

EIGHT MILE ALABAMA MERCAPTAN RELEASE UPDATE AS OF OCTOBER 2023

In 2008, lightning struck an underground supply line leading from a tank containing the chemical mercaptan in the Eight Mile community in Mobile County, Alabama. The tank system was owned by Mobile Gas Service Corporation (MGSC). Mercaptan is the chemical used to create the distinctive rotten egg odor in natural gas, which is odorless in its natural state. Following the lightning strike MGSC removed approximately 40 cubic yards of soil around the spill.

In late 2011, residents in the Eight Mile community began noticing an increasingly strong rotten egg odor normally associated with natural gas. In 2012, it was determined that mercaptan was present in the groundwater. Where the groundwater reached the surface as natural springs, the mercaptan was released into the air. Residents within approximately a one-mile radius were subjected to the odor. While mercaptan is not listed by federal or state agencies as a toxic substance, the extremely unpleasant odor adversely impacts the quality of life for those subjected to it.

It is the responsibility of any party discharging pollution to clean up the pollution. Without admitting responsibility, MGSC entered into a binding agreement with the Alabama Department of Environmental Management (ADEM) to mitigate threats to people or the environment posed by mercaptan in the area. As a result, MGSC installed a treatment system to remove odors from the spring water and a second system to remove the mercaptan from groundwater.

The odor treatment system that captures groundwater as it emerges from the springs utilizes ozone to oxidize the mercaptan, which removes the odor. A backup power supply is in place in the event power to the ozone treatment system should be interrupted. The second system treats the ground water before it reaches the surface by pumping ground water from 24 wells drilled for this purpose and then treating the water with ozone in closed tanks that prevent odor from escaping. Once the mercaptan is removed, the treated water is acceptable for discharge to the surface under a permit issued by ADEM. The two treatment systems will remain in place as long as necessary to remove the mercaptan from the groundwater and to control the mercaptan odor. Treated water is regularly tested to assure the effectiveness of the treatment systems.

From 2012 thru mid-2019, ADEM conducted at least weekly odor patrols at 8 locations in and around the Eight Mile community with special attention to any location where a specific odor complaint is received. The criteria for characterizing odor observations as level 0 through 4 are shown below. Prior to implementation of the first treatment system and before starting ADEM's odor patrols, odors were observed which likely would have been recorded as level 3 and level 4. Since the beginning of the first treatment system, several improvements to the equipment and odor mitigation technology were made to that station. Effectiveness of the first odor mitigation system resulted in the reduction of detections of odors to a small percentage of what they had been previously, and levels dropped to no higher than level 2 or level 3. Since starting up the second treatment system in November 2015, the number of odor detections and their intensity continued to drop. Since 2018, no odor detections have been reported during ADEM's odor patrol checks.

Level 0 – No detectable odor

Level 1 – Odor barely detectable

Level 2 – Distinct and definite, any unpleasant characteristics recognizable

Level 3 – Strong enough to cause attempts at avoidance

Level 4 – Overpowering, intolerable for any appreciable time

ADEM has participated in four public meetings to provide updates to the community. These meetings included representation of federal and state health officials. The most recent public meeting took place on August 16, 2016.

EPA received and considered a request from the Alabama Department of Public Health (ADPH) dated March 20, 2017, to perform additional air monitoring in Eight Mile. In its May 31, 2017, response to ADPH, EPA stated that ongoing remediation has significantly reduced mercaptan concentrations in groundwater, as is evident from the analytical data from groundwater samples. EPA also stated that given that air concentrations in 2012 were significantly lower than the health-based screening value and since the remediation system has significantly reduced groundwater concentrations, it appears unlikely that air concentrations would have increased within the surrounding community. Therefore, EPA declined to grant ADPH's request for additional monitoring. Both documents are available in the Department's [eFile](#) system. All documents related to this release may be accessed in [eFile](#) by selecting land and water as the media and entering the Master ID of 16594.

On January 4, 2018, ADEM approved an updated work plan requiring Spire Gulf Inc., the new name for Mobile Gas Service Corporation, to submit a written report related to upgrading and improving the effectiveness of the groundwater remediation/odor mitigation systems. An update to the local elected officials occurred on February 8, 2018, when ADEM met with Mayor Gardner of Prichard, to provide information on the mercaptan remediation. As of July 2019, fully implemented upgrades more than doubled the number of pumping wells. The increased system effectiveness allowed the odor patrols to be discontinued.

In addition to these remediation system upgrades, Spire Gulf Inc. began installing 34 ozone sparge wells starting in July 2020. These wells inject ozone (O₃) directly into the groundwater in the area with the greatest remaining concentrations of mercaptan. The injected ozone is expected to oxidize and destroy the mercaptan in place, thus increasing the effectiveness of the remediation system as a whole.

As of August 2021, ozone sparging has been active for almost one year. In this time, mercaptan concentrations have decreased in monitoring wells in ozone sparging areas.

In November 2021, ADEM personnel visited the site to observe ongoing groundwater assessment and corrective action efforts. All systems were operating as designed and no odor was detected.

In December 2021, ADEM performed an odor patrol in response to a citizen complaint. No odors were detected.

In October 2022 and in March 2023, ADEM personnel visited the site to observe ongoing groundwater assessment and corrective action efforts. All systems were operating as designed and no odor was detected.

As of October 2023, ozone sparging in the mid plume area and source area have greatly diminished concentrations of mercaptan in the upgradient source groundwater plume. Soil vapor extraction has also been implemented in the source area and is assisting in minimizing the potential for odor detections at the Boardwalk (Gulf South) Transfer Station.

A decommissioning study at the spring area was implemented to analyze rebound of mercaptan concentrations in spring water when the treatment system is turned off and to determine if any odor

reoccurred. At the conclusion of the study, the concentrations of mercaptan did not increase in spring water and there was no odor detected in the area. Therefore, Treatment System 1 operation has been reduced from daily to once weekly.

Concentrations of mercaptan in groundwater have diminished significantly on site in recent years due to the corrective action measures taking place daily. Ozone sparging, soil vapor extraction, and ozone pump and treat will continue.