Refinery Efficiency Initiative

Louisiana's Worst Refinery Accidents 2005 - 2008
This document comprises a selection of some of the worst refinery accidents that occurred in the state of Louisiana between 2005 and 2008. We have excerpted some of the pertinent information about each of these accidents in the table of contents below.

Digital annotations within the documents, including call-out boxes, arrows, underlining, highlighting, and text boxes have been added by Louisiana Bucket Brigade to assist the reader in locating critical information concerning the amount of each pollutant released. Any handwritten annotations are from refinery or state agency personnel.

Readers should also be advised that all page numbers listed in the table of contents refer to pages as enumerated in the footer of the .pdf file. That is, for the purpose of navigation, readers should ignore all page numbers printed on the pages themselves except for those below the “REI Worst Accidents ’05-’08” tagline.

A typical incident report from a refinery is only a few pages in length. However, refineries often append follow-up reports and/or supplemental reports from LDEQ. Thus, reports sometimes stretch to over 25 pages, especially in the case of extremely worrisome accidents like those in this document. In the interest of brevity and clarity, we have excluded supplemental material from some reports when it adds no new information.
<table>
<thead>
<tr>
<th>Date of Incident</th>
<th>Pollutant(s) Released</th>
<th>Pounds Emitted</th>
<th>Gallons Emitted</th>
<th>Cause of Problem</th>
<th>Refinery</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/31/2008</td>
<td>Non compliant pH</td>
<td>NA</td>
<td>11,655,000</td>
<td>STORMS</td>
<td>Chalmette Refining, Chalmette</td>
<td>4</td>
</tr>
<tr>
<td>6/18/2006</td>
<td>Sulfur Dioxide</td>
<td>203,217</td>
<td>n/a</td>
<td>EQUIPMENT FAILURE / STORMS</td>
<td>Citgo, Lake Charles</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Benzene</td>
<td>7,863</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Toluene</td>
<td>51,003</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Xylenes</td>
<td>91,154</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ethyl Benzene</td>
<td>15,408</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oil</td>
<td>n/a</td>
<td>2,226,000</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>12/13/2008</td>
<td>Benzene</td>
<td>92,578</td>
<td></td>
<td>HUMAN ERROR</td>
<td>Citgo, Lake Charles</td>
<td>33</td>
</tr>
<tr>
<td>10/22/2007</td>
<td>Hydrogen Sulfide</td>
<td>83</td>
<td>n/a</td>
<td>OTHER</td>
<td>ConocoPhillips, Lake Charles</td>
<td>40</td>
</tr>
<tr>
<td>03/24/2006</td>
<td>Sulfur Dioxide</td>
<td>83580</td>
<td>N/A</td>
<td>CORROSION</td>
<td>ExxonMobil, Baton Rouge</td>
<td>42</td>
</tr>
<tr>
<td>07/31/2006</td>
<td>Corrosive Waste + Primary Sludge</td>
<td>67762</td>
<td>N/A</td>
<td>CORROSION</td>
<td>ExxonMobil, Baton Rouge</td>
<td>49</td>
</tr>
<tr>
<td>7/11/05 - 7/14/05</td>
<td>Ammonia</td>
<td>N/A</td>
<td>5,400,000</td>
<td>EQUIPMENT FAILURE</td>
<td>Murphy, Chalmette</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Sulfides</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phenols</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oil</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grease</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/04/2008</td>
<td>Vacuum Gas Oil</td>
<td>NA</td>
<td>2,100,000</td>
<td>CORROSION</td>
<td>Valero, Norco</td>
<td>58</td>
</tr>
<tr>
<td>06/04/2007</td>
<td>Sulfur Dioxide</td>
<td>237,471</td>
<td></td>
<td>STORMS / HUMAN FACTORS / CORROSION</td>
<td>Citgo, Lake Charles</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Hydrogen Sulfide</td>
<td>1,649</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nitrogen Oxide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Volatile Organic Compounds</td>
<td>No information given</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carbonyl Sulfide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carbon Disulfide</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Crude Oil</td>
<td>1,677</td>
<td>239.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Incident Description**

- **Incident Type:** Release/Spill, Miscellaneous
- **Incident Date:** AUG-31-08 18:00
  - **Parish:** St. Bernard
- **Municipality:** Chalmette
  - **Location:** Chalmette Refinery/Exxon Mobil, St. Bernard Hwy-Chalmette
- **Lat/Lon:**
- **Basin/Segment:** 70301
- **Substance(s):** API discharge emergency bypass
- **Media Impacted:** Soil
- **Incident Desc:** s08-3344-Chalmette Refinery/ExxonMobil--upset condition at wastewater treatment plant...jd

**Incident Status**

- **Lead Investigator:** Ella Barbe
- **Incident Region:** Southeast
- **Incident Status:** Closed
- **Followup Status:** Closed
  - **As Of:** SEP-29-2008 09:59

**Incident Reporter**

- **Received By:** Carla James
- **Received Date:** SEP-02-2008 08:41
- **Dispatch #:** s08-3344
- **Reported By:** Stacey Hopkins, Agency Interest Self Rept
  - **Phone:** 504-905-2127 cell
- **Reporter Title:** 504-281-1323 office
- **Organization:** Chalmette Refinery
- **Address:**

  - **Municipality:**
    - **State:** LA
    - **Zip Code:**
    - **Comments:**
Incident Source

Source Name: Chalmette Refining LLC - Chalmette Refinery
Address: 500 W St Bernard Hwy

Municipality: Chalmette
State: LA
Phone: 5042811212
Parish: St. Bernard
AI #: 1376
Related Permits: LA0004260

Comments: Stacy Hopkins, Water Advisor, reported that the API emergency bypass outfall (004) was opened on August 31, 2008 to prevent flooding of the refinery. The valve was closed on September 2, 2008. This was reported as an anticipated emergency condition from Hurricane Gustav. A pH sample collected on August 31, 2008 exceeded the 6-9 s.u. range (9.5 s.u). No further action at this time. EMB
Chalmette Refining, L.L.C.

P.O. Box 1097
Chalmette, LA 70044
(504) 281-1212

September 3, 2008

Louisiana Department of Environmental Quality
Office of Environmental Compliance, SPOC
Surveillance Division
P.O. Box 4312
Baton Rouge, LA 70821-4312
VIA EMAIL @; spoc@la.gov

Subject: Chalmette Refining, L.L.C.
5-day Follow Up Notification
WWTP Upset & Bypass
Agency Interest No. 1376

Dear Sir or Madam:

Chalmette Refining L.L.C (CRLLC) notified LDEQ on August 31, 2008 regarding an emergency bypass and shutdown at the facility Waste Water Treatment Plant (WWTP) in response to emergency preparations for Hurricane Gustav. A second notification was made on September 2, 2008 at 8:40 AM by Ms. Stacy Hopkins as a follow-up to reaffirm with LDEQ that the bypass was a result of upset conditions. This notification satisfies our LPDES permit LA0004260 written reporting requirements, specifically the part III.B.4 and III.B.5 reporting.

As of the submittal of this letter, CRLLC is still not completely operational. Until refinery personnel can safely regain access to the Refinery, assess conditions, and return to a normal work schedule, details of the upset conditions and emergency bypass will not be fully available. CRLLC will follow up with additional required information as soon as possible.

The information herein is submitted pursuant to LPDES permit LA0004260.

1. Facility Location: Chalmette Refinery
500 W. St. Bernard Highway
Chalmette, LA
St. Bernard Parish

Contact Person: Stacy Hopkins  (504) 281-1323
                        (504) 905-2127

Emergency Response Coordinator: Scott Goodwin  (504) 281-1861
2. Date and Time of Verbal Notification, LDEQ/SERC/LEPC/NRC Official Contacted and Company Official who made the calls:

<table>
<thead>
<tr>
<th>Date and Time</th>
<th>Official</th>
<th>Company Official</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/31/2008</td>
<td>LEPC</td>
<td>Charles C. Frazier</td>
</tr>
<tr>
<td>8/31/2008</td>
<td>St. Bernard Parish Water Board</td>
<td>Charles C. Frazier</td>
</tr>
<tr>
<td>8/31/2008</td>
<td>NRC</td>
<td>Charles C. Frazier</td>
</tr>
<tr>
<td>8/31/2008</td>
<td>USCG</td>
<td>Charles C. Frazier</td>
</tr>
<tr>
<td>8/31/2008</td>
<td>WWT</td>
<td>Charles C. Frazier</td>
</tr>
<tr>
<td>8/31/2008</td>
<td>LDEQ</td>
<td>Charles C. Frazier</td>
</tr>
<tr>
<td>8/31/2008</td>
<td>State Police</td>
<td>Charles C. Frazier</td>
</tr>
<tr>
<td>8/31/2008</td>
<td>Lake Borgne Basin Levee District</td>
<td>Charles C. Frazier</td>
</tr>
<tr>
<td>9/02/2008 0840</td>
<td>Message on LDEQ Hotline (LDEQ)</td>
<td>Stacy P. Hopkins</td>
</tr>
</tbody>
</table>

3. Date, time discharge began, duration:

The event began on the morning of August 31, 2008 at approximately 1230 hours and the Outfall 004 emergency discharge valve was closed at approximately 1030 hours on September 2, 2008 after WWTP personnel were allowed back into the Refinery. The WWTP was operational on the afternoon of September 2, 2008 and began discharging through Outfall 110 at approximately 1600 hours.

4. Details of events leading to any emergency conditions:


CRLLC emergency shutdown procedures are phased as follows:

a. Shutdown of refinery process units
b. Shutdown of refinery utilities (i.e. boilers / WWTP)
c. Opening of API discharge emergency bypass outfall (Outfall 004)

This timeline allows the refinery to maximize the amount of time the WWTP is online, so it can continue treating process waste water while the units are being shut down. The API emergency bypass outfall is opened in order to prevent excessive flooding of the refinery and to prevent loss of life, personal injury, or severe property damage. The API discharge pumps were left on in the level control position, so that if excess storm water was sent to the API during the hurricane, it would be intermittently discharged to the emergency bypass Outfall 004 as long as the pumps remained supplied by electrical power.

This event is considered an upset condition, as the WWTP shutdown in response to an anticipated emergency condition from Hurricane Gustav. In addition, the emergency bypass was performed to prevent loss of life, personal injury or severe property damage by preventing storm water from overflowing the process sewer system and flooding the refinery during a hurricane event.
5. Substance released:
While the WWTP shutdown was progressed in order to minimize the potential for untreated wastewater discharge as a result of this upset, there is a potential that the following constituent permit limits were not met.

<table>
<thead>
<tr>
<th>Quantity of Constituent</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-compliant pH</td>
<td>Approximately 11,655,000 gallons</td>
<td></td>
</tr>
</tbody>
</table>

A pH sample was collected on August 31, 2008 and analyzed. The pH result was 9.5, above the permitted range of 6 – 9 pH units. However, additional samples could not be collected on September 1 and 2, 2008 as refinery personnel were evacuated from the facility.

6. Probable fate, disposition, or media of substance released:

| Wind Speed: | Ranged from 12 – 46 mph, while wind meter operational |
| Wind Direction: | Variable, range from ENE to ESE while wind meter operational |
| Temperature: | Approximately 70 - 85 °F, while temperature gauge operational |
| Precipitation: | Approximately 6.34 inches, while rain gauge operational |

7. Remedial actions to stop discharge:
The intermittent discharge was stopped when WWTP personnel are allowed back into the Refinery and the emergency discharge valve was closed. We do not believe this discharge impacted water quality in the Mississippi River, due to its large assimilative abilities.

8. Specific actions taken or planned to prevent reoccurrence:
None planned at this time.

9. Permit number, limits exceeded (if applicable), and current limit:

<table>
<thead>
<tr>
<th>Permitted Release Point</th>
<th>Limit Exceeded</th>
<th>Current Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outfall 004 (LPDES Permit # LA0004260)</td>
<td>pH (9.5)</td>
<td>6 – 9</td>
</tr>
</tbody>
</table>

10. Reporting Party Status: Site Operator

11. Agencies Notified
- LEPC
- St. Bernard Parish Water Works
- NRC
- USCG
- WWT
- LDEQ
- State Police
- Lake Borgne Basin Levee District
12. Name of All Other Responsible Parties: Not Applicable

13. Extent of Injuries, if any: Not Applicable

14. Estimated quantity, identification, and disposition of recovered materials: Not Applicable

15. Health Risks:
   No chronic or acute health risks are anticipated as a result of this emergency bypass. There was no emergency condition caused as a result of this discharge.

As stated above, if required, additional information related to this discharge will be provided to LDEQ as it becomes available, following refinery startup and re-entry into the New Orleans metro area. If additional information is needed, please call Stacy Hopkins at (504) 281-1323 or Ann Slater of C-K Associates at (225) 755-1000.

