ADDENDUM I

BART Exemption Screening Analysis
Draft December 6, 2006

SO_2 and NO_x Texas Model Plants (TMP)

This Addendum presents a subsequent assessment of the BART exemption screening analysis documented in *Screening Analysis of Potential BART-Eligible Sources in Texas* (Morris and Nopmongcol, 2006). PSAT modeling was conducted that followed Option 3 in EPA's BART guidance which allows group exemption modeling of potential BART-eligible sources' SO_2 and NO_x emissions. Because the Clean Air Interstate Rule (CAIR) addresses the SO_2 and NO_x BART requirements for Texas Electrical Generating Units (EGUs), the SO_2 and NO_x emissions BART group exemption screening analysis was conducted for just non-EGU (NEGU) potential BART-eligible sources. Two rounds of PSAT modeling were conducted. None of the source groups screened out during the first round. TCEQ decided to set aside the largest sources and to attempt a second round of PSAT modeling on the BART groups 5 through 10. These groups were split into deciles and modeled. During the second round two source groups were screened out; source groups #1 and #5. This left 65 NEGU sources that did not screen out for SO_2 and NO_x. For further information on the PSAT screening see chapter 4 of the report. This cumulative group exemption approach is a very efficient screening method, in that if the visibility impact at all Class I areas due to a group of BART sources is not significant, then each BART source in the group is also not significant. However, if the source group failed the screening analysis, the approach cannot exempt small sources in the group that may not be anticipated to cause visibility impairment. In that case, a model plant approach can be useful, and thus has been used for this subsequent summary analysis of the PSAT modeling output described in this Addendum.

A PM Screening Reanalysis of Account BG0057U

In addition to this model plant analysis, a PM screening reanalysis of account BG0057U EGU is presented. An incorrect stack diameter had been used in the previous analysis. Based on information provided by the company the modeling analysis was rerun for this source.

List of Class I Areas at Which Sources Failed

At the end of this addendum is a list of sources that did not pass the screening analyses along with the Class I areas at which they failed.

TMPs of the SO_2 and NO_x Screening Analysis

Option 2 in EPA's BART guidance (EPA, 2005) described an approach that the state may use in the BART exemption analysis using model plants based on representative sources

sharing certain characteristics. A model plant analysis may illustrate that plants with certain characteristics do not contribute to visibility impairment in the Class I areas. For this analysis, TCEQ used the modeling results for sources that successfully passed the threshold test and used these Texas Model Plants (TMPs) to establish distance and emission rate thresholds that would indicate that a source would not have an impact on a given Class I area. Based on the modeling results, BART sources that emit less than a certain amount per year and are located a certain distance from the nearest Class I area can be exempted.

In carrying out this approach, first the TMPs were identified. In the PSAT screening analysis for non-EGU sources, 7 potential BART-eligible sources were shown to not contribute significantly to visibility impairment and therefore were declared exempt from BART. These seven sources (listed in Table A-1) can be used as model plants to exempt certain other potential BART-eligible sources that share specific characteristics. To account for regional factors, potential BART-eligible sources were only compared to the TMP that shares the same nearest Class I area. BART sources that emit combined SO_2 and NO_x emissions less than the TMPs and are located further from the nearest Class I area than the TMPs may be declared exempt from BART.

Table A-1. List of TMPs that passed the SO_2 and NO_x emissions exemption screening analysis

Model Plant	Account	Company	Site	NO_x + SO_2 (tpy)	Closest Class I Area	Closest Distance from Class I Area (km)	Q/D (tpy /km)
1	BL0002S	AMOCO CHEMICAL CO	CHOCOLATE BAYOU PLN	2018	BRET	587	3.44
2	JE0052V	HUNTSMAN CORPORATION	PORT NECHES PLANT	951	BRET	471	2.02
3	BJ0001T	CHEMICAL LIME LTD	CHEMICAL LIME—CLIF	1209	WIMO	352	3.43
4	NE0022I	TICONA POLYMERS INC	BISHOP FACILITY	1134	BIBE	564	2.01
5	HG0228H	EXXON CHEMICAL CO	BAYTOWN OLEFINS PLA	1011	CACR	530	1.91
6	HG0310V	CHEVRON PHILLIPS CHEMICAL	CHEVRON CHEMICAL CO	1057	CACR	521	2.03
7	HG0632T	ROHM & HAAS TEXAS	DEER PARK PLANT	1824	CACR	534	3.41

