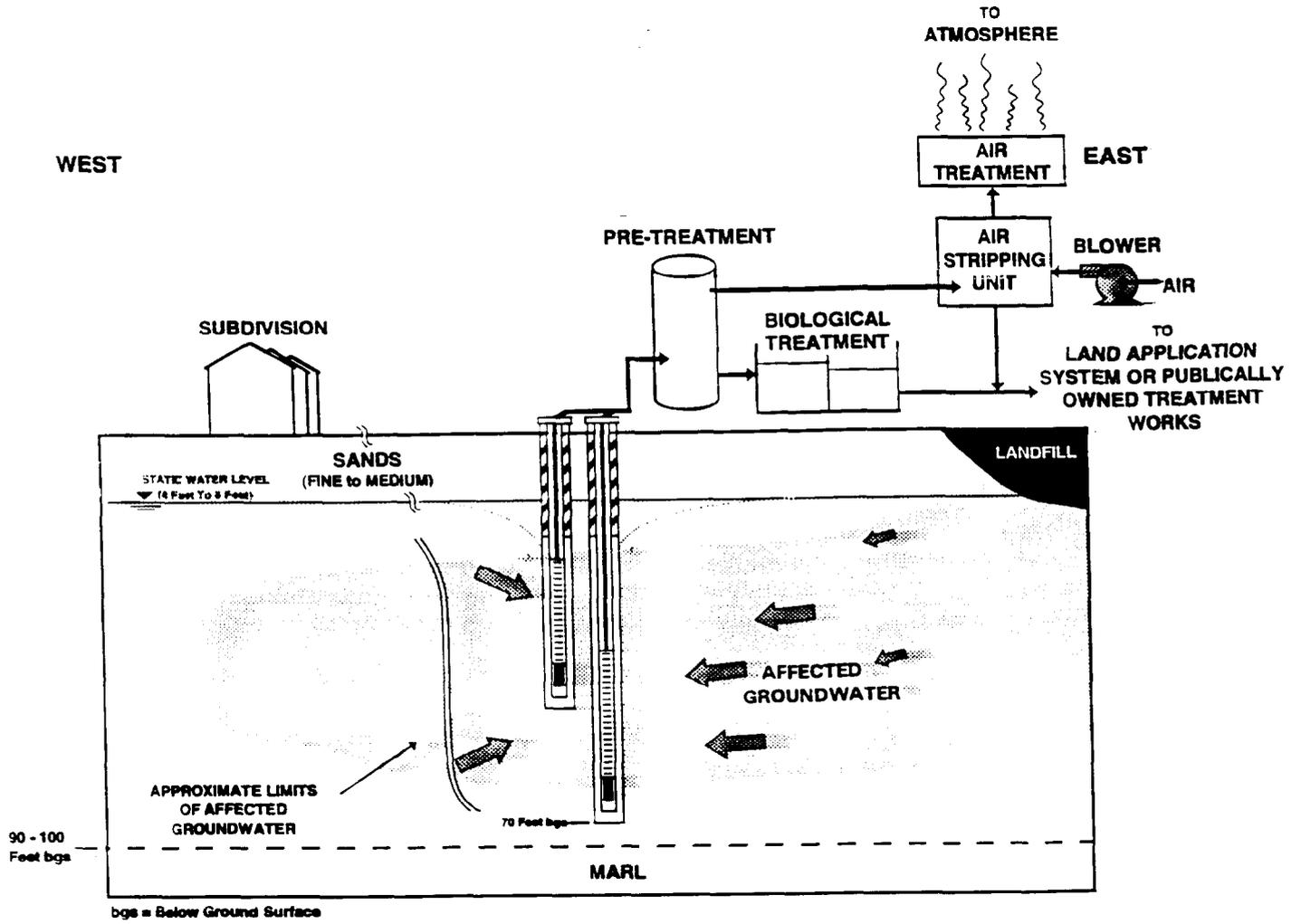


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CONTAINING AND CLEANING UP CONTAMINATED GROUNDWATER FROM OLD COUNTY
LANDFILL NSB KINGS BAY GA
3/22/1994
NSB KINGS BAY

