APPENDIX D
Louisiana Upset Rules and Data

Upset Rules: Louisiana's SIP includes a variance provision that is clearly illegal. It states if "by reason of exceptional circumstances strict conformity with any provisions of these regulations would cause undue hardship, would be unreasonable, impractical or not feasible under the circumstances, the administrative authority may permit a variance from these regulations."[1] In violation of Clean Air Act section 110, this provision does not require EPA approval before a specific variance can become effective and does not require a demonstration that attainment will be achieved and maintained.

The variance provision violates the Clean Air Act and EPA guidance by exempting emissions from compliance with federal limits. Further, exempted emissions do not have to be caused by a breakdown in technology and do not have to be minimized. Louisiana's rules do provide that variances may not authorize a nuisance or a danger to public health or safety.[2] Nuisance is defined under Louisiana's SIP as "anything that unlawfully worketh hurt, inconvenience, or damage."[3] This provision, however, does not appear to be enforced, as numerous variances are granted for pollution that clearly causes harm to adjacent communities.

In addition to this broad variance provision, Louisiana has numerous rules that exempt facilities from compliance with specific requirements during startup and shutdown. For example, a four hour exemption from some SO_2 limits may be granted during startup or upset if certain conditions are met.[4] Likewise, sources are exempt from compliance with certain NOx limits during startup, shutdown or malfunction.[5]

Reporting: Louisiana's current rules require the reporting of all unauthorized emissions that create an "emergency condition" and any other unauthorized emissions that exceed a reportable quantity. Unauthorized emissions creating an emergency condition must be verbally reported within one hour.[6] Non-emergency unauthorized emissions, which exceed the reportable quantity, must be verbally reported within 24 hours.[7]

In addition, both unauthorized emissions causing emergency conditions and those exceeding the reportable quantity require a written follow up report within seven calendar days of the telephone report.[8] Written reports must include the date, time and duration of the emissions; the circumstances leading to any emergency condition; the common or scientific name of the chemicals released;

Bazille Williams, Norco, LA

"At night when I am at my house around three or four clock in the morning when they let out the emissions and they turn on the flare to burn some of the stuff, all the houses vibrate. Even though I'm in a brick house, all the chandeliers in the house vibrate. My aunt called me up on the phone to see what I could do. I told Shell security—where they have the guards over there—about three o'clock. I told them they have to turn these things off because I can't sleep. Sometimes, because a police officer will go over there, Shell will try to reach me the next day to apologize. But these are things that we are going through. Enough is enough.

Doctors told my wife she had a lung problem and it's all in this atmosphere. We're inhaling all different things. You don't know what's going on around here with the flares and the explosions."

an estimate of the amount released and the method for calculating that amount; remedial actions taken/measures to prevent recurrence; and a determination by the facility whether or not the discharge was preventable.[9]

Louisiana's current SIP includes slightly different reporting rules from those above.[10] The SIP requires facilities to notify the Louisiana Department of Environmental Quality "promptly" of "emergency occurrences or upsets that will substantially increase emissions."[11] Immediate telephone notification must be followed by written notification within seven calendar days, giving details of the occurrence and remedial actions. The SIP reporting provisions expressly state "such notification does not imply the administrative authority will automatically grant an exemption to the source(s) of excessive emissions."[12]

Data: We collected data for the seven Louisiana facilities listed below.

Facility Name	Facility Location
Chalmette Refinery	Chalmette, LA
Exxon Mobil Chemical	Baton Rouge, LA
Citgo	Lake Charles, LA
Exxon Mobil Refinery	Baton Rouge, LA
Motiva	Norco, LA
Shell Chemical	Norco, LA
Murphy Oil	Meraux, LA

Excess emissions occurred routinely at these facilities. As the attached spreadsheets show, the seven Louisiana facilities reported releasing an average of 18,017,046 pounds of extra pollution per year during 2001-2002, including 3,467 pounds of benzene and 5,794 pounds of butadiene.[13]

NOTES

1 33 LAC: III.917 (A).

2 33 LAC: III.917 (B).

3 33 LAC: III.111.

4 33 LAC: III.1507.

5 33 LAC: III.2201.

6 LAC 33: I.3915.

7 LAC 33: I.3917.

8 LAC 33: I.3925.

9 *Id.*

10 There is often a time lag between state adoption of rules and EPA's review and approval of those rules into the SIP. EPA has sometimes failed to act on SIP revision requests for years.

11 LA SIP 33:927.

12 *Id.*

13 Where Louisiana facilities reported the release of flammable gas or vapor, we generally assumed that ½ of the total reported was VOCs, unless the report indicated otherwise.

CHALMETTE REFINERY • Chalmette, LA
Emissions Data (Lb./Event): 1.01.01 – 12.31.02

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
9/30/02	Release	Flare											Startup (after Storm)
9/28/02	Release	Flare										Hydrocarbons, H_2S, SO_2 - no amount specified	Startup (after Storm)
9/27/01	Release	Flare										SO_2	Malfunction
9/25/02	Sulfur Recovery Unit												Storm preparation
9/12/02	Citizen complaint (nausea, upper respitory problems, burning eyes)												Maintenance (Turnaround)
9/12/01	Citizen complaint--odor												
9/4/01	Power recovery train											Mixed Hydrocarbons-no amount specified	Malfunction
8/9/01	Pump leak	Pump leak										Butane - no amount identified	Malfunction (Fire)
7/9/01	Floating roof weld	Floating roof										Hydrocarbon - no amount identified	
7/29/01	Citizen Complaint--odor												
6/7/01	Sulfur Recovery Unit	Flare		0.8	14,450	42							Malfunction
6/6/01	Sulfur Recovery Unit	Flare			26,000	75							
6/5/01	Citizen complaint--black soot falling from sky, worse when it rains (testing revealed presence of coke dust)												
6/21/04	FCCU	Flare				3							Malfunction
4/12/02	Citizen complaint--white clouds & odor												
3/27/02	Sulfur plant	Flare											
3/12/01	Hydrocracker feed											VOCs - amt. not identified	Malfunction (Fire)

Chalmette Refinery, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
11/9/02	Tower	Flare			11,200								
11/8/02	No.3 Reformer Catalyst	Flare and Diesel engine compressors		1,248.0	180		560	2,660	220			PM10 - 180	Shutdown/ Maintenance variance
11/25/02	Compressor				1,785								Startup
11/20/02	Release											Propane - no amount specified	
11/12/02	Train 1 Sulfur Plant	Flare			1,560								Shutdown
11/1/02	Sulfur Plant											SO2, H2S	Shutdown
10/29/02	Citizen complaint--odor & respiratory problems												
10/21/02	Citizen complaint--odor												
10/16/01	Sulfur Plant	Flare			15,000	101							
10/11/02	Citizen complaint--odor												Malfunction
12/31/02	SRU train #1	Thermal Oxidizer Stack		216.0	3,940								Shutdown for Maintenance - variance
12/30/02	Catalysts	Flare		1,440.0			40	6	6				Changeout - variance
12/19/02	Tank 200	Tank 200		54.5						69			Maintenance/ Malfunction
12/16/02	Tank 200	Tank 200		24.0						108			Maintenance/ Malfunction
12/11/02	Tank 200	Tank		72.0					653	385			Malfunction
12/4/02	No. 3 Reformer Catalyst	Flare and Diesel engine compressors		1,368.0	300		1,000	4,600	380			PM10 - 340	Shutdown - variance
11/23/02	Compressor	Vent			1,785							SO2	Startup
11/22/02	Centrifuge Unit	Unknown		8,760.0					2,640				Sludge Disposal - variance
11/20/02	Propane Line	Bleeder Line										VOCs	Malfunction
11/10/02	release											SO2	
11/5/02	Boiler	Flare										Refinery Gas	Shutdown
11/3/02	Sulfur plant					42							
10/31/02	Compressor	Flare										H2S	Shutdown
10/25/02	Waste Gas Compressor	Flare		17.5	8,447								Malfunction (Electrical Outage)

