APPENDIX P

Evaluation of Reasonably Available Control Technology/Reasonably Available Control Measures

El Paso PM_{10} Point Source RACT/RACM Review

COMPANY	EPN	TYPE	1990 EMS TPY	ABT CODE	ABT TYPE	STATUS	FACILITY DESCRIPTION	COMMENTS
CHEVRON	XF1001	PT	0.13	0	Boiler	RACT	Boiler	See comment (1)
CHEVRON	XF1010	PT	1.13	0	Boiler	RACT	Boiler	See comment (1)
CHEVRON	XF1011	PT	0.98	0	Boiler	RACT	Boiler	See comment (1)
CHEVRON	XF1601	PT	0.63	0	Furnace	RACT	Furnace	See comment (1)
CHEVRON	XF1602	PT	0.43	0	Furnace	RACT	Furnace	See comment (1)
CHEVRON	XF201	PT	0.14	0	Furnace	RACT	Furnace	See comment (1)
CHEVRON	XF2201	PT	0.19	0	Furnace	RACT	Furnace	See comment (1)
CHEVRON	XF3201	PT	0.10	0	Furnace	RACT	Furnace	See comment (1)
CHEVRON	XF3601	PT	0.04	0	Furnace	RACT	Furnace, asphalt	See comment (1)
CHEVRON	XF3804	PT	0.05	0	Furnace	RACT	Furnace	See comment (1)
CHEVRON	XF3901	PT	0.02	0	Furnace	RACT	Furnace	See comment (1)
CHEVRON	XF4131	PT	0.10	0	Furnace	RACT	Furnace, hydroheater	See comment (1)
CHEVRON	XF4132	PT	0.09	0	Furnace	RACT	Furnace, hydroheater	See comment (1)
CHEVRON	XF4150-60	PT	0.68	0	Furnace	RACT	Furnace	See comment (1)
CHEVRON	XF4170-80	PT	0.29	0	Furnace	RACT	Furnace	See comment (1)
CHEVRON	FCCBLR	PT	1.06	0	Boiler	RACT	FCC Boiler	See comment (1)
CHEVRON	K501-04	PT	1.08	0	None	RACT	Compressor	Insig. emissions
CHEVRON	XFCCPPTR	PT	61.40	011	ESP	RACT	FCC (med eff. ESP)	See comment (2)
CHEVRON	R2911	FL	0.06	0	Flare	RACT	Flare	See comment (1)
EL PASO REF.	6	PT	1.31	0	Boiler	RACT	Boiler	See comment (1)
EL PASO REF.	7	PT	1.31	0	Boiler	RACT	Boiler	See comment (1)
EL PASO REF.	8	PT	1.31	0	Boiler	RACT	Boiler	See comment (1)
EL PASO REF.	1	PT	1.53	0	Heater	RACT	CPS/DCU Heater	See comment (1)
EL PASO REF.	2	PT	0.30	0	Heater	RACT	CPS/DCU Heater	See comment (1)
EL PASO REF.	5	PT	0.10	0	Heater	RACT	FCC Heater	See comment (1)
EL PASO REF.	3	PT	0.77	0	Heater	RACT	FCC Heater	See comment (1)
EL PASO REF.	96	PT	146.00	008	Cyclone	RACT	CO Incinerator	See comment (3)
PARKER BROS.	A-CRUSHER	FU	0.93	907	Misc. H_2O Spray	RACM	Material Handling	
PARKER BROS.	A-SCREEN	FU	0.93	270	Misc. Scrub	RACM	Material Handling	
ER BROS.	EP-CONVEY	FU	5.00	999	Misc. control	RACM	Material Handling	
ER BROS.	S-CRUSHER	FU	0.50	907	Misc. H_2O Spray	RACM	Material Handling	
PARKER BROS.	S-SCREEN	FU	0.50	907	Misc. H_2O Spray	RACM	Material Handling	
PARKER BROS.	SP-1	FU	1.00	0	None	N/A	Material handling	Insig. emissions
PROLER INT.	EPN2	PT	2.2	008	Cyclone	RACT	Magnet separators	
PROLER INT.	EPN3	PT	1.2	008	Cyclone	RACT	Z-box separator	
PROLER INT.	EPN4	FU	1.2	0	None	N/A	Shredder fugitives	Insig. emissions
PROLER INT.	EPN5	PT	0.01	008	Cyclone	RACT	Cement bin	
PROLER INT.	EPN6	FU	0.32	0	None	N/A	Metal cleaning area	Insig. emissions
PROLER INT.	EPN7	PT	0.01	270	Scrubber	RACT	Spray dryer	
JOBE CONC. #1	UNPVD	FU	11.70	999	Misc. H_2O Spray	RACM	In-plant vehicle travel	Unpaved roads
JOBE CONC. #1	PVD	FU	21.42	999	Misc. control	RACM	In-plant vehicle travel	Unpaved roads
JOBE CONC. #1	ASPH	FU	0.43	999	Misc. control	RACM	Asphalt plant	
JOBE CONC. #1	ASPHFUG	FU	0.43	999	Misc. control	RACM	Asphalt plant fugitive	
JOBE CONC. #1	Q1	FU	1.75	999	Misc. control	RACM	Quarry #1 loading & unloading fug.	
JOBE CONC. #1	Q2	FU	1.75	999	Misc. control	RACM	Quarry #2 loading & unloading fug.	
JOBE CONC. #1	SP1	FU	0.02	999	Misc. control	RACM	Storage pile #1	
JOBE CONC. #1	SP4	FU	0.12	999	Misc. control	RACM	Storage pile #4	
JOBE CONC. #1	SP5	FU	0.04	999	Misc. control	RACM	Storage pile #5	
JOBE CONC. #1	SP7	FU	0.52	999	Misc. control	RACM	Storage pile #7	
JOBE CONC. #1	C1	FU	1.01	907	Misc. H_2O Spray	RACM	Crusher (primary)	
JOBE CONC. #1	C2	FU	2.03	907	Misc. H_2O Spray	RACM	Crusher (secondary)	
JOBE CONC. #1	C3	FU	0.46	907	Misc. H_2O Spray	RACM	Crusher (secondary)	
JOBE CONC. #1	C4	FU	0.57	907	Misc. H_2O Spray	RACM	Crusher (secondary)	
JOBE CONC. #1	C5	FU	0.57	907	Misc. H_2O Spray	RACM	Crusher (secondary)	
JOBE CONC. #1	CB	PT	1.57	907	Misc. H_2O Spray	RACT	Concrete batch plant silo	
JOBE CONC. #1	CBFUG	FU	0.7	999	Misc. control	RACM	Concrete batch plant fugitives	
JOBE CONC. #2	CB1	FU	0.58	999	Misc. control	RACM	Concrete batch plant #1	
JOBE CONC. #2	CB2	FU	0.58	999	Misc. control	RACM	Concrete batch plant #2	
JOBE CONC. #2	TQU1	FU	1.26	999	Misc. control	RACM	Toro plant quarry	