All of the potential BART-eligible sources in the PSAT Round 1 groups have Q/D values higher than the TMPs. None of the sources from round 1 passed this TMP analysis. In addition, BART-eligible sources can only be compared with TMPs that share the same nearest Class I area, limiting the comparison to those sources with closest Class I areas of BIBE, BRET, CACR and WIMO. Therefore, account CY0019H, nearest to GUMO, was not eligible and continued to fail the BART exemption analysis.

Table A-2 shows the potential BART-eligible sources in PSAT Round 2 grouped by nearest Class I area. Sources in each group were compared to the TMP that shares the

same nearest Class I area. If the source can pass the two criteria, emissions and a distance from Class I area of one of the TMPs, then it may be exempt from BART. For example, account NE0120H is closest to BIBE and so was compared to the TMP 4 in Table A-1. The combined SO_2 and NO_x emissions of this account (979 TPY) are less than the emissions from TMP 4 (1134 TPY) and the source is located further from the nearest Class I area (592 km) than the TMP 4 (564 km). For these reasons, account NE0120H is exempt from BART using the TMP criteria. If there are more than one representative TMP in a group, potential BART-eligible sources are only required to pass the criteria of one of the TMPs in that group. For instance, there are two TMPs representing BRET, TMP 1 and 2, account JE0042B passed the criteria of TMP 2 and therefore can be exempt from BART. Figures A-(1-4) show the locations of the potential BART-eligible sources, their associated TMPs and Q/D ratios.

Seventeen (17) sources passed the TMP analysis. Note that the results summary in Table A-2 does not take into account the direction the source is located from the Class I area. However, because Class I areas near Texas tend to be on the borders or in other states, the general direction from the sources to the Class I areas are consistent (e.g., direction to BIBE is generally to the west, direction to CACR is generally to the northeast, etc.). Thus, the sources have similar source-receptor relationships.

Table A-2. List of potential BART-eligible non-EGU sources included in the NO_x and SO_2 TMP analysis

Nearest Class I Area	Account	Company	Site	NO_x + SO_2 (tpy)	Closest Distance from Class I Area (km)	TMP	Passed	Distance from a Model Plant
BIBE	AG0024G	PUEBLO MIDSTREAM GAS CORP	FASHING PLANT	1025	494	4		143
	BG0045E	CAPITOL CEMENT DIV CAPITOL	PORTLAND CEMENT	1568	482	4		230
	CA0011B	J.L. DAVIS GAS PROCESSING	LULING GAS PLANT	1111	534	4		243
	CB0003M	ALCOA ALUMINA & CHEMICALS	POINT COMFORT PLANT	971	654	4	YES	175
	CB0028T	UNION CARBIDE CORPORATION	SEADRIFT PLANT	464	636	4	YES	149
	JB0016M	VINTAGE PETROLEUM, INC.	W RANCH COMP STA VA	1036	646	4	YES	182
	NE0120H	KOCH PETROLEUM GROUP LP	CORPUS CHRISTI EAST	979	592	4	YES	49
	NE0122D	FLINT HILLS RESOURCES LP	WEST REFINERY	311	582	4	YES	42
BRET	BL0021O	BASF CORPORATION	FREEPORT SITE	323	607	1	YES	32
						2	YES	179
	BL0082R	THE DOW CHEMICAL CO	PLANT B	1897	605	1	YES	33
						2		179
	GB0001R	BP AMOCO CHEMICAL COMPANY	BP AMOCO CHEMICAL T	818	560	1		31
						2	YES	118
	GB0073P	VALERO REFINING CO TEXAS	TEXAS CITY REFINERY	901	559	1		33
						2	YES	116
	JE0039N	THE GOODYEAR TIRE AND RUBBER CO		1141	497	1		127
						2		27
	JE0042B	PREMCOR REFINING GROUP	PORT ARTHUR REFINER	97	472	1		139
						2	YES	13
	JE0343H	BMC HOLDINGS INC	BMC HOLDINGS INC	1196	481	1		144
						2		11
CACR	AC0017B	ABITIBI CONSOLIDATED CORP		28	348	5		182
						6		173
						7		186
	BL0758C	CHEVRON PHILLIPS CHEMICAL	SWEENY COMPLEX	370	619	5	YES	105
						6	YES	117
						7	YES	97
	CG0012C	ENBRIDGE PIPELINES	BRYANS MILL PLANT	84	140	5		391
						6		382
						7		395
	FG0036G	TXI OPERATION LP	CLODINE EXPANDED SH	829	551	5	YES	68
						6	YES	78
						7	YES	59

