Rolling Hills Landfill Community Environmental Summary Report

Prepared by
Escambia County Natural Resources Management Department
for
the Residents of Escambia County

May 2024

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Introduction

Escambia County Natural Resources Management Department has compiled this summary report to provide an overview of local environmental data collected and other actions taken in response to community concerns raised about the former Rolling Hills Construction & Demolition Debris Facility (Rolling Hills Landfill). Potential impacts from other similar nearby uses have also been taken into consideration under this effort. Information provided herein is intended for a wider public audience. Readers interested in the full technical report and presentation of comprehensive datasets may access the Escambia County Rolling Hills Environmental Monitoring Technical Report on the county website at https://myescambia.com/our-services/ community-media-relations/county-reports.

Escambia County has been actively monitoring the environment around the Rolling Hills Landfill for almost a decade. New monitoring activities have been added along the way as additional concerns have continued to be raised. As a result, over a million individual testing results have been generated to date. Most of the data collected falls within three main categories: outdoor air quality, surface water quality, and groundwater. Results have been compared by Escambia County scientists against a selection of accepted local, state, and federal environmental criteria. These comparisons provide insight on the potential effect of the former landfill on the surrounding environment, including impacts to air quality, water quality, and groundwater.

Concerns regarding impacts to human health have also been raised by members of the community. While data collected by Escambia County may have value evaluating these concerns, it is important to note that human health concerns are best addressed by qualified human health professionals. Certain sections of the full report do make limited reference to human health-based standards. These references are made based on guidance already received from qualified professionals.

Escambia County will be requesting additional support from state agencies, such as the Florida Department of Health (FDOH) and Florida Department of Environmental Protection (FDEP), to review available county data and provide analysis respective of each agency's programs and purview. Additionally, the county is interested in community input. Questions or comments may be submitted by email at naturalresources@myescambia.com. Recommendations to modify existing county monitoring programs will be taken under consideration.

Area Of Interest

Data summarized in this report was collected within a portion of south-central Escambia County generally bounded by Interstate 10 to the north, U.S. Highway 29 (Pensacola Boulevard) to the east, State Road 296 (Michigan Avenue) to the south, and State Road 297 (Pine Forest Road) to the west. Neighborhoods located within the area include Wedgewood, Olive Heights, Rolling Hills, Randall Oaks, Pepper Ridge, Marcus Point, Somerset, and Crescent Lake. In this report this area is referred to as the greater Rolling Hills Community. References to the immediate area north of the Rolling Hills Landfill are described as the Wedgewood Community. A vicinity map showing the area of interest is provided in **Figure 1**.

