State of Wisconsin - Department of Natural Resources
Substance Release Notification Report
Report created on 05/09/2008

SPILL ID# 20080411NO16-1 BRRTS# 04-16-551489

Incident Date & Time:	Reported Date & Time:	BRRTS No:	Spill ID:
04/11/2008 0036	04/11/2008 0704		**20080411NO16-1**
DATCP Reported? No **DATCP Transferred? No**	**NFA Letter Sent?** No	**ERP Transferred?** No	**Incident Closed?** Yes : 05/09/2008

Location

Region:	County:	Municipality:
NO	Douglas	SUPERIOR, CITY OF

Facility/Property Name and Street Address:	Description:
MURPHY OIL 2407 STINSON AVE	

Facility Type: Industrial Facility (foundry, factory, platter, etc)

Lat/Long:	PLSS:	WTM:

Weather Conditions:

Responsible Parties

Name/Address (1):	Contact:	Other Contact:	Spill Packet:
MURPHY OIL 2407 STINSON AVE SUPERIOR, WI 54880- (715) 398-8455 x Primary	DAVID BEATTIE (715) 398-8455 x primary		

Cause

EQUIPMENT FAILURE-(FLARE STACK) FROM FACILITY WIDE POWER OUTAGE DUE TO SNOW STORM

Cause Type: POWER OUTAGE

Substances

Name	Other / Comments	Amt Released	Amt Recovered	Type	Color	Odor
Unknown	HYDROGEN SULFIDE , SULFUR DIOXIDE, HYDROCARBONS	8300.0 lb	0.0	GAS		

Environmental Impacts / Damages

Environmental Impacts:	Resource Damages:	Injuries:	Evacuation:
AIR	No	No	No

Cleanup Actions

Method	Description

Cleanup Action Comments

Contractors Hired

Name	Description

Waste Destinations

Location	Description

Agencies Notified / On Scene

Agency	Notified	On Scene

DNR	X	
'NATL RESP CTR	X	

Additional Comments

WOODBURY WAS UNABLE TO CONTACT DAVID BEATTIE. HE HAS GOTTEN NO RESPONSE. DO WAS CONTACTED . SAGER RECEIVED EMMISSION REPORT FROM RHONDA O'LEARY ON 5/8/08. AIR PROGRAM WILL FOLLOW UP.

Enforcement Actions

Enforcement action? No

Case Activity Report Numbers:	(1)

Person Reporting

Name	Representing / Address	Primary Phone	Secondary Phone
DAVID BEATTIE	MURPHY OIL	(715) 398-8455 x	

Contractors Hired

Name / Address	Zone Contractor Hired by DNR?
	No

Contacts

Role	Name / Address	Office Phone	Date	Time
Prepared By:	JOHN SAGER	(715) 365-8959 x	04/11/2008	
Person Notified:	DAVID WOODBURY		04/11/2008	
Investigated By:	RHONDA O'LEARY		04/11/2008	
Incident Commander:				
Spill Coordinator:	NO - SAGER, JOHN [P] 715-365-8959		05/09/2008	

Electronic Attachments (list)

Name	Type

Sager, John E - DNR

From: O'Leary, Rhonda L - DNR
Sent: Thursday, May 08, 2008 9:55 AM
To: Baudhuin, Neal E - DNR; Sager, John E - DNR
Subject: FW: Report for 04/11/08
Attachments: 041108 Notification Power Outages.pdf

Neal & John,

Additional information on the upset during the blizzard. The facility reported this as an air spill.

Rhonda O'Leary, Environmental Engineer
Department of Natural Resources
1401 Tower Ave
Superior, WI 54880
715-392-7989
715-392-7993 (FAX)

Rhonda.OLeary@wisconsin.gov

From: Liz_Lundmark@murphyoilcorp.com [mailto:Liz_Lundmark@murphyoilcorp.com]
Sent: Thursday, May 08, 2008 9:46 AM
To: O'Leary, Rhonda L - DNR
Subject: Report for 04/11/08

Rhonda,

Please find attached the emissions report for the power outage/blizzard event on 04/11/08.

(See attached file: 041108 Notification Power Outages.pdf)

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MURPHY USA

Event Information for: External Power Outages

Start Date:	4/11/2008
Start Time (24-hr time):	2:00
End Date:	4/12/2008
End Time (24-hr time):	16:00
Duration (hours):	38.0

Description: External Power Outages

Cause: Blizzard Conditions - High Winds

Comments: A static power line broke contacting SWL&P high voltage lines running parallel to track 4. This caused multiple power outages over a 3 hr period.

12 and 24 hour SO2 hour averages exceeded on both 4/11 and 4/12. Temp and O2 OK.
FCCU CO, SO2, and opacity limits exceeded
Flaring SO2 > 39.3 #/12-hour rolling average limit exceeded

Reporting Information:

Notification Date: 4/11/2008 Time (24-hr time): 1:54 Reported By: Dave Beattie

Agencies Contacted:

1)	Wisconsin Department of Natural Resources, 715-365-8958	Name:	Rhonda O'Leary v.m.
2)	Douglas County Emergency Government, 715-395-1391	Name:	Keith Kessler v.m.
3)	National Response Center, 800-424-8802	Name:	Crews
		Report Number:	867626 Crews

MURPHY USA

Applicable Requirements Information:

Date	Duration (hours)	Applicable Requirement	Pollutant	Emissions	
4/11/2008	6.0	Applicable Limitation Reference: 816009590-P01 I.M.1.a.(1): (1) 300 pounds sulfur dioxide per hour. Applicable Condition Reference: None: NA 6 1-hour periods SO2 pounds per hour greater than 300	Sulfur dioxide	NA	
4/11/2008	4.0	Applicable Limitation Reference: 816009590-P01 I.M.8.a.(2): (2) 500 ppmv (dry basis) carbon monoxide Applicable Condition Reference: None: NA 4 1-hour periods greater than 500 ppm hourly average	Federal Hazardous Air Pollutants (FHAPs), Metal HAPs	NA	
4/11/2008	7.5	Applicable Limitation Reference: 816009590-P01 I.M.8.a.(3): (3) Comply with one of the options set forth in 40 CFR subpart UUU, Table 2, 3 (a) or 3 (b). Applicable Condition Reference: I.M.8.b.(2): (2) The ESP shall be operational at all times when P31 is operating. [ss 285.65(2) and (13), Stats. and s. NR 415.02(2), Wis. Adm. Code and 40 CFR §63.1560] 47 6-minute periods over 30% MACT limit (allows 1 period over 30% in each hour)	Federal Hazardous Air Pollutants (FHAPs), Metal HAPs	NA	
4/10/2008	7.8	Applicable Limitation Reference: 816009590-P01 I.M.3.a.(1): (1) 20% opacity or number 1 on the Ringlemann chart. Applicable Condition Reference: I.M.3.b.(1): (1) The permittee shall comply with the requirements of M.2.b.(2), (3), and (4) at all times. [s. NR 431.05, Wis. Adm. Code] 70 6-minute periods over 20% WDNR Opacity Limit	Visible emissions	NA	
4/12/2008	0.0	Applicable Limitation Reference: 2002 Consent Decree III.A.3.: < 500 lbs SO2 (24 hr avg) Applicable Condition Reference: III.3.: 3."AG Flaring Incident" shall mean the continuous or intermittent combustion of Acid Gas and/or Sour Water Stripper Gas in a Flaring Device that results in the emission of SO2 equal to, or in excess of, five-hundred (500) pounds in any twenty-four (24) hour period; provided, however, for the purposes of this Consent Decree, an incident which extends continuously for more than a 24-hour period will constitute one (1) AG Flaring Incident. The duration of an AG Flaring Incident shall be determined from its initial commencement until the time of its final termination. An AG Flaring Incident may entail the excess SO2 emissions from multiple sources within a 24-hour period provided that the flaring is associated with one common event.	Sulfur dioxide	NA	
4/11/2008	12.8	Applicable Limitation Reference: 816009590-P01 I.A.1.a.(1): (1) 39.3 pounds/hour sulfur dioxide averaged over any 12-hour period Applicable Condition Reference: None: NA Acid Gas and Sour Water Stripper SO2 Flaring -	Sulfur dioxide	7544.0	Pounds