Sincerely,

[Signature]

Charles Kominas
Environmental Group Leader

CERTIFIED MAIL # 7005 1820 0001 2203 5130

cc w/enclosures:
VIA EMAIL @; ann.slater@c-ka.com
Ann Slater
C-K Associates, LLC
17170 Perkins Road
Baton Rouge, LA 70810
bcc (électronique):
Process Manager
Refinery Manager
SHE Manager
Environmental Group Leader
Refinery Attorney
Water Advisor

Hardcopy File: WA.AGY.REG.2008.002 (LPDES Permit Correspondence, Post Gustav Documentation)
Electronic File: i:\she\environ\2008 Final Documents
.doc Location: I:\SHE\ehs\ENVIRON\Water\2008\Gustav\LDEQ Correspondence\CRLLC 5-day Follow Up Letter – Gustav (8-3-08 email).doc
**Personnel Roster Assigned**

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Home Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ella Barbe (13776)</td>
<td>ES III</td>
<td>SERO</td>
</tr>
</tbody>
</table>

**Activity Log**

<table>
<thead>
<tr>
<th>Time</th>
<th>Major Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>0900</td>
<td>Received phone call from Al 2841</td>
</tr>
<tr>
<td>1530</td>
<td>Al 1376 Chalmette Refinery - left message for Stacey Hopkins regarding Incident # 168492</td>
</tr>
</tbody>
</table>
INCIDENT REPORT FORM

Received by:  CARLA (Y/M)  Dispatch #: 688-3344  Incident #: T108492

Date Reported:  9-2-08  Time Reported:  8:41

Spill Incident/Release  Citizen Complaint  Emergency?  Yes  No  Drill?  Yes  No

CALLER INFORMATION:
Other (i.e. Coast Guard):  

Name/Company:  STEVE HOPKINS WATER  Title:  ARTIFICIAL

Address:  COMMUTE REFRIGERATION MOBILE

Is caller requesting a follow-up call?  Yes  No  Date of Caller Contact:  

Telephone No:  504-905-2127  Parish (of occurrence):  ST. BERNARD

SITE INFORMATION:
Company Name:
Alleged Violator:
Agency Interest:
Other:

Location Address:

Site is Active or Inactive:

Date of discharge if different from date report:  8/31  Time discharge noticed: Began 16:00  Ended

Media Affected:  Air  Land  Surface Water  Ground Water  Other

If water affected, name of nearest water body (Basin/Subsegment):

If air affected, note wind direction and weather conditions (if provided):

DESCRIPTION OF RELEASE/SPILL/COMPLAINT:
Product/material released and quantity (reported):
Product/material released and quantity (actual):

Description of release/complaint:  WASTE CONDITION AT WASTE WATER TREATMENT PLANT

How was spill contained?  Offsite Impact?

How was spilled cleaned/remediated?

DIRECTIONS FOR REACHING THE SITE:

Investigator's Comments:

Region Assigned:  SERC- AHERMANN  Summary Report: Yes  No

Investigator Assigned:  /  Date:  

Investigator's Signature:  Reviewer's Initials & Date:

Date Closed:  

Closed by:  Site Visit  Telephone  Other:

Referred to:  

SEP-08-2008  21:00  REI Worst Accidents '05-'08  12  75K  P. 01
CITGO Petroleum Corporation

September 12, 2006

VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Department of Environmental Quality
Office of Environmental Compliance
P.O. Box 4312
Baton Rouge, LA 70821-4312
Attention: Title V Program

Re: Part 70 Deviation Report
Excess Emissions Report
CITGO Petroleum Corporation LCMC
Thermal (Part 70 Permit No.2930-V0)
CAT Area (Part 70 Permit No.2908-V0)
Cat Gas (Part 70 Permit No. 2810-V1)
CV-1 (Part 70 Permit No.2797-V0)
Reformer Area (Part 70 Permit No.2920-V0)
AAT Area (Part 70 Permit No.2935-V0)
Site Services (Part 70 Permit No.2930-V0)
Logistics Area (Part 70 Permit No.2796-V4)
Lake Charles, Calcasieu Parish, Louisiana
Agency Interest #1250

Dear Sir or Madam:

This is the follow-up letter as noted in the letter submitted to Louisiana Department of Environmental Quality June 26, 2006.

Pursuant to the requirements of Part 70 General Condition R.1, 40 CFR 70.6(a)(3)(iii), LAC 33:III.507.H.1 and LAC 33:III.5107.B.4, CITGO LCMC herewith submits the Part 70 Deviation Report for excess SO2 and pollutant specific emissions associated with list of sources and event noted in the attached.

It is CITGO Petroleum Corporation's (CITGO) policy to operate all of its facilities in an environmentally sound manner and in full compliance with all state and federal laws, regulations, and permits. If there are any questions concerning this report, please call George Baldauf at 337.708.8408.

I certify, based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Very truly yours,

Steven R. Hays, General Manager
LCMC Operations

Attachments
DISTRIBUTION:

1 copy: Department of Environmental Quality  
Office Of Environmental Compliance  
Surveillance Division  
P.O. Box 4312  
Baton Rouge, LA 70821-4312  
Attention: Title V Program

Attention: Title V Program

1 copy: Louisiana Department of Environmental Quality  
Southwest Regional Office (SWRO)  
1301 Gadwell Street  
Lake Charles, LA 70615  
Attention: Regional Manager

bxc: Phyllis Hollied  
George Baldauf
PART 70 GENERAL CONDITION R.1
EXCESS EMISSIONS DEVIATION REPORT
CITGO Petroleum Corporation LCMC
Thermal (Part 70 Permit No.2930-V0)
CAT Area (Part 70 Permit No.2908-V0)
Cat Gas (Part 70 Permit No. 2810-V1)
CV-1 (Part 70 Permit No.2797-V0)
Reformer Area (Part 70 Permit No.2920-V0)
AAT Area (Part 70 Permit No.2935-V0)
Site Services (Part 70 Permit No.2930-Y0)
Logistics Area (Part 70 Permit No.2796-V4)

1. Name of person, company, or other party who is filing the written report.

This report is being filed by: Steven R. Hays, General Manager, LCMC Operations
CITGO Petroleum Corporation
LA Highway 108, South of I-10, East of La HWY 27
P.O. Box 1562
337.708.7446

2. Emissions Point Source(s) involved. Include the process unit and EIQ Number if available.

See Attached list

3. Applicable Permit No. and the current permitted limit (lbs/hr) for the pollutant(s) released from the emission point source involved.

See Attached list

4. Which applicable Permit limits were exceeded?

Sulfur Dioxide, Benzene, Toluene, Xylenes, and Ethyl Benzene

5. Give the date and time the release began and duration of release.

Sulfur Dioxide between 4 am and 6 pm Monday June 19, 2006.
Benzene, Toluene, Xylenes, and Ethyl Benzene between 4 am June 19 and through June 27, 2006.

6. Which specific pollutants were emitted and how much was released.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Released Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur Dioxide</td>
<td>203,217 lbs</td>
</tr>
<tr>
<td>Benzene</td>
<td>7,863 lbs</td>
</tr>
<tr>
<td>Toluene</td>
<td>51,003 lbs</td>
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<tr>
<td>Xylenes</td>
<td>91,154 lbs</td>
</tr>
<tr>
<td>Ethyl Benzene</td>
<td>15,408 lbs</td>
</tr>
</tbody>
</table>
7. Upset description, cause, and what offsite impact resulted.

    The Lake Charles refinery experienced a heavy rainfall event that equaled or exceeded a one in a 25 year in a six hour rainfall event. Between 6 pm Sunday June 18 and 6 pm Monday June 19, 2006, the Refinery received greater than 8 inches of rain. Approximately 6.16” of rain fell between 1 AM and 4 AM on June 19, 2006.

    This event impacted the operation of:
    The refinery steam systems resulting in the shutdown of the refinery’s Central Amine Unit and four Sulfur Recovery Units (SRU) (A-SRU, C-SRU, D-SRU and E-SRU).
    The wastewater treatment plant (WWTP)

**Sulfur Dioxide Emissions**

    During the rainfall event, the 250 psig steam lines that run in trenches through part of the Refinery became submerged in rain water. As a result of the contact with the rain water, approximately 463m lb/hr of steam condensed within these lines causing a drop in the 250 psig system pressure to 142 psig at units on the west side of the Refinery. This loss of pressure in the 250 psig steam header at Central Amine Unit, located on the west side of the Refinery, reduced and eventually stopped the flow of rich amine through the Central Amine Unit. Rich amine is pumped to the amine strippers by 250 psig steam drivers. Since the 250 psig steam system is let down to keep the 50 psig steam system pressured, the reduction of pressure in the 250 psig system resulted in a drop in the 50 psig system pressure. The decrease of pressure in the 50 psig system resulted in the reduction of pressure in the 50 psig reboiler steam on the amine stripper column at the Central Amine Unit. The loss of amine circulation through the amine stripper and the loss of heat for amine stripping resulted in the loss of acid gas production. With the loss of acid gas from the amine strippers, the SRUs eventually shutdown due to lack of feed. Additionally, the lack of amine treatment of refinery fuel gas caused the hydrogen sulfide content in fuel gas to exceed the Title V air permit limits.

    When A-SRU shutdown, the Sour Water Stripper (SWS) off-gas which normally goes to the A-SRU was sent to the B-12 flare as there is no other disposition available. As the steam pressure in the 250 and 50 psig systems increased back toward normal, the Central Amine Unit restarted the flow of rich amine to the amine strippers and began generating acid gas for recovery. However, until sufficient acid gas was available to restart any one of the SRUs, the acid gas was flared in the B-12 Flare.

    As the Central Amine Unit began generating acid gas for recovery, the SRUs initiated start-up. Following normal start-up procedures, SRU tail gas was sent to the Thermal Oxidizer until the ratio of hydrogen sulfide to sulfur dioxide was within operating limits of the tail gas treatment units (TGU). At such time the acid gas was diverted from the Thermal Oxidizer to the TGU. During the emergency shutdown as a result of the loss of acid gas feed during the rain event, catalyst in the D-SRU was damaged. The start-up of that unit was aborted and the Unit was shutdown. Following shutdown procedures, tail gas was sent to the Thermal Oxidizer.

    Based on air monitoring conducted during the release, Community Awareness and Emergency Response (CAER) Group Emergency Response Planning Guide (ERPG)-2 values were never exceeded. Odor complaints were investigated but no SO2 or H2S was detected at complaint locations.

**Impact on Wastewater Treating Plant (WWTP)**
As a result of the heavy rainfall event, especially the 6.16” of rain that fell between 1 am and 4 am on June 19, 2006, rainfall runoff exceeded the available capacity of the wastewater treatment system storm water tanks and the treatment system. When the capacity of the storm water tanks was exceeded, slop oil and wastewater overflowed from the tanks through specially designed vents into the protective dike area surrounding the tanks. This allowed the evaporation of the Benzene, Toluene, Xylenes, and Ethyl Benzene.

8. Immediate corrective action taken and specific remedial actions taken and/or planned to prevent reoccurrence.

Sulfur Dioxide Emissions

To increase the pressure of the steam system and to reduce hydrogen sulfide generation, emergency steam and hydrogen sulfide shedding steps were initiated. Several units feed rates were reduced to minimum and some were shutdown. As soon as acid gas was available, steps were taken immediately to start-up the A-SRU, the largest of the four SRUs.

For the restart of each SRU, Operations personnel followed the Standard Operating Procedures for Startup Following an Emergency Shutdown and the Preventative Maintenance and Operations Plan (PMO Plan), as needed, in order to minimize emissions and protect the Units. For the D-SRU shutdown, Operations personnel followed the Standard Operating Procedures for Shutdown for Turnaround and the Preventative Maintenance and Operations Plan (PMO Plan) in order to minimize emissions, protect downstream equipment and prepare the unit for safe entry.

Wastewater Treatment Plant (WWTP)

When the storm water tanks began to overflow, steps were taken to remove the slop oil from the tank dike using vacuum trucks. In addition, the feed rate of wastewater from the wastewater tanks to the WWTP was increased to maximum.

Measures to prevent a recurrence of a similar event and proposed corrective actions:

Sulfur Dioxide Emissions

- Perform an engineering study on alternatives to insure continued operation of the Central Amine Unit during heavy rain events. Completion by December 31, 2006.
- Install PI001 (a pressure indicator on the 250 psig steam system in the Central Amine Unit) on the TDC Group for Central Amine Console with appropriate alarm points. Completion by December 31, 2006.
- Review the current Management of Change (MOC) procedure, and revise if necessary, to insure that a proper hazardous operations review is performed on any future modifications that may take place on the Refinery steam system. Completion by December 31, 2006.
- Review the Loss of 250 psig Steam Procedure EOP-314-509, and revise as necessary, to insure that the use of 250 psig steam to maintain pressure on the 50 psig steam system requires an initial review and periodic monitoring of the current operating pressure and pressure trend of the 250 psig steam system during heavy rain events or other upsets in the steam system before pressure letdowns are initiated or continued. Upon revision of Procedure EOP-314-509, perform the necessary operator training. Completion by December 31, 2006.
- Perform an engineering study on alternative dispositions of tail gas or other means to reduce SO2 emissions to below 500 lbs in a 24 hour period during planned SRU startups and shutdowns. Completion by December 31, 2006
- For the D- and E-SRUs, perform an engineering study on the use of nitrogen as a substitute for air in the cool down step taken during planned shutdowns for turnaround. Completion by September 30, 2006.
- Contingent upon a successful outcome of the automation of the natural gas control loop system and the installation of ratio control at the C-SRU, CITGO will automate the natural gas control loop system to the in-line burners on the D- and E-SRUs and will install ratio control with air to minimize SO2 production. Completion by June 30, 2007.

