
7.0 REGULATORY ENVIRONMENTAL REQUIREMENTS

7.1 Air Regulations

Pieces of process equipment are referenced in this section. The equipment can be found on the process flow diagram and Integration with Existing Eastman Process, Figure 6.1-1 and Figure 6.1-2, respectively.

7.1.1 Construction Permits

Not less than 90 days prior to the estimated starting date of construction on the proposed air contaminant source (the proposed project), a construction permit must be applied for, as required by the Tennessee Air Pollution Control Regulations, Rule 1200-3-9-.01. Fabrication, erection, or installation of the proposed air contaminant stationary source must not be undertaken until the construction permit has been received from the Tennessee Division of Air Pollution Control (TDAPC).

7.1.2 Operating Permits

Following receipt of the permit, and after completion of construction of the source, operation can begin. Within 30 days after startup, an operating permit application must be submitted as required by Tennessee Air Pollution Control Regulations, Rule 1200-3-9-.02(3)(b)(1).

7.1.3 Anticipated Permit Modifications

Title V of the Clean Air Act Amendments of 1990 will impact the permitting process, possibly as early as 1995, by requiring, among other things, that permitted air contaminant sources submit new air operating permit applications. The new Title V permits will contain more information than current permits. For example, when Title V operating permits are issued, they will be required to include statements clearly defining applicable requirements, along with a compliance plan for each. Regulations that will apply to the proposed project include New Source Performance Standards (NSPS) and Hazardous Organic NESHAPS (HON).

Operating permit modifications will be required on the permit for the existing absorber used for recovery of emissions from 29D-20 and 29D-21. Based on preliminary calculations, it is not believed that permit modification will be required for the on-site boilers used for control of purged gas streams.

7.1.3.1 New Source Performance Standards

New Source Performance Standards (NSPS), minimum technology-based standards, codified in the Environmental Protection Agency (EPA) regulations, 40 CFR Part 60, set forth performance standards and other requirements for sources constructed, modified or reconstructed after the effective date of the standard which will be mentioned in the applicable standard. Regulations originate at the federal (EPA) level after which they are delegated to the individual states for implementation. Regulations usually evolve through time periods during which some of the subparts are still regulated at the federal level, while some of the subparts are delegated to the state

level. Such is the case with NSPS. The proposed project would be affected by the following NSPS Subparts.

7.1.3.1.1 Subpart NNN Distillation Operations, 40 CFR 60

Within 180 days of startup but not later than 60 days after achieving maximum production rate, a performance test required by § 60.8 and § 60.664 would be performed for each affected distillation unit, to demonstrate reduced emissions of (TOC) Total Organic Compounds (less methane and ethane) by 98 weight percent, or to a TOC concentration of 20 ppmv per § 60.662(a), by introducing each affected vent stream into the flame zone of on-site boilers. The distillation units 29C-10 and 29C-20 will be covered by this NSPS standard.

Notification requirements pursuant to § 60.7 would include: 1) date construction is commenced; 2) anticipated date of initial startup; 3) actual date of initial startup; and 4) physical or operational changes which may increase the emissions.

Monitoring requirements at § 60.663(c)(1) for use of a boiler to comply [§ 60.662(a)] would require use of a flow indicator that provides a record of vent stream flow to the boiler at least once every hour for each affected facility. Since the heat input design capacity of the boilers to be used for compliance is greater than 44 MW (150 million Btu/hr), only monitoring and recording periods of boiler operation (and having the records available for inspection) would be required.

Recordkeeping requirements at § 60.665 would require up-to-date, readily accessible continuous records of the equipment operating parameters, flow indication, records of all periods when the vent stream is diverted from the control device or has no flow rate. These records are to be made available to regulatory inspectors, if requested.

Reporting requirements at § 60.665(l) would require submission of semiannual reports to the Environmental Protection Agency, Region IV of the following recorded data:

1) exceedances of monitored parameters; 2) periods when the vent stream was diverted from the control device or had no flow rate; and 3) when the boiler was not in operation.

7.1.3.1.2 Subpart RRR Reactor Processes

Reporting, monitoring, and recordkeeping for NSPS reactors would parallel closely what would be done for Subpart NNN Distillation. The affected equipment is the reactor 29C-01. Emissions of TOC (less methane and ethane) would be reduced by 98 weight-percent, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen. The vent stream would be introduced to the flame zone of on-site boilers.