Date	Duration (hours)	Applicable Requirement	Pollutant	Emissions	
4/10/2008	2.6	Applicable Limitation Reference: 816009590-P01 I.A.1.a.(1): (1) 39.3 pounds/hour sulfur dioxide averaged over any 12-hour period Applicable Condition Reference: None: NA Low Pressure Gas Compressor Flaring	Sulfur dioxide	NA	
4/11/2008	0.9	Applicable Limitation Reference: 816009590-P01 I.A.1.a.(1): (1) 39.3 pounds/hour sulfur dioxide averaged over any 12-hour period Applicable Condition Reference: None: NA FCC Gas Debutanizer Overhead Receiver SO2 Flaring	Sulfur dioxide	0.8	
4/10/2008	7.3	Applicable Limitation Reference: 816009590-P01 I.A.1.a.(1): (1) 39.3 pounds/hour sulfur dioxide averaged over any 12-hour period Applicable Condition Reference: None: NA Main Column Overhead Butterfly SO2 Flaring	Sulfur dioxide	582.0	Pounds
4/12/2008	12.0	Applicable Limitation Reference: 816009590-P01 I.E.2.a.(2):250: (1) NSPS: 250 ppmvd SO2 (12 hr avg) Applicable Condition Reference: None: NA Second 12 hour rolling average during Power Outages Event - see attached CEM data	Sulfur dioxide	40.4	
4/10/2008	72.0	Applicable Limitation Reference: 816009590-P01 I.E.2.a.(1):150: (1) BACT: 150 ppmvd SO2 (24 hr avg) Applicable Condition Reference: None: NA 3 24-hour rolling average periods - see attached CEM data	Sulfur dioxide	366.3	
4/10/2008	24.0	Applicable Limitation Reference: 816009590-P01 I.E.2.a.(2):250: (1) NSPS: 250 ppmvd SO2 (12 hr avg) Applicable Condition Reference: None: NA First 12-hour rolling average during Power Outages Event (2 periods) - see attached CEM data	Sulfur dioxide	337.9	

Date	Duration (hours)	Applicable Requirement	Pollutant	Emissions
4/11/2008	12.0	Applicable Limitation Reference: 2002 Consent Decree IV.B.16.d.: Estimated quantity of SO2 that was emitted during an AG or TG event Applicable Condition Reference: None: NA Consent Decree Tracking	Sulfur dioxide	288.4

Date/Time	SO2 1 hour ppm Avg	SO2 Corr 1 hour ppm Avg	SO2 Corr 12 hour ppm Roll Avg	SO2 Corr 24 hour ppm Roll Avg	O2 1 hour % Avg	O2 3 hour % Roll Avg	Stack Temp 1 hour Deg F Avg	Stack Temp 3 hour Deg F Roll Avg	SO2 Emis 1 hour Lbs/hr Avg	StkFlowQ 1 hour SCFM Avg	CD Allowable Pounds per Hour	CD (EXCESS) Actual minus allowable	12 Hr 250 ppm allowable emissions	12 Hr 250 ppm excess emissions	12 Hr 250 ppm excess emissions 12 hour sum	24 Hr 150 ppm allowable emissions	24 Hr 150 ppm excess emissions	24 Hr 150 ppm excess emissions 24 hour sum
04/10/2008 00:00	15	18.5	166.8	98.8	3.96	4.06	1207.2	1207.8	0.20	1314			2.7	-2.5		1.6	-1.4	
04/10/2008 01:00	15	19.0	163.8	98.6	3.99	4.01	1208.0	1207.7	0.20	1330			2.6	-2.4		1.6	-1.4	
04/10/2008 02:00	16	19.6	160.3	98.2	3.94	3.99	1207.3	1207.9	0.21	1340			2.7	-2.5		1.6	-1.4	
04/10/2008 03:00	16	19.2	157.9	97.7	3.90	3.96	1208.0	1207.7	0.21	1331			2.7	-2.5		1.6	-1.4	
04/10/2008 04:00	14	17.8	58.0	97.2	3.93	3.94	1208.3	1207.8	0.19	1331			2.7	-2.5		1.6	-1.4	
04/10/2008 05:00	14	17.4	24.8	96.7	3.92	3.93	1207.9	1207.9	0.19	1336			2.7	-2.5		1.6	-1.4	
04/10/2008 06:00	14	16.7	22.7	96.2	3.90	3.92	1208.0	1207.9	0.18	1337			2.7	-2.5		1.6	-1.4	
04/10/2008 07:00	13	16.6	19.7	95.7	3.89	3.92	1208.0	1208.1	0.18	1327			2.7	-2.5		1.6	-1.4	
04/10/2008 08:00	15	17.8	18.2	95.2	3.77	3.90	1206.8	1207.9	0.20	1344			2.8	-2.6		1.7	-1.5	
04/10/2008 09:00	14	17.3	17.8	94.6	3.78	3.85	1208.8	1207.7	0.19	1350			2.7	-2.6		1.6	-1.5	
04/10/2008 10:00	16	19.4	17.8	94.1	3.58	3.81	1207.7	1207.8	0.22	1359			2.8	-2.6		1.7	-1.5	
04/10/2008 11:00	12	14.9	18.1	93.5	3.68	3.71	1207.6	1207.8	0.17	1357			2.9	-2.7		1.7	-1.5	
04/10/2008 12:00	13	16.0	18.0	92.4	3.57	3.67	1207.4	1207.9	0.18	1381			2.8	-2.6		1.7	-1.5	
04/10/2008 13:00	15	17.9	17.8	90.8	3.60	3.60	1209.0	1207.7	0.20	1374			2.8	-2.6		1.7	-1.5	
04/10/2008 14:00	16	19.4	17.7	89.0	3.62	3.60	1207.2	1207.9	0.22	1401			2.8	-2.6		1.7	-1.5	
04/10/2008 15:00	18	21.5	17.7	87.8	3.61	3.60	1208.9	1208.1	0.25	1404			2.9	-2.7		1.7	-1.5	
04/10/2008 16:00	17	20.4	17.9	38.0	3.62	3.61	1208.2	1208.2	0.24	1414			2.9	-2.7		1.8	-1.5	
04/10/2008 17:00	18	21.4	18.1	21.5	3.63	3.62	1207.1	1208.1	0.25	1415			2.9	-2.7		1.8	-1.5	
04/10/2008 18:00	17	20.6	18.5	20.6	3.62	3.62	1208.4	1208.0	0.24	1420			2.9	-2.7		1.7	-1.5	
04/10/2008 19:00	16	20.0	18.8	19.3	3.71	3.63	1208.4	1208.0	0.23	1414			2.9	-2.6		1.7	-1.5	
04/10/2008 20:00	17	20.1	19.1	18.6	3.72	3.65	1209.0	1208.1	0.23	1404			2.9	-2.6		1.7	-1.5	
04/10/2008 21:00	17	20.8	19.3	18.6	3.62	3.68	1207.7	1208.6	0.24	1394			2.9	-2.6		1.7	-1.5	
04/10/2008 22:00	16	19.5	19.6	18.7	3.71	3.68	1208.5	1208.4	0.22	1399			2.8	-2.6		1.7	-1.5	
04/10/2008 23:00	116	183.0	19.5	18.8	4.79	3.69	1211.6	1208.3	0.94	1220			1.3	-0.3		0.8	0.2	
04/11/2008 00:00	36	69.6	31.5	24.7	10.01	4.35	1210.5	1209.7	0.25	674			0.9	-0.6		0.5	-0.3	
04/11/2008 01:00	7042	9372.6	46.8	32.3	8.12	6.43	1194.8	1210.1	87.07	908			2.3	84.7		1.4	85.7	
04/11/2008 02:00	4890	6433.1	767.8	392.3	7.87	7.89	1193.9	1204.9	76.87	1067	3.0	73.9	3.0	73.9	136.4	1.8	75.1	131.1
04/11/2008 03:00	1293	1811.2	1331.7	674.8	6.69	8.51	1174.1	1197.3	27.26	1875	3.8	23.5	3.8	23.5		2.3	25.0	
04/11/2008 04:00	28	38.5	1501.2	759.5	5.64	7.42	1205.0	1187.7	0.47	1698			3.1	-2.6		1.8	-1.4	
04/11/2008 05:00	17	22.3	1502.5	760.7	5.17	6.54	1211.8	1192.0	0.25	1479			2.8	-2.6		1.7	-1.4	
04/11/2008 06:00	897	974.1	1503.6	761.6	5.64	5.80	1228.2	1199.2	15.64	1368	4.0	11.6	4.0	11.6		2.4	13.2	
04/11/2008 07:00	6631	6955.6	1833.6	826.3	1.52	5.20	1146.6	1209.6	121.63	1736	4.4	117.3	4.4	117.3		2.6	119.0	
04/11/2008 08:00	189	231.5	2156.2	1087.6	3.84	4.07	1203.8	1196.2	2.48	1331			2.7	-0.2		1.6	0.9	
04/11/2008 09:00	62	73.5	2178.2	1098.7	3.31	3.54	1202.7	1192.4	0.86	1390			2.9	-2.1		1.8	-0.9	
04/11/2008 10:00	35	41.1	2182.2	1100.8	3.27	3.05	1201.7	1189.0	0.48	1386			2.9	-2.4		1.8	-1.3	
04/11/2008 11:00	1982	2324.0	2186.2	1102.8	3.49	3.48	1191.2	1201.2	55.88	2256	6.0	49.9	6.0	49.9		3.6	52.3	
04/11/2008 12:00	986	1298.9	2378.6	1205.0	4.51	3.52	1194.6	1198.2	15.16	1653	2.9	12.2	2.9	12.2		1.8	13.4	
04/11/2008 13:00	33	37.6	2455.9	1251.3	2.81	3.73	1199.4	1196.2	0.57	1790			3.8	-3.2		2.3	-1.7	
04/11/2008 14:00	30	34.4	2731.6	1252.2	2.83	3.55	1206.0	1195.5	0.42	1426			3.1	-2.6	201.4	1.8	-1.4	
04/11/2008 15:00	26	31.1	2173.8	1252.6	3.49	3.22	1206.9	1200.4	0.35	1364			2.8	-2.5	337.9	1.7	-1.3	
04/11/2008 16:00	64	78.8	2007.1	1254.3	3.83	3.09	1201.4	1204.0	0.88	1382			2.8	-1.9		1.7	-0.8	
04/11/2008 17:00	23	28.4	2008.7	1255.6	4.17	3.43	1204.6	1204.8	0.32	1427			2.8	-2.5		1.7	-1.4	
04/11/2008 18:00	26	32.1	1000.2	1255.9	4.12	3.87	1205.0	1204.2	0.40	1567			3.1	-2.7		1.9	-1.5	
04/11/2008 19:00	27	33.0	87.6	1256.4	3.91	4.04	1204.5	1203.9	0.42	1586			3.2	-2.8		1.9	-1.5	
04/11/2008 20:00	26	32.1	351.7	1256.9	3.86	4.06	1207.4	1204.8	0.41	1588			3.2	-2.8		1.9	-1.5	
04/11/2008 21:00	23	27.9	336.6	1257.4	3.83	3.96	1207.8	1206.0	0.36	1594			3.2	-2.9		1.9	-1.6	
04/11/2008 22:00	22	26.8	333.2	1257.7	3.81	3.87	1206.4	1206.9	0.35	1580			3.3	-2.9		2.0	-1.6	
04/11/2008 23:00	21	25.4	329.9	1258.0	3.80	3.83	1207.5	1207.2	0.33	1610			3.2	-2.9		1.9	-1.6	
04/12/2008 00:00	21	25.2	126.2	1252.4	3.75	3.81	1206.8	1207.1	0.33	1606			3.3	-2.9		2.0	-1.6	
04/12/2008 01:00	21	25.4	34.4	1245.1	3.84	3.79	1207.0	1206.8	0.33	1582			3.2	-2.9		1.9	-1.6	
04/12/2008 02:00	21	25.6	33.3	885.1	3.87	3.80	1207.3	1207.3	0.33	1592			3.2	-2.9		1.9	-1.6	198.1