**Wastewater Treatment Plant**

- Complete, as soon as possible, the installation of the third storm water tank currently under construction. Completion by July 31, 2007.
- Perform an engineering study that develops alternatives to ensure that overflow of the storm water tanks does not occur during a 25 year in 24-hour rain storm. Completion by December 31, 2006.
- Develop written routine oil skimming procedures for storm water tanks. Revise and update Heavy Rain Procedure SOP-432-102 to address the issues associated with maintaining safe minimum levels in the storm water tanks and treating of excess oily storm water back to WWTP after each rain event. Completion by September 30, 2006.
- Evaluate how containment integrity can be maintained during construction. Completion by December 31, 2006.
<table>
<thead>
<tr>
<th>Area</th>
<th>Permit</th>
<th>Point ID</th>
<th>Location</th>
<th>Fired Source</th>
<th>Title V</th>
<th>Total SO2</th>
<th>SO2 Above</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAT</td>
<td>2756-V4</td>
<td>30560-20</td>
<td>WWF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2756-V4</td>
<td>30560-30</td>
<td>WWF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total SO2**

<table>
<thead>
<tr>
<th>Source Services</th>
<th>UNIC</th>
<th>B-12</th>
<th>8606.0</th>
<th>11727.2</th>
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<tbody>
<tr>
<td>Logistics</td>
<td>2796-V4</td>
<td>30560-20</td>
<td>WWF</td>
<td>11.05</td>
</tr>
<tr>
<td>Logistics</td>
<td>2796-V4</td>
<td>30560-30</td>
<td>WWF</td>
<td>11.05</td>
</tr>
</tbody>
</table>
Dear Ms. Hatch:

CITGO Petroleum Corp (CITGO) submits this letter summarizing the results of investigations of the June 19, 2006 Heavy Rainfall Event. This Event was initiated by a very heavy, short duration rain event that resulted in the loss of 250 pound steam used to operate processing equipment and rainfall runoff that exceeded the capacity of the wastewater treatment system storm tanks and the storm water treatment system.

In December 2006, CITGO completed the Shoreline Cleanup which has been approved by the U.S. Coast Guard (USCG) and Louisiana Department of Environmental Quality (LDEQ). The cleanup of the Waste Water Treatment Unit was completed by October 2006.

CITGO has implemented an USCG/LDEQ-approved bioremediation work plan in the Indian Marais with results pending. CITGO has also entered into a cooperative agreement with the State and Federal Trustees to conduct an in-depth Natural Resource Damage Assessment (NRDA). This NRDA is in progress.
LDEQ, Louisiana Department of Health and Hospitals, and Louisiana Department of Wildlife and Fisheries conducted sampling to determine if levels of petroleum hydrocarbons in edible portions of finfish and shellfish taken from the Calcasieu Estuary are significant. It was determined after review of the first part of the sample results for the more toxic fraction of oil determined that no new fish advisories will be issued because of the spill.

LDEQ completed incident investigations and issued reports that are dated July 25, 2006 by Mr. Greg Fruge Jr. (referred to as Water Report) and November 13, 2006 by Ms. Debbie Ford (referred to as Air Report). Each report notes Areas of Concern that are addressed in attached Appendix 1 – Water Report and Appendix 2 – Air Report.

CITGO has completed investigations into the Event and undertaken extensive corrective actions. A list of completed and pending action items from CITGO investigations is attached in Appendix 3 – Corrective Action Items.

It is CITGO Petroleum Corporation’s policy to operate all of its facilities in an environmentally sound manner and in full compliance with all state and federal laws, regulations, and permits. If there are any questions concerning this report, please call me at 337-708-7008.

Sincerely,

David Hollis
Manager
Environmental Protection Department

Attachments
Incident Investigation Response
June 19, 2006 Heavy Rainfall Event
LSP Case No. 06-03858
March 1, 2007

**DISTRIBUTION:**

 Copies: Department of Environmental Quality
        Southwest Regional Office
        1301 Gadwall Street
        Lake Charles, LA 70615
        Attention: Billy Eakin

 Copy: Randy Carbo
       Sixto Mendez
       Mary Clair Lyons, Esq.
       Timothy W. Hardy – Lemle & Kelleher, L.L.P.
       V. Joyce Matthews – Lemle & Kelleher, L.L.P.
       Environmental Department File #1-10-1
Appendix 1
Water Report
Investigation Dated July 25, 2006

Areas of Concern:

1) During the investigation, it was determined that the skimmers for tanks 320 and 330 had not been operating since two (2) years of the completion of the new wastewater treatment system in 1994. The facility failed to properly operate and maintain all facilities and systems of treatment and control, in violation of LAC 33:IX.2701.E. According to Curtis Miller, at or around the year 2003, a company was contracted to completely clean the storm water tanks. The company was working on this project for a month and was unsuccessful at completing the project. The company only worked on one of the tanks and did not complete this application. On July 7, 2006, an interview with Jenny Peck, Wastewater Chief Operator with CITGO, stated that the use of the skimmers worked at the start of the new system in the past, but within a couple of years, this operation was unsuccessful. She felt that the tanks should be used solely for storm water and not process water. In addition, the personnel at the wastewater treatment unit had informed the engineers that there was a capacity problem. She also stated that within the first five years of operation, at one time, the tanks came close to overflowing (the tanks reached a level of 41 feet). An interview with Curtis Miller, wastewater supervisor, confirmed that the skimmers were inoperable when he began his job at the wastewater unit approximately in 2001.

CITGO Response:

LAC 33:IX.2701.E states that the permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. The tank skimmers referenced above were not installed nor used to achieve compliance with CITGO's water permit. Therefore, CITGO did not violate LAC 33:IX.2701.E.

It is important to note that although oil was present in the tanks, the water permit does not provide tank accumulation limits for the amount of oil that can accumulate in the tanks. The rain event, which resulted in the overflow of these tanks, exceeded a one in twenty-five year rain event.

It is also important to note that process flow diagrams for the facility's sewer systems provided in the water permit application illustrate that both process water and storm water may be diverted to these tanks.
Appendix 1
Water Report
Investigation Dated July 25, 2006

2) It was determined that the oil inside the containment berm seeped at various locations through the walls and/or gates of the berm. In addition, oil had escaped through a junction box that was located inside the berm. This containment berm did not serve as appropriate containment and/or diversionary structures of equipment to prevent an applicable spilled substance from reaching waters of the state in violation of LAC 33:IX.907.D. According to Louisiana Oil Spill Coordinator’s Office (LOSCO) Executive Summary #25 report, it is estimated that approximately 47,595 bbls (1,998,990 gal) escaped the berm, discharging approximately 25,595 bbls (1,074,990 gal) into the Calcasieu River and 20,000 bbls (840,000 gal) into the Indian Marais, a tributary of the Calcasieu River.

CITGO Response:

Based on CITGO investigations, a predominance of the oil escaped through the junction box located inside the berm area.

The calculated amount of oil that escaped from the berm area is 53,000 barrels (2,226,000 gallons) discharging 25,000 barrels (1,050,000 gallons) into the Calcasieu River and 28,000 barrels (1,176,000 gallons) into the Indian Marais.

3) This incident had caused the temporary shut down of the Calcasieu River Ship Channel. The facility allowed free or floating oil or grease to be present in quantities large enough to interfere with the designated water uses, and allowed emulsified oils to be present in quantities large enough to interfere with the designated uses, in violation of LAC 33:IX.1113.B.6.

CITGO Response:

The USGC temporarily shut down the Calcasieu River Ship Channel due to the discharge on oil into the Calcasieu River.
Appendix 1
Water Report
Investigation Dated July 25, 2006

4) The facility gave a SPOC notification on Monday June 19, 2006, of an oil sheen on the Indian Marais going to the Calcasieu River. However, the facility failed to immediately notify the Department of an adverse change in the nature of the spill or rate of discharge that occurred sometime Monday evening/Tuesday morning in violation of LAC 33:1.3915.A.3. This violation states that additional notifications must be made for discharges of multiple constituents when they originate from different causes or sources or they are substantially different in name from the discharges in the initial notification.

CITGO Response:

CITGO responded to this AOC in a letter to LDEQ, dated October 2, 2006. A copy of the letter is attached.
Appendix 2
Air Report
Investigation Dated November 13, 2006

Areas of Concern:

1) CITGO was aware that there was an oil layer in Tanks 320 and 330, operated under Floating Roof Cap (E.P. 3(IX)50) but did not route them back to the API separators to remove accumulated oil. Based upon the Process Description from the Permit Modification Application dated December 2004, CITGO did not properly operate all equipment as specified in the application as required by General Condition 1 of Permit Number 2796-V4 and LAC 33:III.501.C.4.

CITGO Response:

LAC 33:III.501.C.4 provides that the owner or operator of a source must operate the source in accordance with the terms and conditions of the permit. General Condition 1 of the permit states "Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501." The permit does not require the oil skimmers to be operated. Therefore, CITGO did not violate General Condition 1 of Permit Number 2796-V4 and LAC 33:III.501.C.4.

It is important to note that the permit application as well as the permit do not require water with an oil layer drawn from the tanks be introduced upstream of the API. The permit application provides the various routings of the stormwater tanks in Figure 2-2 and in the process description, section 2.2.5. See attached Appendix 4.

In addition, although neither the permit nor permit application provide a hydrocarbon:water ratio limit for tanks 320 or 330, the permit's emission limits were specifically calculated assuming the tanks contained 100% oil.

2) CITGO did not bring the levels of Tanks 310,320, and 330 to 14, 5.5, and 5.5 feet respectively as specified in the Heavy Rain Condition SOP-432-102. CITGO did not maintain the control facility as required by LAC 33:III.905.

CITGO Response:

LAC 33:III.905 states in its entirety, "To aid in controlling the overall levels of air contaminates into the atmosphere, air pollution control facilities should be installed whenever practically, economically, and technologically feasible. When facilities have been installed on a property, they shall be used and diligently maintained in proper working order whenever any emissions are being made which can be controlled by the facilities, even though the
Appendix 2
Air Report
Investigation Dated November 13, 2006

ambient air quality standards in affected areas are not exceeded.” SOP-432-102 is not an emission control facility within the meaning of LAC 33:III.905. It is guidance only for anticipated heavy rain events, not an emissions control facility. CITGO is not using this SOP to prevent or reduce air pollution.

Further, wastewater tanks 310, 320 and 330 are equipped with controls which meet the requirements of NSPS Kb, QQQ and NESHAPS FF. Specifically, these control facilities are the seals and gaskets which are maintained in accordance with the regulatory requirements. Therefore, CITGO did not violate LAC 33:III.905.

3) By not providing for the control of water levels in the steam trench when the overflow outlet was blocked in 1999, the water level from the 6/19/06 heavy rain event filled the steam trench, caused the high-pressure steam to condense, and reduced steam pressure to a level that caused the Central Amine system to fail. The H₂S in the fuel gas exceeded the 162 ppm 3-hr average, SO₂ emissions from some sources exceeded permit limits for 9 hours, and total SO₂ emissions over permitted limits were 203,217 lbs. CITGO failed to install control facilities to control air contaminants in the atmosphere as required by LAC 33:III.905.

