STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
AIR POLLUTION CONTROL COMMISSION

In the matter of administrative proceedings against THE DOW CHEMICAL COMPANY, a corporation organized under the laws of the State of Delaware and doing business at the Michigan Division, City of Midland, County of Midland, State of Michigan.	SIP No. 19-1981

STIPULATION FOR ENTRY OF CONSENT ORDER
AND
FINAL ORDER

The Dow Chemical Company, a Delaware corporation (hereinafter referred to as "Dow"), located at the Michigan Division, City of Midland, County of Midland, State of Michigan, is emitting particulate and sulfur dioxide from its facilities. Applicable limits as established by Administrative Code 1980 AACS, are contained in R 336.1301, R 336.1331, and R 336.1401. Dow and the Department of Natural Resources agree to the termination of this proceeding by entry of a Final Order by consent to abate particulate and sulfur dioxide emissions from the West Side and South Side Power Plants in accordance with the following schedule:

A. SULFUR DIOXIDE CONTROL PROGRAM

(3) After September 1, 1981, and until December 31, 1982, Dow shall not burn coal or oil in more than three boilers at the South Side Power Plant unless the

sulfur content of all liquid and solid fuel burned at the South Side Power Plant is less than 0.90 percent sulfur by weight.

B. PARTICULATE MATTER AND VISIBLE EMISSIONS--BOILERS 9,12,18 and 19

(1) After the effective date of this Order, Boilers 9,12,18, and 19, shall not be fueled by coal at any time.

(2) After the effective date of this Order, visible emissions from Boilers 9,12,18, and 19 shall not exceed 20 percent opacity except as specified in R 336.1301(1)(a) and (b).

C. PARTICULATE MATTER AND VISIBLE EMISSIONS--BOILERS 14,15,16 and 17

(1) Dow has submitted to the Staff of the Air Quality Division of the Department of Natural Resources (hereinafter referred to as the "Staff") pursuant to the Michigan Air Pollution Control Commission's (hereinafter "Commission") rules, acceptable plans and specifications and an application for an installation permit describing the air pollution control device(s) and/or other equipment to be used to control the particulate emissions from Boilers 14,15,16, and 17 to obtain compliance with the limits specified in paragraphs C(7) and C(8), below, and that permit application, identified as No. 1060-80, has been approved by the Staff in the Name of the Commission.

(2) Dow has submitted to the Staff evidence to substantiate that the required air pollution control device(s) and/or other equipment to be used to control the particulate emissions from Boilers 14,15,16, and 17 have been placed on order with the manufacturer.

(3) Dow has begun on-site installation of said air pollution control device(s) and/or other equipment and notified the Staff in writing that this installation has begun.

(4) By December 31, 1982, Dow shall have placed in operation said air pollution control devices(s) and/or other eqiupment and notify the Staff in writing that the device(s) and/or equipment have been placed in operation.

(5) After September 1, 1981, and until December 31, 1982, the particulate emissions from each of Boilers 14,15,16, and 17 shall not exceed 0.62 pounds per 1,000 pounds of exhaust gases corrected to 50 percent excess air.

(6) After September 1, 1981, and until December 31, 1982, the average ash content of the coal burned in Boilers 14,15,16, and 17 during any 24-hour period shall not exceed 7.0 percent by weight; and the average ash content of the coal burned in Boilers 14,15,16, and 17 during any 30 consecutive 24-hour periods shall not exceed 5.0 percent by weight. For purposes of determining compliance with these ash content of coal limits, the procedures specified in Appendix B shall be used and calculations shall be based on 13,000 Btu per pound of coal.

(7) After December 31, 1982, the particulate emissions from each of Boilers 14,15,16, and 17 shall not exceed 0.016 pounds per 1,000 pounds of exhaust gases corrected to 50 percent excess air.

(8) After December 31, 1982, visible emissions from Boilers 14,15,16, and 17 shall not exceed 20 percent opacity except as specified in R 336.1301(1)(a) and (b).

