

EST 1043

Conoco Chemicals Company
A Division of Conoco Inc.
P.O. Box 727
Westlake, Louisiana 70669
(318) 491-5211

CERTIFIED—RETURN
RECEIPT REQUESTED

February 26, 1980

RECEIVED

JUL 24 1980

Mr. Randall E. Brown
Environmental Protection Agency
6 AAHAT Technical Support Section
First International Building
1201 Elm Street
Dallas, Texas 75270

Dear Mr. Brown:

By this letter, we are advising you of our withdrawal from consideration the Prevention of Significant Deterioration ("PSD") Application (LA-291) submitted by Conoco Inc. on November 20, 1979. The application pertained to the construction of a new Linear Alkylbenzene Plant in Lake Charles, Louisiana.

This action is being taken pursuant to the Administrative Order entered on January 30, 1980, by the Administrator of the Environmental Protection Agency in conjunction with the litigation in Alabama Power Co. v. Costle, No. 78-1006 (D.C. Cir. December 14, 1979). The proposed construction will have a controlled emissions of less than 100 tons per year of all pollutants regulated under the PSD regulations proposed on September 5, 1979, and hence will not be a major source subject to PSD review for any of these pollutants.

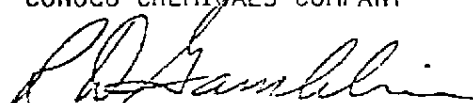
The plant is to be located in an Air Quality Control Region which does not meet the National Ambient Air Quality Standard for ozone and, therefore, is classified as a "non-attainment" area. Due to this "non-attainment" status, PSD does not apply. However, the State of Louisiana has granted a State construction permit, which is included on Page 13 of the Appendix, demonstrating total compliance with the State Implementation Plan and all other applicable air regulations.

A basic information package is attached which follows an outline for PSD applications obtained from EPA. Included in this information is emission calculations which demonstrate Conoco's position on PSD.

If any clarification is required, please do not hesitate to contact Jack Neeld at (318) 491-5437.

Sincerely,

CONOCO CHEMICALS COMPANY


R. D. Gamblin
Manager, Lake Charles Operations

HJN/mbr
Enclosure

MCD 000008841

TOTAL LINEAR ALKYL PLANT
INFORMATION PACKAGE

1. Applicant: Conoco Chemicals Company, A Division of Conoco Inc.
Address: P. O. Box 727, Westlake, LA 70669
Phone: (318) 491-5437
Contact: Harvey J. Neeld, Director of Environmental Control
2. Facility Name: Lake Charles Linear Alkyl Benzene Plant
Location: Westlake, Louisiana
Type of Operation: Organic Chemicals Manufacturing
3. Begin Construction: August 1, 1980
Begin Operation: April 1, 1982
4. Site Information:

The plant will be located within the S.W. quadrant of the N.W. quadrant of Section 27, Township 9 South, Range 9 West. This location is within the city limits of Westlake, Calcasieu Parish, Louisiana. Cascio subdivision is the nearest residential section to the plant which is approximately 1,750 feet to the north.

Source Plans, Description, and Design:

A plot plan is attached (Figure IV) indicating the various sections of the plant including emission point sources.

For descriptive purpose, three figures are attached. Figure I presents a block process flow drawing of the process for a 150 million pound per year linear alkyl benzene production. Figures II and III show more detailed process information, including the major operating equipment involved and major emission points.

