

# NAS NORTH ISLAND - NAVY REGION SOUTHWEST NAVY ENVIRONMENTAL LEADERSHIP PROGRAM

## CLEANUP

### TERRA KLEEN SOIL WASHING TECHNOLOGY

#### LEAD ACTIVITY

Naval Air Station (NAS) North Island

#### STATUS

Complete

#### MISSION

Contaminated soil remediation

#### DESCRIPTION

Terra-Kleen Response Group, Inc. has developed an innovative soil washing system to remove semivolatile and nonvolatile organic contaminants including polychlorinated biphenyls (PCBs) from soil. The TerraKleen soil washing system is a closed-loop batch process that uses a proprietary solvent to remove contaminants from soils, sediments, sludge, and debris. The resulting PCB-laden solvent is passed through a purification unit to remove the PCBs. Cleaned solvent is reused to wash more contaminated soil, and PCB-contaminated purification media is transported off site for incineration at a EPA permitted facility. This process results in a dramatic decrease in the volume and mass of material transported off site.



**Soil Vacuum Extraction System  
at NAS North Island Site 4**

Through the EPA/SITE program, a field-scale treatability demonstration conducted on five tons of PCB contaminated soil at Installation Restoration (IR) Site 4, NAS North Island. The demonstration was successful in reducing PCB levels in soil from 144 mg/kg to 1.7 mg/kg on average. The \$500,000 cost of the demonstration was shared by the Navy and the EPA Superfund Innovative Technology Evaluation (SITE) Program.

This technology is now being used full-scale to remediate approximately 7000 cubic yards of PCB contaminated soils from NAS North Island IR Sites 4, 6, and 10. The cleanup is proceeding at three sites under a time critical removal action.



**Terra Kleen Soil Washing System**

Terra Kleen Response Group, Inc. is operating the soil treatment system under subcontract to International Technology (IT) Corporation. Soils with PCB levels greater than 0.066 ppm were excavated from Sites 6 and 10 for consolidation at site 4. At Site 4, soils with PCB levels above 25 ppm are being treated to less than 2 ppm using the Terra Kleen process. Treated and untreated soil (less than 25 ppm PCBs) will be used as engineered fill soil and capped with clean fill at Site 4. Time-critical removal action activities began in the Spring of 1995, and remediation is scheduled for completion in August 1996.

Due to the success of the demonstration and full-scale cleanup, the US Environmental Protection Agency (EPA) has approved Terra Kleen Response Group's request for a full-scale, nationwide commercial mobile treatment system operating permit for removing PCBs from soil and debris. This approval is the first ever issued by EPA for non-thermal treatment of PCBs.

It is estimated that the use of this innovative technology on this cleanup will save the Navy and taxpayers more than \$5 million, compared to the conventional "dig and haul" method typically used to dispose PCB contaminated soil. It will also eliminate future liabilities associated with landfill disposal of PCBs. Since treatment is being conducted on-site, it has resulted in 700 fewer truck traffic trips through Coronado, North Island's neighbor community.

#### **BIBLIOGRAPHY**

- [EPA Report No. EPA/540/MR-94/521: EPA/SITE Demonstration Bulletin \(Sep 1994\)](#) (TERRAKLN.PDF, 67.6K)
- [NELP Fact Sheet No. 1: EPA/SITE Program: An Opportunity for Collaboration \(Nov 1994\)](#) (NELPFS1.PDF, 68.2K)
- [NELP Fact Sheet No. 2: Terra Kleen Extraction Technology \(Jan 1995\)](#) (NELPFS2.PDF, 117.8K)

*UPDATED: 01/23/02*