Date/Time	SO2 1 hour ppm Avg	SO2 Corr 1 hour ppm Avg	SO2 Corr 12 hour ppm Roll Avg	SO2 Corr 24 hour ppm Roll Avg	O2 1 hour % Avg	O2 3 hour % Roll Avg	Stack Temp 1 hour Deg F Avg	Stack Temp 3 hour Deg F Roll Avg	SO2 Emis 1 hour Lbs/hr Avg	StkFlowQ 1 hour SCFM Avg	CD Allowable Pounds per Hour	CD (EXCESS) Actual minus allowable	12 Hr 250 ppm allowable emissions	12 Hr 250 ppm excess emissions	12 Hr 250 ppm excess emissions 12 hour sum	24 Hr 150 ppm allowable emissions	24 Hr 150 ppm excess emissions	24 Hr 150 ppm excess emissions 24 hour sum
04/12/2008 03:00	20	24.5	32.6	503.2	3.90	3.83	1207.2	1207.2	0.32	1595			3.3	-2.9		2.0	-1.6	
04/12/2008 04:00	19	23.1	30.1	518.6	3.98	3.87	1207.7	1207.2	0.30	1578			3.2	-2.9		1.9	-1.6	
04/12/2008 05:00	18	22.1	27.5	518.0	4.00	3.92	1207.3	1207.3	0.28	1589			3.2	-2.9		1.9	-1.6	
04/12/2008 06:00	18	22.8	26.8	517.5	4.03	3.97	1208.0	1207.4	0.29	1590			3.2	-2.9		1.9	-1.6	
04/12/2008 07:00	19	23.5	26.1	452.5	4.04	4.00	1207.8	1207.8	0.30	1590			3.2	-2.9		1.9	-1.6	
04/12/2008 08:00	19	23.3	25.3	191.5	4.05	4.03	1207.6	1207.6	0.30	1577			3.2	-2.9		1.9	-1.6	
04/12/2008 09:00	19	23.6	24.6	180.6	4.10	4.05	1207.0	1207.8	0.30	1589			3.2	-2.9		1.9	-1.6	
04/12/2008 10:00	29	36.2	24.4	178.8	3.93	4.06	1208.5	1207.6	0.46	1574			3.2	-2.7		1.9	-1.4	
04/12/2008 11:00	26	31.7	25.3	177.6	4.00	4.03	1206.8	1207.8	0.40	1572			3.2	-2.8		1.9	-1.5	
04/12/2008 12:00	27	33.5	25.8	76.0	3.82	4.00	1207.1	1207.5	0.44	1615			3.3	-2.8		2.0	-1.5	
04/12/2008 13:00	53	64.5	26.6	30.5	3.62	3.91	1206.9	1207.2	0.89	1659			3.4	-2.6		2.1	-1.2	
04/12/2008 14:00	4551	5508.2	155.2	94.2	3.62	3.79	1202.5	1208.1	73.41	1632			3.3	70.1		2.0	71.4	
04/12/2008 15:00	129	153.0	487.0	259.8	3.30	3.65	1194.6	1205.1	2.19	1700			3.6	-1.4	40.4	2.1	0.0	
04/12/2008 16:00	36	42.6	497.4	263.7	3.37	3.50	1209.6	1201.5	0.60	1688			3.5	-2.9		2.1	-1.5	
04/12/2008 17:00	58	69.9	499.5	263.4	3.54	3.44	1207.6	1200.9	0.96	1670			3.4	-2.5		2.1	-1.1	
04/12/2008 18:00	35	41.7	503.0	264.9	3.55	3.42	1206.5	1204.2	0.58	1672			3.5	-2.9		2.1	-1.5	
04/12/2008 19:00	31	37.0	504.6	265.3	3.56	3.50	1206.5	1207.7	0.52	1682			3.5	-3.0		2.1	-1.6	
04/12/2008 20:00	29	34.3	505.7	265.5	3.47	3.54	1206.5	1206.9	0.49	1702			3.6	-3.1		2.1	-1.7	
04/12/2008 21:00	29	35.2	506.6	265.6	3.41	3.52	1207.2	1206.7	0.51	1721			3.6	-3.1		2.2	-1.7	
04/12/2008 22:00	31	37.0	507.4	265.9	3.38	3.47	1207.0	1206.9	0.53	1717			3.6	-3.1		2.1	-1.6	
04/12/2008 23:00	32	38.2	507.5	266.4	3.32	3.42	1207.1	1207.0	0.55	1730			3.6	-3.0		2.2	-1.6	
04/13/2008 00:00	46	55.0	508.3	267.1	3.29	3.37	1207.0	1207.0	0.82	1781			3.7	-2.9		2.2	-1.4	
04/13/2008 01:00	27	32.4	509.6	268.1	3.24	3.33	1206.8	1207.0	0.49	1786			3.8	-3.3		2.3	-1.8	
04/13/2008 02:00	23	27.0	381.6	268.4	3.20	3.28	1208.1	1207.0	0.40	1765			3.7	-3.3		2.2	-1.8	37.2
04/13/2008 03:00	31	37.0	49.9	268.5	3.24	3.24	1206.7	1206.8	0.54	1741			3.6	-3.1		2.2	-1.6	
04/13/2008 04:00	29	33.9	40.6	269.0	3.27	3.23	1207.5	1207.1	0.50	1766			3.7	-3.2		2.2	-1.7	
04/13/2008 05:00	25	29.2	39.4	269.4	3.19	3.24	1206.4	1207.4	0.44	1792			3.8	-3.3		2.3	-1.8	
04/13/2008 06:00	24	27.9	36.5	269.8	3.21	3.23	1205.2	1207.2	0.42	1791			3.8	-3.3		2.3	-1.8	
04/13/2008 07:00	25	30.1	35.2	269.9	3.36	3.23	1210.4	1206.4	0.43	1704			3.6	-3.1		2.1	-1.7	
04/13/2008 08:00	22	27.1	35.4	270.5	3.95	3.26	1209.9	1207.4	0.36	1624			3.3	-3.0		2.0	-1.6	
04/13/2008 09:00	20	25.5	34.8	270.7	4.23	3.53	1209.4	1208.9	0.32	1568			3.1	-2.8		1.9	-1.6	
04/13/2008 10:00	21	26.2	34.0	270.7	4.39	3.86	1207.7	1209.9	0.31	1525			3.0	-2.6		1.8	-1.5	
04/13/2008 11:00	17	22.5	33.0	270.3	4.66	4.23	1206.5	1208.9	0.26	1488			2.9	-2.6		1.7	-1.5	
04/13/2008 12:00	17	21.4	31.4	269.9	4.72	4.45	1207.6	1207.6	0.25	1499			2.9	-2.7		1.8	-1.5	
04/13/2008 13:00	17	22.3	29.0	269.3	4.74	4.61	1207.1	1207.2	0.26	1518			2.9	-2.7		1.7	-1.5	
04/13/2008 14:00	17	22.4	28.2	204.9	4.72	4.71	1207.9	1207.1	0.25	1468			2.8	-2.5		1.7	-1.4	
04/13/2008 15:00	25	32.4	27.8	38.8	4.74	4.73	1207.2	1207.6	0.36	1445			2.8	-2.4		1.7	-1.3	
04/13/2008 16:00	20	26.0	27.3	34.0	4.72	4.73	1208.0	1207.5	0.29	1445			2.8	-2.5		1.7	-1.4	
04/13/2008 17:00	20	26.0	26.8	33.1	4.66	4.74	1206.6	1207.7	0.30	1476			2.9	-2.6		1.7	-1.4	
04/13/2008 18:00	29	36.4	26.5	31.5	4.42	4.70	1206.5	1207.3	0.43	1495			3.0	-2.5		1.8	-1.3	
04/13/2008 19:00	31	39.4	27.5	31.3	4.38	4.59	1207.0	1207.1	0.48	1552			3.0	-2.6		1.8	-1.3	
04/13/2008 20:00	24	29.9	27.4	31.4	4.43	4.48	1208.3	1206.8	0.37	1553			3.1	-2.7		1.9	-1.5	
04/13/2008 21:00	24	30.5	27.6	31.2	4.42	4.41	1207.0	1207.3	0.37	1540			3.0	-2.7		1.8	-1.4	
04/13/2008 22:00	30	38.3	28.0	31.0	4.40	4.41	1206.6	1207.4	0.47	1558			3.1	-2.6		1.8	-1.4	
04/13/2008 23:00	22	27.8	29.0	31.0	4.50	4.43	1207.4	1207.4	0.34	1551								
TOTAL												288.4			378.3			366.3