CITGO Response:

The H₂S in the fuel gas system is controlled in accordance with NSPS Subpart J. 40 CFR 60.8(c) states that "Operations during periods of startup, shutdown and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard". (Emphasis added) To meet the requirements of LAC 33:III.905 an amine treatment system is installed to control H₂S. The control equipment was working properly until the equipment malfunctioned due to the heavy rain event. Therefore, CITGO did not violate LAC 33:III.905.
### Appendix 3
Corrective Action Items

<table>
<thead>
<tr>
<th>Action Item #</th>
<th>Action Item</th>
<th>Target Date</th>
<th>Completion Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>100025660</td>
<td>Perform an engineering study to determine the best alternative to insure continued operation of the Central Amine Unit during heavy rain events. Consideration should include raising the steam lines out of the steam trench; installing a properly designed sump pump in the steam trench and installing a fourth electric pump to the rich and lean amine systems. Also see action items 100026506 and 100026507.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100025661</td>
<td>Review the current Management of Change (MOC) procedure, and revise if necessary, to insure that a proper hazardous operations review is performed on any future modifications that may take place on the Refinery steam system.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100025662</td>
<td>Install PI001 (a pressure indicator for the 250 psig steam system in the Central Amine Unit) on to TDC Group for Central Amine Console with appropriate alarm points. Review configuring protocol for all new TDC points.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100025664</td>
<td>Check LAHSD-203 and LAHHD-448 for functionality and alarming.</td>
<td>8/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100025674</td>
<td>Review and revise as necessary the Loss of 250 psig Steam Procedure EOP-314-509 to insure that 250 psig steam is not improperly let down to maintain pressure in the 50 psig steam system during heavy rain events or other upsets in the steam system. In addition, this procedure has mistakes in the Initial Indications sections: FC1210 should read FC101 and Deviation alarm is a Process Variable alarm on both FC201 and FC1201.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100025676</td>
<td>Upon revision of Procedure EOP-314-509, perform the necessary operator training on balancing the 250 and 50 psig steam systems and the effect these steps on PC812 (control valve on the 50 psig steam system) at C-Reformer. In addition, consideration should be given to moving the PC812 control onto the Central Amine Console so only one Console Operator has control off the 50 psig steam header pressure.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100025678</td>
<td>Communicate to all Consoles when the refinery is under a steam shed emergency situation. During a steam emergency, any changes impacting steam systems need to be coordinated though the Powerhouse.</td>
<td>1/30/2007</td>
<td>Complete</td>
</tr>
<tr>
<td>100025679</td>
<td>For the SRU shutdowns (D-SRU in particular) and start-ups, perform an engineering study on alternative disposals of tail gas or other means to reduce SO2 emissions to below 500 lbs in a 24 hour period during shutdowns and startups.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100025680</td>
<td>Contingent upon a successful outcome of the automation of the natural gas control loop system and the installation of ratio control at the C-SRU (See RCFA LC-TG-01-2006-032306), CITGO will automate the natural gas control loop system to the in-line burners on the D- and E-SRUs and will install ratio control with air to minimize SO2 production.</td>
<td>6/30/2007</td>
<td>In-progress</td>
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## Appendix 3
### Corrective Action Items

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<th>Completion Status</th>
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<tbody>
<tr>
<td>100025688</td>
<td>Perform an engineering study that develops alternatives to insure that overflow of the storm water tanks does not occur during a 25 year storm event. Consider the following options: 1. Revising the size, location and operation of the diversion valves 2. Installing a goose-neck overflow. (Included in ENSR WWT Study)</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100025689</td>
<td>Ensure reliability of oil skimmer equipment on storm tanks.</td>
<td>8/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100025690</td>
<td>Develop written routine oil skimming procedures for storm water tanks. Revise and update Heavy Rain Procedure SOP-432-102 to address the issues associated with maintaining safe minimum levels in the storm water tanks (i.e., 5.5' vs 6' target) and recycling of excess oily storm water back to WWTP after each rain event</td>
<td>9/30/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100025691</td>
<td>Review and revise management system to enhance Steam Shed and H₂S guidelines to include major upset scenario to Central Amine.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026338</td>
<td>Consider developing clear and concise guidelines for IH including defined response time, clear communication of event chemical characteristics, and real time data Collection/ analysis/ communication to EOC. Develop a matrix identifying primary release hazards (Bz, SO₂, H₂S, etc.) and the specific IH monitoring equipment required to monitor for their release. Have held training sessions with IH techs. Including requirements in the OnePlan.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026340</td>
<td>Develop OnePlan training requirement. This issue is being updated/ addressed in the new ERP including TRP web base solution.</td>
<td>3/31/2007</td>
<td>In-progress</td>
</tr>
<tr>
<td>100026341</td>
<td>Consider revising OnePlan to improve clarity, user friendliness, document control of attachments, and consistency with other CITGO locations.</td>
<td>5/31/2007</td>
<td>In-progress</td>
</tr>
<tr>
<td>100026342</td>
<td>Keep a current copy of all decision-making charts in Shift Superintendent's copy of the OnePlan. This issue is being updated/ addressed in the new ERP. Including TRP web base solution.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026343</td>
<td>CAER Action Levels must be current on all copies of OnePlan. Updated CAER Manuals, only ERPG’s available for community and surrounding industry notification.</td>
<td>11/30/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026345</td>
<td>Consider developing clear guidelines for escalation of emergency action alarm levels. This issue is updated/addressed in the new ERP including TRP web base solution.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026346</td>
<td>Consider revising One Plan alarm definitions to include specific requirements for oil spill events.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
</tbody>
</table>
# Appendix 3
## Corrective Action Items

<table>
<thead>
<tr>
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<th>Action Item</th>
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</tr>
</thead>
<tbody>
<tr>
<td>100026348</td>
<td>Evaluate CITGO capability to respond to an oil spill between the time of the event and the arrival of the oil spill response contractor. Specific issues to consider include selection and deployment of booms, alternative methods for containing oil spill in Indian Marais, process involved in activating NRC responding including local approval for NRC deployment, evaluate use of Mutual Aid for oil spill responders listed in the One Plan, effectiveness of CITGO training used for oil spill response.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026349</td>
<td>Consider developing expectation that multiple simultaneous personal H₂S monitor activations are cause for further action as well as further organizational training and standardization of use. This issue will be resolved while addressing One Plan #100026345.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026351</td>
<td>Revise notification procedures to ensure all agencies get consistent updates as appropriate.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026355</td>
<td>Provide weather information to console operations including the Weather Channel and Impact Weather Bulletins. Set control rooms up with access to Impact Weather.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026359</td>
<td>Routine and periodic review of components to verify update and readiness. Verification with incident commanders.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026361</td>
<td>General: Consider procedure change to require gates to be closed and sealed unless in use. Consider requiring daily permitting to allow gates to be opened and ensure written procedure is in place to seal gates when closed. Specific: Revise or develop Standard Operating Procedures for managing the dike drain valves for the storm water tanks during normal operations and during major rain events.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026362</td>
<td>Seal concrete lid over the junction box.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026363</td>
<td>Review practices to maintain containment integrity during construction, i.e. open ended lines through a dike. Develop an engineering standard for piping through dikes. Need to develop a procedure/guideline to be used on Capital and Maintenance activities to insure that containment integrity during construction is maintained. - see AI #100026663.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026419</td>
<td>For the D &amp; E SRU's, perform an engineering study on the use of nitrogen as a substitute for air in the cool down step taken during planned shutdowns for T/A.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026426</td>
<td>Determine correct operating temperature and consider revision to control functionality to all temperate controllers to operate in automatic for Thermal Oxidizer.</td>
<td>3/31/2007</td>
<td>In-progress</td>
</tr>
<tr>
<td>100026428</td>
<td>Implement reliability improvements at WWT including DWF pumps and 20 inch DWF piping (This 20 inch line is included in ENSR study so deleted from this Action Item).</td>
<td>12/31/2008</td>
<td>Complete</td>
</tr>
<tr>
<td>100026429</td>
<td>Review the design of the 18 inch diversion valve to ensure most effective design is utilized. Consider automating the valves and relocating the valves to the fill lines.</td>
<td>9/30/2007</td>
<td>In-progress</td>
</tr>
</tbody>
</table>
### Appendix 3
Corrective Action Items

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</tr>
</thead>
<tbody>
<tr>
<td>100026430</td>
<td>Consider reducing dry weather flow and additional direct discharging of storm water from Refinery acreage.</td>
<td>9/30/2007</td>
<td>In-progress</td>
</tr>
<tr>
<td>100026431</td>
<td>Consider impact on storm water storage when tanks are taken out-of-service for inspection or cleaning.</td>
<td>9/30/2007</td>
<td>In-progress</td>
</tr>
<tr>
<td>100026432</td>
<td>Develop a plan to process sludge that collects in the storm water tanks to all tank levels to be maintained per the Heavy Rain Conditions Procedure.</td>
<td>9/28/2007</td>
<td>In-progress</td>
</tr>
<tr>
<td>100026459</td>
<td>Consider making changes to the new tank’s (T340) sludge removal system before construction is complete. Will be reviewed when tanks 320 and 330 are taken out of service to avoid delaying completion of Tank 340.</td>
<td>1/31/2007</td>
<td>Complete</td>
</tr>
<tr>
<td>100026460</td>
<td>Revise procedure for managing design changes in the field and conduct appropriate training for project and construction personnel on this procedure.</td>
<td>4/21/2007</td>
<td>In-progress</td>
</tr>
<tr>
<td>100026462</td>
<td>Repair all leaks around the dikes at WWT including pipe penetration and gates. Address the eight potential areas for oil to leave the dike containment area.</td>
<td>12/31/2006</td>
<td>Complete</td>
</tr>
<tr>
<td>100026463</td>
<td>Complete installation of Tk 340.</td>
<td>10/31/2007</td>
<td>In-progress</td>
</tr>
<tr>
<td>100026485</td>
<td>Complete the floor and dike containment with concrete.</td>
<td>4/15/2007</td>
<td>In-progress</td>
</tr>
<tr>
<td>100026506</td>
<td>This action item is from the division of action item 100025660 which was divided into three parts. Complete the project study report for the engineering study to determine the best alternative to insure continued operation of the Central Amine Unit during heavy rain events. Consideration should include raising the steam lines out of the steam trench and/or installing a properly designed sump pump in the steam trench.</td>
<td>6/30/2007</td>
<td>In-progress</td>
</tr>
<tr>
<td>100026507</td>
<td>This action item is from the division of action item 100025660 into three items. Complete the evaluation of whether or not installing a fourth electric pump on the rich and lean amine systems is an option for insuring the continued operation of the Central Amine Units during heavy rain events.</td>
<td>10/31/2007</td>
<td>In-progress</td>
</tr>
<tr>
<td>100026663</td>
<td>Develop a procedure and associated training to insure dike containment is maintained during piping installation.</td>
<td>6/30/2007</td>
<td>In-progress</td>
</tr>
</tbody>
</table>
CITGO Petroleum Corporation

January 6, 2009

Emergency Response Commission
Department of Public Safety and Corrections
Office of State Police
TESS/Right-to-Know Unit
P.O. Box 66168
Baton Rouge, LA 70896-6168

Department of Environmental Quality
Office of Environmental Compliance
P. O. Box 4312
Baton Rouge, LA 70821-4312
Attention: Surveillance Division – SPOC

Re: Notification Report – Unauthorized Discharge
Tank 190 Benzene Release
Case No: 08-07877
Agency Interest #1250
CITGO Petroleum Corporation
Lake Charles Manufacturing Complex
Environmental Dept. File #1-10-01

Gentlemen:

This letter is being submitted as a follow-up to the telephone call on December 14, 2008 to the Louisiana State Police HAZMAT, Louisiana Department of Environmental Quality and the Emergency Planning Committee regarding releases of Benzene from Tank 190 at the CITGO Lake Charles Manufacturing Complex (the Refinery).

At approximately 1:45 PM on December 14, 2008, operators discovered that Benzene was being released from an overflow slot on Tank 190. The level in Tank 190 was then lowered to end the release. CITGO's review of the operating data from this incident indicates that the Benzene released exceeded the reportable quantity (RQ) of 10 lbs.

It is CITGO Petroleum Corporation’s (CITGO) policy to operate all of its facilities in an environmentally sound manner and in full compliance with all state and federal laws, regulations, and permits. If there are any questions concerning this report, please call me at 337.708.7008.

Sincerely,

David Hollis

David Hollis, Manager
Environmental Protection Department

RECEIVED
JAN - 8 2009
DEQ
Single Point of Contact
ATTACHMENT 1

NOTIFICATION REPORT

This form is submitted to the LDEQ and/or LSP in accordance with LDEQ Regulation LAC 33:1.3925.B.

1. **Name of person, company, or other party who is filing the written report.**

This report is being filed by: David Hollis, Manager, Environmental Protection Department
CITGO Petroleum Corporation
LA Highway 108, South of I-10, East of LA Highway 27
P.O. Box 1562
Lake Charles, LA 70602
337-708-7008

2. **Time and date of verbal notification, name of person making the notification, and identification of the site or facility, vessel, transport vehicle, or storage area from which the unauthorized discharge occurred.**

Verbal Reports were filed December 14, 2008 with the following agencies:

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>TIME</th>
<th>RESPONDER</th>
<th>CASE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Louisiana State Police – HAZMAT</td>
<td>14:07</td>
<td>Linda</td>
<td>08-07877</td>
</tr>
<tr>
<td>LDEQ Baton Rouge Office</td>
<td>14:11</td>
<td>Voice Mail</td>
<td></td>
</tr>
<tr>
<td>Local LDEQ Lake Charles Office</td>
<td>14:14</td>
<td>Voice Mail</td>
<td></td>
</tr>
<tr>
<td>Local Emergency Planning</td>
<td>14:16</td>
<td>Sherley</td>
<td></td>
</tr>
</tbody>
</table>

Verbal Report was made by: Richard Skinner
CITGO Petroleum Corporation
P.O. Box 1562
Lake Charles, LA 70602
337-708-6177

3. **Emission Point Source(s) involved. Include the process unit and EIQ Number if available.**

Tank 190   EQT139

4. **Applicable Permit No. and the current permitted limit (lbs/hr) for the pollutant(s) released from the emission point source involved.**

Tank 190 is permitted in Title V Permit No. 2796-V6, EQT139
Total amount released: 92,578 pounds
NOTIFICATION REPORT

5. Which applicable Air Quality Regulation limits were exceeded? (SO2 Limit, Mass Emission Limit, Opacity Limit, etc.)

NA. This was a non-permitted CERCLA / EPCRA release.

6. Give the date and time the release began and duration of release

12/14/2008 1030 - 1419 hrs (3.8 hours)

7. Which specific pollutants were emitted and how much of each compound was released? (Total amount of each compound expressed in pounds). Also indicate CAS Number, Extremely Hazardous (Yes/No), Release Media (Solid, Liquid, Gas).

Benzene: 92,578 lbs
CAS# 71-43-2; Extremely Hazardous (No); Gas

8. Upset description, cause, and what offsite impact resulted.

At approximately 1:45 PM on December 14, 2008, operators discovered that Benzene was being released from an overflow slot on Tank 190. Tank 190 tank level had risen above the overflow slot and the console operator had not received a high level alarm.

