DEPARTMENT OF THE NAVY

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Mr. William Kollar
ABB Environmental Services, Inc.
Berkeley Building
2590 Executive Center Circle East
Tallahassee, FL 32301

Dear Mr. Kollar:

Enclosed are the minutes from the May 20, 1997 Restoration Advisory Board (RAB) meeting. The next meeting will be at 6:30 p.m. on June 17, 1997 at the Timucuan Elementary School Library, 5429 110th Street, Jacksonville. Included in the agenda is the OU1 design, Casa Linda Lake work plan, site status update and petroleum program (Florida Administrative Code 62-770) training.

Two additional items are enclosed: (1) EPA Facts about Thermal Desorption; and (2) Naval Air Station Jacksonville portion of the Department of the Navy Environmental Restoration Plan for Fiscal Years 1997-2001. A page is attached for any comments you may have regarding the Plan.

Please note that our telephone numbers have changed, and if you cannot attend the meeting, or have comments or questions, please contact me at 542-2717 extension 119 or Bill Dougherty, Naval Air Station Public Affairs Officer at 542-4032.

Sincerely,

D. R. LANCASTER
Installation Restoration Manager
By direction of the Commanding Officer

Enclosures (3)

Restoration Advisory Board Meeting
May 20, 1997

Attendees:

Phyllis Hunter
Margo Latham
Ron Hoenstine
Mark Reasoner
Henry Anner
John Barnard
Jerry Young
Dana Gaskins
Bill Dougherty
Diane Lancaster
CAPT Whitmire

A tour of various remediation sites was conducted on May 20, 1997. RAB members met at the parking lot of Mulligan's at 6:30 p.m. and the bus left at 6:45 p.m. Mr. John Stone and Mr. Trent Rogers of Bechtel conducted the tour.

The tour began with a stop at Building 106, where the trenching for the soil vapor recovery systems was complete, and proceeded to Building 780. Construction is scheduled the first week in June at Building 780. The next stop was PSC 42, which has been completed. The Low Thermal Treatment Unit was next, with a massive machine which heats petroleum contaminated soil and collects the vapors. From there, the tour went to the Navy Exchange Service Station, where a soil vapor recovery system is scheduled for construction, and the last site visited was PSC 30, which is being paved. The tour ended at Mulligan's for a No-Host Social.

The next meeting is June 17, 1997 at the Timucuan Elementary School Library at 6:30 p.m.

EPA Facts About *Thermal Desorption*

June 1992

What is thermal desorption?

Thermal desorption is a low-temperature heat line separation process designed to remove organic contaminants from soils and *sludges.* Contaminated soils are heated at relatively low temperatures (200°F to 900°F) so that only those contaminants with low boiling points will vaporize by turning into a gas. These vaporized contaminants removed from the soils or liquids are collected and treated. Thermal desorption is not an incinerator system, and no hazardous combustion by-products are formed. Thermal desorption technology is useful in treating organic contaminants that become gases at relatively low temperatures. These contaminants include volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and some polynuclear aromatic hydrocarbons (PAHs).

How does thermal desorption technology work?

Thermal desorption is a three step process: first, the soil is heated to vaporize the contaminants; next, the vaporized contaminants are treated; and, finally, the treated soil is tested. The contaminated soil is heated at temperatures between 200° F and 900° F to reduce the chance that the organic contaminants will ignite. Four different methods of heating the soil are available. Each method is described below:

(1) **In-place steam extraction** (Figure 1): The contaminated soil is left in place while steam is pumped through the ground. The contaminants vaporize to a gas form, move through the air spaces in the soil, and the gases are collected by a vacuum. Since steam, and not a flame, is used to vaporize the contaminants, there is no risk that the organic contaminants will ignite and form hazardous combustion by-products.

(2) **Direct heating**: This heating method is like heating with a gas oven in your home. A disadvantage of this heating method is that the flame is in direct contact with the contaminants, and therefore, increases the chances that the contaminants will burn and form hazardous combustion by-products.

(3) **Indirect heating**: The contaminated soil is placed in a kiln-type furnace. The outside of the kiln is heated using fuel oil, and the heat is transferred through the kiln's metal surface to the soil. Since the soil is enclosed in the kiln, the fuel's combustion by-products and the vaporized contaminants do not mix.

(4) **Oxygen free heating**: The soil is placed in a container which is sealed to avoid any contact between the soil and oxygen in the air. The outside of the container is heated using a burner system, and the contaminants vaporize. Without air, the risk of forming combustion by-products is virtually eliminated.

What happens once the contaminants are vaporized?

Once vaporized, the contaminants can be treated in the same manner regardless of which heating method is used. The vaporized contaminants may be cooled and condensed into a liquid, which is then placed in drums for treatment or disposal. The vaporized contaminats may also be treated using a carbon filtration system to meet applicable federal, state, and local air emission standards.

Once thermal desorption is completed using one of the four heating methods described above, the soil is tested to verify that all contaminants have been removed. The moisture content is adjusted to eliminate dust particles and produce a solid that is ready to be placed and compacted in its original location. The organic contaminants and water vapor driven from the solids are transported out of the dryer by a nonreactive nitrogen gas. The inert gas flows through a duct to the gas treatment system, where organic vapors, water vapors, and dust particles are removed from the gas. This gas treatment system is made up of a high-energy *scrubber* in which dust particles and 10 to 30 percent of the organic contaminants are removed. The gases then pass through two heat exchangers, where they are cooled to below 40°F. Most of the remaining water and organic vapors are condensed to liquids in the *heat exchangers.* The cleaned soils and sludges can be returned to the site as backfill.