Chalmette Refinery, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
10/16/02	#2 Sulfur Plant	Flare and Thermal Oxidizer		1.4	21,511							H2S - no amount specified	Malfunction
9/27/02	Refinery wide	Flare		42.5	162,000	433			54				Startup (Tropical Storm Isidore)
9/24/02	Refinery wide	Flare		15.7	67,823	181							Shutdown (Tropical Storm Isidore)
9/11/02	Release											Hydrogen flouride - no amount specified	
9/10/02	Pumps, heaters, control valves, and heat exchangers	Flare		1,800.0	700	2	40	6	324,000			PM10 - 6	Maintenance (Turnaround) - variance
7/19/02	FCCU												Maintenance (Turnaround) - variance
6/30/02	Release											H2S, VOCs	
6/13/02	Flare	Flare		3,240.0	1,800		5,600	6,600	400			PM10 - 400	Maintenance - variance
5/16/02	Sulfolane	Safety Valve		0.2					28,784				Maintenance
4/9/02	Release											H2S, SO2	
3/26/02	Sulfur Recovery Unit	Flare		9.0	359,287	954							Malfunction
2/14/02	#2 Crude Unit	Safety Valve		0.1					26,017				Malfunction
2/5/02	Waste Gas Compressor	Flare		600.0	254,000	60	7,260	1,340	5,720				Maintenance (shutdown) - variance
12/17/01	FCCU and Cat Feed	Flare		17.0	199,061	504							Maintenance
12/13/01	Sweet Crude Minimum Flow Line	Ground							145,412				Malfunction (spill)
12/12/01	Power Outage	Flare		0.1								Hydrocarbons, Sulfur dioxide & Hydrogen sulfide - no amount specified	Unknown
11/9/01	Waste Gas Compressor	Flare		168.0	254,000	60	7,260	1,340	5,720				Maintenance (shutdown) - variance
11/6/01	Natural Gas Line	Flare		17.0		964			4,455			Natural Gas 22,778	Malfunction

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
11/5/01	Benzene Rundown Line	Benzene Rundown Line		7.0						45			Maintenance
10/22/01	Hydro-desulfurization Unit	Ground		4.5					1,380				Malfunction
9/12/01	Tanks 203 and 38	Tank		1,800.0					27,100				Maintenance - variance
9/2/01	FCCU	FCC Regenerator		0.5					5,717				Malfunction
7/18/01	No.2 Sulfur Train DGA	Flare		0.4	5,345								Malfunction
7/11/01	Tank 200	Tank		144.4						1,089			Malfunction (Corrosion)
7/7/01	FCCU	#2 FCC Regenerator		0.1					3,092				Malfunction
7/6/01	Tank 200	Tank roof leak								1,089			Malfunction (leak)
6/22/01	#2 Coker	Flare		0.5	1,494								Malfunction
6/21/01	FCCU	Flare		0.1		3							Malfunction
6/11/01	Alky Unit	Propane Stripper		5.8					2,415				Malfunction (Corrosion)
6/5/01	Sulfur Recovery Unit	Flare and Thermal Oxidizer		32.0	621,075	1,656							Malfunction
4/9/01	Alky Unit								6			Hydrofluroic Acid 8, VOCs	Malfunction
3/11/01	Power Outage	Flare and Crude Unit		8.4	68,748	184			4,425				Malfunction (Storm)
TOTALS				**21,115.3**	**2,101,491.0**	**5,263.2**	**21,760.0**	**16,552.0**	**588,595.9**	**2,784.9**	**0.0**		
Yrly Avg.				**10,557.7**	**1,050,745.5**	**2,631.6**	**10,880.0**	**8,276.0**	**294,298.0**	**1,392.5**	**0.0**		

CITGO • Lake Charles, LA
Emissions Data (Lbs./Event): 1.01.01 – 12.31.02

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
12/26/02	Unicracker Unit	N/A										SO2, H2S	N/A
12/22/02	Unicracker Unit	N/A										SO2, H2S	N/A
12/12/02	Unicracker Unit	B-12 Flare		0.4	4,132	45			3,199				Malfunction
12/11/02	Complex	N/A										SO2, H2S	N/A
12/8/02	B-12 Flare	B-12 Flare		0.5		0			644			Flammable Gas 1,195	Malfunction
12/7/02	Unicracker Unit	N/A										N/A	N/A
12/6/02	Unicracker Unit	B-12 Flare		10.2	2,027	299			2,328			4432 Flamable Gas	Malfunction
12/3/02	B-12 Flare	B-12 Flare		0.5		0			1,318			Flammable Gas 2,707	Malfunction
12/3/02	F-11 Caustic Wash Drum	F-11 Caustic Wash Drum		4.2					2,525				Malfunction
12/2/02	B-12 Flare	B-12 Flare		0.5		15			1,581			Flammable Gas 2,722	Malfunction
12/2/02	Acid Plant	N/A										N/A	N/A
12/1/02	Unicracker Unit	B-12 Flare		23.7	915	1			291				Startup
11/28/02	A-FCCU	Flare										SO2, H2S	N/A
11/27/02	Unicracker Unit	B-12 Flare		0.4		75			2,275			Flammable Gas 2,749	Malfunction
11/26/02	E-11 Deethanizer	B-8 Flare		0.3	1,951								Malfunction
11/26/02	E-103 Depentanizer	N/A										SO2, H2S	N/A
11/19/02	Tail Gas Compressor	B-11 Flare		0.3	2,231	4			22				Shutdown
11/19/02	Acid Plant	N/A										SO2	N/A
11/12/02	B-12 Flare	B-12 Flare		0.3		0			541			Hydrogen 1,088	Malfunction
11/10/02	Acid Plant	N/A										SO2, H2S	N/A
11/3/02	F-2 Fuel Gas Knockout Drum	N/A										SO2, H2S	N/A
11/2/02	Acid Plant	N/A										SO2, H2S	Startup
11/2/02	Coker I Unit	N/A										SO2	N/A
10/27/02	B-5 Flare	B-5 Flare										N/A	Malfunction
10/23/02	C-4 Recovery Unit	B-8 Flare		0.7	714								Malfunction
10/13/02	B-12 Flare	B-12 Flare		0.8					3,167				Malfunction
10/7/02	Coker I Unit	N/A										SO2, H2S	Shutdown

Citgo, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
10/2/02	Refinery Wide			1,440.0	331,710	3,804			11,728			Ammonia 1,479	Tropical Storm
10/2/02	C Sulfur Recovery Unit	N/A										SO2, H2S	Shutdown
9/30/02	Refinery Wide	N/A										SO2	N/A
9/18/02	Unicracker Unit	B-12 Flare		34.5	3,526								Malfunction
9/18/02	Propane Line Leak	N/A										VOCs	Malfunction
9/13/02	Tank 21	Ground		96.0								7 barrels kerosene	Spill
9/9/02	Cat Gas Compressor	N/A										N/A	N/A
8/27/02	Unicracker Unit	B-12 Flare		3.0	3,513								Startup
8/20/02	Power/Thermal	B-6 Flare		89.5	1,858								Shutdown
8/16/02	A Topper & A/B Cat Areas	Flare		4.6	5,096								Shutdown
8/13/02	Citizen Complaint--foul odor												Wastewater Treatment System
8/13/02	Citizen Complaint--rotten odor												Wastewater Treatment System
8/7/02	Coker II Unit	B-11 Flare		0.7								SO2, H2S	Malfunction
7/25/02	B 101 Furnace	N/A										SO2	N/A
7/25/02	Girbotol Unit	N/A										N/A	N/A
7/24/02	Unicracker Unit	B-12 Flare		12.8	6,081								Malfunction
7/13/02	Leak	Ground										3 barrels Hydrocarbon heavy distillate blend	Spill
7/13/02	Girbotol Unit	Flare										N/A	N/A
7/12/02	C Topper	Flare										N/A	N/A
7/10/02	A Reformer	N/A										N/A	N/A
7/3/02	Acid Plant	N/A										N/A	Startup
6/30/02	Acid Plant	N/A											Startup
6/29/02	Tank 261	Ground										10 barrels diesel oil	Malfunction
6/27/02	B-1 Flare	Flare										VOCs	N/A
6/25/02	K-20 Area	N/A										VOCs	N/A
6/5/02	Acid Plant	N/A										SO2	N/A
6/4/02	Cat Feed Hydrotreater	N/A										SO2, H2S	N/A

