

file
W.R. Grace
AC 53-24460

GRACE

Agricultural Chemicals Group

W. R. Grace & Co.
P.O. Box 471
Bartow, Florida 33830

(813) 533-2171

December 27, 1982

Mr. W. K. Hennessey, District Manager
Department of Environmental Regulation
Southwest District Office
7601 Highway 301, North
Tampa, Florida 33610

DER
JAN 3 1983
BAQM

Dear Mr. Hennessey:

Re AC53-24460, DAP Plant No. 3

In compliance with the recently modified construction permit AC53-24460, I enclose the only stack test we have been able to take since the start-up of the new DAP plant.

At the rate of production of 110 TPH, its emissions averaged only 39.9 lbs. of Fluorides and 100.7 lbs. of Particulates in 24 hrs., which is well below the values specified in the construction permit.

We have not informed EPA about the stack test result because it is my understanding they have turned this function over to DER.

Sincerely,



M. J. Martinasek
Project Engineer
Environmental Control

MJM:db
Enclosure

cc: Willard Hanks, DER-Tallahassee - wo/e
Dan Williams, DER-Tampa - wo/e
D. S. Sharpe/F. L. Applegate - wo/e
M. J. Altenburger - wo/e

GRACE

Agricultural Chemicals Group

W. R. Grace & Co.
P.O. Box 471
Bartow, Florida 33830

(813) 533-2171

June 3, 1983

Mr. Willard Hanks, P. E.
Air Permitting Department
Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Rd.
Tallahassee, Fl 32301

DER
JUN 08 1983
BAQM

Dear Mr. Hanks:

Re New DAP Plant and Shipping
Permit Nos. AC53-24460 and 36672

Due to a multitude of complex difficulties we have been experiencing at the new DAP plant, I have to ask you to kindly extend our Construction Permits. Some of the difficulties that plagued us included the new granulator design, rapid build up of sticky material in several sections of duct work, inadequate sprays, and plugging of scrubbing pads with unexpected CaO, algae, and fungus growing inside the tail gas scrubbers pads.

The magnitude of these problems is demonstrated in the following data averaged from the plant log:

<u>Time Period</u>	<u>Operating Time</u>	<u>Prod. Rate</u>
Nov. 15 - Dec. 19	10 hrs./day	52 T/oper. hr.
Dec. 20 - Mar. 13	17 hrs./day	97 T/oper. hr.
Mar. 14 - May 1	20 hrs./day	113 T/oper. hr.
May 2 - May 29	16 hrs./day	118 T/oper. hr.

This DAP plant has been designed to produce 130 TPH and is expected to operate approximately 21 hrs. per scheduled 24 hr. day. You will note that even though our rate of production per operating hour has been improving, we still need considerable downtime for cleaning and improvements.

Mr. Willard Hanks
June 3, 1983
Page 2

The enclosed two pages summarizing the improvements to the scrubbing system will prove that we are working closely with four outside companies to solve our problems as soon as possible.

Stack tests taken during this period indicate that we have solved our problem with emissions of particulates and ammonia, but still have to lower the fluoride emissions which appeared only in the past two months, as per the enclosed summary sheet.

To reduce fluoride emission from the present range of 4 to 16 lbs./hr. we expect to change scrubbing pads, change and add spray nozzles, and add a third scrubbing stage complete with new pads into the two tail gas scrubbers. The latter includes new piping arrangement to the scrubbers as well as additional pads, sprays and supports inside the scrubbers, all of which is time consuming.

In view of the above, we ask you to kindly consider extending our present construction permit by six months.

Please be assured that the slightly higher fluoride emissions are more than offset by the low operating factor of this DAP plant in particular, as well as the whole chemical complex in general, which is operating only at approximately one third of its full capacity and may be reduced even further in the summer.

I would be glad to give you any additional information either over the phone, or at your office at your convenience.

Sincerely,


M. J. Martinasek
Project Engineer
Environmental Control

MJM:db
Enclosure

cc: W. K. Hennessey-DER
Dan Williams-DER
D. S. Sharpe/F. L. Applegate, Jr.

No. 4 Fertilizer Plant - Scrubbing System Improvements

2/25/83, per memo from Bearden - Potter Corp.:

- a. "Ducon" recognized that spray patterns are inferior on all of the "Kimre" packing, and agreed to provide some new Bete M.P. for tests.
- b. "Ducon" further agreed to provide a new design of the acid inlet to the venturi scrubbers.

