



Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P. O. Box 200901

Helena, MT 59620-0901

(406) 444-2544

Website: www.deq.mt.gov

May 11, 2010

Alex Vogel
Hexion Specialty Chemicals, Inc.
3670 Grant Creek Road
Missoula, MT 59808

Dear Mr. Vogel:

Montana Air Quality Permit #2836-07 was deemed final as of May 7, 2010, by the Department of Environmental Quality (Department). This permit is for Hexion Specialty Chemical's formaldehyde and thermoset production facility. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

Vickie Walsh
Air Permitting Program Supervisor
Air Resources Management Bureau
(406) 444-9741

Jenny O'Mara
Environmental Engineer
Air Resources Management Bureau
(406) 444-1452

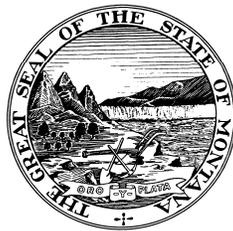
VW:JO
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #2836-07

Hexion Specialty Chemicals, Inc.
3670 Grant Creek Road
Missoula, MT 59808

May 7, 2010



MONTANA AIR QUALITY PERMIT

Issued to: Hexion Specialty Chemicals, Inc.
3670 Grant Creek Road
Missoula, MT 59808

MAQP #2836-07
Application Received: 02/02/2010
Application Complete Date: 02/17/2010
Preliminary Determination Issued: 03/19/2010
Department Decision Issued: 04/21/2010
Permit Final: 05/07/2010
AFS #063-0021

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Hexion Specialty Chemicals, Inc. (Hexion) pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

SECTION I: Permitted Facilities

A. Plant Location

Hexion operates a formaldehyde and thermoset production facility located at 3670 Grant Creek Road in Missoula, Montana. The legal description is the West ½ of Section 8, Township 13 North, Range 19 West in Missoula County. A list of equipment at the facility is contained in Section I of the permit analysis.

B. Current Permit Action

On June 24, 2009, August 3, 2009 and August 24, 2009, the Department of Environmental Quality (Department) received information from Hexion requesting that the Department correct emission calculations for formaldehyde and volatile organic compounds (VOC). After MAQP #2836-05 was finalized, Hexion realized that they had submitted incorrect partial pressures with the permit application and requested to amend MAQP #2836-05. Additionally, Hexion requested that the Department add a federally enforceable permit condition requiring Hexion to meet monitoring requirements pursuant to 40 CFR §§63.162 - §63.180 and the recordkeeping requirements of 40 CFR 60, Subpart VV (collectively referred to as a Leak Detection and Repair program (LDAR)). Hexion is currently subject to 40 CFR 60, Subpart VV which includes monitoring and recordkeeping requirements. These requests were combined and assigned permit application number MAQP #2836-06; however, this permit action was never finalized.

On February 2, 2010, Hexion submitted a permit modification to increase throughput for the wastewater pits and the Phenol/Formaldehyde (PF) washwater tanks. The permit application was deemed complete on February 17, 2010. This permit action corrects the emissions of formaldehyde, methanol and VOCs, adds a federally enforceable permit condition for LDAR monitoring as previously requested under permit application number MAQP #2836-06, and increases the throughput limits for the wastewater pit and the PF washwater tanks. This permit also updates current permit language and rule references used by the Department.

SECTION II: Conditions and Limitations

A. Emission Limitations

1. Hexion shall operate and maintain all emission control equipment as specified and documented in the application(s) for MAQP(s) (ARM 17.8.749).

2. The combined formaldehyde storage tank throughput shall be limited to 200,000,000 pounds (lbs) per 12-month rolling time period (ARM 17.8.1204(3)).
3. The 25,617-gallon, fixed roof formaldehyde storage tank shall be equipped with conservation vent valve (ARM 17.8.752).
4. The formaldehyde startup tank throughput shall be limited to 1,000,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
5. The methanol storage tank throughput shall be limited to 125,000,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
6. The phenol storage tank throughput shall be limited to 30,000,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
7. The formaldehyde loading shall be limited to 30,000,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
8. The methanol shipments shall be limited to 200,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
9. The loading of high methanol 37% formaldehyde solutions shall be limited to 200,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
10. The PF resin storage, loading and production shall be limited to 117,000,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
11. The PF washwater tanks shall be limited to 29,347,296 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
12. The Urea weigh scale shall be limited to 100,000 ton per 12-month rolling time period (ARM 17.8.1204(3)).
13. The Urea/Formaldehyde (UF) storage and production shall be limited to 398,000,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
14. The UF resin loading shall be limited to 278,000,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
15. The Urea/Formaldehyde Concentrate (UFC) production shall be limited to 2,000,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
16. The UFC storage shall be limited to 10,000,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
17. The UFC loading shall be limited to 2,000,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
18. Distillate storage shall be limited to 6,700,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
19. Resin drying pad throughput shall be limited to 500,000 lbs per 12-month rolling time period (ARM 17.8.1204(3)).
20. Wastewater pit throughput shall be limited to 20,134,115 lbs per 12-month

rolling time period (ARM 17.8.1204(3)).

