# COMMERCIAL-SCALE DEMONSTRATION OF THE LIQUID PHASE METHANOL (LPMEOH™) PROCESS

## ENVIRONMENTAL MONITORING REPORT NO. 10

**For The Period**

**1 July - 30 September 1999**

**Prepared by**

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**and**

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**Kingsport, Tennessee**

**for the**
**Air Products Liquid Phase Conversion Company, L.P.**

**Prepared for the United States Department of Energy**
**National Energy Technology Laboratory**
**Under Cooperative Agreement No. DE-FC22-92PC90543**

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## Table of Contents

ACRONYMS AND DEFINITIONS

| | | |
|---|---|---|
| Acurex | - | Acurex Environmental Corporation (now ARCADIS, Geraghty & Miller) |
| Air Products | - | Air Products and Chemicals, Inc. |
| AFDU | - | Alternative Fuels Development Unit - The "LaPorte PDU" |
| Balanced Gas | - | A syngas with a composition of hydrogen ($H_2$), carbon monoxide (CO), and carbon dioxide ($CO_2$) in stoichiometric balance for the production of methanol |
| BOD | - | Biochemical Oxygen Demand |
| Carbon Monoxide Gas | - | A syngas containing primarily carbon monoxide (CO); also called CO Gas |
| Crude Grade Methanol | - | Underflow from rectifier column (29C-20), defined as 80 wt% minimum purity; requires further distillation in existing Eastman equipment prior to use |
| DME | - | dimethyl ether |
| DOE | - | United States Department of Energy |
| DOE-NETL | - | The DOE's National Energy Technology Laboratory (Project Team) |
| DOE-HQ | - | The DOE's Headquarters - Coal Fuels and Industrial Systems (Project Team) |
| DTP | - | Demonstration Test Plan - The four-year Operating Plan for Phase 3, Task 2 Operation |
| DVT | - | Design Verification Testing |
| Eastman | - | Eastman Chemical Company |
| EIV | - | Environmental Information Volume |
| EMP | - | Environmental Monitoring Plan |
| EMR | - | Environmental Monitoring Report |
| EPRI | - | Electric Power Research Institute |
| HAPs | - | Hazardous Air Pollutants |
| Hydrogen Gas | - | A syngas containing an excess of hydrogen ($H_2$) over the stoichiometric balance for the production of methanol; also called $H_2$ Gas |
| IGCC | - | Integrated Gasification Combined Cycle, a type of electric power generation plant |
| IGCC/OTM | - | An IGCC plant with a "Once-Thru Methanol" plant (the LPMEOH™ Process) added-on |
| KSCF | - | Thousand Standard Cubic Feet |
| KSCFH | - | Thousand Standard Cubic Feet per Hour |
| LaPorte PDU | - | The DOE-owned experimental unit (PDU) located adjacent to Air Products' industrial gas facility at LaPorte, Texas, where the LPMEOH™ process was successfully piloted |
| LDAR | - | Leak Detection and Repair |
| LPDME | - | Liquid Phase DME process, for the production of DME as a mixed coproduct with methanol |
| LPMEOH™ | - | Liquid Phase Methanol (the technology to be demonstrated) |
| Main Plant Purge | - | Unreacted synthesis gas stream from LPMEOH™ process returned to Eastman's fuel gas header |
| $mg/m^3$ | - | Milligrams per cubic meter |
| NEPA | - | National Environmental Policy Act |
| NPDES | - | National Pollutant Discharge Elimination System |
| OSHA | - | Occupational Safety and Health Administration |
| Partnership | - | Air Products Liquid Phase Conversion Company, L.P. |
| PDU | - | Process Development Unit |
| PFD | - | Process Flow Diagram(s) |
| ppbv | - | parts per billion (volume basis) |
| Project | - | Production of Methanol/DME Using the LPMEOH™ Process at an Integrated Coal Gasification Facility |
| psia | - | Pounds per Square Inch (Absolute) |
| psig | - | Pounds per Square Inch (gauge) |
| P&ID | - | Piping and Instrumentation Diagram(s) |
| RCRA | - | Resource and Conservation Recovery Act |
| Refined Grade Methanol | - | Distilled methanol, defined as 99.8wt% minimum purity; used directly in downstream Eastman processes |
| SCFH | - | Standard Cubic Feet per Hour |
| Sl/hr-kg | - | Standard Liter(s) per Hour per Kilogram of Catalyst |

ACRONYMS AND DEFINITIONS (cont'd)

| | | |
|---|---|---|
| Syngas | - | Abbreviation for Synthesis Gas |
| Synthesis Gas | - | A gas containing primarily hydrogen ($H_2$) and carbon monoxide (CO), or mixtures of $H_2$ and CO; intended for "synthesis" in a reactor to form methanol and/or other hydrocarbons (synthesis gas may also contain $CO_2$, water, and other gases) |
| Tie-in(s) | - | the interconnection(s) between the LPMEOH™ Process Demonstration Facility and the Eastman Facility |
| TOC | - | Total Organic Carbon |
| TLV | - | Threshold Limit Value |
| TPD | - | Ton(s) per Day |
| WBS | - | Work Breakdown Structure |
| wt | - | Weight |

## 1. Introduction

The Liquid Phase Methanol (LPMEOH™) Demonstration Project at Kingsport, Tennessee, is a $213.7 million effort being conducted under a cooperative agreement between the U.S. Department of Energy (DOE) and Air Products Liquid Phase Conversion Company, L.P. (the Partnership). Air Products and Chemicals, Inc. (Air Products) and Eastman Chemical Company (Eastman) formed the Partnership to execute the Demonstration Project. A demonstration unit producing 80,000 gallons per day (260 tons-per-day (TPD)) of methanol from coal-derived synthesis gas (syngas) was designed, constructed, and began a four-year operational period in April of 1997 at a site located at the Eastman complex in Kingsport. The Partnership will own and operate the facility for the four-year demonstration period.

This project is sponsored under the DOE's Clean Coal Technology Program, and its primary objective is to "demonstrate the production of methanol using the LPMEOH™ Process in conjunction with an integrated coal gasification facility." The project will also demonstrate the suitability of the methanol produced for use as a chemical feedstock or as a low-sulfur dioxide, low-nitrogen oxides alternative fuel in stationary and transportation applications. The project may also demonstrate the production of dimethyl ether (DME) as a mixed coproduct with methanol, if laboratory- and pilot-scale research and market verification studies show promising results. If implemented, the DME would be produced during the last six months of the four-year demonstration period.

The LPMEOH™ process is the product of a cooperative development effort by Air Products and the DOE in a program that started in 1981. It was successfully piloted at a 10-TPD rate in the DOE-owned experimental unit at Air Products' LaPorte, Texas, site. This Demonstration Project is the culmination of that extensive cooperative development effort.

## 2. Project Description

The demonstration unit, which occupies an area of 0.6 acre, is integrated into the existing 4,000-acre Eastman complex located in Kingsport, Tennessee. The Eastman complex employs approximately 10,000 people. In 1983, Eastman constructed a coal gasification facility utilizing Texaco technology. The syngas generated by this gasification facility is used to produce carbon monoxide and methanol. Both of these products are used to produce methyl acetate and ultimately cellulose acetate and acetic acid. The availability of this highly reliable coal gasification facility was the major factor in selecting this location for the LPMEOH™ Process Demonstration. Three different feed gas streams (hydrogen gas or $H_2$ Gas, carbon monoxide gas or CO Gas, and Balanced Gas) are available from existing operations to the LPMEOH™ Demonstration Unit, thus providing the range of syngas ratios (hydrogen to carbon monoxide) needed to meet the technical objectives of the Demonstration Project.

For descriptive purposes and for design and construction scheduling, the project has been divided into four major process areas with their associated equipment:

- *Reaction Area* - Syngas preparation and methanol synthesis reaction equipment.
- *Purification Area* - Product separation and purification equipment.
- *Catalyst Preparation Area* - Catalyst and slurry preparation and disposal equipment.
- *Storage/Utility Area* - Methanol product, slurry, and oil storage equipment.

The physical appearance of this facility closely resembles the adjacent Eastman process plants, including process equipment in steel structures.

- *Reaction Area*

The reaction area includes feed gas compressors, catalyst guard beds, the reactor, a steam drum, separators, heat exchangers, and pumps. The equipment is supported by a matrix of structural steel. The most salient feature is the reactor, since with supports, it is approximately 84-feet tall.

- *Purification Area*

The purification area features two distillation columns with supports; one is approximately 82-feet tall, and the other 97-feet tall. These vessels resemble the columns of the surrounding process areas. In addition to the columns, this area includes the associated reboilers, condensers, air coolers, separators, and pumps.

- *Catalyst Preparation Area*

The catalyst preparation area consists of a building with a roof and partial walls, in which the catalyst preparation vessels, slurry handling equipment, and spent slurry disposal equipment are housed. In addition, a hot oil utility system is included in the area.

- *Storage/Utility Area*

The storage/utility area includes two diked lot-tanks for methanol, two tanks for oil storage, a slurry holdup tank, a trailer loading/unloading area, and an underground oil/water separator. A vent stack for safety relief devices is located in this area.

## 3. Process Description

The LPMEOH™ Demonstration Unit is integrated with Eastman's coal gasification facility. A simplified process flow diagram is included in Appendix A. Syngas is introduced into the slurry reactor, which contains a slurry of liquid mineral oil with suspended solid particles of catalyst. The syngas dissolves through the mineral oil, contacts the catalyst, and reacts to form methanol. The heat of reaction is absorbed by the slurry and is removed from the slurry by steam coils. The methanol vapor leaves the reactor, is condensed to a liquid, sent to the distillation columns for removal of higher alcohols, water, and other impurities, and is then stored in the day tanks for sampling before being sent to Eastman's methanol storage. Most of the unreacted syngas is recycled back to the reactor with the syngas recycle

compressor, improving cycle efficiency. The methanol will be used for downstream feedstocks and in off-site fuel testing to determine its suitability as a transportation fuel and as a fuel for stationary applications in the power industry.