(9) By February 15, 1983, Dow shall complete the testing (conducted according to the Commission's Part 10 rules) of said air pollution control device(s) and/or other equipment and submit to the Staff the detailed report of the test data and results.

D. PARTICULATE MATTER AND VISIBLE EMISSIONS--BOILERS 13 AND 20

(1) After September 1, 1981, and until December 31, 1985, the particulate emissions from Boiler 13 shall not exceed 0.47 pounds per 1,000 pounds of exhaust gases corrected to 50 percent excess air.

(2) After September 1, 1981, and until December 31, 1985, the particulate emissions from Boiler 20 shall not exceed 0.55 pounds per 1,000 pounds of exhaust gases corrected to 50 percent excess air.

(3) After September 1, 1981, and until December 31, 1985, the average ash content of the coal burned in Boilers 13 and 20 during any 24-hour period shall not exceed 7.0 percent by weight and the average ash content of the coal burned in Boilers 13 and 20 during any 30 consecutive 24-hour periods shall not exceed 5.0 percent by weight. For purposes of determining compliance with these ash content of coal limits, the procedures specified in Appendix B shall be used and calculations shall be based on 13,000 Btu per pound of coal.

(4) After December 31, 1985, the particulate emissions from Boiler 13 shall not exceed 0.23 pounds per 1,000 pounds of exhaust gases corrected to 50 percent excess air.

(5) After December 31, 1985, the particulate emissions from Boiler 20 shall not exceed 0.22 pounds per 1,000 pounds of exhaust gases corrected to 50 percent excess air.

(6) After December 31, 1985, visible emissions from Boilers 13 and 20 shall not exceed 20 percent opacity except as specified in R 336.1301(1)(a) and (b).

(7) By Feburary 15, 1986, Dow shall complete testing (conducted according to the Commission's Part 10 rules) of Boilers 13 and 20 and submit to the Staff the detailed report of the test data and results, if these boilers are still in operation.

E. CONTINUOUS OPACITY MONITORS

(1) By December 31, 1982, Dow shall install, calibrate, maintain, and operate a continuous opacity monitoring system in the stack serving Boilers 14,15,16, and 17 in accordance with the requirements set forth in Michigan R 336.2101 through R 336.2190.

(2) By December 31, 1985, Dow shall install, calibrate, maintain, and operate continuous opacity monitoring systems in the stacks serving Boilers 13 and 20 in accordance with the requirements set forth in Michigan R 336.2101 through R 336.2190, if these boilers are still in operation.

(3) After December 31, 1982, Dow shall, within 30 days of the end of each calendar quarter, submit for each calendar quarter, a written report of the summary of excess opacity readings including the nature and cause of the excess readings, if known, and each corrective action taken. If there are no excess readings for a calendar quarter, Dow shall report that fact.

(4) The summary of excess opacity readings shall consist of the magnitude in actual percent opacity of all 6-minute averages of opacity greater than 20 percent for each hour of operation. Average values shall be obtained by integration over the averaging period or by arithmetically averaging a minimum of 24 equally spaced, instantaneous opacity measurements per 6

minutes. All records produced by the continuous monitoring system shall be retained by Dow for a period of no less than two years after completion of installation and start-up. All reports shall be submitted to the State.

Approved as to Form and Content:

B. G. CALDWELL
THE DOW CHEMICAL COMPANY
GENERAL MANAGER, MICHIGAN DIVISION

Dated: July 20, 1981

STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES
Howard A. Tanner, Director

By: Robert Miller
Robert P. Miller, Acting Chief
AIR QUALITY DIVISION
Dated: July 20, 1981

By:
Jack D. Bails, Chief
ENVIRONMENTAL ENFORCEMENT DIVISION
Dated: July 20, 1981

FRANK J. KELLEY
ATTORNEY GENERAL

By:
Stewart H. Freeman
Assistant Attorney General
Dated July 21, 1981

FINAL ORDER

This Commission having had opportunity to review the above stated Stipulation for Entry of Consent Order, and this Commission having authorized the Chief of the Air Quality Division of the Department of Natural Resources as agent of the Commission to enter into consent orders,

IT IS ORDERED that this Consent Order shall be entered in the record of this Commission as stated herein.