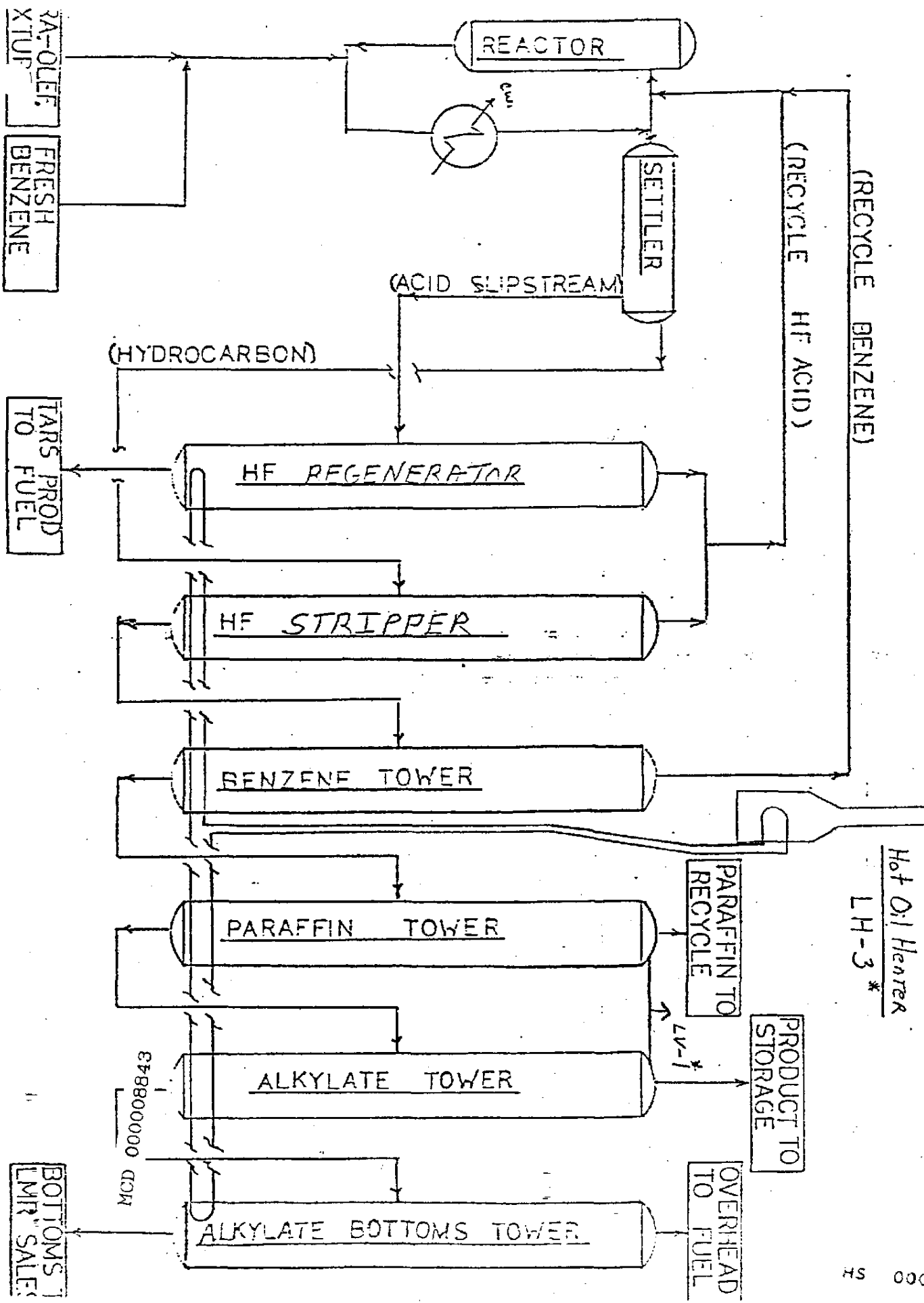
Paraffins (primarily C₁₁ to C₁₄) are transferred from storage, mixed with recycle paraffins and recycle hydrogen, vaporized in the feed-effluent exchangers, and heated in the PACOL charge heater, a direct-fired process heater. They then flow through one of two reactors where the paraffins are converted to olefins at 10 to 14% conversion. The vapors flow through the feed-effluent exchanger to an air cooler and then to a separator drum. Vapor from the separator drum (primarily hydrogen) is compressed and re-cycled to unit feed. Excess hydrogen resulting from the reaction is used as fuel.