COMPANY	EPN	TYPE	1990 EMS TPY	ABT CODE	ABT TYPE	STATUS	FACILITY DESCRIPTION	COMMENTS
JOBE CONC. #2	TRC1	FU	1.60	907	Misc. H_2O spray	RACM	Jaw rock crusher, Toro plant	
JOBE CONC. #2	TRC2	FU	1.07	907	Misc. H_2O spray	RACM	Rock crusher	
JOBE CONC. #2	TSPTOT	FU	0.04	907	Misc. H_2O spray	RACM	Storage piles, Toro plant	
JOBE CONC. #2	VGQUAR	FU	0.31	999	Misc. control	RACM	Gravel quarry, Vowell	
JOBE CONC. #2	VRC1	FU	0.04	907	Misc. H_2O spray	RACM	Jaw crusher, Vowell	
JOBE CONC. #2	VRC2	FU	0.07	907	Misc. H_2O spray	RACM	Cone crusher, Vowell	
JOBE CONC. #2	ASPHALT	FU	0.20	999	Misc. control	RACM	Asphalt plant	
JOBE CONC. #2	ASPHFUG	FU	2.05	999	Misc. control	RACM	Asphalt plant fugitives	
JOBE CONC. #2	ASPTOT	FU	0.03	999	Misc. control	RACM	Storage pile, asphalt plant	
JOBE CONC. #2	UNPAVROADS	FU	14.28	999	Misc. control	RACM	Unpaved roads, quarry & asphalt plnt	
JOBE CONC. #2	PAVEDROADS	FU	4.29	999	Misc. control	RACM	Paved roads, quarry & asphalt plnt	
BORDER STL.	B	PT	1.0	300	Baghouse	RACT	Electric arc furnace baghouse	
BORDER STL.	F	PT	3.32	0	None	N/A	Steel billets caster	Insig. emissions
BORDER STL.	A	PT	1.0	300	Baghouse	RACT	DES baghouse	
BORDER STL.	EAF-1-1	PT	1.81	300	Baghouse	RACT	Electric arc furnace #1 baghouse	
BORDER STL.	EAF-1-2	FU	0.2	0	None	N/A	Electric arc furnace #1 fug.	Insig. emissions
BORDER STL.	EAF-2-1	PT	1.81	300	Baghouse	RACT	Electric arc furnace #2 baghouse	
BORDER STL.	EAF-2-2	FU	0.2	0	None	N/A	Electric arc furnace #2 fug.	Insig. emissions
BORDER STL.	F-SLAG	FU	3.62	0	None	N/A	Slag disposal fugitives	Insig. emissions
BORDER STL.	F-7	FU	1.81	0	Furnace	RACT	Slag disposal furnace #1	See comment (1)
BORDER STL.	F-8	FU	1.81	0	Furnace	RACT	Slag disposal furnace #2	See comment (1)
BORDER STL.	F-9	FU	0.42	0	None	N/A	Casting molten carbon	Insig. emissions
BORDER STL.	F-10	FU	1.23	0	None	N/A	Ladle lancing station	Insig. emissions
BORDER STL.	F-12	FU	0.74	0	Furnace	RACT	Billet reheat furnace	See comment (1)
BORDER STL.	MILLREHET	PT	1.85	0	Furnace	RACT	Billet reheat furnace	See comment (1)
BORDER STL.	BALL-1	PT	0.1	0	Furnace	RACT	Billet reheat furnace #1	See comment (1)
BORDER STL.	BALL-2	PT	0.1	0	Furnace	RACT	Billet reheat furnace #2	See comment (1)
BORDER STL.	BALL-3	PT	0.1	0	Furnace	RACT	Billet reheat furnace #3	See comment (1)
BORDER STL.	F-13	FU	0.04	0	None	N/A	Ball machine dept.	Insig. emissions
ER STL.	F-14	FU	0.04	0	None	N/A	Ball machine dept.	Insig. emissions
