

**United States Environmental Protection Agency**  
**Region 8**  
**Air Program**  
**1595 Wynkoop Street**  
**Denver, Colorado 80202-1129**  
**May 8, 2013**



**Air Pollution Control**  
**Prevention of Significant Deterioration (PSD)**  
**Permit to Construct**

PSD-WY-000003-2012.001

Permittee:

FMC Wyoming Corporation  
P.O. Box 872  
Green River, Wyoming 82935

Permitted Facility:

FMC Granger  
Granger, Wyoming

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## Table of Acronyms

BACT	Best Available Control Technology
CFR	Code of Federal Regulations
CH <sub>4</sub>	Methane
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2e</sub>	Carbon Dioxide Equivalent
dscf	Dry Standard Cubic Foot
EP	Emission Point
FIP	Federal Implementation Plan
FR	Federal Register
GHG	Greenhouse Gas
hr	Hour
lb	Pound
lbpy	Pounds Per Year
N <sub>2</sub> O	Nitrous Oxide
NSPS	New Source Performance Standards
NO <sub>x</sub>	Nitrogen Oxides
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
QA/QC	Quality Assurance and/or Quality Control
SF <sub>6</sub>	Sulfur Hexafluoride
tpy	Tons Per Year
VOC	Volatile Organic Compounds
%	Percent

## **I. INTRODUCTION**

This Federal Prevention of Significant Deterioration (PSD) permit is being issued under authority of 40 CFR 52.21 (PSD) and 52.37 (Federal Implementation Plan (FIP) to issue permits under the PSD requirements to sources that emit greenhouse gases (GHGs). FMC Wyoming Corporation (hereinafter the "Permittee" or "FMC") proposes to construct additional mine water (MW) processing equipment at the company's soda ash operation located approximately 30 miles west of Green River, Wyoming. The soda ash production facility is presently capable of processing either trona ore or MW into refined soda ash (RSA). Its present configuration has a permitted production capacity of 650K tpy RSA using MW as feedstock or 1.3 MM tpy RSA when using trona ore. In 2007, all mining equipment was removed from underground and the mine was subsequently flooded.

With this proposed project FMC intends to optimize its operations by processing additional MW volume from the flooded mine to fully utilize the design production capacity of the existing process equipment. This will be accomplished by providing additional mine water evaporative capacity to the existing process. One new emission unit will be constructed: a Carbon Dioxide (CO<sub>2</sub>) Stripping System will convert naturally-occurring sodium bicarbonate (NaHCO<sub>3</sub>) in the MW into sodium carbonate using steam energy. The resulting vapor stream will contain CO<sub>2</sub> that is liberated as a result of the conversion. A hydrogen sulfide (H<sub>2</sub>S) absorber will capture H<sub>2</sub>S vapors released from the process.

## **II. GENERAL PERMIT CONDITIONS**

On the basis of findings set forth in Section III, Special Permit Conditions, of this permit, and pursuant to the authority (as delegated by the Administrator) at 52.37, EPA hereby authorizes FMC to construct or modify their Granger soda ash production. The authorization is expressly conditioned as follows:

### **A. PERMIT EFFECTIVE DATE AND EXPIRATION**

As provided in 40 CFR 124.15(b), this PSD permit shall become effective 30 days after the service of notice of the permit decision, unless:

1. a later effective date is specified in the decision;
2. review is requested on the permit under 40 CFR 124.19; or
3. no comments requested a change in the draft permit, in which case the permit shall become effective immediately upon issuance.

As provided in 40 CFR 52.21(r)(2), this PSD permit shall become invalid if construction:

1. is not commenced (as defined in 40 CFR 52.21(b)(9)) within 18 months after the approval takes effect; or
2. is discontinued for a period of 18 months or more; or
3. is not completed within a reasonable time.

Under 40 CFR 52.21(r)(2), EPA may extend the 18 month period upon a satisfactory showing that an extension is justified.