3/9/83, per letter from The Ducon Co., Inc.

- a. A most thorough investigation of the cyclonic scrubbers was implemented,
- b. Drawing of modifications to the cyclonic scrubber was mailed to Bearden - Potter Corp.,
- c. Analyses of scrubber water and build-up matter was requested,
- d. Modification were recommended for
 1. Plant tail gas scrubber
 2. RGV scrubber
 3. Duct inlet: 2 additional sprays
 4. Dryer Tail Gas Scrubber
 5. Cooler Scrubber

3/25/83, per Ducon Co.'s letter deals with three problem areas:

1. Nozzle Selection: requested that 92 existing fine spray nozzles be replaced with solid cone type Bete Maxi Pass MP-500 W nozzles. (W. R. Grace purchased 316 S.S. spray nozzles worth \$2,900, by air express on 3/31.)
2. Plugging of Kimre packing is compounded by unexpectedly high levels of CaO;
3. Mist carry over from the above.

A different type of Kimre packing was recommended if the new full cone spray nozzles did not solve the problem.

- 4/8/83, Memo re. status and recommendations from R. Dewey to R. Morrell (Grace).
- 4/13/83 Letter from "Kimre, Inc.": four pages of analyses and suggestions, including:
1. discovery of "a most unexpected type of slimy, biological deposit" on the Kimre mesh material (wetted surface type tail gas scrubber).
 2. in line duct sprays in down comers into RGV scrubber
 3. change of mist eliminator media.
- 4/26/83 Inspection revealed that several trays of the RGV scrubbing mats have developed holes 12"-18" dia. directly in front of the spray nozzles.
- 5/5/83 Report from Dearborn Chemical Co. concludes that:
1. Majority of the "foulant" in the scrubber pads is microbiological, and that
 2. the major percentage of the organic is algae. Also present are some bacteria and mold which grow on the decaying organic inside the dark scrubber,
 3. Calcium, Aluminum and Phosphorous matter compound the "fouling" (plugging) process.
 4. Testing program is suggested, using an anti-foulant and later a biocide.

(Others have suggested previously a dilute solution of sulfuric acid, and/or "Pond Water".

Stack Test Summary: No. 3 DAP Plant (No. 4 Fertilizer Plt.)

<u>Date of Test</u>	<u>Emission of F</u>	<u>Emission of PM</u>	<u>Prod. Rate</u>
Dec. 22, 1982	1.7 lbs./hr.	4.2 lbs./hr.	110 TPH
Mar. 20, 1983	2.6 lbs./hr.	Not taken	90 TPH
Apr. 3, 1983	12.9 lbs./hr.	3.1 lbs./hr.	110 TPH
Apr. 24, 1983	4.1 lbs./hr.	3.5 lbs./hr.	90 TPH
May 20, 1983	16.1 lbs./hr.	3.1 lbs./hr.	100 TPH
May 25, 1983	6.7 lbs./hr.	5.0 lbs./hr.	110 TPH

Note: Compare to the permitted amount of 3.6 lbs. F and 29.9 lbs. PM/hr.
@ 120 - 130 TPH

MJM:db
6/3/83

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
From: _____	Date: _____	
Reply Optional []	Reply Required []	Info. Only []
Date Due: _____	Date Due: _____	

TO: Willard Hanks
THRU: Dan Williams *DW*
FROM: Bill Thomas *WCT*
DATE: June 10, 1983
SUBJECT: AC53-24460 W. R. Grace DAP plant,
request to extend permit 6 months.

DER
JUN 20 1983
BAQM

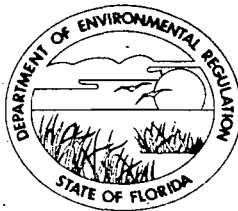
In December and March, stack test were made at the DAP plant and fluoride emissions were within acceptable limits. This indicates that when functioning properly, the tail gas scrubber is adequate. However, unusual start-up problems have caused increased fluoride emissions since early April. W. R. Grace appears to be working diligently to solve the problems.

I suggest that Grace be granted the 6 month extension, as requested, with the stipulations that W. R. Grace (1) make a minimum of one stack test for F per month and (2) make monthly progress and plans reports to Tampa office until the plant is in compliance.

