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State Of Indiana
Department of Environmental Management
Office Of Air Management

October 30, 2000

Ms. Janet G. McCabe
Assistant Commissioner
Office of Air Management
Indiana Department of Environmental Management
100 North Senate Avenue
Post Office Box 6015
Indianapolis, Indiana 46206-6015

Re: IMPA Comments to NO_x SIP Call Draft Rules, 326 IAC 10-3 and 10-4

COPY

Dear Janet:

On behalf of the Indiana Municipal Power Agency ("IMPA"), this letter provides the following comments on the above-referenced draft rules.

1. **IMPA requests that IDEM fix the 25-ton exemption to provide an exemption for any electric generating units (EGUs) that restrict their NO_x emissions to less than 25 tons per ozone season.** In its model rule, EPA has included a 25 ton exemption, but has implemented it in such a convoluted way that it is unuseable, by assuming the use of worst-case fuel at all times without reliance on real data. *See* Draft 326 IAC 10-4-1(b). IMPA supports a more straightforward exemption based on enforceable Title V limits, with associated recordkeeping. Units that emit less than 25 tons of NO_x represent a *de minimis* level of NO_x emissions in the state and should not be included in the rulemaking. IDEM previously exempted such units in its NO_x Reduction Rule (#98-235), and a similar exemption could be included here without any risk to the environment. IMPA would support the following exemption language to replace the existing EPA model language:

> (b) The requirements of this rule shall not apply to the following:
> (1) A unit under subsection (a) that operates under a federally enforceable permit that includes terms and conditions that restrict the unit's actual nitrogen oxide (NOx) emissions to less than or equal to twenty-five (25) tons during the control period beginning May 31, 2004 and each year thereafter.

Draft 326 IAC 10-4-1(b).

2. **IMPA requests that IDEM correct IMPA's heat input rate and re-calculate the allowances because the allowances calculated are approximately one-half of the amount to which IMPA is entitled.** *Attachment A* sets out a letter to the EPA Acid Rain Division that includes accurate heat inputs. This data calculates the IMPA Richmond system to have had an average heat input rate of 246,759.7 mmBtu for the two highest years from 1995-1999, and that the Anderson system had an average rate of 277,940.1 mmBtu during those years. These values are substantially higher than the values of 150,606 mmBtu for Anderson and 141,410 mmBtu for Richmond included as support information for the draft rule. (This information was previously provided to IDEM by letter dated January 21, 2000 from Raj Rao of IMPA to Janet McCabe.) IMPA requests that IDEM correct the heat inputs and re-calculate IMPA's allowances.

3. **IMPA supports a five-year look back period (at a minimum) each time allowances are calculated.** This approach would result in not penalizing units for one or two years of low utilization due to factors beyond their control.

4. **IMPA supports the principle that allowances be allocated for five-year periods with re-allocation once every five years.** IMPA believes this would lead to more certainty and would assist in the effectiveness of the trading program.

5. **IMPA requests that IDEM confirm that IMPA's monitoring methodology is acceptable under this program and that no continuous emissions monitor is required.** IMPA monitors its SO_2 and NO_x emissions under the excepted methodologies set out in Appendices D and E of 40 CFR, Part 75. This involves continuous fuel monitoring and the calculation of emission rates but does not include continuous emissions monitoring. The draft rule stipulates monitoring "shall comply with the monitoring requirements of 40 CFR 75, Subpart H*." *See* Draft 326 IAC 10-4-4(b)(1). IMPA requests that IDEM confirm that its procedures are acceptable.

6. **IMPA supports increasing the pool for early reduction credits.** This would benefit the environment and assist in utility planning efforts.

* * *

COPY

Thank you for the opportunity to submit these comments. If you have any questions or need anything further, please call.

Sincerely,

Tony Sullivan

Anthony C. Sullivan

ACS:naw
Via Telecopy
Attachment
cc: Mr. Roger Letterman (w/attachment) *(Via Telecopy)*
Ms. Gayle Mayo (w/attachment)
Mr. Jack Alvey (w/attachment)

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INDS01 ACS 398374v1

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April 25, 2000

Mr. Kevin Culligan
Acid Rain Markets Division
United States Environmental Protection Agency
501 3rd Street, N.W.
Mail Code 6204J
Washington, D.C. 20001

Re: Emission Allowances for Indiana Municipal Power Agency Under EPA NO_x Rules

Dear Kevin:

As we discussed last week, attached please find correspondence dated February 22, 1999, to the Indiana Department of Environmental Management ("IDEM") that summarizes utilization data for the Indiana Municipal Power Agency ("IMPA") for the years 1992-1998 (set out as *Exhibit 1*).[1] Attachments 3 and 4 to that correspondence provide ozone-season data for the Anderson and Richmond units (two units are located at each site). As we discussed, these units are peaking units that are fueled primarily by natural gas, with some potential for diesel fuel oil combustion.

