



CITGO Petroleum Corporation

Lake Charles Complex
P.O. Box 1562
Lake Charles, LA 70602

June 8, 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

507-1857
T 96768
Dan Chapman
SURE

RECEIVED

JUN 11 2007

DEQ
Single Point of Contact

Re: Notification Report – Update
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 to the Louisiana State Police HAZMAT, Louisiana Department of Environmental Quality, National Response Center 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.

CITGO's preliminary review of the operating data from this incident indicates that RQs for sulfur dioxide, hydrogen sulfide, nitrogen oxide, uncombusted VOCs, reduced sulfur compounds, and oil to the soil likely may have been exceeded. At this time, the oil spilled on CITGO property is being cleaned up.

Page 2
Notification Report – Update
Storm Related Power Failure
Case No: 07-02942

Release calculations are being finalized for this incident. CITGO will provide either a closure letter or an update report on this incident by June 18, 2007.

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

^{-MHN}
DWH/MHN

Notification Report – Update
Storm Related Power Failure
Case No: 07-02942
June 8, 2007

DISTRIBUTION:

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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
Office of State Police
P.O. Box 66614
Baton Rouge, LA 70806

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
325 Loyola Avenue, Suite 210
New Orleans, LA 70112
Attention: Kenneth Lanier

Copy: Bill Gray
Steve Hays
Sixto Mendez
Mike Nash
Shift Superintendents
Environmental Release Notification File #1-10-01
Area Managers – Ralph Harris, Francis Daigle, Gary Walters, Jerry Dunn, Marshall
Watkins



CITGO Petroleum Corporation

Lake Charles Complex
P.O. Box 1562
Lake Charles, LA 70602

June 18, 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

*507-1857
T 96 768
Dan Chapman
Sulpro*

Re: Notification Report – Update 2
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 letter dated June 8, 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.

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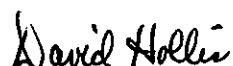
CITGO's preliminary review of the operating data from this incident indicates the following regarding likely reportable releases:

- Sulfur dioxide emissions exceeded permitted emission limits by more than the 24-hour sulfur dioxide reportable quantity (RQ) of 500 lbs at the some of the Refinery's heaters and boilers. Quantification of the sulfur dioxide emissions above permitted limits for each heater and boiler is ongoing.
- 5.7 barrels of crude oil spilled onto the soil on CITGO property. This release has been cleaned up.

The investigation is continuing and release calculations are ongoing. Calculations for the release of reduced sulfur compounds (i.e., hydrogen sulfide, carbonyl sulfide and carbon disulfide) from the tail gas equipment at the sulfur recovery plant are underway. CITGO will provide a closure letter when calculations have been completed or an update report on this incident within the next ten days.

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, Manager
Environmental Protection Department

DWH/MHN ^{mt}

Notification Report – Update 2
Storm Related Power Failure
Case No: 07-02942
June 18, 2007

DISTRIBUTION:

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Office of State Police
P.O. Box 66614
Baton Rouge, LA 70806

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
325 Loyola Avenue, Suite 210
New Orleans, LA 70112
Attention: Kenneth Lanier

Copy: Bill Gray
Steve Hays
Sixto Mendez
Mike Nash
Shift Superintendents
Environmental Release Notification File #1-10-01
Area Managers – Ralph Harris, Francis Daigle, Gary Walters, Jerry Dunn, Marshall
Watkins



CITGO Petroleum Corporation

Lake Charles Complex
P.O. Box 1562
Lake Charles, LA 70602

June 28, 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

*507-1857
T 96768
Danny Chapman
SPOC*

Re: Notification Report – Update 3
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, 2007 and June 18, 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.

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Single Point of Contact

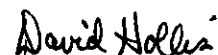
CITGO's preliminary review of the operating data from this incident indicates the following regarding likely reportable releases:

- Sulfur dioxide 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. This release has been cleaned up.

The investigation is continuing and release calculations are ongoing. CITGO will provide a closure letter by July 3, 2007.