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
5/21/02	C-4 Recovery Unit	Tail Gas Compressor										SO2, H2S	N/A
5/18/02	Complex	Flare										SO2, H2S	N/A
5/8/02	Unicracker	Flare		0.3	2,680								Malfunction
5/5/02	C-4 Recovery Unit	Tail Gas Compressor										SO2, H2S	N/A
4/12/02	Acid Plant	N/A										SO2	Startup
4/12/02	Alkylation Unit	Leak										N/A	N/A
4/3/02	A-SRU	B-407 Thermal Oxidizer		13.3	13,485								Startup
3/30/02	JC-36 Compressor	N/A										N/A	Shutdown
3/21/02	Sulften Tail Gas Unit	B-407 Thermal Oxidizer		0.2		131							Shutdown
3/16/02	A-SRU	B-407 Thermal Oxidizer		30.5	4,549								Shutdown
3/15/02	C-Reformer Unit	B-11 Flare										SO2, H2S	N/A
3/15/02	Sulfolane Unit	B-8 Flare										N/A	N/A
3/14/02	Unicracker Unit			720.0	240		760	3,500	280			240 PM10	
3/8/02	Unicracker Unit	B-12 Flare		0.3	2,680								Shutdown
3/8/02	JC-36 Compressor	N/A										SO2, H2S	Shutdown
3/4/02	Coker II Unit	B-11 Flare		0.7	13,429	145							Malfunction
3/2/02	E-SRU	B-407 Thermal Oxidizer		15.0	16,276								Startup
2/28/02	C-SRU	B-407 Thermal Oxidizer		2.0	5,410								Malfunction
2/28/02	Sulfuric Acid Plant	N/A										SO2	Startup
2/26/02	E-SRU	B-407 Thermal Oxidizer		11.3	2,736								Shutdown
2/25/02	C-4 Recovery Unit	B-7 Flare		6.3	2,620								Maintenance
2/21/02	Sulfuric Acid Plant	N/A										N/A	Startup
2/20/02	B-12 Flare	Flare										N/A	Malfunction
2/19/02	Cat Feed Hydrotreater	Flare		0.6								N/A	Malfunction (Storm)
2/19/02	Unicracker Unit	B-12 Flare										N/A	Malfunction
2/13/02	Tail Gas II Unit	Tail Gas II Unit		8.5		104							Malfunction
2/11/02	D-SRU	B-407 Thermal Oxidizer		12.8	16,975								Maintenance/ Startup

Citgo, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
2/7/02	BLCOH	B-8 Flare		7.2	8,743								Startup
2/1/02	Sulfuric Acid Plant	N/A										SO2	Startup
1/27/02	B-12 Flare	Flare										VOCs	N/A
1/26/02	Coker I Unit	B-5 Flare		5.9	5,618								Malfunction
1/25/02	D-SRU	B-407 Thermal Oxidizer		3.7	2,800								Maitenance/ Shutdown
1/19/02	Coker I Unit	B-5 Flare		1.3	2,200								Malfunction
1/14/02	Process line	Leak										VOCs	Malfunction
1/13/02	Unicracker Unit	B-12 Flare		0.2	1,198								Shutdown
1/11/02	B-12 Flare	Flare		0.0								VOCs	N/A
1/3/02	Central Flare Knockout Drum	Ground		0.7								10 gallons Heavy Gas Oil	Malfunction/Spill
12/27/01	Furnace Tube Leak C-Reformer	Leak										VOCs	Malfunction (leak)
12/22/01	Sulfolane Unit	Leak										VOCs, benzene	N/A
12/12/01	JC-106 Compressor	B-5 Flare		1.2	2,370								Malfunction
12/10/01	Propane Line Leak	Leak										VOCs	N/A
12/8/01	Grease Insert Leak	Leak										VOCs	Malfunction (leak)
12/6/01	Coker I Unit	B-5 Flare		67.0	39,020	379			16,816				Startup
12/6/01	B-5 Flare	Flare										VOCs	N/A
12/4/01	Unicracker Unit	Flare										SO2, H2S	N/A
12/1/01	B-Dock	Barge OMR 1968B										5 gal. high-sulfur diesel fuel	Malfunction/ Spill
11/23/01	Unicracker Unit	B-12 Flare		0.2	2,813								Malfunction
11/21/01	Cit-Con Plant	Leak										VOCs	N/A
11/16/01	Acid Plant	N/A										SO2	Startup
11/12/01	C-Fluidized Catalytic Cracker	Bleeder										N/A	N/A
11/10/01	C-SRU	B-407 Thermal Oxidizer		19.5	25,232	135							Startup
11/3/01	C-SRU	B-407 Thermal Oxidizer		112.9	74,038	397							Startup
10/25/01	Alkylation Unit	Tank 91		43.0					64,000				Startup
10/24/01	Alkylation Unit	N/A										Flamable gas	Startup

Citgo, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
10/14/01	Acid Plant	B-407 Thermal Oxidizer; Acid Plant		3.4	3,016								Startup
10/14/01	Alkylation Unit	Fugitives		61.0					100			VOC emissions at least 100	Leak
10/12/01	Acid Plant	B-407 Thermal Oxidizer; Acid Plant		24.5	28,053	150							Startup
10/10/01	Alkylation Unit	Fugitives		68.0					25,820				Malfunction
10/2/01	Cat Feed Hydrotreater	B-16 Flare		0.5	1,255								Malfunction
10/1/01	Coker	B-11 Flare		5.9	500	100			5,000				Startup
9/21/01	Unicracker Unit	B-11 Flare		356.0	500	100			1,000				Fire
9/21/01	Unicracker Unit	Various		238.3	26,290	285						642 NH_3	Fire
8/31/01	Coker I Unit	Flare										SO_2, H_2S	Shutdown
8/9/01	Reformer Distillate Line	Leak										H_2S, Butadiene	N/A
7/24/01	Furnace Fire	Duo-Sol N-2A										Selecto phenol, spent caustic	N/A
6/24/01	Acid Plant	N/A										SO_2	Startup
5/15/01	JC-36 Compressor	Flare										SO_2, H_2S	N/A
5/9/01	JC-201 Compressor	B-11 Flare		0.4	2,428								Shutdown
4/24/01	C-4 Recovery/ Fluidized Catalytic Cracker	B-5,B-6,B-8 & B-7 Flare		6.0	31,059	193							Malfunction (Power Shutdown)
4/21/01	Sulfolane Unit	Cooling Tower #4		120.0						336			Malfunction (Leak)
4/18/01	Sulfolane Unit	Cooling Tower #4		6.6					1,540	848			Malfunction (Leak)
4/14/01	B-12 Flare	B-12 Flare										SO_2	N/A
4/4/01	B-11 Flare	Flare										SO_2, H_2S	N/A
3/15/01	B-8 Flare	B-8 Flare										SO_2	N/A
2/23/01	Process line	Leak										H_2S, VOCs	
2/20/01	Process line	Leak										H_2S, VOCs	N/A
2/17/01	JC-51 and JC-59 gas compressor	B-7 Flare		1.2	845								Malfunction
2/10/01	JC-36 Compressor	Rellief Valve										SO_2, H_2S	N/A
2/6/01	A-Topper Unit	Leak										VOCs	N/A

Citgo, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
1/3/01	C-Fluidized Catalytic Cracker	N/A										N/A	N/A
1/3/01	Unicracker Unit	Flare										SO2	N/A
TOTALS				3,699.9	702,812	6,363	760	3,500	144,175	1,184	0		
Yrly Avg.				1,850.0	351,406	3181	380	1750	72,088	592	0		

EXXONMOBIL CHEMICAL • Baton Rouge, LA
Emissions Data (Lbs./Event): 1.01.01 – 12.31.02

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
12/21/02	Deethanizer steam reboiler	Steam condensate system		26.1					270.0	3.0	32.0		malfunction
12/8/02	Thermal Oxidizer Unit	Not specified		168.0	6,380.0		200	100.00	10.0			H_2SO_4 680	variance
11/24/02	A-Line Reactor	Safety valve		0.0					592.0			vinyl acetate 208 lbs	malfunction
10/15/02	D-Line production facilites	Source 01-95										methanol 200 lbs, vinyl trimethoxysilane <200 lbs	extension of 5/24/02 variance
10/1/02	Gas Turbine Generator, Heat Recovery Steam Generator, Duct Burner	Not specified		120.0			52,284.0	49,704.00					variance
9/28/02	F-6 Thermal Oxidizer	Not specified		0.3								maleic anhydride phthalic anhydride & VOCs	variance
9/25/02	Turbine Generator	Not specified		1.6			15,200.0						variance
9/13/02	Maintrain Ethylene Unit	UP-03 B pump		0.1					59.0	11.0	9.0	other VOC's 39 lbs	malfunction
9/11/02	F-6 Thermal Oxidizer	S-70		0.5								maleic anhydride , phthalic anhydride & VOCs	malfunction
9/7/02	Halobutyl polymerization unit	Safety valve		0.1					11,200.0				malfunction
9/1/02	Turbine Generator	Not specified							<200				variance
8/27/02	F-6 Thermal Oxidizer	Not specified		2.0								maleic anhydride & VOCs	shutdown
8/22/02	F-6 Thermal Oxidizer	Not specified		3.0								maleic anhydride, VOCs	malfunction
8/20/02	Polyolefins plant-Recycle isobutane compressors	leak in 3/4" line		0.3					502.0			isobutane	malfunction
8/1/02	#1 MOX Boiler	S-33		12.0			166.8						variance
7/9/02	2 Light Ends Unit Absorber tower, Entergy booster gas compressor; Refinery Gas Recovery Unit	Refinery flare system			3,501.0			135.00	22,578.0	13.0	17.0		malfunction