Nearest Class I Area	Account	Company	Site	NO_x + SO_2 (tpy)	Closest Distance from Class I Area (km)	TMP	Passed	Distance from a Model Plant
	HG0229F	EXXONMOBIL CHEMICAL CO	BAYTOWN CHEMICAL PL	805	531	5	YES	1
						6	YES	13
						7		8
	HG0558G	ATOFINA CHEMICALS INC	ATOFINA INC	939	532	5	YES	16
						6	YES	26
						7		8
	HG0562P	TEXAS PETROCHEMICALS LP	TX PETROCHEMICALS L	336	540	5	YES	24
						6	YES	35
						7	YES	15
	JC0003K	WESTVACO		1560	458	5		113
						6		101
						7		122
	MH0009H	CELANESE LIMITED		655	649	5	YES	141
						6	YES	152
						7	YES	132
WIMO	ED0051O	OWENS CORNING		356	308	3		107
	HW0018P	PHILLIPS 66 CO	BORGER REFINERY	649	263	3		564
	JH0025O	JOHNS MANVILLE INTERNATIONALJOHNS MANVILLE		116	293	3		75
	MB0123F	LEHIGH CEMENT COMPANY	LEHIGH PORTLAND CEM	1107	387	3	YES	42
	MM0001T	ALCOA INC	ALCOA SANDOW PLANT	1493	488	3		137
	WH0014S	WICHITA FALLS PLANT		135	97	3		257

