

**Appendix 9-3: Texas Survey for BART-Eligibility**

This appendix includes the letter sent to companies requesting information for the Texas Survey for BART-Eligibility pertaining to potential to emit and construction dates of equipment at the site, a site level survey, and instructions for completing the detail survey. The detailed survey was a customized excel spreadsheet listing all the operating and idle equipment for each site. The instructions provide a sample of this detail.

Date

Name  
Address  
City, State Zip

Re: Request for Information Relating to Determination of Potential Best Available Retrofit Technology (BART) Eligible Sources for Air Account Number

Dear :

The Texas Commission on Environmental Quality (TCEQ) is requesting your assistance in providing information that will support the development of the State's Regional Haze State Implementation Plan. Specifically, we are requesting assistance in identifying eligible sources per Part 51 of Chapter I of Title 40 of the Code of Federal Regulations (40 CFR 51.308) regarding Best Available Retrofit Technology (BART). The BART provision in the Clean Air Act 169A(b)(2)(A) defines potentially BART eligible sources as major stationary sources, including reconstructed sources, from one of 26 identified categories that have the potential to emit 250 tons per year or more of any air pollutant and that were placed into operation between August 7, 1962 and August 7, 1977. More information, including the Regional Haze Rule, can be reviewed at the EPA's webpage at <http://www.epa.gov/visibility/actions.html#1999rule>.

The site referenced above has preliminarily been identified by the TCEQ as a potentially BART eligible source. To ensure a complete and thorough evaluation process, the TCEQ is requesting that you complete the enclosed survey of your units. Data requested includes the potential emissions from the site and from units that meet the operational dates of this program. If screening does not eliminate the referenced site from BART eligibility, you may be required to perform a BART engineering analysis, which may include modeling. If modeling is required, a maximum 24-hour emission rates for the visibility impairing pollutants for 2001, 2002, and 2003 must be used. At this time, the 24-hour emission rates are not being requested. However TCEQ advises BART-eligible sources to begin gathering or developing this information for use in future modeling requirements.

This request is made pursuant to the authority provided under Section 382.014 of the Texas Clean Air Act related to Emissions Inventory and 30 Texas Administrative Code, §101.10(b)(3) Special Inventories. Completed survey information is to be submitted as soon as possible but no later than 30 days from the date of this letter. Please address any questions about this survey to Kathy Pendleton at (512) 239-1936 or by email at [kpendlet@tceq.state.tx.us](mailto:kpendlet@tceq.state.tx.us). Information regarding this survey can also be found at <http://www.tnrcc.state.tx.us/air/aqp/psei.html>.

Your cooperation and assistance with this effort is appreciated.

Sincerely,

Kevin Cauble, Manager  
Industrial Emissions Assessment Section

**BART-Eligible Survey**

**Site Level Questions**

SIC: \_\_\_\_\_

Acct No: \_\_\_\_\_

**Determining the appropriate response:**

**1. Were all emission units at the site in operation before August 7, 1962 or constructed after August 7, 1977?**

Yes - If all of your equipment was constructed or reconstructed *after* August 7, 1977 or in operation *prior* to August 7, 1962, mark the "Yes" box. Note: Sources are not BART-eligible if the only change at the plant during the relevant time period between August 7, 1962 and Aug 7, 1977 was the addition of pollution controls.

No - If any of your equipment at this site was reconstructed or placed in existence between August 7, 1962 and August 7, 1977, mark the box for "No."

**2. Is the Potential to Emit (PTE) for this site <250 tpy of any pollutant either through design, permit or combination thereof?**

**If you marked a "Yes" for either question 1 or 2, then your site is not BART eligible based on a site level analysis. Sign and return the form. STOP**

If you marked "No" for **both** questions, then you will **need to address the actual units** on your site. Continue to Question 3 and complete the detailed survey on diskette.

Please see detailed instructions when completing the survey on the enclosed excel disk. Return completed disk with this form.

**3. Sum the Equipment PTE for each pollutant for all eligible units. Does the sum exceed 250 tpy?** Your site could be BART eligible if the sum of the potential to emit (PTE) from the equipment that was constructed or reconstructed *before* August 7, 1977 and was in operation *after* August 7, 1962 is more than 250 tpy of NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub> or VOC. Mark "Yes" if the PTE of your equipment exceeds 250 TPY of any one of these pollutants.

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**Site Level Questions**

**1. All equipment at this site was constructed before August 7, 1962 or after August 7, 1977**

Yes    No

**2. The "Potential to Emit" of all pollutants at this site is limited to less than 250 tpy**

Yes    No

**3. Sum of Equipment PTE Exceeds 250 tpy for NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub> or VOC?**

Yes    No

\_\_\_\_\_  
Contact Name (print)

\_\_\_\_\_  
Contact Name (signature)

\_\_\_\_\_  
Contact phone

\_\_\_\_\_  
If you prefer a printed copy of the detailed survey, please contact Kathy Pendleton at 512-239-1936 or by email at kpendlet@tceq.state.tx.us.

**Return Form and Disk to:**

**Kathy Pendleton  
TCEQ, IEAS MC-164  
P.O. Box 13087  
Austin TX 78711-3087**

**BART Categories**

- (1) Fossil-fuel fired steam electric plants of more than 250 million BTU per hour heat input
- (2) Coal Cleaning plants (thermal dryers)
- (3) Kraft pulp mills
- (4) Portland cement plants
- (5) Primary zinc smelters
- (6) Iron and steel mill plants,
- (7) Primary aluminum ore reduction plants
- (8) Primary copper smelters
- (9) Municipal incinerators capable of charging more than 250 tons of refuse per day
- (10) Hydrofluoric, sulfuric, and nitric acid plants
- (11) Petroleum refineries
- (12) Lime plants
- (13) Phosphate rock processing plants
- (14) Coke oven batteries
- (15) Sulfur recovery plants
- (16) Carbon black plants (furnace process)
- (17) Primary lead smelters
- (18) Fuel conversion plants
- (19) Sintering plants
- (20) Secondary metal production facilities
- (21) Chemical process plants
- (22) Fossil-fuel boilers of more than 250 million BTU/hr input
- (23) Petroleum storage & transfer facilities with capacity exceeding 300,000 barrels, including gasoline
- (24) Taconite ore processing facilities
- (25) Glass fiber processing plants
- (26) Charcoal production facilities

For a more detailed discussion of the BART eligible category list and determination of BART eligibility, see EPA's rule 40 CFR Part 51.302, Appendix Y, II(A), page 39158, dated July 6, 2005, at: <http://www.epa.gov/visibility/actions.html#bart1>

## Detail Survey Instructions

## Instructions for Completion of the BART-eligible Survey

If you have not already completed the site level question, please look at the enclosed Site Level Questions form first. It is designed for quick return if you have no applicable equipment (equipment that came into operation between August 7, 1962 and August 7, 1977). If you have potentially applicable equipment, you must complete the detailed survey in the excel spreadsheet.