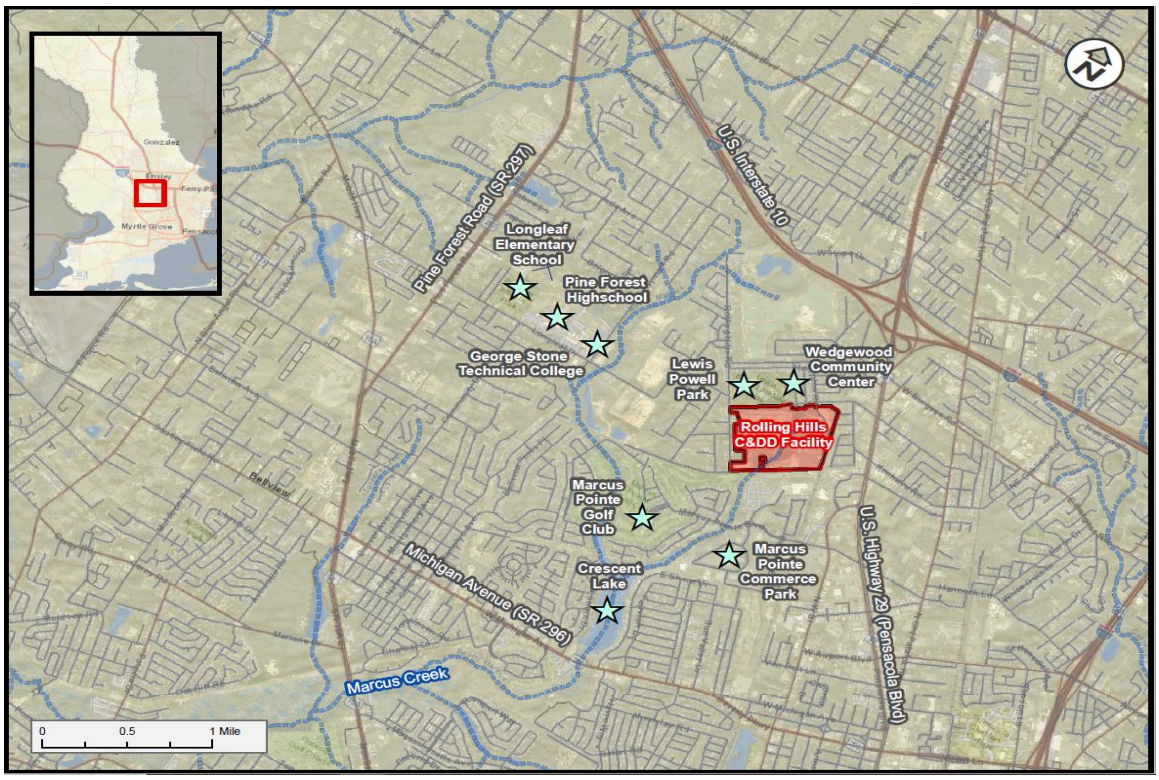

Figure 1: Area of Interest Vicinity Map

Background

Numerous solid waste facilities, land clearing debris sites, borrow pits, recycling facilities, mining operations, and similar uses are located across central Escambia County. The greater Rolling Hills Community has been the recipient of a seemingly disproportionate number of these facilities. Many of these sites are still currently in operation; others have since closed. Of these closed facilities, the former Rolling Hills Landfill is of special note. The Rolling Hills Landfill ceased operation in 2014 after a community outcry led to state and local enforcement of numerous serious permit violations. The former Rolling Hilld Landfill also became the focus of a 2015 Health Consultation by the Florida Department of Environmental Health. The report is available online at https://www.floridahealth.gov/ environmental-health/hazardous-waste-sites/_documents/r/rollinghills060215.pdf. Based on the data available at that time it was determined the Rolling Hills Landfill was contributing to a public health hazard. Similar, yet unsubstantiated concerns, have also been raised regarding similar facilities in the greater Rolling Hills Community. As of the date of this report, the Florida Department Environmental Protection is still pursuing legal action to compel the owner/operator of the former Rolling Hills Landfill to resume required onsite groundwater and surface water monitoring and to implement a plan to address known groundwater contamination.

The Water Quality & Land Management Division (WQLM) of the Natural Resources Management Department was tasked by the Escambia County Board of County Commissioners with monitoring multiple environmental factors in and around the greater Rolling Hills Community. Monitoring programs were developed to collect data necessary to address community concerns regarding potential human

health and/or environmental impacts associated with the former Rolling Hills Landfill and other similar activities. Most of the data collected to date falls within three main categories: outdoor air quality, surface water quality, and groundwater. This summary report presents a snapshot of data collected by Escambia County WQLM from July 2014 through December 2023.

Table 1: Summary of Escambia County Monitoring Programs for the Greater Rolling Hills Community

Program & Parameters	Monitoring Dates	Monitoring Sites	Monitoring Events	Individual Results
Outdoor Air Quality Hydrogen Sulfide	Sept 2014 – Present Aug 2015 – Nov 2020 Sept 2015 – Mar 2022 Oct 2015 – Apr 2021	Wedgewood Community Center 6900 Blk Rolling Hills Road 700 Blk Rolling Hills Road 6700 Blk Rolling Hills Road	Continuous Monitoring	376,584
Outdoor Air Quality Site Specific Particulate Matter	May 2016 – Present Dec 2018 – Present	2390 Longleaf Drive 2170 Longleaf Drive	57 35	460
Outdoor Air Quality Air Monitoring Network	Oct 2023 – Present	Wedgewood Community Center Brownsville Community Center Regency Park Zamora Square (East Hill) Equestrian Center County Road Department Southwest Sports Complex Santa Rosa Island Authority Molino Fire Rescue Perdido Key Fire Rescue Walnut Hill Community Center Lake Stone Campground	Continuous Monitoring	≥788,400
Surface Water Quality Volatile Organic Compounds Metals Other Parameters	Mar 2019 – Present	Downstream of Rolling Hills Marcus Point Boulevard West	53	23,208
	Mar 2019 – Aug 2023	West Branch Headwaters Longleaf Drive Crescent Lake West Branch Crescent Lake Dam Marcus Point Boulevard East	51	
Surface Water Quality Nutrients Chlorophyll Residuals Field Parameters	Mar 2019 - Present	Marcus Point Boulevard East Marcus Point Boulevard West Crescent Lake Dam	60	4,814
	Mar 2019 – Dec 2023	West Branch Headwaters Longleaf Drive Crescent Lake West Branch Downstream of Rolling Hills		
Surface Water Quality Bacteria	Mar 2019 - Present	Marcus Point Boulevard East Marcus Point Boulevard West Crescent Lake Dam	44	301
	Mar 2019 – Dec 2023	West Branch Headwaters Longleaf Drive Crescent Lake West Branch Downstream of Rolling Hills		
Groundwater Volatile Organic Compounds Nutrients, Residuals, Field Parameters	Jan 2020 – Aug 2023	Wedgewood Community Center Rolling Hills Fence Line	34	4,491

Methods and Findings

Monitoring programs were developed by WQLM to assess community concerns. WQLM conducted all required field work necessary to support each program. The Escambia County Water Quality Laboratory analyzed most surface water and groundwater samples for metals, nutrients, chlorophyll, residuals, and bacteria. Volatile organic compounds were analyzed by other certified contract laboratories. In-field measurements were made using calibrated and maintained analyzers and meters. A summary of monitoring programs, sites, and available results is provided in **Table 1**. Maps showing monitoring locations for each program is provided in **Figures 2 - 6**. The remainder of this report provides a brief explanation of the methods, equipment, and results for each monitoring program. The report concludes with a summary of findings and next steps.