Following a routine turnaround, Tank 190 had been restrapped and the high level alarm changed. The high level alarm was incorrectly set to a level higher than the overflow level. This resulted in the tank being filled to a high level without alarming the console operator.

There are no known offsite impacts from this event.

9. Was the release preventable – Yes or No (underline one). If no, explain why the release was not preventable.

Tank 190 high level alarm was improperly set.

10. What other agencies were notified

See response in Section 2

11. Immediate corrective action taken.

Upon discovery, Tank 190 level was lowered by gravity draining to Tank 199 and the tank fill was routed to Tank 203. In addition, a vacuum truck was called to clean up a small amount of contaminated rain water around the tank.
NOTIFICATION REPORT

12. Specific remedial actions taken and/or planned to prevent reoccurrence. (Include timetable for completion of project if available).

The high level alarm on tank 190 was changed to provide proper indication of high level. In addition, an investigation has begun to identify the root cause of the incident and establish action items to prevent reoccurrence.

13. Regulation notification requirement(s). (Check appropriate).

   X   LAC 33:III.927 Unauthorized Discharge
   X   LAC 33:I.3917 Notification Requirements for Unauthorized Discharge
   X   LAC 33:III.5107B Air Toxics Discharge Reporting Requirements
ATTACHMENT 2

Engineering Calculations

EPCRA/CERCLA

Benzene Release

Benzene release estimates were based on a mass balance around tank 190. Based on the physical properties of Benzene and various simulation cases, it is believed that the entire spill vaporized into the air.
Notification Report – Reportable Release
Tank 190 Benzene
Case No: 08-07877

DISTRIBUTION:

Copies:  ✔ Department of Environmental Quality
Office of Environmental Compliance
P. O. Box 4312
Baton Rouge, LA 70821-4312
Attention: Surveillance Division – SPOC

Department of Environmental Quality
Southwest Regional Office
1301 Gadwall Street
Lake Charles, LA 70615
Attention: James McKeivier

Emergency Response Commission
Department of Public Safety and Corrections
Office of State Police
TESS/Right-to-Know Unit
P. O. Box 66168
Baton Rouge, LA 70896-6168

Local Emergency Planning Committee
P. O. Box 3287
Lake Charles, LA 70602
Attention: Mr. Dick Gremillion

Louisiana Office of Public Health
Section of Environmental Epidemiology and Toxicology
P. O. Box 4489 (Bin 10, Box 18)
Baton Rouge, LA 70821
Attention: Kenneth Lanier

Copy:  Bill Gray
Troyce Thompson
Sixto Mendez
Lee Liebendorfer
Shift Superintendents
Area Manager – Ralph Harris
Environmental Release Notification File #1-10-01
October 29, 2007

Emergency Response Commission
DPS & Corrections - Office of State Police
Transportation & Environmental Safety Section
Right to Know Unit Mail Slip A-25
P O Box 66614
Baton Rouge, LA 70896

HAZMAT No. 07-06349
AI#2538 2625 V4
ConocoPhillips Lake Charles Refinery
Area C EP150

This letter is to follow-up the telephone notification made on October 22, 2007. The notification was regarding a release of hydrogen sulfide (H₂S) from a vacuum truck. A vacuum truck was removing acid from an acid containment area for the Y3 cooling tower when the acid chemically reacted with materials inside the vacuum truck. As a result of the chemical reaction H₂S was liberated from the vacuum truck and released to the atmosphere. Two Gulf Services employees were working with the truck when the release occurred. One employee died shortly after exposure. The Coroner's Report is pending on the cause of death. The other Gulf Services employee was taken to Business Health Partners in Sulphur and released. The following personnel were sent for evaluation based on readings from their personal H₂S monitors:

- Three ConocoPhillips employees were sent for evaluation to Business Health Partners in Sulphur and released.
- Five Turner Services employees were taken to Dr Schlemp in Sulphur for evaluation and released.

The calculated amount of H₂S released is 83lbs. This does not exceed the reportable quantity for H₂S, therefore is a courtesy call only. This release does exceed the Title V permit limit and will be reported appropriately on the Title V Deviation Report.

Should you have any questions concerning the notification, please call Anna Todd at 337-491-4567 or me at the number show above.

Sincerely,

Anna Todd

Kevin McGhee
CC: (7006 2150 0003 7153 9513)
La. Dept. of Environmental Quality
ATTN: Single Point of Contact - SPOC
Office of Environmental Compliance
P.O. Box 4312
Baton Rouge, LA 70821-4312

Mr. Billy Eakin, LDEQ
La. Dept. of Environmental Quality
1301 Gadwall Street
Lake Charles, LA 70615

Local Emergency Planning Commission
C/O Office of Emergency Preparedness
Right to Know Unit Mail
P.O. Box 1391
Lake Charles, LA 70602
March 31, 2006

Louisiana Department of Environmental Quality
P.O. Box 4312
Baton Rouge, LA 70821-4312
ATTENTION: Emergency & Radiological Services Division - SPOC
"UNAUTHORIZED DISCHARGE NOTIFICATION REPORT"

Re: Letter of Notification
Unauthorized Discharge Report
State Police Incident #06-01819
NRC #791895
Agency Interest Number: 2638

Dear Sir or Madam:

This letter serves as written notification of the events and circumstances surrounding the ammonia acid gas leak and flaring incident that occurred on March 24 and March 25, 2006 from the ExxonMobil Baton Rouge Refinery. As detailed in the Discharge Notification Report attached, the reportable quantities for ammonia, hydrogen sulfide, sulfur dioxide, nitrogen oxide, and nitrogen dioxide were exceeded.

If you have any questions regarding this notification, please contact me at 977-8337 or Angela Folse at 977-1777.

Sincerely,

R. A. Cotton
Environmental Section Supervisor

ACF
l:\Brr\brr_envl\aqcontact\notify\SRLA\032405ln
Airfile 1.1.01.06.026
Certified Mail No.: 7003 1010 0005 5098 4621

cc: Local Emergency Planning Committee
State Police, HAZMAT Unit
Department of Health and Hospitals
EPA, Region VI
Dr. Mani, LDEQ
Louisiana Department of Environmental Quality
Unauthorized Discharge Notification Report (LAC 33:1.3925)

I. Company Name: ExxonMobil Refining and Supply Company
   Physical Address: 4045 Scenic Highway
                    Baton Rouge, LA 70805
   Mailing Address: P.O. Box 551
                    Baton Rouge, LA 70821
   Contact Name: R. A. Cotton
   Telephone Number: (225) 977-8337

II. Date and Time of Verbal Notification: 3/24/06 at 10:20 PM
   Official Contacted: Linda
   Officials Making Notifications: I. D. Sanders
   Site Identification: Baton Rouge Refinery

III. Date and Time Incident Started: 3/24/06 at 02:30 PM
    Date and Time Incident Ended: 3/25/06 at 12:41 PM
    Date and Time Incident Ended: 3/25/06 at 12:41 PM

IV. Upset Description, Cause, and Offsite Impact (If Applicable):

At 9:00 PM on March 24, 2006, a leak was discovered on the ammonia acid gas line to the No. 100 Sulfur Plant (SRLA 100). The pipe leaked due to new corrosion hole that had developed under the edge of a clamp that was installed in November. Operations attempted to stop the leak by tightening the existing clamp. When tightening the clamp was not successful, the No. 1 Sour Water Stripper (No. 1 SWS) was shut down, so that both Sour Water Strippers were down by 12:40 AM. A new clamp was then installed and pressure tested. The new clamp also leaked, so the old clamp was reinstalled with a new gasket. After reinstalling the clamp at approximately 3:00 AM on March 25, it was determined this clamp would not stop the leak.

At approximately 3:00 AM on March 25, the feed spheres to the Sour Water Strippers were becoming full. This required the start up of the Sour Water Strippers to the flare system. Ammonia acid gas was flared from 3:56 AM to 12:41 PM on March 25, 2006.

During this time, the rate of sour water being produced was reduced to minimize flaring and the leak in the line was repaired.

Air monitoring for ammonia, hydrogen sulfide, and sulfur dioxide was completed offsite by ExxonMobil’s Industrial Hygiene personnel. All readings were below the detection limits of the equipment.

Exxon repeatedly clamps a defective pipe instead of replacing it. Multiple accidents occur as a result.
Louisiana Department of Environmental Quality
Unauthorized Discharge Notification Report (LAC 33:1.3925)

V. Specific Pollutants Emitted and Amount Released:

<table>
<thead>
<tr>
<th>Compound</th>
<th>CAS Number</th>
<th>Quantity (lbs)</th>
<th>State Police RQ</th>
<th>DEQ RQ</th>
<th>Extremely Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur Dioxide</td>
<td>7446-09-5</td>
<td>83580</td>
<td>500</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Nitrogen Oxide</td>
<td>10102-43-9</td>
<td>270</td>
<td>10</td>
<td>10</td>
<td>Yes</td>
</tr>
<tr>
<td>Ammonia</td>
<td>7664-41-7</td>
<td>250</td>
<td>100</td>
<td>100</td>
<td>Yes</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>10102-44-0</td>
<td>18830</td>
<td>10</td>
<td>10</td>
<td>Yes</td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>7783-06-4</td>
<td>1090</td>
<td>100</td>
<td>100</td>
<td>Yes</td>
</tr>
</tbody>
</table>

VI. Disposition: Air

VII. Remedial Action Taken:
Several attempts were made to stop the leak from the SRLA 100 unit. During this time, the No. 1 SWS was shutdown and steps were taken to reduce the amount of sour water produced in the refinery.

The line was repaired and will be replaced after SRLA 200 starts up.

VIII. Specific Actions Taken and/or Planned to Prevent Recurrence:
A similar line exists to the SRLA 200 unit. This line will be inspected and repaired while the SRLA 200 Unit is down.

IX. Permit Number (If Applicable): 2300 (M-1)

X. Reporting Party Status: Present Owner; Operator

XI. For Discharges to the Ground or Groundwater (If Applicable): Not Applicable

XII. Other Responsible Parties: Not Applicable

XIII. Was the Release Preventable? ☑ Yes ☐ No

If No, Explain Why the Release Was Not Preventable:
The clamp was installed in November 2005 due to a pinhole leak from condensate corrosion. At that time, the line was x-rayed and no areas of concern were discovered outside the area under the clamp. Therefore, the corrosion hole that led to this release could not have been predicted.
**Louisiana Department of Environmental Quality**  
Unauthorized Discharge Notification Report (LAC 33:1.3925)

XIV. Agencies Notified:

<table>
<thead>
<tr>
<th>Agency</th>
<th>Time</th>
<th>Date</th>
<th>Person Notified</th>
<th>Incident #</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Police / DEQ</td>
<td>10:20 PM</td>
<td>3/24/06</td>
<td>Linda</td>
<td>06-01819</td>
</tr>
<tr>
<td>LEPC</td>
<td>10:27 PM</td>
<td>3/24/06</td>
<td>Scott</td>
<td>-</td>
</tr>
<tr>
<td>NRC</td>
<td>10:30 PM</td>
<td>3/24/06</td>
<td>Allison</td>
<td>791895</td>
</tr>
<tr>
<td>State Police / DEQ</td>
<td>2:15 PM</td>
<td>3/25/06</td>
<td>Amanda</td>
<td>06-01819</td>
</tr>
<tr>
<td>LEPC</td>
<td>2:17 PM</td>
<td>3/25/06</td>
<td>Devin</td>
<td>-</td>
</tr>
<tr>
<td>NRC</td>
<td>2:20 PM</td>
<td>3/25/06</td>
<td>Pat Hammack</td>
<td>791895</td>
</tr>
<tr>
<td>State Police / DEQ</td>
<td>4:18 PM</td>
<td>3/27/06</td>
<td>Charlie</td>
<td>06-01819</td>
</tr>
<tr>
<td>EPA</td>
<td>5:36 PM</td>
<td>3/27/06</td>
<td>Fax to Betty West</td>
<td>791895</td>
</tr>
</tbody>
</table>
Total Release from March 24 and 25, 2006 Ammonia Acid Gas Event

Emissions from Piping Leak

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hole size</td>
<td>0.25 inches</td>
</tr>
<tr>
<td>Release Rate</td>
<td>9.944 ft³/min</td>
</tr>
<tr>
<td>Start Time</td>
<td>2:30 PM March 24, 2006</td>
</tr>
<tr>
<td>End Time</td>
<td>12:40 AM March 25, 2006</td>
</tr>
<tr>
<td>Total Released</td>
<td>380 pounds</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia</td>
<td>90</td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>180</td>
</tr>
<tr>
<td>Water</td>
<td>80</td>
</tr>
<tr>
<td>Other</td>
<td>30</td>
</tr>
</tbody>
</table>

Total Emissions from Flaring and Piping Leak

<table>
<thead>
<tr>
<th></th>
<th>Pounds</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia</td>
<td>250</td>
<td>100</td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>1,090</td>
<td>100</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>83,680</td>
<td>500</td>
</tr>
<tr>
<td>Nitrogen Oxide</td>
<td>270</td>
<td>10</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>18,830</td>
<td>10</td>
</tr>
</tbody>
</table>
### Volume of Gases Flared