Data, where available, were loaded from the Industrial Emissions Database, State of Texas Air Reporting System (STARS). As equipment date of construction or operation is not available in the database and you indicated that some of your equipment may be BART eligible, we are requesting your help further refining the BART-eligible list by supplying construction or operation time-frame for your equipment.

Enclosed is an Excel spreadsheet. If you prefer a printed version or have questions regarding this form, please contact the Kathy Pendleton at 512-239-1936 or by email at [kpendlet@tceq.state.tx.us](mailto:kpendlet@tceq.state.tx.us). The spreadsheet is a list with the active and idle Facilities (FINS) with their EPNs listed. Where abatement devices exist, these are also listed.

The naming convention for units on your last updated emissions inventory was used to pre-load the form. All active and idle units (FINS) are pre-loaded into the form. Do **not** change their names on this form. If you desire renames on any FIN, EPN or CIN, please contact the EI section at 512-239-1773 for help.

### **Please send the completed form to:**

**Kathy Pendleton  
TCEQ, IEAS MC-164  
P.O. Box 13087  
Austin TX 78711-3087**

### **Completing the Detailed Survey:**

You will need to complete the detailed survey if you have equipment that was in operation or reconstructed between Aug 7, 1962 and August 7, 1977.

If you are looking at the Excel Spreadsheet, the following fields will be on your file:

RN	Build 62-77?
Account	Reconstruct 62-77?
Company Name	Permit No:
SIC	CIN
FIN	Abate Code
EPN	Abate Name
	CIN Install Date

On the printed version, several of these fields might be eliminated to allow room for the critical fields to be printed. These are RN, SIC, and Company Name. They were identifying fields and not needed for this survey.

**RN-** If shown on your page, it is the registry number for your site. **Do not modify.**

**Company Name** - don't modify on this form. Please call if it is not correct. See contact information below.

**Acct No-** This is the air account number identifying your site. **Do not modify.**

**SIC** - Standard identification code. **Do not modify.**

**FIN** - facility identification name listed in the Emissions Inventory (EI) database per the latest emissions inventory entered into the STARS. This may show up more than once in the list if there is more than one EPN and/or CIN associated with a FIN. **Do not modify.**

**EPN** - emission point name listed in the EI database per the latest emissions inventory entered into the STARS. **Do not modify.**

**Build 62-77?** - If the facility were in existence or operation between August 7, 1962 and August 7, 1977, then enter "Yes." If it were not, then enter "No." A date is not required to be entered.

The regional haze rule defines "in existence" to mean that: "the owner or operator has obtained all necessary preconstruction approvals or permit required by Federal, State or local air pollution emissions and air quality laws or regulations and either has (1) begun, or caused to begin, a continuous program of physical on-site construction of the facility or (2) entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of construction of the facility to be completed in a reasonable time.". The term "in operation" means engaged in activity related to the primary design function of the source. Sources in operation before August 7, 1962 are not BART eligible and a "No" should be entered.

Note: Sources are not BART-eligible if the only change at the plant during the relevant time period was the addition of pollution controls.

**Reconstruct 62-77?** - a reconstructed source is an existing source which is completely or substantially rebuilt. Under the haze regulations, reconstruction has taken place if the "fixed capital cost of a new component exceeds 50% of the fixed capital cost of a comparable entire new source." Enter a "Yes" if equipment were reconstructed during this time period. Enter "No" if it was not.

**Permit Number** - For units where you have indicated a "yes" for built or reconstructed between August 7, 1962 and August 7, 1977, enter the permit number if the unit has a permit. Permit information are not needed for equipment in built outside the BART applicable time-frame.

**CIN** - name of the control device listed in the EI database. Do not modify name if prefilled. We want updates on control devices missing on units that might be BART eligible. Please, add any missing devices. If the CIN is missing on a unit marked with a "yes" for built or reconstructed between August 7, 1962 and August 7, 1977, please add it to the list. If you are in the process of adding a device to a unit marked as a "yes" for built or reconstructed between August 7, 1962 and August 7, 1977 and it is not yet showing in the inventory, please add it and the approximate expected completion year.

**Abate Code** - This is the database code as it exists in our database. If you are adding a CIN to your list, please refer to the attached list (Table 1) for the proper code and add the appropriate code

**Abate Name** - this is the long description of the device as listed in the Abate Code list. Please list the type of abatement device.

**CIN Install Date** - If you added a CIN to your list or are in the process of adding one to your site, please put the actual or anticipated construction date. Please make the date as specific as you can.

Please address questions to Kathy Pendleton at 512-239-1936 or email at [kpendlet@tceq.state.tx.us](mailto:kpendlet@tceq.state.tx.us)

**Example Completed Data Form:**

Data completed for an example company is shown on Figure 1. This table is a portrayal of the data elements in the Excel spreadsheet. For this site, some equipment were built or reconstructed during the applicable time period and the site has a PTE greater than 250 tpy for one pollutant. Therefore, both Site Level Questions were checked “No.” It was necessary to continue the detailed survey and address each unit. A “Yes” or “No” is required, as appropriate, for the constructed and reconstructed columns for all equipment at the site. Information regarding abatements and permit numbers are also requested for equipment that might be BART eligible.