Demonstration Test Plan

Following the start-up of the LPMEOH™ Demonstration Unit, a four-year test plan is being performed by Air Products and Eastman. The goals of the Test Plan are structured to meet the commercialization objectives for the LPMEOH™ Process. Excerpts from Commercialization Objectives from the program Statement of Work are included here to provide the global perspective of the Demonstration Plan:

"Primary Objective

The primary objective of the Project is to demonstrate the commercial scale production of methanol using the LPMEOH™ Process...

The LPMEOH™ Process technology is expected to be commercialized as part of an IGCC electric power generation system. Therefore, the Project incorporates the commercially important aspects of the operation of the LPMEOH™ Process which would enhance IGCC power generation. These important aspects of LPMEOH™ Process integrations are:

- The coproduction of electric power and of high value liquid transportation fuels and/or chemical feedstocks from coal. This coproduction requires that the partial conversion of synthesis gas to storable liquid products be demonstrated.

- Using an energy load following operating concept which allows conversion of off-peak energy, at attendant low value, into peak energy commanding a higher value. The load-following concept makes use of gasifier capacity that is under utilized during low-demand periods by using the LPMEOH™ Process to convert the excess synthesis gas to a storable liquid fuel for use in electric power generation during the peak energy periods. This operating concept requires that on/off and synthesis gas load following capabilities be demonstrated...

During operation, the instrumentation system will allow for the collection of engineering data, analysis and reporting which will be done by on-site technical personnel. Typical reporting will include on-stream factors, material and energy balances, reactor and equipment performance, comparison with laboratory and LaPorte Alternative Fuels Development Unit (AFDU) results, conversion efficiencies and catalyst activity...

Secondary Objective

A secondary objective of the Project is to demonstrate the production of DME (Dimethyl ether) as a mixed coproduct with methanol...

Subject to Design Verification Testing (DVT), the Partnership proposes to enhance the Project by including the demonstration of the slurry reactor's capability to produce DME as a mixed co-product with methanol...

DVT is required to address issues such as catalyst activity and stability and to provide data for engineering design and demonstration decision making...

At the conclusion of the DVT Steps, a joint Partnership/DOE decision will be made regarding continuation of the methanol/DME demonstration. Timing of the final decision must ensure that the necessary design, procurement, construction and commissioning can be completed to allow for (Phase 3, Task 2.2) operation at the end of the primary LPMEOH™ process demonstration period."

The full Demonstration Test Plan (issued September 1996) provides details in the strategy and conditions to be tested during the four-year operating period.

## 4. Environmental Monitoring Plan (EMP) Description

Air Products Liquid Phase Conversion Company, L.P., has constructed and is operating the 260 ton-per-day Liquid Phase Methanol (LPMEOH™) Demonstration Unit at the Eastman Chemical facility in Kingsport, Tennessee. As specified in the Cooperative Agreement, the Partnership developed an Environmental Monitoring Plan (EMP) (issued August 1996) which describes in detail the environmental monitoring activities to be performed during the operation of the LPMEOH™ Demonstration Unit. The purpose of the EMP is to: 1) document the extent of compliance monitoring activities, i.e., those activities required to meet permit requirements, 2) confirm the specific environmental impacts predicted in the National Environmental Policy Act documentation, and 3) establish an information base for the assessment of the environmental performance of the technology for future commercialization.

The EMP describes three categories of environmental monitoring which are performed as a result of the operation of the LPMEOH™ Demonstration Unit. Details of streams internal to the demonstration unit are available in the Technical Progress Reports for the Project.

### 4.1 Eastman Reporting of Publicly Available Technical Data

As defined in the Statement of Work for the Demonstration Project, Eastman will provide data on three areas of operation of the Chemicals-from-Coal complex (refer to Table 4.1 for a breakdown of the streams to be monitored):

1) Gasifier material balance data
2) 10C-30 Guard Bed operating data
3) Wastewater and alcohols to wastewater treatment system

This technical information provides information from Eastman's existing facilities to provide an overall assessment of the LPMEOH™ technology. A Special Topical Report will provide this information. Updates, if any, are included in Quarterly EMRs if a significant change occurs.

## 4.2 Compliance Monitoring

Four areas of compliance monitoring have been identified to satisfy the permit requirements for the demonstration unit (Table 4.2):

1) Combined Vapor Flow from Demonstration Unit to Boiler
2) Fugitive Emissions
3) Particulate Emissions
4) Wastewater Treatment System Outlet Stream

Each of these sources is monitored at a frequency mandated by the relevant permit or industrial hygiene practice. The EMRs will include the results of any compliance monitoring generated during the reporting period.

## 4.3 Supplemental Monitoring

Three areas of supplemental monitoring have been identified in the EMP (Table 4.3):

Summary of Major Material Balance Streams for Demonstration Unit

The major feed streams (CO Gas, $H_2$ Gas, Balanced Gas) and product flows (Refined Grade Methanol, Crude Grade Methanol, Main Plant Purge) are provided as a summary table of the cumulative stream flows for the reporting period.

Solid/Liquid Discharges

Four other streams can be generated from the demonstration unit:

1) Compressor and Pump Lubricants
2) Oil Recovered in Oil/Water Separator
3) Spent Catalyst
4) 29C-40 Guard Bed Adsorbent

Any quantities generated during the reporting period are included in the EMR.

Noise

The EMP identified that a noise survey around the 29K-01 Recycle Compressor was planned during the initial start-up of the demonstration unit.

## TABLE 4.1

## LPMEOH™ DEMONSTRATION UNIT

## PUBLICLY AVAILABLE TECHNICAL DATA FROM EASTMAN CHEMICALS-FROM-COAL COMPLEX

| Environmental Media | General Parameters |
|---|---|
| Coal | Pressure, Temperature, Coal Analysis |
| Oxygen to Gasifier | Pressure, Temperature, $\%O_2$ |
| Water to Gasifier | Pressure, Temperature |
| Waste Water from Gasifier | Pressure, Temperature, Total Organic Carbon |
| Clean Synthesis Gas from Gasifier | Pressure, Temperature, Flow |
| Sulfur Recovered from Gasifier | Pressure, Temperature, Flow, %S |
| Carbon Dioxide from Gasifier | Pressure, Temperature, Flow, $\%CO_2$ |
| Slag from Gasifier | Pressure, Temperature, Flow |
| Balanced Gas from 10C-30 Guard Bed | Pressure, Temperature, Flow, Composition |
| Wastewater and Alcohols to Wastewater Treatment System | Flow, Composition, BOD |

## TABLE 4.2

## LPMEOH™ DEMONSTRATION UNIT

## COMPLIANCE MONITORING

| Environmental Media | General Parameters |
|---|---|
| Combined Vapor Flow from Demonstration Unit to Boiler | Composition |
| Fugitive Emissions | Leak Detection and Repair (LDAR) Report, Volatile Organic Carbon (VOC), Background Ambient CO Concentration |
| Particulate Emissions | Threshold Limit Value (TLV) |
| Wastewater Treatment System Outlet Stream | Flow, Total Organic Carbon, pH |

## TABLE 4.3

## LPMEOH™ DEMONSTRATION UNIT

## SUPPLEMENTAL MONITORING

| Environmental Media | General Parameters |
|---|---|
| CO Gas to LPMEOH™ Demonstration Unit | Cumulative Flow for Quarter |
| $H_2$ Gas to LPMEOH™ Demonstration Unit | Cumulative Flow for Quarter |
| Balanced Gas to LPMEOH™ Demonstration Unit | Cumulative Flow for Quarter |
| Main Vapor Purge from LPMEOH™ Demonstration Unit | Cumulative Flow for Quarter |
| Refined Grade Methanol | Cumulative Flow for Quarter |
| Crude Grade Methanol | Cumulative Flow for Quarter |
| Compressor and Pump Lubricants | Weight or Volume |
| Oil Recovered in Oil/Water Separator | Weight or Volume |
| Spent Catalyst | Weight, Weight% Solids |
| 29C-40 Guard Bed Adsorbent | Weight or Volume |
| Noise Survey for 29K-01 Recycle Compressor | dBa |

## 5. Project Summary

Synthesis gas was first introduced to the LPMEOH™ Demonstration Unit on 02 April 1997. The nameplate capacity of 80,000 gallons of methanol per day (260 tons-per-day) was achieved on 06 April 1997. During the reporting period, availability for the LPMEOH™ Demonstration Unit was 100%. Table 5.1 summarizes the onstream time and outages of the LPMEOH™ Demonstration Unit during the reporting period.

## 6. Updates on Eastman "Chemicals-from Coal" Facility Publicly Available Technical Data

### 6.1 Gasifier Facility

As defined in Section 7.1 of the Environmental Monitoring Plan, publicly available technical data from the Eastman "Chemicals-from-Coal" facility, which includes data on the streams associated with the Gasifier facility, will be issued in a Special Topical Report. If a significant change in gasifier facility operation (e.g., feedstock change, equipment modifications or additions, etc.) occurs, then an update will be provided in a future EMR.

### 6.2 10C-30 Catalyst Guard Bed

As defined in Section 7.1 of the Environmental Monitoring Plan, publicly available technical data on the trace impurities entering and leaving the Catalyst Guard Bed will be issued in a Special Topical Report.

During the reporting period, there was no change of adsorbent or process change related to the operation of the 10C-30 Catalyst Guard Bed. If a significant change occurs, then an update will be provided in a future EMR.

