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Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

November 17, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert Stewart, Sr. Vice President
Operations and Administration
Piney Point Phosphates, Inc.
13300 US Highway North
Palmetto, Florida 34221

Re: DEP File No. 0810002-004-AC
Piney Point Sulfuric Acid Plant Project

Dear Mr. Stewart:

We are reviewing your application to modify the existing sulfuric acid plant in Palmetto. It will not be complete until we receive the information requested below as well as your response from a further request for additional information which we will send you on November 25. The next request will include any comments from the National Park Service, Manatee County, EPA, and our modeling experts.

We have, nevertheless, begun our technical review. Best Available Control Technology (BACT) was proposed in the application as 4 pounds of sulfur dioxide per ton of acid (lb SO_2/ton) and 0.15 pounds of sulfuric acid mist (lb SAM/ton). The proposed values represent the New Source Performance Standards (NSPS) limits in force during the previous operation of the plant when it was permitted to produce 2000 tons per day (TPD) of sulfuric acid.

Other factors being equal, lower SO_2 emissions should result due to the planned replacement of degraded Type 210 and Type 11 vanadium containing (VC) pelletized catalyst in Converter 1 with low pressure LP 120 and LP 110 VC ring catalyst and the planned replacement of all pelletized VC catalyst in Converter 2 with LP 110 VC ring catalyst. The old catalysts were introduced by Monsanto in 1925 and 1963, whereas the LP line was first produced in 1980. With the lower pressure drop and improved conversion, it may be possible to enhance production, maintain it longer and still achieve lower emissions.

Though costly, total replacement of all pelletized catalyst in Converter 1 with the LP line could also result in even more SO_2 reduction and production improvement. It might even be advisable in order to minimize potential blockage of the internal ring openings by remaining pellets.

Instead of replacing the catalyst in Converter 2 with LP 110 VC catalyst as planned, it can be replaced with a "cesium-promoted" VC catalyst such as CS-110. This allows significant reduction of the operating temperature in Pass 5. The CS line was introduced in 1989 and has been demonstrated at several double absorption plants. This provides another opportunity for reduced emissions, higher steam production, and possibly increased production despite the higher cost. Please evaluate separately and in combination, the costs and benefits of both additional catalyst replacement scenarios given above.

We do not recommend processes which result in by-products or wastes and do not expect Piney Point Phosphates Inc. (PPPI) to review them further. It appears that these processes are not generally competitive with those which result in production of additional acid.

Since both absorption towers will be replaced, there are process modifications which should be considered which also result in production of sulfuric acid. One example is the "Centaur SO_2 Removal Process" developed by Monsanto in conjunction with Calgon. Basically, Converter 2 can be replaced with a reactor containing highly activated carbon catalyst/adsorbent. Wet conversion occurs in the bed which retains the acid. The acid is released by sequential back-washing of bed sections. The catalyst can operate at very low temperatures. This can result in reduced pressure drop across the plant as well as lower heat waste, lower emissions, and possibly increased production. Besides elimination of the second converter and its catalyst, it would eliminate the need for the planned replacement of the final tower, some heat exchangers, and the economizer.

Other possibilities exist such as peroxide oxidation of SO_2 to sulfuric acid. Monsanto or another company may have developed such a process. The point is that potentially feasible options need to be considered whether or not they have actually been employed on sulfuric acid plants in Florida. Please provide the technical and cost evaluations of all the options described above to allow the Department to make a thorough BACT determination. We would appreciate review of our information request by your contractor, Monsanto Enviro-Chem.

The planned replacement of all towers and their mist eliminators ought to make it possible to decrease SAM emissions. The mist eliminators described appear to be very efficient and the plant does not produce oleum which would otherwise make it more difficult to achieve a lower rate than 0.15 lb SAM/ton.

We are conducting the present evaluation under the assumption that a second plant will not be operated while the existing plant is used. Both the PSD analysis submitted for modifying the existing plant and the one submitted for building a second plant include emissions estimates for only one plant at the site. This will ultimately need to be reconciled when Piney Point's final plans are known. If there is a simultaneous two-plant option, it cannot be implemented under the applications submitted to-date.

If you have any questions regarding this matter, please call me at 850/488-1344.

Sincerely,

11/17

A. A. Linero, P.E. Administrator,
New Source Review Section

AAL/aal

cc: Brian Beals, EPA
John Bunyak, NPS
Bill Thomas, SWD
Karen Collins, Manatee County
Ivan Nance, PPPI
John Koogler, P.E., K&A

TAMPA ELECTRIC

November 12, 1997

Mr. Al Linero
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Mr. Jerry Campbell
Environmental Protection Commission
of Hillsborough County
1410 N. 21st Street
Tampa, Florida 33605

Re: Tampa Electric Company
Big Bend Unit #4
Petroleum Coke
Permit #PSD-FL-040
Annual Report (2 of 5)

Gentlemen:

As required by Specific Condition #1.C. of the above referenced permit, enclosed please find the annual petroleum coke fuel blend report. This report is to demonstrate that the operational change, the burning of petroleum coke, did not result in an emissions increase.