Example:

Unit FIN: 1 was constructed in 1972 so the Constructed column was marked “yes.” It does not have a permit so no permit number was listed. Although a permit existed on FIN: 2, it was not listed (or required) because the unit was outside the BART applicable time-line. Both columns were marked “no” by the site. Unit FIN:6 was built in 1986 so site marked both columns “no.” Unit FIN:7 underwent a major reconstruction in 1972. As part of this reconstruction, a CIN, Baghouse7, was added. It was also missing in the database and therefore not listed on the form. Information on the control device and the applicable permit number were added by the company staff completing the survey. Unit 9 was also built in 1972 so a “Yes” is marked for the construction column.

Update only these indicated columns:



RN	Acct No.	FIN	EPN	Constructed 8/62 - 8/77?	Reconstruct 8/62-8/77?	Permit No	CIN	ABATE Code	CIN Name	CIN install Date
RN123456789	AB1234C	1	1	<i>yes</i>	<i>no</i>					
RN123456789	AB1234C	2	2	<i>no</i>	<i>no</i>		BG1	120	FILTER	
RN123456789	AB1234C	6	6	<i>no</i>	<i>no</i>		SP	907	WET SPRY	
RN123456789	AB1234C	7	8	<i>no</i>	<i>yes</i>	<i>98754</i>	<i>B-7</i>	<i>120</i>	<i>baghouse7</i>	<i>11/1972</i>
RN123456789	AB1234C	9	9	<i>yes</i>	<i>no</i>	<i>98754</i>				

Note: italicized font indicates where data were completed by site

Figure 1. Example of a Completed Detailed Survey.

Table 1. Abatement Codes, Sorted By Code

Code	Abatement Name		
		115	INERTL COLLECT-DRY,MOMENTUM,IMPINGMNT COLLEC
		120	INERTL COLLECTOR-DRY,CENTRIFUGAL-SINGLE CYCL
2	WET SCRUBBER - MEDIUM EFFICIENCY	121	SINGLE CYCLONE-DRY,STRAIGHT-FIXED IMP
3	WET SCRUBBER - LOW EFFICIENCY	122	SINGLE CYCLONE-DRY,STRAIGHT-MOVG IMP
4	GRAVITY COLLECTOR - HIGH EFFICIENCY	123	SINGLE CYCLONE-DRY,REV FLO-LOW EFFCY
5	GRAVITY COLLECTOR - MEDIUM EFFICIENCY	124	SINGLE CYCLONE-DRY,REV FLO-HGH EFFCY
6	GRAVITY COLLECTOR - LOW EFFICIENCY	130	INERTL COLLECTOR-DRY,CENTRIFUGAL-MULTIPLE CY
7	CENTRIFUGAL COLLECTOR - HIGH EFFICIENCY	131	MULTI CYCLONE-DRY,STRAIGHT-FXD IMP
8	CENTRIFUGAL COLLECTOR - MEDIUM EFFICIENCY	132	MULTI CYCLONE-DRY,STRAIGHT-MOVG IMP
9	CENTRIFUGAL COLLECTOR - LOW EFFICIENCY	133	MULTI CYCLONE-DRY,REV FLO-(<9 IN.)
10	ELECTROSTATIC PRECIPITATOR - HIGH EFFICIENCY	134	MULTI CYCLONE-DRY,REV FLO-(>9 IN.)
11	ELECTROSTATIC PRECIPITATOR -MEDIUM EFFICIENCY	140	INERTL COLLECT-DRY,CNTFGL-FIXD SCROLL
12	ELECTROSTATIC PRECIPITATOR - LOW EFFICIENCY	150	INERTL COLLECT-DRY,CNTFGL-DYN COLLECT
14	MIST ELIMINATOR - HIGH VELOCITY	200	INERTIAL COLLECTORS-WET,GRAVITY
15	MIST ELIMINATOR - LOW VELOCITY	201	INERTL COLLECT-WET GRAVITY,BALLOON DUCT
16	FABRIC FILTER - HIGH TEMPERATURE	202	INERTL COLLECT-WET,GRAVITY,SETTLING CHAMBER
17	FABRIC FILTER-MEDIUM TEMPERATURE	203	INERTL COLLECT-WET,GRAVITY,MULTI-TRAY(HOWRD)
18	FABRIC FILTER - LOW TEMPERATURE	204	INERTL COLLECT-WET,GRAVITY,GRIT ARRESTOR
21	DIRECT FLAME AFTERBURNER	210	INERTIAL COLLECTORS-WET, MOMENTUM