Regarding the NO_x allowances allocated to it, IMPA objects to EPA's allocation methodology because it is not fair to rely on historical utilization levels for peaking units because that locks those units into limited future use. However, without waiving that objection and based on the following calculations, the NO_x allowances for these units should equal at least 6 tons for each of the two Richmond units and at least 9 tons for each of the two Anderson units.

Richmond

Total Highest Two Years' Heat Input (1995-1998)	Average Heat Input	x	0.15 lb/mmbtu	=	Total Tons	Tons per Unit
333,054 mmbtu	166,527		24,979.05		12.49	6

[1]The data attached to this letter is based on fuel consumption rates which are recorded, certified, and submitted to IDEM on a quarterly basis.

ATTACHMENT A

PERMANENT FILE COPY

Anderson

Total Highest Two Years' Heat Input (1995-1998)	Average Heat Input	x	0.15 lb/mmbtu	=	Total Tons	Tons per Unit
475,831.4 mmbtu	237,915.7		35,687.35		17.84	9

EPA previously stated that it did not use 1999 data because that data was not available. However, that data is available now. I have attached two spreadsheets set out as *Exhibits 2* and *3* which summarize IMPA's utilization data for that year. Additionally, if 1999 data is considered, a larger number of allowances should be granted to IMPA using EPA's methodology, as set out below:

Richmond

Total Highest Two Years' Heat Input (1995-1999)	Average Heat Input	x	0.15 lb/mmbtu	=	Total Tons	Tons per Unit
493,519.3 mmbtu	246,759.7		37,013.95		18.51	9

Anderson

Total Highest Two Years' Heat Input (1995-1999)	Average Heat Input	x	0.15 lb/mmbtu	=	Total Tons	Tons per Unit
555,880.2 mmbtu	277,940.1		41,691.01		20.84	11

Also, since these are peaking units, it would be more appropriate to use at least the highest single year, rather than calculating an average of the highest two years. Under that scenario, a still larger number of allowances should be granted to IMPA, as set out below:

Richmond

Highest Year's Heat Input (1995-1999)	x	0.15 lb/mmbtu	Total Tons	Tons per Unit
270,877.5 mmbtu		40,631.63	20.3	10

PERMANENT FILE COPY

Anderson

Highest Year's Heat Input (1995-1999)	x	0.15 lb/mmbtu	Total Tons	Tons per Unit
340,071.7 mmbtu		51,010.76	25.51	13

Additionally, a growth factor should apply to these units (1.17 under the NO_x SIP Call) that would provide for larger allowance levels under any scenario set out above. As a side note, I would also point out that these units should not even be included in the program given their very low NOx emission levels. EPA should encourage such operations, not discourage them by imposing such burdensome requirements.

Thank you for your consideration of this information. If you have any questions, or need further information, please call.

Sincerely,

Tony Sullivan

Anthony C. Sullivan

ACS:naw
Attachment
Via Telecopy and Regular Mail

INDS01 ACS 369804v1

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IMPA
INDIANA MUNICIPAL POWER AGENCY

530.101

February 22, 1999

Ms. Janet McCabe
Assistant Commissioner
Office of Air Management
Indiana Department of Environmental Management
P.O. Box 6015
Indianapolis, Indiana 46206-6015

Re: Inventory of 1996 NOx Emissions from Combustion Turbine Facilities

Dear Ms. McCabe:

As requested by IDEM, we have compared the tons of NOx emissions produced by the IMPA Richmond and Anderson Combustion Turbine Facilities during the 1996 ozone season (May 1 through September 30) to those used by the Federal EPA in calculating the Indiana statewide NOx budget (ATTACHMENT 1). As shown in Attachment 2 the actual ozone season NOx emissions were significantly less than that shown by EPA. The EPA data indicates that the Anderson and Richmond Stations emitted 6.16 and 6.14 tons NOx, respectively. The actual emissions were 1.828 and 0.946 tons NOx for the Anderson and Richmond Stations, respectively.

IMPA is uncertain of the source of the data used by EPA. The existing FESOP Permits for the Anderson and Richmond Combustion Turbine Peaking Facilities require that total fuel use be submitted quarterly by station not by individual source. Therefore, neither IDEM nor EPA has individual unit emissions data. Since FESOP Permits issued in December 1996 govern the units there has been no required reporting in the STEPs program.

The data for 1996, regardless of source is representative of neither the intended nor permitted use of the IMPA Combustion Turbine Facilities. Both the Anderson and Richmond Facilities are peak electric generating stations. These units are operated principally when IMPA's Member electric loads and loads in the ECAR area are significantly impacted by weather extremes, forced base-load unit outages, and when market conditions warrant operation due to increased energy costs. The FESOP Permits were obtained to provide the flexibility for IMPA to meet its Members electric peaking load needs while remaining within environmental permit requirements. The existing FESOP Permit allows NOx emissions of 99 tons per year per Facility.

