risk analysis conducted for this chemical indicated that risk associated with the PCBs in soils at Site 1 was between 1×10^{-4} and 1×10^{-6} . Therefore, the concentrations of PCBs in soils represented a "potential" risk to human health. One of the most economic ways of reducing this potential risk is through the use of land use restrictions.

However, use of this type of institutional control was found to be unacceptable to the Commanding Officer (CO) of the installation since it is his goal to eliminate the use of land restrictions that would inhibit his ability to use this area for future expansion.

To address the CO's concern, Northern Division decided to set the cleanup goal for this removal action at 1 ppm which is the standard cleanup concentration for PCBs in soils in a residential scenario. Remediating PCBs in soils at levels that exceed the residential cleanup standard will meet the CO's goal and allow unrestricted future use of this property.

As stated above, Figure 6 shows the planned areas that will be excavated to address PCB contamination in Site 1 soils. For the soils located to the south and west of the Bowling Alley, a rectangular area will be excavated to a depth equal to the deepest PCB detection and will fully encompass the area where the PCB detections are the most concentrated. After excavation is completed, confirmation sampling will be conducted in accordance with PADEP's ACT II guidance (i.e. 12 confirmation samples since volume of excavated soils are less than 3000 cu. yds. but greater than 125 cu. yds.).

There are also seven (7) other samples shown at six (6) separate spot locations outside of the main excavation area where PCBs were detected at a concentration in excess of 1 ppm. These 6 locations will also be excavated to the appropriate depths and confirmation samples taken from within each excavated area which is expected to be at least 4 feet x 4 feet in area. Confirmation samples taken from these locations will consist of 2 sidewall samples and 2 samples from the bottom of each 4 x 4 box. This translates into a total of 24 confirmation samples for the six separate spot locations. It is expected that the cubic yardage generated for these 6 locations, in total, will be in excess of 125 cu. yd. but less than 3,000 cu. yds., therefore requiring a minimum of 12 confirmation samples, in accordance with PADEP's ACT II guidance.

IMMUNOASSAY SAMPLE LOCATIONS	SOIL BORING LOCATIONS	CONCENTRATION OF PCBs > 1.0 ppm	DEPTH (bgs)	COORDINATES	
				NORTHING	EASTING
		230.00	2 feet		
	01SB03	1.20	4 feet	329397.85	2696093.57
	01SB04	3.70	2 feet	329325.15	2696454.48
	01SB05				
	01SB06	7.20	2 feet	329255.68	2696304.22
	01SB07	7.10	2 feet	329489.18	2696223.32
	01SB08	1.50	2 feet	329455.98	2696265.32
	01SB09				
	01SB10				
		1.10	2 feet		
	01SB11	5.20	4 feet	329550.58	2696277.82
	01SB12				
	01SB13				
	01SB14				
	01SB15	2.80	2 feet	329601.58	2696329.22
	01SB16				
	01SB17				
	01SB18				
		10.00	surface		
		1.90	2 feet		
01SB19		1.10	4 feet	329413.08	2696162.29
		8.10	surface		
01SB20		25.00	2 feet	329398.35	2696153.58
		21.00	surface		
01SB21		1.70	2 feet	329393.46	2696162.93
		6.40	surface		
01SB22		2.30	2 feet	329383.3	2696142.72
		25.00	surface		
01SB23		25.00	2 feet	329409.02	2696138.6
01SB24		15.40	surface	329487.49	2696228.51
01SB25					
01SB26					
		25.00	surface		
01SB28		160.00	2 feet	329386.19	2696177.4
		20.00	surface		
		21.00	2 feet		
01SB29		1.00	4 feet	329372.85	2696146.88
01SB30		16.00	surface	329384.06	2696121.99
		23.00	surface		
		1.90	2 feet		
01SB31		3.90	6 feet	329407.53	2696110.27
01SB32		2.20	2 feet	329447.28	2696133.12
		3.90	surface		
		5.80	2 feet		
01SB33		25.00	4 feet	329433.18	2696152.96

IMMUNOASSAY SAMPLE LOCATIONS	SOIL BORING LOCATIONS	CONCENTRATION OF PCBs > 1.0 ppm	DEPTH (bgs)	COORDINATES	
				NORTHING	EASTING
01SB34		25.00	surface	329367.58	2696118.91
01SB35		1.00	surface	329402.51	2696094.79
		1.90	2 feet		
01SB36		25.00	surface	329446.07	2696164.66
		25.00	2 feet		
01SB37		25.00	surface	329450.94	2696147.76
		25.00	2 feet		
		1.10	4 feet		
01SB38		25.00	surface	329346.84	2696122.78
01SB39		25.00	surface	329368.18	2696096.65
01SB40		2.30	surface	329334.75	2696112.56
01SB41		1.70	surface	329352.9	2696085.09
01SB42		1.00	surface	329377.87	2696077.51
01SB43		6.40	surface	329459.53	2696177.53
		5.80	2 feet		
01SB44		3.90	surface	329467.7	2696165.99
		2.20	2 feet		
01SB45		18.00	surface	329470.71	2696150.59
		1.90	2 feet		
01SB46		8.10	surface	329477.58	2696165.49
		2.00	2 feet		
01SB47		8.10	surface	329481.07	2696152.68
		1.10	2 feet		