23	FLARE, FLARING	211	INERTL COLLECT-WET,MOMENTUM,BAFFLE CHAMBER
24	MODIFIED FURNACE OR BURNER DESIGN	212	INERTL COLLECT-WET,MOMENTUM,VERTURI BAF CHAM
25	STAGED COMBUSTION	213	INERTL COLLECT-WET,MOMENTUM,LOUVR-TYP COLLEC
26	FLUE GAS RECIRCULATION	214	INERTL COLLECT-WET,MOMENTUM,SHUTR-TYP COLLEC
28	STEAM OR WATER INJECTION	215	INERTL COLLECT-WET,MOMENTUM,IMPINGMNT COLLEC
29	LOW-EXCESS - AIR FIRING	220	INERTIAL COLLECTOR-WET,CNTFGL-SINGLE CYCLONE
30	USE OF FUEL WITH LOW NITROGEN CONTENT	221	SINGLE CYCLONE-WET,STRAIGHT-FIXD IMP
35	MAGNESIUM OXIDE SCRUBBING	222	SINGLE CYCLONE-WET,STRAIGHT-MOVG IMP
36	DUAL ALKALI SCRUBBING	223	SINGLE CYCLONE-WET,REV FLO-LOW EFFCY
39	CATALYTIC OXIDATION-FLUE GAS DESULF	224	INERTL COLLECT-WET,REV FLO-HGH EFFCY
40	ALKALIZED ALUMINA	230	INERTL COLLECTOR-WET,CNTFGL-MULTIPLE CYCLONE
43	SULFURIC ACID PLANT - CONTACT PROCESS	231	MULTI CYCLONE-WET,STRAIGHT-FIXD IMP
45	SULFUR PLANT	232	MULTI CYCLONE-WET,STRAIGHT-MOVG IMP
46	PROCESS CHANGE	233	MULTI CYCLONE-WET,REV FLOW-(<9IN.)
47	VAPOR RECOVERY SYSTEM	234	MULTI CYCLONE-WET,REV FLOW-(>9IN.)
48	ACTIVATED CARBON ADSORPTION	240	INERTL COLLECT-WET,CNTFGL-FIXED,SCROLL
49	LIQUID FILTRATION SYSTEM	250	INERTL COLLECT-WET,CNTFGL-DYNAMIC COLLECTOR
51	TRAY-TYPE GAS ADSORPTION COLUMN	251	INERTL COLLECT-WET,CNTFGL-DYN COL,ROTOCLONE
52	SPRAY TOWER	260	SCRUBBERS - HI ENERGY VENTURIE CYCLONE
53	VENTURI SCRUBBER	261	SCRUBBER-HGH ENERGY VENTURI,LOW EFFCY-(<15IN
54	PROCESS ENCLOSED	262	SCRUBBER-HGH ENERGY VENTURI,MED EFFCY(15-30I
60	PROCESS GAS RECOVERY	263	SCRUBBER-HGH ENERGY VENTURI,HIGH EFFCY(>30IN
66	MOLECULAR SIEVE	270	SCRUBBERS - MISC. TYPES
67	WET LIME SLURRY SCRUBBING	271	SCRUBBERS,JET EJECTOR TYP
68	ALKALINE FLY ASH SCRUBBING	272	SCRUBBERS,SELF-INDUCED SPRAY
69	SODIUM CARBONATE SCRUBBING	273	SCRUBBERS,DISINTEGRATOR
70	SODIUM-ALKALI SCRUBBING	274	SCRUBBERS,STEAM HYDRO
98	MOVING BED DRY SCRUBBER	275	SCRUBBERS,HOT WATER HYDRO
100	INERTL COLLECTOR-DRY, GRAVITY	276	SCRUBBERS,PAINT BOOTH(WATER CURTAIN)
101	INERTL COLLECT-DRY,GRAVITY,BALLOON DUCT	300	FILTERS-FABRIC (BAGHOUSE)
102	INERTL COLLECT-DRY,GRAVITY,SETTLING CHAMBER	301	FILTERS-FABRIC(BAGHOUSE),MECHANICAL SHAKING
103	INERTL COLLECT-DRY,GRAVITY,MULTI-TRAY(HOWRD)	302	FILTERS-FABRIC(BAGHOUSE),AUX AIR SHAKING
104	INERTL COLLECT-DRY,GRAVITY,GRIT ARRESTOR	303	FILTERS-FABRIC(BAGHOUSE),SONIC CLEANING
105	INERTL COLLECT-DRY,GRAVITY,**NOT ASSIGNED**	304	FILTERS-FABRIC(BAGHOUSE),PULSE JET(VENTURI)
106	INERTL COLLECT-DRY,GRAVITY, **NOT ASSIGNED**	305	FILTERS-FABRIC(BAGHOUSE),PRESSURE JET(BUBBLE
110	INERTIAL COLLECTORS-DRY, MOMENTUM	306	FILTERS-FABRIC(BAGHOUSE),REVERSE JET(RING)
111	INERTL COLLECT-DRY,MOMENTUM,BAFFLE CHAMBER	307	FILTERS-FABRIC(BAGHOUSE),REVERSE AIR FLOW
112	INERTL COLLECT-DRY,MOMENTUM,VERTURI BAF CHAM	310	FILTERS-FIXED PANEL
113	INERTL COLLECT-DRY,MOMENTUM,LOUVR-TYP COLLEC	311	FILTER-FIXD PANEL,FIBROUS MAT AND PAINT BOOT
114	INERTL COLLECT-DRY,MOMENTUM,SHUTR-TYPE COLLE	312	FILTERS-FIXD PANEL,METAL MESH MAT