ExxonMobil Chemical, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
6/28/02	Temporary drum, sample points and feed pump	Not specified							44.4				extension of 4/20/02 variance
6/27/02	Maintrain Ethylene Unit	OLA-2X Steam Cracking Furnace		4.5					10,372.0				malfunction
6/18/02	E-line reactor	Safety valve		0.4					15,680.0			vinyl acetate	malfunction
6/15/02	OLA-1X Gas Turbine	Not specified		15.0			100.0	100.00					variance
6/3/02	F-5 Thermal Oxidizer	F-6 Thermal Oxidizer		6.9				yes-amount not specified				maleic anyhydride, phthalic anhydride, and other VOC's amounts not specified	malfunction
5/29/02	Ethylene Maintrain Unit	Plantwide flare system	smoke	42.7	4,258.0	11.0	6.0	5,179.00	14,030.0	91.0	585.0		malfunction
5/24/02	D-Line production facilites	Source 01-95										methanol 200 lbs, vinyl trimethoxysilane <200 lbs	variance
5/21/02	OLA-1X Gas Turbine	S-04		15.0			100.0	100.00					variance
5/20/02	Elastomers Unit	Agitator seal		19.2					4,000.0				startup
5/13/02	D-Line production facilites	Source 01-95		721,740.0					<.2				variance
5/2/02	Hot Oil Furnace	Not specified		144.0								Incresed CO, Nox & VOC rate	variance
4/20/02	Temporary drum, sample points and feed pump	Not specified		2,160.0					44.4				variance
4/10/02	Diolefin Extraction Unit	Actrene additive tote							20.0				variance
4/10/02	OXO Tankcar and Tankcar loading racks	Not specified							2.0				variance
4/9/02	OXO Unit	OXO Burner line		2.0		0.2	13,306.0		14,183.0			H2 877 lbs,	malfunction
4/9/02	Partial Oxidation Unit	Leaky pressure control valve		16.0					44,140.0			synthetic gas 44140 lbs	malfunction
4/8/02	#25 flare pilot	pilots		0.2					188.0				malfunction
4/8/02	OXO Unit	OXO Burner line		14.0		0.2	41,410.0						malfunction
3/21/02	E-line reactor	Safety valve		0.1					10,000.0			flamable gas >1000 lbs	malfunction

ExxonMobil Chemical, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
3/1/02	Tanks MVTK08 and MVTK09	T-MV08, T-MV09		168.0					4.0				variance
2/13/02	Maintrain Unit	Unspecified transfer line							26.0	12.0	14.0	polynuclear aromatic hydrocarbons	malfunction
2/9/02	E-line reactor	Safety valve		0.2					1,100.0				malfunction
2/6/02	Polyolefins plant	Knockout vessel, flare system	smoke	0.6					100.0			isobutane	malfunction
2/5/02	Ethylene Maintrain Unit	Plantwide flare system	smoke	47.9	11,420.0	58.0	458.0	12,379.00	32,074.0	171.0	825.0		malfunction
2/5/02	Propylene Compressor	Unspecified flare							5,100.0			isoprene	malfunction
1/2/02	OXO Tankfield Vapor Recovery System			120.0					5,220.0			VOC's include 240 lbs n-Hexane	malfunction
12/30/01	Halobutyl polymerization unit	#25 flare		2.9					14.5			HCl , MeCl n-hexane isobutane , isoprene .isobutylene	malfunction
12/9/01	B-line recycle sysytem	Safety valve		0.0					2,117.0			vinyl acetate	malfunction
11/23/01	Halobutyl polymerization unit	#25 Flare		1.2					41.0				malfunction
11/7/01	MVTK08 and MVTK09 storage tanks	T-MV08, T-MV09		2,196.0					6.0				variance
10/26/01	Unspecified 3/4 " line	Hole in line		0.5								synthetic gas 100-150 lbs	Malfunction
10/19/01	Unspecified pump	Unspecified pump seal		0.1					27.0	27.0			malfunction
10/12/01	Maintrain Unit	G-Furnace effluent transfer line		0.1					155.8	1.1	0.5		malfunction
10/10/01	Wet Naphtha tank	Wet Naptha tank		504.0		<0.2		900.00	20.0	20.0		H2SO4 <.2 lbs	variance
10/1/01	OXO Alcohol Unit	temporary recycling equipment		744.0					260.0	0.2		n-hexane	variance
9/25/01	Halobutyl polymerization unit	Fugitive emissions from piping and vent from seal drum							2,320.0			n-hexane	variance
9/15/01	Gas Turbine NG-01	S-9		50.0								increased CO rate	variance

ExxonMobil Chemical, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
9/1/01	OXO Tankfield Vapor Recovery System	Not specified		72.0					3,120.0			n-hexane	shutdown - variance
8/16/01	C9X Compressor Level Displacer	Not specified		0.1								synthetic gas 1600 lbs	malfunction
8/5/01	Not specified	Unspecified gasket							2.0			polyaromatic hydrocarbon	malfunction
7/23/01	Wastewater improvement Unit	Wastewater improvement unit							93.0				maintenance
7/8/01	Vistalon Polymerization Unit			0.0					8,900.0			n-hexane 4700 lbs, other VOC's including hexane isomers, propylene, propane and ethylene 4200 lbs.	malfunction
6/8/01	F-5 Thermal Oxidizer	Not specified		0.6					285.0			maleic anhydride, phthalic anhydride	malfunction
5/11/01	Diels-Alder Reactor Unit	Not specified		0.4					126.0		30.0	toluene	malfunction
5/6/01	Gas turbine generator unit	Not specified		72.0								increased rate CO, VOC, NOx	variance
5/2/01	F-300 Furnace	flue gas stack		1.0			11.7						malfunction
5/1/01	Halobutyl polymerization unit	Not specified		24.0								Cl2 30 lbs	variance
4/27/01	PSLA-1 Unit	T-282		1.2					158.0	1.8			
4/21/01	ACLA Unit	Loading rack chiller										MEK 8.32 lbs	malfunction
4/19/01	F-635 furnace	Not specified		72.0								VOC & CO	variance
4/10/01	Refinery gas collection unit	Flare		2.0	786.0								malfunction
3/14/01	Vistalon Polymerization Unit	Safety release valve		0.0					950.0			n-hexane cyclohexane other C6 Isomers	malfunction/ operator error
2/9/01	C-Line Reactor	Safety release valve		0.2					5,825.0				malfunction
2/8/01	Isopropyl alcohol Unit	Vapor recovery system		336.0								VOCs	variance
2/8/01	C-Line Reactor	Safety release valve		0.3					8,600.0				malfunction

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
2/1/01	Ethylene Maintrain Unit	process vessels and associated piping		240.0								ammonia <700 lbs	variance/letter of no objection
1/27/01	Vistalon Polymerization Unit	Fugitive emissions in transfer to tanker truck storage		168.0					60.0			n-hexane	variance
1/16/01	Lion Unit Cobalt reactor	Lion Unit Cobalt reactor		2.3				10.70	<100				malfunction
1/13/01	B-Line Reactor system	Safety valve		0.0					595.0			vinyl acetate	malfunction
1/2/01	PALA Unit; F-6 Thermal oxidizer	PALA Unit; F-6 Thermal oxidizer		0.4					275.3				malfunction
Totals				**729,341.5**	**26,345.0**	**69.4**	**123,242.5**	**68,607.70**	**225,489.4**	**351.1**	**1,512.5**		
Yrly Avg.				**364,670.7**	**13,172.5**	**34.7**	**61,621.3**	**34,303.85**	**112,744.7**	**175.5**	**756.3**		

EXXONMOBIL REFINERY • Baton Rouge, LA
Emissions Data (Lbs./Event): 1.01.01 – 12.31.02