Monitoring to comply with § 60.702(a) would be accomplished by installing, calibrating, maintaining, and operating according to the manufacturer's specifications, a flow indicator [§ 60.703(c)(1)], and a temperature monitoring device in the firebox [§ 60.703(c)(2)]. Because the boiler capacity is greater than 44 MW (150 million Btu/hr), the periods of operation of the boilers would be monitored and recorded. These records would have to be readily available for inspection.

Reporting and recordkeeping requirements at § 60.705 are specific for each control device option identified and include notification requirements, performance test results and semi-annual reporting of certain monitored parameters. Records would be required to indicate and report periods when the boiler is not operating or when the vent stream is not routed to the boiler.

**7.1.3.1.3 Subpart Kb Volatile Organic Liquid (VOL) Storage Vessels,
40 CFR 60.**

Three of the five planned tanks, (29D-02, 29D-30, 29D-31) would have capacities less than 40 cubic meters (10,567 gallons) each, and therefore would be exempt from Subpart Kb. However, because of size, the two fixed-roof 30,000 gallon tanks (29D-20 and 29D-21), which would be vented through an absorber, would be subject to Subpart Kb. The closed vent system and absorber required at § 60.112b(a)(3)(i)-(ii) would be designed to collect all VOC vapors and gases and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in TN Department of Environment and Conservation, Division of Air Pollution Control, Rule 1200-3-16.43(1)-(9), Equipment Leaks of VOC In the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The absorber would be designed and operated to reduce inlet VOC emissions by at least 95 percent.

Notifications would include: 1) the date construction or reconstruction is started; 2) anticipated date of startup; 3) actual startup date; 4) any physical or operational change which may increase emission rate of any air pollutant to which a standard applies; 5) when continuous monitoring would begin; 6) when true vapor pressure exceeds 15 kPa (2.2 psia) for tanks greater than 19,813 gallons, but less than 39,890 gallons; and 7) when true vapor pressure exceeds 27.6 kPa (4 psia) for tanks greater than 19,813 gallons, but less than 39,890 gallons.

The following must be kept to meet recordkeeping requirements: 1) a copy of an operating plan [60.113b(c)(2)] documenting that the control device would be achieving the required control efficiency during maximum loading conditions; and 2) a record of the measured values of the parameters monitored in accordance with § 60.113b(c)(1)(i)-(ii).

The operating plan would be submitted as an attachment to the notification of the anticipated date of initial startup. Records to be maintained are: 1) the volatile organic liquid (VOL) stored; 2) the period of storage; and 3) the maximum true vapor pressure of the VOL during its period of storage. Readily accessible records showing the dimension of each storage tank and an analysis showing the capacity of each storage tank would have to be maintained for the life of the demonstration unit.

7.1.3.1.4 TN Department of Environment and Conservation, Division of Air Pollution Control, Rule 1200-3-16.43(1) - (9), Equipment Leaks of VOC In the Synthetic Organic Chemical Manufacturing Industry (SOCMI).

Compliance with this portion of the NSPS regulations would be accomplished by establishing a leak detection and repair (LDAR) program to monitor, report and keep records on emissions from pumps, valves, connectors, and pressure relief devices. Sampling connections would have to meet equipment standards to reduce emissions during sample purging.

7.1.3.2 Hazardous Organic NESHAPS (HON)

The HON regulation was published in the Federal Register on April 22, 1994. The HON has provisions similar to those in NSPS for reactors, distillation units, equipment leaks, and storage vessels. In most cases the HON provisions would supersede the NSPS requirements. In cases, where NSPS imposes more stringent requirements, the NSPS rules would remain. The HON also has provisions applying to transfer racks and wastewater streams.

7.2 Water Regulations

A copy of all the current water permits can be found in Appendix III. Monitoring requirements are discussed in Section 7.5.

As discussed in Section 6.3 process wastewater and stormwater runoff collected in areas influenced by the proposed project would be collected and transported by the interceptor sewer system to the Eastman industrial wastewater treatment plant. This treatment facility is capable of receiving these streams without any change in the quality of effluent currently discharged to the South Fork Holston River. The facility is currently allowed to discharge effluent through Outfall 002 under NPDES permit No. TN0002640 which was issued by the State of Tennessee Department of Environment and Conservation on September 1, 1993 (Appendix III). The permit expiration date is August 30, 1998.

Cooling water discharges would be discharged through Outfall 004 in accordance with NPDES permit No. TN002640. Stormwater runoff collected in areas not influenced by the manufacturing operation would be discharged through outfalls also permitted under the NPDES permit.