313	FILTERS-FIXD PANEL,PAPER MAT	550	INCIN - PATHOLOGICAL WASTE
314	FILTERS-FIXD PANEL,AGGREGATE BED(SAND,ETC)	551	INCIN-PATHOLOGICAL WASTE,SINGLE CHAMBER
315	FILTERS-FIXD PANEL,FLUIDIZED BED	552	INCIN-PATHOLOGICAL WASTE,MULTI-CHAMBER(CONV)
316	FILTERS-FIXD PANEL,SINTERED METAL FILTER	553	INCIN-PATH WASTE,MULTI-CHAMBER(CONT AIR)
320	FILTERS - ROLL TYPE	560	INCIN-SCRAP METAL
321	FILTERS-ROLL TYPE,THROW-AWAY FIBROUS MAT	561	INCIN-SCRAP METAL (FURNACES),SINGLE CHAMBER
322	FILTERS-ROLL TYPE,SELF-CLEANING	562	INCIN-SCRAP METAL(FURNACES),MULTI-CHMR(CONV)
350	ELECTROSTATIC PRECIPITATION	563	INCIN-SCRAP METAL(FURNACES),MUL-CHMR(CONT AI
351	ESP,SINGLE STAGE,WIRE/PLATE-DRY	570	INCIN - WIRE (NON-PVC)
352	ESP,SINGLE STAGE,WIRE/PLATE-WET	571	INCIN-WIRE(NON-PVC)SINGLE CHAMBER
353	ESP,SINGLE STAGE,WIRE/TUBE-DRY	572	INCIN-WIRE(NON-PVC)MULTI-CHAMBER(CONV)
354	ESP,SINGLE STAGE,WIRE/TUBE-WET	573	INCIN-WIRE(NON-PVC)MULTI-CHAMBER(CONT AIR)
355	ESP,TWO STAGE(ELECTRONIC AIR CLEANER)	580	INCIN - WIRE (PVC)
400	ASORPTION TOWERS	581	INCIN-WIRE(PVC),SINGLE CHAMBER
401	ABSORPTION TOWERS,GRAVITY SPRAY TOWER	582	INCIN-WIRE(PVC),MULTI-CHAMBER(CONV)
402	ABSORPTION TOWERS,PLATE-BUBBLE CAP	583	INCIN-WIRE(PVC),MULTI-CHAMBER(CONT AIR)
403	ABSORPTION TOWERS,PLATE-PERFORATED(SIEVE)	590	INCIN - WOOD WASTE
404	ABSORPTION TOWERS,PLATE-PARALLEL BARS	591	INCIN-WOOD WASTE,SINGLE CHAMBER
405	ABSORPTION TOWERS,PLATE-FLOATING CAP	592	INCIN-WOOD WASTE,MULTI-CHAMBER(CONV)
406	ABSORPTION TOWERS,PACKED BED	593	INCIN-WOOD WASTE,MULTI-CHAMBER(CONT AIR)
410	VAPOR-CONDENSERS	594	INCIN-WOOD WASTE,TEEPEE
411	VAPOR CONDENSERS,SURFACE	595	INCIN-WOOD WASTE,TRENCH(AIR CURTAIN)
412	VAPOR CONDENSERS,CONTACT	600	SULFER DIOXIDE REMOVAL
450	ADSORPTION - FIXED BED	601	SO2 REMOVAL,CONTACT SULFURIC ACID PROCESS
451	ADSORPTION-FIXD BED,ACTIVATED CARBON	602	SO2 REMOVAL,COMINCO ABSORPTION PROCESS
452	ADSORPTION-FIXD BED,ALUMINA	603	SO2 REMOVAL,DMA ABSORPTION PROCESS
453	ADSORPTION-FIXD BED,BAUXITE	604	SO2 REMOVAL,WELLMAN-LORD PROCESS
454	ADSORPTION-FIXD BED,BONE CHAR	605	SO2 REMOVAL,LIMESTONE WET-SCRUBBING
455	ADSORPTION-FIXD BED,FULLER'S EARTH	606	SO2 REMOVAL,LIMESTONE DRY-SCRUBBING
456	ADSORPTION-FIXD BED,MAGNESIA	607	SO2 REMOVAL,ELEMENTAL SULFUR REDUCTION
457	ADSORPTION-FIXD BED,SILICA GEL	608	SO2 REMOVAL,CITRATE PROCESS(BUR MINES)
458	ADSORPTION-FIXD BED,STRONTIUM SULFATE	609	SO2 REMOVAL,CAT-OX(MONSANTO)
460	ADSORPTION - CONTINUOUS	610	SO2 REMOVAL,KIYOUURA-TIT(JAPAN)
461	ADSORPTION-CONTINUOUS,ACTIVATED CARBON	611	SO2 REMOVAL,AMMONIA/DOUBLE ALKALI
500	AFTERBURNERS	612	CO REMOVAL, CO BOILER
501	AFTERBURNERS,DIRECT FLAME	613	CO REMOVAL, CATALYTIC THERMAL REDUCTION
502	AFTERBURNERS,CATALYTIC	620	CHEMICAL OXIDATION
503	AFTERBURNER,BOILER OR HTR(W OR W/O HEAT RECO	621	CHEMICAL OXIDATION,PERMANGANATE
510	FLARES-WASTE GAS	622	CHEMICAL OXIDATION,CHLORINE
511	FLARES-WASTE GAS,ELEVATED-(>30FT.)	623	CHEMICAL OXIDATION,HYPOCHLORITE
512	FLARES-WASTE GAS,ELEVATED-(>30FT.)SMOKELESS	624	CHEMICAL OXIDATION,AIR OXIDATION
513	FLARES-WASTE GAS,GROUND-(<30FT.)	625	CHEMICAL OXIDATION,OXIDATION USING OXYGEN
514	FLARES-WASTE GAS,GROUND-(<30FT.)SMOKELESS	630	CHEMICAL ALTERATION
515	FLARES-WASTE GAS,BURNING PIT	631	CATALYTIC REDUCTION
520	INCINERATOR - WASTE GAS	640	HYDROGEN SULFIDE CONTROL
521	INCIN-WASTE GAS,SINGLE CHAMB-THERMAL OXIDIZE	641	HYDROGEN SULFIDE CONTROL,AQUEOUS AMINE PROCE
522	INCIN-WASTE GAS,MULTI-CHAMB(CONVENTIONAL)	642	HYDROGEN SULFIDE CONTROL,SEABOARD PROCESS
523	INCIN-WASTE GAS,MULTI-CHAMB(CONTROLLED AIR)	643	HYDROGEN SULFIDE CONTROL,POTASSIUM CARBONATE
530	INCIN - WASTE LIQUID	644	HYDROGEN SULFIDE CONTROL,IRON OXIDE
531	INCIN-WASTE LIQ,SINGLE CHAMB-THERMAL OXIDIZE	645	HYDROGEN SULFIDE CONTROL,CLAUS PROCESS
532	INCIN-WASTE LIQ,MULTI-CHAMB(CONVENTIONAL)	646	SELECTOR PROCESS
533	INCIN-WASTE LIQ,MULTI-CHAMB(CONTROLLED AIR)	650	SULFUR RECOVERY PLANT
540	INCIN - MUNICIPAL WASTE	651	SULFUR RECOVERY PLANT,CLAUS-1 CONVERTER
541	INCIN-MUNICIPAL WASTE,SINGLE CHAMBER	652	SULFUR RECOVERY PLANT,CLAUS-2 CONVERTER
542	INCIN-MUNICIPAL WASTE,MULTI-CHAMBER(CONV)	653	SULFUR RECOVERY PLANT,CLAUS-3 CONVERTER
543	INCIN-MUNICIPAL WASTE,MULTI-CHAMBER(CONT AIR	660	CLAUS TAIL GAS CLEANUP