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
1/22/02	#4 Lights End Unit-West	Safety valve		0.6		1,700			73,640	280	60		Malfunction
1/22/02	Absorber Tower Pump	Pressure relief valve			4,000	1,000			101,250	750	500		Malfunction
1/13/02	Alkylation Plant W. Train Reactor Section	Fire		1.5								Hydrocarbon vapor (butylenes, butanes, isopentane)	Turnaround
12/18/01	PSLA-10 (fire)	N/A										N/A	N/A
12/3/01	Sulfur Recovery Units	MOV-179 / incinerator		21.0	9,192								Maintenance (equipment check)
10/26/01	T-4 Drier Regeration Gas Scrubber	Safety valve		0.0					1,000			Flammable Vapor 1,000	Startup
10/5/01	N/A	Flare										N/A	N/A
8/17/01	Coker Complex	Flare		0.3	1,117	3				0			Malfunction
8/2/01	Hyfrocracker Unit	Flare		3.4	900								Maintenance
8/2/01	CO Furnace (PCLA-2)	PCLA-2		0.3	707		11,795					PM - 126	Mainenance (equip testing)
7/26/01	Fluidized Catalytic Cracking Unit	PCLA-2, flare		23.2	14,493		66,622					PM - 5,409	Malfunction
7/8/01	Ruptured Well Water Line	PCLA-2 reactor, 4LEU West Tail Debutanizer Tower, flare		53.3	29,433	309	83,520		27,742	11		PM - 7,460	Malfunction
6/19/01	Fluidized Catalytic Cracking Unit	PCLA-2 cat reactor		0.3					180			Flammable Vapor 180 Polynuclear Aromatics 72	Startup
6/18/01	Fluidized Catalytic Cracking Unit	PCLA-2		72.0	60,000		522,000					PM - 36,000	Startup - variance
6/14/01	# 4 Lights End Unit	Safety valve		1.6		187			7,983	30			Malfunction
3/30/01	Management of Molton Sulfur			8,784.0		520							Variance
3/26/01	CO Furnaces	PCLA-2, PCLA-3		816.0	2,088,000		17,864,000					PM - 982,000	Maintenance - variance
3/3/01	#2 Reforming Unit	Fire										N/A	N/A
2/25/01	#5 Lights End	#5 Lights End		212.0					4,600			Flammable Vapor 4,600	Malfunction

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
2/5/01	Sour Water Leak	Leak				20						Ammonia 11.3	N/A
TOTALS				17,027.9	2,871,207	6,445	26,762,009	326,107	245,556	1,133	577		
Yrly Avg.				8,514.0	1,435,604	3,223	13,381,005	163,054	122,778	567	289		

MOTIVA • Norco, LA
Emissions Data (Lbs./Event): 1.01.01 – 12.31.02

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
12/13/02	Spent catalyst riser	RCCU flare		26.4	4,932.0		2,714.2	498.8	1,243.0	10*		PM 55	malfunction
11/30/02		Coker unit											malfunction
11/21/02	BB splitter column	RCCU flare		1.0			3.8	0.7	5.0			PM-10 .13	variance
11/15/02	Pressure vessel sphere	West Ops Ground Flare		96.0	0.0		1,080.0	200.0	1,400.0				variance
11/14/02	Switch room	Coker flare		1.7	1,512.0			12.5	96.5	4.1	0.0	"cyclohexane	
PM "	malfunction												
11/13/02	Dual stream analyzers	Dual stream analyzers							1,020.0				variance
11/12/02	Diesel pump	Diesel pump		1,080.0	120.0		400.0	1,840.0	140.0			"PM; toluene xylenes formaldehyde acetaldehyde acrolein naphthalene PAH"	variance
11/1/02	RCCU flare	RCCU flare		0.1	40.7			4.7	2.6				malfunction
11/1/02	Portable diesel powered pump	Portable diesel powered pump						203.0					malfunction
11/1/02	Vacuum flasher waste gas compressor	RCCU flare	smoke	0.1	40.7			4.7	2.6				malfunction
10/20/02	Tank pv-122	Tank pv-122											malfunction
10/17/02	CR-1 pitstop	CR-1 pitstop and diesel driven generator		480.0	180.0		600.0	2,800.0	220.0			"PM; toluene; xylenes; formaldehyde acetaldehyde acrolein naphthalene PAH"	variance
10/8/02	Distillation unit	Distillation unit		0.7	0.2				0.2				malfunction
10/8/02	Second stage main fractioner	Second stage main fractioner	smoke	0.1		4.8				6.8		39,934.9 pounds of 'Nonflammable liquid'	malfunction
10/5/02	Sour water stripper	Sour water stripper		2.5	94.7								malfunction
10/3/02	RCCU Wet Gas Compressor	RCCU flare		2.2	4,337.0	2.0	2,048.0	377.0	1,092.0		0.2	PM 41	malfunction
9/26/02	Temporary diesel equipment	Temporary diesel equipment		235.2	40.1		130.6	605.9	48.3			PM 43	malfunction
9/6/02	Furnace f53	Furnace f53		144.0	380.0		1,400.0	5,900.0	16,460.0				variance

Motiva, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
9/6/02	Tank cleaning	Diesel fired compressor		120.0	40.0		140.0	660.0	60.0			"PM-10; toluene xylenes; formaldehyde; acetaldehyde acrolein; naphthalene PAH"	variance
9/3/02	Coker jet pump	Wet gas compressor		4.1	4,629.9			57.4	13.9	2.5	0.1	cyclohexane	malfunction
9/3/02	Coker feed heater and coker charge heater	Coker feed heater and coker charge heater		336.0	360.0		1,940.0	4,680.0	540.0				variance
8/7/02	Diesel driven air compressors	Diesel driven air compressors		1,600.0	180.0		560.0	2,580.0	200.0			PM-10 180	variance
7/27/02	RCCU refrigeration compressor	RCCU flare		1.0	64.2			3.6	19.6				malfunction
7/27/02	RCCU compressor	Flare		1.0	64.2			3.6	19.6				malfunction
7/26/02	Loading hatch on barge	Loading hatch on barge										spent caustic	malfunction
7/25/02	RCCU	Flare		19.0	1,021.6								startup
7/21/02	RCCU unit	RCCU flare		76.8	1,731.0		2,365.0	152.0	692.0	0.0			malfunction
6/25/02	Disulfide seperator	RCCU flare		161.3	1,028.7	356.4			4,131.6	0.0		n-Hexane	malfunction
6/22/02	Disulfide seperator	Disulfide seperator		0.0					8.8	0.0		n-hexane	malfunction
6/21/02	Main fractioner	RCCU flare		39.8	1,509.6			85.6	920.3				malfunction
6/18/02	Tank 481	Tank 481		2.5					67.2	1.5			malfunction
6/10/02	CO Heater	CO Heater		240.0			44,680.0	84,680.0					testing
6/8/02	Hydrocracker Unit	S2 incinerator		1.0	182.7								malfunction
5/21/02	Diesel fired pump	Diesel fired pump		1,224.0	1,660.0		5,380.0	25,040.0	2,000.0				variance
5/9/02	Disulfide seperator	Disulfide seperator		8.3					8.8	0.0			malfunction
5/2/02	Shell Chemical Boiler	RCCU flare	smoke	0.2	35.4		35.0	2.0	20.8				malfunction
4/19/02	Sulphur Plant 3	RCCU flare		6.0	316.0			18.0	92.0	0.0			malfunction
4/15/02	Furnace tube	Furnace tube		168.0	300.0		1,020.0	4,680.0	380.0			PM-10 660	variance
4/10/02	Tank 479	Tank 479		21.5					24.3	0.0		flammable gas	malfunction
3/6/02	Flare gas compressor	Flare		48.0	3,000.0								maintenance
3/4/02	Hydrocracker Unit	Hydrocracker Unit		0.5								hydrogen 4656 methane 1595 steam 39030	malfunction