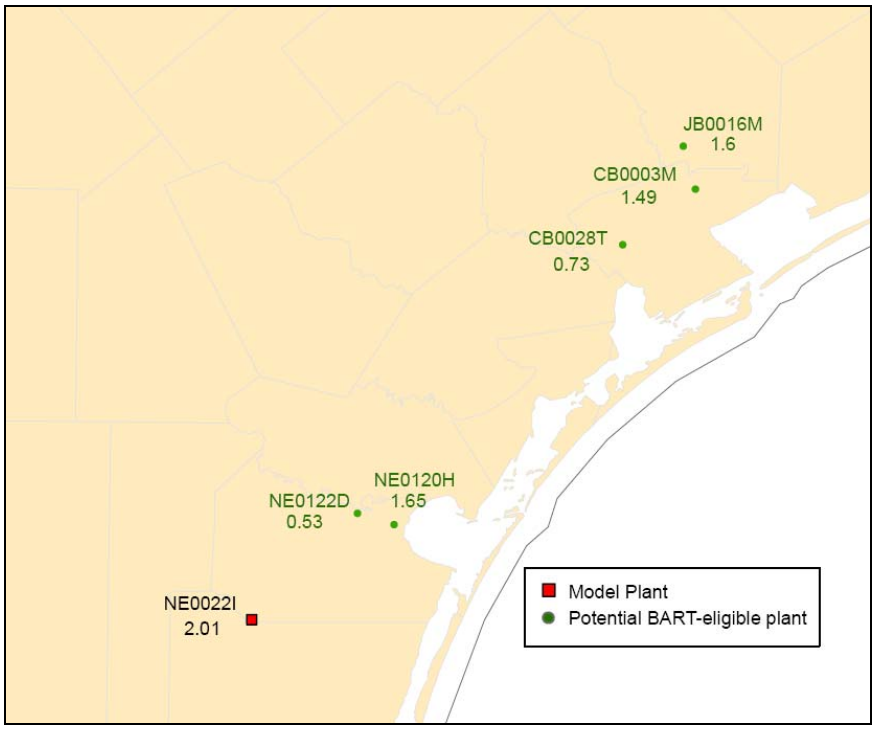

Figure A-1 Potential BART-eligible non-EGU sources nearest to BIBE that passed the TMP analysis; numbers shown are Q/D of the sources (only model plants associated with BIBE are labeled).

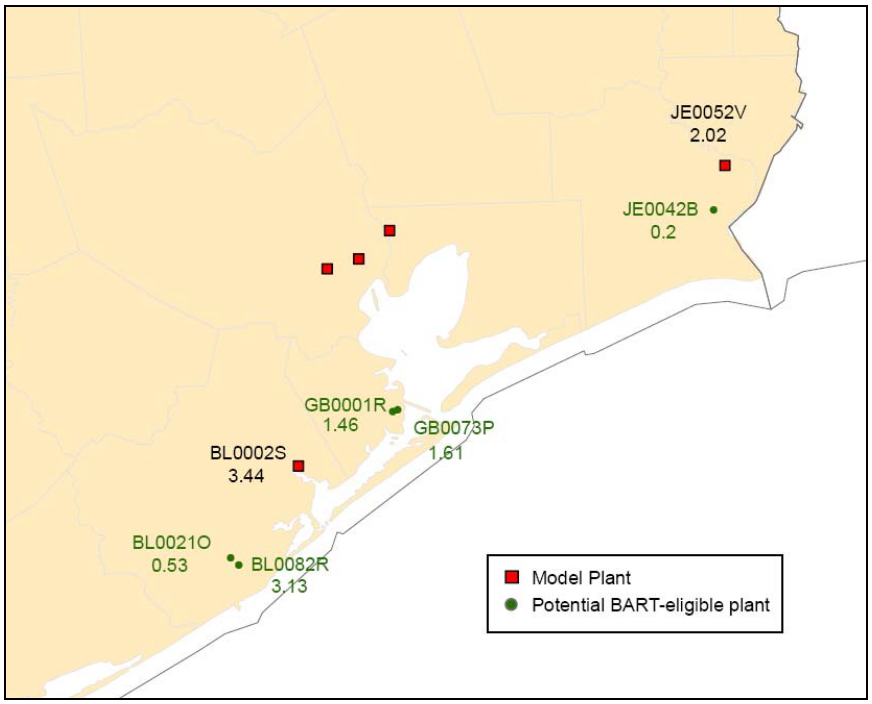

Figure A-2 Potential BART-eligible non-EGU sources nearest to BRET that passed the TMP analysis; numbers shown are Q/D of the sources (only model plants associated with BRET are labeled).