Liquid from the separator flows to the PACOL stripper. The overhead product consists of liquids and vapors which are again used as fuel. The

MCD 000008842

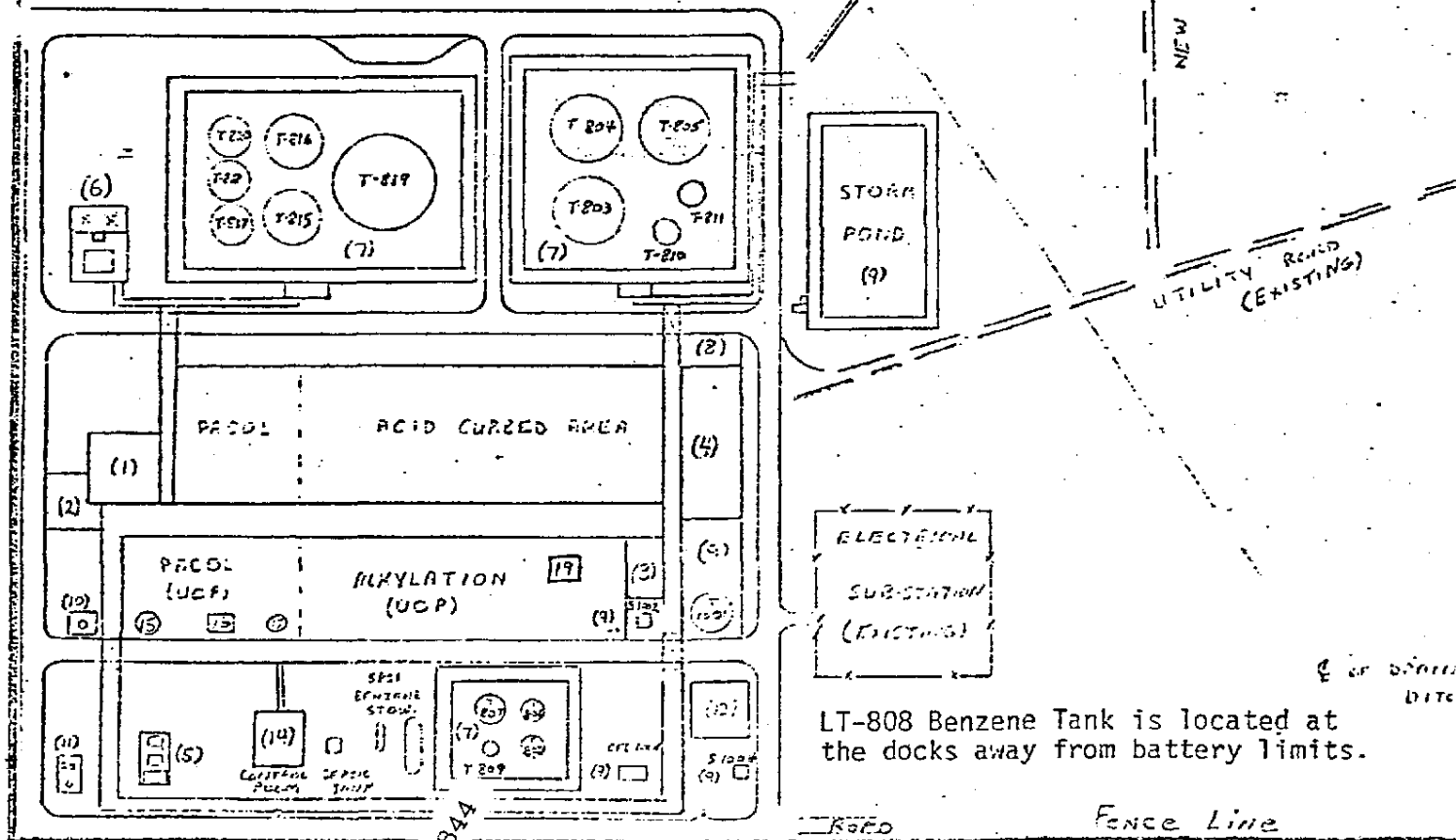
HS 000100044

BENZENE ALKY. & PROD. PURIF. UNITS
LINEAR ALKYL. BENZENE PRODUCTION UNIT



1. Paraffin Fractionation
2. Hydrogen Fuel System
3. Bottoms Fractionation
4. Alkylate Treating (Space Only)
5. Plant and Instrument Air
6. Cooling Water System
7. Paraffin Tankage
8. Flare System
9. Waste Water Systems
10. Fuel System Knockout Drum
11. Well Water Systems
12. Warehouse
13. Railspur and Loading
14. Control Room
15. Hot Oil Heater LH-3
16. Charge Heater LH-1
17. Startup Heater LH2
18. Benzene Waste Water Tank 100
19. Vacuum System (LV-1)