The range of Combustion Turbine operations varies significantly each year especially in the ozone season due to weather impacts. This is demonstrated by Attachments 3 and 4, which show the actual NOx emissions during the ozone season for the period of 1992 through 1998. For the Anderson Facility the NOx emissions range from the lowest level of 1.828 tons in 1996 to the highest of 25.934 tons in 1998. The same pattern is demonstrated for the Richmond

EXHIBIT 1

11610 NORTH COLLEGE AVENUE, CARMEL, INDIANA 46032 (317) 573-9955

Station where NOx emissions range from 0.945 tons in 1996 to 20.399 tons in 1998. The 1992 through 1998 data are indicators of the weather and market uncertainties that utilities face in meeting peak electric energy needs. The 1998 data reflect an unseasonably warm summer coupled with high market prices of purchased power. The need for flexible operations within reasonable environmental constraints is the reason that the FESOP limits of 99 tons per year of NOx emissions were agreed upon.

The existing Combustion Turbines NOx emission rates are comparable to the new EPA standard of 0.15 LB/MMBTU NOx. Given the uncertainty of the factors that affect IMPA's unit generation needs, IMPA requests that IDEM continue to allow the flexibility needed by IMPA to responsibly operate the Facilities within environmental limits.

We appreciate IDEM's full consideration of the issues discussed in this letter.

If you have any questions or comments, please call me at (317) 573-9955. I thank you for your consideration, and look forward to hearing from you.

Sincerely,

INDIANA MUNICIPAL POWER AGENCY

Gayle Mayo

Gayle Mayo
Vice President, Planning and Engineering

cc: John Hamilton, Commissioner Indiana Department of Environmental Management
Felicia George, Assistant Commissioner Office of Air Management, IDEM
Tim Method, Assistant Commissioner Office of Air Management, IDEM

ATTACHMENT 1

ELECTRIC GENERATING UNITS (EGUs) THAT ARE CONTROLLED TO 0.15 LBS NO_x/MMBTU

(SORTED BY COMPANY)