The existing Spill Prevention, Control and Countermeasure Plan for Eastman would be modified to include the proposed facility. As was described in previous sections, unloading and storage areas as well as process areas would have stormwater collection systems to prevent contaminated run-off from entering surface waters or infiltrating to ground water.

No new water permits or modifications of existing permits are required for the proposed project.

7.3 Solid Waste Requirements

Solid wastes generated at the proposed demonstration unit may be disposed of in several different ways. Monitoring requirements are found in Section 7.5. The permits are found in Appendix II.

On-Site Incineration Facility

Eastman maintains 2 rotary kiln incinerators and a liquid chemical destructor for treatment of non-hazardous and hazardous burnable wastes. This facility has a RCRA Part B permit. This facility may be used for disposal of the activated carbon guard beds and possibly the waste catalyst.

Hazardous liquid waste is also disposed of in three of Eastman's boilers, Nos. 23, 24, and 30. The boilers operate under interim status of the Resource and Conservation Recovery Act's Boiler and Industrial Furnace regulations, 40 CFR 266, Subpart H. Interim status means that the Environmental Protection Agency has not yet called for the permit applications, but that individual companies must interpret the rules to determine what compliance is, submit certification of compliance documentation, and operate within the conditions stated in the documentation. The boilers are currently operating within the conditions stated in the certification of compliance document; consequently, they are not operating under a permit because the permitting process has not been initiated by EPA.

Nonhazardous Landfill

Eastman operates an onsite Subtitle D (nonhazardous) waste landfill. The landfill accepts Eastman boiler flyash, construction and demolition debris, and special inert wastes. Special cells within the landfill accept asbestos insulation. The nonhazardous landfill has a solid waste permit and an air permit from the State of Tennessee. This landfill will accept the construction and demolition debris during construction of the proposed project.

Hazardous Waste Landfill

Currently, the residual ash from the incineration facility and other hazardous wastes for which landfilling is the only disposal alternative and that meet the RCRA Land Disposal Regulations (40 CFR 268) are shipped off-site to a hazardous waste landfill operated by Chem-Waste Management in Emelle, Alabama. A hazardous waste landfill is under construction at the Eastman facility. The facility is located 1 mile northwest of the proposed project site on Long Island and is expected to be completed by the fall of 1994. When completed, the landfill would accept the wastes currently sent to Emelle. Both facilities have RCRA Part B permits. Once operational, the onsite landfill would also have an air permit from the State of Tennessee. Residual ash from material burned in the incinerator would be sent to these landfills for final disposal.

7.4 Health and Safety Regulations

The proposed project would be covered under the appropriate Occupational Health and Safety Act (OSHA) regulations as well as applicable Tennessee state health and safety regulations. Examples of major applicable regulations follow.

OSHA Construction Standards, 29 CFR 1926

These standards would be followed during construction of the proposed project. Examples include standards on hoisting equipment, fall protection, and excavating, trenching, and shoring.

OSHA General Industry Standards, 29 CFR 1910

These standards would be followed during the design of the proposed project. Examples include standards for design of ladders, stairs, and grating, and the standards for control of hazardous energy (lockout/tagout procedures).

Process Safety Management (PSM), 29 CFR 1910.119

The regulations would be implemented for the LPMEOH™ demonstration unit. A process hazard analysis would be conducted on the proposed project. Process safety information and pre-startup safety review would be completed prior to startup. Operating procedures would be developed prior to startup, operations personnel would be trained in those procedures, and the procedures would be continuously revised. Management of Change procedures are in place for other Air Products and Eastman processes and would be implemented for the proposed project. The remainder of PSM's 14 points are general company policies and have been implemented within both Air Products and Eastman.

Chemical Hazard Communication, 29 CFR 1910.1200

A Hazard Communication Program would be implemented for the proposed project. This program would include hazard determinations methods, chemical labeling, material safety data sheets (MSDSs), personnel information and training, a list of hazardous chemicals in the workplace, and methods of informing company and contract employees of workplace hazards.

7.5 Environmental Monitoring Requirements

Air Monitoring Requirements

The proposed project would be affected by numerous Clean Air Act regulations - Maximum Achievable Control Technology (MACT) Standards, New Source Performance Standards (NSPS), and permitting requirements. Each of the vent streams that discharge to the waste gas header would be subject to either NSPS or MACT requirements (or both) and would require continuous flow monitoring. Vent streams from 29C-11, 29C-21, and 29C-03 will require this flow monitoring. Because boilers with heat input capacity of greater than 44 MW are used as the control device, the requirements are to monitor and record periods of operation for the boilers and periods when vent streams bypass the boilers.