### 6.3 Wastewater and Alcohols to Wastewater Treatment System

The report on publicly available technical data from the Eastman "Chemicals-from-Coal" facility, which includes data on the streams associated with the wastewater and alcohols to the Wastewater Treatment System, will be issued in a Special Topical Report. This will consist of a comparison of the flow, composition, and BOD load of this stream before and after the addition of the LPMEOH™ Demonstration Unit.

## Table 5.1

## Summary of LPMEOH™ Demonstration Plant Onstream Time and Outages - July / September 1999

| Operation Start | Operation End | Operating Hours | Shutdown Hours | Reason for Shutdown |
|---|---|---|---|---|
| 7/1/99 00:00 | 7/30/99 01:40 | 697.7 | 1.0 | Syngas Outage |
| 7/30/99 02:40 | 8/7/99 17:15 | 206.6 | 22.7 | Syngas Outage |
| 8/8/99 16:00 | 8/9/99 11:00 | 19.0 | 12.5 | Syngas Outage |
| 8/9/99 23:30 | 9/30/99 23:59 | 1248.5 | | |
| | Total Operating Hours | | 2171.7 | |
| | Syngas Available Hours | | 2171.7 | |
| | **Plant Availability, %** | | **100.00** | |

## 7. Compliance Monitoring

### 7.1 Combined Vapor Flow from Demonstration Unit to Boiler

A sample of the header gas from the LPMEOH™ Demonstration Unit must be analyzed as part of the Boiler and Industrial Furnace regulations within RCRA. Sampling is currently required every three years. During the development of the EMP, it was anticipated that the new tie-in from the LPMEOH™ Demonstration Unit to the Eastman fuel header would require testing as a new source. After the EMP was published, it was determined that the new tie-in was not considered a significant change and did not require testing. Therefore, with the current sampling schedule, the next sample will be taken in February of 2000.

No activity occurred during the reporting period.

### 7.2 Fugitive Emissions

#### 7.2.1 Leak Detection and Repair (LDAR)

Appendix B contains the latest report on Leak Detection and Repair at the LPMEOH™ Demonstration Unit. All items (valves, pump seals, fittings) which were found to exceed the allowable leakage rate (as measured by concentration levels in air) were able to be repaired by Eastman.

#### 7.2.2 Ambient Carbon Monoxide Background Concentration

This one-time study was completed in June of 1998, and documents the concentration of CO that is encountered by a LPMEOH™ operations person during the course of a normal day of plant operations. The report on this study is included in Environmental Monitoring Report No. 5. Both the time-weighted average and the peak values for CO were below the established limits by the Tennessee Operational Health and Safety Administration.

### 7.3 Particulate Emissions

This one-time study was completed in July of 1997, and documents the exposure level to particulate emissions that is encountered by a LPMEOH™ operations person during the catalyst charging process. The report on this study is included in Environmental Monitoring Report No. 1. Some engineering modifications to the catalyst loading system are planned to reduce the dust concentration and potential personnel exposure.

### 7.4 Wastewater Treatment System Outlet Stream

The reports on the outfall from the Wastewater Treatment System (Discharge Number 002) for the reporting period is attached in Appendix C. There were no permit excursions.

A process stream within the existing Eastman facility which is impacted by the operation of the LPMEOH™ Demonstration Unit contains the byproduct alcohols and water which are

generated in parallel with the production of methanol. This stream is sent to the Eastman Wastewater Treatment System. As noted in Section 6.3, a comparison of the flow, composition, and BOD load of this stream before and after the addition of the LPMEOH™ Demonstration Unit will be included in a Special Topical Report on publicly available technical data from the Eastman "Chemicals-from-Coal" facility.

## 8. Supplemental Monitoring

### 8.1 *Total Synthesis Gas Use and Methanol Production*

Table 8.1 contains the summary of the major process flows to and from the LPMEOH™ Demonstration Unit for the reporting period. Approximately 4,390,000 gallons (14,492 tons) of methanol (Refined and Crude Grades) were produced during the reporting period.

### 8.2 Oil/Water Separator

A total of 18,000 pounds of oil was removed from the Oil/Water Separator during the reporting period. This material was incinerated for energy recovery.

### 8.3 Compressor and Pump Lubricants

No material was generated during the reporting period.

### 8.4 Spent Catalyst Slurry

A total of 64,800 pounds of spent catalyst slurry was removed from the LPMEOH™ Reactor (drained into drums) during the reporting period. A total of 51,600 pounds of spent catalyst slurry was shipped to the off-site catalyst reclaimer. Of this, a total of 13,200 pounds had been stored on site and removed from the LPMEOH™ Reactor during the prior reporting period. The remaining amount of spent catalyst slurry (26,400 pounds) is presently stored on site, and arrangements are being made to ship this material to the off-site catalyst reclaimer.

### 8.5 29C-40 Catalyst Guard Bed Spent Adsorbent

As reported in Environmental Monitoring Report No. 9, approximately 6,553 pounds of activated carbon was removed from the 29C-40 Carbonyl Guard Bed (placed into drums). The spent activated carbon was sent offsite for disposal during the reporting period.

### 8.6 Noise

The results of noise dosimetry measurements of the entire LPMEOH™ Demonstration Unit were reported in Environmental Monitoring Report No. 1. The results of an area noise survey at each platform of the LPMEOH™ Demonstration Unit and around the 29K-01 Recycle Compressor were reported in Environmental Monitoring Report No. 2. No additional surveys were performed during the reporting period.

## Table 8-1

### Synthesis Gas Use and Methanol Production - July/September 1999
### LPMEOH™ Demonstration Unit

| | July 1999 | August 1999 | Sept. 1999 | Total |
|---|---|---|---|---|
| **Consumption, KSCF** | | | | |
| Balanced Gas | 328,086.9 | 295,437.5 | 446,584.2 | 1,070,108.6 |
| CO Gas | 41.5 | 159.3 | 165.3 | 366.1 |
| $H_2$ Gas | 0.0 | 0.0 | 0.0 | 0.0 |
| **Production, Tons** | | | | |
| Crude Methanol | 1,575.4 | 1,404.6 | 2,205.8 | 5,185.9 |
| Refined Methanol | 2,826.3 | 2,559.5 | 3,921.0 | 9,306.7 |
| Total Purge Gas, KSCF | 50,816.3 | 46,621.0 | 48,935.7 | 146,373.0 |

## 9. Compliance

### 9.1 Compliance with Permit Limits

There were no excursions outside permit limits associated with the operation of the LPMEOH™ Demonstration Unit.

## 10. Problems and Recommendations

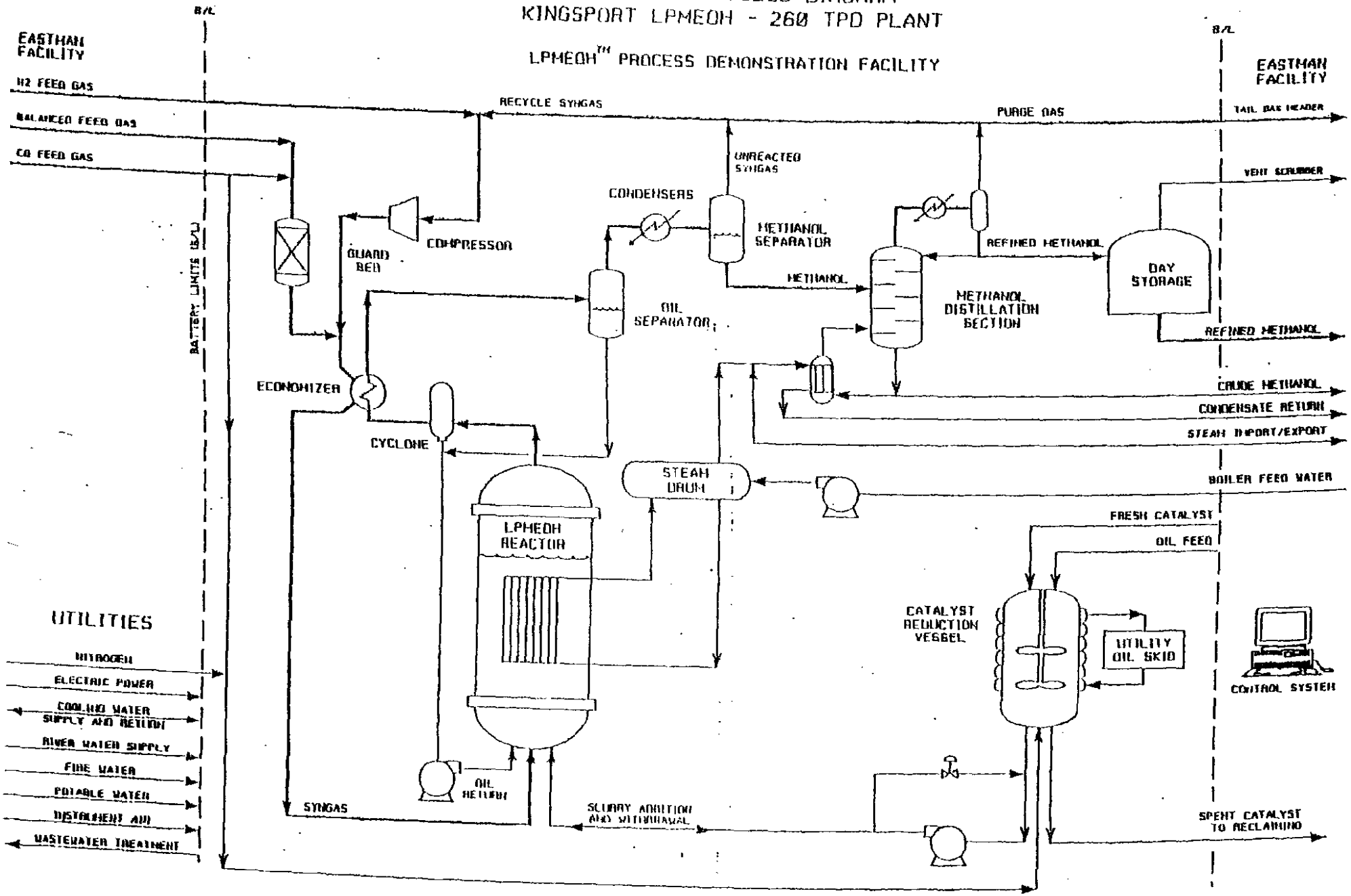
There have been no significant problems arising in the environmental area.