## **B. PERMIT NOTIFICATION REQUIREMENTS**

The Permittee shall notify EPA in writing of:

1. the date construction is commenced, postmarked within 30 days of such date;
2. the actual date of initial startup, postmarked within 15 days of such date. Startup is defined as the setting in operation of an affected facility for any purpose;
3. the date upon which initial performance tests will commence, in accordance with the provisions of Section V., Performance Testing Requirements, of this permit, postmarked not less than 30 days prior to such date; and
4. other events as required elsewhere in this permit.

## **C. FACILITY OPERATION**

At all times, including periods of startup, shutdown, and malfunction, Permittee shall maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing GHG emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the EPA, which may include, but is not limited to, monitoring results, review of operating maintenance procedures and inspection of the facility.

**D. MALFUNCTION REPORTING**

1. The Permittee shall notify EPA by mail within 2 working days following the discovery of any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner, which results in an increase in CO<sub>2e</sub> emissions above the allowable emission limits stated in Condition III.A., of this permit.
2. In addition, the Permittee shall notify EPA in writing within 15 calendar days of any such failure described under Section IV. Recordkeeping Requirements. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in Condition III.A., and the methods utilized to mitigate emissions and restore normal operations.
3. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violation of this permit or any law or regulation such malfunction may cause.

**E. RIGHT OF ENTRY**

EPA authorized representatives, upon the presentation of credentials, shall be permitted:

1. to enter the premises where the facility is located or where any records are required to be kept under the terms and conditions of this PSD Permit;
2. during normal business hours, to have access to and to copy any records required to be kept under the terms and conditions of this PSD Permit;
3. to inspect any equipment, operation, or method subject to requirements in this PSD Permit; and,
4. to sample materials and emissions from the source(s).

**F. TRANSFER OF OWNERSHIP**

In the event of any changes in control or ownership of the facilities to be constructed under this PSD permit, this PSD permit is binding on all subsequent owners and operators. The Permittee shall notify, by letter, the succeeding owner and operator of the existence of this PSD permit and its conditions. A copy of the letter shall be provided to EPA within 30 days of the letter signature. Permit transfers shall be made in accordance with 40 CFR Part 122, Subpart D.

**G. SEVERABILITY**

The provisions of this PSD permit are severable, and, if any provision of the PSD permit is held invalid, the remainder of this PSD permit shall not be affected.

**H. ADHERENCE TO APPLICATION AND COMPLIANCE WITH OTHER ENVIRONMENTAL LAWS**

The Permittee shall construct and operate this project in compliance with this PSD permit, the application on which this PSD permit is based, and all other applicable federal, state, and local air quality regulations. This PSD permit does not release the Permittee from any liability for compliance with other applicable federal, state and local environmental laws and regulations, including the Clean Air Act.

**I. BINDING APPLICATION**

This permit is issued in reliance upon the accuracy and completeness of the information set forth in the Permittee's application to EPA dated May 9, 2012, and subsequent information provided by the Permittee to EPA, as listed in the Administrative Record for issuance of this permit.

The Permittee shall abide by all representations, statements of intent and agreements contained in the permit application and subsequent submittals as listed in the Administrative Record. EPA shall be notified no less than 10 working days in advance of any significant deviation from the permit application, and shall furnish any plans, specifications or supporting data regarding such deviation. The issuance of this PSD permit to Construct and Operate may be suspended or revoked if EPA determines that a significant deviation from the permit application, specifications, and supporting data furnished has been, or is to be, made.

**J. ENFORCEABILITY OF PERMIT**

On the effective date of this permit, the conditions herein become enforceable by EPA pursuant to any remedies it now has or may have in the future, under the Clean Air Act.

**K. TREATMENT OF EMISSIONS**

Emissions in excess of the limits specified in this permit shall constitute a violation.