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, Manager
Environmental Protection Department

DWH/MHN ^{7/11/07}

Notification Report – Update 3
Storm Related Power Failure
Case No: 07-02942
June 28, 2007

DISTRIBUTION:

Copies: Department of Environmental Quality
Office of Environmental Compliance
P. O. Box 4312
Baton Rouge, LA 70821-4312
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Department of Environmental Quality
Southwest Regional Office
1301 Gadwall Street
Lake Charles, LA 70615
Attention: James McKeivier

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

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
325 Loyola Avenue, Suite 210
New Orleans, LA 70112
Attention: Kenneth Lanier

Copy: Bill Gray
Steve Hays
Sixto Mendez
Mike Nash
Shift Superintendents
Environmental Release Notification File #1-10-01
Area Managers – Ralph Harris, Francis Daigle, Gary Walters, Jerry Dunn, Marshall
Watkins

burn Corporation

70602



0004335743 JUN 28 2007
MAILED FROM ZIP CODE 70601

Department of Environmental Quality
Office of Environmental Compliance
PO Box 4312
Baton Rouge, LA 70821-4312
ATTENTION: SURVEILLANCE DIVISION
SPOC



CITGO Petroleum Corporation

Lake Charles Complex
P.O. Box 1562
Lake Charles, LA 70602

July 5, 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

*507-1857
T 96768
Dan Chapman
Suro*

Re: Notification Report – Update 4
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 and June 18, 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.

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JUL 09 2007
DEQ
Single Point of Contact

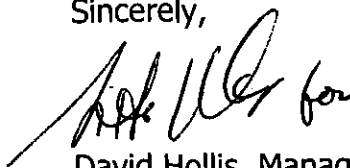
Our review of the operating data from this incident indicates the following regarding reportable releases which are detailed in the attached report:

- 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.

We are reporting preliminary values for the SO₂ emissions from the heaters and boilers as work is continuing as additional information becomes available from the root cause failure analysis (RCFA) investigation that is currently underway. When the RCFA is completed in the next few weeks, CITGO will submit a final report with final SO₂ emissions and corrective actions to be taken.

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, Manager
Environmental Protection Department

^{nln}
DWH/MHN

ATTACHMENT 1

NOTIFICATION REPORT

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

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

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.**

Preliminary 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:

Unit	Heater/Boiler No.	EQ No.	Maximum SO ₂ Limit (lbs/hr)	Amount of SO ₂ over Permit (lbs)	Title V Permit No.
Acid Plant	B-3	3(VIII-A)3	1.91	11.0	2935-V1
Acid Plant	B-601	3(VIII-A)2	1.76	35.4	2935-V1
Lubes Vacuum	BA-1	1(2458)1	60.1	73.0	3009-V0
Lubes Vacuum	BA-101	1(2458)2	60.1	70.2	3009-V0
A Cat	B-2	3(II)4	1.23	96.6	2908-V2
A Cat	B-6	3(II)7	14.02	869.6	2908-V2
A Cat Gas Hydrotreater	B-101	3(XXXIV)7-101	5.08	533.1	2908-V2
A Cat Gas Hydrotreater	B-102	3(XXXIV)7-102	5.08	242.1	2908-V2
A Cat Gas Hydrotreater	B-103	3(XXXIV)7-103	3.10	696.5	2908-V2
B Cat	B-2	3(II)5	1.77	37.4	2908-V2
B Cat	B-6	3(II)8	7.66	881.9	2908-V2
B Cat Gas Hydrotreater	B-101	3(XXXIV)7-201	5.08	522.3	2908-V2
B Cat Gas Hydrotreater	B-102	3(XXXIV)7-202	5.08	593.9	2908-V2
B Cat Gas Hydrotreater	B-103	3(XXXIV)7-203	3.10	629.3	2908-V2
BLCOH	B-101	3(XVI)4	2.79	139.2	2908-V2
BLCOH	B-3	3(XVI)3	1.9	32.6	2908-V2
C Cat	B-2	3(II)6	1.23	123.7	2908-V2
C Cat	B-6	3(II)9	14.02	1098.3	2908-V2
CFH	B-101	3(XXIX)1	13.15	1126.3	2908-V2
CFH	B-102	3(XXIX)2	8.74	362.3	2908-V 2
CVEP	B101A	3(XXXIII)1A	14.3	3201.9	2930-V1
CVEP	B101B	3(XXXIII)1B	14.3	3303.9	2930-V1
CVEP	B102A	3(XXXIII)2A	21.5	2891.0	2797-V0
CVEP	B102B	3(XXXIII)2B	21.5	3164.9	2797-V0
A Topper	B-4	3(I)5	58.59	9847.6	2930-V1
C Topper	B-1C	3(VII-C)1	16.27	3099.8	2930-V1
C Topper	B-2C	3(VII-C)2	19.33	2704.0	2930-V1
Coker 1	B-101	3(III)1	12.22	2134.9	2930-V1
Coker 1	B-201	3(III)2	12.22	2244.2	2930-V1
Coker 2	B-201	3(XXVI)1	17.19	1705.6	2920-V1
Coker 2	B-202	3(XXVI)2	17.19	1956.1	2920-V1
Feed Prep #1	B-101	3(XIII)1	8.15	1366.0	2930-V1
Feed Prep #2	B-101 #2	3(XIII)2	8.15	1366.0	2930-V1
Powerhouse	B-1C	3(K-6)1	101.22	8472.4	2930-V1
Powerhouse	B-1B	3(K-6)2	117.87	5971.6	2930-V1
Powerhouse	B-1	3(K-6)3	155.69	10468.5	2930-V1
Subtotal				72073	