<table>
<thead>
<tr>
<th></th>
<th>percent water vap.</th>
<th>heating value (BTU/scf)</th>
<th>volume (mscf)</th>
<th>comp vol. %</th>
<th>mw</th>
</tr>
</thead>
<tbody>
<tr>
<td>natural gas</td>
<td>0</td>
<td>1,007</td>
<td>6.05</td>
<td>0.849012112</td>
<td>16.0</td>
</tr>
<tr>
<td>CAG</td>
<td>0</td>
<td>606</td>
<td>0.000</td>
<td>0</td>
<td>35.0</td>
</tr>
<tr>
<td>AAG</td>
<td>0.3</td>
<td>524</td>
<td>1.076</td>
<td>0.150987888</td>
<td>26.4</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td></td>
<td></td>
<td><strong>934</strong></td>
<td></td>
<td>17.8</td>
</tr>
</tbody>
</table>

### Composition

<table>
<thead>
<tr>
<th></th>
<th>AAG (dry)</th>
<th>CAG (dry)</th>
<th>Natural Gas</th>
<th>Flared Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>1.076 mscf</td>
<td>0 mscf</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td></td>
<td>volume %</td>
<td>volume %</td>
<td>volume %</td>
<td>volume %</td>
</tr>
<tr>
<td>RGCU Feed</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Air</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>H2</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>CO</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>CO2</td>
<td>5.000</td>
<td>9</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>N2</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>H2S (ppm Estimated)</td>
<td>470,000</td>
<td>47</td>
<td>904,000</td>
<td>90</td>
</tr>
<tr>
<td>NH3</td>
<td>48</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>CH4</td>
<td>0</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C2H4</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C2H6</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C3H6</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C3H8</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C4H6 1,3 (Butadiene)</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C4H8 MXT</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C4H10 ISO</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C4H10 N</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C5H6</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C5H8</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C5H10 MXT</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C5H12 ISO</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C5H12 N</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C6H6 (Benzene)</td>
<td>0.000</td>
<td>0</td>
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<td>7.12640 mscf</td>
</tr>
<tr>
<td>n-C6 &amp; GREATER</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>TOLUENE</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>C7H14</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
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<td>XYLENES</td>
<td>0.000</td>
<td>0</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
<tr>
<td>Mol Vol</td>
<td>26.367</td>
<td>35</td>
<td>7.1263994 mscf</td>
<td>7.12640 mscf</td>
</tr>
</tbody>
</table>

### Flaring Incident Quantities

<table>
<thead>
<tr>
<th>Total Quantity Flared</th>
<th>330,584 lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Lbs Flared</td>
<td>7.1264 mscf</td>
</tr>
<tr>
<td>% Hydrocarbon Combusted</td>
<td>99.0%</td>
</tr>
<tr>
<td>% NH3 Combusted</td>
<td>30.0%</td>
</tr>
<tr>
<td>% H2S Combusted</td>
<td>98.0%</td>
</tr>
<tr>
<td>Total Lbs H2S Not Combusted</td>
<td>906 lbs</td>
</tr>
<tr>
<td>Total Lbs NH3 Not Combusted</td>
<td>162 lbs</td>
</tr>
<tr>
<td>Total Lbs SO2 Generated</td>
<td>83,580 lbs</td>
</tr>
<tr>
<td>Total Lbs NO Generated</td>
<td>266 lbs</td>
</tr>
<tr>
<td>Total Lbs Benzene Not Combusted</td>
<td>18,828 lbs</td>
</tr>
<tr>
<td>Total Lbs Butadiene Not Combusted</td>
<td>0 lbs</td>
</tr>
</tbody>
</table>
ExxonMobil
Refining & Supply

LA Dept. of Environmental Quality
P. O. Box 4312
Baton Rouge, LA 70821-4312
Attention: Emergency & Radiological Services Division- SPOC
"Unauthorized Discharge Notification Report"
August 4, 2006

Louisiana Department of Environmental Quality  
P.O. Box 4312  
Baton Rouge, LA 70821-4312.  
ATTENTION: Emergency & Radiological Services Division - SPOC  
"UNAUTHORIZED DISCHARGE NOTIFICATION REPORT"

Re: Letter of Notification  
Unauthorized Discharge Report  
State Police Incident #06-04774  
Agency Interest Number: 2638

Dear Sir or Madam:

This letter serves as written notification of the events and circumstances surrounding the leak that occurred at the Heavy Cat Naptha Unit on July 31, 2006 from the ExxonMobil Baton Rouge Refinery. As detailed in the Discharge Notification Report attached, the reportable quantities for primary sludge (F037) and corrosive wastes (D002) were exceeded.

If you have any questions regarding this notification, please contact me at 977-8337 or West Mosenteen at 977-1777.

Sincerely,

[Signature]

R. A. Cotton  
Environmental Section Supervisor

ACF  
I:\Brrfbrr\enviaaccontact\notify\HCN\073106cl.doc  
Airfile 1.1.01.06.060  
Certified Mail No.: 7003 1680 0005 3869 7706

cc: Local Emergency Planning Committee  
State Police, HAZMAT Unit  
Department of Health and Hospitals  
Dr. Mani, LDEQ

RECEIVED  
AUG 7 2006  
DEQ  
Single Point of Contact

Certified Mail No.: 7003 1680 0005 3869 7713  
Certified Mail No.: 7003 1680 0005 3869 7720
Louisiana Department of Environmental Quality
Unauthorized Discharge Notification Report (LAC 33:1.3925)

I. Company Name: ExxonMobil Refining and Supply Company
   Physical Address: 4045 Scenic Highway
                     Baton Rouge, LA 70805
   Mailing Address:  P.O. Box 551
                     Baton Rouge, LA 70821
   Contact Name:    R. A. Cotton
   Telephone Number: (225) 977-8337

II. Date and Time of Verbal Notification: 7/31/06 at 03:50 PM
   Official Contacted: Colleen
   Officials Making Notifications: K. W. Holmes
   Site Identification: Baton Rouge Refinery

III. Date and Time Incident Started: 7/31/06 at 02:55 PM
    Date and Time Incident Ended: 8/1/06 at 06:00 PM

Note:

IV. Upset Description, Cause, and Offsite Impact (If Applicable):

On July 31, 2006 a leak was discovered in the water draw from the disengaging drum on the
Heavy Cat Naphtha unit. The leak was from an underground line, and was due to external
corrosion. The contaminated soil will be removed and will be properly disposed. There were no
offsite impacts, injuries, or complaints.

V. Specific Pollutants Emitted and Amount Released:

<table>
<thead>
<tr>
<th>Compound</th>
<th>CAS Number</th>
<th>Quantity (lbs)</th>
<th>State Police RQ</th>
<th>DEQ RQ</th>
<th>Extremely Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrosive Waste</td>
<td>D002</td>
<td>33881</td>
<td>100</td>
<td>100</td>
<td>No</td>
</tr>
<tr>
<td>Primary Sludge</td>
<td>F037</td>
<td>33881</td>
<td>1</td>
<td>1</td>
<td>No</td>
</tr>
</tbody>
</table>

VI. Disposition: Soil

VII. Remedial Action Taken:
The leaking line was blocked out and the leaking section replaced. The contaminated soil was
removed.

VIII. Specific Actions Taken and/or Planned to Prevent Recurrence:
The leaking line was replaced.

IX. Permit Number (If Applicable): 2176-V2

X. Reporting Party Status: Present Owner; Operator

XI. For Discharges to the Ground or Groundwater (If Applicable): Not Applicable

XII. Other Responsible Parties: Not Applicable

XIII. Was the Release Preventable? □ Yes ☑ No

If No, Explain Why the Release Was Not Preventable:

The inspection data for the this line indicated that the line had an expected retirement date of April 2011. Inspection data also confirmed that the protective coating at the soil/air interface was in satisfactory condition.

XIV. Agencies Notified:

<table>
<thead>
<tr>
<th>Agency</th>
<th>Time</th>
<th>Date</th>
<th>Person Notified</th>
<th>Incident #</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Police</td>
<td>3:50 PM</td>
<td>7/31/06</td>
<td>Colleen</td>
<td>06-04774</td>
</tr>
<tr>
<td>LEPC</td>
<td>4:06 PM</td>
<td>7/31/06</td>
<td>Dottie</td>
<td></td>
</tr>
<tr>
<td>LA DEQ</td>
<td>4:08 PM</td>
<td>7/31/06</td>
<td>John Clark</td>
<td></td>
</tr>
<tr>
<td>NRC</td>
<td>4:15 PM</td>
<td>7/31/06</td>
<td>Prebble</td>
<td>806192</td>
</tr>
<tr>
<td>State Police</td>
<td>4:45 PM</td>
<td>8/1/06</td>
<td>Charlie</td>
<td>06-04774</td>
</tr>
<tr>
<td>LEPC</td>
<td>4:50 PM</td>
<td>8/1/06</td>
<td>Dottie</td>
<td></td>
</tr>
<tr>
<td>State Police</td>
<td>12:16 PM</td>
<td>8/4/06</td>
<td>Charlie</td>
<td>06-04774</td>
</tr>
<tr>
<td>DEQ</td>
<td>12:19 PM</td>
<td>8/4/06</td>
<td>Cindy LaFosse</td>
<td></td>
</tr>
</tbody>
</table>
### 7/31/06 HCN Disengaging Drum (D-200) Calculations

<table>
<thead>
<tr>
<th>Leak rate</th>
<th>1.251 klb/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.51 GPM</td>
</tr>
</tbody>
</table>

| Leak begin      | 7/31/06 14:55 |
| Leak end        | 8/1/06 18:00  |

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity Released (lbs)</th>
<th>RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D002 (Corrosive Liquid)</td>
<td>33881.25</td>
<td>100</td>
</tr>
<tr>
<td>F037 (Primary Sludge)</td>
<td>33881.25</td>
<td>1</td>
</tr>
</tbody>
</table>
July 21, 2005

CERTIFIED: 7003 3110 0001 1311 5526

Department of Environmental Quality
Single Point of Contact (SPOC)
Office of Environmental Compliance
Attn: Emergency Response
P.O. Box 4312
Baton Rouge, LA 70821-4312

Re: UNAUTHORIZED DISCHARGE NOTIFICATION REPORT
Murphy Oil USA, Inc. Meraux Refinery. Agency Interest #1238
2500 E. St. Bernard Hwy, St. Bernard Parish, Meraux, LA
LPDES Permit: LA0003646
Confirmation No.: Q14E 2360

Gentlemen,

Attached please find a more detailed discussion of an unauthorized discharge of LPDES-regulated water reported verbally to the Department, pursuant to LAC 33:1.3917. The incident is described as follows:

Unanticipated Bypass of WWT 07/11/05 - 07/13/05

Should you have any questions regarding this submission, please contact Mr. Matthew Dobbins or Mr. James Britt at (504) 271-4141.

I certify, based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

[Signature]
Gregory L. Neve
Refinery Manager
Murphy Oil USA, Inc.

GLN: msd

cc: Mr. Blaise Guzzardo, LDEQ SE Regional Office, New Orleans, LA
    Ms. Stacey Polse, MPH, LA Office of Public Health, New Orleans, LA
UNAUTHORIZED DISCHARGE NOTIFICATION FORM

COMPANY OFFICIAL: Gregory L. Neve, Refinery Manager
COMPANY NAME: Murphy Oil USA, Inc.
PHYSICAL LOCATION: 2500 E. St. Bernard Hwy.
P. O. BOX: P. O. Box 100
CITY, STATE, ZIP: Meraux, LA 70075
TELEPHONE NO.: (504) 271-4141

DATE/TIME OF VERBAL NOTIFICATION: 07/14/05, 10:15 hrs
DEQ OFFICIAL CONTACTED: LDEQ Website
MURPHY OFFICIAL WHO MADE CALL: Matthew Dobbins
APPLICABLE PERMIT INVOLVED: LA0003646
DISCHARGE POINT: Outfall 003

DATE/TIME/DURATION OF DISCHARGE:
The event occurred approximately from 07/11/05, 12:00 hrs to 07/14/05, 11:00 hrs, for a duration of approximately 71 hours.

EVENT DESCRIPTION:
On July 11, 2005 at approximately 12:00 hrs, in order to avoid an unsafe condition in the refinery, Murphy was forced to open Outfall 003 (Emergency Stormwater Outfall) to the 20 Arpent Canal, discharging a mixture of untreated stormwater and process wastewater. Murphy Oil experienced a circumstance in which the throughput of our Wastewater Treatment Plant (WWTP) was greatly constrained by mechanical operating problems. At the same time, wastewater storage capability was not available due to prior storm events. The problem was determined to be loss of performance by the WWTP cooling tower sump pumps and piping system problems.

The event lasted approximately 71 hours and resulted in the discharge of approximately **5.40 million gallons of water**. During the discharge event, Murphy Oil collected daily grab samples at Outfall 003 for pH, TOC and Oil & Grease, in accordance with the facility’s LPDES permit. The discharge would not be expected to cause an adverse offsite impact, and no allegations of impact were received from neighbors in the surrounding community.