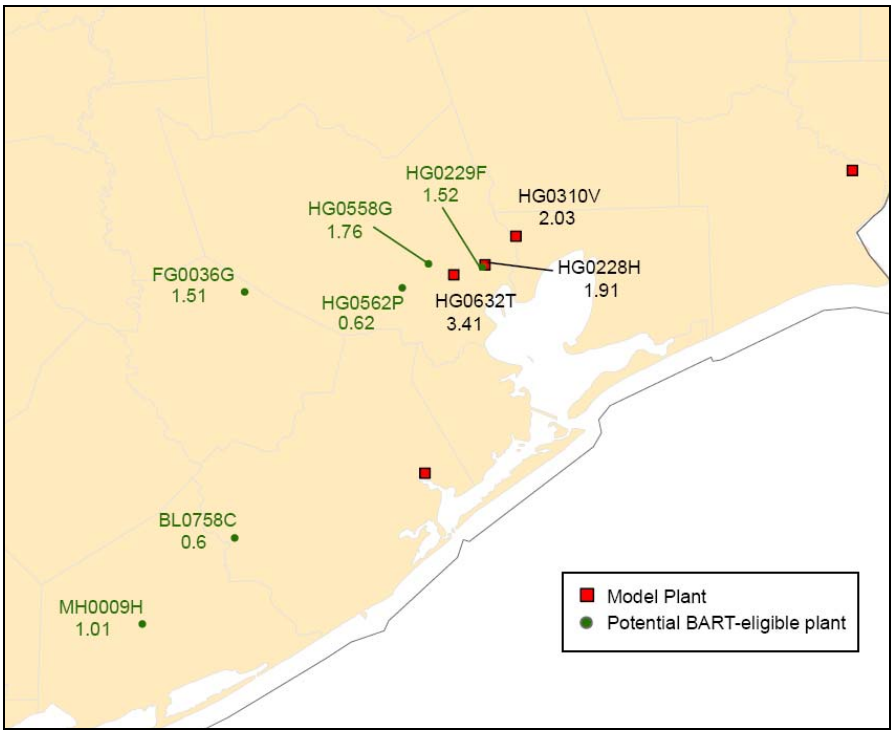

Figure A-3 Potential BART-eligible non-EGU sources nearest to CACR that passed the TMP analysis; numbers shown are Q/D of the sources (only model plants associated with CACR are labeled).

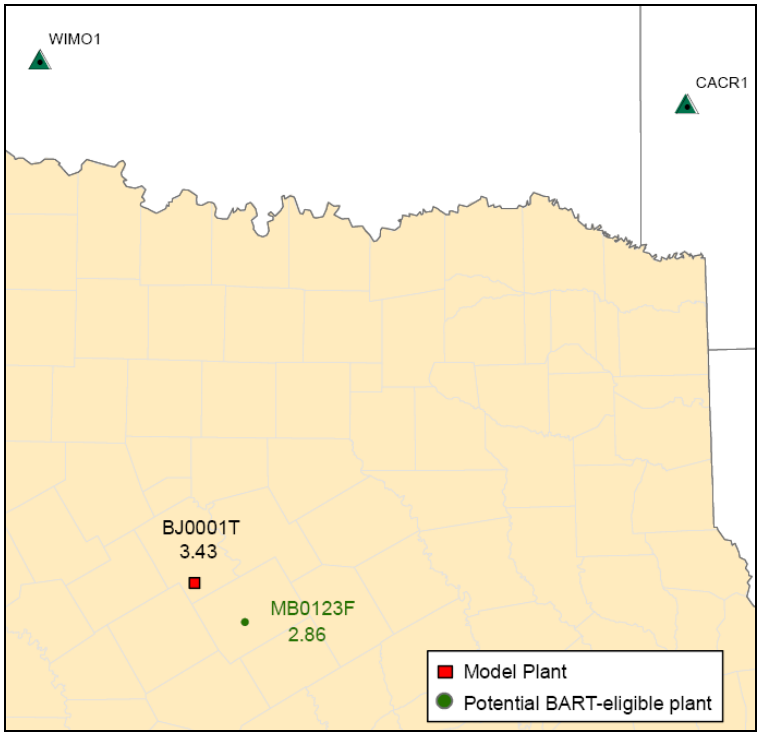

Figure A-4 Potential BART-eligible non-EGU sources nearest to WIMO that passed the TMP analysis; numbers shown are Q/D of the sources (only model plants associated with WIMO are labeled).

A PM Screening Reanalysis of Account BG0057U

Account BG0057U, City Public Service (Sommer Deely Spruce Power Plant), noticed that the diameters of the stacks for two facilities, plant ID 2 boiler-unit 1 and plant ID 4 boiler-unit 2, used in the PM source group modeling analysis were not correct. The diameters used in the previous modeling analysis were 1 foot whereas the corrected diameters are 26 feet. Using the incorrect stack diameter could lead to miscalculated plume rise and thus vertically misplaced the emissions. Therefore, an additional PM emissions zero-out modeling analysis of this source was rerun with the corrected stack parameters.