(13)



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5. The following table is a compilation of estimated controlled emissions in tons per year for the proposed facility.

<u>TSP (T/YR)</u> <u>CONTROLLED</u>	<u>SO₂ (T/YR)</u> <u>CONTROLLED</u>	<u>NO_x (T/YR)</u> <u>CONTROLLED</u>	<u>HC (T/YR)</u> <u>CONTROLLED</u>	<u>CO (T/YR)</u> <u>CONTROLLED</u>
14.4	16.3	83.6	8.0	17.3

The sources of emissions are itemized in Tables I through V (Pages 16 through 20 of the appendix). Sample calculations, emission factors, and other technical information are provided on pages 21 through 36 of the appendix to allow verification of the estimated emissions. It is important to note that all equipment has assumed a 365-day/year operation when in fact it will be only approximately 330 days or less.

6. Figure V is a copy of a portion of a United States Geological Service map (NE/4 Sulphur 15' Quadrangle) showing the location of the facility and the nature of the surrounding topography. Figure IV indicates the various structures and equipment within the fence line of the plant. The highest structure close to the process heaters is the paraffin column approximately 200 feet away which has preliminary design dimensions of 140 feet high and 18.5 feet wide.
7. The major fuel source for the plant will be a purchased fuel gas. The fuel gas has the following composition:

<u>COMPONENT</u>	<u>% MOL.</u>
H ₂	12.3
C ₁ H ₄	33.3
C ₂ H ₄	9.8
C ₂ H ₆	19.5
C ₃ H ₆	5.7
C ₃ H ₈	8.0
C ₄ H ₈	2.3
iC ₄ H ₁₀	2.5
nC ₄ H ₁₀	0.2
C ₅ H ₁₀	0.1
iC ₅ H ₁₂	0.2
nC ₅ H ₁₂	0.1
C ₆ H ₁₄	0.1
N ₂	5.9