Motiva, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
2/11/02	Hydrogen compressors	Coker Flare		4.6	0.0	1.0		0.0	0.0				malfunction
2/3/02	Naphtha heater treater and catalyst regeneration unit turnaround	Naphtha heater treater and catalyst regeneration unit turnaround		336.0	740.0		1,680.0	7,720.0	1,080.0			PM 540	variance
1/28/02	CR-2 unit pitstop	CR-2 unit pitstop		480.0	60.0	20.0	460.0	1,300.0	3,800.0	100.0			variance
1/28/02	HCU pitstop	HCU pitstop		480.0	1,180.0		1,560.0	6,480.0	6,040.0				variance
1/28/02	H2 pitstop	H2 pitstop		480.0	340.0		1,200.0	5,200.0	860.0				variance
1/10/02	Alkylation unit	Alkylation unit		0.4				1.0	243.0			flammable gas 229	startup
1/8/02	Diesel generator	Diesel generator		24.0	20.0		60.0	280.0	20.0	0.1	0.0		variance
1/7/02	Coker wet gas compressor	Flare		1.1	2,070.0	1.1		38.1	13.5	0.0			malfunction
1/7/02	MOV	HCU flare		14.0				0.0	1,037.0	7.3		flammable gas 973.5	malfunction
12/14/01	Stripper liquid tops line	Stripper liquid tops line							636.6	32.3		flammable gas 510;n-hexane; Toluene .3	malfunction
12/9/01	Gasoline blender metering loop	Gasoline blender metering loop		1.8					1,506.5	190.0		xylene ; flammable gas 1121.5	malfunction
11/25/01	Disulfide seperator	Disulfide seperator		0.1					8.8	0.0			malfunction
10/24/01	Wet gas compressor	RCCU flare		12.2	80.0	0.0		4.3	5.0				malfunction
10/23/01	Coker pitstop/ DU5 Pitstop	Coker pitstop/DU5 Pitstop		1,056.0	820.0		2,800.0	12,460.0	1,120.0				variance
10/19/01	Diesel fired water pumps	Diesel fired water pumps		8.0	10.0		40.0	140.0	20.0	0.0			variance
10/9/01	Air liquide	RCCU flare		0.8				11.0	8.9				malfunction
9/19/01		RCCU flare				1.3			243.0	2.5	0.5		malfunction
9/17/01				0.1	0.0	0.1			248.0	3.0		Xylene; flammable gas 238.5	malfunction
9/9/01	Flue gas scrubber	CO heater		10.7	1,115.5								malfunction
9/6/01	Diesel driven air compressors	Diesel driven air compressors		1,488.0	920.0		3,000.0	13,940.0	960.0			PM 1000	variance
9/6/01	Naphtha hydrotreater unit	Coker Flare		3.0	288.0			0.0	0.0				malfunction
8/27/01	Diesel fired electric generators	Diesel fired electric generators		840.0	7,473.5		8,809.1	92,405.8	12.3	7.2			variance
8/27/01	BB splitter column	RCCU flare		0.3				5.6	4.6				malfunction

Motiva, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
8/13/01	Storage tank F433	Storage tank F433							1,000.0			Benzene, Toluene, Ethyl Benzene, Xylene, and flammable gas	malfunction
8/8/01	Heat exhanger	Heat exhanger		3.8					103.0	2.0		flammable gas 103	malfunction
7/31/01	Disulfide seperator	Disulfide seperator		59.2								flammable gas	malfunction
7/26/01	Coker F-125	2 diesel fired water pumps		192.0	200.0		640.0	2,980.0	240.0				variance
7/26/01	Pressure vessel sphere	West ops ground flare		48.0			66.0	80.0	800.0		800.0		variance
7/25/01	Disulfide seperator	Disulfide seperator		0.1									startup
7/16/01	Disulfide seperator	RCCU flare		48.5	780.0			44.0	593.5	0.2	33.0	flammable gas 354	malfunction
6/12/01	Substation FT3	Diesel generator		336.0	1,820.0		1,240.0	5,400.0	160.0				variance
6/12/01	Vacuum flasher	Vacuum flasher				1.0			49.0				malfunction
6/11/01	Multiple	Multiple		240.0	2,147.0		0.5	41.3	35.9	0.0	0.0		malfunction
5/22/01		Control valve		0.0					20.4	0.3	0.1	flammable gas 20	malfunction
5/12/01		HCU		11.8				0.0					malfunction
5/12/01		HCU		6.8				0.0					malfunction
5/12/01	Coker unit	Coker unit		0.0	272.0				975.0	14.0		flammable gas 961	malfunction
5/9/01	Off-line coke drum	Coker unit		0.1					191.0			flammable gas 191	malfunction
5/7/01	Alky vent tower	Alky vent tower		3.7					459.0			Flammable Gas 459	malfunction
5/7/01	Alky vent tower	Alky vent tower		2.3					459.0			flammable gas 459	malfunction
4/25/01								0.0	8.8			flammable gas	malfunction
4/22/01		Coker unit										hydrogen (flammable gas) 2	malfunction
4/17/01		Coker unit							39.0			flammable gas 382	malfunction
4/16/01		Hydrocracking Unit										hydrogen (flammable gas)	malfunction
4/13/01	Second stage recycle compressor	First stage charge pump		0.3	225.0				15.6			flammable gas 7	malfunction
4/1/01	RCCU main air blower	RCCU flare		47.8	828.0	0.1		246.0	859.0	0.0			malfunction
3/28/01	Methanator reactor	High temperature shift reactor		0.4					1,176.0			flammable gas 1176	malfunction
3/27/01	Butadiene sphere	West ops ground flare		48.0			60.0	80.0	800.0			PM 795.024	variance

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
3/23/01	Diesel fired air compressor	Diesel fired air compressor		466.7	540.0		1,760.0	8,180.0	780.0			PM 580.08	variance
3/9/01	Hydrocracker Flare	Hydrocracker Flare			0.0							SO2	startup
3/7/01	Disulfide seperator	Disulfide seperator		0.6								disulfide unk	malfunction
3/7/01	Disulfide seperator	Disulfide seperator		0.0								flammable gas	malfunction
3/4/01	Marine vapor recovery unit	Marine vapor recovery unit											malfunction
3/3/01	Cat cracker	Vent		2.3					509.0			flamable gas 509	
3/3/01	disulfide seperator	Disulfide seperator		0.5									malfunction
2/24/01	Off-line coke drum	Off-line coke drum		0.1					285.5			flammable gas 285.5	malfunction
2/20/01	West ops elevated and west ops ground flares	RCCU flare			40.0		1,040.0	14,400.0	13,620.0				variance
2/14/01	Hydrocracker flare	Hydrocracker flare, main fractioner column		86.7	402.2	0.0		0.0	596.9	0.0	0.0	flammable gas 568	malfunction
Totals				**12,995.3**	**50,171.9**	**387.9**	**88,912.2**	**306,526.7**	**72,571.7**	**373.9**	**833.9**		
Yrly Avg.				**6,497.6**	**25,085.9**	**193.9**	**44,456.1**	**153,263.3**	**36,285.8**	**187.0**	**416.9**		

MURPHY OIL • Meraux, LA
Emissions Data (Lbs./Event): 1.01.01 – 12.31.02

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
12/27/02	#2 FCCU	#2 FCC Esp Stack		3					900			2700 Catalyst	Shutdown
12/24/02	#1 SRU TGT	#1 Sulfur Plant Stack		480	552								Malfunction
12/17/02	#1 FCCU Gas Con	North Flare	smoke	1,080	3,636								Shutdown
12/13/02	Sour Gas Compressor DHT	North Flare		120	2,024								Shutdown
11/29/02	#2 SRU TGT	#2 Sulfur Plant Stack		1,785	3,640								Malfunction
11/26/02	#2 FCC Wet Gas Compressor	North Flare		90	465								Shutdown
11/25/02	#2 FCC West Gas Compressor	North Flare	smoke	180	996								Maintenance
11/23/02	#1 FCC	#1 FCC Regenerator Stack		3								1500 Catalyst	Malfunction
11/20/02	#1 SRU	North Flare		60	2,951								Malfunction
11/13/02	#1 SRU/ #1 TGT	North Flare		360	7,083								Malfunction
11/12/02	Sour Gas Compressor DHT	North Flare		150	5,836								Shutdown
10/17/02	#2 FCC Wet Gas Compressor	Fugitives		1,500		2			450				Malfunction
8/19/02	#2 FCCU	#2 FCC Stack		28								500 Catalyst	Malfunction
8/9/02	#1 FCCU Compressor	North Flare		534	721								Malfunction
7/29/02	#1 SRU TGT	#1 Sulfur Plant Stack		120	74								Malfunction
7/25/02	#1 SRU TGT	#1 TGT Stack		60	37								Startup
7/15/02	Sour Gas Compressor DHT	North Flare		390	3,647								Shutdown
7/8/02	#1 Incinerator Stack	Stack	smoke	4,320	100								
7/7/02	#2 SRU TGT	#2 Sulfur Plant Stack		45	65								Shutdown
7/6/02	#1 SRU		smoke		200								
7/1/02	#2 FCCU	#2 FCCU Stack	smoke	3					2,667			800 Catalyst	Malfunction
6/19/02	#1 SRU TGT	#1 Sulfur Plant Stack; North Stack		60	41								Malfunction
6/18/02	#2 FCCU	#2 FCCU Stack	smoke	3					1,971			900 Catalyst	Shutdown

