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SEP 30 1986

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OCCIDENTAL CHEMICAL COMPANY, FLORIDA OPERATIONS, Post Office Box 300, White Springs, Florida 32096, Telephone 904 397-8101

September 29, 1986

Mr. C. H. Fancy  
Deputy Chief, Bureau of Air  
Quality Management  
Florida Department of Environmental Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32301-8241

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Encl. Response -  
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Subject: Occidental Chemical Agricultural Products Inc.  
Proposed Prilled Sulfur Storage and Handling Facility  
Permit No. AC24-119008

Dear Mr. Fancy:

The following information has been prepared in response to your letter of July 30, 1986. The information contained herein has been discussed with Mr. Pradeep Raval of your staff.

FDER Request No. 1 -

Please quantify the contemporaneous net emissions increase at your facility with regards to the prilled sulfur project.

Response -

There will be contemporaneous net increases of both particulate matter and hydrogen sulfide as a result of the vatted and prilled sulfur storage and handling facilities proposed by Occidental at the Swift Creek Chemical Complex. These increases are documented in the following subsections.

HYDROGEN SULFIDE

Vatted Sulfur Facility

As documented in the application and supplemental support material submitted in support of the vatted sulfur storage area permit (AC24-61435) the contemporaneous net increase of hydrogen sulfide will be 7.5 tons per year. This increase will occur during the first two years of operation of the vatted sulfur storage facility as an inventory of sulfur is established. During each of these first two

years of operation up to 75,000 tons per year of sulfur will be placed into inventory in addition to a throughput of up to 300,000 tons per year of sulfur. The hydrogen sulfide emissions associated with the 75,000 tons of inventoried sulfur during each of the first two years of operation could result in a contemporaneous net emission increase of up to 7.5 tons of hydrogen sulfide per year for each of the first two years of operation. After the vatted sulfur inventory has been established, the sulfur received in the vatted sulfur storage area should balance the sulfur withdrawn from the area; resulting in no change in the hydrogen sulfide emissions at the Swift Creek Chemical Complex.

#### Prilled Sulfur Facility

There will be no net increase in hydrogen sulfide emissions from the Swift Creek Chemical Complex as a result of handling prilled sulfur. It has been estimated that hydrogen sulfide emissions from both prilled and molten sulfur will be equivalent and that hydrogen sulfide will be emitted from the prilled sulfur only when melted. Since prilled solid sulfur will replace molten sulfur on a ton-per-ton basis. Any hydrogen sulfide released to the atmosphere when the prilled sulfur is melted use will be offset by an equal reduction in hydrogen sulfide emissions from the molten sulfur that has been replaced on a ton-per-ton basis by the prilled sulfur. There will be no significant hydrogen sulfide released from the prilled sulfur while in storage or while being transferred. Hence, the prilled sulfur in storage (in inventory) will not contribute to a contemporaneous net emission increase in hydrogen sulfide at the Swift Creek Chemical Complex.

#### Summary of Hydrogen Sulfide Emission Increases

There could be a contemporaneous net emission increase of hydrogen sulfide of 7.5 tons per year during each of the first two years of operation of the vatted sulfur storage area. After the first two years of operation, there will be no contemporaneous net emission increase of hydrogen sulfide associated with the vatted sulfur storage area. There will be no contemporaneous net emission increase of hydrogen sulfide associated with the prilled sulfur storage facility at any time.

#### PARTICULATE MATTER

Increases in particulate matter emissions resulting from the operation of both the vatted and prilled sulfur storage areas were addressed in Section 2.3.7 of the Engineering Report in Support of An Application for a Florida Department of Environmental Regulation

Air Pollution Source Construction Permit for a Prilled Sulfur Storage and Handling Facility, prepared by Occidental and dated April 1986.

Vatted Sulfur Facility.

As documented in the referenced report, the suspended particulate matter emission rate from the vatted sulfur storage area will be 4.66 tons per year at an annual sulfur throughput of 300,000 tons of elemental sulfur per year (see Table 2-5). During the first two years of operation of the vatted sulfur storage area, an additional 0.33 tons per year of particulate matter could be emitted from the railcar unloading and sulfur vating activities ( $75,000/300,000 \times (0.051 \text{ tpy} + 1.275 \text{ tpy}) = 0.33 \text{ tpy}$ ).