COUNTY	FIPS CNTY	COMPANY	ORIS ID	PLANT ID	PLANT NAME	BOILER ID	FUEL	BOILER TYPE	1996 O_3 SEASON HEAT INPUT (MMBTU)	1996 NO_x EMISSION RATE (LBS/ MMBTU)	1996 O_3 SEASON NO_x EMISSIONS (TONS)	1996 TYPICAL O_3 SEASON DAILY NO_x EMISSIONS (TONS)	IPM 2007 GROWTH FACTOR	2007 O_3 SEASON PROJECTED HEAT INPUT (MMBTU)	2007 BUDGET NO_x EMISSION RATE (LBS/ MMBTU)	2007 O_3 SEASON BUDGET NO_x EMISSIONS (TONS)
SPENCER	147	AEP I&M	6166	6166	ROCKPORT	MB1	C(SB)	DRY BOT	42763480	0.31	6718.00	47.46	1.17	50033272	0.15	3752.50
SPENCER	147	AEP I&M	6166	6166	ROCKPORT	MB2	C(SB)	DRY BOT	43931849	0.31	6859.00	48.46	1.17	51400283	0.15	3855.02
DEARBORN	29	AEP I&M	988	988	TANNERS CREEK	U1	C(B)	DRY BOT	2621335	0.98	1288.00	9.10	1.17	3066962	0.15	230.02
DEARBORN	29	AEP I&M	988	988	TANNERS CREEK	U2	C(B)	DRY BOT	2477355	1.01	1246.00	8.80	1.17	2898505	0.15	217.39
DEARBORN	29	AEP I&M	988	988	TANNERS CREEK	U3	C(B)	DRY BOT	3370926	1.00	1693.00	11.96	1.17	3943983	0.15	295.80
DEARBORN	29	AEP I&M	988	988	TANNERS CREEK	U4	C(B)	CYCLONE	11920411	1.72	10240.00	72.34	1.17	13946881	0.15	1046.02
WARRICK	173	ALCOA	6705	6705	WARRICK	1	C(B)	DRY BOT	3087120	0.67	1033.00	7.30	1.17	3611930	0.15	270.89
WARRICK	173	ALCOA	6705	6705	WARRICK	2	C(B)	DRY BOT	2769659	0.49	677.84	4.79	1.17	3240501	0.15	243.04
WARRICK	173	ALCOA	6705	6705	WARRICK	3	C(B)	DRY BOT	2991611	0.67	996.00	7.04	1.17	3500185	0.15	262.51
VERMILLION	165	CINERGY	1001	1001	CAYUGA	1	C(B)	DRY BOT (TANG)	15977618	0.35	2763.00	19.52	1.17	18693813	0.15	1402.04
VERMILLION	165	CINERGY	1001	1001	CAYUGA	2	C(B)	DRY BOT (TANG)	8363615	0.35	1477.00	10.43	1.17	9785430	0.15	733.91
VERMILLION	165	CINERGY	1001	1001	CAYUGA	4	DO	TURBINE	252804	0.07	9.00	0.08	1.17	295874	0.15	22.19
VERMILLION	165	CINERGY	1001	1001	CAYUGA	5	NG	TURBINE	133440.5	0.10	6.81	0.06	1.17	156125	0.15	11.71
FAYETTE	41	CINERGY	?	9	CONNERSVILLE	1	DO	TURBINE	2160	0.00	0.00	0.00	1.17	2527	0.15	0.19
FAYETTE	41	CINERGY	?	9	CONNERSVILLE	2	DO	TURBINE	2161	0.00	0.00	0.00	1.17	2528	0.15	0.19
FLOYD	43	CINERGY	1008	1008	GALLAGHER	1	C(B)	DRY BOT	3414157	0.43	738.00	5.21	1.17	3994564	0.15	299.59
FLOYD	43	CINERGY	1008	1008	GALLAGHER	2	C(B)	DRY BOT	3443697	0.43	740.00	5.23	1.17	4029126	0.15	302.18
FLOYD	43	CINERGY	1008	1008	GALLAGHER	3	C(B)	DRY BOT	4333516	0.36	790.00	5.58	1.17	5070214	0.15	380.27
FLOYD	43	CINERGY	1008	1008	GALLAGHER	4	C(B)	DRY BOT	4134236	0.37	760.00	5.37	1.17	4837056	0.15	362.78
GIBSON	51	CINERGY	6113	6113	GIBSON	1	C(B)	DRY BOT	19109314	0.53	5057.00	35.73	1.17	22357807	0.15	1676.84
GIBSON	51	CINERGY	6113	6113	GIBSON	2	C(B)	DRY BOT	17108998	0.52	4506.00	31.83	1.17	20122120	0.15	1509.16
GIBSON	51	CINERGY	6113	6113	GIBSON	3	C(B)	DRY BOT	13818859	1.15	3351.00	56.27	1.17	16168005	0.15	1212.60
GIBSON	51	CINERGY	6113	6113	GIBSON	4	C(B)	DRY BOT	16590883	1.00	3475.00	56.52	1.17	19411333	0.15	1455.85
GIBSON	51	CINERGY	6113	6113	GIBSON	5	C(B)	DRY BOT	18548164	0.51	4775.00	33.73	1.17	21701352	0.15	1627.00
HAMILTON	57	CINERGY	1007	1007	NOBLESVILLE	1	C(B)	DRY BOT	245947	0.84	103.00	0.73	1.17	287746	0.15	21.58
HAMILTON	57	CINERGY	1007	1007	NOBLESVILLE	2	C(B)	DRY BOT	247248	0.86	106.00	0.75	1.17	289280	0.15	21.70
HAMILTON	57	CINERGY	1007	1007	NOBLESVILLE	3	C(B)	DRY BOT	266273	1.01	135.00	0.95	1.17	311539	0.15	23.37
VIGO	167	CINERGY	1010	1010	WABASH RIVER	1	C(B)	DRY BOT	1057775	0.23	120.00	0.85	1.17	1237597	0.15	92.82
VIGO	167	CINERGY	1010	1010	WABASH RIVER	2	C(B)	DRY BOT	1705169	0.58	496.00	3.50	1.17	1995048	0.15	149.63
VIGO	167	CINERGY	1010	1010	WABASH RIVER	3	C(B)	DRY BOT	1928942	0.55	535.00	3.78	1.17	2250802	0.15	168.26
VIGO	167	CINERGY	1010	1010	WABASH RIVER	4	C(B)	DRY BOT	2803144	0.73	1051.00	7.42	1.17	3373270	0.15	253.00
VIGO	167	CINERGY	1010	1010	WABASH RIVER	5	C(B)	DRY BOT	1662544	0.55	458.00	3.24	1.17	1945177	0.15	145.89
VIGO	167	CINERGY	1010	1010	WABASH RIVER	6	C(B)	DRY BOT (TANG)	7179231	0.39	1404.00	9.92	1.17	8399703	0.15	629.98
PIKE	125	HE	1043	1043	FRANKLIN RATTS	1SG1	C(B)	DRY BOT	1030390	0.48	390.00	2.76	1.17	1207556	0.15	143.07
PIKE	125	HE	1043	1043	FRANKLIN RATTS	2SG1	C(B)	DRY BOT	2708596	0.46	648.00	4.58	1.17	3202657	0.15	244.70
SULLIVAN	153	HE	6213	6213	MEROM	1SG1	C(B)	DRY BOT	16228890	0.49	3986.00	28.16	1.17	18987801	0.15	1424.09
SULLIVAN	153	HE	6213	6213	MEROM	2SG1	C(B)	DRY BOT	20044318	0.48	4793.00	33.86	1.17	23451852	0.15	1758.89
JEFFERSON	77	IKEC	983	983	CLIFTY CREEK	1	C(SB)	WET BOT	6514642	1.19	3892.00	27.50	1.17	7622131	0.15	571.66
JEFFERSON	77	IKEC	983	983	CLIFTY CREEK	2	C(SB)	WET BOT	7317292	1.19	4343.00	30.68	1.17	8561232	0.15	642.09
JEFFERSON	77	IKEC	983	983	CLIFTY CREEK	3	C(SB)	WET BOT	6251420	1.19	3729.00	26.34	1.17	7314161	0.15	548.56
JEFFERSON	77	IKEC	983	983	CLIFTY CREEK	4	C(SB)	WET BOT	6897532	1.17	4047.00	28.59	1.17	8070112	0.15	605.26
JEFFERSON	77	IKEC	983	983	CLIFTY CREEK	5	C(SB)	WET BOT	7112734	1.19	4246.00	30.00	1.17	8321899	0.15	624.14
JEFFERSON	77	IKEC	983	983	CLIFTY CREEK	6	C(SB)	WET BOT	7120601	1.18	4198.00	29.66	1.17	8331103	0.15	624.83
MADISON	95	IMP-A	7336	7336	ANDERSON	ACT1	DO	TURBINE			3.08	0.03	1.17	70705	0.15	5.30
MADISON	95	IMP-A	7336	7336	ANDERSON	ACT2	DO	TURBINE			3.08	0.03	1.17	70705	0.15	5.30
WAYNE	177	IMP-A	7335	7335	RICHMOND	RCT1	DO	TURBINE			3.07	0.03	1.17	70323	0.15	5.27
WAYNE	177	IMP-A	7335	7335	RICHMOND	RCT2	DO	TURBINE			3.07	0.03	1.17	70323	0.15	5.27
MARION	97	IPL	990	990	ELMER W STOUT	10	RO(G6)	TANG	2173	0.17	0.19	0.00	1.17	2542	0.15	0.19
MARION	97	IPL	990	990	ELMER W STOUT	50	C(B)	DRY BOT (TANG)	2161062	0.40	428.00	3.02	1.17	2528443	0.15	189.63
MARION	97	IPL	990	990	ELMER W STOUT	60	C(B)	DRY BOT (TANG)	1787249	0.39	349.00	2.47	1.17	2091081	0.15	156.83
MARION	97	IPL	990	990	ELMER W STOUT	70	C(B)	DRY BOT (TANG)	9564700	0.33	1556.00	10.99	1.17	11190699	0.15	839.30