### III. SPECIAL PERMIT CONDITIONS

#### A. POINT SOURCE EMISSION LIMITS

At all times after completion of the CO<sub>2</sub> stripping system project, including during startup, shutdown and malfunction, the Permittee shall not allow the discharge of GHG emissions from the unit into the atmosphere, in excess of the following:

**Table 1: Emission Limits**

Emission Point/Equipment	Limitations
UNI-50 – Three CO <sub>2</sub> stripping columns	<ul style="list-style-type: none"> <li>• 404 ton CO<sub>2e</sub> /day based on a 30-day rolling average</li> <li>• 147,500 ton CO<sub>2e</sub> /365 day based on 365-day rolling average</li> </ul>

#### B. REQUIREMENTS FOR UNI-50

##### 1. Compliance with ton CO<sub>2e</sub>/day BACT Emission Limit

The above listed emission unit shall demonstrate compliance with the ton CO<sub>2e</sub>/day BACT emission limit by the following equation:

Equation 1

$$T_{30\ CO_2e} \geq \sum_{i=1}^{30} \frac{(GPD_i \times SP.GR_i \times \% NaHCO_3_i)}{30}$$

Where:

- T<sub>30 CO<sub>2e</sub></sub> = Daily unit tonnage/day rolling average limit in Special Condition III.A, Table (UNI-50 = 404 ton CO<sub>2e</sub>/day) averaged over 30 days.
- GPD<sub>i</sub> = Daily Gallons of MW per day processed in UNI-50
- SP.GR<sub>i</sub> = Daily Specific Gravity of MW processed in UNI-50
- % NaHCO<sub>3i</sub> = Daily percent of NaHCO<sub>3</sub> present in MW processed in UNI-50

## 2. Compliance with ton CO<sub>2e</sub> / 365 day BACT Emission Limit

The above listed emission unit shall demonstrate compliance with the ton CO<sub>2e</sub>/yr BACT emission limit by the following equation:

### Equation 2

$$T_{365CO_2e} \geq \sum_{i=1}^{365} \frac{(GPD_i \times SP.GR_i \times \% NaHCO_3_i)}{365}$$

Where:

T <sub>365 CO<sub>2e</sub></sub> =	Yearly unit tonnage/365 day rolling average limit in Special Condition III.A, Table 1 (UNI-50 = 147,500 ton CO <sub>2e</sub> /365 day) averaged over 365 days.
GPD <sub>i</sub> =	Daily gallons of MW per day processed in UNI-50
SP.GR <sub>i</sub> =	Daily specific gravity of MW processed in UNI-50
% NaHCO <sub>3i</sub> =	Daily percent of NaHCO <sub>3</sub> present in MW processed in UNI-50

## 3. Work Practice and Operational Requirements

- a. To demonstrate compliance with the BACT emission limits the Permittee shall calculate the ton/day of CO<sub>2</sub> emitted at least once every day after 30 days of data have been recorded. The Permittee shall monitor and record gallons of MW fed to UNI-50 at least once a day, monitor and record % NaHCO<sub>3</sub> present in MW fed to UNI-50 at least once a day, and monitor and record the specific gravity of MW fed to UNI-50 at least once a day.
- b. Compliance with the 365-day rolling average ton CO<sub>2e</sub>/365-day BACT emission limit shall be determined at least once every day after 365 days of data have been recorded.
- c. The Permittee shall compare the calculated CO<sub>2e</sub> emissions from Special Condition III.B.1. and Special Condition III.B.2. to the allowable BACT CO<sub>2e</sub> limit required in Special Condition III.A. The calculated CO<sub>2e</sub> emissions shall be less than the allowable BACT CO<sub>2e</sub> limit. If the Permittee finds that the calculated CO<sub>2e</sub> emissions rate is greater than the allowable BACT CO<sub>2e</sub> limit, the Permittee shall review the operational performance of the emission unit and monitoring instrumentation. From this review, any necessary corrective measures shall be identified and

recorded by the Permittee, including the reason for the CO<sub>2</sub> emissions difference. The Permittee shall complete corrective measures within 48 hours of identification of a difference and comply with Section IV., Recordkeeping Requirements.