Figure A-5 displays the visibility impacts due to the PM emissions from account BG0057U using the corrected stack diameters. The visibility impacts from this source are less than 0.5 del-dv at all Class I areas, and it can therefore be considered exempt from BART.

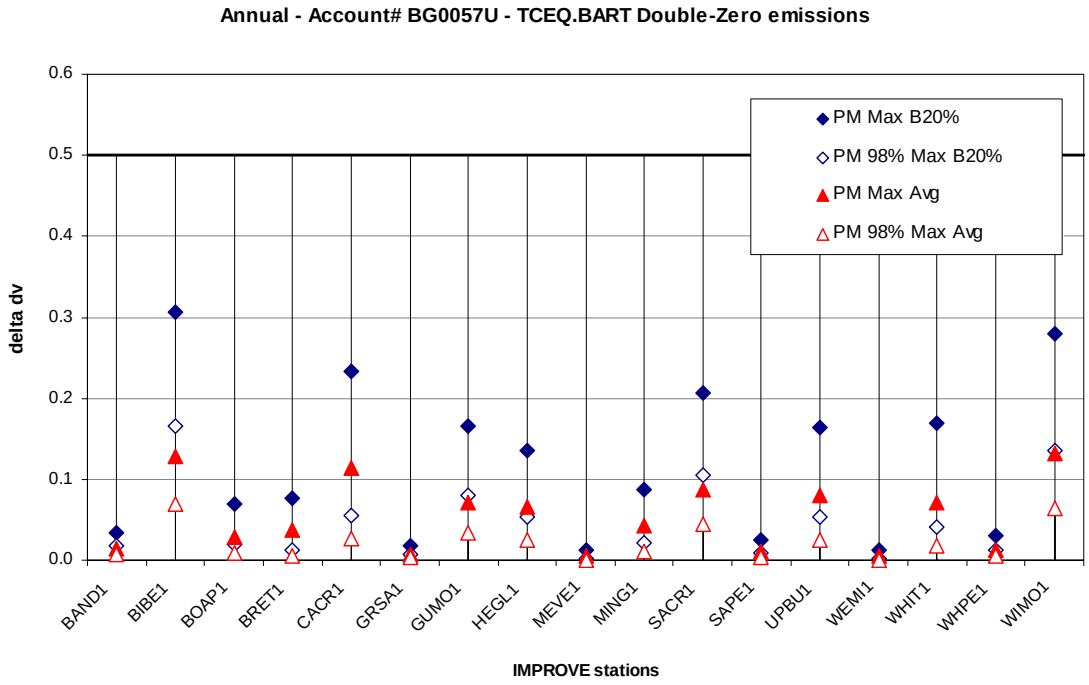

Figure A-5. Visibility impacts (del-dv) at Class I areas from account BG0057U.

Table A-3 lists the potential BART-eligible EGU and non-EGU sources that did not pass the PM emissions exemption analysis described in chapter 3 of the report. Table A-4 summarizes the potential BART-eligible non-EGU sources that did not pass the SO_2 and NO_x emissions exemption analyses using both the PSAT and model plant approach. In both tables, the Class I areas that each source failed are shown. Sources will have to conduct further analysis including the listed Class I areas.

Table A-3. List of potential BART-eligible EGU and non-EGU sources that failed the PM emissions exemption CAMx screening analysis.

Account	Company	Site	PM_{10} (tpy)	EGU/NON-EGU	Failed at Class I Areas
CG0010G	INTERNATIONAL PAPER CO		578	Non-EGU	CACR
TF0012D	SOUTHWESTERN ELECTRIC POWER	WELSH POWER PLANT	1755	EGU	CACR
TF0013B	TXU GENERATION COMPANY LP	MONTICELLO STM ELE	3297	EGU	CACR

Table A-4. List of potential BART-eligible non-EGU sources included in round 1 and round 2 PSAT groupings whose SO_2 and NO_x emissions did not pass the "PSAT" nor the "TMP" analysis.