The final storage tanks in the process, 29D-20 and 29D-21, would be subject to MACT and NSPS requirements. An existing absorber would be used as the control device, and may require monitoring to ensure it is providing the required removal efficiency defined by these regulations. Currently, monitoring of the absorber is not required by the operating permit, but monitoring operational parameters, for example, scrubbing liquid flows, scrubbing liquid temperature, or underflow specific gravity, may be required by one of the mentioned standards.

The remaining monitoring requirement would be monitoring pump seals, valves, connectors, pressure relief devices, agitators, sampling connection systems, compressors, and open-ended lines for leaks. Equipment leak monitoring is required by NSPS and by MACT. Most, if not all process components, in the proposed project

would be subject to monitoring for leaks. Each type of component would be monitored on a regular basis (for example, monthly). Once it has been demonstrated that the occurrence of leaking components is low enough, the monitoring is required less frequently (for example, monthly to quarterly monitoring). When leaking components are found, repairs are to be made, usually within 15 days, and the component is rechecked to ensure the leak has been repaired.

Currently, permitting authorities (states, Indian governments, and local air pollution control boards) are submitting air operating permit programs to the EPA for approval. Permit applications submitted under these programs would be required from a greater number of facilities. The applications would be subject to greater amounts of public and neighboring-state review and comments. Although the permit program itself does not require additional control for permitted sources, the operating permit received from the permitting authority would require that sources can show compliance with the operating permit. The proposed project would require an operating permit; however, because the proposed project is subject to many other standards, additional monitoring would probably not be required to satisfy the conditions of the permit. Monitoring, recordkeeping, and reporting requirements from NSPS and MACT would be sufficient to ensure compliance with the operating permit.

Water Monitoring Requirements

No specific water monitoring would be required for the proposed project; however, the existing facilities for handling water and wastewater are subject to monitoring. The Eastman wastewater treatment facility is closely monitored to ensure compliance with its NPDES permit. Five parameters, flow, BOD, pH, NH₃-N, and TSS, are monitored daily. Samples are taken and analyzed once per week for cyanide and the metals on the Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) list. Samples are analyzed quarterly for the organic chemicals on this same list. Bimonthly acute and chronic toxicity monitoring (fathead minnow and ceriodaphnia) is required on the wastewater treatment plant effluent.

Outfalls that discharge cooling water and storm water are continuously monitored for flow, temperature, and pH. Along with the continuous monitoring, these outfalls are analyzed for suspended solids and oil and grease on a monthly basis and toxicity testing is done semiannually.

Eastman has outfalls that discharge stormwater and certain non-storm flows. Eastman semiannually monitors a representative number (10) of these outfalls during a storm event for flow, oil and grease, suspended solids, and pH. The NPDES permit also requires that a 48-hr toxicity test be conducted once on each of the ten monitored outfalls.

Solid Waste Monitoring Requirements

To comply with the operating permit for the Eastman incineration facility, all waste streams must be analyzed for 10 metals (arsenic, beryllium, cadmium, chromium, antimony, barium, lead, mercury, silver, and thallium), ash, chlorine, and heating value. Feed rates for each hazardous waste stream are set based on the results of the analyses. Periodic follow-up analyses are required for each waste stream; the frequency is determined by its variability. Individual streams require analyses on an annual basis, while mixed waste streams are sampled and analyzed quarterly. Liquid waste streams incinerated in Eastman's boilers are subject to the same analyses as those incinerated in the incineration facility. Again, feed rates are determined by the results of the analyses.

Waste streams to be landfilled are subject to the toxicity characteristic leachate procedure (TCLP) to determine if the waste is hazardous and needs to be disposed in a hazardous waste landfill. The final disposal method is determined based on the results of this analysis.

7.6 Other Required Permits

During the design and construction of the proposed project, several permits would be required.

Building Permit

Plans for the building layout, drawings for the electrical, fire protection, and HVAC system (all stamped by licensed professionals in the State of Tennessee) must be sent to the State Fire Marshall for review. Once reviews are complete and differences resolved, building permits would be granted.

Internal Permits

Eastman has a large number of internally-required permits for various situations. Most are issued for safety-related reasons and can be issued on a continuous basis or a job-specific basis. Examples of these internal permits are Safe Work Permit, Hot Work Permit, Excavation Permit, and Fire Protection Equipment Impairment Permit. The project would comply with Eastman's Kingsport permit requirements.