# APPENDICES

## APPENDIX A - SIMPLIFIED PROCESS FLOW DIAGRAM

# SIMPLIFIED PROCESS DIAGRAM
# KINGSPORT LPMEOH - 260 TPD PLANT

## LPMEOH™ PROCESS DEMONSTRATION FACILITY



## APPENDIX B - LEAK DETECTION AND REPAIR REPORT

40 CFR Part 63 SubPart H -- Semi-Annual Monitoring Summary
EASTMAN CHEMICAL
P.O. Box 511
Kingsport, TN 37662

Period: 01/01/1999 to 06/30/1999

PROCESS UNIT: METHANOL 29 COMPONENT CLASS: VALVES

| PERIOD START | PERIOD END | NUMBER TESTED | NUMBER LEAKERS | PERCENT LEAKERS | NUMBER UNREPAIRED | NUMBER NOT REPAIRABLE |
|---|---|---|---|---|---|---|

* * * No Data Logged for VALVES * * *

'ROCESS UNIT: METHANOL 29 COMPONENT CLASS: PUMPS

| 'ERIOD 'TART | PERIOD END | NUMBER TESTED | NUMBER LEAKERS | PERCENT LEAKERS | NUMBER UNREPAIRED | NUMBER NOT REPAIRABLE |
|---|---|---|---|---|---|---|
| '1/01/1999 | 01/31/1999 | 11 | 0 | 0.00 | 0 | 0 |
| '2/01/1999 | 02/28/1999 | 11 | 1 | 9.09 | 0 | 0 |
| '3/01/1999 | 03/31/1999 | 11 | 0 | 0.00 | 0 | 0 |
| '4/01/1999 | 04/30/1999 | 11 | 0 | 0.00 | 0 | 0 |
| 5/01/1999 | 05/31/1999 | 11 | 0 | 0.00 | 0 | 0 |
| 6/01/1999 | 06/30/1999 | 11 | 1 | 9.09 | 0 | 0 |

PROCESS UNIT: METHANOL 29 COMPONENT CLASS: COMPRESSORS

| PERIOD START | PERIOD END | NUMBER TESTED | NUMBER LEAKERS | PERCENT LEAKERS | NUMBER UNREPAIRED | NUMBER NOT REPAIRABLE |
|---|---|---|---|---|---|---|
| * * * No COMPRESSORSs In CMPU * * * | | | | | | |

PROCESS UNIT: METHANOL 29 COMPONENT CLASS: AGITATORS

| PERIOD START | PERIOD END | NUMBER TESTED | NUMBER LEAKERS | PERCENT LEAKERS | NUMBER UNREPAIRED | NUMBER NOT REPAIRABLE |
|---|---|---|---|---|---|---|

* * * No AGITATORSs In CMPU * * *

PROCESS UNIT: METHANOL 29 COMPONENT CLASS: CONNECTORS

| PERIOD START | PERIOD END | NUMBER TESTED | NUMBER LEAKERS | PERCENT LEAKERS | NUMBER UNREPAIRED | NUMBER NOT REPAIRABLE |
|---|---|---|---|---|---|---|

* * * No Data Logged For CONNECTORS * * *

End Of Report - ( ver. 2.4 )

40CFR Part 63 SubPart H - Semi Annual Delayed Repairs Report
EASTMAN CHEMICAL
P.O. Box 511
Kingsport, TN 37662

Period: 01/01/1999 to 06/30/1999

PROCESS UNIT: METHANOL 29

| COMPONENT TAG | DRAWING NUMBER | COMPONENT CLASS | INSPECTION DATE |
|---|---|---|---|
| REASON FOR DELAYED REPAIR | | | |
| 29E20S1 | 29F-B-003 | CONNECTOR | 02/02/1999 |
| Technically Infeasible | | | |

End Of Report

40 CFR Part 63 SubPart H -- Semi-Annual Exempt Compressor Report
EASTMAN CHEMICAL
P.O. Box 511
Kingsport, TN 37662

Period: 01/01/1999 to 06/30/1999

PROCESS UNIT: METHANOL 29

| INSPECTION DATE | DRAWING NUMBER | COMPONENT TAG | BACK-GROUND | TEST READING | NET READING | TEST RESULT |
|---|---|---|---|---|---|---|

* * * No Exempt Compressors In CMPU * * *

End Of Report

40 CFR Part 63 SubPart H -- Semi-Annual Pressure Relief Device Report
EASTMAN CHEMICAL
P.O. Box 511
Kingsport, TN 37662

Period: 01/01/1999 to 06/30/1999

PROCESS UNIT: METHANOL 29

| INSPECTION DATE | DRAWING NUMBER | COMPONENT TAG | BACK-GROUND | TEST READING | NET READING | TEST RESULT |
|---|---|---|---|---|---|---|

* * * No Pressure Relief Devices In CMPU * * *

End Of Report

40 CFR Part 63 SubPart H -- Semi-Annual Closed Vent System Report

EASTMAN CHEMICAL
P.O. Box 511
*Kingsport, TN 37662*

Period: 01/01/1999 to 06/30/1999

PROCESS UNIT: METHANOL 29

| INSPECTION DATE | DRAWING NUMBER | COMPONENT TAG | BACK-GROUND | TEST READING | NET READING | TEST RESULT |
|---|---|---|---|---|---|---|

* * * No Data Logged For Closed Vent Systems * * *

End Of Report

## APPENDIX C - NPDES REPORTS FOR WASTEWATER TREATMENT SYSTEM OUTLET STREAM

**PERMITTEE NAME/ADDRESS:**
TN EASTMAN DIVISION
DIVISION OF EASTMAN CHEMICAL CO.
P.O. BOX 1993
KINGSPORT, TN 37662-5393
*Facility:* TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
**DISCHARGE MONITORING REPORT** *(DMR)*

| TN0002640 | 002 G |
|---|---|
| PERMIT NUMBER | DISCHARGE NUMBER |

MONITORING PERIOD: FROM 99 - 07 - 01 TO 99 - 07 - 31

MAJOR
(SUBR 06)
F - FINAL
INDUSTRIAL PROCESS WASTEWATER
EFFLUENT
** NO DISCHARGE |__| **

FORM APPROVED
OMB No. 2040-0004

NOTE: Read instructions before completing this form.

| PARAMETER (32-37) | | (3 Card Only) (46-53) AVERAGE | Quantity or (54-61) MAXIMUM | Loading UNIT | (4 Card Only) (38-45) MINIMUM | Quantity or (46-53) AVERAGE | Concentration (54-61) MAXIMUM | UNIT | NO. EX (62-63) | Frequency of Analysis (64-68) | Sample Type (69-70) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PH | SAMPLE MEASUREMENT | ******** | ******** | | 6.8 | ******** | 8.2 | (12) | 0 | Continuous | N/A |
| 00400 1 0 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | ******** | ******** | **** | 6.0 MINIMUM | ******** | 9.0 MAXIMUM | SU | | CONTINUOUS | RECORDER |
| SOLIDS, TOTAL SUSPENDED | SAMPLE MEASUREMENT | 1,823 | 4,061 | (26) | ******** | ******** | ******** | | 0 | 3/7 | Composite |
| 00530 1 0 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | 10093 MON AVG | 32687 DAILY MAX | LBS/DAY | ******** | ******** | ******** | **** | | 3/WEEK | COMPOSITE |
| NITROGEN, AMMONIA TOTAL (AS N) | SAMPLE MEASUREMENT | 334 | 763 | (26) | ******** | 1.6 | 3.4 | (19) | 0 | 1/7 | Composite |
| 00610 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 6664 MON AVG | 18329 DAILY MAX | LBS/DAY | ******** | 30.5 MON AVG | 61.0 DAILY MAX | MG/L | | 1/WEEK | COMPOSITE |
| CYANIDE, TOTAL (AS CN) | SAMPLE MEASUREMENT | < 2.29 | < 2.29 | (26) | ******** | < 0.010 | < 0.010 | (19) | 0 | 1/31 | Grab |
| 00720 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 10.49 MON AVG | 24.95 DAILY MAX | LBS/DAY | ******** | 0.048 MON AVG | 0.343 DAILY MAX | MG/L | | ONCE/MONTH | GRAB |
| CHROMIUM, TOTAL (AS CR) | SAMPLE MEASUREMENT | 1.06 | 1.06 | (26) | ******** | 0.005 | 0.005 | (19) | 0 | 1/31 | Composite |
| 01034 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 10.93 MON AVG | 21.85 DAILY MAX | LBS/DAY | ******** | 0.050 MON AVG | 0.100 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| COPPER, TOTAL (AS CU) | SAMPLE MEASUREMENT | 1.05 | 1.05 | (26) | ******** | 0.005 | 0.005 | (19) | 0 | 1/31 | Composite |
| 01042 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 10.93 MON AVG | 21.85 DAILY MAX | LBS/DAY | ******** | 0.050 MON AVG | 0.100 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| LEAD, TOTAL (AS PB) | SAMPLE MEASUREMENT | < 0.44 | < 0.44 | (26) | ******** | < 0.002 | < 0.002 | (19) | 0 | 1/31 | Composite |
| 01051 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 37.58 MON AVG | 150.77 DAILY MAX | LBS/DAY | ******** | 0.172 MON AVG | 0.690 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |

| NAME / TITLE PRINCIPAL EXECUTIVE OFFICER | | | TELEPHONE | DATE |
|---|---|---|---|---|
| H. H. Holliman, President Tennessee Eastman Division | I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | (423) 229-2000 | 99 - 08 - 06 |
| TYPED OR PRINTED | | | AREA CODE NUMBER | YEAR MO DAY |