MURPHY USA

Emission Estimates from Acid and/or SWS Gas Event Occurring On: 4/11/2008

Acid Gas Flow Rate (MSCF/Day): 50

ACID GAS FLOWRATE TO FLARE (MSCF)	CONVERT MSCF TO SCF	CONVERT SCF TO LB MOLE	CONVERT LB MOLE ACID GAS TO LB MOLE H2S	CONVERT LB MOLE H2S TO LB H2S	CONVERT LB H2S TO LB SO2		EMISSIONS
50 MSCF / DAY	1000 SCF / MSCF	1 LB MOLE / 379 SCF	0.85 LB MOLE H2S / LB MOLE ACID GAS	34.08 LB H2S / 1 LB MOLE H2S	64.07 LB SO2 / 34.08 LB H2S	=	7189 LB SO2 / EVENT

SWS Gas Flow Rate (MSCF/Day): 7

SWS GAS FLOWRATE TO FLARE (MSCF)	CONVERT MSCF TO SCF	CONVERT SCF TO LB MOLE	CONVERT LB MOLE SWS GAS TO LB MOLE H2S	CONVERT LB MOLE H2S TO LB H2S	CONVERT LB H2S TO LB SO2		
7 MSCF / DAY	1000 SCF / MSCF	1 LB MOLE / 379 SCF	0.3 LB MOLE H2S / LB MOLE SWS GAS	34.08 LB H2S / 1 LB MOLE H2S	64.07 LB SO2 / 34.08 LB H2S	=	355 LB SO2 / EVENT

Estimated Total Emissions During Event:

7189 LB SO2 (ACID GAS) / EVENT + 355 LB SO2 (SWS GAS) / EVENT = 7544 LB SO2 / EVENT

The acid gas rate is a 24 hour average of the total amount that went to the flare therefor no conversion is required to convert to pounds per hour. This calculation gives pounds per episode provided only one episode happens during the day. If there is more than one episode it will give the total pounds in a 24 hour period from 12am to 12am.

GE KVB-Enertec NetDAHS©

Version 22.0

Average Values Report
Generated: 4/17/2008 11:24

Company: Murphy Oil
Plant:
City/St: Superior, WI
Source: FCCU Stack

Period Start: 4/10/2008 00:00
Period End: 4/11/2008 23:59
Validation Type: 1/60 min
Averaging Period: 1 hr
Type: Block Avg

Period Start:	Average F_CO ppm	Average F_O2 %	Average F_SO2_LBHR #/H	Average F_Delta_P inH2O	Average F_Stk_Temp Deg F	Average F_Stk_Flow Macfh	Average F_Flo_Corr Mscfh	Average F_Opacity %
04/10/2008 20:00	17.1	4.74	128.9	0.678	522.0	2.64	1.41	4.3
04/10/2008 21:00	16.7	4.86	137.6	0.719	513.7	2.94	1.57	4.3
04/10/2008 22:00	17.7	4.78	141.8	0.712	513.0	2.93	1.56	4.4
04/10/2008 23:00	249.7	3.39	239.1	0.719	513.6	2.93	1.56	10.1
04/11/2008 00:00	642.0	13.11	128.0	0.399	546.4	1.91	0.99	100.1
04/11/2008 01:00	566.7	12.13	117.9	0.267	461.3	1.73	0.98	80.7
04/11/2008 02:00	634.9	12.15	159.6	0.423	420.7	2.11	1.24	75.5
04/11/2008 03:00	325.8	13.96	131.9	0.463	412.0	2.23	1.33	45.3
04/11/2008 04:00	159.9	14.11	160.6	0.438	412.9	2.00	1.19	36.0
04/11/2008 05:00	176.8	11.74	192.5	0.423	406.6	2.13	1.27	29.3
04/11/2008 06:00	729.0	6.27	289.9	0.401	401.5	2.06	1.24	33.4
04/11/2008 07:00	332.9	3.34	350.8	0.586	411.6	2.51	1.49	23.6
04/11/2008 08:00	15.7	5.37	361.2	0.566	410.7	2.30	1.34	5.9
04/11/2008 09:00	20.7	5.76	445.6	0.609	433.8	2.59	1.51	6.3
04/11/2008 10:00	29.3	5.59	442.2	0.605	435.9	2.59	1.50	6.0
04/11/2008 11:00	27.4	5.59	442.3	0.604	436.4	2.58	1.49	5.9
04/11/2008 12:00	41.5	5.80	393.2	0.566	422.2	2.29	1.33	5.7
04/11/2008 13:00	30.5	5.28	262.4	0.602	436.4	2.58	1.49	5.3
04/11/2008 14:00	23.2	5.72	11.5	0.602	437.2	2.58	1.50	5.0
04/11/2008 15:00	N/A	N/A	N/A	0.602	437.6	2.58	1.49	4.8
04/11/2008 16:00	N/A	N/A	N/A	0.563	481.7	2.33	1.31	4.8
04/11/2008 17:00	12.7	6.07	102.9	0.602	439.1	2.59	1.49	4.7
Final Average*	**97.0**	**6.15**	**169.1**	**0.623**	**475.8**	**2.62**	**1.45**	**12.8**
Maximum*	**729.0**	**14.11**	**445.6**	**0.719**	**567.4**	**2.94**	**1.57**	**100.1**
Minimum*	**12.7**	**3.34**	**11.5**	**0.267**	**401.5**	**1.73**	**0.98**	**4.2**

