

Madison County Sanitary Landfill
1998 Northeast Rocky Ford Road (County Road 591)
Madison, Florida
County: Madison
District: Northeast
Site Lead: EPA
Placed on National Priorities List: August 30, 1990
ERIC ID # 3848

Site Description and History

The inactive Madison County Sanitary Landfill is located approximately two miles north-northeast of the City of Madison, Florida at 1998 NE Rocky Ford Road (County Road 591) in Township 01N, Range 09E, Section 11 at 30° 30' 10.1812" N, 83° 23' 22.5044" W. The landfill occupies approximately 84 acres of a total of 126 acres owned by the County. Located on the property directly south of the landfill are the County Department of Transportation facilities, a County Recycling Center and the County's aviation hangar and landing strip.

The Madison County Landfill began operation in 1970 as a sanitary landfill operated by the City of Madison. From 1971 to March of 1980, domestic waste from the City and surrounding areas, and industrial waste generated by local industries was disposed of in the landfill. The Yard Trash Area (YTA), occupying approximately 8.7 acres in the southeastern portion of the landfill property, was primarily used to dispose of large bulk debris generally associated with construction and demolition activities.

According to landfill operation personnel, 55-gallon drums containing some quantity of liquid waste solvent solutions were also disposed of in the YTA. Information compiled by EPA has indicated that an undetermined quantity of liquid waste solvents, semi-solid waste buffing compounds, and acid wash water were disposed of in the YTA. Approximately 40 drums were removed from this area between November 1984 and March 1985.

In 1980, the County of Madison assumed operation of the site and developed a Class I disposal area in the northern portion of the site. The former Florida Department of Environmental Regulation (FDER, now DEP) ordered Madison County to close the landfill in accordance with state law by May 1992. Under permit by the DEP, the Class I cell located at the north end of the site, has been closed by the County.

Threat

Potential exposure to contaminated groundwater and the degradation of the Floridan Aquifer adjacent to the landfill is the primary concern. Initial investigations conducted by the Suwannee River Water Management District (SRWMD) in 1984 indicated the presence of several volatile organic compounds (VOCs) in the Floridan Aquifer ground water at and in close proximity to the landfill. In 1986, FDER entered into a Consent Order with the City, County and ITT Thompson, (the three identified potentially responsible parties or PRPs) requiring them to investigate the groundwater near the site. The PRPs identified potentially affected private wells and connected all but one of the adjacent residences to City water lines.

Residual concentrations of VOC compounds may remain in the YTA soils, but not at levels that pose a health risk.

Response Strategy and Status (December 2020)

The Madison County Landfill was placed on the National Priorities List in August 1990. The subsequent Superfund Remedial Investigation confirmed the presence of halogenated volatile organic compounds in the ground water at concentrations above the State of Florida primary drinking water standards. Tetrachloroethene (PCE) and trichloroethene (TCE) were observed at 160 µg/L and 180 µg/L, respectively, in the Floridan Aquifer in monitoring wells at the landfill property boundary downgradient of the YTA. The original source of ground water contamination is believed to be the YTA.

Denial of access by residents, downgradient and closest to the YTA, has prevented construction of additional monitoring wells in that area in order to accurately determine the extent of the plume. However, sampling of private wells and monitoring wells located 1,000 feet and further downgradient have indicated that site related contaminants exceeding standards are limited to within 1,000 feet of the Site.

In the September 1992 Record of Decision (ROD), the EPA selected a remedial alternative which includes ground water remediation and landfill closure of the YTA and construction of a storm water management system pursuant to Chapter 62-701, Florida Administrative Code (FAC). Ground water remediation consists of extraction and treatment of contaminated ground water with discharge of treated ground water via reinjection wells. Either deed restrictions or land use ordinances are to be utilized as the mechanism to notify land owners that groundwater contamination exists beneath the property, as well as to prevent the construction of new water supply wells in the affected area and prohibit construction or excavation on site which would compromise the integrity of the cap or other remedy components.

The ROD specifies that remediation will be considered complete when ground water at the point of compliance meets drinking water standards for site related contaminants. The point of compliance is defined as an off-site monitoring well located 100 feet downgradient of the property boundary. This is not consistent with the State of Florida landfill regulations (Chapter 62-701, FAC), which require compliance with drinking water standards at the property boundary of the site. A State letter of concurrence with the ROD has not been issued to date.

Remedial design was completed in January 1995. During the remedial design phase, the project managers for the DEP and EPA discussed options for correction of the point of compliance specified in the ROD, including an EPA Explanation of Significant Difference (ESD), a PRP committal letter in lieu of a ROD Addendum, and non-concurrence from the DEP with subsequent separate enforcement. As a result, the Final Design reflects that ground water remediation will continue until monitoring/recovery wells at the property boundary meet Drinking Water standards, pursuant to State regulations. The PRPs are bound by a consent order with EPA, which requires the PRPs to perform remedial design and remedial action under Superfund. The PRPs have

indicated to DEP that they will continue to fund and operate the ground water remedial system until compliance is demonstrated at the property boundary, indicating no off-site contaminant migration.