AIR POLLUTION CONTROL COMMISSION

By: Robert Miller

Robert P. Miller, Acting Chief
Air Quality Division
Department of Natural Resources

Dated: July 21, 1981

APPENDIX A

For purposes of determining compliance with the sulfur in fuel limits specified in this order, the following procedures shall be used:

(1) Coal - Upon request by Staff, Dow shall collect a minimum of 10 equally spaced grab samples from the coal conveyor belt at each Power Plant during three consecutive eight hour work shifts. A composite coal sample shall be prepared from these grab samples at each Power Plant for that 24 hour period and that sample shall be provided to the Staff. All such sampling, compositing and analyzing shall be done in accordance with American Society for Testing and Materials (ASTM) Standards D2234-76, D2013-72, D3172-73 and D3177-75. The results of the analysis for each of the two 24 hour composite samples shall be considered the average coal characteristics for the corresponding 24 hour period. Dow shall also provide to the Staff information regarding the quantity of coal burned at each Power Plant during this 24 hour period.

(2) Dow shall identify each tank which contains oil delivered to the Power Plants for burning during the same 24 hour period identified in paragraph (1) above. Each tank shall be sampled at three equally spaced filling intervals. A composite of the three samples for each tank shall be analyzed according to ASTM standards. Dow shall also provide the Staff information regarding the quantity of oil from each tank burned at each Power Plant during the 24 hour period.

(3) For purposes of determining compliance with the sulfur in fuel limits of this order, the average sulfur content of the liquids and solid fuels burned at both the West Side Power Plant and the South Side Power Plant shall be determined for a 24 hour period. The sulfur content and quantities of coal and oil burned during a 24 hour period, as determined in paragraphs (1) and (2), above, shall be used to determine the average for each Power Plant using the following formula.

$$\text{Average sulfur content of fuel burned in the power plant} = \frac{S_1 \frac{18{,}000}{B_1} W_1 + S_2 \frac{12{,}000}{B_2} W_2}{W_1 + W_2}$$

where

S_1 = actual sulfur content of oil (percent by weight)

S_2 = actual sulfur content of coal (percent by weight)

B_1 = actual heating value of oil (BTU/pound)

B_2 = actual heating value of coal (BTU/pound)

W_1 = pounds of oil burned in the power plant (lbs/day)

W_2 = pounds of coal burned in the power plant (lbs/day)

APPENDIX B

For purposes of determining compliance with paragraphs C(5), C(6), D(1), D(2), and D(3) the following procedures shall be used:

(1) Coal - Upon request by Staff, Dow shall collect a minimum of 10 equally spaced grab samples from the coal conveyor belt at each Power Plant during three consecutive eight-hour work shifts. A composite coal sample shall be prepared from these grab samples at each Power Plant for that 24-hour period and that sample shall be provided to the Staff. All such sampling, compositing and analyzing shall be done in accordance with American Society for Testing and Materials (ASTM) Standards D2234-76, D2013-72, D3172-73 and D3177-75. The results of the analysis for each of the two 24-hour composite samples shall be considered the average coal characteristics for the corresponding 24-hour period. Dow shall also provide to the Staff information regarding the quantity of coal burned at each Power Plant during this 24-hour period.

(2) For purposes of determining compliance with the ash in coal limits of this Order, the average ash content of the coal burned at both the West Side Power Plant and the South Side Power Plant shall be determined for a 24-hour period. The ash content of coal burned during a 24-hour period, as determined in paragraph (1), above, shall be used to determine the average for each Power Plant using the following formula.

$$\text{Average ash content of coal burned in the power plant} = \frac{A\ 13{,}000}{B}$$