* Does not include Invalid Averaging Periods ("N/A")

Average Values Report
Generated: 4/17/2008 11:29

Company: Murphy Oil
Plant:
City/St: Superior, WI
Source: FCCU Stack

Period Start: 4/10/2008 23:30
Period End: 4/11/2008 09:00
Validation Type: 1/1 min
Averaging Period: 1 min
Type: Block Avg

Period Start:	Average F_Opacity %	Average F_Opac6min %	20% WDNR Limit	30 % MACT Limit	
04/10/2008 23:42	4.8	4.8			
04/10/2008 23:43	4.8	4.8			
04/10/2008 23:44	4.8	4.8			
04/10/2008 23:45	84.4	4.8			
04/10/2008 23:46	100.3	4.8			
04/10/2008 23:47	N/A	4.8			
04/10/2008 23:48	N/A	39.8			
04/10/2008 23:49	N/A	39.8			
04/10/2008 23:50	N/A	39.8			
04/10/2008 23:51	N/A	39.8			
04/10/2008 23:52	N/A	39.8			
04/10/2008 23:53	N/A	39.8		1	
04/10/2008 23:54	N/A	N/A			
04/10/2008 23:55	N/A	N/A			
04/10/2008 23:56	N/A	N/A			
04/10/2008 23:57	N/A	N/A			
04/10/2008 23:58	N/A	N/A			
04/10/2008 23:59	90.2	N/A			
04/11/2008 00:00	**100.3**	**N/A**			
04/11/2008 00:01	100.3	N/A			
04/11/2008 00:02	100.4	N/A			
04/11/2008 00:03	100.3	N/A			
04/11/2008 00:04	100.4	N/A			
04/11/2008 00:05	100.3	N/A			
04/11/2008 00:06	100.3	100.3			
04/11/2008 00:07	100.3	100.3			
04/11/2008 00:08	100.3	100.3			
04/11/2008 00:09	100.4	100.3			
04/11/2008 00:10	100.4	100.3			
04/11/2008 00:11	100.4	100.3		1	
04/11/2008 00:12	100.3	100.4			
04/11/2008 00:13	100.3	100.4			
04/11/2008 00:14	100.4	100.4			
04/11/2008 00:15	100.4	100.4			
04/11/2008 00:16	100.3	100.4			
04/11/2008 00:17	100.3	100.4		1	1
04/11/2008 00:18	100.4	100.3			
04/11/2008 00:19	100.3	100.3			
04/11/2008 00:20	100.3	100.3			
04/11/2008 00:21	100.3	100.3			
04/11/2008 00:22	100.3	100.3			
04/11/2008 00:23	100.4	100.3		1	1
04/11/2008 00:24	100.4	100.3			
04/11/2008 00:25	100.4	100.3			
04/11/2008 00:26	100.3	100.3			
04/11/2008 00:27	100.4	100.3			
04/11/2008 00:28	100.4	100.3			
04/11/2008 00:29	100.3	100.3		1	1
04/11/2008 00:30	100.3	100.4			

Period Start:	Average F_Opacity %	Average F_Opac6min %	20% WDNR Limit	30 % MACT Limit	
04/11/2008 00:31	100.3	100.4			
04/11/2008 00:32	100.3	100.4			
04/11/2008 00:33	100.4	100.4			
04/11/2008 00:34	N/A	100.4			
04/11/2008 00:35	N/A	100.4	1		1
04/11/2008 00:36	N/A	100.3			
04/11/2008 00:37	N/A	100.3			
04/11/2008 00:38	N/A	100.3			
04/11/2008 00:39	N/A	100.3			
04/11/2008 00:40	N/A	100.3			
04/11/2008 00:41	N/A	100.3	1		1
04/11/2008 00:42	N/A	N/A			
04/11/2008 00:43	N/A	N/A			
04/11/2008 00:44	N/A	N/A			
04/11/2008 00:45	N/A	N/A			
04/11/2008 00:46	N/A	N/A			
04/11/2008 00:47	N/A	N/A			
04/11/2008 00:48	N/A	N/A			
04/11/2008 00:49	N/A	N/A			
04/11/2008 00:50	N/A	N/A			
04/11/2008 00:51	N/A	N/A			
04/11/2008 00:52	100.4	N/A			
04/11/2008 00:53	99.5	N/A			
04/11/2008 00:54	96.3	N/A			
04/11/2008 00:55	99.5	N/A			
04/11/2008 00:56	100.3	N/A			
04/11/2008 00:57	100.4	N/A			
04/11/2008 00:58	100.4	N/A			
04/11/2008 00:59	97.2	N/A			
04/11/2008 01:00	**100.4**	**99.0**			
04/11/2008 01:01	92.3	99.0			
04/11/2008 01:02	100.3	99.0			
04/11/2008 01:03	100.3	99.0			
04/11/2008 01:04	100.3	99.0			
04/11/2008 01:05	100.4	99.0	1		
04/11/2008 01:06	100.4	99.0			
04/11/2008 01:07	100.3	99.0			
04/11/2008 01:08	100.4	99.0			
04/11/2008 01:09	100.3	99.0			
04/11/2008 01:10	100.3	99.0			
04/11/2008 01:11	100.4	99.0	1		1
04/11/2008 01:12	100.4	100.4			
04/11/2008 01:13	100.4	100.4			
04/11/2008 01:14	100.4	100.4			
04/11/2008 01:15	100.3	100.4			
04/11/2008 01:16	96.3	100.4			
04/11/2008 01:17	83.1	100.4	1		1
04/11/2008 01:18	79.1	96.8			
04/11/2008 01:19	75.9	96.8			
04/11/2008 01:20	71.6	96.8			
04/11/2008 01:21	74.5	96.8			
04/11/2008 01:22	64.4	96.8			
04/11/2008 01:23	85.2	96.8	1		1
04/11/2008 01:24	79.0	75.1			
04/11/2008 01:25	67.7	75.1			
04/11/2008 01:26	93.4	75.1			
04/11/2008 01:27	73.3	75.1			
04/11/2008 01:28	64.8	75.1			

Period Start:	Average F_Opacity %	Average F_Opac6min %	20% WDNR Limit	30 % MACT Limit
04/11/2008 01:29	66.0	75.1	1	1
04/11/2008 01:30	57.6	74.0		
04/11/2008 01:31	58.9	74.0		
04/11/2008 01:32	77.2	74.0		
04/11/2008 01:33	77.9	74.0		
04/11/2008 01:34	64.1	74.0		
04/11/2008 01:35	58.0	74.0	1	1
04/11/2008 01:36	54.3	65.6		
04/11/2008 01:37	59.9	65.6		
04/11/2008 01:38	53.3	65.6		
04/11/2008 01:39	86.3	65.6		
04/11/2008 01:40	92.3	65.6		
04/11/2008 01:41	95.0	65.6	1	1
04/11/2008 01:42	76.9	73.5		
04/11/2008 01:43	64.6	73.5		
04/11/2008 01:44	56.0	73.5		
04/11/2008 01:45	56.4	73.5		
04/11/2008 01:46	52.0	73.5		
04/11/2008 01:47	54.5	73.5	1	1
04/11/2008 01:48	49.4	60.1		
04/11/2008 01:49	55.5	60.1		
04/11/2008 01:50	78.3	60.1		
04/11/2008 01:51	90.8	60.1		
04/11/2008 01:52	93.2	60.1		
04/11/2008 01:53	91.9	60.1	1	1
04/11/2008 01:54	80.3	76.5		
04/11/2008 01:55	76.0	76.5		
04/11/2008 01:56	77.5	76.5		
04/11/2008 01:57	86.0	76.5		
04/11/2008 01:58	98.6	76.5		
04/11/2008 01:59	100.3	76.5	1	1
04/11/2008 02:00	**100.4**	**86.5**		
04/11/2008 02:01	100.4	86.5		
04/11/2008 02:02	100.3	86.5		
04/11/2008 02:03	100.4	86.5		
04/11/2008 02:04	100.4	86.5		
04/11/2008 02:05	100.4	86.5	1	
04/11/2008 02:06	93.9	100.4		
04/11/2008 02:07	100.4	100.4		
04/11/2008 02:08	N/A	100.4		
04/11/2008 02:09	N/A	100.4		
04/11/2008 02:10	N/A	100.4		
04/11/2008 02:11	N/A	100.4	1	1
04/11/2008 02:12	N/A	N/A		
04/11/2008 02:13	N/A	N/A		
04/11/2008 02:14	N/A	N/A		
04/11/2008 02:15	N/A	N/A		
04/11/2008 02:16	N/A	N/A		
04/11/2008 02:17	N/A	N/A		
04/11/2008 02:18	N/A	N/A		
04/11/2008 02:19	N/A	N/A		
04/11/2008 02:20	N/A	N/A		
04/11/2008 02:21	N/A	N/A		
04/11/2008 02:22	N/A	N/A		
04/11/2008 02:23	N/A	N/A		
04/11/2008 02:24	N/A	N/A		
04/11/2008 02:25	N/A	N/A		
04/11/2008 02:26	N/A	N/A		