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

**PERMITTEE NAME/ADDRESS:**
TN EASTMAN DIVISION
DIVISION OF EASTMAN CHEMICAL CO.
P.O. BOX 1993
KINGSPORT, TN 37662-5393
Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
**DISCHARGE MONITORING REPORT *(DMR)***

| TN0002640 | 002 G |
|---|---|
| PERMIT NUMBER | DISCHARGE NUMBER |

MONITORING PERIOD: FROM 99 - 07 - 01 TO 99 - 07 - 31

MAJOR
(SUBR 06)
F - FINAL
INDUSTRIAL PROCESS WASTEWATER
EFFLUENT
** NO DISCHARGE |__| **

FORM APPROVED
OMB No. 2040-0004

NOTE: Read instructions before completing this form.

| PARAMETER *(32-37)* | | (3 Card Only) *(46-53)* AVERAGE | Quantity or *(54-61)* MAXIMUM | Loading UNIT | (4 Card Only) *(38-45)* MINIMUM | Quantity or *(46-53)* AVERAGE | Concentration *(54-61)* MAXIMUM | UNIT | NO. EX *(62-63)* | Frequency of Analysis *(64-68)* | Sample Type *(69-70)* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NICKEL, TOTAL (AS NI) | SAMPLE MEASUREMENT | 7.17 | 7.17 | (26) | ******** | 0.033 | 0.033 | (19) | 0 | 1/31 | Composite |
| 01067 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 369.28 MON AVG | 869.66 DAILY MAX | LBS/DAY | ******** | 1.690 MON AVG | 3.980 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| ZINC, TOTAL (AS ZN) | SAMPLE MEASUREMENT | 12.95 | 12.95 | (26) | ******** | 0.059 | 0.059 | (19) | 0 | 1/31 | Composite |
| 01092 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 138.11 MON AVG | 277.54 DAILY MAX | LBS/DAY | ******** | 0.635 MON AVG | 1.270 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| FLOW, IN CONDUIT OR THRU TREATMENT PLANT | SAMPLE MEASUREMENT | 25.4 | 28.8 | (03) | ******** | ******** | ******** | | 0 | Continuous | N/A |
| 50050 1 0 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | REPORT MON AVG | REPORT DAILY MAX | MGD | ******** | ******** | ******** | **** | | CONTINUOUS | RECORDER |
| BOD, CARBONACEOUS 05 DAY, 20C | SAMPLE MEASUREMENT | 1,084 | 2,371 | (26) | ******** | ******** | ******** | | 0 | 3/7 | Composite |
| 80082 2 W 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | 4000 MON AVG | 8500 DAILY MAX | LBS/DAY | ******** | ******** | ******** | **** | | 3/WEEK | COMPOSITE |
| | SAMPLE MEASUREMENT | | | | | | | | | | |
| | PERMIT REQUIREMENT | | | | | | | | | | |
| | SAMPLE MEASUREMENT | | | | | | | | | | |
| | PERMIT REQUIREMENT | | | | | | | | | | |
| | SAMPLE MEASUREMENT | | | | | | | | | | |
| | PERMIT REQUIREMENT | | | | | | | | | | |

| NAME / TITLE PRINCIPAL EXECUTIVE OFFICER | | | TELEPHONE | DATE |
|---|---|---|---|---|
| **H. H. Holliman, President Tennessee Eastman Division** | I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | (423) 229-2000 | 99 - 08 - 06 |
| TYPED OR PRINTED | | | AREA CODE NUMBER | YEAR MO DAY |

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Forms by WindowChem(707)864-0845;p/n11090;v5.01;4/1/98

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

**PERMITTEE NAME/ADDRESS:**
TN EASTMAN DIVISION
DIVISION OF EASTMAN CHEMICAL CO.
P.O. BOX 1993
KINGSPORT, TN 37662-5393
Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

| TN0002640 | 002 G |
|---|---|
| PERMIT NUMBER | DISCHARGE NUMBER |

MONITORING PERIOD
FROM 99 - 08 - 01 TO 99 - 08 - 31

MAJOR
(SUBR 06)
F - FINAL
INDUSTRIAL PROCESS WASTEWATER
EFFLUENT
** NO DISCHARGE |_| **

FORM APPROVED
OMB No. 2040-0004

NOTE: Read instructions before completing this form.

| PARAMETER (32-37) | | (3 Card Only) (46-53) AVERAGE | Quantity or (54-61) MAXIMUM | Loading UNIT | (4 Card Only) (38-45) MINIMUM | Quantity or (46-53) AVERAGE | Concentration (54-61) MAXIMUM | UNIT | NO. EX (62-63) | Frequency of Analysis (64-68) | Sample Type (69-70) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PH | SAMPLE MEASUREMENT | ******** | ******** | | 6.6 | ******** | 7.7 | (12) | 0 | Continuous | N/A |
| 00400 1 0 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | ******** | ******** | **** | 6.0 MINIMUM | ******** | 9.0 MAXIMUM | SU | | CONTINUOUS | RECORDER |
| SOLIDS, TOTAL SUSPENDED | SAMPLE MEASUREMENT | 2,848 | 9,055 | (26) | ******** | ******** | ******** | | 0 | 3/7 | Composite |
| 00530 1 0 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | 10093 MON AVG | 32687 DAILY MAX | LBS/DAY | ******** | ******** | ******** | **** | | 3/WEEK | COMPOSITE |
| NITROGEN, AMMONIA TOTAL (AS N) | SAMPLE MEASUREMENT | 63 | 119 | (26) | ******** | 0.3 | 0.5 | (19) | 0 | 1/7 | Composite |
| 00610 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 6664 MON AVG | 13329 DAILY MAX | LBS/DAY | ******** | 30.5 MON AVG | 61.0 DAILY MAX | MG/L | | 1/WEEK | COMPOSITE |
| CYANIDE, TOTAL (AS CN) | SAMPLE MEASUREMENT | < 2.09 | < 2.09 | (26) | ******** | < 0.010 | < 0.010 | (19) | 0 | 1/31 | Grab |
| 00720 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 10.49 MON AVG | 74.95 DAILY MAX | LBS/DAY | ******** | 0.048 MON AVG | 0.343 DAILY MAX | MG/L | | ONCE/MONTH | GRAB |
| CHROMIUM, TOTAL (AS CR) | SAMPLE MEASUREMENT | 1.50 | 1.50 | (26) | ******** | 0.008 | 0.008 | (19) | 0 | 1/31 | Composite |
| 01034 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 10.93 MON AVG | 21.85 DAILY MAX | LBS/DAY | ******** | 0.050 MON AVG | 0.100 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| COPPER, TOTAL (AS CU) | SAMPLE MEASUREMENT | < 0.56 | < 0.56 | (26) | ******** | < 0.003 | < 0.003 | (19) | 0 | 1/31 | Composite |
| 01042 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 10.93 MON AVG | 21.85 DAILY MAX | LBS/DAY | ******** | 0.050 MON AVG | 0.100 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| LEAD, TOTAL (AS PB) | SAMPLE MEASUREMENT | < 5.93 | < 5.93 | (26) | ******** | < 0.030 | < 0.030 | (19) | 0 | 1/31 | Composite |
| 01051 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 37.58 MON AVG | 150.77 DAILY MAX | LBS/DAY | ******** | 0.172 MON AVG | 0.690 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |

| NAME / TITLE PRINCIPAL EXECUTIVE OFFICER | | | TELEPHONE | DATE |
|---|---|---|---|---|
| H. H. Holliman, President Tennessee Eastman Division | I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | (423) 229-2000 AREA CODE NUMBER | 99 - 09 - 13 YEAR MO DAY |
| TYPED OR PRINTED | | | | |

Forms by WindowChem(707)864-0845;p/n11000;v5.01;4/1/98

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

**PERMITTEE NAME/ADDRESS:**
TN EASTMAN DIVISION
DIVISION OF EASTMAN CHEMICAL CO.
P.O. BOX 1993
KINGSPORT, TN 37662-5393
Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
**DISCHARGE MONITORING REPORT *(DMR)***

| TN0002640 | 002 G |
|---|---|
| PERMIT NUMBER | DISCHARGE NUMBER |

MONITORING PERIOD: FROM 99 - 08 - 01 TO 99 - 08 - 31

MAJOR
(SUBR 06)
F - FINAL
INDUSTRIAL PROCESS WASTEWATER
EFFLUENT
** NO DISCHARGE |__| **

FORM APPROVED
OMB No. 2040-0004

NOTE: Read instructions before completing this form.