Account	Company	Site	NO_x (tpy)	SO_2 (tpy)	Failed at Class I Areas
AB0012W	DUKE ENERGY FIELD SERVICES	FULLERTON GAS PLANT	1256	2374	BAND, BIBE, BOAP, BRET, CACR, GRSA, GUMO, HEGL, MING, SACR, UPBU, WHIT, WHPE, WIMO
AC0017B	ABITIBI CONSOLIDATED CORP		28	0.3	CACR, HEGL, MING, UPBU, WIMO
AG0024G	PUEBLO MIDSTREAM GAS CORP	FASHING PLANT	20	1005	CACR, HEGL, MING, UPBU, WIMO
BG0045E	CAPITOL CEMENT DIV CAPITOL	PORTLAND CEMENT	718	850	CACR, HEGL, MING, UPBU, WIMO
CA0011B	J.L. DAVIS GAS PROCESSING	LULING GAS PLANT	90	1021	CACR, HEGL, MING, UPBU, WIMO
CG0010G	INTERNATIONAL PAPER CO		1619	374	BAND, BIBE, BOAP, BRET, CACR, GRSA, GUMO, HEGL, MING, SACR, UPBU, WHIT, WHPE, WIMO
CG0012C	ENBRIDGE PIPELINES	BRYANS MILL PLANT	84	0.3	CACR, HEGL, MING, UPBU, WIMO
CY0019H	DYNEGY MIDSTREAM SERVICES	WADDELL COMPRESSOR	537	0.7	BIBE, CACR, HEGL, MING, UPBU, WIMO
ED0034O	NORTH TEXAS CEMENT COMPANY	NORTH TEXAS CEMENT	2572	4434	BAND, BIBE, BOAP, BRET, CACR, GRSA, GUMO, HEGL, MING, SACR, UPBU, WHIT, WHPE, WIMO
ED0051O	OWENS CORNING		329	26	CACR, HEGL, MING, UPBU, WIMO
ED0066B	TXI OPERATIONS, L.P.	MIDLOTHIAN PLANT	1388	893	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WIMO
GB0004L	BP PRODUCTS NORTH AMERICA IN TEXAS	TEXAS CITY REFINERY	6320	4084	BAND, BIBE, BOAP, BRET, CACR, GRSA, GUMO, HEGL, MING, SACR, UPBU, WHIT, WHPE, WIMO
GB0055R	MARATHON ASHLAND PETROLEUM	TEXAS CITY REFINERY	1134	2329	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WIMO
GH0003Q	CABOT CORPORATION	PAMPA PLANT	1335	342	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WIMO
GH0004O	CELANESE CHEMICAL	CHEMICAL MANUFACTUR	2609	4015	BAND, BIBE, BOAP, BRET, CACR, GRSA, GUMO, HEGL, MING, SACR, UPBU, WHIT, WHPE, WIMO
HD0029C	A.N.R. PIPELINE COMPANY	E.G. HILL COMPRESSO	4028	0.4	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WHIT, WIMO
HG0048L	LYONDELL CITGO REFINING L P	LYONDELL-CITGO REFI	2288	789	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WIMO
HG0126Q	HOECHST CELANESE CHEMICAL	CLEAR LAKE PLANT	946	1202	BIBE, CACR, HEGL, MING, UPBU, WIMO
HG0130C	VALERO REFINING TEXAS LP	HOUSTON REFINERY	461	2243	BIBE, CACR, HEGL, MING, UPBU, WIMO
HG0175D	CROWN CENTRAL PETROLEUM	PASADENA PLANT	566	1291	BIBE, CACR, HEGL, MING, UPBU, WIMO
HG0232Q	EXXONMOBIL CORP	EXXONMOBIL REF & SU	4372	1301	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WHIT, WIMO
HG0659W	SHELL OIL CO	DEER PARK PLANT	5811	6968	BAND, BIBE, BOAP, BRET, CACR, GRSA, GUMO, HEGL, MING, SACR, UPBU, WHIT, WHPE, WIMO
HG0697O	RHODIA, INC.	HOUSTON PLANT	6.8	5099	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WIMO
HH0019H	NORIT AMERICAS INC	NORIT AMERICAS INC	489	784	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WIMO
HH0042M	EASTMAN CHEMICAL COMPANY	TEXAS OPERATIONS	2612	105	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WHIT, WIMO
HK0014M	TEXAS LEHIGH CEMENT CO	TEXAS LEHIGH CEMENT	1156	805	BIBE, CACR, HEGL, MING, UPBU, WIMO