ATTACHMENT 2

ELECTRIC GENERATING UNITS (EGUs) THAT ARE CONTROLLED TO 0.15 LBS NOx/MMBTU

COUNTY	FIPS CNTY	COMPANY	ORIS ID	PLANT ID	PLANT NAME	BOILER ID	FUEL	BOILER TYPE	1996 O3 SEASON HEAT INPUT (MMBTU)	1996 NOx EMISSION RATE (LBS/ MMBTU)	1996 O3 SEASON NOx EMISSIONS (TONS)	1996 TYPICAL O3 SEASON DAILY NOx EMISSIONS (TONS)
MADISON	95	IMPA	7336	7336	ANDERSON	ACT1	NG/DO	TURBINE	11453.2	0.1596	0.914	0.0065
MADISON	95	IMPA	7336	7336	ANDERSON	ACT2	NG/DO	TURBINE	11453.2	0.1596	0.914	0.0065
WAYNE	177	IMPA	7335	7335	RICHMOND	RCT1	NG/DO	TURBINE	6543.7	0.1445	0.473	0.003
WAYNE	177	IMPA	7335	7335	RICHMOND	RCT2	NG/DO	TURBINE	6543.7	0.1445	0.473	0.003

Corrections and clarifications made by IMPA include:

1) The primary fuel is natural gas with No.2 diesel fuel oil as an alternative. The existing FESOP Permit requires submittal of fuel consumption quarterly. The total natural gas and NO. 2 fuel oil burned is reported for both units combined. Individual fuel consumption is not reported by unit. The No.2 fuel oil used by the startup diesels is reported separately due to a specific limit on the diesel engine startup fuel.
2) Based on the FESOP Permit reporting requirements, the computed individual unit heat inputs, seasonal NOx emissions and daily NOx emissions are calculated from total plant values divided equally between each unit.
3) The NOx emission rate (LBS/MMBTU) represents the total plant emissions divided by the total plant heat input. This is required due to the differing emission factors for the startup diesel engines, and the combustion turbines when burning either natural gas or No. 2 fuel oil.
4) The data computed for 1996 is not representative of the limits of the existing FESOP Permit or the expected operation of the IMPA Peaking turbines. Actual operation varies from year to year dependent on multiple factors. Key factors which impact operations are the weather, forced outages of other units in the ECAR area, and market energy costs. IMPA is predominantly a summer peaking utility requiring operation of the combustion turbines when any of the three previous factors occur requiring operation of the units to support IMPAs' ability to meet their members electric energy needs.