| PARAMETER *(32-37)* | | (3 Card Only) *(46-53)* AVERAGE | Quantity or *(54-61)* MAXIMUM | Loading UNIT | (4 Card Only) *(38-45)* MINIMUM | Quantity or *(46-53)* AVERAGE | Concentration *(54-61)* MAXIMUM | UNIT | NO. EX *(62-63)* | Frequency of Analysis *(64-68)* | Sample Type *(69-70)* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NICKEL, TOTAL (AS NI) | SAMPLE MEASUREMENT | 5.13 | 5.13 | (26) | ******** | 0.026 | 0.026 | (19) | 0 | 1/31 | Composite |
| 01067 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 369.28 MON AVG | 869.66 DAILY MAX | LBS/DAY | ******** | 1.690 MON AVG | 3.980 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| ZINC, TOTAL (AS ZN) | SAMPLE MEASUREMENT | 6.59 | 6.59 | (26) | ******** | 0.033 | 0.033 | (19) | 0 | 1/31 | Composite |
| 01092 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 138.77 MON AVG | 277.54 DAILY MAX | LBS/DAY | ******** | 0.635 MON AVG | 1.270 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| FLOW, IN CONDUIT OR THRU TREATMENT PLANT | SAMPLE MEASUREMENT | 25.4 | 31.4 | (03) | ******** | ******** | ******** | | 0 | Continuous | N/A |
| 50050 1 0 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | REPORT MON AVG | REPORT DAILY MAX | MGD | ******** | ******** | ******** | **** | | CONTINUOUS | RECORDER |
| BOD, CARBONACEOUS 05 DAY, 20C | SAMPLE MEASUREMENT | 1,674 | 4,952 | (26) | ******** | ******** | ******** | | 0 | 3/7 | Composite |
| 80082 2 W 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | 4000 MON AVG | 8500 DAILY MAX | LBS/DAY | ******** | ******** | ******** | **** | | 3/WEEK | COMPOSITE |
| | SAMPLE MEASUREMENT | | | | | | | | | | |
| | PERMIT REQUIREMENT | | | | | | | | | | |
| | SAMPLE MEASUREMENT | | | | | | | | | | |
| | PERMIT REQUIREMENT | | | | | | | | | | |
| | SAMPLE MEASUREMENT | | | | | | | | | | |
| | PERMIT REQUIREMENT | | | | | | | | | | |

| NAME / TITLE PRINCIPAL EXECUTIVE OFFICER | | | TELEPHONE | DATE |
|---|---|---|---|---|
| H. H. Holliman, President<br>Tennessee Eastman Division | I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | (423) 229-2000 | 99 - 09 - 13 |
| TYPED OR PRINTED | | | AREA CODE NUMBER | YEAR MO DAY |

Forms by WindowChem(707)864-0845;p/n11090;v5.01;4/1/96

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

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TN EASTMAN DIVISION
DIVISION OF EASTMAN CHEMICAL CO.
P.O. BOX 1993
KINGSPORT, TN 37662-5393
Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

*NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)*
**DISCHARGE MONITORING REPORT (DMR)**

| TN0002640 | 002 G |
|---|---|
| PERMIT NUMBER | DISCHARGE NUMBER |

MONITORING PERIOD: FROM 99 - 09 - 01 TO 99 - 09 - 30

MAJOR
(SUBR 06)
F - FINAL
INDUSTRIAL PROCESS WASTEWATER
EFFLUENT
** NO DISCHARGE |__| **

FORM APPROVED
OMB No. 2040-0004

NOTE: Read instructions before completing this form.

| PARAMETER (32-37) | | (3 Card Only) (46-53) AVERAGE | (3 Card Only) (46-53) MAXIMUM | UNIT | (4 Card Only) (38-45) MINIMUM | Quantity or (46-53) AVERAGE | Concentration (54-61) MAXIMUM | UNIT | NO. EX (62-63) | Frequency of Analysis (64-68) | Sample Type (69-70) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PH | SAMPLE MEASUREMENT | ******** | ******** | | 6.8 | ******** | 7.7 | (12) | 0 | Continuous | N/A |
| 00400 1 0 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | ******** | ******** | **** | 6.0 MINIMUM | ******** | 9.0 MAXIMUM | SU | | CONTINUOUS | RECORDER |
| SOLIDS, TOTAL SUSPENDED | SAMPLE MEASUREMENT | 3,824 | 9,782 | (26) | ******** | ******** | ******** | | 0 | 3/7 | Composite |
| 00530 1 0 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | 10093 MON AVG | 32687 DAILY MAX | LBS/DAY | ******** | ******** | ******** | **** | | 3/WEEK | COMPOSITE |
| NITROGEN, AMMONIA TOTAL (AS N) | SAMPLE MEASUREMENT | 131 | 368 | (26) | ******** | 0.6 | 1.6 | (19) | 0 | 1/7 | Composite |
| 00610 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 6664 MON AVG | 13329 DAILY MAX | LBS/DAY | ******** | 30.5 MON AVG | 61.0 DAILY MAX | MG/L | | 1/WEEK | COMPOSITE |
| CYANIDE, TOTAL (AS CN) | SAMPLE MEASUREMENT | < 1.75 | < 1.75 | (26) | ******** | < 0.008 | < 0.008 | (19) | 0 | 1/30 | Grab |
| 00720 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 10.49 MON AVG | 74.95 DAILY MAX | LBS/DAY | ******** | 0.048 MON AVG | 0.343 DAILY MAX | MG/L | | ONCE/MONTH | GRAB |
| CHROMIUM, TOTAL (AS CR) | SAMPLE MEASUREMENT | 1.73 | 1.73 | (26) | ******** | 0.007 | 0.007 | (19) | 0 | 1/30 | Composite |
| 01034 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 10.93 MON AVG | 21.85 DAILY MAX | LBS/DAY | ******** | 0.050 MON AVG | 0.100 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| COPPER, TOTAL (AS CU) | SAMPLE MEASUREMENT | 1.27 | 1.27 | (26) | ******** | 0.005 | 0.005 | (19) | 0 | 1/30 | Composite |
| 01042 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 10.93 MON AVG | 21.85 DAILY MAX | LBS/DAY | ******** | 0.050 MON AVG | 0.100 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| LEAD, TOTAL (AS PB) | SAMPLE MEASUREMENT | < 7.10 | < 7.10 | (26) | ******** | < 0.030 | < 0.030 | (19) | 0 | 1/30 | Composite |
| 01051 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 37.58 MON AVG | 150.77 DAILY MAX | LBS/DAY | ******** | 0.172 MON AVG | 0.690 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |

| NAME / TITLE PRINCIPAL EXECUTIVE OFFICER | | | TELEPHONE | DATE |
|---|---|---|---|---|
| **H. H. Holliman, President Tennessee Eastman Division** | I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | (423) 229-2000 | 99 - 10 - 12 |
| TYPED OR PRINTED | | | AREA CODE NUMBER | YEAR MO DAY |

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

**PERMITTEE NAME/ADDRESS:**
TN EASTMAN DIVISION
DIVISION OF EASTMAN CHEMICAL CO.
P.O. BOX 1993
KINGSPORT, TN 37662-5393
Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
**DISCHARGE MONITORING REPORT *(DMR)***

| TN0002640 | 002 G |
|---|---|
| PERMIT NUMBER | DISCHARGE NUMBER |

MONITORING PERIOD: FROM 99 - 09 - 01 TO 99 - 09 - 30

MAJOR
(SUBR 06)
F - FINAL
INDUSTRIAL PROCESS WASTEWATER
EFFLUENT
** NO DISCHARGE |__| **

FORM APPROVED
OMB No. 2040-0004

NOTE: Read instructions before completing this form.

| PARAMETER *(32-37)* | | (3 Card Only) *(46-53)* AVERAGE | Quantity or *(54-61)* MAXIMUM | Loading UNIT | (4 Card Only) *(38-45)* MINIMUM | Quantity or *(46-53)* AVERAGE | Concentration *(54-61)* MAXIMUM | UNIT | NO. EX *(62-63)* | Frequency of Analysis *(64-68)* | Sample Type *(69-70)* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NICKEL, TOTAL (AS NI) | SAMPLE MEASUREMENT | 6.87 | 6.87 | (26) | ******** | 0.029 | 0.029 | (19) | 0 | 1/30 | Composite |
| 01067 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 369.28 MON AVG | 869.66 DAILY MAX | LBS/DAY | ******** | 1.690 MON AVG | 3.980 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| ZINC, TOTAL (AS ZN) | SAMPLE MEASUREMENT | 15.86 | 15.86 | (26) | ******** | 0.067 | 0.067 | (19) | 0 | 1/30 | Composite |
| 01092 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 138.77 MON AVG | 277.54 DAILY MAX | LBS/DAY | ******** | 0.635 MON AVG | 1.270 DAILY MAX | MG/L | | ONCE/MONTH | COMPOSITE |
| FLOW, IN CONDUIT OR THRU TREATMENT PLANT | SAMPLE MEASUREMENT | 26.9 | 29.6 | (03) | ******** | ******** | ******** | | 0 | Continuous | N/A |
| 50050 1 0 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | REPORT MON AVG | REPORT DAILY MAX | MGD | ******** | ******** | ******** | **** | | CONTINUOUS | RECORDER |
| BOD, CARBONACEOUS 05 DAY, 20C | SAMPLE MEASUREMENT | 1,473 | 2,812 | (26) | ******** | ******** | ******** | | 0 | 3/7 | Composite |
| 80082 2 W 0 EFFLUENT GROSS VALUE | PERMIT REQUIREMENT | 4000 MON AVG | 8500 DAILY MAX | LBS/DAY | ******** | ******** | ******** | **** | | 3/WEEK | COMPOSITE |
| | SAMPLE MEASUREMENT | | | | | | | | | | |
| | PERMIT REQUIREMENT | | | | | | | | | | |
| | SAMPLE MEASUREMENT | | | | | | | | | | |
| | PERMIT REQUIREMENT | | | | | | | | | | |
| | SAMPLE MEASUREMENT | | | | | | | | | | |
| | PERMIT REQUIREMENT | | | | | | | | | | |

| NAME / TITLE PRINCIPAL EXECUTIVE OFFICER | | TELEPHONE | DATE |
|---|---|---|---|
| H. H. Holliman, President<br>Tennessee Eastman Division | I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | (423) 229-2000 | 99 - 10 - 12 |
| TYPED OR PRINTED | | | AREA CODE NUMBER | YEAR MO DAY |

Forms by WindowChem(707)864-0845;p/n11090;v5.01;4/1/98

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

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DIVISION OF EASTMAN CHEMICAL CO.
P.O BOX 1993
KINGSPORT, TN 37662-5393
Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
*DISCHARGE MONITORING REPORT (DMR)*

TN0002640 — PERMIT NUMBER
002 Q — DISCHARGE NUMBER

MAJOR
(SUBR 06)
F - FINAL
PROCESSED WW QUARTERLY REPORT
EFFLUENT
*** NO DISCHARGE [__] ***
NOTE: Read instructions before completing this form.