Prilled Sulfur Facility

Particulate matter emissions from the prilled sulfur storage and handling facility were originally summarized in Table 2-4 of the referenced report and were later revised by Occidental's letter of July 1, 1986 to the Department. The annual suspended particulate matter emission rate from the prilled sulfur storage and handling facility will be 4.46 tons per year (see Table 2-4 attached to Occidental's letter dated July 1, 1986).

Summary of Particulate Matter Emission Increases

Under maximum design conditions, a sulfur throughput of 300,000 tons per year can be expected at both the vatted and prilled sulfur storage facilities at the Swift Creek Chemical Complex. In addition, during the first two years of operation of the vatted sulfur facility, an additional 75,000 tons of sulfur could be placed in inventory. Under the maximum design conditions, the contemporaneous net particulate matter increase at the Swift Creek Chemical Complex will be 9.45 tons per year for the first two years of operation of both facilities and 9.12 tons per year for the third and subsequent years of operation.

FDER Request No. 2 -

Please describe how the portable hopper/conveyor unit will be structurally set up to conform to Rule 17-2.600 (11), Florida Administrative Code (FAC).

Response -

The portable hopper/conveyor unit proposed by Occidental for the recovery of prilled sulfur has not been designed in detail. Conceptually however, the hopper/conveyor will be constructed as a single unit and skid mounted. The unit will be positioned as necessary to minimize payloader travel during the recovery of prilled sulfur from the storage area.

The hopper will be designed with a top and wind walls on three sides in accordance with Rule 17-2.600(11)(b)2.b(iv), FAC and the transfer point between the portable hopper to the portable conveyor will be enclosed in accordance with Rule 17-2.600(11)(b)2.a(iii), FAC. The operation of the payloader during the recovery of prilled sulfur and the transfer of the sulfur to the portable hopper/conveyor will be in accordance with the requirements of Rule 17-2.600(11)(b)2.b, FAC as the rule applies to payloaders. Furthermore, prilled sulfur will not be reclaimed and transferred to the hopper during periods when the wind speed exceeds 18 miles per hour for a five minute period in accordance with Rule 17-2.600(11)(b)2.b(vi), FAC.

The conveyor belt on the portable hopper/conveyor will be of deep-V design and the maximum incline of the belt will be less than 15 degrees. There will be an enclosure at the point where the portable conveyor discharges onto the fixed conveyor belt system and a spray system, as described in Occidental's letter of July 1, 1986, will be installed at the enclosure. The water/surfactant mixture that will be sprayed at this movable conveyor belt transfer point will be supplied through a fixed piping system that runs parallel to the fixed conveyor belt system or by an equivalent means. Connection to the moveable transfer point will be made by a flexible hose connected to the fixed piping system at conveniently spaced hose bibs. The portable conveyor belt system will satisfy all of the requirements of Rule 17-2.600(11)(b)2.a, FAC as the rule applies to conveyor belt systems used for transferring solid sulfur.

FDER Request No. 3 -

What will be the minimum water spray frequency and duration for the wetting of the sulfur pellets storage area (rainfall aside), given the 500 gallon per minute spray capacity? Once established, that rate period and frequency will be incorporated into the permit to ensure that storage area will be sprayed as such to minimize the sulfur particulate emissions from the at single largest emission source in the referenced project.

Response -

Occidental has not established a water spray schedule for the prilled sulfur storage area and further Occidental is of the opinion that the establishment of a firm schedule is not required by Rule 17-2.600(11), FAC. Rule 17-2.600(11)(b)5, FAC, with reference to solid sulfur facilities in particulate matter attainment areas, states "...visible emissions from any emission point in a solid sulfur facility shall not exceed 10 percent opacity (6 minute average)." Beyond this requirement, Rule 17-2.600(11), FAC does not require solid sulfur storage areas to provide spray systems for controlling particulate matter emissions. (There is a requirement for a spray system for fire control, however, in Rule 17-2.600(11)(b)3.f(i), FAC.)