ATTACHMENT 3

IMPA ANDERSON COMBUSTION TURBINE FACILITY
ACTUAL OZONE SEASON NOx EMISSIONS - NATURAL GAS & NO. 2 FUEL OIL

Source Name: Indiana Municipal Power Agency
Source Location: 6035 Park Road, Anderson, Indiana 46011
Operations Permit # F095-5162-00051
Plant ID: 095-00051

		1992	1993	1994	1995	1996	1997	1998
Diesel Engine								
No. 2 Fuel Oil	gal	115	295	175	270	80	188	514
Heat Input	MMBtu	15.884	40.746	24.172	37.293	11.050	25.967	70.995
Emis. Fac (Ef)	lb/MMBtu	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Emissions NOx	lb	49.24	126.31	74.93	115.61	34.25	80.50	220.09
Emissions NOx	tons	0.025	0.063	0.037	0.058	0.017	0.040	0.110
Combustion Turbines - Natural Gas Firing								
Natural Gas	Mcf	51030	115570	48970	135300	19600	78690	328650
Heat Input	MMBtu	51030	115570	48970	135300	19600	78690	328650
Emis. Fac Ef-ac	lb/MMBtu	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Emissions NOx	lb	7654.5	17335.5	7345.5	20295.0	2940.0	11803.5	49297.5
Emissions NOx	tons	3.827	8.668	3.673	10.148	1.470	5.902	24.649
Combustion Turbines - No. 2 Fuel Oil Firing								
No. 2 Fuel Oil	gal	101285	6697	5511	3058	23858	2310	82207
Heat Input	MMBtu	13990	925	761	422	3295	319	11355
Emis. Fac Ef-ac	lb/MMBtu	0.207	0.207	0.207	0.207	0.207	0.207	0.207
Emissions NOx	lb	2895.9	191.5	157.6	87.4	682.1	66.0	2350.4
Emissions NOx	tons	1.448	0.096	0.079	0.044	0.341	0.033	1.175
Total Plant Heat Input	MMBtu	65035.7	116535.8	49755.4	135759.7	22906.4	79035.0	340075.7
Total NOx Emissions	tons	5.300	8.827	3.789	10.249	1.828	5.975	25.934
Avg. Emission Factor	lb/MMBtu	0.1630	0.1515	0.1523	0.1510	0.1596	0.1512	0.1525

Methodology

1) 1 gallon of No. 2 diesel fuel has a heating value of 138,123 Btu
2) 1 Mcf of natural gas has a heating value of 1,000,000 Btu
3) The NOx Emission Factor for the diesel engines is from AP 42 (1/95 version), Chapter 3.4, Tables 3.4-2, 3.4-5 SCC #2-02-004-01
4) The NOx Emission Factor for the combustion turbines is from stack test data as certified by IDEM based on water injection control of NOx emissions
5) The diesel engine limited throughput per the current FESOP Permit (gals/365 days) = 1099 gallons per 365 day period for both diesels
6) The combustion turbine limited throughput per the current FESOP Permit (MMCF/365 days) = 675.0 million standard cubic feet natural gas or 675,000 MCF per 365 day period for both turbines
7) The combustion turbine limited throughput per the current FESOP Permit (MMgal/365 days) = 3.360 million gallons of oil per 365 day period for both turbines
8) The combined fuel restrictions for the diesels and combustion turbines results in a maximum Station NOx emissions of 99 tons per year

ATTACHMENT 4

IMPA RICHMOND COMBUSTION TURBINE FACILITY
ACTUAL OZONE SEASON NOx EMISSIONS - NATURAL GAS & NO. 2 FUEL OIL

Source Name: Indiana Municipal Power Agency
Source Location: 4752 Gates Road, Richmond, Indiana 47374
Operations Permit # F177-5163-00040
Plant ID: 177-00040

		1992	1993	1994	1995	1996	1997	1998
Diesel Engine								
No. 2 Fuel Oil	gal	145	95	120	95	50	190	457
Heat Input	MMBtu	20.028	13.122	16.575	13.122	6.906	26.243	63.122
Emis. Fac (Ef)	lb/MMBtu	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Emissions NOx	lb	62.09	40.68	51.38	40.68	21.41	81.35	195.68
Emissions NOx	tons	0.031	0.020	0.026	0.020	0.011	0.041	0.098
Combustion Turbines - Natural Gas Firing								
Natural Gas	Mcf	29820	24250	43750	28370	12720	57740	240540
Heat Input	MMBtu	29820	24250	43750	28370	12720	57740	240540
Emis. Fac Ef-ac	lb/MMBtu	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Emissions NOx	lb	4174.8	3395.0	6125.0	3971.8	1780.8	8083.6	33675.6
Emissions NOx	tons	2.087	1.698	3.063	1.986	0.890	4.042	16.838
Combustion Turbines - No. 2 Fuel Oil Firing								
No. 2 Fuel Oil	gal	12814	6129	2130	2118	2609	31960	203849
Heat Input	MMBtu	1770	847	294	293	360	4414	28156
Emis. Fac Ef-ac	lb/MMBtu	0.246	0.246	0.246	0.246	0.246	0.246	0.246
Emissions NOx	lb	435.4	208.3	72.4	72.0	88.6	1085.9	6926.4
Emissions NOx	tons	0.218	0.104	0.036	0.036	0.044	0.543	3.463
Tot. Plant Heat Input	MMBtu	31609.9	25109.7	44060.8	28675.7	13087.3	62180.7	268759.4
Total NOx Emissions	tons	2.336	1.822	3.124	2.042	0.945	4.625	20.399
Avg. Emission Factor	lb/MMBtu	0.1478	0.1451	0.1418	0.1424	0.1445	0.1488	0.1518

