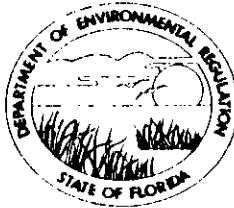


TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301



BOB GRAHAM
GOVERNOR
JACOB D. VARN
SECRETARY

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

March 28, 1980

Mr. A. L. Girardin, III
New Wales Chemicals, Inc.
P. O. Box 1035
Mulberry, Florida 33860

Dear Mr. Girardin:

This is to confirm that your application to construct a DAP plant (Application No. AC 53-23546) was considered complete as of February 13, 1980.

Preliminary determinations and draft permit are nearing completion and are scheduled for release to public notice on April 1, 1980.

Final agency action on your application will occur, in accordance with Chapter 120 F.S., on or before May 14, 1980.

Sincerely,

William A. Thomas
Engineer
Bureau of Air Quality Management

BAT:caa

State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

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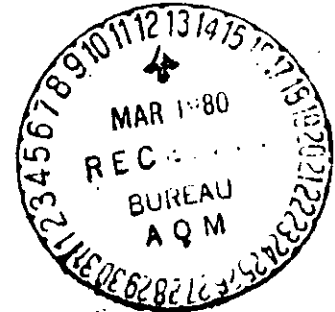
ST. JOHNS RIVER SUBDISTRICT, JACKSONVILLE

TO: Vicky Martinez
BAQM

FROM: Johnny Cole

DATE: March 12, 1980

SUBJECT: BACT Determination for DAP Plants



My recommendations are as follows:

1. For fluoride, the 17-2 limit which is the same as NSPS (0.06 lb F per ton of P₂O₅ input) should be used unless there is some local ambient problem that requires a smaller limit.
2. For particulates, the proposed controls should be BACT. Emission limits should be the rates used in each model unless the model and/or results are not acceptable. In such case, run a CRSTER to establish a limit. Limits in applications:

Gardinier	maximum 10 lbs/hr
New Wales	model needed
Grace	run model; proposed 34 lbs/hr as avg. On PSD page, stated < 50 TPY while on page 3 stated 140 TPY.

3. For SO₂, the use of 2.5% sulfur fuel oil should be BACT.
4. For ammonia, the proposed scrubbers to control other emissions should be BACT.
5. For NO_x, the proposed controls and the nature of the process should be considered BACT.
6. Unless these sources can document otherwise, the acid input should be limited to a 30%-50% P₂O₅ split acid feed.

Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

OFFICE MEMORANDUM

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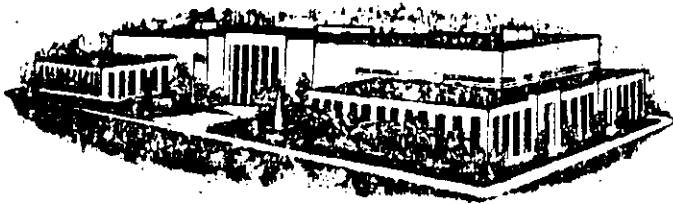
TO: Ms. Victoria Martinez, BACT Coordinator (Air)
FROM: Jose F. deCastro, CH.E., P.E. Administrator, Industrial Waste Section
DATE: March 11, 1980
SUBJECT: BACT Determination for Three DAP Plants: W. R. Grace, Gardiner, and New Wales

We have reviewed the packages attached to your memorandum of February 22, 1980, held a technical meeting with W. R. Grace representatives and their consultant, Dr. Koogler, and finally discussed the issue with members of the DER staff. Unfortunately, the performance data that we have been able to see does not, in our professional opinion, suit too well for developing BACT (DAP) limitations for the following reasons:

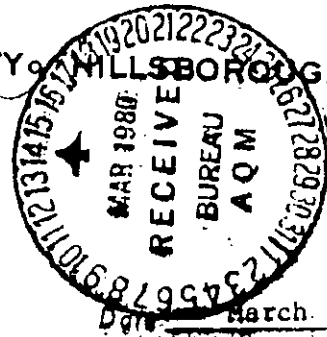
- Particulate emissions from DAP plants are affected by some controllable and one quasi-uncontrollable factor; to wit, the quality of the tail-gas scrubber water.
Emissions from two identically operated twin plants are dependent on the solids concentration in the tail-gas scrubber water.
The performance of a tail-gas scrubber utilizing once-through rain water from an abandoned phosphate mine pit should by far surpass that from the same unit operating with saturated process-recycled water.
- Stack plumes from DAP plants contain steam generated from the scrubber water countercurrently heated by ascending hot residual process gases. Dissolved solids in the evaporated scrubber water increasingly deposit on the scrubber packing and eventually report as dust in the stack test.
Particulate grain loadings as periodically reported by DAP operators most certainly reflect optimum performances of their systems immediately after maintenance and cleaning operations. Rarely these emissions reflect fact-of-life performances and should be used with care.