ER STL.	F-15	FU	0.04	0	None	N/A	Ball machine dept.	Insig. emissions
BORDER STL.	14	PT	0.1	0	Furnace	RACT	Ball mill reheat furnace	See comment (1)
BORDER STL.	15	PT	0.1	0	Furnace	RACT	Ball mill reheat furnace	See comment (1)
BORDER STL.	13	PT	0.1	0	Furnace	RACT	Ball mill reheat furnace	See comment (1)
BORDER STL.	12B	PT	0.12	0	Furnace	RACT	Billet reheat furnace	See comment (1)
BORDER STL.	12A	PT	0.12	0	Furnace	RACT	Billet reheat furnace	See comment (1)
ASARCO	F-CB	FU	18.56	300	Baghouse	RACT	Cu smelter convert bldg.	
ASARCO	RF-ETC	FU	15.93	999	Misc. control	RACM	Traffic fugitives	
ASARCO	SF-ETC	FU	0.417	0	None	N/A	Outdoor storage piles	Insig emissions
ASARCO	C-4	PT	0.68	0	None	RACT	Marine boiler	See comment (1)
ASARCO	C-2	PT	0.25	0	None	RACT	Acid plant #2 preheater	See comment (1)
ASARCO	C-1	PT	0.35	0	None	RACT	Acid plant #1 preheater	See comment (1)
ASARCO	C-3	PT	0.44	0	None	RACT	Powerhouse boiler	See comment (1)
ASARCO	HF-ETC	FU	0.76	0	None	N/A	Material handling	Insig emissions
ASARCO	AP1/S	PT	18.28	001	ESP, Absorber	RACT	Acid plant #1	See Comment (4)
ASARCO	AP2/S	PT	22.77	001	ESP, Absorber	RACT	Acid plant #2	See Comment (4)
ASARCO	CD/BH/CUP	PT	12.00	300	Baghouse	RACT	Cd roaster cupola PM_{10}/Cd, Pb	
ASARCO	CU/PG/BH/S	PT	4.35	300	Baghouse	RACT	Anode Cu production pugmill	
ASARCO	CU/STK/AN	PT	420.2	001	High eff. ESP	RACT	Cu converter stacks	See Comment (5)
ASARCO	F/SLAG/P	FU	5.61	0	None	N/A	Slag pouring operation	Insig. emissions
ASARCO	UNL/BD/N/S	PT	32.45	300	Baghouse	RACT	Ore bedding bldg.	See Comment (6)
ASARCO	UNL/BD/S/S	PT	28.67	300	Baghouse	RACT	Ore bedding bldg.	See Comment (6)
ASARCO	UNL/TBH/S	PT	4.69	300	Baghouse	RACT	Ore unloading and storage bldg.	
ASARCO	UNL/CUBH/S	PT	19.39	300	Baghouse	RACT	Cu ore conc. unloading bldg.	
ASARCO	UNL/PBBH/S	PT	14.77	300	Baghouse	RACT	Cu ore conc. unloading bldg.	
ASARCO	F-CRC	FU	0.0196	0	None	RACM	Cu ore conc. feed to roaster	Insig. emissions
ASARCO	F-CT	FU	7.29	0	None	RACM	Cu ore conc. dischge. from roaster	Insig. emissions
ASARCO	F/CD/STO	FU	0.000274	0	None	RACM	Cd roaster charge & storage	Insig. emissions
ASARCO	F/CD/IN1	FU	0.0045	0	None	RACM	Cd unloading	Insig. emissions
ASARCO	F/CD/IN2	FU	0.00402	0	Misc. H_2O spray	RACM	Railcar unloading	
ASARCO	F-RSF	FU	8.41	0	None	RACM	Reverb furnace & slag dischg.	Insig. emissions
ASARCO	F-RSF/STK	ST	0.841	127	Misc. H_2O scrub	RACT	Slag transfer area	