Unit	Heater/Boiler No.	EQ No.	Maximum SO ₂ Limit (lbs/hr)	Amount of SO ₂ over Permit (lbs)	Title V Permit No.
Powerhouse	B-2	3(K-6)4	44.31	1049.2	2930-V1
Powerhouse	B-2A	3(K-6)5	40.95	1885.8	2930-V1
Powerhouse	B-3	3(K-6)6	69.75	3267.1	2930-V1
Powerhouse	B-3C	3(K-6)7	34.83	1601.5	2930-V1
Straight Run Frac	B-5	3(VII)1	5.13	1033.7	2930-V1
Vacuum	B-201	3(I-D)1	15.28	2764.0	2930-V1
Vacuum	B-2A	3(I-D)2	6.65	890.2	2930-V1
A Ref	B-101	3(X)1	2.60	573.3	2920-V1
A Ref	B 102-105	3(X)6	17.65	4607.8	2920-V1
ALCOH	B-101	3(XVIII)1	4.35	448.3	2920-V1
ALCOH	B-102	3(XVIII)2	6.19	325.4	2920-V1
ALCOH	B-103	3(XVIII)3	5.03	94.7	2920-V1
B Reformer	B-401	3(XVIII-A)1	6.95	744.7	2920-V1
B Reformer	B-406	3(XVIII-A)2	6.57	565.3	2920-V1
B Reformer	B-402	3(XVIII-A)3	6.42	605.2	2920-V1
B Reformer	B-403	3(XVIII-A)4	31.55	6199.3	2920-V1
BOH	B-601	3(X-A)1	2.67	393.5	2920-V1
BOH	B-602	3(X-A)2	3.90	399.1	2920-V1
ISOM	B-801	3(XXVII-A)1	1.53	185.9	2920-V1
Sulfolane	B-201	3(X)4	8.71	1052.1	2920-V1
Sulfolane	B-202	3(X)5	6.11	831.6	2920-V1
Unicracker	B-1,2,3,4,5	3(XXVIII)1	23.38	3407.7	2920-V1
Subtotal				32925	
Total				104998	

Preliminary calculations for the heaters and boilers that exceeded maximum hourly SO₂ 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:

Unit	Heater/Boiler No.	EQ No.	Maximum SO ₂ Limit (lbs/hr)	Amount of SO ₂ over Permit (lbs)	Title V Permit No.
Acid Plant	B-3	3(VIII-A)3	1.91	0.5	2935-V1
Lubes Vacuum	BA-1	1(2458)1	60.1	2.7	3009-V0
Lubes Vacuum	BA-101	1(2458)2	60.1	2.8	3009-V0
A Cat Gas Hydrotreater	B-103	3(XXXIV)7-103	3.10	2.4	2908-V2
B Cat Gas Hydrotreater	B-103	3(XXXIV)7-203	3.10	3.0	2908-V2
CVEP	B101A	3(XXXIII)1A	14.3	4.6	2930-V1
CVEP	B101B	3(XXXIII)1B	14.3	5.2	2930-V1
CVEP	B102B	3(XXXIII)2B	21.5	1.7	2797-V0
A Topper	B-4	3(I)5	58.59	20.4	2930-V1
C Topper	B-1C	3(VII-C)1	16.27	6.9	2930-V1
C Topper	B-2C	3(VII-C)2	19.33	2.4	2930-V1
Coker 1	B-101	3(III)1	12.22	1.3	2930-V1
Subtotal				53.9	

Unit	Heater/Boiler No.	EIQ No.	Maximum SO ₂ Limit (lbs/hr)	Amount of SO ₂ over Permit (lbs)	Title V Permit No.
Coker 1	B-201	3(III)2	12.22	1.8	2930-V1
Coker 2	B-201	3(XXVI)1	17.19	22.4	2920-V1
Coker 2	B-202	3(XXVI)2	17.19	31.3	2920-V1
Feed Prep #1	B-101	3(XIII)1	8.15	1.9	2930-V1
Feed Prep #2	B-101 #2	3(XIII)2	8.15	1.9	2930-V1
Powerhouse	B-1C	3(K-6)1	101.22	22.3	2930-V1
Powerhouse	B-2	3(K-6)4	44.31	2.8	2930-V1
Straight Run Frac	B-5	3(VII)1	5.13	2.4	2930-V1
Vacuum	B-201	3(I-D)1	15.28	6.1	2930-V1
A Ref	B-101	3(X)1	2.60	21.1	2920-V1
A Ref	B 102-105	3(X)6	17.65	189.2	2920-V1
ALCOH	B-101	3(XVIII)1	4.35	7.4	2920-V1
ALCOH	B-102	3(XVIII)2	6.19	4.9	2920-V1
B Reformer	B-401	3(XVIII-A)1	6.95	12.0	2920-V1
B Reformer	B-406	3(XVIII-A)2	6.57	7.0	2920-V1
B Reformer	B-402	3(XVIII-A)3	6.42	13.9	2920-V1
B Reformer	B-403	3(XVIII-A)4	31.55	210.8	2920-V1
BOH	B-601	3(X-A)1	2.67	10.4	2920-V1
BOH	B-602	3(X-A)2	3.90	7.0	2920-V1
ISOM	B-801	3(XXVII-A)1	1.53	4.6	2920-V1
Sulfolane	B-201	3(X)4	8.71	22.2	2920-V1
Sulfolane	B-202	3(X)5	6.11	23.4	2920-V1
Unicracker	B-1,2,3,4,5	3(XXVIII)1	23.38	89.3	2920-V1
Subtotal				716.1	
Total				770.0	

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; 104,998 lbs and 770 lbs released above heaters and boilers permitted limit for the 24 hour period on June 4/5 and the seven hour period on June 5/6, 2007, respectively,⁽¹⁾ and 1190 lbs released from the B-7 Flare. Total is 106,958 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

⁽¹⁾ The sulfur dioxide (SO₂) emissions shown for the heaters and boilers are preliminary values.

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 Fractionation Unit (i.e., the unit that fractionates the gas overhead streams from the FCCUs (i.e., Fluid Catalytic Cracking Units) 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.

The cause of the power loss at Substation 21 and the resultant emissions increases is under review. At this time, CITGO believes the power loss 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 Fractionation 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 C4 Fractionation Unit 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 were working to unload an amine contactor 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.

CITGO is performing a detailed Root Cause Failure Analysis (RCFA) on this incident. At this time, the results of the RCFA have not yet been published. When the RCFA is completed, CITGO will address these questions.

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.

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 Fractionation 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 Fractionation 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).

A formal Root Cause Failure Analysis (RCFA) Team has been formed to review this incident, determine the root cause and contributing causes and make recommendations for corrective actions. When the RCFA has been concluded, CITGO will forward the information to the agencies.

For the crude oil line, the piping is being replaced.