Outdoor Air Quality- Hydrogen Sulfide

Hydrogen sulfide is a colorless gas often recognized by a pungent odor resembling rotten eggs at relatively low concentrations. Hydrogen Sulfide was the first environmental concern identified by the community surrounding the Rolling Hills Landfill, prompting immediate action from Escambia County and the State of Florida. The Florida Department of Health published more information on hydrogen sulfide in a 2021 Frequency Asked Questions document. This helpful FAQ is available online at https://www.floridahealth.gov/environmental-health/hazardous-waste-sites/_documents/h/ h2sfaqs2016.pdf.

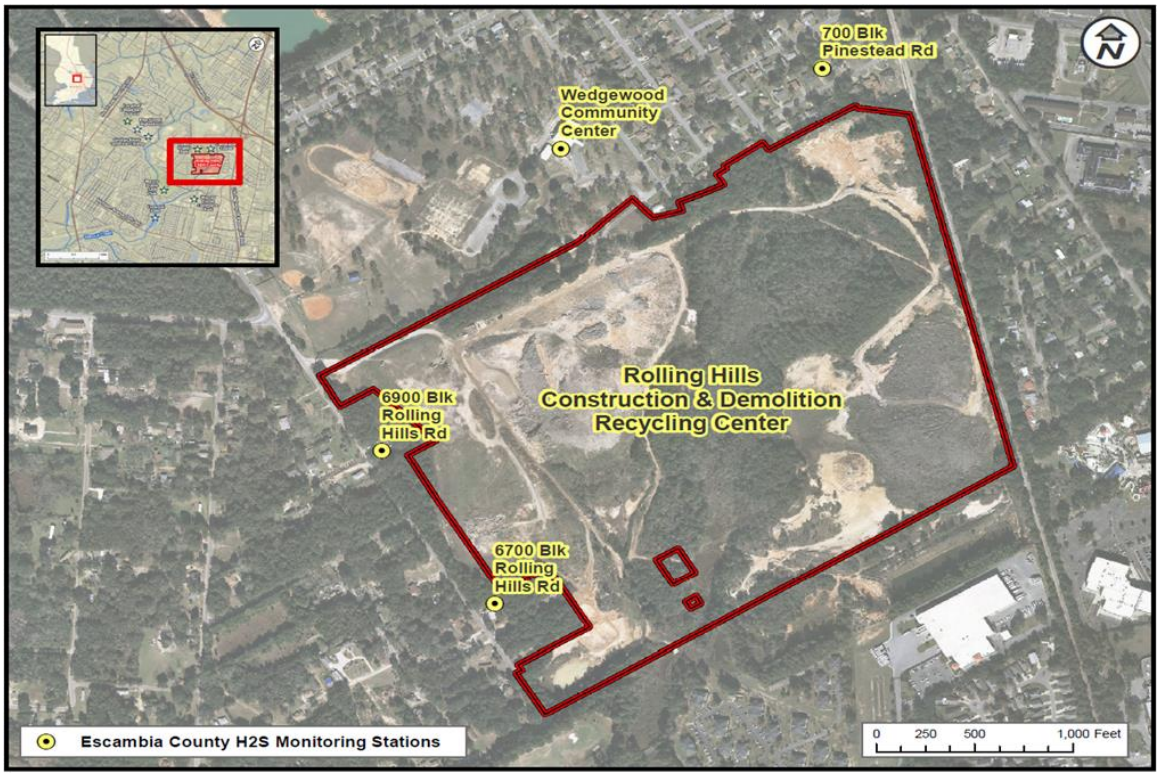

Figure 2: Location of Hydrogen Sulfide Monitoring Stations

Hydrogen sulfide monitoring began in July 2014. Initial sampling efforts were limited to discrete daytime monitoring. The first of four fixed continuous monitoring stations was installed in September 2014. Additional monitoring station locations were eventually selected to approximately align with the four cardinal directions relative to the former Rolling Hills Landfill. Each analyzer was programed to collect one sample every 30 minutes, seven days per week, 365 days per year. Over 375,000 individual air samples have been analyzed since the start of the program. The location of hydrogen sulfide monitoring stations are shown in **Figure 2**.

Hydrogen sulfide data shows both a substantial decrease in peak concentration and a decrease in frequency of detections. This trend appears to coincide with the start of efforts made by the Florida Department of Environmental Protection to properly close the former landfill. The last detection greater than the applicable human health-based standards was documented by the program back in December 2018. The percent of days per month with hydrogen sulfide samples exceeding standards is depicted in **Figure 3**.