POLLUTANTS DISCHARGED:
LPDES-regulated pollutants in the discharge would be expected to be mg/l ranges of ammonia, sulfides, phenols, BOD, COD, Oil & Grease. As indicators of the effluent quality, the results of the daily grab samples for TOC and Oil & Grease were well below permit limits (see calculations attached).

PROBABLE FATE OF POLLUTANTS:
These pollutants were probably discharged to Lake Borgne via the 40 Arpent Canal via the 20 Arpent Canal.

REMEDIAL ACTIONS:
Murphy Oil set up temporary lines and pumps to bypass the plugged WWTP bioreactor charge lines, which resulted in reestablishing WWT throughput. Then, the refinery reworked the sump pumps, hydroblasted the charge lines and returned them to service.
CALCULATION SHEET

WWT BYPASS (07/11/05 – 07/14/05)
Murphy Oil USA, Inc.

SAMPLE RESULTS

<table>
<thead>
<tr>
<th>DATE</th>
<th>PH</th>
<th>TOC</th>
<th>O&amp;G</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/11</td>
<td>6.9</td>
<td>28.8</td>
<td>2.63</td>
</tr>
<tr>
<td>7/12</td>
<td>6.9</td>
<td>24.0</td>
<td>3.56</td>
</tr>
<tr>
<td>7/13</td>
<td>6.9</td>
<td>25.0</td>
<td>3.52</td>
</tr>
<tr>
<td>PERMIT LIMIT</td>
<td>6.0 – 9.0</td>
<td>&lt;50</td>
<td>&lt;15</td>
</tr>
</tbody>
</table>

OIL & GREASE DISCHARGE ESTIMATE
Concentration (ppm) * Flow (MGD) * 8.34 #/gal

7/11 2.63 ppm * 1.83 MGD * 8.34 #/gal = 40.1 #/day
7/12 3.56 ppm * 1.83 MGD * 8.34 #/gal = 54.3 #/day
7/13 3.52 ppm * 1.75 MGD * 8.34 #/gal = 51.4 #/day

MSD
7/21/05
October 6, 2008

LA Dept. of Environmental Quality
ATTN: Surveillance Division – SPOC –
"Unauthorized Discharge Notification Report"
P. O. Box 4313
Baton Rouge, LA 70821-4313

Ms. Barbara Jacob, Secretary
St. Charles Parish Emergency Group
P. O. Box 302
Hahnville, LA 70057

Mr. Jim Stone
LDEQ Southeast Regional Office

Ms. Tammy Toups
LDEQ Lockport Office

State Emergency Response Commission
Office of the State Police
P. O. Box 66614
Baton Rouge, LA 70896

RE: Unauthorized Discharge Notification Report
Incident Report # N9N8 5792
Incident Date: 09/29/2008

Dear Sir/Madam:

1. Name, address, telephone number, Agency Interest (AI) number, and any other applicable identification numbers of the person, company, or other party who is filing the written report, and specific identification that the report is the written follow-up report required by LAC 33:1.3925:

   Valero St. Charles Refinery
   P. O. Box 518, Norco, LA 70079 (14902 River Road)
   985-764-8611
   AI No. 26003

   This is the first written follow-up report required by LAC 33:1.3925 for this incident.

2. Time and date of notification, the official contacted when reporting, the name of the person making that notification, and identification of the site or facility, vessel, transport vehicle, or storage area from which the unauthorized discharge occurred:

   On September 29, at approximately 10:25 hours, Mr. Andre Marquette of our refinery made an on-line notification to LDEQ that oily material was discharged to our wastewater ponds.

3. Date(s), time(s), and duration of the unauthorized discharge and, if not corrected, the anticipated time it is expected to continue:

   Date of Discharge: 9/29/08
   Time of Discharge: Approximately 0:00 hours
   Duration: Approximately 1 day
4. Details of the circumstances and events leading to any emergency condition, including incidents of loss of sources of radiation and if the release point is subject to a permit:

   On September 29, 2008 at 10:25 a.m. a Valero St. Charles Refinery operator discovered that the wastewater ponds had a visible layer of oily material floating on the surface. The operator determined that the wastewater treatment unit had experienced an upset and oil was inadvertently carried through the unit into the treatment pond system. The operator reduced the rates to the wastewater treatment plant, notified supervision, reported the incident, and mobilized contract companies to start the clean up of the system. The oil is contained in the wastewater ponds has not been discharged off-site and/or through any outfall. The cause of the upset is still under investigation.

   a. The current permitted limit for the pollutant(s) released:

      Not Applicable

   b. The permitted release point/outfall ID:

      Source ID: NA
      Descriptive Name: NA

   c. Which limits were exceeded for air releases?

      None

5. Common or scientific chemical name of each specific pollutant that was released as the result of an unauthorized discharge, including the CAS number and U.S. Dept. of Transportation hazard classification, and best estimate of amounts of any or all released pollutants (expressed in pounds, including calculations):

   Common or scientific chemical name = Crude Oil/Oily material
   CAS Number: 8002-05-09
   DOT Hazard Class: III, Combustible liquid, UNI268
   Estimated amount released: Approximately 10 bbl.

6. Statement of actual or probable fate or disposition of the pollutant or source of radiation and what off-site impact resulted:

   Pollutants were managed on-site and no off-site impact was experienced.

7. Remedial actions taken, or to be taken, to stop unauthorized discharges or to recover pollutants or sources of radiation:

   Refinery personnel utilized absorbent boom to contain the oil. We have also mobilized oil spill response personnel to assist in recovering and containing the oil.

8. Procedures or measures which have or will be adopted to prevent recurrence of the incident or similar incidents, including incidents of loss of sources of radiation:

   The incident is still under investigation. We will implement any recommendations made during the investigation.
9. If an unpermitted or unlicensed site or facility is involved in the unauthorized discharge, a schedule for submitting a permit or license application to the department, or rationale for not requiring a permit or license:

N/A

10. The reporting party's status (former or present owner, operator, disposer, etc.):

Valero Refining – New Orleans, L.L.C. is the present owner of the facility.

11. For discharges to the ground or groundwater, the following information shall also be included: all information of which the reporting party is aware that indicates pollutants are migrating, including, but not limited to, monitoring well data; possible routes of migrations; and all information of which the reporting party is aware regarding any public or private wells in the area of the migration used for drinking, stock watering, or irrigation:

The spilled material was quickly contained and no migration of material was detected. It is not anticipated that contaminants pose a threat to the ground or groundwater.

12. What other agencies were notified:

The agencies listed in question number 2 are the only agencies notified.

13. Names of all other responsible parties of which the reporting party is aware:

N/A

14. A determination by the discharger of whether or not the discharge was preventable; if not, an explanation of why the discharge was not preventable.

The incident is still under investigation. We have not yet made a determination on whether or not this discharge was preventable. We will submit additional correspondence detailing the root cause of the incident.

15. The extent of injuries, if any:

There were no injuries as a result of this incident.

16. The estimated quantity, identification, and disposition of recovered materials, if any:

Material is actively being removed from our waste water system at the time of this correspondence so no final estimate on the quantity of recovered material is available. Recovered oil is being returned to the refining process and water is being sent to our waste water treatment unit.

If you have any questions pertaining to this incident, please call me at 985-764-8611.

Sincerely,

[Signature]

Jennifer Garofalo
Environmental Engineer
LA Dept. of Environmental Quality
ATTN: Surveillance Division – SPOC –
"Unauthorized Discharge Notification Report"
P. O. Box 4313
Baton Rouge, LA 70821-4313
CITGO Petroleum Corporation

August 1, 2007

Emergency Response Commission
Department of Public Safety
Office of State Police
P.O. Box 66614
Baton Rouge, LA 70806

Department of Environmental Quality
Office of Environmental Compliance
P. O. Box 4312
Baton Rouge, LA 70821-4312
Attention: Surveillance Division – SPOC

Re: Notification Report – Reportable Release
Storm Related Power Failure
Case No: 07-02942
Agency Interest #1250
CITGO Petroleum Corporation
Lake Charles Manufacturing Complex
Environmental Dept. File #1-10-01

Gentlemen:

This letter is being submitted as a follow-up to the telephone calls starting on June 4, 2007 and our update letters dated June 8, June 18, and July 5, 2007 to the Louisiana State Police HAZMAT, Louisiana Department of Environmental Quality and the Emergency Planning Committee regarding releases of: (a) sulfur dioxide, hydrogen sulfide, nitrogen oxide and uncombusted VOCs from flaring, (b) reduced sulfur compounds (i.e., hydrogen sulfide, carbonyl sulfide and carbon disulfide) from the tail gas equipment at the sulfur recovery plant, (c) sulfur dioxide above permitted limits from furnaces and boilers, (d) oil to the soil from a small sweet crude oil pipeline leak and (e) smoke from some of the boilers in the Powerhouse at the CITGO Lake Charles Manufacturing Complex.

This incident was initiated by a short duration rain event which contained swirling winds gusting to greater than 60 miles per hour and hail that resulted in the loss of power at one of CITGO’s substations.
Our review of the operating data from this incident indicates the following regarding reportable releases which are detailed in the attached report:

- Sulfur dioxide (SO₂) emissions exceeded permitted emission limits by more than the 24-hour sulfur dioxide reportable quantity (RQ) of 500 lbs at the following Refinery operating equipment or units:
  - Refinery heaters and boilers
  - the B-7 Flare

- Reduced sulfur compounds, in particular hydrogen sulfide, from tail gas equipment at the Sulfur Recovery Plant exceeded permitted emission limits by more than the 24-hour reportable quantity (RQ) of 100 lbs,

- 5.7 barrels of crude oil spilled onto the soil on CITGO property.

It is CITGO Petroleum Corporation's (CITGO) policy to operate all of its facilities in an environmentally sound manner and in full compliance with all state and federal laws, regulations, and permits. If there are any questions concerning this report, please call Mike Nash at 337.708.6877.

Sincerely,

David Hollis
David Hollis, Manager
Environmental Protection Department

Enclosures
ATTACHMENT 1

NOTIFICATION REPORT

This form is submitted to the LDEQ and/or LSP in accordance with LDEQ Regulation LAC 33:1.3925.B.

1. Name of person, company, or other party who is filing the written report.
   This report is being filed by: David Hollis, Manager, Environmental Protection Department
   CITGO Petroleum Corporation
   LA Highway 108, South of I-10, East of LA Highway 27
   P.O. Box 1562
   Lake Charles, LA 70602
   337.708.7008

2. Time and date of verbal notification, name of person making the notification, and
   identification of the site or facility, vessel, transport vehicle, or storage area from
   which the unauthorized discharge occurred.

   Verbal Reports was filed June 4, 2007 with the following agencies:

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>TIME</th>
<th>RESPONDER</th>
<th>CASE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Louisiana State Police – HAZMAT</td>
<td>17:45</td>
<td>Charlie</td>
<td>07-02942</td>
</tr>
<tr>
<td>National Response Center</td>
<td>18:10</td>
<td>Thompson</td>
<td>837547</td>
</tr>
<tr>
<td>LDEQ Baton Rouge Office</td>
<td>18:05</td>
<td>Left Message</td>
<td></td>
</tr>
<tr>
<td>Local Emergency Planning</td>
<td>18:07</td>
<td>Left Message</td>
<td></td>
</tr>
<tr>
<td>Local Emergency Planning</td>
<td>17:55</td>
<td>Cathy</td>
<td></td>
</tr>
</tbody>
</table>

   Verbal Report was made by: Don Broussard
   CITGO Petroleum Corporation
   P.O. Box 1562
   Lake Charles, LA 70602
   337.708.6345

3. Emission Point Source(s) involved. Include the process unit and EIQ Number if available.

   The following Emission Point Sources are discussed in this document:
   • Those heaters and boilers where the maximum hourly SO₂ permit limit was exceeded due to
     the loss of amine circulation.
   • B-7 Flare - 3(IX)33
   • Sulften Absorber Vent at Sulfur Recovery Unit - 3(XX-H)1
   • TGII Absorber Vent at Sulfur Recovery Unit - 3(XX-J)5
   • Pipeline leak - (EIQ not applicable)
4. **Applicable Permit No. and the current permitted limit (lbs/hr) for the pollutant(s) released from the emission point source involved.**

Calculations for the heaters and boilers that exceeded maximum hourly SO₂ permit limits due to the loss of amine circulation for the 24 hour period from approximately 17:00 on June 4 to 17:00 on June 5, 2007 are listed below:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Heater/Boiler No.</th>
<th>EIQ No.</th>
<th>Maximum SO₂ Limit (lbs/hr)</th>
<th>Amount of SO₂ over Permit (lbs)</th>
<th>Title V Permit No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid Plant</td>
<td>B-3</td>
<td>3(VIII-A)3</td>
<td>1.91</td>
<td>111.4</td>
<td>2935-V1</td>
</tr>
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### NOTIFICATION REPORT

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<th>Heater/Boiler No.</th>
<th>EIQ No.</th>
<th>Maximum SO$_2$ Limit (lbs/hr)</th>
<th>Amount of SO$_2$ over Permit (lbs)</th>
<th>Title V Permit No.</th>
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Calculations for the heaters and boilers that exceeded maximum hourly SO$_2$ permit limits due to the loss of amine circulation for the period from 17:00 on June 5 to Midnight on June 5, 2007 are listed below:

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<th>EIQ No.</th>
<th>Maximum SO$_2$ Limit (lbs/hr)</th>
<th>Amount of SO$_2$ over Permit (lbs)</th>
<th>Title V Permit No.</th>
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## NOTIFICATION REPORT

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<th>Amount of SO₂ over Permit (lbs)</th>
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<td></td>
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NOTIFICATION REPORT

In addition, the following emission point sources are also discussed in this document.