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

<input checked="" type="checkbox"/>	LAC 33:III.927	Unauthorized Discharge
<input checked="" type="checkbox"/>	LAC 33:I.3917	Notification Requirements for Unauthorized Discharge
<input type="checkbox"/>	LAC 33:III.5107B	Air Toxics Discharge Reporting Requirements

ATTACHMENT 2

Engineering Calculations

Sulfur Dioxide Emissions

Heaters and Boilers

Furnace and boiler SO₂ 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 (H₂S). The mercaptan sulfur was obtained from a previous lab analysis. The four (4) methods used to determine H₂S content in the refinery fuel gas corresponded to the following phases of the incident and the available data for each phase:

1. H₂S from rich amine loading during total loss of amine circulation.
2. Extrapolated H₂S 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. H₂S 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 H₂S in the fuel gas was calculated based on rich amine loading (moles H₂S /mole amine) and amine circulation rate just prior to the incident. It was assumed that all the H₂S 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 H₂S – 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 H₂S 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 SO₂ 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 H₂S sent to the Cat Area fuel gas contactors (FGPU E-3 and E-3A, plus LERU). The calculated H₂S was blended into the fuel gas burned by the heaters taking gas from F-2 and F-3 fuel gas drums.

SO₂ emissions were calculated for each fired heater and boiler on a 1 hour block basis. The amount of SO₂ in excess of the maximum hourly permit limit was summed and reported over the two 24 hour periods the incident spanned.

C4 Fractionation 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

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 (Sulften 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 (H_2S), carbonyl sulfide (COS), and carbon disulfide (CS_2)), hydrogen sulfide was assumed to be the dominant emission since the upset resulted in foaming in these units. The COS and CS_2 contributions were determined based on the RSC concentration prior to the start of the upset less the most recently measured H_2S concentration. During the upset the concentration of COS and CS_2 together were assumed to be constant and the H_2S was the difference between the measured RSC and the assumed total constant contribution of the COS and CS_2 .

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 – Update 4
Storm Related Power Failure
Case No: 07-02942
July 5, 2007

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
Office of State Police
P.O. Box 66614
Baton Rouge, LA 70806

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
325 Loyola Avenue, Suite 210
New Orleans, LA 70112
Attention: Kenneth Lanier

Copy: Bill Gray
Steve Hays
Sixto Mendez
Mike Nash
Shift Superintendents
Environmental Release Notification File #1-10-01
Area Managers – Ralph Harris, Francis Daigle, Gary Walters

um Corporation

70602



0004335743 JUL 05 2007
MAILED FROM ZIP CODE 70601

Department of Environmental Quality
Office of Environmental Compliance
PO Box 4312
Baton Rouge, LA 70821-4312
ATTENTION: SURVEILLANCE DIVISION
SPOC

Pm 8-2-07



CITGO Petroleum Corporation

Lake Charles Complex
P.O. Box 1562
Lake Charles, LA 70602

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

*507-1857
T 96768
Danny Chapman
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.

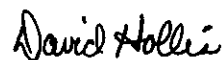
This incident was initiated by a short duration rain event which contained swirling winds gusting to greater than 60 miles per hour and hail that resulted in the loss of power at one of CITGO's substations.

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, 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:I.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:

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

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)

NOTIFICATION REPORT

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:

Unit	Heater/Boiler No.	EQ No.	Maximum SO ₂ Limit (lbs/hr)	Amount of SO ₂ over Permit (lbs)	Title V Permit No.
Acid Plant	B-3	3(VIII-A)3	1.91	111.4	2935-V1
Acid Plant	B-601	3(VIII-A)2	1.76	115.9	2935-V1
Lubes Vacuum	BA-1	1(2458)1	60.1	71.0	3009-V0
Lubes Vacuum	BA-101	1(2458)2	60.1	68.2	3009-V0
A Cat	B-2	3(II)4	1.23	162.7	2908-V2
A Cat	B-6	3(II)7	14.02	1714.2	2908-V2
A Cat Gas Hydrotreater	B-101	3(XXXIV)7-101	5.08	729.1	2908-V2
A Cat Gas Hydrotreater	B-102	3(XXXIV)7-102	5.08	468.6	2908-V2
A Cat Gas Hydrotreater	B-103	3(XXXIV)7-103	3.10	1140.7	2908-V2
B Cat	B-2	3(II)5	1.77	337.4	2908-V2
B Cat	B-6	3(II)8	7.66	1531.0	2908-V2
B Cat Gas Hydrotreater	B-101	3(XXXIV)7-201	5.08	731.8	2908-V2
B Cat Gas Hydrotreater	B-102	3(XXXIV)7-202	5.08	1090.9	2908-V2
B Cat Gas Hydrotreater	B-103	3(XXXIV)7-203	3.10	1041.5	2908-V2
BLCOH	B-101	3(XVI)4	2.79	389.3	2908-V2
BLCOH	B-3	3(XVI)3	1.92	160.2	2908-V2
C Cat	B-2	3(II)6	1.23	199.2	2908-V2
C Cat	B-6	3(II)9	14.02	1791.8	2908-V2
CFH	B-101	3(XXIX)1	13.15	1851.3	2908-V2
CFH	B-102	3(XXIX)2	8.74	654.6	2908-V 2
CVEP	B101A	3(XXXIII)1A	14.32	4925.1	2930-V1
CVEP	B101B	3(XXXIII)1B	14.32	5066.1	2930-V1
CVEP	B102A	3(XXXIII)2A	21.49	4824.4	2797-V0
CVEP	B102B	3(XXXIII)2B	21.5	5231.7	2797-V0
A Topper	B-4	3(I)5	58.59	16357.6	2930-V1
C Topper	B-1C	3(VII-C)1	16.27	5023.8	2930-V1
C Topper	B-2C	3(VII-C)2	19.33	4483.8	2930-V1
Coker 1	B-101	3(III)1	12.22	3634.1	2930-V1
Coker 1	B-201	3(III)2	12.22	3778.2	2930-V1
Coker 2	B-201	3(XXVI)1	17.19	3053.0	2920-V1
Coker 2	B-202	3(XXVI)2	17.19	3433.6	2920-V1
Feed Prep #1	B-101	3(XII)1	8.15	2205.6	2930-V1
Feed Prep #2	B-101 #2	3(XII)2	8.15	2205.6	2930-V1
Powerhouse	B-1C	3(K-6)1	101.22	20227.9	2930-V1
Powerhouse	B-1B	3(K-6)2	117.87	15677.8	2930-V1
Powerhouse	B-1	3(K-6)3	155.69	25617.3	2930-V1
Powerhouse	B-2	3(K-6)4	44.31	4654.0	2930-V1
Powerhouse	B-2A	3(K-6)5	40.95	4845.9	2930-V1
Powerhouse	B-3	3(K-6)6	69.75	7592.3	2930-V1

NOTIFICATION REPORT

Unit	Heater/Boiler No.	EQ No.	Maximum SO ₂ Limit (lbs/hr)	Amount of SO ₂ over Permit (lbs)	Title V Permit No.
Powerhouse	B-3C	3(K-6)7	34.83	3787.7	2930-V1
Straight Run Frac	B-5	3(VII)1	5.13	1664.8	2930-V1
Vacuum	B-201	3(I-D)1	15.28	4535.8	2930-V1
Vacuum	B-2A	3(I-D)2	6.65	859.1	2930-V1
A Ref	B-101	3(X)1	2.60	962.2	2920-V1
A Ref	B 102-105	3(X)6	17.65	7749.1	2920-V1
ALCOH	B-101	3(XVIII)1	4.35	778.4	2920-V1
ALCOH	B-102	3(XVIII)2	6.19	745.1	2920-V1
ALCOH	B-103	3(XVIII)3	5.03	312.5	2920-V1
B Reformer	B-401	3(XVIII-A)1	6.95	1289.5	2920-V1
B Reformer	B-406	3(XVIII-A)2	6.57	1027.3	2920-V1
B Reformer	B-402	3(XVIII-A)3	6.42	1137.8	2920-V1
B Reformer	B-403	3(XVIII-A)4	31.55	10529.5	2920-V1
BOH	B-601	3(X-A)1	2.67	663.7	2920-V1
BOH	B-602	3(X-A)2	3.90	669.5	2920-V1
C REF	B-501,2,6	3(XXII)1	24.87	1452.2	2920-V1
C REF	B-503,4,5	3(XXII)2	87.73	17.1	2920-V1
ISOM	B-801	3(XXVII-A)1	1.53	341.9	2920-V1
Sulfolane	B-201	3(X)4	8.71	1816.0	2920-V1
Sulfolane	B-202	3(X)5	6.11	1448.8	2920-V1
Unicracker	B-1,2,3,4,5	3(XXVIII)1	23.38	5757.0	2920-V1
Mixed Xylenes	B-1001	3(XXX)2	36.25	5.0	2920-V1
Total				204,748.6	