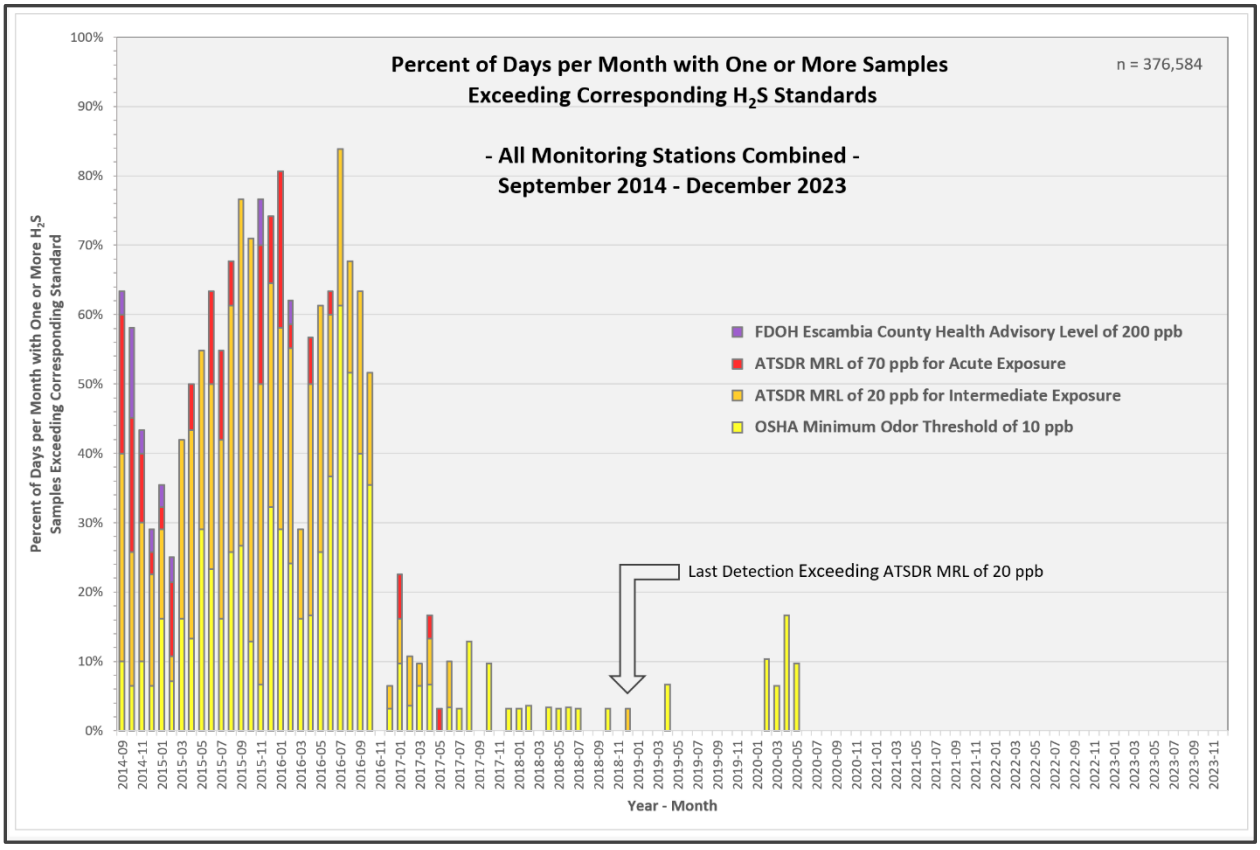

Figure 3: Percent of Days per Month with Hydrogen Sulfide Samples Exceeding Standards

The number of active hydrogen sulfide monitoring stations has since been reduced from four down to one as previous monitoring locations are no longer available and detections have decreased. The hydrogen sulfide sensor at the Wedgewood Community Center remains active. Near real-time readings

can be viewed on the county website at https://myescambia.com/our-services/natural-resources-management/air-quality-monitoring.

In conclusion, air monitoring shows a very substantial decline in hydrogen sulfide levels in the Wedgewood Community in recent years. Further analysis by human health professionals may be warranted to confirm if the previously documented health hazard has since been mitigated.

Outdoor Air Quality – Site Specific Particulate Matter

Particulate matter or particulates is a mixture of airborne solid particles and liquid droplets. Sources can be both man-made and naturally occurring. Particles can also come directly from a single source, like a construction site or fire, or can be the result of complex chemical reactions among numerous sources. Examples of particulate matter include dust, smoke, soot, fly ash, aerosols, fumes, mists, and condensing vapors. Particulates are further defined by particle size. Very small particles having a diameter less than 2.5 micrometers, known as $PM_{2.5}$, are potentially harmful to human health since small particles can be inhaled deep into the lungs. More information on particulate matter can be found online at https://myescambia.com/our-services/natural-resources-management/air-quality-monitoring.