661	CLAUS TAIL GAS CLEANUP,IFP
662	CLAUS TAIL GAS CLEANUP,SCOT
663	CLAUS TAIL GAS CLEANUP,STRETFORD
664	CLAUS TAIL GAS CLEANUP,CLEAN AIR
665	CLAUS TAIL GAS CLEANUP,SULFREEN
666	CLAUS TAIL GAS CLEANUP,WELLMAN-BEVON
667	CLAUS TAIL GAS CLEANUP,TAKAHAK
670	VAPOR RECOVERY
800	LEAK DETECTION AND REPAIR PROGRAM
900	MISC. METHODS OF CONTROL
901	MISC METHODS OF CONTROL,TALL STACK
902	MISC METHODS OF CONTROL,CLOSED LOOP(SCS)
903	MISC METHODS OF CONTROL,ODOR MASKING AGENT
904	MISC METHODS OF CONTROL,TEMPERATURE CONTROL
905	MISC METHODS OF CONTROL,SURFACE FILMING AGEN
906	MISC METHODS OF CONTROL,FLOATING ROOF
907	MISC METHODS OF CONTROL,MISC WATER SPRAYS
999	MISC METHODS OF CONTROL,MISC UNCLASSIFIED

## Sorted By Abatement Name

Code	Abatement Name		
		352	ESP,SINGLE STAGE,WIRE/PLATE-WET
		353	ESP,SINGLE STAGE,WIRE/TUBE-DRY
401	ABSORPTION TOWERS,GRAVITY SPRAY TOWER	354	ESP,SINGLE STAGE,WIRE/TUBE-WET
406	ABSORPTION TOWERS,PACKED BED	355	ESP,TWO STAGE(ELECTRONIC AIR CLEANER)
402	ABSORPTION TOWERS,PLATE-BUBBLE CAP	16	FABRIC FILTER - HIGH TEMPERATURE
405	ABSORPTION TOWERS,PLATE-FLOATING CAP	18	FABRIC FILTER - LOW TEMPERATURE
404	ABSORPTION TOWERS,PLATE-PARALLEL BARS	17	FABRIC FILTER-MEDIUM TEMPERATURE
403	ABSORPTION TOWERS,PLATE-PERFORATED(SIEVE)	311	FILTER-FIXD PANEL,FIBROUS MAT AND PAINT BOOT
48	ACTIVATED CARBON ADSORPTION	320	FILTERS - ROLL TYPE
460	ADSORPTION - CONTINUOUS	300	FILTERS-FABRIC (BAGHOUSE)
450	ADSORPTION - FIXED BED	302	FILTERS-FABRIC(BAGHOUSE),AUX AIR SHAKING
461	ADSORPTION-CONTINUOUS,ACTIVATED CARBON	301	FILTERS-FABRIC(BAGHOUSE),MECHANICAL SHAKING
451	ADSORPTION-FIXD BED,ACTIVATED CARBON	305	FILTERS-FABRIC(BAGHOUSE),PRESSURE JET(BUBBLE
452	ADSORPTION-FIXD BED,ALUMINA	304	FILTERS-FABRIC(BAGHOUSE),PULSE JET(VENTURI)
453	ADSORPTION-FIXD BED,BAUXITE	307	FILTERS-FABRIC(BAGHOUSE),REVERSE AIR FLOW
454	ADSORPTION-FIXD BED,BONE CHAR	306	FILTERS-FABRIC(BAGHOUSE),REVERSE JET(RING)
455	ADSORPTION-FIXD BED,FULLER'S EARTH	303	FILTERS-FABRIC(BAGHOUSE),SONIC CLEANING
456	ADSORPTION-FIXD BED,MAGNESIA	314	FILTERS-FIXD PANEL,AGGREGATE BED(SAND,ETC)
457	ADSORPTION-FIXD BED,SILICA GEL	315	FILTERS-FIXD PANEL,FLUIDIZED BED
458	ADSORPTION-FIXD BED,STRONTIUM SULFATE	312	FILTERS-FIXD PANEL,METAL MESH MAT
503	AFTERBURNER,BOILER OR HTR(W OR W/O HEAT RECO	313	FILTERS-FIXD PANEL,PAPER MAT
500	AFTERBURNERS	316	FILTERS-FIXD PANEL,SINTERED METAL FILTER
502	AFTERBURNERS,CATALYTIC	310	FILTERS-FIXED PANEL
501	AFTERBURNERS,DIRECT FLAME	322	FILTERS-ROLL TYPE,SELF-CLEANING
68	ALKALINE FLY ASH SCRUBBING	321	FILTERS-ROLL TYPE,THROW-AWAY FIBROUS MAT
40	ALKALIZED ALUMINA	23	FLARE, FLARING
400	ASORPTION TOWERS	510	FLARES-WASTE GAS
39	CATALYTIC OXIDATION-FLUE GAS DESULF	515	FLARES-WASTE GAS,BURNING PIT
631	CATALYTIC REDUCTION	511	FLARES-WASTE GAS,ELEVATED(>30FT.)
7	CENTRIFUGAL COLLECTOR - HIGH EFFICIENCY	512	FLARES-WASTE GAS,ELEVATED(>30FT.)SMOKELESS
9	CENTRIFUGAL COLLECTOR - LOW EFFICIENCY	513	FLARES-WASTE GAS,GROUND(<30FT.)
8	CENTRIFUGAL COLLECTOR - MEDIUM EFFICIENCY	514	FLARES-WASTE GAS,GROUND(<30FT.)SMOKELESS
630	CHEMICAL ALTERATION	26	FLUE GAS RECIRCULATION
620	CHEMICAL OXIDATION	4	GRAVITY COLLECTOR - HIGH EFFICIENCY
624	CHEMICAL OXIDATION,AIR OXIDATION	6	GRAVITY COLLECTOR - LOW EFFICIENCY
622	CHEMICAL OXIDATION,CHLORINE	5	GRAVITY COLLECTOR - MEDIUM EFFICIENCY
623	CHEMICAL OXIDATION,HYPOCHLORITE	640	HYDROGEN SULFIDE CONTROL
625	CHEMICAL OXIDATION,OXIDATION USING OXYGEN	641	HYDROGEN SULFIDE CONTROL,AQUEOUS AMINE PROCE
621	CHEMICAL OXIDATION,PERMANGANATE	645	HYDROGEN SULFIDE CONTROL,CLAUS PROCESS
660	CLAUS TAIL GAS CLEANUP	644	HYDROGEN SULFIDE CONTROL,IRON OXIDE
664	CLAUS TAIL GAS CLEANUP,CLEAN AIR	643	HYDROGEN SULFIDE CONTROL,POTASSIUM CARBONATE
661	CLAUS TAIL GAS CLEANUP,IFP	642	HYDROGEN SULFIDE CONTROL,SEABOARD PROCESS
662	CLAUS TAIL GAS CLEANUP,SCOT	540	INCIN - MUNICIPAL WASTE
663	CLAUS TAIL GAS CLEANUP,STRETFORD	550	INCIN - PATHOLOGICAL WASTE
665	CLAUS TAIL GAS CLEANUP,SULFREEN	530	INCIN - WASTE LIQUID
667	CLAUS TAIL GAS CLEANUP,TAKAHAK	570	INCIN - WIRE (NON-PVC)
666	CLAUS TAIL GAS CLEANUP,WELLMAN-BEVON	580	INCIN - WIRE (PVC)
613	CO REMOVAL, CATALYTIC THERMAL REDUCTION	590	INCIN - WOOD WASTE
612	CO REMOVAL, CO BOILER	520	INCINERATOR - WASTE GAS
21	DIRECT FLAME AFTERBURNER	543	INCIN-MUNICIPAL WASTE,MULTI-CHAMBER(CONT AIR
36	DUAL ALKALI SCRUBBING	542	INCIN-MUNICIPAL WASTE,MULTI-CHAMBER(CONV)
350	ELECTROSTATIC PRECIPITATION	541	INCIN-MUNICIPAL WASTE,SINGLE CHAMBER
10	ELECTROSTATIC PRECIPITATOR - HIGH EFFICIENCY	553	INCIN-PATH WASTE,MULTI-CHAMBER(CONT AIR)
12	ELECTROSTATIC PRECIPITATOR - LOW EFFICIENCY	552	INCIN-PATHOLOGICAL WASTE,MULTI-CHAMBER(CONV)
11	ELECTROSTATIC PRECIPITATOR -MEDIUM EFFICIENCY	551	INCIN-PATHOLOGICAL WASTE,SINGLE CHAMBER
351	ESP,SINGLE STAGE,WIRE/PLATE-DRY	560	INCIN-SCRAP METAL