Landfill closure and construction of the groundwater remedial system were completed in December 1996. The subsequent Remedial Action Report documenting construction has been accepted by the EPA. The Operation & Maintenance (O&M) Plan was submitted in April 1997 and found adequate by EPA. This plan provides the final details regarding the operation and maintenance of the ground water remediation system, as well as the long-term monitoring of groundwater wells both on and off site. The ground water remediation system became fully operational in May 1997.

The EPA approved the third Five Year Review Report in September 2010. The report included four major findings:

- 1) The report emphasized that the groundwater recovery system must be operated in a proper fashion that would ensure that the design capture zone was maintained;
- 2) The report also stated that the continued presence of several of the COCs in elevated concentrations indicated the possibility that there were additional sources of contamination either in, or upgradient of the YTA;
- 3) The report re-emphasized the need for institutional controls, which have been partially implemented by the City & County;
- 4) The report indicated that the regulatory limit for one of the COCs, 1,1-dichloroethane, has been lowered, resulting in some exceedances in the groundwater.

Operation of the groundwater remedial system resumed after a 10-month outage due to maintenance issues. The landfill cap maintenance is ongoing. Adjustments to the remedial system to ensure capture of the groundwater plume and routine repairs to the landfill cap continue to be made as necessary. O&M reports are submitted on a quarterly basis. The next five-year review is scheduled for September 2015.

DEP performed a comprehensive review of the issues at this site including the operation of the remedial system, the number and location of monitoring wells, possible existence of additional source areas at the landfill, etc. and provided this information to the EPA for inclusion in the 2010 Five Year Review. In May 2010, during the latest five-year review process, DEP forwarded a letter to the EPA reemphasizing the need to establish an offsite temporary point of compliance to more adequately monitor the offsite groundwater contamination from this site in accordance with Chapter 62-780, FAC. Based on correspondence with the EPA, it appears that problems with the operation of the remedial system continued through the summer of 2010 and into the fall. Therefore, the PRPs were asked to perform a groundwater gauging and monitoring event with the system off, then start the system back up and resample in an attempt to determine if the zone of capture is adequate when the remedial system is operating.

At that time, DEP requested that the PRPs add 1,4-dioxane to the sample analyte list during the Third Quarter 2010 monitoring event. The sample results indicated that 1,4-dioxane was present in the onsite extraction wells above the DEP groundwater cleanup target level of 3.2 µg/L. Since the site's current treatment train is ineffective for 1,4-dioxane, the system remains shut-down until it can be redesigned & rebuilt to treat the 1,4-dioxane. A treatability pilot study for the treatment of the 1,4-dioxane was submitted by the PRPs in the summer of 2012. A draft Focused Feasibility Study for the 1,4-dioxane treatment in the water treatment train has been received and reviewed by DEP. Comments were forwarded to EPA in November 2013.

Based on recommendations in both the 2005 and 2010 Five Year Reviews, the PRPs initiated an investigation to determine if any additional source material (e.g., drums) remained in the landfill. This concern is based on several anomalies noted in data reports including the demonstrated exceedances for the contaminants of concern. To date, two areas have been identified as potential source areas, one near the northwest corner of the YTA and one near the east side of the YTA. The PRPs have concluded that this source area is well below the water table and have proposed a remedy of bioaugmentation/biostimulation (a/k/a enhanced reductive dechlorination) to treat these areas.

Madison County has acquired portions of three properties adjacent to the site. This will allow the PRPs to expand the groundwater monitoring network downgradient and install one or more point of compliance wells ahead of the leading edge of the plume. The PRPs requested that the EPA allow them to delay implementation of the groundwater treatment system modifications until the plume is completely delineated and the source area treatment has occurred. The EPA has agreed. A Declaration of Restrictive Covenant has been signed by Madison County and DEP in May 2019 as a protective measure to limit the future use of the Yard Trash Area. Additional delineation studies and a field pilot study for the enhanced reductive dichlorination remedy are ongoing. A Feasibility Study Report and Amended Record of Decision should be completed by the end of the federal fiscal year (September 30, 2021).

An investigation for additional source material started in 2011. A Treatability Study was conducted in 2019 to evaluate In-situ enhanced bioremediation (ISBR) as a method to remediate the additional source material found. The ROD may be amended to document the new remedy for the additional source materials.

Schedule

Ground water monitoring will continue for the site, as well as maintenance of institutional controls to help minimize human exposure.