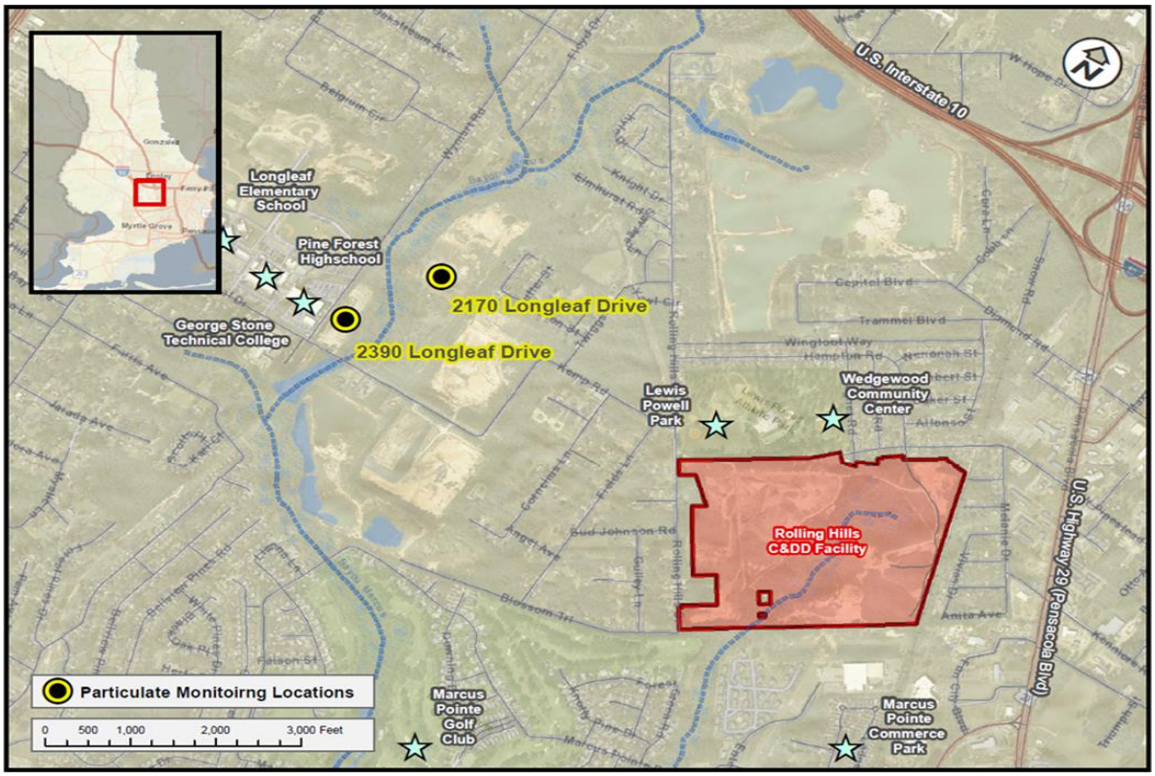

Figure 4: Location of County Permitted Recycling Facilities Routinely Monitored for Airborne Particulates

Site specific particulate monitoring has occurred at of two separate county permitted recycling facilities within the study area beginning in May 2016. Routine monitoring increased from quarterly to a minimum twice per quarter starting in spring of 2019. Compliance with Escambia County requires

permit holders to maintain emission levels of $PM_{2.5}$ at or below an hourly average of 35 µg/m^3 (micrograms per cubic meter of air). It is important to note that data collected around these recycling facilities is not necessarily representative of conditions within the overall community. The location of county permitted recycling facilities routinely monitored for airborne particulates are shown in **Figure 4**.

WQLM conducted a total of 57 separate monitoring events at 2170 Longleaf Drive through December 2023. Downwind conditions never exceeded the county maximum allowable $PM_{2.5}$ concentration. The highest level detected downwind of this facility was at, but not above, the standard of 35 µg/m^3 (September 2023). The average downwind level of particulates near this facility was approximately 14 µg/m^3. Results collected around this facility were approximately the same as background conditions.

WQLM conducted a total of 35 separate monitoring events at 2390 Longleaf Drive through December 2023. Downwind conditions at this facility also never exceeded the county maximum allowable $PM_{2.5}$ concentration. The highest level detected downwind of this facility was 31 µg/m^3 (September 2020). The average downwind level of particulates near this facility was approximately 13 µg/m^3. Results collected around this facility were also approximately the same as background conditions.

In conclusion, the recycling facilities currently located along Longleaf Drive are not likely to cause adverse levels of offsite airborne particulates if continually operated in accordance with county permit conditions.

Outdoor Air Quality – County-Wide Air Monitoring Network

A county-wide air quality monitoring program began in October 2023 to address the lack of representative data. The program includes twelve strategically positioned stations located from the barrier islands north towards the Alabama state line. One station is located at the Wedgewood Community Center. Stations monitor for multiple parameters including particulates. Data is available online in near real-time at https://myescambia.com/our-services/natural-resources-management/air-quality-monitoring. A total of almost 800,000 individual air samples have been analyzed since in just the first three months of the program. This new program has dramatically increased resolution of local air quality data. The Air Quality Index can now be calculated for multiple specific locations based on particulate data collected under this program. AQI is the EPA standardized index for reporting air quality. AQI is divided into six categories. Each category is identified by a different color and corresponds to a different level of health concern. More information regarding AQI is available at https://www.airnow.gov/aqi/aqi-basics/.

The AQI at the Wedgewood Community Center was nearly always less than 50. Air quality in this range is described as "*good*" and "*air pollution poses little or no risk*." On a few days the AQI at the community center was higher than 50 but still lower than 100. Air quality in this range is described as "*moderate*" and "*acceptable, however, there may be a risk for some people who are unusually sensitive to air pollution*." These results were comparable with all eleven other air monitoring locations in the network.