FORM APPROVED
OMB No.2040-0004

**MONITORING PERIOD**
FROM 99 - 07 - 01 TO 99 - 09 - 30

| PARAMETER (32-37) | | (3 Card Only) (46-53) Quantity or Loading Average | Maximum | Unit | (4 Card Only) (38-45) Quality or Concentration Minimum | Average | Maximum | Unit | NO. EX (62-63) | Frequency of analysis (64-68) | Sample Type (69-70) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CARBON TETRACHLORIDE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quater | Grab |
| 32102 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 3.93 MON AVG. | 8.30 DAILY MAX | LBS/DAY | ******** | 0.018 MON AVG | 0.038 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 1,2-DICHLOROETHANE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 32103 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 14.86 MON AVG | 46.11 DAILY MAX | LBS/DAY | ******** | 0.068 MON AVG | 0.211 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| CHLOROFORM | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 32106 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 4.59 MON AVG | 10.05 DAILY MAX | LBS/DAY | ******** | 0.021 MON AVG | 0.046 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| TOLUENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34010 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 5.68 MON AVG | 17.48 DAILY MAX | LBS/DAY | ******** | 0.026 MON AVG | 0.080 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| ACENAPHTHYLENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34200 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 1.75 MON AVG | 3.54 DAILY MAX | LBS/DAY | ******** | 0.008 MON AVG | 0.016 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| ACENAPHTHENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34205 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 4.81 MON AVG | 12.89 DAILY MAX | LBS/DAY | ******** | 0.022 MON AVG | 0.059 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| ACRYLONITRILE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34215 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 20.98 MON AVG | 52.88 DAILY MAX | LBS/DAY | ******** | 0.096 MON AVG | 0.242 DAILY MAX | MG/L | | QUARTERLY | GRAB |

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
**H. H. Holliman, President**
**Tennessee Eastman Division**
*TYPED OR PRINTED*

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC 1001 AND 33 USC 1319 (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO $10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: (423) 229-2000 (AREA CODE NUMBER)
DATE: 99 - 10 - 12 (YEAR MO DAY)

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

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DIVISION OF EASTMAN CHEMICAL CO.
P.O BOX 1993
KINGSPORT, TN 37662-5393
Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
**DISCHARGE MONITORING REPORT** *(DMR)*

| TN0002640 | 002 Q |
|---|---|
| PERMIT NUMBER | DISCHARGE NUMBER |

| MONITORING PERIOD | | | |
|---|---|---|---|
| FROM | 99 - 07 - 01 | TO | 99 - 09 - 30 |

MAJOR
(SUBR 06)
F - FINAL
PROCESSED WW QUARTERLY REPORT
EFFLUENT
*** NO DISCHARGE |__| ***
NOTE: Read instructions before completing this form.

FORM APPROVED
OMB No.2040-0004

| PARAMETER *(32-37)* | | (3 Card Only) *(46-53)* Quantity or *(54-61)* Average | Maximum | Loading Unit | (4 Card Only) *(38-45)* Quality or *(46-53)* Minimum | Average | Concentration *(54-61)* Maximum | Unit | NO. EX *(62-63)* | Frequency of analysis *(64-68)* | Sample Type *(69-70)* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTHRACENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34220 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 0.179 MON AVG | 0.354 DAILY MAX | LBS/DAY | ******** | 0.00082 MON AVG | 0.00162 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| BENZENE, DISSOLVED | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34235 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 8.08 MON AVG | 29.72 DAILY MAX | LBS/DAY | ******** | 0.037 MON AVG | 0.136 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| BENZO (K) FLUORANTHENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34242 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 1.75 MON AVG | 3.54 DAILY MAX | LBS/DAY | ******** | 0.008 MON AVG | 0.016 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| BENZO (A) PYRENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34247 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 1.75 MON AVG | 3.54 DAILY MAX | LBS/DAY | ******** | 0.008 MON AVG | 0.016 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| CHLOROBENZENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34301 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 3.28 MON AVG | 6.12 DAILY MAX | LBS/DAY | ******** | 0.015 MON AVG | 0.028 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| CHRYSENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34320 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 0.179 MON AVG | 0.354 DAILY MAX | LBS/DAY | ******** | 0.00082 MON AVG | 0.00162 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| DIETHYL PHTHALATE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34336 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 17.70 MON AVG | 44.36 DAILY MAX | LBS/DAY | ******** | 0.081 MON AVG | 0.203 DAILY MAX | MG/L | | QUARTERLY | GRAB |

| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER | | | TELEPHONE | DATE |
|---|---|---|---|---|
| **H. H. Holliman, President** | I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC 1001 AND 33 USC 1319 (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO $10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS) | | (423) 229-2000 | 99 - 10 - 12 |
| **Tennessee Eastman Division** | | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | AREA CODE NUMBER | YEAR MO DAY |
| TYPED OR PRINTED | | | | |

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

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DIVISION OF EASTMAN CHEMICAL CO.
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Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

TN0002640 — PERMIT NUMBER
002 Q — DISCHARGE NUMBER

MONITORING PERIOD: FROM 99 - 07 - 01 TO 99 - 09 - 30

MAJOR
(SUBR 06)
F - FINAL
PROCESSED WW QUARTERLY REPORT
EFFLUENT
*** NO DISCHARGE |_| ***
NOTE: Read instructions before completing this form.

FORM APPROVED
OMB No.2040-0004

| PARAMETER (32-37) | | (3 Card Only) (46-53) Quantity or Loading: Average | Maximum | Unit | (4 Card Only) (38-45) Quality or Concentration: Minimum | Average | Maximum | Unit | NO. EX (62-63) | Frequency of analysis (64-68) | Sample Type (69-70) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DIMETHYL PHTHALATE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34341 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 4.15 MON AVG | 10.27 DAILY MAX | LBS/DAY | ******** | 0.019 MON AVG | 0.047 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| FLUORANTHENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34376 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 5.46 MON AVG | 14.86 DAILY MAX | LBS/DAY | ******** | 0.025 MON AVG | 0.068 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| FLUORENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34381 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 0.179 MON AVG | 0.354 DAILY MAX | LBS/DAY | ******** | 0.00082 MON AVG | 0.00162 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| HEXACHLOROBUTADIENE | SAMPLE MEASUREMEN | ******** | < 1.40 | (26) | ******** | ******** | < 0.007 | (19) | 0 | 1/Quarter | Grab |
| 34391 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 4.37 MON AVG | 10.71 DAILY MAX | LBS/DAY | ******** | 0.020 MON AVG | 0.049 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| HEXACHLOROETHANE | SAMPLE MEASUREMEN | ******** | < 1.60 | (26) | ******** | ******** | < 0.008 | (19) | 0 | 1/Quarter | Grab |
| 34396 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 4.59 MON AVG | 11.80 DAILY MAX | LBS/DAY | ******** | 0.021 MON AVG | 0.054 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| METHYL CHLORIDE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34418 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 18.79 MON AVG | 41.52 DAILY MAX | LBS/DAY | ******** | 0.086 MON AVG | 0.190 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| METHYLENE CHLORIDE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34423 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 8.74 MON AVG | 19.45 DAILY MAX | LBS/DAY | ******** | 0.040 MON AVG | 0.089 DAILY MAX | MG/L | | QUARTERLY | GRAB |

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
**H. H. Holliman, President**
**Tennessee Eastman Division**
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC 1001 AND 33 USC 1319 (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO $10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS).

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: (423) 229-2000 (AREA CODE NUMBER)
DATE: 99 - 10 - 12 (YEAR MO DAY)

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P.O BOX 1993
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Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

| TN0002640 | 002 Q |
|---|---|
| PERMIT NUMBER | DISCHARGE NUMBER |

| MONITORING PERIOD | | | |
|---|---|---|---|
| FROM | 99 - 07 - 01 | TO | 99 - 09 - 30 |

MAJOR
(SUBR 06)
F - FINAL
PROCESSED WW QUARTERLY REPORT
EFFLUENT
*** NO DISCHARGE |__| ***
NOTE: Read instructions before completing this form.

FORM APPROVED
OMB No.2040-0004

| PARAMETER *(32-37)* | | (3 Card Only) *(46-53)* Quantity or *(54-61)* Average | Maximum | Loading Unit | (4 Card Only) *(38-45)* Quality or *(46-53)* Minimum | Average | Concentration *(54-61)* Maximum | Unit | NO. EX *(62-63)* | Frequency of analysis *(64-68)* | Sample Type *(69-70)* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NITROBENZENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34447 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 5.90 MON AVG | 14.86 DAILY MAX | LBS/DAY | ******** | 0.027 MON AVG | 0.068 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| PHENANTHRENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34461 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 0.179 MON AVG | 0.354 DAILY MAX | LBS/DAY | ******** | 0.00082 MON AVG | 0.00162 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| PYRENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34469 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 0.179 MON AVG | 0.354 DAILY MAX | LBS/DAY | ******** | 0.00082 MON AVG | 0.00162 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| TETRACHLOROETHYLENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34475 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 4.61 MON AVG | 12.24 DAILY MAX | LBS/DAY | ******** | 0.022 MON AVG | 0.056 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 1,1 - DICHLOROETHANE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34496 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 4.81 MON AVG | 12.89 DAILY MAX | LBS/DAY | ******** | 0.022 MON AVG | 0.059 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 1,1 - DICHLOROETHYLENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34501 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 3.50 MON AVG | 5.46 DAILY MAX | LBS/DAY | ******** | 0.016 MON AVG | 0.025 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 1,1,1 - TRICHLOROETHANE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34506 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 4.59 MON AVG | 11.80 DAILY MAX | LBS/DAY | ******** | 0.021 MON AVG | 0.054 DAILY MAX | MG/L | | QUARTERLY | GRAB |

| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER | | TELEPHONE | DATE |
|---|---|---|---|
| H. H. Holliman, President | I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC 1001 AND 33 USC 1319. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO $10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS ) | | |
| Tennessee Eastman Division | | (423) 229-2000 | 99 - 10 - 12 |
| TYPED OR PRINTED | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | AREA CODE NUMBER | YEAR MO DAY |

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DIVISION OF EASTMAN CHEMICAL CO.
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Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

| TN0002640 | 002 Q |
|---|---|
| PERMIT NUMBER | DISCHARGE NUMBER |

MONITORING PERIOD: FROM 99 - 07 - 01 TO 99 - 09 - 30

MAJOR
(SUBR 06)
F - FINAL
PROCESSED WW QUARTERLY REPORT
EFFLUENT
*** NO DISCHARGE |__| ***
NOTE: Read instructions before completing this form.