Methodology

1) 1 gallon of No. 2 diesel fuel has a heating value of 138,123 Btu
2) 1 Mcf of natural gas has a heating value of 1,000,000 Btu
3) The NOx Emission Factor for the diesel engines is from AP 42 (1/95 version), Chapter 3.4, Tables 3.4-2, 3.4-5 SCC #2-02-004-01
4) The NOx Emission Factor for the combustion turbines is from stack test data as certified by IDEM based on water injection control of NOx emissions
5) The diesel engine limited throughput per the current FESOP Permit (gals/365 days) = 1099 gallons per 365 day period for both diesels
6) The combustion turbine limited throughput per the current FESOP Permit (MMCF/365 days) = 675.0 million standard cubic feet natural gas or 675,000 MCF per 365 day period for both turbines
7) The combustion turbine limited throughput per the current FESOP Permit (MMgal/365 days) = 3.360 million gallons of oil per 365 day period for both turbines
8) The combined fuel restrictions for the diesels and combustion turbines results in a maximum Station NOx emissions of 99 tons per year

ATTACHMENT 3

IMPA ANDERSON COMBUSTION TURBINE FACILITY
ACTUAL OZONE SEASON NOx EMISSIONS - NATURAL GAS & NO. 2 FUEL OIL

Source Name: Indiana Municipal Power Agency
Source Location: 6035 Park Road, Anderson, Indiana 46011
Operations Permit # F095-5162-00051
Plant ID: 095-00051

		1995	1996	1997	1998	1995-1998 2 Year Highest Average	1998	1999	1998-1999 2 Year Highest Average
Diesel Engine									
No. 2 Fuel Oil	gal	270	80	188	514		514	337	
Heat Input	MMBtu	37.293	11.050	25.967	70.995		70.995	46.547	
Emis. Fac (Ef)	lb/MMBtu	3.1	3.1	3.1	3.1		3.1	3.1	
Emissions NOx	lb	115.61	34.25	80.50	220.09		220.09	144.30	
Emissions NOx	tons	0.058	0.017	0.040	0.110		0.110	0.072	
Combustion Turbines - Natural Gas Firing									
Natural Gas	Mcf	135300	19600	78694	328646		328646	215689	
Heat Input	MMBtu	135300	19600	78694	328646		328646	215689	
Emis. Fac Ef-ac	lb/MMBtu	0.15	0.15	0.15	0.15		0.15	0.15	
Emissions NOx	lb	20295.0	2940.0	11804.1	49296.9		49296.9	32353.4	
Emissions NOx	tons	10.148	1.470	5.902	24.648		24.648	16.177	
Combustion Turbines - No. 2 Fuel Oil Firing									
No. 2 Fuel Oil	gal	3058	23858	4179	82207		82207	528	
Heat Input	MMBtu	422	3295	577	11355		11355	73	
Emis. Fac Ef-ac	lb/MMBtu	0.207	0.207	0.207	0.207		0.207	0.207	
Emissions NOx	lb	87.4	682.1	119.5	2350.4		2350.4	15.1	
Emissions NOx	tons	0.044	0.341	0.060	1.175		1.175	0.008	
Total Plant Heat Input	MMBtu	135759.7	22906.4	79297.2	340071.7		340071.7	215808.5	
Total NOx Emissions	tons	10.249	1.828	6.002	25.934		25.934	16.256	
Avg. Emission Factor	lb/MMBtu	0.1510	0.1596	0.1514	0.1525		0.1525	0.1507	
Tot. Plant Heat Input	**MMBtu**	**135759.7**	22906.4	79297.2	**340071.7**	237915.7	**340071.7**	**215808.5**	277940.1
Emission Factor for S126	**lb/MMBtu**	**0.15**	0.15	0.15	**0.15**	0.15	**0.15**	**0.15**	0.15
NOx Allow. at 0.15 rate	**tons**	**10.182**	1.718	5.947	**25.505**	17.844	**25.505**	**16.186**	20.846

Methodology

1) Fuel use data obtained from IMPA Quarterly Reports submitted to IDEM for actual operations.
2) 1 gallon of No. 2 diesel fuel has a heating value of 138,123 Btu
3) 1 Mcf of natural gas has a heating value of 1,000,000 Btu
4) The NOx Emission Factor for the diesel engines is from AP 42 (1/95 version), Chapter 3.4, Tables 3.4-2, 3.4-5 SCC #2-02-004-01
5) The NOx Emission Factor for the combustion turbines is from stack test data as certified by IDEM based on water injection control of NOx emissions
6) The diesel engine limited throughput per the current FESOP Permit (gals/365 days) = 1099 gallons per 365 day period for both diesels
7) The combustion turbine limited throughput per the current FESOP Permit (MMCF/365 days) = 675.0 million standard cubic feet natural gas or 675,000 MCF per 365 day period for both turbines
8) The combustion turbine limited throughput per the current FESOP Permit (MMgal/365 days) = 3.360 million gallons of oil per 365 day period for both turbines
9) The combined fuel restrictions for the diesels and combustion turbines results in a maximum Station NOx emissions of 99 tons per year

Updated on April 21, 2000 by John R. Fischer with verified IDEM Quartely Report Fuel Consumption Data provided by Jack F. Alvey.