Figure 5: Location of Escambia County Air Monitoring Network Stations

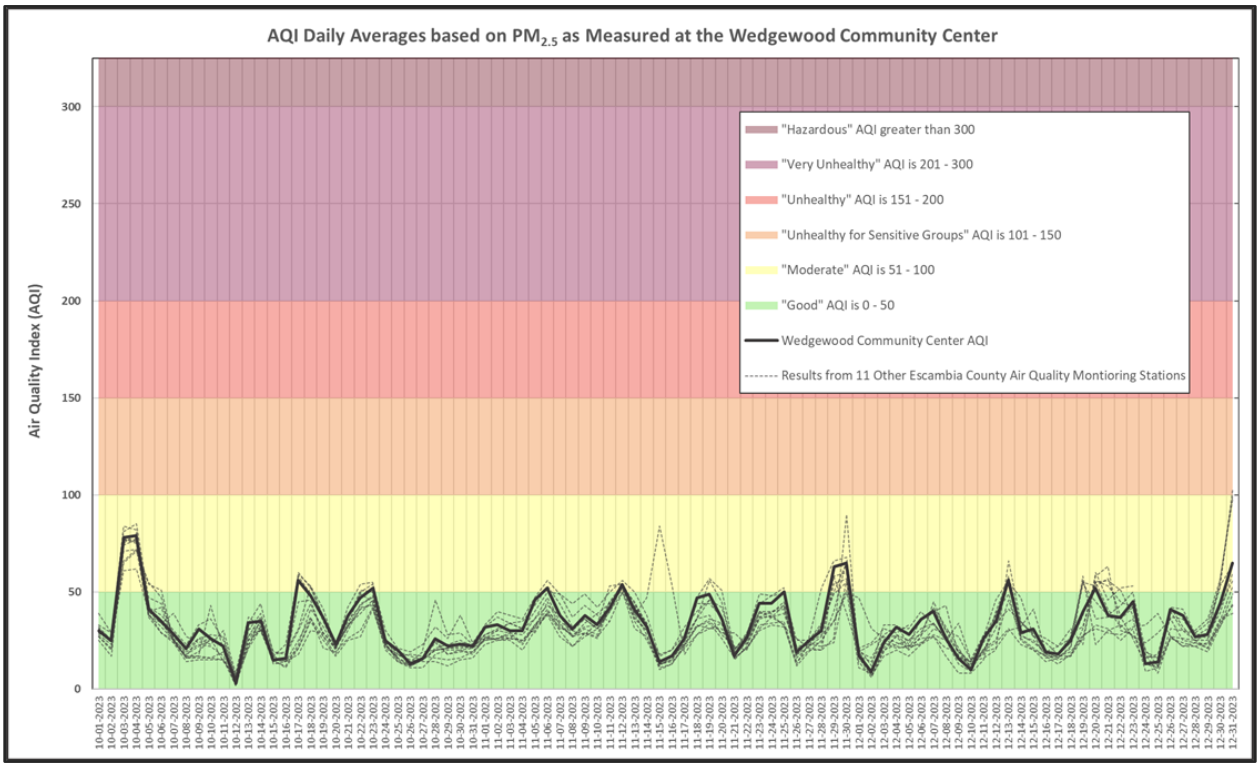

Figure 6: Escambia County Air Monitoring Network Average Daily AQIs

The availability of real-time AQIs allows the public to make personal health-based decisions using actual local conditions. The program also allows for comparisons among existing sites. New sites could be added with minimal cost and effort. The location of stations included in the county-wide air monitoring network are shown in **Figure 5**. Average daily AQIs for all 12 stations are graphed in **Figure 6**.

In conclusion, the local Air Quality Index measured near the Wedgewood Community Center does not appear to be measurably better or worse than air quality at eleven other representative sites located across Escambia County. Available data suggests regional or county-wide factors possibly play one of the most important roles in determining local air quality.

Surface Water Quality

Surface waters serve many valuable functions including providing wildlife habitat, conveying rainwater runoff, and allowing for a multitude of recreational opportunities. In Northwest Florida, creeks and streams carry water from the surrounding landscape, including water leaving ponds and lakes, into either rivers or directly into coastal bayous. These waters then flow into bays and eventually the Gulf of Mexico. Surface waters can be negatively affected by excess sediment, nutrients, metals, and volatile organic compounds. Many of these compounds may be present as part of the natural environment, but at elevated levels all of them can be detrimental. The type and amount of contaminates found in surface waters is usually determined by surrounding land use activities. Surface water quality guidance is set by the Florida Department of Environmental Protection depending on the designated uses of the surface water body of interest. More information about surface water quality criteria in Florida is available online at https://floridadep.gov/dear/water-quality-standards/content/surface-water-quality-standards-classes-uses-criteria.

Surface water quality monitoring occurred monthly at seven different locations along two branches of Marcus Creek. Monitoring began in March 2019. Stations were located both upstream and downstream of the area of interest. Laboratory and field parameters were selected based on general Florida guidelines for determining potential effects of solid waste facilities. Laboratory parameters included heavy metals, nutrients, volatile organic compounds, and residuals. Each monitoring station has been sampled over 50 times as of the date of this report. Volatile organic compounds were rarely detected in any of the samples collected. With few exceptions, volatile compounds detected were measured at relatively low concentrations. Nutrients and residuals results were consistent with typical north Florida urban streams. Some samples contained elevated metals including multiple exceedances of state surface water quality standards for iron. Iron often exceeded state standards in both branches of Marcus Creek. The location of surface water quality monitoring is shown in **Figure 7**.