Murphy Oil, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
6/18/02	#2 SRU TGT	#2 Sulfur Plant Stack		105	3,489								Startup
6/18/02	#2 SRU TGT	#2 Sulfur Plant Stack		330	22,465	54							Shutdown
6/17/02	#1 FCCU	#1 FCC Regenerator Stack		17								1071 Catalyst	Startup
6/9/02	#1 FCCU	#1 FCCU Stack		5								315 Catalyst	Startup
6/9/02	#1 FCCU	#1 FCCU Stack	smoke	3					2,367			2664 Catalyst	Shutdown
6/6/02	#2 FCCU		smoke	180								Hydrocarbons	Malfunction (fire)
6/4/02	#2 FCCU	#2 FCCU Stack	smoke	1					107			32 Catalyst	Malfunction
5/29/02	#2 SRU/ SWS	#2 SRU Stack; North Flare		270	1,537								Startup
5/14/02	Citizen Complaint oil substance on car												
5/11/02	#1 FCCU Regenerator	Regenerator Stack										amt. SO2 not specified	
5/8/02	Tank 200-4	Tank 200-4		2,160					316				Spill
5/1/02	Citizen Complaint 4 loud booms	Compressor											Startup
4/22/02	#1 FCCU Gas Con.	North Flare		1,395	4,706								Shutdown
4/19/02	#2 FCCU	#2 FCCU Stack		1					2,031			300 Catalyst	Malfunction
4/18/02	#2 FCCU	#2 FCCU Stack		5					13,540			2000 Catalyst	Malfunction
4/17/02	#2 FCCU	North Flare		720	5,316								Shutdown
4/5/02	#1 FCCU Gas Con	North Flare		975	3,398								Shutdown
3/28/02	#1 FCC Air Blower	#1 FCC Stack		17					8,238			4195 FCC Catalyst	Shutdown
3/15/02	#1 FCC Gas Con Interstage	North Flare		510	1,717								Shutdown
3/14/02	Unicracker Unit			20,160	240		760	3,500	280			240 PM10	Variance
2/28/02	#2 FCCU	North Flare		120	33								Malfunction
2/13/02	#2 TGT	#2 TGT Stack		540	1,089								Startup
2/11/02	Citizen Complaint smells like burning rubber	Cat Cracker											Malfunction
2/9/02	Total Refinery	North Flare		90	1,328								Startup
2/8/02	#2 Cat	#2 Cat Regenerator Stack	smoke	75					2,267			500 Catalyst	Shutdown
2/2/02	#2 TGT	#2 Plant Stack; North Flare		210	2,851								Shutdown

Murphy Oil, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
2/2/02	Refinery	North Flare		90	1,328								Planned Maintenance
1/23/02	#1 Cat	Fugitives; Cat Stack		5								290 Slurry Oil	Shutdown
1/23/02	#1 Cat	Fugitives; Cat Stack		1								2000 Catalyst	Shutdown
1/10/02	Spill	Batture										4 barrels Diesel and Red dye to atmosphere	Malfunction (spill)
1/8/02	#1 Cat	#1 Cat Regenerator Stack		2								3000 Catalyst	Shutdown
1/7/02	#1 Cat	#1 Cat Regenerator Stack		2								3000 Catalyst	Startup
12/22/01	Total Refinery	Flare; FCCU	smoke	1,380	19,996							2008 Catalyst	Shutdown
12/12/01	#1/#2 FCCU	Flare; Cat Stacks	smoke	1,620	36,893				9,309			2200 FCCU Catalyst	Shutdown
12/12/01	Citizen Complaint (3) black smoke												
11/15/01	#1 Cat	#1 Cat Regenerator Stack		25,920			322,704						Malfunction
11/9/01	#1 TGT	#1 Cat		510	368								Malfunction
11/2/01	#1 Cat	Flare		210	785								Malfunction
11/1/01	Wet Gas Compressor	Fire											Malfunction
10/26/01	#1 FCCU	#1 Cat Regenerator Stack		15								2000 Catalyst	Startup
10/24/01	#1 FCCU	Flares		750	2,150								Startup
10/16/01	#1 FCCU	#1 Cat Regenerator Stack		20								1000 FCCU Catalyst	Malfunction
10/6/01	#1 TGT	#1 TGT Stack		300	167								Malfunction
10/1/01	#2 FCCU	Fugitive (FCCU)		60								10,000 Slurry Oil	Malfunction
10/1/01	Citizen Complaint bad odor and yellow cloud												
9/11/01	#1 Cat	#1 Cat Regenerator Stack	smoke	7					4,740			500 Catalyst	Malfunction
7/10/01	TGT				21								
6/24/01	Amine Turnaround	Heaters & Stack		5,760	108,000								Maintenance
6/22/01	Wastewater Treatment Plant			216,000	1,860		2,180	15,060	1,080			1000 PM10	Variance

Murphy Oil, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
6/12/01	Sour Gas Compressor DHT	Flare		75	1,181								Malfunction
5/20/01	#2 FCCU	37,247	smoke	105	415								Malfunction
5/11/01	#1 FCCU	#1 Cat Regenerator Stack		1,440	1,377								Malfunction
4/21/01	#2 TGT	#2 TGT Stack		60	158								Malfunction
4/12/01	Spill	Loading Slab										20-100 gallons of Scalfuel	Malfunction (spill)
4/10/01	#2 TGT	#2 TGT Stack		90	264								Malfunction
3/31/01	Amine Exchanger	Process Heaters and Boilers		660	223								Malfunction
3/21/01	#1 FCCU	Flare	smoke	1,212	4,088								Malfunction
3/21/01	Diesel Air Compressors	Compressor		120,960	1,820		5,920	27,500	1,900			1960 PM10	Maintenance - variance
3/15/01	#1 FCCU	#1 Cat Regenerator Stack		15								500 Catalyst & FCCU Feed	Malfunction
3/12/01	#1 FCCU	Flare	smoke	1,800	3,829								Shutdown
2/2/01	#2 SRU TGT	Flare; SRU stack		120	451								Malfunction
1/10/01	#1 Cat	Flare	smoke	945	3,081								Malfunction
1/8/01	#1 Cat	Flare	smoke	840	2,739								Malfunction
TOTALS				**420,237**	**271,431**	**56**	**331,564**	**46,060**	**52,163**	**0**	**0**		
Yrly Avg.				**210,119**	**135,716**	**28**	**165,782**	**23,030**	**26,082**	**0**	**0**		

SHELL CHEMICAL • Norco, LA
Emissions Data (Lbs./Event): 1.01.01 – 12.31.02

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
12/13/02	Motiva's RCCU Unit	GO-1 Elevated flare	smoke	3.4	4,923.0			127.0	41.0			Hexane	startup
12/12/02	de-ethanizer column	OL-5 Ground flare, OL-5 Elevated flare		3.1				303.0	234.0				malfunction
12/7/02	Hydrate drum level controller	OL-5 Gournd flare, OL-5 Elevated flare		3.0				546.0	433.0				malfunction
12/6/02	Unspecified re-boilers	OL-5 Ground flare, OL-5 Elevated flare		0.3				55.0	52.0				malfunction
12/3/02	Debut column	OL-5 Groung flare, OL-5 Elevated flare		1.0				169.0	143.0				malfunction
11/18/02	UUnspecified furnace line	Leaky line		Not Spedified					28.0	1.0	1.0	Flamable gas 25 lbs	malfunction
11/17/02	OL-5 demethanizer reboiler	OL-5 Ground flare, OL-5 Elevated flare		4.6				889.0	1,605.0				malfunction
11/13/02	OL-5 Unit	OL-5 Ground flare, OL-5 Elevated flare		1.0				73.0	58.0				malfunction
11/9/02	OL-5 Unit	OL-5 Ground flare, OL-5 elevated flare		4.2				846.0	670.0				malfunction
11/8/02	Unspecified tank	Tank seal		Not specified						Yes-amount not specified		Napthalene, Xylene	malfunction
11/1/02	Motiva's DU-5 unit	Utilities East flare		7.9	802.0			9.0					malfunction
10/15/02	DEA column	GO-1 Elevated flare		49.7	16,413.0			502.0	316.0			Hexane	malfunction (off spec)
9/26/02	Hurricane, Flooding of East Site	OL-5 Ground flare, OL-5 Elevated flare, Utilities East flare		347.3	19,691.0		15.0	28,746.0	106,874.0	10.0	2,103.0	Hexane	shutdown and restart
9/21/02	RCCU	Flare		7.6	228.0		2.0	190.0	58.0			Hexane	shutdown
9/3/02	OL-5 Unit	OL-5 Ground Flare, OL-5 Elevated Flare	smoke	36.0				12,226.0	47,431.0	163.0	4,029.0		malfunction
8/28/02	OL-5 depropanizer column	OL-5 Ground flare, OL-5 Elevated flare		1.3				203.0	161.0				malfunction
8/12/02	OL-5 Unit	OL-5 Ground flare, OL-5 Elevated flare		1.7				306.0	289.0				malfunction
8/7/02	GO-1 Unit	GO-1 Elevated flare		4.0				30.0	10.0			Hexane	malfunction
7/24/02	Motiva's RCCU Unit	GO-1 Elevated flare		9.0			6.0	561.0	167.0			Hexane	startup
7/23/02	OL-5	Flare		0.7				123.0	123.0				malfunction