SUMMARIZING: Self-stack-sampling results as reported by DAP operation (USSAC) that have easy access to and employ once-through rain water from an old mine pit are not representative of fact-of-life performances and should not be used to set BACT limits, even for such operation (USSAC). At least monthly stack samples throughout the usual six-month span between maintenance operations would be required to assess BACT values. Plant shut-down for cleaning purposes are forced by pressure build-up due to fouling of the scrubber packing. What is the particulate grain loading of (USSAC) stack just prior to shut down?

CONCLUSION: Based on previous field experience, it is our professional opinion that .02 GR./SCF of particulate matter is as reasonably low a stack loading as could be expected from a DAP plant at all times. We recommend such value as BACT limitation for calculation purposes.



COUNTY OF HILLSBOROUGH



MEMORANDUM

Date March 11, 1980

To Victoria Martinez - FDER

From Joe Griffiths - Env. Prot. Comm. *JG*

Subject: BACT for DAP plants

The proposed BACT plans submitted for the three various facilities; W. R. Grace, Gardiner, New Wales; all suggest the same technology for control of air emissions. Basically, they all propose venturi scrubbers using packed towers as tail gas scrubbers with the exception of New Wales which proposes to use a baghouse for the cooler's emissions. From data gained in recent stack tests for C. F. Industries DAP plant it is apparent that particulate control is much better or should be much better than the present process weight table allows. Therefore, I propose 0.03 gr/scf as the emission limit on the wet collection devices and 0.015 gr/scf on the baghouse.

The 0.03 gr/scf limit has been achieved by the latest wet collection devices installed throughout Hillsborough County on other phosphate processes and therefore represents BACT in my opinion.

The 0.015 gr/scf limit on the baghouse has been shown to be achievable and is guaranteed by most manufacturers. Use of a baghouse on the product storage doesn't present any problem and would be very efficient; however, it appears some fluoride emissions are possible at this point and in order to ascertain the quantity an initial test for fluorides is recommended.

The emission limit for Fluorides listed in FAC 17-2 of 0.06 lbs F/ton P₂O₅ appears to be on the high side for most new plants. Data from past stack tests for other DAP plants indicates emissions lower than 0.03 lbsF/ton P₂O₅ in one case and lower than 0.02 lbsF/ton P₂O₅ in another. I therefore recommend an emission limit of 0.04 lbsF/ton P₂O₅. Since there are no emission limits for SO₂ or Ammonia there is no reason to recommend an emission level. However, I would recommend an ammonia level be established in the near future for existing and new sources of ammonia.

If you have any questions, please call.

JG/fd

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION
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TO: Victoria Martinez
THRU: Steve Smallwood
Philip R. Edwards *PRE*
FROM: Tom Davis *TAD*
DATE: March 11, 1980
SUBJECT: BACT Determination - DAP Fertilizer Plants



My review of the three BACT applications indicates that all would qualify for BACT review for particulates, sulfur dioxide, and fluoride emissions (these pollutants in all applications exceed the 100 ton/yr potential criteria as listed in Chapter 17-2).

My BACT recommendation for each pollutant is as follows:

- (1) Fluorides - inasmuch as Chapter 17-2.03(1)(a) implies that NSPS should be considered as BACT, the NSPS of 0.060 lbs F/ton of P₂O₅ feed is recommended.
- (2) Sulfur Dioxide - the applications indicate there is a SO₂ removal rate in the DAP process of between 60% to 70%. Fuel consumption rates vary between 4.0 and 6.0 gal/ton of P₂O₅ feed. It is recommended that the BACT SO₂ limit be issued as 0.70 lbs. SO₂/ton of P₂O₅ feed. This is equivalent to using 1% S fuel based upon an average consumption rate of 4.5 gal/ton of P₂O₅. The data supplied by Gardinier showed an unusually high fuel consumption rate - roughly 1.4 times the other two facilities. Since there should not be any reason for a large difference between facilities, the Gardinier data was adjusted downwind using a factor of .2 gallons/ton of DAP for fuel usage. The figure of 4.5 gal/ton of P₂O₅ feed fuel usage was the highest value supplied of the three applications (after adjusting the Gardinier data). Accordingly, it is felt that BACT proposed should be readily achievable by all three facilities (Gardinier estimates a SO₂ emission rate of 10 lbs/hr - the proposed BACT would allow 15.8 lbs/hr). It is noted there was virtually no information provided on the economics of low vs high sulfur fuel oil. However, the recommendation offered is felt to be reasonable in that it would allow use of 2.5% S fuel.