In conclusion, surface water sampling results from samples collected immediately downstream of the former Rolling Hills Landfill were elevated (as compared to other locations) for several parameters often associated with solid waste facilities. The following parameters were found to have consistently higher levels in the east branch north of Marcus Pointe Boulevard: iron, boron, organic nitrogen, chemical oxygen demand, total organic carbon, total hardness, total dissolved solids, specific conductance, and

turbidity. While these elevated results downstream of the Rolling Hills Landfill do not (except for iron) represent exceedances of state water quality standards, the continuation of this surface water monitoring is recommended until either results trend down toward background conditions or other action is warranted.

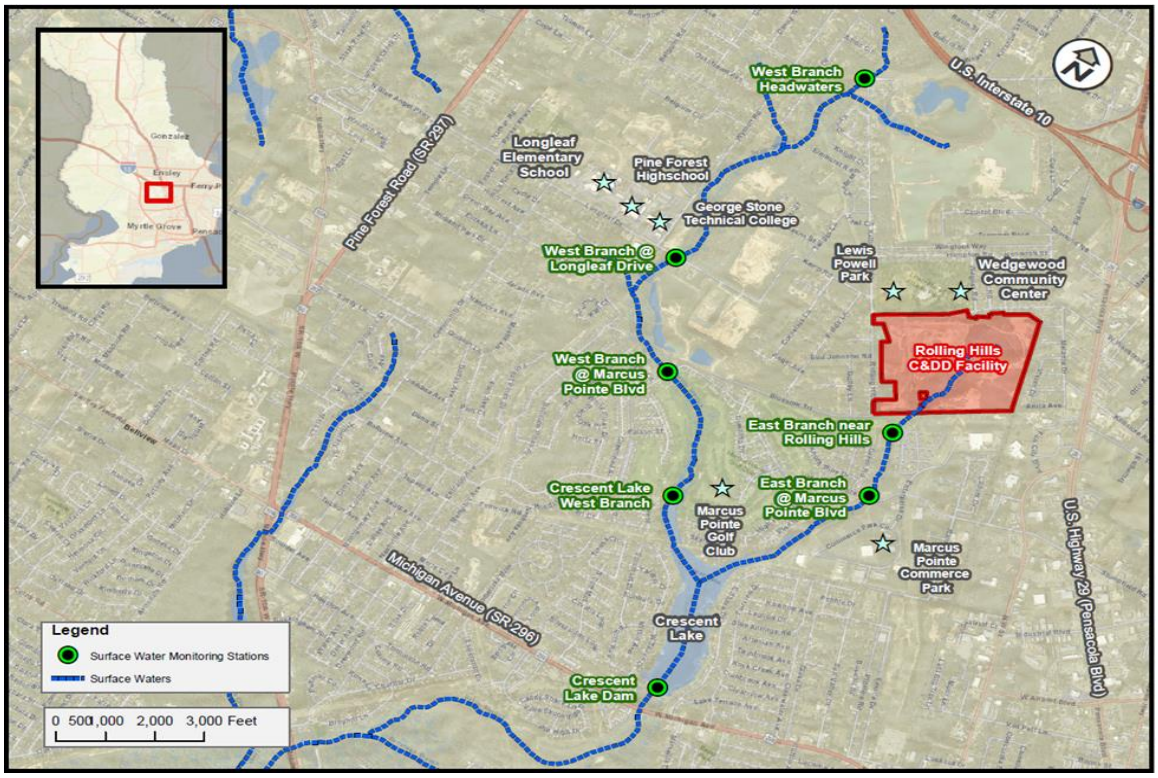

Figure 7: Location of Surface Water Quality Monitoring Stations

Groundwater Quality

Groundwater is the water found below the surface of the ground. Groundwater is replenished by rainwater as it soaks down through the soil. Water saturated soils form groundwater aquifers. Groundwater typically contains fewer contaminants than surface waters and is often used for public water supply. However, no public potable water wells are located in the Wedgewood Community. Drinking water for this community comes from other areas of the county. The Florida Department of Environmental Protection also provides guidance on groundwater contamination and standards online at https://floridadep.gov/waste/district-business-support/documents/table-i-groundwater-and-surface-water-cleanup-target and https://www.flrules.org/gateway/ruleno.asp?id=62-550.828.

Groundwater monitoring occurred monthly at two wells installed north of the former Rolling Hills Landfill. Monitoring began in January 2020. Laboratory and field parameters were selected based on general Florida guidelines for determining potential effects of solid waste facilities. Laboratory parameters included heavy metals, nutrients, volatile organic compounds, and residuals. Each well has been sampled over 30 times as of the date of this report. All results meet state groundwater criteria for

parameters collected. Early results justified a reduction in sampling frequency from monthly to semiannually. This reduction in frequency still assures monitoring is at least as protective as existing state requirements generally required for solid waste facilities. The location of groundwater monitoring is shown in **Figure 8**.