WCT/rfm

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

June 23, 1983

Mr. David S. Sharp
W. R. Grace and Company
Post Office Box 471
Bartow, Florida 33830

Dear Mr. Sharp:

Modification of Conditions
Permit No. AC 53-24460

The department is in receipt of your request for a modification of the permit conditions for the new diammonium phosphate (DAP) plant. The expiration date for construction permit No. AC 53-24460 for this plant is extended, as you requested, and new conditions are added to the permit to assure the department that the air pollution control regulations will not be violated while the operation problems in the new plant are being corrected.

Existing Condition

Expiration Date: December 31, 1982

Revised Condition

Expiration Date: March 30, 1984

New Conditions

15. W. R. Grace and Company shall submit a monthly report summarizing the status of the modifications to reduce fluoride emissions, a measurement of the fluoride emissions during the month, other plans to reduce the emissions and the maximum production rate achieved to the Southwest District Office by the 15th of the following month. These reports shall continue until W. R. Grace and Company applies for a permit to operate the new DAP plant.
16. Until permit AC 53-24460 expires, any fluoride emissions from the new DAP plant in excess of the permitted quantity must be offset by other sources of fluoride emissions at W. R. Grace and Company's phosphate fertilizer complex.

Mr. David S. Sharp
June 23, 1983
Page Two

This letter must be attached to your permit and becomes a part of that permit.

Sincerely,


Victoria J. Tschinkel
Secretary

VJT/ks

cc: Dan Williams, Southwest District
Thomas A. Gibbs, Environmental
Protection Agency

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
From: _____	Date: _____	
Reply Optional []	Reply Required []	Info. Only []
Date Due: _____	Date Due: _____	

RECEIVED
JUN 23 1983

TO: Victoria J. Tschinkel

FROM: Clair Fancy *Clair Fancy*

DATE: June 23, 1983

SUBJ: Modification of W. R. Grace and Company's Air Construction Permit Conditions

Office of the Secretary

W. R. Grace and Company is having operation problems with their new diammonium phosphate (DAP) plant, that was constructed under permit AC 53-24460. They have requested that the expiration date of this permit be extended while they correct the problems in the new plant.

Until the new DAP plant operates properly and the demand for their product improves, they are unable to use their new shipping facility, constructed under permit No. AC53-36672, at design capacity. Until the shipping facility is operated at design capacity, they cannot do the compliance test required by the construction permit and needed as part of the application for permit to operate. They have requested that the construction permit for the shipping facility also be extended.

Two letters extending the expiration dates of these permits to March 30, 1984, are attached. New conditions were also placed in the permits to allow the department to monitor W. R. Grace and Company's progress while correcting the problems. The Bureau respectfully requests that the air construction permit modifications be approved.

CHF/ks

60 0.

file:
W.R. Grace Permit
into DAP

GRACE

Agricultural Chemicals Group

W. R. Grace & Co.
P.O. Box 471
Bartow, Florida 33830

(813) 533-2171

August 3, 1983

Mr. Willard Hanks, P. E.
Air Permitting Department
Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Rd.
Tallahassee, FL 32301

DER
AUG 05 1983
BAQM

Dear Mr. Hanks:

Re New DAP Plant
Permit No. AC53-24460

The following stack tests were made on the new fertilizer plant since my last letter to you dated June 3:

- 6/1 9.2#F/hr. and 12.5# particulates per hour, @ 100 TPH of DAP. Exceptionally high mist during the first run resulted in very high F content in the sample. The three individual runs thus calculated at 20.4 #F/hr., 3.3 and 4.0 #F/hr.
- 6/14 3.1 #F/hr. and 3.7 # of particulates per hour @ 90 TPH of DAP.
- 6/28 2.3 #F/hr. and 5.7 # of particulates per hour @ 120 TPH of DAP.
- 7/21 6.1 #F/hr. and 23.1 # of particulates per hour @ 120 TPH of DAP. Airflow was lowered by approximately 50,000 SCFM by directing cooler scrubber gases into the dryer. The reduced airflow combined with additional scrubbing of cooler gases should have lowered stack emissions; it didn't.
- 7/28 4.7 #F/hr. and 6.5 # of particulates per hour @ 120 TPH of DAP. The original gas flow was resumed.

