

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
DIVISION OF AIR POLLUTION CONTROL

Summary Report Relative to Permit Application

Submitted By: Ethyl Corporation
South Plant Brinefield Operations
Magnolia, Arkansas (Columbia County)

CSN: 14-0193

Permit No.: 1394-A

Date Issued: 11-5-92

Submittals: 9/17/92

Summary

Ethyl Corporation operates a chemical plant in Columbia County, Arkansas, which produces bromine and related chemicals. The bromine is extracted by processing natural brines occurring in the area. The brine is recovered in much the same way as a crude petroleum product is recovered. A well is drilled into a suitable geological formation and the brine is pumped to the surface. From the wellhead, the brine flows through a system of pipelines to the chemical plant, where it is processed. After processing, the debrominated brine is injected into the receiving formation through a system of pipelines and injection wells.

The natural brine is under great pressure in the geological formation of its origin. In this compressed state, it contains dissolved gases which come out of solution when the pressure is released. This decompression occurs in the well and at the wellhead. It occurs to a much lesser event in the pipelines which bring the brine into the plant. For this reason, a separate, parallel system of pipelines exists to carry the gas to the chemical plant. Facilities at the chemical plant exist to process this gas, producing natural gas, which is consumed on site, and sulfur.

The sour gas associated with the natural brine consists mainly of hydrogen sulfide, nitrogen, methane, and carbon dioxide. In order to effect repairs on the brine recovery wells and the pipeline systems, as much of the gas as possible must be drawn off and disposed of safely. By flaring, Ethyl can render the pipe safe to work on, and in the case of a brine leak, the pressure on the pipeline will be reduced which will help stop the leak. It is important to note that if Ethyl could not flare the gas, they would have to vent it to the atmosphere. The venting of sour gas would cause a serious nuisance to anyone in the area. By flaring the gas, the hydrogen sulfide is converted to sulfur dioxide and water vapor, and methane is converted to carbon dioxide and water vapor.

Installation: Existing
Control Equipment: \$4000
Reviewed By: Todd Swaffar
Applicable Regulation: Air Code

Operation: Existing
Total Project: \$N/A
Approved By: James B. Jones, Jr.

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Ethyl operates mobile flare units which may be quickly relocated from a central location to wherever they are needed. Once on location, the rig may be connected to the equipment to be depressurized. The flare pilot is ignited, and the gas is allowed to flow to the flare tip, where the gas ignites.

This permit is for the use of mobile flare trailers in the South Plant brinefield only. These flares are subject to regulation under the *Arkansas Air Pollution Control Code* (Air Code).

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Specific Conditions

1. Ethyl is authorized to operate the portable flares at the South Plant brinefield only during periods of maintenance on the brine recovery wells and pipeline systems.
2. Sulfur dioxide emissions from the mobile flares shall not exceed 52.4 pounds per hour or 1.2 tons per year.
3. Records shall be maintained relating to the use of these flares. The records will include the date, time, duration, and location of the flaring and the reason for the flaring. A report shall be submitted to the Department every six months summarizing these records. The report should be addressed to the Enforcement Coordinator, Air Division, Arkansas Department of Pollution Control and Ecology.