21. The natural gas consumed at the facility shall be limited to 100,000 MMBtu per 12-month rolling time period (ARM 17.8.1204(3)).
22. The methanol storage tank shall be vapor balanced with the rail cars to minimize working loss emissions (ARM 17.8.749).
23. Emissions of formaldehyde from the formaldehyde plant shall be routed to the tail gas boiler for combustion; except for a period of time not to exceed 100 hours per 12-month rolling time period (ARM 17.8.749).
24. Hexion shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR Parts 60, 63 and 65 as described below (ARM 17.8.340, ARM 17.8.749, ARM 17.8.1204 (3), 40 CFR Part 60, 40 CFR Part 63, and 40 CFR Part 65):
 - a) 40 CFR 60, Subpart A, *General Requirements*;
 - b) 40 CFR 60, Subpart VV *Standards of Performance for Equipment Leaks of Volatile Organic Compound (VOC) in Synthetic Organic Chemicals Manufacturing Industry (SOCMI)*;
 - c) 40 CFR 60, Subpart NNN, *Standards of Performance for VOC Emissions from SOCMI Distillation Operations*;
 - d) 40 CFR 63, Subpart H (only applicable sections §§63.162- §63.180), *National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks* shall apply to all equipment used in formaldehyde and methanol service; and
 - e) 40 CFR 65, Subpart D, *Consolidated Federal Air Rule* shall apply to the distillate column.
25. The tail gas boiler on the formaldehyde process shall be maintained to reduce emissions of Total Organic Carbon (TOC) by at least 98 weight-percent or to a concentration of less than 20 parts per million by volume (ppm_v), whichever is less stringent. Because the boiler is a combustion device, the emission reduction or concentration shall be calculated on a dry basis and corrected to 3 percent oxygen (40 CFR 65, Subpart D).
26. Hexion shall not cause or authorize to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
27. Hexion shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
28. Hexion shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.28 (ARM 17.8.749).
29. Hexion shall limit the UF, UFC, PF and formaldehyde production to ensure that

the HAP emissions from the facility do not exceed 10 tons during any rolling 12-month time period for any single HAP, or 25 tons during any rolling 12-month time period for combined HAPs. Any calculations used to establish emissions shall be approved by the Department (ARM 17.8.1204).

B. Testing Requirements

1. All compliance source tests must conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
2. The Department may require testing (ARM 17.8.105).

C. Operational Reporting Requirement

1. Hexion shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505). Hexion shall submit this information annually to the Department by March 1 of each year; the information may be submitted along with the annual emission inventory (ARM 17.8.505).

2. Hexion shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include **the addition of a new emissions unit**, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745)

3. Hexion shall document, by month, the following:

- a. Annual throughput of formaldehyde storage tanks (lbs/yr);
- b. Annual throughput of formaldehyde startup tank (lbs/yr);
- c. Annual throughput of methanol storage tank (lbs/yr);
- d. Annual throughput of phenol storage tank (lbs/yr);
- e. Annual formaldehyde shipments (lbs/yr);
- f. Annual methanol shipments (lbs/yr);
- g. Annual shipments and loading of high methanol 37% formaldehyde solution (lbs/yr);
- h. Annual production of PF resin reactor (lbs/yr);
- i. Annual storage, production and loading of UF resin (lbs/yr);
Annual storage, production and loading of UFC (lbs/yr);
- j. Annual distillate storage (lbs/yr);
- k. Annual throughput of urea (lbs/yr);

- l. Annual throughput of resin drying pad (lbs/yr);
- m. Annual natural gas consumption from the facility (MMBtu/yr); and
- n. Amount of time tail gas boiler was bypassed (hours).

By the 25th day of each month, Hexion shall total the loading, storage, throughput and production of materials, as specified, for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitations in Sections II.A.2 through II.A.20 and II.A.29. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

4. All records compiled in accordance with this permit must be maintained by Hexion as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).
5. Hexion shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit as required by ARM 17.8.1204(3)(b). The annual certification shall comply with the certification requirements of ARM 17.8.1207. The annual certification shall be submitted along with the annual emission inventory information (ARM 17.8.749 and ARM 17.8.1204).