Period Start:	Average F_Opacity %	Average F_Opac6min %	20% WDNR Limit	30 % MACT Limit
04/11/2008 02:27	N/A	N/A		
04/11/2008 02:28	N/A	N/A		
04/11/2008 02:29	N/A	N/A		
04/11/2008 02:30	N/A	N/A		
04/11/2008 02:31	N/A	N/A		
04/11/2008 02:32	83.0	N/A		
04/11/2008 02:33	79.2	N/A		
04/11/2008 02:34	84.6	N/A		
04/11/2008 02:35	84.7	N/A		
04/11/2008 02:36	85.7	82.9		
04/11/2008 02:37	71.1	82.9		
04/11/2008 02:38	78.8	82.9		
04/11/2008 02:39	82.7	82.9		
04/11/2008 02:40	70.4	82.9		
04/11/2008 02:41	66.6	82.9	1	1
04/11/2008 02:42	67.3	75.9		
04/11/2008 02:43	61.6	75.9		
04/11/2008 02:44	65.0	75.9		
04/11/2008 02:45	79.2	75.9		
04/11/2008 02:46	54.2	75.9		
04/11/2008 02:47	56.2	75.9	1	1
04/11/2008 02:48	54.8	63.9		
04/11/2008 02:49	52.1	63.9		
04/11/2008 02:50	56.8	63.9		
04/11/2008 02:51	56.2	63.9		
04/11/2008 02:52	56.4	63.9		
04/11/2008 02:53	61.1	63.9	1	1
04/11/2008 02:54	73.0	56.2		
04/11/2008 02:55	68.7	56.2		
04/11/2008 02:56	64.6	56.2		
04/11/2008 02:57	63.8	56.2		
04/11/2008 02:58	74.9	56.2		
04/11/2008 02:59	66.9	56.2	1	1
04/11/2008 03:00	**62.5**	**68.6**		
04/11/2008 03:01	56.8	68.6		
04/11/2008 03:02	56.9	68.6		
04/11/2008 03:03	60.5	68.6		
04/11/2008 03:04	61.3	68.6		
04/11/2008 03:05	57.1	68.6	1	
04/11/2008 03:06	55.2	59.2		
04/11/2008 03:07	51.3	59.2		
04/11/2008 03:08	74.3	59.2		
04/11/2008 03:09	53.6	59.2		
04/11/2008 03:10	54.6	59.2		
04/11/2008 03:11	61.4	59.2	1	1
04/11/2008 03:12	47.3	58.4		
04/11/2008 03:13	52.1	58.4		
04/11/2008 03:14	42.7	58.4		
04/11/2008 03:15	39.4	58.4		
04/11/2008 03:16	41.5	58.4		
04/11/2008 03:17	38.5	58.4	1	1
04/11/2008 03:18	33.2	43.6		
04/11/2008 03:19	32.7	43.6		
04/11/2008 03:20	36.0	43.6		
04/11/2008 03:21	34.3	43.6		
04/11/2008 03:22	54.3	43.6		
04/11/2008 03:23	45.6	43.6	1	1
04/11/2008 03:24	58.4	39.3		

Period Start:	Average F_Opacity %	Average F_Opac6min %	20% WDNR Limit	30 % MACT Limit
04/11/2008 03:25	44.7	39.3		
04/11/2008 03:26	44.0	39.3		
04/11/2008 03:27	40.5	39.3		
04/11/2008 03:28	41.3	39.3		
04/11/2008 03:29	43.3	39.3	1	1
04/11/2008 03:30	37.6	45.4		
04/11/2008 03:31	46.0	45.4		
04/11/2008 03:32	36.8	45.4		
04/11/2008 03:33	37.0	45.4		
04/11/2008 03:34	33.6	45.4		
04/11/2008 03:35	33.3	45.4	1	1
04/11/2008 03:36	33.8	37.4		
04/11/2008 03:37	68.4	37.4		
04/11/2008 03:38	39.7	37.4		
04/11/2008 03:39	44.5	37.4		
04/11/2008 03:40	42.7	37.4		
04/11/2008 03:41	40.3	37.4	1	1
04/11/2008 03:42	38.1	44.9		
04/11/2008 03:43	33.4	44.9		
04/11/2008 03:44	32.0	44.9		
04/11/2008 03:45	37.2	44.9		
04/11/2008 03:46	32.8	44.9		
04/11/2008 03:47	39.0	44.9	1	1
04/11/2008 03:48	39.5	35.4		
04/11/2008 03:49	48.6	35.4		
04/11/2008 03:50	59.5	35.4		
04/11/2008 03:51	46.2	35.4		
04/11/2008 03:52	43.3	35.4		
04/11/2008 03:53	44.5	35.4	1	1
04/11/2008 03:54	39.9	46.9		
04/11/2008 03:55	46.1	46.9		
04/11/2008 03:56	40.9	46.9		
04/11/2008 03:57	41.1	46.9		
04/11/2008 03:58	46.8	46.9		
04/11/2008 03:59	40.5	46.9	1	1
04/11/2008 04:00	**34.0**	**42.5**		
04/11/2008 04:01	35.5	42.5		
04/11/2008 04:02	31.0	42.5		
04/11/2008 04:03	42.2	42.5		
04/11/2008 04:04	33.5	42.5		
04/11/2008 04:05	33.2	42.5	1	
04/11/2008 04:06	59.0	34.9		
04/11/2008 04:07	45.4	34.9		
04/11/2008 04:08	41.5	34.9		
04/11/2008 04:09	36.6	34.9		
04/11/2008 04:10	36.3	34.9		
04/11/2008 04:11	38.6	34.9	1	1
04/11/2008 04:12	32.4	42.9		
04/11/2008 04:13	34.6	42.9		
04/11/2008 04:14	39.0	42.9		
04/11/2008 04:15	37.1	42.9		
04/11/2008 04:16	47.8	42.9		
04/11/2008 04:17	49.1	42.9	1	1
04/11/2008 04:18	38.1	40.0		
04/11/2008 04:19	33.6	40.0		
04/11/2008 04:20	33.6	40.0		
04/11/2008 04:21	35.5	40.0		
04/11/2008 04:22	38.8	40.0		

Period Start:	Average F_Opacity %	Average F_Opac6min %	20% WDNR Limit	30 % MACT Limit
04/11/2008 04:23	35.5	40.0	1	1
04/11/2008 04:24	34.7	35.8		
04/11/2008 04:25	39.9	35.8		
04/11/2008 04:26	48.4	35.8		
04/11/2008 04:27	42.4	35.8		
04/11/2008 04:28	32.3	35.8		
04/11/2008 04:29	27.8	35.8	1	1
04/11/2008 04:30	45.1	37.6		
04/11/2008 04:31	29.7	37.6		
04/11/2008 04:32	27.2	37.6		
04/11/2008 04:33	28.1	37.6		
04/11/2008 04:34	28.2	37.6		
04/11/2008 04:35	61.4	37.6	1	1
04/11/2008 04:36	43.4	36.6		
04/11/2008 04:37	34.1	36.6		
04/11/2008 04:38	33.8	36.6		
04/11/2008 04:39	35.0	36.6		
04/11/2008 04:40	29.9	36.6		
04/11/2008 04:41	31.7	36.6	1	1
04/11/2008 04:42	33.6	34.6		
04/11/2008 04:43	49.3	34.6		
04/11/2008 04:44	42.5	34.6		
04/11/2008 04:45	34.4	34.6		
04/11/2008 04:46	33.3	34.6		
04/11/2008 04:47	32.0	34.6	1	1
04/11/2008 04:48	28.9	37.5		
04/11/2008 04:49	29.1	37.5		
04/11/2008 04:50	29.1	37.5		
04/11/2008 04:51	32.5	37.5		
04/11/2008 04:52	29.8	37.5		
04/11/2008 04:53	33.5	37.5	1	1
04/11/2008 04:54	29.6	30.5		
04/11/2008 04:55	29.0	30.5		
04/11/2008 04:56	40.5	30.5		
04/11/2008 04:57	26.5	30.5		
04/11/2008 04:58	23.5	30.5		
04/11/2008 04:59	28.0	30.5	1	1
04/11/2008 05:00	**23.3**	**29.5**		
04/11/2008 05:01	24.5	29.5		
04/11/2008 05:02	33.4	29.5		
04/11/2008 05:03	32.3	29.5		
04/11/2008 05:04	47.4	29.5		
04/11/2008 05:05	43.0	29.5	1	
04/11/2008 05:06	34.7	34.0		
04/11/2008 05:07	30.8	34.0		
04/11/2008 05:08	31.8	34.0		
04/11/2008 05:09	32.4	34.0		
04/11/2008 05:10	33.0	34.0		
04/11/2008 05:11	39.0	34.0	1	
04/11/2008 05:12	36.1	33.6		
04/11/2008 05:13	28.0	33.6		
04/11/2008 05:14	23.7	33.6		
04/11/2008 05:15	23.0	33.6		
04/11/2008 05:16	26.7	33.6		
04/11/2008 05:17	20.5	33.6	1	1
04/11/2008 05:18	20.4	26.3		
04/11/2008 05:19	20.8	26.3		
04/11/2008 05:20	29.7	26.3		