History	<p>In August 1992, the Navy confirmed that contaminated groundwater, apparently from the Old County Landfill located on the Naval Submarine Base, Kings Bay, was moving toward the Crooked River Plantation Subdivision west of the landfill. The contaminated groundwater is between 9 and 57 feet below ground level. It extends approximately 460 to 780 feet west-northwest of the base property line. The chemicals which have been detected in the groundwater include several solvents used in degreasing operations or resulting from the breakdown of other chemicals (e.g., vinyl chloride, dichloroethene, trichloroethene, tetrachloroethene), and chemicals found in common fuels (e.g., benzene, toluene, and xylene). The Navy is in the process of designing and testing a system to clean up the contamination. The first step, called an interim measure, is being implemented and consists of testing two technologies for stopping further movement of the contaminated groundwater and for reducing the levels of contamination in the groundwater.</p>
Goals of the Interim Measure	<p>The first phase of the interim measure will assess how well the movement of the contaminated groundwater can be controlled and how effective the two treatment technologies are for reducing the concentrations of the chemicals in the groundwater. The information collected during this first phase will be used to design a full-scale groundwater extraction and treatment system.</p>
The Interim Measure	<p>A conceptual model of the interim measure is depicted in Figure 1. It consists of five extraction wells. Combined, these wells are designed to pump approximately 40 gallons of groundwater each minute to the surface. At the surface, a buried pipeline will carry the groundwater away from the wells to a treatment site located on the Base. The contaminated groundwater will be treated using an air stripping technology and biological treatment.</p> <p>Air Stripping. The air stripping process will use very simple equipment to transfer the contaminants from the water into air in a completely closed system. Because the contaminants tend to easily evaporate to become gases (known as volatility), they are expected to be almost completely removed from the water. The chemicals that move from the water into the air will then be removed from the air with activated carbon which will attract and hold onto the air-borne chemicals. The activated carbon will then be treated off site.</p> <p>Biological Treatment. The biological treatment system will use bacteria to destroy the contaminants, similar to how bacteria were used to clean up the Alaskan oil spill. The bacteria are not harmful and the enzymes they produce are effective at breaking down contaminants in the groundwater. The bacteria will be contained in an apparatus known as a rotating biological contactor. This unit will continuously expose the bacteria to the groundwater and to nutrients which will maximize the removal of contaminants.</p> <p>The treated groundwater will meet all applicable local, federal, and state requirements before discharged to the local wastewater treatment plant.</p>
Well and Treatment Site Locations	<p>Figure 2 shows the location of the groundwater extraction wells and the treatment site. Two of the wells are located immediately west of Spur 40, and the other three are placed along the western edge of the landfill. The treatment site is located on the western boundary of the Base near the landfill.</p>
What to Expect	<p>The extraction wells were installed over the course of several days beginning in October, 1993. The wells are secured with locked covers installed at ground level. The wells are connected with underground piping running underneath Spur 40 to the treatment site. The duration of the initial testing is expected to take approximately two months with very little noise associated with the operation of the treatment equipment.</p>
Additional Information	<p>For additional information, please contact Mr. Robert Steller at the Public Affairs Office at 673-4714.</p>



bgs = Below Ground Surface

Figure 1. Conceptual Model of Treatment Technology Testing for the Interim Measure

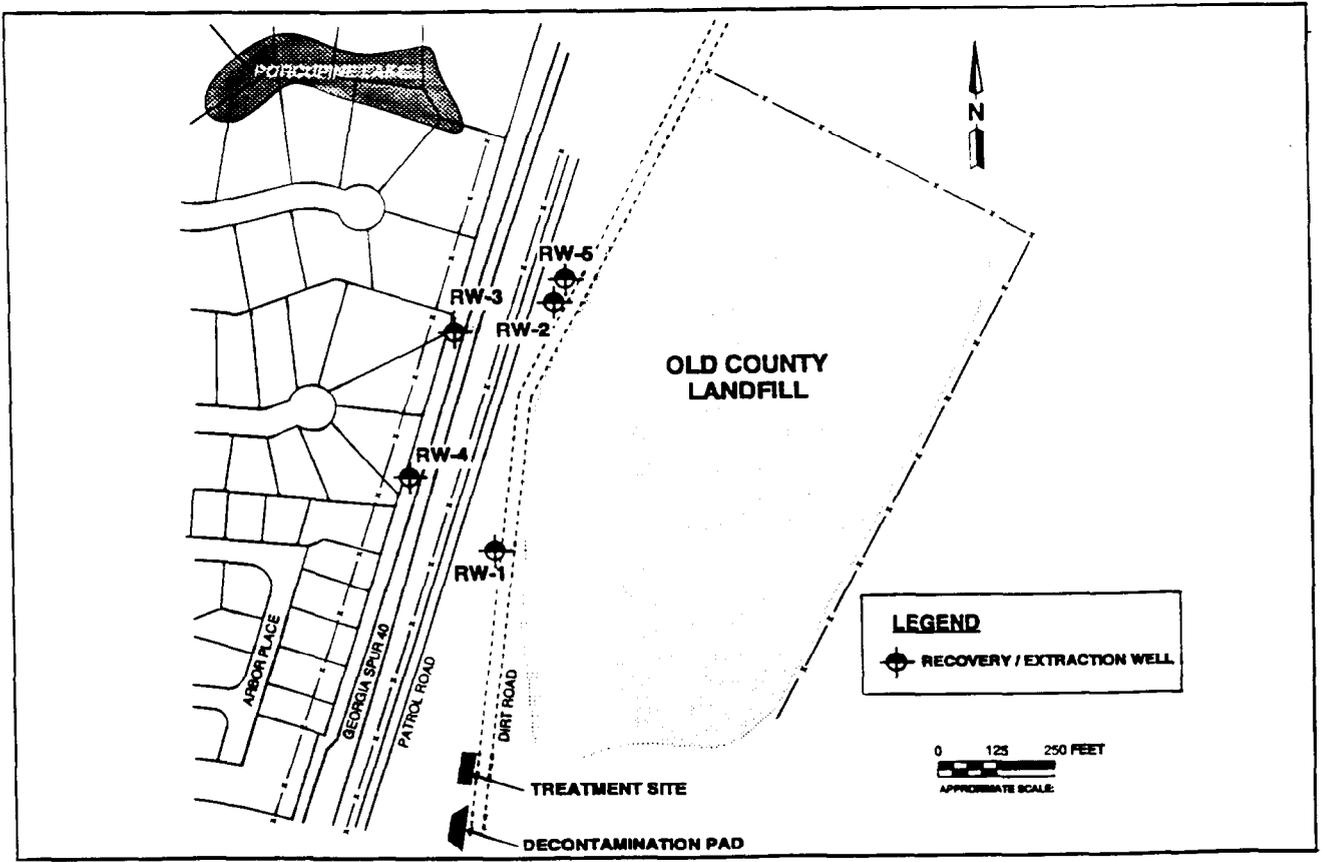


Figure 2. Location of Groundwater Extraction Wells and Treatment Site