- d. The Permittee shall install, maintain and operate magnetic flow meters to measure MW flow to each of the three stripper columns that are a part of UIN-50.
- e. The Permittee shall measure the MW specific gravity at least once per day. MW will be sampled from the feed line to UIN-50 and measurements shall be done by means of a ASTM grade hydrometer and graduated cylinder.
- f. The Permittee shall measure the concentration of NaHCO<sub>3</sub> present in the MW fed to UIN-50. This shall be done at least once per day using automatic titration methodology which complies with the facilities ISO9001 analytical and standardization requirements.
- g. The Permittee shall maintain and operate the emission unit to ensure the GHG emissions are continuously at or below the emissions limits specified in this permit.

#### **IV. RECORDKEEPING REQUIREMENTS**

- A. Including any recordkeeping requirements specified elsewhere in this permit, the Permittee shall maintain a file of all records, data, measurements, reports, and documents related to the operation of the facility, including, but not limited to, the following: all records or reports pertaining to significant maintenance performed on any system or device at the facility; all records relating to performance tests and monitoring of auxiliary combustion equipment; and other information required by this permit recorded in a permanent form suitable for inspection. The file must be retained for not less than 5 years following the date of such measurements, maintenance, reports, and/or records.
- B. The Permittee shall maintain the following records for at least 5 years, including:
  - 1. the occurrence and duration of any startup, shutdown, malfunction;
  - 2. duration of any initial shakedown period for the emission unit;
  - 3. calibration tests of flow meters required by Condition V.A. used to demonstrate compliance with this permit;
  - 4. the time and duration of any periods that monitoring devices are not operating; and
  - 5. all data recorded in compliance with Special Conditions III.B.1. through III.B.3.

- C. The Permittee shall maintain records of any exceedance of limitations in this permit and submit a written report of all exceedances to EPA semi-annually except when: more frequent reporting is specifically required by an applicable subpart; or the authorized representative of the Administrator, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. The report is due on the 30<sup>th</sup> day following the end of each semi-annual period and shall include the following:
1. time intervals, data and magnitude of the exceedance, the nature and cause (if known), corrective actions taken and preventative measures adopted;
  2. applicable time and date of each period during which the monitoring equipment was inoperative (monitoring down-time);
  3. if no exceedances of a permit limit occurred during the reporting period or the monitoring equipment has not been inoperative, repaired or adjusted, a statement that no exceedance of that limit occurred, and/or that the monitoring equipment has not been inoperative, repaired or adjusted (as applicable), shall be submitted;
  4. any failure to conduct any required source testing, monitoring, or other compliance activities; and
  5. any violation of limitations on operation, including but not limited to restrictions on hours of operation of the emergency generator.
- D. Exceedance shall be defined as any period in which the facility emissions or other parameter of operation exceed a maximum limit set forth in this permit.
- E. Excess emissions indicated by GHG emission source certification testing or compliance monitoring shall be considered violations of the applicable emission limit for the purpose of this permit.
- F. All records required by this PSD Permit shall be retained for not less than 5 years following the date of such measurements, maintenance, and reports.

V. **PERFORMANCE TESTING REQUIREMENTS**

- A. The Permittee shall calibrate, according to manufacturer's specifications, all flow meters used to comply with Special Condition III.B.3.d. at least once per calendar year.

**VI. AGENCY NOTIFICATIONS**

- A.** The Permittee shall submit GHG permit applications, permit amendments, and other applicable permit information to:

Air Program (8P-AR)  
US EPA Region 8  
1595 Wynkoop St.  
Denver, CO 80202

- B.** The Permittee shall submit a copy of all compliance and enforcement correspondence as required by this permit to:

Air Technical Enforcement Program (8ENF-AT)  
US EPA Region 8  
1595 Wynkoop St.  
Denver, CO 80202

- C.** For any notifications required to be delivered to EPA within a certain time frame, fulfillment of the requirement can be accomplished by delivery of the required information to EPA in writing, postmarked by such date.

Authorized By: United States Environmental Protection Agency, Region 8

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Derrith R. Watchman-Moore  
Assistant Regional Administrator  
Office of Partnerships and Regulatory Assistance

Date: \_\_\_\_\_