561	INCIN-SCRAP METAL (FURNACES),SINGLE CHAMBER	29	LOW-EXCESS - AIR FIRING
563	INCIN-SCRAP METAL(FURNACES),MUL-CHMR(CONT AI	35	MAGNESIUM OXIDE SCRUBBING
562	INCIN-SCRAP METAL(FURNACES),MULTI-CHMR(CONV)	902	MISC METHODS OF CONTROL,CLOSED LOOP(SCS)
523	INCIN-WASTE GAS,MULTI-CHAMB(CONTROLLED AIR)	906	MISC METHODS OF CONTROL,FLOATING ROOF
522	INCIN-WASTE GAS,MULTI-CHAMB(CONVENTIONAL)	999	MISC METHODS OF CONTROL,MISC UNCLASSIFIED
521	INCIN-WASTE GAS,SINGLE CHAMB-THERMAL OXIDIZE	907	MISC METHODS OF CONTROL,MISC WATER SPRAYS
533	INCIN-WASTE LIQ,MULTI-CHAMB(CONTROLLED AIR)	903	MISC METHODS OF CONTROL,ODOR MASKING AGENT
532	INCIN-WASTE LIQ,MULTI-CHAMB(CONVENTIONAL)	905	MISC METHODS OF CONTROL,SURFACE FILMING AGEN
531	INCIN-WASTE LIQ,SINGLE CHAMB-THERMAL OXIDIZE	901	MISC METHODS OF CONTROL,TALL STACK
573	INCIN-WIRE(NON-PVC)MULTI-CHAMBER(CONT AIR)	904	MISC METHODS OF CONTROL,TEMPERATURE CONTROL
572	INCIN-WIRE(NON-PVC)MULTI-CHAMBER(CONV)	900	MISC. METHODS OF CONTROL
571	INCIN-WIRE(NON-PVC)SINGLE CHAMBER	14	MIST ELIMINATOR - HIGH VELOCITY
583	INCIN-WIRE(PVC),MULTI-CHAMBER(CONT AIR)	15	MIST ELIMINATOR - LOW VELOCITY
582	INCIN-WIRE(PVC),MULTI-CHAMBER(CONV)	24	MODIFIED FURNACE OR BURNER DESIGN
581	INCIN-WIRE(PVC),SINGLE CHAMBER	66	MOLECULAR SIEVE
593	INCIN-WOOD WASTE,MULTI-CHAMBER(CONT AIR)	98	MOVING BED DRY SCRUBBER
592	INCIN-WOOD WASTE,MULTI-CHAMBER(CONV)	133	MULTI CYCLONE-DRY,REV FLO-(<9 IN.)
591	INCIN-WOOD WASTE,SINGLE CHAMBER	134	MULTI CYCLONE-DRY,REV FLO-(>9 IN.)
594	INCIN-WOOD WASTE,TEEPEE	131	MULTI CYCLONE-DRY,STRAIGHT-FXD IMP
595	INCIN-WOOD WASTE,TRENCH(AIR CURTAIN)	132	MULTI CYCLONE-DRY,STRAIGHT-MOVG IMP
110	INERTIAL COLLECTORS-DRY, MOMENTUM	233	MULTI CYCLONE-WET,REV FLOW-(<9IN.)
210	INERTIAL COLLECTORS-WET, MOMENTUM	234	MULTI CYCLONE-WET,REV FLOW-(>9IN.)
200	INERTIAL COLLECTORS-WET,GRAVITY	231	MULTI CYCLONE-WET,STRAIGHT-FIXD IMP
220	INERTIAL COLLECTOR-WET,CNTFGL-SINGLE CYCLONE	232	MULTI CYCLONE-WET,STRAIGHT-MOVG IMP
150	INERTL COLLECT-DRY,CNTFGL-DYN COLLECT	46	PROCESS CHANGE
140	INERTL COLLECT-DRY,CNTFGL-FIXD SCROLL	54	PROCESS ENCLOSED
106	INERTL COLLECT-DRY,GRAVITY, **NOT ASSIGNED**	60	PROCESS GAS RECOVERY
105	INERTL COLLECT-DRY,GRAVITY,**NOT ASSIGNED**	263	SCRUBBER-HGH ENERGY VENTURI,HIGH EFFCY(>30IN
101	INERTL COLLECT-DRY,GRAVITY,BALLOON DUCT	261	SCRUBBER-HGH ENERGY VENTURI,LOW EFFCY-(<15IN
104	INERTL COLLECT-DRY,GRAVITY,GRIT ARRESTOR	262	SCRUBBER-HGH ENERGY VENTURI,MED EFFCY(15-30I
103	INERTL COLLECT-DRY,GRAVITY,MULTI-TRAY(HOWRD)	260	SCRUBBERS - HI ENERGY VENTURIE CYCLONE
102	INERTL COLLECT-DRY,GRAVITY,SETTLING CHAMBER	270	SCRUBBERS - MISC. TYPES
111	INERTL COLLECT-DRY,MOMENTUM,BAFFLE CHAMBER	273	SCRUBBERS,DISINTEGRATOR
115	INERTL COLLECT-DRY,MOMENTUM,IMPINGMNT COLLEC	275	SCRUBBERS,HOT WATER HYDRO
113	INERTL COLLECT-DRY,MOMENTUM,LOUVR-TYP COLLEC	271	SCRUBBERS,JET EJECTOR TYP
114	INERTL COLLECT-DRY,MOMENTUM,SHUTR-TYPE COLLEC	276	SCRUBBERS,PAINT BOOTH(WATER CURTAIN)
112	INERTL COLLECT-DRY,MOMENTUM,VERTURI BAF CHAM	272	SCRUBBERS,SELF-INDUCED SPRAY
130	INERTL COLLECTOR-DRY,CENTRIFUGAL-MULTIPLE CY	274	SCRUBBERS,STEAM HYDRO
120	INERTL COLLECTOR-DRY,CENTRIFUGAL-SINGLE CYCL	646	SELECTOR PROCESS
230	INERTL COLLECTOR-WET,CNTFGL-MULTIPLE CYCLONE	124	SINGLE CYCLONE-DRY,REV FLO-HGH EFFCY
201	INERTL COLLECT-WET GRAVITY,BALLOON DUCT	123	SINGLE CYCLONE-DRY,REV FLO-LOW EFFCY
251	INERTL COLLECT-WET,CNTFGL-DYN COL,ROTOCLONE	121	SINGLE CYCLONE-DRY,STRAIGHT-FIXED IMP
250	INERTL COLLECT-WET,CNTFGL-DYNAMIC COLLECTOR	122	SINGLE CYCLONE-DRY,STRAIGHT-MOVG IMP
240	INERTL COLLECT-WET,CNTFGL-FIXED,SCROLL	223	SINGLE CYCLONE-WET,REV FLO-LOW EFFCY
204	INERTL COLLECT-WET,GRAVITY,GRIT ARRESTOR	221	SINGLE CYCLONE-WET,STRAIGHT-FIXD IMP
203	INERTL COLLECT-WET,GRAVITY,MULTI-TRAY(HOWRD)	222	SINGLE CYCLONE-WET,STRAIGHT-MOVG IMP
202	INERTL COLLECT-WET,GRAVITY,SETTLING CHAMBER	611	SO2 REMOVAL,AMMONIA/DOUBLE ALKALI
211	INERTL COLLECT-WET,MOMENTUM,BAFFLE CHAMBER	609	SO2 REMOVAL,CAT-OX(MONSANTO)
215	INERTL COLLECT-WET,MOMENTUM,IMPINGMNT COLLEC	608	SO2 REMOVAL,CITRATE PROCESS(BUR MINES)
213	INERTL COLLECT-WET,MOMENTUM,LOUVR-TYP COLLEC	602	SO2 REMOVAL,COMINCO ABSORPTION PROCESS
214	INERTL COLLECT-WET,MOMENTUM,SHUTR-TYP COLLEC	601	SO2 REMOVAL,CONTACT SULFURIC ACID PROCESS
212	INERTL COLLECT-WET,MOMENTUM,VERTURI BAF CHAM	603	SO2 REMOVAL,DMA ABSORPTION PROCESS
224	INERTL COLLECT-WET,REV FLO-HGH EFFCY	607	SO2 REMOVAL,ELEMENTAL SULFUR REDUCTION
100	INTERTL COLLECTOR-DRY, GRAVITY	610	SO2 REMOVAL,KIYOUURA-TIT(JAPAN)
800	LEAK DETECTION AND REPAIR PROGRAM	606	SO2 REMOVAL,LIMESTONE DRY-SCRUBBING
49	LIQUID FILTRATION SYSTEM	605	SO2 REMOVAL,LIMESTONE WET-SCRUBBING