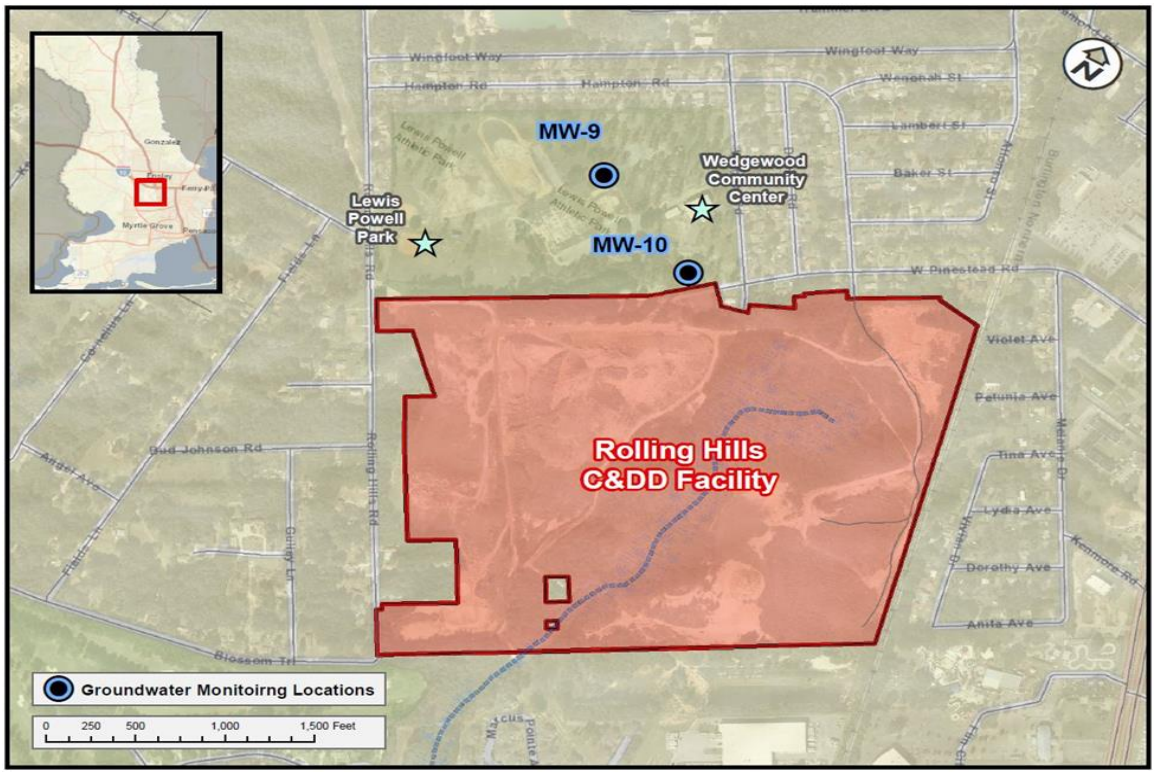

Figure 8: Location of Surface Water Quality Monitoring Stations

FDEP continues to seek legal recourse against the former operators of the Rolling Hills Landfill. The operators of the former Rolling Hills Landfill are not currently conducting the biannual monitoring required by FDEP. They are also not actively operating the mandated groundwater remediation system located on site. Consideration should be given to the installation of an additional groundwater monitoring well south of the former Rolling Hills Landfill to better assess the potential of off-site groundwater impacts.

In conclusion, groundwater monitoring results collected under this program provide an improved understanding or conditions upgradient of the former Rolling Hills Landfill. Monitoring near the Wedgewood Community Center shows no groundwater concerns for contamination in this area. Additional groundwater monitoring south of the former Rolling Hills Landfill may be warranted.

Closing Remarks and Conclusions

Escambia County remains dedicated to monitoring and reporting environmental conditions in the Greater Rolling Hills Community. Monitoring programs described in this report are active and ongoing. Results from environmental monitoring conducted by Escambia County around the former Rolling Hills Landfill are mostly positive. Some know issues, such as the presence of elevated levels of hydrogen sulfide gas in the Wedgewood Community, have shown substantial improvement. Continued public interest has also spurred the creation of a new county-wide air program that should have far reaching benefits for all county residents. Surface water data collected supports a continuation of monitoring downstream of the former landfill. Additional groundwater monitoring south of the former landfill would also be advised. A summary of the key findings is provided below.

- Air monitoring shows a very substantial decline in hydrogen sulfide levels in the Wedgewood Community in recent years with no air sampling results exceeding the previously applied human health-based criteria since December 2018. Further analysis by human health professionals may be warranted to confirm if the previously documented health hazard has since been mitigated.
- The recycling facilities currently located off Longleaf Drive are not likely to cause adverse levels of offsite airborne particulates if continually operated in accordance with county permit conditions.
- The local Air Quality Index measured near the Wedgewood Community Center does not appear to be noticeably better or worse than air quality at eleven other representative sites located across Escambia County.
- Surface water monitoring shows differences between the east and west branches of Marcus Creek. The observed parameters were found to have consistently higher levels in the east branch north of Marcus Pointe Boulevard: iron, boron, organic nitrogen, chemical oxygen demand, total organic carbon, total hardness, total dissolved solids, specific conductance, and turbidity. Elevated levels of many of these parameters are sometimes associated with construction and demolition debris facilities. Only iron was routinely measured above the applicable state surface water quality criteria. All other parameters listed were generally below state standards where state standards apply. The data warrants continued surface water sampling along both branches of Marcus Creek to monitor conditions.
- Monitoring near the Wedgewood Community Center shows no concerns for groundwater contamination in this area. Installation of a new groundwater monitoring well south of the former Rolling Hills Landfill should be considered to evaluate groundwater conditions existing the site.