Account	Company	Site	NO_x (tpy)	SO_2 (tpy)	Failed at Class I Areas
HR0018T	VALENCE MIDSTREAM LTD	COMO PLT	247	2743	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WHIT, WIMO
HT0011Q	ALON USA LP	BIG SPRING REFINERY	344	3311	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WHIT, WIMO
HT0027B	SID RICHARDSON CARBON CO	BIG SPRING CARBON B	185	3149	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WHIT, WIMO
HW0008S	DEGUSSA ENGINEERED CARBONS BORGER	BORGER CARBON BLACK	445	3604	BAND, BIBE, BOAP, BRET, CACR, GRSA, GUMO, HEGL, MING, SACR, UPBU, WHIT, WHPE, WIMO
HW0017R	SID RICHARDSON CARBON	BORGER CARBON BLACK	638	3535	BAND, BIBE, BOAP, BRET, CACR, GRSA, GUMO, HEGL, MING, SACR, UPBU, WHIT, WHPE, WIMO
HW0018P	PHILLIPS 66 CO	BORGER REFINERY	590	59	CACR, HEGL, MING, UPBU, WIMO
JC0003K	WESTVACO		1489	72	CACR, HEGL, MING, UPBU, WIMO
JE0005H	ATOFINA PETROCHEMICALS INC	PORT ARTHUR REFINER	796	1007	BIBE, CACR, HEGL, MING, UPBU, WIMO
JE0039N	THE GOODYEAR TIRE AND RUBBER CO		1137	3.8	CACR, HEGL, MING, UPBU, WIMO
JE0067I	EXXONMOBIL OIL CORP	BEAUMONT REFINERY	3871	9747	BAND, BIBE, BOAP, BRET, CACR, GRSA, GUMO, HEGL, MING, SACR, UPBU, WHIT, WHPE, WIMO
JE0343H	BMC HOLDINGS INC	BMC HOLDINGS INC	1192	4.3	BIBE, CACR, HEGL, MING, UPBU, WIMO
JH0025O	JOHNS MANVILLE INTERNATIONALJOHNS MANVILLE		97	19	CACR, HEGL, MING, UPBU, WIMO
MC0002H	ENBRIDGE PIPELINE	TILDEN GAS PLANT	1.9	2276	BIBE, CACR, HEGL, MING, UPBU, WIMO
MM0001T	ALCOA INC	ALCOA SANDOW PLANT	36	1458	BIBE, CACR, HEGL, MING, UPBU, WIMO
MR0008T	DIAMOND SHAMROCK REFINING	MCKEE PLANTS	1549	2245	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WHIT, WIMO
NB0037F	TXI OPERATIONS, L.P.	STREETMAN PLANT	691	3468	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WHIT, WIMO
NE0027V	CITGO REFINING & CHEMICALS	CORPUS CHRISTI REFI	1201	5103	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WHIT, WIMO
NE0043A	VALERO REFINING COMPANY	COMPLEX 6B 7 8	1318	3233	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WIMO
OC0007J	EI DUPONT DENEMOURS & CO	SABINE RIVER WORKS	3125	7.3	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WIMO
PE0024Q	DUKE ENERGY FIELD SERVICES	WAHA GAS PLANT	131	1571	BIBE, CACR, GUMO, HEGL, MING, SACR, UPBU, WIMO
VC0008Q	EI DU PONT DE NEMOURS & CO	EI DU PONT DE NEMOU	2723	18	BIBE, CACR, HEGL, MING, UPBU, WIMO
WH0014S	WICHITA FALLS PLANT		107	28	CACR, HEGL, MING, UPBU, WIMO