A - Not Applicable.

List of Abbreviations

Abbreviation	Meaning
RACT	Reasonably Available Control Technology
RACM	Reasonably Available Control Measures
EPN	Emission Point Number
EMS	Emissions
ABT	Abatement
TPY	Tons Per Year
FU	Fugitive Emissions
PT	Point Source Emissions
Misc.	Miscellaneous
ESP	Electrostatic Precipitator
Eff.	Efficiency
Cu	Copper
Cd	Cadmium
Pb	Lead
PM_{10}	Inhalable Particulate
Bldg.	Building
Insig.	Insignificant
Scrub.	Scrubber
Unlodng.	Unloading
Conc.	Concentrate
Dischge.	Discharge
CPS	Crude Pipe Still
DCU	Delayed Coker Unit
DES	Direct Evacuation System
FCC	Fluid Catalytic Cracking Unit
CO	Carbon Monoxide
Med.	Medium
Dept.	Department

COMMENTS

(1) Boilers, furnaces, flares, and heaters are considered control devices.

(2) In general, ESPs are considered to be high efficiency particulate collection devices. However, the ESP at Chevron associated with the FCC unit is operating at 91% efficiency according to the company's emissions inventory data. This is approximately in the middle of the range given by EPA publication, EPA-450/3-81-005a, which indicates that capture efficiencies of ESPs can vary from 76 to 99.8% depending on the particulate loading and dust resistivity.

(3) Off-gases from a catalyst regenerator at the El Paso refinery are currently burned in a CO incinerator. The exhaust from the incinerator is passed through a cyclone before being released to the atmosphere from EPN XFCCPPRT. According to EPA publication, EPA-450/3-81-005b, cyclones applied to FCC units are about 85% efficient in removing PM_{10} particles. In March 1991, the company received a construction permit from the TACB to change the CO incinerator to a CO boiler and also, to add a wet scrubber to remove particulate matter emissions from the CO boiler. The permit had been reviewed and satisfactorily analyzed for BACT determination.

(4) The acid plants use SO_2 laden furnace gases to manufacture H_2SO_4 acid. Acid plant #1 has 23 different gas precleaning units and plant #2 has 25 units. These units provide needed air pollution control as well as necessary process requirements. Effluent gas from the acid units is passed through an ESP and an absorber tower before being emitted.

(5) This emission point is a 828 feet tall, coaxial stack with two outlets. Emissions mainly from the reverb furnaces are routed to the inner stack after passing through an high efficiency ESP. Fugitive dust from the furnace building is routed through a baghouse and then to the annulus section of the stack.

(6) Dust from the enclosed ore bedding building is passed through one of two baghouses. The ore bedding building is about 800 feet by 300 feet. Two baghouses, one on the north and the other on the south of the building, are used due to high ore concentration within the building.