Period Start:	Average F_Opacity %	Average F_Opac6min %	20% WDNR Limit	30 % MACT Limit	
04/11/2008 05:21	31.3	26.3			
04/11/2008 05:22	36.8	26.3			
04/11/2008 05:23	28.2	26.3	1		
04/11/2008 05:24	30.7	27.9			
04/11/2008 05:25	22.4	27.9			
04/11/2008 05:26	22.9	27.9			
04/11/2008 05:27	30.6	27.9			
04/11/2008 05:28	31.5	27.9			
04/11/2008 05:29	30.0	27.9	1		
04/11/2008 05:30	38.9	28.0			
04/11/2008 05:31	32.9	28.0			
04/11/2008 05:32	34.0	28.0			
04/11/2008 05:33	42.7	28.0			
04/11/2008 05:34	43.9	28.0			
04/11/2008 05:35	40.3	28.0	1		
04/11/2008 05:36	31.4	38.8			
04/11/2008 05:37	25.5	38.8			
04/11/2008 05:38	22.8	38.8			
04/11/2008 05:39	31.5	38.8			
04/11/2008 05:40	29.9	38.8			
04/11/2008 05:41	28.4	38.8	1	1	
04/11/2008 05:42	25.5	28.2			
04/11/2008 05:43	25.5	28.2			
04/11/2008 05:44	26.2	28.2			
04/11/2008 05:45	25.6	28.2			
04/11/2008 05:46	23.6	28.2			
04/11/2008 05:47	24.4	28.2	1		
04/11/2008 05:48	35.6	25.1			
04/11/2008 05:49	28.1	25.1			
04/11/2008 05:50	21.9	25.1			
04/11/2008 05:51	19.1	25.1			
04/11/2008 05:52	20.1	25.1			
04/11/2008 05:53	24.6	25.1	1		
04/11/2008 05:54	23.3	24.9			
04/11/2008 05:55	21.9	24.9			
04/11/2008 05:56	24.4	24.9			
04/11/2008 05:57	29.8	24.9			
04/11/2008 05:58	26.1	24.9			
04/11/2008 05:59	32.4	24.9	1		
04/11/2008 06:00	**29.6**	**26.3**			
04/11/2008 06:01	33.0	26.3			
04/11/2008 06:02	39.3	26.3			
04/11/2008 06:03	55.3	26.3			
04/11/2008 06:04	36.5	26.3			
04/11/2008 06:05	33.8	26.3	1		
04/11/2008 06:06	38.8	37.9			
04/11/2008 06:07	31.4	37.9			
04/11/2008 06:08	28.1	37.9			
04/11/2008 06:09	30.4	37.9			
04/11/2008 06:10	29.6	37.9			
04/11/2008 06:11	28.6	37.9	1		
04/11/2008 06:12	27.6	31.1			
04/11/2008 06:13	27.0	31.1			
04/11/2008 06:14	25.9	31.1			
04/11/2008 06:15	37.1	31.1			
04/11/2008 06:16	26.9	31.1			
04/11/2008 06:17	23.2	31.1	1	1	
04/11/2008 06:18	22.4	27.9			

Period Start:	Average F_Opacity %	Average F_Opac6min %	20% WDNR Limit	30 % MACT Limit	
04/11/2008 06:19	20.6	27.9			
04/11/2008 06:20	19.9	27.9			
04/11/2008 06:21	22.2	27.9			
04/11/2008 06:22	29.7	27.9			
04/11/2008 06:23	45.7	27.9	1		
04/11/2008 06:24	70.0	26.8			
04/11/2008 06:25	83.1	26.8			
04/11/2008 06:26	68.4	26.8			
04/11/2008 06:27	40.8	26.8			
04/11/2008 06:28	42.3	26.8			
04/11/2008 06:29	32.3	26.8	1		
04/11/2008 06:30	34.0	56.1			
04/11/2008 06:31	35.9	56.1			
04/11/2008 06:32	55.8	56.1			
04/11/2008 06:33	41.7	56.1			
04/11/2008 06:34	40.1	56.1			
04/11/2008 06:35	32.1	56.1	1		1
04/11/2008 06:36	30.2	39.9			
04/11/2008 06:37	32.9	39.9			
04/11/2008 06:38	30.3	39.9			
04/11/2008 06:39	27.5	39.9			
04/11/2008 06:40	24.1	39.9			
04/11/2008 06:41	30.2	39.9	1		1
04/11/2008 06:42	24.2	29.2			
04/11/2008 06:43	29.1	29.2			
04/11/2008 06:44	24.6	29.2			
04/11/2008 06:45	29.7	29.2			
04/11/2008 06:46	28.0	29.2			
04/11/2008 06:47	28.9	29.2			
04/11/2008 06:48	28.2	27.4	1		
04/11/2008 06:49	28.5	27.4			
04/11/2008 06:50	27.4	27.4			
04/11/2008 06:51	29.8	27.4			
04/11/2008 06:52	31.9	27.4			
04/11/2008 06:53	29.4	27.4	1		
04/11/2008 06:54	27.9	29.2			
04/11/2008 06:55	30.3	29.2			
04/11/2008 06:56	25.6	29.2			
04/11/2008 06:57	29.2	29.2			
04/11/2008 06:58	27.4	29.2			
04/11/2008 06:59	29.6	29.2	1		
04/11/2008 07:00	**27.1**	**28.3**			
04/11/2008 07:01	53.0	28.3			
04/11/2008 07:02	32.0	28.3			
04/11/2008 07:03	32.6	28.3			
04/11/2008 07:04	31.0	28.3			
04/11/2008 07:05	32.5	28.3	1		
04/11/2008 07:06	31.7	34.7			
04/11/2008 07:07	41.6	34.7			
04/11/2008 07:08	31.1	34.7			
04/11/2008 07:09	29.1	34.7			
04/11/2008 07:10	33.4	34.7			
04/11/2008 07:11	30.1	34.7	1		
04/11/2008 07:12	25.3	32.8			
04/11/2008 07:13	26.9	32.8			
04/11/2008 07:14	29.3	32.8			
04/11/2008 07:15	33.0	32.8			
04/11/2008 07:16	33.2	32.8			

Period Start:	Average F_Opacity %	Average F_Opac6min %	20% WDNR Limit	30 % MACT Limit	
04/11/2008 07:17	35.7	32.8		1	1
04/11/2008 07:18	33.4	30.6			
04/11/2008 07:19	34.9	30.6			
04/11/2008 07:20	43.6	30.6			
04/11/2008 07:21	33.8	30.6			
04/11/2008 07:22	31.4	30.6			
04/11/2008 07:23	32.3	30.6		1	1
04/11/2008 07:24	33.3	34.9			
04/11/2008 07:25	33.0	34.9			
04/11/2008 07:26	27.3	34.9			
04/11/2008 07:27	26.3	34.9			
04/11/2008 07:28	35.6	34.9			
04/11/2008 07:29	29.4	34.9		1	1
04/11/2008 07:30	46.8	30.8			
04/11/2008 07:31	31.8	30.8			
04/11/2008 07:32	32.5	30.8			
04/11/2008 07:33	38.5	30.8			
04/11/2008 07:34	29.9	30.8			
04/11/2008 07:35	27.7	30.8		1	1
04/11/2008 07:36	13.9	34.5			
04/11/2008 07:37	11.9	34.5			
04/11/2008 07:38	11.5	34.5			
04/11/2008 07:39	11.2	34.5			
04/11/2008 07:40	10.6	34.5			
04/11/2008 07:41	11.0	34.5		1	1
04/11/2008 07:42	10.2	11.7			
Final Average*	**43.6**	**43.4**	**70**	**47**	
Maximum*	**100.4**	**100.4**			
Minimum*	**4.7**	**4.7**			