Consistent with the requirements of Rule 17-2.600(11), FAC, Occidental will spray the sulfur in the prilled sulfur storage area as required to control visible emissions to less than 10 percent opacity. The spray schedule will be dictated by the amount of rainfall, the level of activity in the sulfur storage area, and the characteristics of the prilled sulfur in storage.

FDER Request No. 4 -

What specific type(s) of sulfur pellets do you intend to bring into your facility? This information should correlate directly with the data submitted to the department on prilled sulfur characteristics (Table 1 & 2 in Appendices). All data corresponding to slate/prill mixtures has been, and will be totally disregarded by the Department since not only is it irrelevant but prohibited in Florida under Rule 17-2.600(11), FAC.

Response -

Occidental intends to bring into the proposed prilled sulfur storage and handling facility any type of sulfur pellet or combinations of sulfur pellets that are commercially available and satisfy the specifications of Standard Sulfur Pellets set forth in Rule 17-2.100(179), FAC. Occidental recognizes that Rule 17-2.600(11), FAC prohibits the storage and handling of any form of solid sulfur that does not meet the specifications of Standard Sulfur Pellets including such forms as agglomerates, popcorn, slate, and crushed bulk sulfur. Furthermore, Occidental is not proposing, nor does Occidental intend, to bring solid sulfur forms other than Standard Sulfur Pellets into the proposed prilled sulfur storage and handling facility under the present sulfur rule.

The prilled sulfur characteristics that Occidental submitted to the Department in support of the application for permit AC24-11908, and those referenced in the Department's Request No. 4, were intended by Occidental to represent the "worst case" characteristics that could be expected of solid sulfur forms satisfying the specifications of Standard Sulfur Pellets defined in Rule 17-2.100(179), FAC. The use of any solid sulfur characteristics derived from slate/prill mixtures is in no way intended to infer that Occidental intends to handle slate/prilled solid sulfur mixtures under the present sulfur rule.

Unnumbered FDER Comment -

Please note that the static melter you intend to use in melting sulfur pellets is restricted by permit conditions to an annual throughput of 300,000 tons. If you intend to modify its permitted capacity, now or later, an application to modify Vattling Permit No. AC24-61435 will be required.

Response -

At the present time, Occidental has no plans to melt more than 300,000 tons per year of solid sulfur with the melter. If Occidental applies at a later date to modify this permitted throughput rate, however, the Department must recognize that all information required to support the request is presently in the Department files.

The design information, operating characteristics and emission estimates of the sulfur melter, as submitted to the Department in the permit application for Occidental's vatted sulfur facility (Permit AC24-61435), were based on an hourly melting rate of 70 tons per hour and an annual throughput of 300,000 tons per year. The same design and hourly operating characteristics will apply to the melter when it is used to melt prilled sulfur. In the permit application for the prilled sulfur storage and handling facility (Permit AC24-119008), an annual prilled sulfur throughput of 300,000 tons per year is requested and particulate matter emissions from the melter based on this annual throughput, are documented. The air quality review conducted in support of Permit AC24-119008 uses a maximum hourly melting rate of 70 tons per hour for defining the short-term impact to the melter but uses an annual throughput of 600,000 tons per year (300,000 tons per year of vatted sulfur plus 300,000 tons per year of prilled sulfur) for defining the annual impact of particulate matter emissions from the melter. This review demonstrates that emissions from the melter resulting from a 600,000

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ton annual throughput will not have a significant impact on ambient air quality. This information will be cited if Occidental decides to increase the annual throughput of the melter at a later date.

If there are any questions regarding the information provided herein, please do not hesitate to contact me or Dr. J. B. Koogler.

Sincerely,



W. M. Miller  
Environmental Coordinator

WMA:app

cc: R. E. McNeill  
D. T. Sawyer  
W. W. Atwood  
J. D. B. Kuersteiner  
J. B. Koogler