FORM APPROVED
OMB No.2040-0004

| PARAMETER (32-37) | | (3 Card Only) (46-53) Quantity or Loading | | | (4 Card Only) (38-45) Quality or Concentration (54-61) | | | | NO. EX (62-63) | Frequency of analysis (64-68) | Sample Type (69-70) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average | Maximum | Unit | Minimum | Average | Maximum | Unit | | | |
| 1,1,2 - TRICHLOROETHANE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34511 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 4.59 MON AVG | 11.80 DAILY MAX | LBS/DAY | ******** | 0.021 MON AVG | 0.054 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| BENZO (A) ANTHRACENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34526 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 1.75 MON AVG | 3.54 DAILY MAX | LBS/DAY | ******** | 0.008 MON AVG | 0.016 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 1,2 - DICHLOROBENZENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34536 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 16.83 MON AVG | 35.62 DAILY MAX | LBS/DAY | ******** | 0.077 MON AVG | 0.163 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 1,2 - DICHLOROPROPANE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34541 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 33.43 MON AVG | 50.26 DAILY MAX | LBS/DAY | ******** | 0.153 MON AVG | 0.230 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 1,2 - TRANS - DICHLOROETHYLENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34546 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 4.59 MON AVG | 11.80 DAILY MAX | LBS/DAY | ******** | 0.021 MON AVG | 0.054 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 1,2,4 - TRICHLOROBENZENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34551 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 14.86 MON AVG | 30.59 DAILY MAX | LBS/DAY | ******** | 0.068 MON AVG | 0.140 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 1,3 - DICHLOROPROPENE, TOTAL WEIGHT | SAMPLE MEASUREMEN | ******** | < 0.40 | (26) | ******** | ******** | < 0.002 | (19) | 0 | 1/Quarter | Grab |
| 34561 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 6.34 MON AVG | 9.61 DAILY MAX | LBS/DAY | ******** | 0.029 MON AVG | 0.044 DAILY MAX | MG/L | | QUARTERLY | GRAB |

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

**H. H. Holliman, President**

**Tennessee Eastman Division**

TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC 1001 AND 33 USC 1319 (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO $10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS )

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

| TELEPHONE | DATE |
|---|---|
| (423) 229-2000 | 99 - 10 - 12 |
| AREA CODE NUMBER | YEAR MO DAY |

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

**PERMITTEE NAME/ADDRESS:**
TN EASTMAN DIVISION
DIVISION OF EASTMAN CHEMICAL CO.
P.O BOX 1993
KINGSPORT, TN 37662-5393
Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
**DISCHARGE MONITORING REPORT** *(DMR)*

| TN0002640 | 002 Q |
|---|---|
| PERMIT NUMBER | DISCHARGE NUMBER |

| MONITORING PERIOD | | | |
|---|---|---|---|
| FROM | 99 - 07 - 01 | TO | 99 - 09 - 30 |

MAJOR
(SUBR 06)
F - FINAL
PROCESSED WW QUARTERLY REPORT
EFFLUENT
*** NO DISCHARGE |__| ***
NOTE: Read instructions before completing this form.

FORM APPROVED
OMB No.2040-0004

| PARAMETER *(32-37)* | | (3 Card Only) *(46-53)* Quantity or *(54-61)* Average | Maximum | Unit | (4 Card Only) *(38-45)* Quality or *(46-53)* Minimum | Average | Concentration *(54-61)* Maximum | Unit | NO. EX *(62-63)* | Frequency of analysis *(64-68)* | Sample Type *(69-70)* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,3 - DICHLOROBENZENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34566 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 6.77 MON AVG | 9.61 DAILY MAX | LBS/DAY | ******** | 0.031 MON AVG | 0.044 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 1,4 - DICHLOROBENZENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34571 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 3.26 MON AVG | 6.12 DAILY MAX | LBS/DAY | ******** | 0.015 MON AVG | 0.028 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 2 - CHLOROPHENOL | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34586 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 6.77 MON AVG | 21.41 DAILY MAX | LBS/DAY | ******** | 0.031 MON AVG | 0.098 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 2 - NITROPHENOL | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34591 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 8.96 MON AVG | 15.08 DAILY MAX | LBS/DAY | ******** | 0.041 MON AVG | 0.069 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 2,4 - DICHLOROPHENOL | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34601 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 8.52 MON AVG | 24.47 DAILY MAX | LBS/DAY | ******** | 0.039 MON AVG | 0.112 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 2,4 - DIMETHYLPHENOL | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34606 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 3.93 MON AVG | 7.87 DAILY MAX | LBS/DAY | ******** | 0.018 MON AVG | 0.036 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 2,4 - DINITROTOLUENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34611 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 24.69 MON AVG | 62.27 DAILY MAX | LBS/DAY | ******** | 0.113 MON AVG | 0.285 DAILY MAX | MG/L | | QUARTERLY | GRAB |

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

**H. H. Holliman, President**

**Tennessee Eastman Division**

TYPED OR PRINTED

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SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: (423) 229-2000 (AREA CODE NUMBER)

DATE: 99 - 10 - 12 (YEAR MO DAY)

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

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PERMITTEE NAME/ADDRESS:
TN EASTMAN DIVISION
DIVISION OF EASTMAN CHEMICAL CO.
P.O BOX 1993
KINGSPORT, TN 37662-5393
Facility: TN EASTMAN - KINGSPORT
Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

| TN0002640 | 002 Q |
|---|---|
| PERMIT NUMBER | DISCHARGE NUMBER |

| MONITORING PERIOD | | | |
|---|---|---|---|
| FROM | 99 - 07 - 01 | TO | 99 - 09 - 30 |

MAJOR
(SUBR 06)
F - FINAL
PROCESSED WW QUARTERLY REPORT
EFFLUENT
*** NO DISCHARGE |_| ***
NOTE: Read instructions before completing this form.

FORM APPROVED
OMB No.2040-0004

| PARAMETER *(32-37)* | | (3 Card Only) *(46-53)* Quantity or *(54-61)* Loading | | | (4 Card Only) *(38-45)* Quality or *(46-53)* Concentration *(54-61)* | | | | NO. EX *(62-63)* | Frequency of analysis *(64-68)* | Sample Type *(69-70)* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average | Maximum | Unit | Minimum | Average | Maximum | Unit | | | |
| 2,4 - DINITROPHENOL | SAMPLE MEASUREMEN | ******** | < 1.60 | (26) | ******** | ******** | < 0.008 | (19) | 0 | 1/Quarter | Grab |
| 34616 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 15.51 MON AVG | 26.88 DAILY MAX | LBS/DAY | ******** | 0.071 MON AVG | 0.123 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 2,6 - DINITROTOLUENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34626 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 55.72 MON AVG | 140.06 DAILY MAX | LBS/DAY | ******** | 0.255 MON AVG | 0.641 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 4 - NITROPHENOL | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34646 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 15.73 MON AVG | 27.09 DAILY MAX | LBS/DAY | ******** | 0.072 MON AVG | 0.124 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| 4,6 - DINITRO - O - CRESOL | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34657 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 17.04 MON AVG | 60.53 DAILY MAX | LBS/DAY | ******** | 0.078 MON AVG | 0.277 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| PHENOL, SINGLE COMPOUND | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34694 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 3.28 MON AVG | 5.68 DAILY MAX | LBS/DAY | ******** | 0.015 MON AVG | 0.026 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| NAPHTHALENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 34696 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 4.81 MON AVG | 12.89 DAILY MAX | LBS/DAY | ******** | 0.022 MON AVG | 0.059 DAILY MAX | MG/L | | QUARTERLY | GRAB |
| ETHYL BENZENE | SAMPLE MEASUREMEN | ******** | < 0.20 | (26) | ******** | ******** | < 0.001 | (19) | 0 | 1/Quarter | Grab |
| 37371 2 0 0 EFFLUENT NET VALUE | PERMIT REQUIREMENT | 6.99 MON AVG | 23.60 DAILY MAX | LBS/DAY | ******** | 0.032 MON AVG | 0.108 DAILY MAX | MG/L | | QUARTERLY | GRAB |

| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER | | TELEPHONE | DATE |
|---|---|---|---|
| **H. H. Holliman, President** | I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC 1001 AND 33 USC 1319 (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO $10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.) | | | |
| **Tennessee Eastman Division** | | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT | (423) 229-2000 | 99 - 10 - 12 |
| TYPED OR PRINTED | | | AREA CODE NUMBER | YEAR MO DAY |

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MAJOR

(SUBR 06)

F - FINAL

R PROCESSED WW QUARTERLY REPORT

EFFLUENT

*** NO DISCHARGE |__| ***

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FORM APPROVED

OMB No.2040-0004

| on | Unit | NO. EX (62-63) | Frequency of analysis (64-68) | Sample Type (69-70) |
|---|---|---|---|---|