Calculations for the heaters and boilers that exceeded maximum hourly SO₂ 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:

Unit	Heater/Boiler No.	EQ No.	Maximum SO ₂ Limit (lbs/hr)	Amount of SO ₂ over Permit (lbs)	Title V Permit No.
Acid Plant	B-3	3(VIII-A)3	1.91	2.7	2935-V1
Acid Plant	B-601	3(VIII-A)2	1.76	78.3	2935-V1
Lubes Vacuum	BA-1	1(2458)1	60.1	2.6	3009-V0
Lubes Vacuum	BA-101	1(2458)2	60.1	2.7	3009-V0
A Cat	B-2	3(II)4	1.23	11.5	2908-V2
A Cat	B-6	3(II)7	14.02	26.2	2908-V2
A CGH	B-101	3(XXXIV)7-101	5.08	39.9	2908-V2
A CGH	B-102	3(XXXIV)7-102	5.08	27.9	2908-V2
A CGH	B-103	3(XXXIV)7-103	3.10	96.8	2908-V2
B Cat	B-6	3(II)8	7.66	67.0	2908-V2
B CGH	B-101	3(XXXIV)7-201	5.08	45.7	2908-V2
B CGH	B-102	3(XXXIV)7-202	5.08	51.0	2908-V2
B CGH	B-103	3(XXXIV)7-203	3.10	99.4	2908-V2
BLCOH	B-101	3(XVI)4	2.79	38.9	2908-V2
BLCOH	B-3	3(XVI)3	1.92	28.0	2908-V2

NOTIFICATION REPORT

Unit	Heater/Boiler No.	EIQ No.	Maximum SO ₂ Limit (lbs/hr)	Amount of SO ₂ over Permit (lbs)	Title V Permit No.
C Cat	B-2	3(II)6	1.23	13.6	2908-V2
C Cat	B-6	3(II)9	14.02	59.7	2908-V2
CFH	B-101	3(XXIX)1	13.15	108.6	2908-V2
CFH	B-102	3(XXIX)2	8.74	40.5	2908-V2
CVEP	B101A	3(XXXIII)1A	14.32	330.7	2930-V1
CVEP	B101B	3(XXXIII)1B	14.32	342.8	2930-V1
CVEP	B102A	3(XXXIII)2A	21.49	379.1	2930-V1
CVEP	B102B	3(XXXIII)2B	21.49	416.4	2930-V1
A Topper	B-4	3(I)5	58.59	1403.8	2930-V1
C Topper	B-1C	3(VII-C)1	16.27	422.7	2930-V1
C Topper	B-2C	3(VII-C)2	19.33	364.8	2930-V1
Coker 1	B-101	3(III)1	12.22	251.5	2930-V1
Coker 1	B-201	3(III)2	12.22	259.8	2930-V1
Coker 2	B-201	3(XXVI)1	17.19	1109.4	2920-V1
Coker 2	B-202	3(XXVI)2	17.19	1222.0	2920-V1
Feed Prep #1	B-101	3(XIII)1	8.15	175.0	2930-V1
Feed Prep #2	B-101 #2	3(XIII)2	8.15	175.0	2930-V1
Powerhouse	B-1C	3(K-6)1	101.22	2401.9	2930-V1
Powerhouse	B-1B	3(K-6)2	117.87	1582.6	2930-V1
Powerhouse	B-1	3(K-6)3	155.69	2708.6	2930-V1
Powerhouse	B-2	3(K-6)4	44.31	541.8	2930-V1
Powerhouse	B-2A	3(K-6)5	40.95	639.2	2930-V1
Powerhouse	B-3	3(K-6)6	69.75	717.6	2930-V1
Powerhouse	B-3C	3(K-6)7	34.83	373.1	2930-V1
Straight Run Frac	B-5	3(VII)1	5.13	136.2	2930-V1
Vacuum	B-201	3(I-D)1	15.28	378.0	2930-V1
A Ref	B-101	3(X)1	2.60	371.1	2920-V1
A Ref	B 102-105	3(X)6	17.65	2982.0	2920-V1
ALCOH	B-101	3(XVIII)1	4.35	301.4	2920-V1
ALCOH	B-102	3(XVIII)2	6.19	363.2	2920-V1
ALCOH	B-103	3(XVIII)3	5.03	167.2	2920-V1
B Reformer	B-401	3(XVIII-A)1	6.95	456.6	2920-V1
B Reformer	B-406	3(XVIII-A)2	6.57	378.1	2920-V1
B Reformer	B-402	3(XVIII-A)3	6.42	477.4	2920-V1
B Reformer	B-403	3(XVIII-A)4	31.55	4051.1	2920-V1
BOH	B-601	3(X-A)1	2.67	246.1	2920-V1
BOH	B-602	3(X-A)2	3.90	242.9	2920-V1
C REF	B-501,2,6	3(XXII)1	24.87	679.9	2920-V1
ISOM	B-801	3(XXVII-A)1	1.53	118.7	2920-V1
Sulfolane	B-201	3(X)4	8.71	660.1	2920-V1
Sulfolane	B-202	3(X)5	6.11	578.0	2920-V1
Unicracker	B-1,2,3,4,5	3(XXVIII)1	23.38	2283.4	2920-V1
Mixed Xylenes	B-1001	3(XXX)2	36.25	2.2	2920-V1
Total				31,532.4	

