

Excerpt 4

PM_{2.5} and PM₁₀ Modeling Protocol
Addendum, dated September 201, AR
I.A.8.a

Energyswaps
International
Resource Recovery Solutions

PM_{2.5} and PM₁₀ Modeling Protocol

**Addendum to the
PSD Air Quality Modeling Protocol**
(Submitted May 2011, Approved July 2011)

For the proposed
Arecibo Renewable Energy Project
Barrio Cambalache, Arecibo, Puerto Rico

Submitted September 2011

ARCADIS

Appendix A

Source Inventory for PM_{2.5}

Appendix A - Facility Source Inventory for PM2.5 Multisource Modeling Analysis

Site	Location	MODEL ID	Distance from Site (km)	PM2.5 (tpy)	PM2.5 (g/s)	Source	UTM X (m)	UTM Y (m)	Base Elevation (m)	Stack Height (m)	Exit Velocity (m/s)	Stack Diameter (m)	Exit Temperature (K)
ABB (Abraxis Bioscience Manufacturing)	Barcelona	ABB1	14.7	6.23	0.43	Boiler 1 - 500 hp (approx 16.7 MMBtu/hr)	757125	2039740	81	9.8	16.2	0.61	697
ABB (Abraxis Bioscience Manufacturing)	Barcelona	ABB2	14.7	6.23	0.43	Boiler 2 - 500 hp (approx 16.7 MMBtu/hr)	757125	2039740	81	9.8	18.6	0.61	519
Abbott Laboratories	Barcelona	ABBOTT1	14.0	0.82	0.02	EU-1 Thermal Oxidizer 18.8 MMBtu/hr Nat gas	756217	2039276	82	30.5	4.9	0.61	608
Abbott Laboratories	Barcelona	ABBOTT2	14.1	6.76	0.19	EU-8 Boilers 101 & 102 65 MMBtu/hr #2 oil 0.5% S	756385	2039106	88	60	39.0	0.76	298
Abbott Laboratories	Barcelona	ABBOTT3	14.5	16.24	0.47	EU-9 Cogeneration 335 MMBtu/hr #2 oil 1% S	756906	2039958	86	53	8.3	1.82	400
Abbott Laboratories	Barcelona	ABBOTT4	14.5	11.44	0.33	EU-10 Boiler 1 110 MMBtu/hr #2 1% S	756936	2039910	89	24	6.3	0.91	477
Abbott Laboratories	Barcelona	ABBOTT5	14.5	6.98	0.20	EU-11 Boiler 4 19.25 MMBtu/hr #6 5.0% S	756936	2039910	89	24	10.0	0.91	419
Abbott Laboratories	Barcelona	ABBOTT6	14.5	6.16	0.18	EU-11 Boiler 6 17 MMBtu/hr #6 5.0% S	756920	2039780	85	24	9.0	0.76	411
Battery Recycling Company	Arecibo	BRC1	1.2	24.10	0.69	lead/day, 12.0 MMBtu/hr EU-2 - EU-6: 5 lead refining kettles, Cap. = 40 800 hp boilers (#1 & #2) (approx. 16 MMBtu/hr)	743598	2041906	3.0	23.9	11.1	1.581	353
Bristol Holding Pharma	Manati	BRISTOL1	24.7	0.67	0.02		767320.31	2042440.76	10	11.80	16.1	0.56	450
PREPA Cambalache	Arecibo	PREPAC1	1.4	218.26	6.28	Combustion Turbines - 898 MMBtu/hr	742945	2043981	3.05	30.5	34.6	4.72	654
PREPA Cambalache	Arecibo	PREPAC2	1.3	218.26	6.28	Combustion Turbines - 898 MMBtu/hr	742930	2043878	3.05	30.5	34.6	4.72	654
PREPA Cambalache	Arecibo	PREPAC3	1.3	218.26	6.28	Combustion Turbines - 898 MMBtu/hr	742915	2043865	3.05	30.5	34.6	4.72	654
PREPA Vega Baja	Barcelona	PREPAVB1	32.8	4.47	11.40	gas turbine 301.5 MMBtu/hr	775398	2041530	7.01	12.04	40.9	2.9	777
PREPA Vega Baja	Barcelona	PREPAVB2	32.8	4.47	11.40	gas turbine 301.5 MMBtu/hr	775416	2041530	7.01	12.04	40.9	2.9	777
Safetech Corp., Arecibo	Arecibo	SAFETCH1	4.3	-	0.39	GPH propane backup fuel, w/Wet Scrubber, 1,000 t/hr Cap., 8,064 t/yr	746938	2042285	30.48	27.4	10.5	1.2	351
Merck, Sharp and Dohme	Barcelona	MERCK1	16.8	6.95	1.59	Stack 1 (2 boilers) - SB-3 (21 MMBtu/hr each)	759082	2039050	25.9	27.43	40.9	0.9144	333.15
Merck, Sharp and Dohme	Barcelona	MERCK2	16.8	6.95	1.59	Stack 2 (2 boilers) - SB-4 (21 MMBtu/hr each)	759082	2039050	25.9	27.43	40.9	0.9144	449.82
Merck, Sharp and Dohme	Barcelona	MERCK3	16.8	7.36	1.69	Stack 3 Cogen (44.6 MMBtu/hr)	759082	2039050	25.9	22.86	40.9	1.2192	449.82
Merck, Sharp and Dohme	Barcelona	MERCK4	17.2	-	0.98	Stack 4 Incinerator (RTI) - Rotary Kin Incinerator, 26 MMBtu/hr	759461	2038800	25.9	27.43	40.9	1.2192	463.71