Victoria Martinez
Page Two
March 11, 1980

- (3) Particulate - there is little data in the applications pertaining to existing particulate emission rates from DAP plants equipped with the technology proposed - venturi scrubbers followed by a packed tower. Based upon the data provided, a recommendation of 0.50 lbs. particulate/ton P₂O₅ feed is offered. This is equivalent to an exit grain loading of 0.150 grains/scf. The test history and statements contained in the New Whales Chemicals, Inc. application support this level.

In summary, the following is recommended as BACT for the DAP plants:

Pollutant	Emission Limit (lbs/ton P ₂ O ₅ feed)
Fluorides	0.060
Sulfur Dioxide	0.70
Particulates	0.50

In general, it is felt compliance determination would be facilitated if all emission limits were expressed on the same basis. It is also noted that the above limits are meant to apply as total emissions from the DAP plants; i.e. all measurable discharge points - scrubbers, baghouses, etc - would be combined in determining compliance. The tons P₂O₅ feed refers to the plant input to the reactor.

If there are any questions concerning this matter, please contact me.

/lp

DEPARTMENT OF ENVIRONMENTAL REGULATION

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From: _____	Date: _____

TO: Victoria Martinez, BACT Coordinator

FROM: Willard Hanks *wmh*

DATE: March 5, 1980

SUBJ: Bact Determination - Diammonium Phosphate Plants (DAP)
W. R. Grace & Co./Gardiner, Inc./New Wales Chemical Co.

The applications for permits to construct DAP plants for the subject companies along with emission data from USS Agri-Chemicals and other DAP plants has been reviewed. The control equipment selected by the applicant appears to be the best type available for the process. However, the Department does not have the information needed to establish a standard for particulate and sulfur dioxide emissions from these plants. To the best of my knowledge, the information is not available and a special study program would be required to obtain the data.

I suggest the BACT determinations of emissions standards for these plants be postponed until the plants are built and in operation. The standards would be established based on tests of the actual emission from the facility. This could be handled by the permits to construct listing operation parameters for the control devices and specifying a test program to determine the emission standards. The provisions could also contain a maximum allowable emission, based on the PSD study, which would be permitted. Suggested wording of the permit provisions would be:

1. The emission standards for particulate and sulfur dioxide will be established by a series of emission tests conducted under the Department's supervision at the expense of the applicants with the control devices operating at the following conditions:

Company	Plant Capacity TPH DAP	MIN. ΔP VENTURI (in. H ₂ O)	MIN. GPM FROM VENTURI	MIN. GPM FROM TAIL GAS	% SULFUR IN FUEL OIL	P ₂ O ₅ CONTENT OF VENTURI SCRUBBER LIQUID
W. R. GRACE	80	12	2,500 total for 3 scrubbers	4,000 total for 2 scrubbers	2.3	20-30
GARDINIER	50	12	1,600 total for 3 scrubbers	2,600 total for 2 scrubbers	2.0	20-30
NEW WALES	70/Train (140 TOTAL)	12	1,600/Train	6,000/Train	2.5	20-30

2. A minimum of 3 test (9 runs) using EPA reference methods 1,2,3,4,5 and 6, as published in 40 CFR 60, Appendix A, dated 7/1/78 will be the basis of the study. One test will be conducted while the scrubbers are clean, one prior to scheduled shutdown for plant for clean up or 6 month-whichever is first, and one about midway between these tests. The plant will be operating near its permitted rate (+10%) with the dryer burning oil containing the maximum per cent sulfur allowed (+15%) during all tests. The standard selected for the source may be up to 10% above the average for all tests but, under no circumstances, will exceed the intern values listed in the construction permit.
3. The Department will be notified 30 days in advance of any test that will be used in establishing the BACT emissions. All valid test data collected during the test period will be considered in establishing the standard.
4. Intern emission standards should be:

Company	Particulate			Sulfur Dioxide	
	Grains/DSCF	lbs/TDAP	lbs/hr.	lbs/TDAP	lbs/hr
W.R. Grace	0.020	0.29	23.0	0.30	25
Gardinier*	0.016	0.23	11.4	0.30	15
New Wales**	0.020	0.23	32.0	0.30	44

5. The fluoride standard is 0.06 lbs. total fluoride per ton P_2O_5 input as measured by reference method 13 A or 13 B as published in 40 CFR 60, Appendix A, dated 7/1/78.

If BACT cannot be established after the plants are built, I recommend the particulate standard be set at 0.20 lbs/TDAP for a total complex which corresponds to the 99.9 percentile of the emission data reported for USS Agri-Chemicals new DAP plant. The sulfur dioxide standard should be 0.30 lbs/TDAP, which is approximately what 2 of the plants requested in their application.

- * PSD regulations forces this Company to meet more restrictive emission standards
- ** For venturi/tailgas scrubber system only. The 0.01 grains/DSCF and 4.42 lbs/hr. for the bag filter serving the cooler is acceptable for BACT.