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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.

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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).

- Closed breaker 444-S21A-BR1 to restore redundancy. Completed 6/4/2007
- Clean enclosure and replace failed with spare fused switch. Completed 6/5/2007.
- Protect enclosure to prevent windblown rain ingress. Completed 7/2/2007.
- Repair 444-S21A-BR1 closing solenoid resistor. (7/27/2007)
- 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/LERU/BLCOH process block. (6/30/2009)

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

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

<input checked="" type="checkbox"/>	LAC 33:III.927	Unauthorized Discharge
<input checked="" type="checkbox"/>	LAC 33:I.3917	Notification Requirements for Unauthorized Discharge
<input type="checkbox"/>	LAC 33:III.5107B	Air Toxics Discharge Reporting Requirements

ATTACHMENT 2

Engineering Calculations

Sulfur Dioxide Emissions

Heaters and Boilers

Furnace and boiler SO₂ 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 (H₂S). The mercaptan sulfur was obtained from a previous lab analysis. The four (4) methods used to determine H₂S content in the refinery fuel gas corresponded to the following phases of the incident and the available data for each phase:

1. H₂S from rich amine loading during total loss of amine circulation.
2. Extrapolated H₂S 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. H₂S 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 H₂S in the fuel gas was calculated based on rich amine loading (moles H₂S /mole amine) and amine circulation rate just prior to the incident. It was assumed that all the H₂S 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 H₂S – 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 H₂S 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 SO₂ 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 H₂S sent to the Cat Area fuel gas contactors (FGPU E-3 and E-3A, plus LERU). The calculated H₂S was blended into the fuel gas burned by the heaters taking gas from F-2 and F-3 fuel gas drums.

SO₂ emissions were calculated for each fired heater and boiler on a 1 hour block basis. The amount of SO₂ 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 (Sulften 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 (H_2S), carbonyl sulfide (COS), and carbon disulfide (CS_2)), hydrogen sulfide was assumed to be the dominant emission since the upset resulted in foaming in these units. The COS and CS_2 contributions were determined based on the RSC concentration prior to the start of the upset less the most recently measured H_2S concentration. During the upset the concentration of COS and CS_2 together were assumed to be constant and the H_2S was the difference between the measured RSC and the assumed total constant contribution of the COS and CS_2 .

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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