EPAActOzoneSeasonNOxEmissionCalcACT95-99.xls

EXHIBIT 2

ATTACHMENT 4

IMPA RICHMOND COMBUSTION TURBINE FACILITY
ACTUAL OZONE SEASON NOx EMISSIONS - NATURAL GAS & NO. 2 FUEL OIL

Source Name: Indiana Municipal Power Agency
Source Location: 4752 Gates Road, Richmond, Indiana 47374
Operations Permit # F177-5163-00040
Plant ID: 177-00040

		1995	1996	1997	1998	1995-1998 2 Year Highest Average	1998	1999	1998-1999 2 Year Highest Average
Diesel Engine									
No. 2 Fuel Oil	gal	95	50	190	457		457	329	
Heat Input	MMBtu	13.122	6.906	26.243	63.122		63.122	45.442	
Emis. Fac (Ef)	lb/MMBtu	3.1	3.1	3.1	3.1		3.1	3.1	
Emissions NOx	lb	40.68	21.41	81.35	195.68		195.68	140.87	
Emissions NOx	tons	0.020	0.011	0.041	0.098		0.098	0.070	
Combustion Turbines - Natural Gas Firing									
Natural Gas	Mcf	28370	12720	57736	242520		242520	198863	
Heat Input	MMBtu	28370	12720	57736	242520		242520	198863	
Emis. Fac Ef-ac	lb/MMBtu	0.14	0.14	0.14	0.14		0.14	0.14	
Emissions NOx	lb	3971.8	1780.8	8083.0	33952.8		33952.8	27840.8	
Emissions NOx	tons	1.986	0.890	4.042	16.976		16.976	13.920	
Combustion Turbines - No. 2 Fuel Oil Firing									
No. 2 Fuel Oil	gal	2118	2609	31960	204849		204849	171828	
Heat Input	MMBtu	293	360	4414	28294		28294	23733	
Emis. Fac Ef-ac	lb/MMBtu	0.246	0.246	0.246	0.246		0.246	0.246	
Emissions NOx	lb	72.0	88.6	1085.9	6960.4		6960.4	5838.4	
Emissions NOx	tons	0.036	0.044	0.543	3.480		3.480	2.919	
Tot. Plant Heat Input	MMBtu	28675.7	13087.3	62176.7	270877.5		270877.5	222641.8	
Total NOx Emissions	tons	2.042	0.945	4.625	20.554		20.554	16.910	
Avg. Emission Factor	lb/MMBtu	0.1424	0.1445	0.1488	0.1518		0.1518	0.1519	
Tot. Plant Heat Input	**MMBtu**	28675.7	13087.3	**62176.7**	**270877.5**	**166527.1**	**270877.5**	**222641.8**	**246759.7**
Emission Factor for S126	**lb/MMBtu**	0.15	0.15	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**
NOx Allow. at 0.15 rate	**tons**	2.151	0.982	**4.663**	**20.316**	**12.490**	**20.316**	**16.698**	**18.507**

Methodology

1) 1 gallon of No. 2 diesel fuel has a heating value of 138,123 Btu
2) 1 Mcf of natural gas has a heating value of 1,000,000 Btu
3) The NOx Emission Factor for the diesel engines is from AP 42 (1/95 version), Chapter 3.4, Tables 3.4-2, 3.4-5 SCC #2-02-004-01
4) The NOx Emission Factor for the combustion turbines is from stack test data as certified by IDEM based on water injection control of NOx emissions
5) The diesel engine limited throughput per the current FESOP Permit (gals/365 days) = 1099 gallons per 365 day period for both diesels
6) The combustion turbine limited throughput per the current FESOP Permit (MMCF/365 days) = 675.0 million standard cubic feet natural gas or 675,000 MCF per 365 day period for both turbines
7) The combustion turbine limited throughput per the current FESOP Permit (MMgal/365 days) = 3.360 million gallons of oil per 365 day period for both turbines
8) The combined fuel restrictions for the diesels and combustion turbines results in a maximum Station NOx emissions of 99 tons per year

Updated on April 21, 2000 by John R. Fischer with verified IDEM Quartely Report Fuel Consumption Data provided by Jack F. Alvey.

EPAActOzoneSeasonNOxEmissionCalcRCT95-99.xls

EXHIBIT 3