Mr. Willard Hanks, P. E.
August 3, 1983
Page 2

It has been suggested that the Fluorine compounds in the stack fumes include miniscule particles of ammonium bi-fluoride which is extremely difficult to remove due to its size ranging from 0.1 to 0.9 microns. We are therefore looking into the possibility of minimizing the formation of this undesirable compound, while we continue experimenting with better spray nozzles and different kinds of "Kemry" mesh media in the final scrubbers.

This plant has operated only 303 hrs. in June, and 234 hours in July ("Grace" months, ending on the 25th), and produced 33,100 T and 26,300 tons of DAP respectively.

Sincerely,



M. J. Martinsek
Project Engineer
Environmental Control

MJM:db

cc: Dan Williams-DER
D. S. Sharpe/F. L. Applegate, Jr.
R. I. Morrell
H. F. Ball

GRACE

file
Agricultural Chemicals Group

W. R. Grace & Co.
P.O. Box 471
Bartow, Florida 33830-0471

(813) 533-2171

September 20, 1983

Mr. Willard Hanks, P.E.
Department of Environmental Regulation
Air Permitting Department
Twin Towers Office Bldg.
2600 Blair Stone Rd.
Tallahassee, Florida 32301

DER
SEP 23 1983
BAQM

Dear Mr. Hanks:

Re New No. 4 Fertilizer Plant
Permit No. AC53-24460

Particulate emissions remained at very low levels during the Grace months of July and August, but we are still concentrating on lowering fluorides and mist and increasing production to the designed 130 TPH. We averaged only 108 TPH of DAP during the 840 hours we were able to operate owing to frequent downtime for improvements and market conditions.

The three stack tests taken in July under normal process conditions and at 120 TPH of DAP averaged 4.33 lbs. of F/hr., (compared to 3.6 #/hr. permitted at 130 TPH) and 11.77 lbs. of particulates/hr., (vs. 29.9 #/hr. permitted).

Changes in process conditions in August included increased pH of the scrubbing medium. This solved the Fluorine problem, but the stack tests on August 26 and 27 averaged 31.2 # and 40.8 lbs. of particulates per hour, which resulted in frequent plugging of scrubber packing.

We have therefore returned to the original process conditions, and increased the thickness of the final mist eliminator by approximately one third.

A summit meeting was held on August 31 with Ducon Mfg. Co., Kimre Co. (packing manufacturers), Bearden-Potter Engineering Co., Linder Industrial and W. R. Grace personnel with the following course of action planned for late September and October:

Mr. Willard Hanks, P.E.


September 20, 1983

Page 2

1. Ducon Co. will calculate the amount of high pressure fresh water required to saturate the tail gas incoming gases
2. Ducon will recommend the type of spray nozzles required, and make a Field Engineer available for evaluation testing.
3. A second test will be made with all the water available directed to the tail gas scrubber packing.
4. We will attempt to collect enough sub-micronic particulates in the stack to determine if the high Fluoride analyses are caused by the elusive ammonium bi-fluoride.

As you see, we have been pursuing the solution to this problem very diligently, and will continue until we lower the fluoride emission to the permitted level, in the near future.

Sincerely,


M. J. Martinasek
Project Engineer
Environmental Control

MJM:db

cc: Dan Williams - DER - Tampa
D. S. Sharpe/F. L. Applegate, Jr.
R. I. Morrell
H. F. Ball

GRACE

Applications sent to Tampa DER for processing

Agricultural Chemicals Group

12/9/83

PA

W. R. Grace & Co.
P.O. Box 471
Bartow, Florida 33830

(813) 533-2171

December 6, 1983

Mr. Willard Hanks
Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Rd.
Tallahassee, Florida 32301

DER
DEC 09 1983
BAQM

Dear Mr. Hanks:

Permit No. AC-36672: DAP Shipping

In compliance with Ms. Victoris Tschinkel's letter dated June 23, I enclose four copies of application for Operating permit accompanied by a check for \$500.00 and the results of the latest stack test averaging approximately 1/2 lb. of particulate emissions per hour.

This application is being mailed to your office, with a copy to your Southwest District Office, because I understand that both the Construction and the Operating Permits should be issued by the same office.

Please contact me if you need any additional information.

Sincerely,

M. J. Martinasek
M. J. Martinasek
Project Engineer
Environmental Control

MJM:db
Enclosures

cc: H. F. Ball - wo/e
R. H. Dewey - wo/e
R. I. Morrell - wo/e
A. F. Vondrasek - w/e
Dan Williams - w/e