* Does not include Invalid Averaging Periods ("N/A")

MURPHY USA

Emission Estimates from FCC Gas Debutanizer Overhead Recv Event Occuring on: 4/11/2008

Enter Duration of Event (hour): 0.93

Control Valve Flowrate (scf/hour): 18120

Estimated Emissions During Event:

DURATION OF EVENT	VALVE FLOWRATE	CALCULATE FRACTION OF H2S IN VENT GAS	CONVERT SCF TO LB MOLE	CONVERT LB MOLE H2S TO LB H2S	CONVERT LB H2S TO LB SO2		EMISSIONS
0.93 Hour	18120 scf	0.0003 scf of H2S	lb mole	34.08 lb H2S	64.07 lb SO2	=	0.8 lb SO2
Event	Hour	scf of vent gas	379 SCF	lb mole H2S	34.08 lb H2S		Event

MURPHY USA

Emission Estimates from a FCCU Main Column Overhead Receiver Event Occuring on: 4/10/2008

Enter Duration of Event (hour): 0.65 Control Valve 15PC297 Percent Open: 20

Estimated Emissions During Event:

DURATION OF EVENT	VALVE FLOWRATE	CALCULATE VENT GAS MASS RATE	CALCULATE H2S GAS MASS RATE	CONVERT LB H2S TO LB SO2		EMISSIONS
0.65 Hour / Event	34000 scf / Hour	0.2 lb gas / scf of vent gas	0.07 lb H2S / lb gas	64.07 lb SO2 / 34.08 lb H2S	=	582 lb SO2 / Event

MURPHY USA

Emisssion Estimates from SRU Low Pressure Gas Event Occuring on: 4/10/2008

Duration of Event (hours):	1.48

No 1 DUF Flowrate (Mscf/day):	0
No 2 DUF Flowrate (Mscf/day):	190
Naphtha Splitter Flowrate (Mscf/day):	13
Other (Mscf/day):	255
Total Combined Flowrate from All Streams (scf/hour):	19083.3

Estimated Emissions During Event:

DURATION OF EVENT	#1 & 2 DUFS, AND SPLITTER FLOWRATE	CALCULATE FRACTION OF H2S IN VENT GAS	CONVERT SCF TO LB MOLE	CONVERT LB MOLE H2S TO LB H2S	CONVERT LB H2S TO LB SO2		EMISSIONS
1.48 Hour	19083 scf	0.14 scf of H2S	lb mole	34.08 lb H2S	64.07 lb SO2	=	658.7 lb SO2
Event	hour	scf of vent gas	379 SCF	lb mole H2S	34.08 lb H2S		Event

4/10/08 - 4/11/08 Main Column Overhead Flaring Data	
1	13
2	28
3	43
4	38
5	37
6	24
7	16
8	21
9	1
10	14
11	30
12	1
13	6
14	2
15	20
16	4
17	4
18	21
19	22
20	24
21	17
22	24
23	25
24	26
25	2
26	1
27	2
28	18
29	41
30	22
31	32
32	40
33	42
34	42
35	32
36	15
37	13
38	19
39	2
784	Total
20.10256	Average % Valve Opening
0.65	Duration (hours)

Sager, John E - DNR

From: O'Leary, Rhonda L - DNR
Sent: Friday, May 09, 2008 8:18 AM
To: Sager, John E - DNR
Cc: Baudhuin, Neal E - DNR
Subject: Murphy Air Spill

John,

You requested a total amount released by Murphy Oil to the atmosphere above what is allowed under their permit. I looked over the event information submitted by Murphy Oil and it appears that there were 8,300 pounds of excess sulfur dioxide emissions from the external power outage caused by the blizzard. This is a combined number from the SRU process, flaring, the FCCU process, and direct venting. As noted in the report there were also federal hazardous air pollutants and metal hazardous air pollutants emitted but it is hard to quantify those emissions. Please let me know if you have any other questions. Thanks.

Rhonda O'Leary, Environmental Engineer
Department of Natural Resources
1401 Tower Ave
Superior, WI 54880
715-392-7989
715-392-7993 (FAX)

Rhonda.OLeary@wisconsin.gov

Sager, John E - DNR

From: O'Leary, Rhonda L - DNR
Sent: Tuesday, April 15, 2008 10:16 AM
To: Baudhuin, Neal E - DNR; Sager, John E - DNR
Subject: Murphy Oil Air Spill

Neal & John,

I probably won't have the specifics on the air spill related to the storm last Friday until the end of this week. Corey Mead at Murphy Oil said that they are still compiling the information and calculating emissions. Also, there CEM technician is out until Thursday and they want him to review the CEM data before sending it out to make sure they won't need to file a correction later. Once I get the specifics, I will pass them along to John.

Also Neal, the shutdown for turnaround did begin yesterday with a couple of smaller units going down. The shut-down is phased with the complete shutdown probably not occurring until April 28th.

Rhonda O'Leary, Environmental Engineer
Department of Natural Resources
1401 Tower Ave
Superior, WI 54880
715-392-7989
715-392-7993 (FAX)

Rhonda.OLeary@wisconsin.gov

Sager, John E - DNR

From: WDNR SERTS ON THE WEB@dnr.state.wi.us
Sent: Friday, April 11, 2008 8:01 AM
To: Sager, John E - DNR
Subject: WDNR SERTS WEB NOTIFICATION #3411 SPILL ID #20080411NO16-1

The following Substance Release Notification was submitted through the Wisconsin DNR Spill Electronic Reporting and Tracking System (SERTS) web form. This information has been automatically uploaded to the SERTS system as SPILL ID #20080411NO16-1 with RP Name of MURPHY OIL and is now visible in the central repository. The Regional Spill Coordinator should review the record as errors occur during the upload of the Web Form to SERTS. See Tab #8 in SERTS for information that details errors or incomplete information and please correct as necessary.

The Immediate Responder should document their response by updating SERTS record 20080411NO16-1 with additional information.

Form Completed by: Adrienne Anders
Call Back Number: 608277450
Email: adrienne.anders@wisconsin.gov

Incident Date/Time: 04/11/2008 0036
Reported Date/Time: 04/11/2008 0252

Person Reporting
Name: DAVID BEATTIE
Representing: MURPHY OIL
Primary Phone: 715-398-8455
Secondary Phone:
Email:

Responsible Party (RP)
Name: MURPHY OIL
Address: 2407 STINSON AVE
City: SUPERIOR
State:
Zip: 54880
Primary Phone: 715-398-8455
Secondary Phone:

RP Contact
Name: DAVID BEATTIE
Title:UNKNOWN
Primary Phone: 715-398-8455
Secondary Phone:
Email:

Where Spill Occurred
County: DOUGLAS
Muni: SUPERIOR
Muni Type: CITY
Address: 2407 STINSON AVE
Description: PRIVATE ENTERPRISE
Facility Name: MURPHY OIL
Weather Conditions
CLOUDY
COLD
SNOW

Substance Name: HYDROGEN SULFIDE , SULFUR DIOXIDE, HYDROCARBONS Released Amt: UNKNOWN
Recovered Amt: UNKNOWN
UOM:

Spill Cause:
EQUIPMENT FAILURE-(FLARE STACK) FROM FACILITY WIDE POWER OUTAGE DUE TO SNOW STORM
Injuries: No
Injury Count:
Impacts: CONTACT TO AIR.
Evacuation?: No
Clean-up Method:
UNKNOWN
Contractor Hired: NONE ENTERED

Additional Comments:
WOODBURY WAS UNABLE TO CONTACT DAVID BEATTIE. HE HAS GOTTEN NO RESPONSE. DO WAS CONTACTED .

Person Notified: DAVID WOODBURY

Also Sent To:
Email 1: john.sager@wisconsin.gov
Email 2: steve.sisbach@wisconsin.gov
Email 3: john.krull@wisconsin.gov

A copy of this email has been sent to:
WDNR Roxanne Chronert, Spill Team Leader; WDNR Regional Spill Coordinator; WDNR LE Hotline; Jim Drew at WDHFS; WI EM Duty Officer.