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
7/22/02	Motiva's RCCU Unit	GO-1 Elevated flare		15.0	18,753.0		7.0	573.0	185.0			Hexane	malfunction
7/8/02	Motiva DU-5 unit Compressor X-1876	Utitlites East flare		15.4	7,878.0			88.2					malfunction
6/25/02	Motiva's RCCU Unit	GO-1 Elevated flare		17.7	22,691.0		9.0	743.0	238.0			Hexane	malfunction
6/23/02	Motiva's RCCU Unit	GO-1 Elevated flare		3.7	5,693.0		2.0	174.0	56.0			Hexane	malfunction
6/21/02	OL-5 furnace	OL-5 Ground flare, OL-5 Elevated flare		2.5				411.0	343.0				malfunction
5/13/02	OP-1 piping, OL-5	OL-5 Ground flare, OL-5 Elevated flare		0.1				701.0	641.0				malfunction (flaring off spec)
5/12/02	S-3 DEA Stripper reboiler	GO-1 Elevated flare		2.7	6,568.0				24.0			Hexane	malfunction
5/7/02	GO-1 Unit Ethylene splitter column	GO-1 Elevated flare			3.0			329.0	615.0				malfunction
5/1/02	OL-5 Cooling fan	OL-5 Ground flare, OL-5 Elevated flare		1.0				85.0	67.0				malfunction
4/19/02	50# Steam header at Sulfur Plant 3	GO-1 Elevated flare		4.5	13,275.0		5.0	405.0	130.0			Hexane	malfunction
4/17/02	OL-5 Unit	OL-5 Ground flare, OL-5 Elevated flare		9.2				1,621.0	1,321.0				malfunction
4/14/02	OL-5 depropanizer column	OL-5 Ground flare, OL-5 Elevated flare		2.0				378.0	328.0				malfunction
3/18/02	Not Specified	Not Specified		46.5				188.0					not specified
3/6/02	Compressor K-1879 at Motiva Distilling Unit DU-5	Utilites East flare		35.5	150.9			192.8	1,653.3	6.0		Hexane	malfunction
2/15/02	Not Specified	OL-5 Ground flare, OL-5 Elevated flare		1.0				18.9	14.9				Not specified
1/31/02	Natural gas line	Pipe leak										Natural gas 1000 lbs	malfunction
1/3/02	OL-5 processed gas compressor	OL-5 Ground flare, OL-5 Elevated flare						224.0	165.0		3.0		malfunction
11/3/01	OL-5 processed gas compressor	OL-5 Elevated flare, OL-5 Ground flare	smoke	25.2			2.2	8,394.0	17,830.0	2.2	156.7		malfunction
11/1/01	DHT Compressor	OL-5 Ground flare		168.0			4,040.0	740.0	2,620.0			Particulate matter 140 lbs.	variance

Shell Chemical, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
10/15/01	CUS	OL-5 Ground flare, OL-5 Elevated flare	smoke	20.1				6,677.0	15,650.0		66.0		malfunction
10/11/01	Not Specified	GO-1 Elevated flare		13.8				332.0	238.0		71.9		malfunction
10/6/01	column	GO-1 Elevated flare		3.9				101.0	93.7		21.7		not specified
10/5/01	Olefin Unit	unspecified flare	smoke									Methane, amt not specified	malfunction
10/5/01	GO-1 unit	GO-1 Elevated flare	smoke	13.7	204.0		2.0	918.0	3,586.0	55.0	225.0		malfunction
10/4/01	GO-1 unit	GO-1 Elevated flare	smoke	33.3									startup
10/3/01	East site	Not Specified		Not Spedified					7.0			Flammable gas 7	not specified
10/1/01		Bleeder Valve										Styrene, benzene, toluene, xylene (no amt given)	
9/29/01	Shell Norco, East Site, furnace	Not Specified		Not Spedified					500.0			Flamable gas 500	startup
9/12/01	GO-1	Go-1 flare	smoke	167.8									shutdown
9/11/01	DHT vent gas compressor	OL-5 Elevated flare		2.7	316.0			21.0	23.0				malfunction
9/10/01	Ethylene Unit	Ground Spill							<3	<2	<1		shutdown
9/9/01	Cat Cracker	Not Specified		Not Spedified	1,200.0								malfunction
9/7/01		GO-1 flare	smoke	154.8									shutdown
8/22/01	OL-5	OL-5 Ground flare, OL-5 Elevated flare		3.0				528.0	447.0				malfunction
8/13/01	Tank F-433	Tank F-433 roof drain system		21.5					2,626.0	60.0		Toluene, xylene	malfunction
8/1/01	GO-1, OL-5	OL-5 Ground flare, OL-5 Elevated flare		1.0				195.0	588.0				malfunction
7/31/01	Not Specified	Not Specified		Not Spedified						yes-amount unspecified		Toluene, xylene, ethylbenzene, styrene, 1-3 cyclopentandiene amounts unspecified	Not Specified
7/16/01	Dry gas from Motiva off-spec on SO_2	GO-1 Elevated flare		6.0	16,604.0			507.0	149.0				malfunction

Shell Chemical, continued

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
6/11/01	Power failure at Entergy Substation 2 > power outage affected OL-5, GO-1, BD-5, and Utilites East Units	Utilites East flare, OL-5 Ground flare, OL-5 Elevated flare, GO-1 Elevated flare	smoke	423.0	23,019.1		6.8	19,031.6	32,292.8	67.0	222.9	Hexane	malfunction
6/9/01	Alkylate RVP Analyzer	P-1190/1192 pipeline leak		3.0					750.0			Flamable gas 750	malfunction
6/7/01	GO-1 Furnace	Decoking pot		0.7					1,653.0	312.0	229.0	Flamable gas 5142.5	malfunction
6/7/01	DEA treater	GO-1 Elevated flare		12.7	32,079.0			980.0	290.0				malfunction
6/6/01	M-unit Butylene Reactor	M-unit piping		0.8					907.5			Flamable gas - 907.5	malfunction
6/1/01	Shell Norco, East Site	GO-1 Elevated flare, West Ops Ground flare		73.5	1,353.0				21,954.0	417.0	1,517.0	Toluene	
6/1/01	Not Specified	Not Specified		Not Spedified						7.5			not specified
6/1/01	Marathon in Garryville sent dry gas that was off spec on Hydrogen Sulfide	GO-1 Elevated flare		1.6	5.0			31.0	8.0				shutdown
4/14/01	OP-1 Furnace	GO-1 Elevated flare, West Ops Ground flare		7.8	99.0			411.0	266.0	2.0	2.0		startup
4/13/01	South GO-1 depropanizer control valve	GO-1 Elevated flare, GO-1 Ground flare		3.8	8.6			192.0	136.5		0.0		malfunction
4/1/01	Motiva RCCU Unit	GO-1 Elevated flare		4.4	4,303.0			74.0	1,879.0				startup
3/31/01	Vent Gas Compressor at Motiva's DHT	Shell OL-5 Gound flare		1.0	405.8			7.9	6.2				malfunction
3/3/01	level transmitter on OL-5 process gas compressor	OL-5 Ground Flare, OL-5 Elevated Flare		14.3				2,704.0	2,551.0	0.0	5.1		malfunction
2/24/01	Offline coke drum PV-914	Relief Valve RV-1271		0.1					285.5			Flamable gas 285.5	malfunction
2/12/01	Dry gas from Marathon off spec on SO2	GO-1 Elevated flare		10.2	116.0			146.0	108.0				malfunction
1/25/01	OP-1 Unit	GO-1 Elevated flare	smoke	10.7			1.0	491.0	356.0	1.0	3.0		startup

Start Date	Unit	Emission Point	Opacity (%)	Duration (hrs.)	SO_2	H_2S	CO	NOX	Total VOCs	Benzene Compounds	Butadiene	Other Emissions	Type of Event
1/21/01	OP-1 deethanizer reboiler	GO-1 Elevated flare		5.5				82.0	59.0	2.0	8.0		shutdown
1/15/01	GO-1 process unit	GO-1 Elevated flare		6.8	7.6			40.0	31.0				malfunction
Totals				**1,856.9**	**196,789.0**	**0.0**	**4,098.0**	**94,639.4**	**272,365.5**	**1,105.8**	**8,664.3**		
Yrly Avg.				**928.4**	**98,394.5**	**0.0**	**2,049.0**	**47,319.7**	**136,182.7**	**552.9**	**4,332.2**		