604	SO2 REMOVAL,WELLMAN-LORD PROCESS
69	SODIUM CARBONATE SCRUBBING
70	SODIUM-ALKALI SCRUBBING
52	SPRAY TOWER
25	STAGED COMBUSTION
28	STEAM OR WATER INJECTION
600	SULFUR DIOXIDE REMOVAL
45	SULFUR PLANT
650	SULFUR RECOVERY PLANT
651	SULFUR RECOVERY PLANT,CLAUS-1 CONVERTER
652	SULFUR RECOVERY PLANT,CLAUS-2 CONVERTER
653	SULFUR RECOVERY PLANT,CLAUS-3 CONVERTER
43	SULFURIC ACID PLANT - CONTACT PROCESS
51	TRAY-TYPE GAS ADSORPTION COLUMN
30	USE OF FUEL WITH LOW NITROGEN CONTENT
412	VAPOR CONDENSERS,CONTACT
411	VAPOR CONDENSERS,SURFACE
670	VAPOR RECOVERY
47	VAPOR RECOVERY SYSTEM
410	VAPOR-CONDENSERS
53	VENTURI SCRUBBER
67	WET LIME SLURRY SCRUBBING
3	WET SCRUBBER - LOW EFFICIENCY
2	WET SCRUBBER - MEDIUM EFFICIENCY