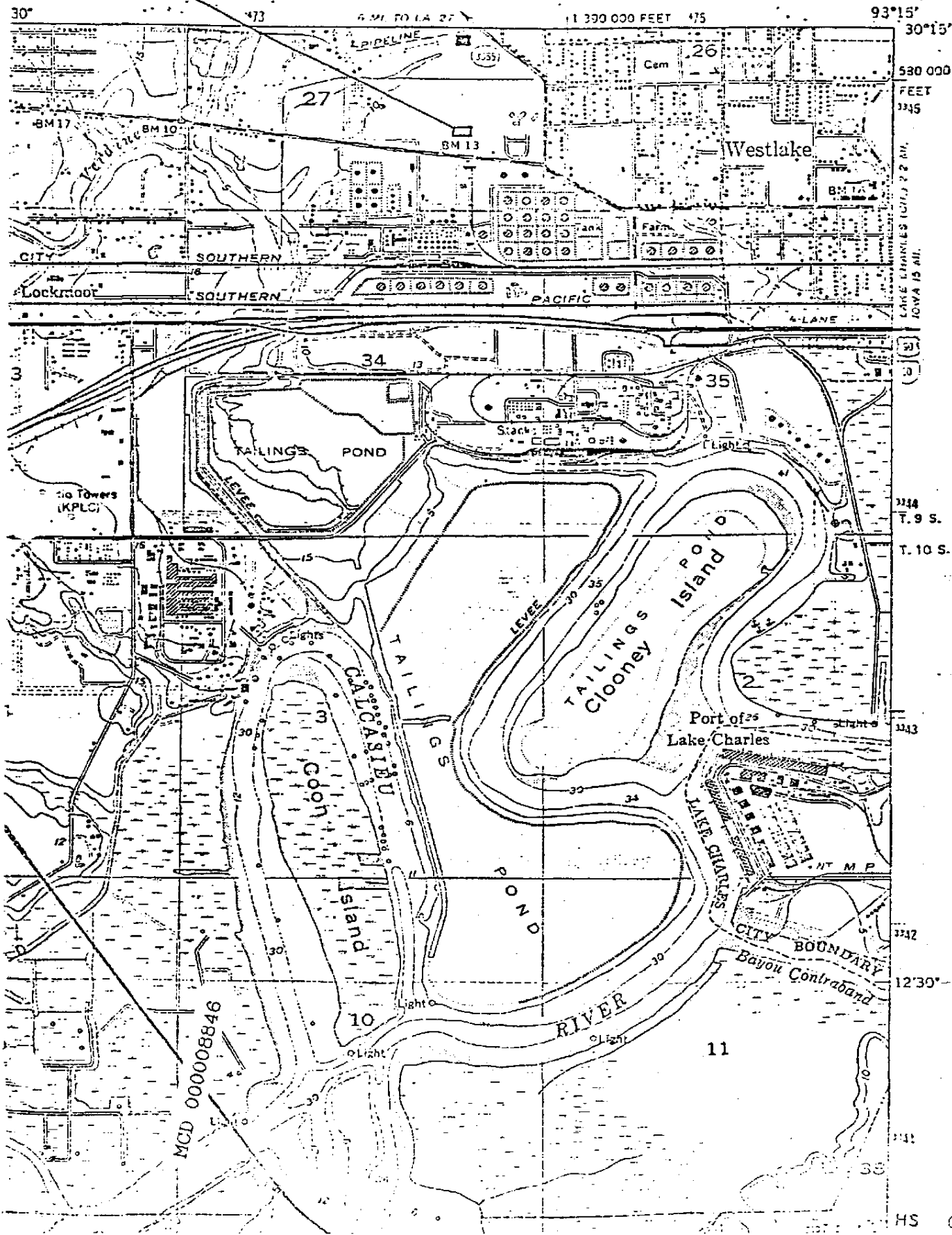
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FIGURE V
PROPOSED FACILITY LOCATION

WESTLAKE QUADRANGLE
LOUISIANA-CALCASIEU PARISH
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE 1/4 SULPHUR 15' QUADRANGLE

7353 15W
MOSS BLUFF

Page



HS 000100077

The maximum sulfur content of the fuel gas is ten grains H_2S per 100 standard cubic feet of gas consumed. Internally produced waste gas and HF bottoms will be supplemental fuel for the hot oil heater. (See Pages 27 through 32 for more detail). The startup heater and the plant flare will utilize natural gas for fuel. Natural gas will also be used to fire the hot oil heater and/or charge heater in the event of an interruption of purchased fuel gas.

8. Emission control equipment to be used in the LAB facility are as follows:

- A. Conoco Chemicals operates under a self-imposed personnel exposure standard of 1 ppm benzene on an eight hour time weighted average. As a result, many control technologies are utilized which are otherwise not required by State or Federal criteria. The following list details the control technologies to be used:
 - 1. A benzene steam stripper is designed to remove benzene from the wastewater. All sources of benzene wastewater (i.e., water draw from benzene tanks, benzene process water discharges, etc.) are collected in a closed segregated sewer system and treated through the stripper to a designed discharge concentration of 1 ppm benzene. The effluent from the stripper is then biologically treated before discharge.
 - 2. A closed segregated underground benzene sewer will be used to ensure minimal benzene release.
 - 3. All tanks which are in benzene service will utilize one of two emission control methods; fixed roof tanks with a double sealed internal floating roof which is nitrogen blanketed and pressure tanks which vent to the flare system.
 - 4. Double mechanical seals on all pumps in benzene service.
 - 5. A closed aromatic sampling system.
 - 6. Benzene monitoring system and combustible analyzer.
- B. The facility utilizes hydrofluoric acid (HF) as a feedstock. Great care has been taken to minimize HF emissions as the following indicates:
 - 1. Closed segregated HF drains and sewers. The HF neutralization pit is covered, sealed, and vented after passing through a water scrubber to remove residual HF.
 - 2. Double mechanical seals on all pumps in HF service.
 - 3. Closed HF sampling system.

