

Old 441 Gasoline Contamination
Old US Highway 441 and Northwest 35th Street
Near Ocala, Florida
County: Marion
District: Central
Site Lead: Bureau of Waste Cleanup
Approved for Cleanup: May 30, 1987
Delisted: April 1, 1997
ERIC ID # 3822
HWC # 049

Site Description and History

The Old 441 site is located in a mixed commercial and residential area just north of the City of Ocala at the intersection of Old US 441 and NW 35th Street in Section 06, Township 15S, Range 22E at 29° 13' 21.4962" N, 82° 09' 01.8168" W. The site consists of an inactive gasoline station (Imperial Gas, later Vitrified Clay Pipe).

In October 1983, the Marion County Health Department (MCHD) reported to the Florida Department of Environmental Regulation (FDER, now DEP) several areas of potable water contaminated with gasoline. From February to July 1984, the FDER and MCHD conducted a well inventory and sampling program to characterize the contaminated sites. The Old 441 site was identified as an area with gasoline contamination and an unidentified contaminant source. Groundwater contamination was detected in Floridan Aquifer samples obtained from residential wells adjacent to the site. The original underground petroleum storage tanks and associated piping at the gas station was suspected to be the source of contamination.

Threat

The primary threat was to private wells in the area which used the Floridan Aquifer as a source of drinking water. The unconfined Floridan Aquifer in Marion County is extremely susceptible to infiltration of contaminants from the surface. Several private wells adjacent to the site were contaminated by gasoline from leaking storage tanks. Contaminants included benzene, toluene, ethylbenzene and xylenes (BTEX). Residents were required to use bottled water or other potable water sources. A pump and treat remedial system was installed at the site and the site was transferred to the Petroleum Pre-Approval Cleanup Program and delisted from the Hazardous Waste Cleanup list in April 1997.

Response Strategy and Status

During October 1985, the Bureau's assessment contractor conducted a geophysical survey at the site to locate abandoned tanks in the vicinity of confirmed ground water contamination. A soil gas survey was conducted in December 1985 to define the extent of contamination at the site. The source was tentatively identified as the above ground storage tanks and associated piping. The tanks and piping were removed in February 1986. Monitoring wells were installed in April 1986, and several wells were geophysically logged and sampled to further define the zone of contamination. A draft Contamination Assessment report was submitted to FDER in February 1987, followed by a Remedial Action Plan in March.

In July 1988, FDER tasked a State contractor, Ecology & Environment (E&E), to obtain additional soil samples to determine the necessity of soil remediation, and to re-sample onsite wells. The data was submitted in September 1988 and indicated that only groundwater requires remediation.

Remedial Design was initiated under FDER's Petroleum Cleanup Program in March 1989. Field work, including recovery well installation and pump tests, was conducted in July 1989. Remedial design was completed in January 1990. Construction of the groundwater treatment and disposal system began in May 1990 but was halted when ground water analysis from the newly installed on-site injection well indicated contamination. Additional monitoring wells were installed in July 1990. Data from the new monitoring wells indicated that groundwater contamination extends further west and off-site than originally estimated.

A Supplemental Groundwater Contamination Assessment Work Plan was submitted in February 1991 to address delineation of the westerly extent of the groundwater contaminant plume. E&E was tasked to perform the work in July. Field work began in August 1991 and included the installation of one deep and three additional Upper Floridan monitoring wells west of the site, a new downgradient injection well to the south and an upgradient monitoring well to the north. Sample results confirmed high levels of BTEX contamination in the Upper Floridan approximately 200 feet downgradient (west) of the original source.

Based on the August 1991 fieldwork, the original remedial design was revised to accommodate the use of two additional groundwater recovery wells further west of the site. The actual western extent of groundwater contamination remained uncertain until legal steps were taken to obtain site access for additional monitoring well(s) installation. Construction of an interim groundwater recovery and treatment system to prevent further contaminant migration was completed in July 1992. Operation and maintenance of the system began in August 1992. A chemical pretreatment system was added in February 1993 to prevent iron deposits from fouling the groundwater treatment system. Three additional monitoring wells were installed in March 1993 to delineate the full extent of groundwater contamination. Based on this new information, a design addendum was completed. A fourth groundwater recovery well was hooked up to the existing treatment system in December 1993. As of January 1997, approximately 37.9 million gallons of contaminated groundwater have been captured and treated by the system.

A re-evaluation of system design was performed in the spring of 1995 so that methods of optimizing site cleanup could be implemented. As a result, groundwater pumping rates were increased, and a five (5) foot section was added to the air stripping tower to accommodate the higher flow rates. An electrosynthesis pretreatment system was tested at the site to determine its effectiveness in metals and solids removal for more efficient operation and maintenance of the ground water treatment system. Other alternatives were reviewed to solve the iron fouling problem that was plaguing the treatment system.

In February 1997, 2 private potable water wells adjacent to the site were reported to have gone dry. In March 1997, E&E submitted a letter report to DEP indicating that the treatment system was not the cause of the private wells going dry. MCHD was notified to advise the residents to have their water wells and pumps inspected by a pump repair service.

The site was transferred to the Petroleum Pre-Approval Cleanup Program and delisted from the Hazardous Waste Cleanup list in April 1997.