D. Notification

Hexion shall provide the Department with written notification of the following within the specified time periods (ARM 17.8.749):

1. Installation/Construction of the new tank within 30 days after construction has begun;
2. Installation/Construction of distillation column pursuant to 40 CFR 60.660(d)(4); and
3. Actual start-up date of the new tank and distillation column 15 days after the actual start-up.

SECTION III: General Conditions

- A. Inspection – Hexion shall allow the Department’s representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if Hexion fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Hexion of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).

- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department’s decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department’s decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department’s decision on the application is final 16 days after the Department’s decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Hexion may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.
- H. Duration of Permit – Construction or installation must begin, or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance, and Hexion must proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit (MAQP) Analysis
Hexion Specialty Chemicals, Inc.
MAQP #2836-07

I. Introduction/Process Description

Hexion Specialty Chemicals, Inc. (Hexion) owns and operates a formaldehyde and thermoset production facility located at 3670 Grant Creek Road in Missoula, Montana.

A. Permitted Equipment

The equipment associated with this facility includes, but is not limited to:

1. Formaldehyde Plant Tail Gas Boiler – This boiler is a 1970 Nebraska Water Tube boiler that is used to combust the tail gas from the formaldehyde plant.
2. Urea/Formaldehyde (UF) Resin Reactor – This 1970 batch reactor has a capacity of 17,000 gallons and is controlled by a packed column wet scrubber. A mechanical elevating device charges urea into the reactor.
3. Phenol/Formaldehyde (PF) Resin Reactor – This 1976 batch reactor has a capacity of 17,000 gallons and is controlled by a packed column wet scrubber.
4. Methanol Storage Tanks – The methanol storage tanks include a 250,000-gallon storage tank and a 100,000-gallon storage tank. Both tanks are fixed roof tanks and were manufactured in 1970. Vapor balancing with the rail car provides for some emission control.
5. Formaldehyde Storage Tanks – The formaldehyde storage tanks consist of two 100,000-gallon tanks and one 25,617-gallon tank used to store formaldehyde solution. All tanks are fixed roof tanks and emissions from the tanks are controlled by a wet scrubber.
6. Distillate Storage Tanks – There are two 20,000-gallon fixed roof tanks used for the storage of distillate and both were manufactured in 1970.
7. Phenol Storage Tanks – There are two 30,000-gallon fixed roof tanks used to store phenol. Both tanks were manufactured in 1970 and are controlled by a wet scrubber.
8. Phenol Weigh Tank – The phenol weigh tank is a 1971, 4,400-gallon fixed roof scale tank that is used to weigh the phenol prior to charging it to the PF resin reactor. Emissions are controlled by a wet scrubber.
9. Urea Scale – This scale is used to weigh urea and is controlled by a packed column wet scrubber.
10. Formaldehyde Weigh Tank – The formaldehyde weight tank is a 1971 13,500-gallon fixed roof scale tank used to weigh formaldehyde prior to charging it to the PF resin reactor. Emissions are controlled by a wet scrubber.
11. Resin Storage Tanks – The resin storage tanks include 21 fixed roof tanks, ranging from 18,000 - 30,000 gallons, and are used to store UF and PF resins. These tanks were manufactured in 1970.

12. Methanol and Formaldehyde Loading – Methanol and formaldehyde solutions are loaded to trucks or rail. Emissions from the formaldehyde loading are controlled by the formaldehyde storage tank wet scrubber.
13. Natural Gas-Fired Boiler – This boiler is a 1974 Cleaver Brooks natural gas-fired boiler rated at 26500 pounds of steam per hour (lb/hr).
14. Fugitive Emissions – Fugitive emissions consist of miscellaneous sources of process fugitive emissions of methanol, formaldehyde and phenol from pumps, valves and flanges.

B. Source Description

Hexion operates a formaldehyde and thermoset production facility. The Missoula facility began operation in the early 1970s and is one of Hexion's international plants that produces forest product adhesives. Hexion produces custom made adhesives that are shipped to customers to be used to make plywood, particle board, medium density fiber board, and oriented-strand board.

Hexion has four main processes that are completed on-site.

Urea-Formaldehyde Resin Process

In this process, the formaldehyde is first charged to the reactor followed by the urea. During this reaction process, a distillate is formed that is used in the formaldehyde process. The final product goes to storage and then loaded out to customers. Wastewater generated from this process is sent to the wastewater pits. When reactors are cleaned (all reactors are controlled by a single scrubber), the off product goes to the resin drying pad and then sent for disposal.