MCD 000008847

- C. NO_x emissions will be minimized by use of staged combustion Lo NO_x burners specified by John Zink Co. and controlled excess combustion air according to continuous flue gas oxygen analyzers.
 - D. All process tower vents will be sent to the flare system.
 - E. The flare system will utilize steam addition for smokeless operation.
 - F. The vacuum ejector system for the fractionation section is equipped with surface condensers to reduce hydrocarbon emissions. (Emission ID No. LV-1).
9. As noted in the November 3, 1977, Federal Register, the Breton Sound area is a national wilderness greater than 5,000 acres and is, therefore, considered a Class I area. Since this area is located approximately 375 kilometers from the described facility, it is concluded that compliance with the provisions of 40 CFR 52.21 (c) (2) (ii) is shown.
10. A copy of the State construction permit is provided in the Appendix (Page 13). The State permit was issued based upon significantly higher emissions than are discussed in this submittal. The State permit application was approved based on firing No. 6 fuel oil as the primary fuel with off-gas and natural gas as alternates. Following a fuel source evaluation by Conoco, we have revised our emission calculations to reflect our intention to utilize off-gas as the primary fuel. At the appropriate time, we will amend the State permit to reflect emissions based on firing of off-gas. We expect no difficulty in obtaining State concurrence as the estimated emissions utilizing off-gas are less than the previously approved No. 6 fuel oil case. All State opacity and applicable emission standards will be met.

MCD 000008848

M E Kiefer

Specification

Conoco Inc
Westlake, La
AFE-7090CHROMATOGRAPH SYSTEM
LAB PLANT
LAKE CHARLES CHEMICAL COMPLEX5669-100-212-1
June 16, 1980
21170

18.1 AMBIENT AIR ANALYZERS

The analyzers shall measure benzene in ambient plant air with a maximum analysis time of ninety seconds. The analyzers shall have a sensitivity of at least one part per million full scale and shall be autoranging.

Hydrocarbons processed in the benzene area of the plant are benzene, C₄ through C₈ parafins, C₁₂ through C₁₄ olefins and C₁₀-C₁₄ aromatics. The atmospheric concentration of these hydrocarbons should be very low. Light hydrocarbons (C₁-C₃) in low concentrations may drift in from adjacent units. Naturally occurring terpenes may also be present.

Each analyzer shall include an integral air purification system which allows instrument air to be used in the flame ionization detector.

Each analyzer shall include pressure sensors for both instrument air and hydrogen. A temperature sensor shall monitor the flame in the detector. Whenever there is a loss of pressure or a flame-out all power shall be removed from the analyzer and a normally closed solenoid valve in the hydrogen supply line shall be deenergized. The hydrogen solenoid valve will be supplied with the analyzer shelter and located at the cylinders. A spring loaded switch or pushbutton shall allow manual energizing of the solenoid valve for start up.

The controller shall provide a continuous isolated 4-20 mADC trend output proportional to the last benzene concentration measured at each sample point - a total of twenty trend outputs. The controller shall also compute eight hour, twenty-four, and thirty day running averages for each sample point. The operator shall be able to initiate a printout of any average at anytime from the teleprinter keyboard. The appropriate averages shall automatically print at the end of each shift, day, and month. The eight hour averages shall be printed in the following format. The printout shall include the heading.