If you have any questions, please feel free to call Jamie Woodlee or me at (813) 641-5060.

Sincerely,

Gregory M. Nelson

Gregory M. Nelson, P.E.
Administrator - Air Programs
Environmental Planning

EP\RPT061

Enclosures

RECEIVED
NOV 17 1997
BUREAU OF
AIR REGULATION

cc: J. Reynolds, BAR

TAMPA ELECTRIC COMPANY
P.O. BOX 111
TAMPA, FL 33601-0111
HILLSBOROUGH COUNTY 223-0800
OUTSIDE OF HILLSBOROUGH COUNTY 1-888-223-0800
HTTP://WWW.TECOENERGY.COM

TAMPA ELECTRIC COMPANY
BIG BEND UNIT 4
PETROLEUM COKE FUEL BLEND
ANNUAL EMISSIONS REPORT

SEPTEMBER 17, 1996
THROUGH
SEPTEMBER 16, 1997

BIG BEND UNIT #4
ACTUAL OPERATING CONDITIONS
COMPARISON TO
HISTORICAL ACTUAL EMISSIONS

POLLUTANT	ANNUAL EMISSION (TPY) 9/17/96 - 9/16/97	VS	1993 & 1994 ANNUAL EMISSION (TPY)
SO2	5097		6788
NOx	6018		6763
PM	70		72

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BIG BEND UNIT #4
PETROLEUM COKE FUEL BLEND
SO2 EMISSIONS
9/17/96 - 9/16/97

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SEP (9/17-9/30)	92.95	110973	3.13	6134	264
OCT 96	91.09	128113	3.17	7029	688
NOV 96	91.74	116121	3.17	6416	578
DEC 96	93.19	123970	3.57	7836	573
JAN 97	94.29	115476	3.47	7179	435
FEB 97	92.80	52173	3.31	3045	236
MAR 97	93.92	105340	2.98	5602	363
APR 97	96.01	113619	3.17	6570	273
MAY 97	94.81	125840	3.20	7254	397
JUN 97	93.91	127623	3.19	7264	471
JUL 97	94.52	130398	3.05	7142	414
AUG 97	95.35	107151	3.16	6134	299
SEP (THRU 9/16)	94.01	79749	2.27	3234	106
SO2 TONS EMITTED					**5097**

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BIG BEND UNIT #4
PETROLEUM COKE FUEL BLEND
NOx EMISSIONS
9/17/96 - 9/16/97

SEP (9/17-9/30)	148054	9621	1424429	0.393	0.393	280	280
OCT 96	313830	9431	2959731	0.396	0.395	586	866
NOV 96	275232	9452	2601493	0.394	0.395	512	1378
DEC 96	302429	9419	2848579	0.399	0.396	568	1947
JAN 97	275779	9391	2589841	0.381	0.393	493	2440
FEB 97	137108	9355	1282645	0.384	0.392	246	2686
MAR 97	238129	9398	2237936	0.362	0.388	405	3091
APR 97	261759	9491	2484355	0.420	0.392	522	3613
MAY 97	298206	9507	2835044	0.404	0.394	573	4186
JUN 97	295381	9611	2838907	0.394	0.394	559	4745
JUL 97	298177	9649	2877110	0.405	0.395	583	5328
AUG 97	249092	9758	2430640	0.406	0.396	493	5821
SEP (THRU 9/16)	96647	9640	931682	0.422	0.397	197	6018
TOTAL	**3189823**		**30342392**				

BIG BEND UNIT #4
PETROLEUM COKE FUEL BLEND
PM EMISSIONS
9/17/96 - 9/16/97

FROM ANNUAL COMPLIANCE TEST PM = SEP 17, 1996 - FEB 1997 .003 LB/MMBTU
FROM ANNUAL COMPLIANCE TEST PM = MAR 1997 - SEP 16, 1997 .006 LB/MMBTU
FROM GENERATION SUMMARY MONTHLY HEAT INPUTS

ANNUAL PM EMISSIONS (TPY) = (0.003 LB/MMBTU)(MONTHLY HEAT INPUT MMBTU)(TN/2000LB)
(SEP 17, 1996 - FEB 1997)

ANNUAL PM EMISSIONS (TPY) = (0.006 LB/MMBTU)(MONTHLY HEAT INPUT MMBTU)(TN/2000LB)
(MAR 1997 - SEP 16, 1997) **TPY =** **70**

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