The B-7 Flare (Permit No. 3010-V0) – Permit Limit (N/A in this case for SO₂ emissions).

Sulften Absorber Vent at Sulfur Recovery Plant (Permit No. 2935-V1) – Permit Limit – 1.29 lbs/hr for hydrogen sulfide.

TGII Absorber Vent at Sulfur Recovery Plant (Permit No. 2935-V1) – Permit Limit – 1.55 lbs/hr for hydrogen sulfide.

Pipeline leak – Permit Limit N/A

5. Which applicable Air Quality Regulation limits were exceeded? (SO₂ Limit, Mass Emission Limit, Opacity Limit, etc.)
   Sulfur dioxide (SO₂) and Hydrogen Sulfide Limits

6. Give the date and time the release began and duration of release.

Sulfur Dioxide Emissions
Sulfur dioxide emissions above permitted limits from the heaters and boilers occurred intermittently during the period from approximately 17:30 on June 4 to midnight on June 5, 2007.

Sulfur dioxide emissions from the B-7 Flare occurred intermittently (for a period of 58 minutes) during the period from approximately 17:22 until 19:07 hours on June 4, 2007.

Hydrogen Sulfide Emissions
Hydrogen Sulfide emissions above permitted limits from the tail gas units (TGII and Sulften) at the Sulfur Recovery Plant occurred during the period from approximately 17:30 on June 4 to 04:00 on June 6, 2007.

Release of crude oil to soil
The crude oil leak from the fill line to Tank 101 was discovered at 19:00 on June 4, 2007 and the line was isolated to stop the leak by 20:00 the same evening.

7. Which specific pollutants were emitted and how much of each compound was released. (Total amount of each compound expressed in pounds). Also indicate CAS Number, Extremely Hazardous (Yes/No), Release Media (Solid, Liquid, Gas).

**Sulfur dioxide**; 204,749 lbs and 31,532 lbs released above heaters and boilers permitted limit for the 24 hour period on June 4/5 and the eight hour period on June 5/6, 2007, respectively, and 1190 lbs released from the B-7 Flare. **Total is 237,471 lbs.**
CAS# 7446-09-5; Extremely Hazardous; Gas

**Hydrogen Sulfide**: 1216.7 lbs and 432 lbs released above permitted limits for the 24 hour period on June 4/5 and 12 hour period on June 5/6, respectively. **Total is 1,649 lbs.**
CAS# 7783-06-4; Extremely Hazardous; Gas

**Sweet Crude Oil**: 5.7 barrels (1,677 lbs) released to the soil.
CAS# 8002-05-9; Extremely Hazardous (No); Liquid
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8. Upset description, cause, and what offsite impact resulted.

The Lake Charles Refinery experienced a short duration rain event which contained swirling winds gusting to greater than 60 miles per hour, hail and copious lightening. The rain event started at approximately 17:00 on June 4 and lasted approximately 30 to 45 minutes. As a result of the storm, an electrical fault occurred in a Refinery 13.8 kV substation (Substation 21). The loss of electrical power impacted primarily the C4 Recovery Unit. This unit fractionates the gas overhead streams from the Fluid Catalytic Cracking Units (FCCUs) and the Coker I Unit. During this same period, the Refinery experienced three power blips on Entergy lines coming into the Refinery which momentarily impacted the operations at the Sulfur Recovery Plant.

CITGO believes the power loss in Substation 21 was caused by water entering the substation via the joint between the roof and the side wall of the substation. The water caused a fused switch failure resulting in the failure of the entire substation.

Within an hour of the power loss and prior to the restoration of power at approximately 19:45, the loss of critical electric driven pumps caused an increase in liquid levels and higher pressures in vapor/liquid separation drums (F-8 and F102 at the C4 Recovery Unit) which resulted in the lifting of pressure safety valves and intermittent flaring at the B-7 Flare. In addition, the loss of amine flow and hydrogen sulfide absorption in the amine contactors at the Light Ends Recovery Unit (LERU), the Fuel Gas Processing Unit (FGPU) coupled with the carryover of liquid hydrocarbons into the refinery fuel gas system and rich amine system resulted in the generation of heavy smoking from some of the Refinery boiler stacks, excess SO₂ emissions from the heaters and boilers throughout the Refinery and upset the Sulfur Recovery Plant (SRP) which resulted in excess hydrogen sulfide emissions from the tail gas units at the SRP.

On the morning of June 5, Operations personnel in FGPU were working to unload an amine contactor in order to reestablish gas flow and inadvertently sent liquid hydrocarbons to the rich amine system again overloading the Central Amine Unit with hydrocarbons. During the time used to purge the hydrocarbons from amine system, SO₂ was emitted above permit limits from the heaters and boilers throughout the Refinery. The SRP tail gas units were upset during this entire period.

Based on air monitoring conducted during the release, Community Awareness and Emergency Response (CAER) Group Emergency Response Planning Guide (ERPG)-2 values were never exceeded.

The leak from the sweet crude oil line was caused by internal corrosion and happened to be discovered shortly after the storm during Operation's normal rounds. The leak is unrelated to the power outage but it is possible that the hail may have contributed to starting the leak.

There was a limited offsite impact as a result of the soot from the smoking boilers.

9. Was the release preventable – Yes or No (underline one). If no, explain why the release was not preventable.

With respect to the pipeline leak which was unrelated to the power outage but was discovered after the rainstorm – No. CITGO had no indication that the line might be susceptible to leaking. The leak has since been determined to be from internal corrosion. It is possible that the hail may have contributed to starting the leak.

With respect to the electrical failure – Yes.
10. What other agencies were notified.

See response in Section 2

11. Immediate corrective action taken.

**Sulfur Dioxide and Hydrogen Sulfide Emissions**

The upset of the C4 Recovery Unit as the result of the loss of electrical power to critical pumps occurred so rapidly that the initial diversion of sour hydrocarbons to the flare, the carryover of liquid hydrocarbons to the amine system and fuel gas system, and the lack of treatment of the refinery fuel gas to remove hydrogen sulfide could not have been prevented. However, immediate steps were taken shortly after the upset to minimize the longer term sulfur dioxide emissions. Feed rates to the FCCU Units and the Coker 1 Unit which feed the C4 Recovery Unit were reduced to minimum. Other sulfur shedding steps were taken at units that generate hydrogen sulfide gases.

Due to the carryover of hydrocarbons to the amine system and the reduction of hydrogen sulfide available for recovery, the Sulfur Recovery Plant (SRP) was upset resulting in excess emissions of hydrogen sulfide from the tail gas units. Operations personnel took immediate steps to remove hydrocarbons from the Central Amine Unit and the SRP and kept the SRP operational. This was a task that took several shifts to complete.

**Crude Oil released to soil**

Operations personnel took immediate action to isolate the line and clamp the line to stop the leak to the environment.

12. Specific remedial actions taken and/or planned to prevent reoccurrence.

(Include timetable for completion of project if available).

- Revise substation inspection form to include weatherization line item. (8/1/2007)
- Develop process to inform/involve impacted parties in risk management decisions associated with electrical distribution outages to operating process units. (9/15/2007)
- Conduct focused complex-wide electrical distribution weatherization inspection. (9/30/2007)
- Review existing emergency procedures (and modify as needed) the Loss of Electrical Power at C4 Recovery Unit (EOP-319-501) to address a total power loss at C4 Recovery. (9/30/2007)
- Revise emergency shed list in BOG's Process Recommendations document to cover a Central Amine / SRP upset when steam stripping is significantly curtailed. (9/30/2007)
- Study liquid monitoring and removal capabilities in fuel gas system, especially at F-2 and F-3 drums. (12/1/2007)
NOTIFICATION REPORT

- Repair/upgrade weatherization of complex-wide electrical distribution system, as determined by focused inspection. (12/31/2007)
- Develop EOP for amine upsets for all Amine Satellites. (3/31/2008)
- Study liquid/vapor hydrocarbon removal capabilities in amine system. (3/31/2008)
- Complete Electrical LRP upgrade project for C4/FGPU/LELU/BLCOH process block. (6/30/2009)

For the crude oil line, the piping has been replaced.

13. Regulation notification requirement(s). (Check appropriate).

   [X]  LAC 33:III.927 Unauthorized Discharge
   [X]  LAC 33:I.3917 Notification Requirements for Unauthorized Discharge
   [ ]  LAC 33:III.5107B Air Toxics Discharge Reporting Requirements
ATTACHMENT 2

Engineering Calculations

Sulfur Dioxide Emissions

Heaters and Boilers

Furnace and boiler SO\textsubscript{2} emissions were calculated based on total sulfur in the fuel gas and the fuel gas flow rate. Total sulfur in the fuel gas consists of mercaptan sulfur and hydrogen sulfide (H\textsubscript{2}S). The mercaptan sulfur was obtained from a previous lab analysis. The four (4) methods used to determine H\textsubscript{2}S content in the refinery fuel gas corresponded to the following phases of the incident and the available data for each phase:

1. H\textsubscript{2}S from rich amine loading during total loss of amine circulation.
2. Extrapolated H\textsubscript{2}S content during slumping of amine contactors during the period that hydrocarbon liquids were present in the rich amine returned to the Central Amine Unit for regeneration.
3. Lab data from sample of liquid fuel to boilers.
4. H\textsubscript{2}S to fuel from Cat Area sulfur balance.

Method 1 was used during the initial hours of the power outage. When amine circulation ceased due to pumps losing electric power. The H\textsubscript{2}S in the fuel gas was calculated based on rich amine loading (moles H\textsubscript{2}S /mole amine) and amine circulation rate just prior to the incident. It was assumed that all the H\textsubscript{2}S in the rich amine was released to the fuel gas.

Method 2 was used during the hours when Central Amine Unit reduced steam to the amine strippers, a practice called "slumping". The amine contactors stripping steam was reduced because the units that process the H\textsubscript{2}S – the Acid Plant and Sulfur Recovery Plant (SRP) - were either down (Acid Plant) or upset (SRP) due to hydrocarbon carryover from the Central Amine Unit. During this period the measured H\textsubscript{2}S concentration at the CEMS on the fuel gas drums, which had exceeded the 300 ppm limit, were extrapolated.

Method 3 consisted of using a lab analysis of a sample of liquid fuel that was sent to the boilers for sulfur content and API gravity. This data was used to obtain SO\textsubscript{2} emissions from the boilers when they burned liquid fuel.

Method 4 was a sulfur balance provided by the Operations Engineering Department (OED) which calculated the total pounds of H\textsubscript{2}S sent to the Cat Area fuel gas contactors (FGPU E-3 and E-3A, plus LERU). The calculated H\textsubscript{2}S was blended into the fuel gas burned by the heaters taking gas from F-2 and F-3 fuel gas drums.

SO\textsubscript{2} emissions were calculated for each fired heater and boiler on a 1 hour block basis. The amount of SO\textsubscript{2} in excess of the maximum hourly permit limit was summed and reported over the two 24 hour periods the incident spanned.

C4 Recovery Unit Flaring at the B-7 Flare

C4 Recovery tower and associated vessel pressures were graphed to determine overpressure scenarios during the rain event. From this analysis, it was determined that sour hydrocarbons were sent to the B-7 Flare from F-8 (via PSV233) and F-102 (via PSV241) as a result of the loss of
NOTIFICATION REPORT

electrical power. The amount of material sent to the flare was calculated from the difference between the incoming feed gas to the unit and the compressed gas from JC-101 less the typical amount of gas condensed in F-8. Compressor suction gas composition taken from the most recent C4 Recovery computer simulation was used to estimate the composition of the gas flared.

Hydrocarbon Sulfide Emissions

The vent gas emissions from the SRP tail gas units (Sulfiten and TG II) were determined using the calculated flow rate to the units and the online stack analyzer. Although the analyzer measures Reduced Sulfur Compounds (which are hydrogen sulfide (H₂S), carbonyl sulfide (COS), and carbon disulfide (CS₂)), hydrogen sulfide was assumed to be the dominant emission since the upset resulted in foaming in these units. The COS and CS₂ contributions were determined based on the RSC concentration prior to the start of the upset less the most recently measured H₂S concentration. During the upset the concentration of COS and CS₂ together were assumed to be constant and the H₂S was the difference between the measured RSC and the assumed total constant contribution of the COS and CS₂.

Crude Oil Spill to the Soil

The quantity of crude oil released was based on an estimate of the size of the hole in the pipe, the pressure of the fluid in the pipe, a crude assay and an estimate of the length of time that the release lasted. Using the assay and the estimate of the total quantity released, calculations were performed to estimate the evaporation of other listed chemicals of interest. These calculations indicated that no other RQs were exceeded.
Notification Report – Reportable Release
Storm Related Power Failure
Case No: 07-02942
August 1, 2007

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