MCD 000008849

M E Kiefer

Specification

Conoco Inc

CHROMATOGRAPH SYSTEM

5669-100-212-1

Westlake, La

LAB PLANT

June 16, 1980

AFE-7090

LAKE CHARLES CHEMICAL COMPLEX

Oct-2-1980

18.1 AMBIENT AIR ANALYZERS Continued

BENZENE

Eight Hour Report

Time

Date

STREAM	AVE CONC	LAST READ	MAX CONC	TMAX	0.5 1.0 1.5			
					R ₁	R ₂	R ₃	R ₄
803-1	0.00	0.00	0.00	00:00	00	00	00	00
803-2								
803-3								
803-4								
803-5								
803-6								
803-7								
803-8								
803-9								
803-10	0.00	0.00	0.00	00:00	00	00	00	00
401-1								
401-2								
401-3								
401-4								
401-5								
401-6								
401-7								
401-8								
401-9								
401-10	0.00	0.00	0.00	00:00	00	00	00	00

The columns are:

STREAM Sample point identification number.

AVG CONC Time weighted average of benzene concentration at sample point over last eight hours.

LAST READ Last measured benzene concentration at sample point.

MAX CONC Maximum benzene concentration measured at sample point in last eight hours.

MCD 000008850

M E Kiefer

Specification

Conoco Inc

CHROMATOGRAPH SYSTEM

5669-100-212-1

Westlake, La

LAB PLANT

June 16, 1980

AFE-7090

LAKE CHARLES CHEMICAL COMPLEX

Odds - 21, 1980

18.1 AMBIENT AIR ANALYZERS Continued

TMAX Time of maximum benzene concentration measured in last eight hours.

R₁ - R₄ Number of measurements falling in the concentration ranges indicated by the superscripts.

The daily averages shall be printed in a similar format. The monthly report need only show sample points and average concentrations.

Alarm conditions and their time of occurrence shall be printed on the teleprinter as they occur. The following conditions must be reported.

Automatic analyzer shutdown

Low carrier gas pressure

Low sample flow

Low bypass flow

Analyzer removed from service

Analyzer returned to service

High benzene concentration (sample point shall be identified)

High average benzene concentration over last eight hours (sample point shall be identified)

The controller shall contain a relay with unpowered normally open contacts. The relay contacts shall be connected to a terminal strip. During normal operation the relay shall be energized. If the benzene concentration at any sample point exceeds five ppm the relay shall deenergize and remain deenergized until the condition has cleared. The alarm point shall be adjustable from the teleprinter keyboard.

All concentrations shall be printed in parts per million to the nearest hundredth of a part per million. The measurements shall be accurate to within three percent of the measured value except that measurements of low concentrations need only be accurate within 0.025 parts per million.

MCD 000008851

M E Kiefer

Specification

Conoco Inc
Westlake, La
AFE-7090CHROMATOGRAPH SYSTEM
LAB PLANT
LAKE CHARLES CHEMICAL COMPLEX5669-100-212-1
June 16, 1980
C. J. JONES

18.1 AMBIENT AIR ANALYZERS Continued

Tag numbers for the benzene monitoring system are as follows.

End of Line Filters AE-803-1 through AE-803-10
 AE-401-1 through AE-401-10

Analyzers AT-401 and AT-803

Controller and Teleprinter AI-401 & AI-803

18.2 RECYCLE HYDROGEN ANALYZER Δ

A single analyzer shall measure water vapor and hydrogen sulfide in the recycle hydrogen with a maximum analysis time of six minutes.

The analyzer shall include a pressure sensor for instrument air. Whenever there is a loss of air pressure all power shall be removed from the analyzer. Provisions shall also be made to protect the detector filaments whenever there is a loss of carrier gas.

The controller shall provide a continuous isolated 4-20 mADC trend output proportional to the last water and hydrogen sulfide concentration measured, a total of two trend outputs. The outputs of this analyzer shall not be printed on the teletype.

Δ Service	Recycle Hydrogen
Analyzer Tag Number	AT-211
Analyzer Location	Analyzer Shelter Number 1
Sample Temperature	90°-105° F
Sample Pressure	50-60 psig
Sample Return	8-15 psig
Sample Line Length	100 ft
Interconnecting Cable Length	800 ft
Detector	Thermal Conductivity
Accuracy	+ 3% of full scale
Alarms	None
P&ID Number	5669-100-KE-9

MCD 000008852