Urea-Formaldehyde Concentrate (UFC) Resin Process

In this process, the formaldehyde is first charged to the reactor, followed by the urea. During this reaction process, non-product materials are re-processed in the reactor. This reaction process also creates a distillate that is used in the formaldehyde process. The final product goes to storage and then loaded out to customers. Wastewater generated from this process is sent to the wastewater pits.

Phenol-Formaldehyde Resin Process

Formaldehyde and Phenol are both weighed and then charged at the reactor. During the reaction process, non-product materials are re-processed in the reactor. The reaction process ultimately creates a distillate. The wastewater generated goes to the wastewater pits and then the Phenol washwater tanks where it is reused in the process. The final product goes to storage and then loaded out to customers. When reactors are cleaned, the off product goes to the resin drying pad and then sent for disposal.

Formaldehyde Process

Liquid methanol is sent through a purifier where methanol vapors are created and sent to the reactors. Methanol vapors react with air to create raw formaldehyde. The raw formaldehyde is cooled and absorbed into the water in the absorber. The hydrogen and nitrogen from the air fed into the reactors is not absorbed and are considered by-product gases. These gases are sent to the tail gas boiler where they are burned as fuel. The un-reacted methanol is separated from the formaldehyde production by distillation. The un-reacted methanol goes to the purifier where it is recycled back into the process. The final formaldehyde product is produced in the distillation column and sent to storage. Final product not at specifications is diverted to startup tank (usually 30% methanol solution) until it meets specification. All material in the startup tank is reused in the process.

C. Permit History

On June 13, 1996, the Department of Environmental Quality (Department) issued **Montana Air Quality Permit (MAQP) #2836-00** to Borden Chemical, Inc. (BCI). The permit established federally enforceable limitations on Borden's Missoula facility to classify the facility as a synthetic minor source with respect to the Title V Operating Permit Program. In addition, the limits allowed BCI to certify the Missoula facility as an area source under the Hazardous Organic NESHAP (HON) rule.

On October 3, 1998, the Department modified Permit #2836-00 to include the addition of three 30,000-gallon phenolic resin tanks. In addition, the unit measurement for natural gas (cubic feet) was changed to MMBtu, where the value of 1 MMBtu is equal to 1000 cubic feet of natural gas. **MAQP #2836-01** replaced MAQP #2836-00.

On April 15, 2001, the Department modified MAQP #2836-01 to increase the production of UF/UFC resins by enlarging resin kettle R100. This increase would change the operational limit for UF/UFC resin production from 200-million pounds per year to 300-million pounds per year. Although an operational limit was requested with this permit change, the facility remained classified as a synthetic minor source because the potential emissions remained below major facility threshold levels. Additional changes to the permit included the addition of a cyclone to charge urea into the kettle and a baghouse to control the release of dust. **MAQP #2836-02** replaced MAQP #2836-01.

On October 19, 2001, the Department received a request from BCI to modify MAQP #2836-02 to reflect a change in regulation under 40 CFR 65, Subpart D and its associated requirements instead of 40 CFR 60, Subparts III and RRR in accordance with the Consolidated Federal Air Rules. In addition, BCI requested to eliminate references to "a cyclone to charge urea into the reactor and a baghouse to control the release of dust," as a mechanical elevating device has replaced the need for that equipment in charging urea into the reactor. **MAQP #2836-03** replaced MAQP #2836-02.

On June 27, 2005, the Department received a request from BCI to change its name to Hexion. **MAQP #2836-04** replaced MAQP #2836-03.

On December 30, 2008, the Department received a permit application from Hexion to expand and modify the existing formaldehyde production unit. The Department requested additional information on January 29, 2009; and the additional information was received on March 2, 2009. This permit modification and expansion project included: an increase in the methanol and formaldehyde storage tank throughputs; modification to production and storage permit limits; replacement of the existing distillation column; replacement of two positive displacement air blowers with a single but larger centrifugal fan; modification of pumps, lines and valves to support additional flows; changed the service of the existing 37% formaldehyde storage tank to a PF washwater tank; installation of a new 25,617 gallon storage tank to replace the 37% formaldehyde storage tank; clarification of production rate limits for UFC and Urea Formaldehyde UF resins; and addition of permit throughput limits for Resin drying pad, Wastewater pits, Distillate storage, PF Washwater tank, Urea Weigh scale, and cooling tower. **MAQP #2836-05** replaced MAQP #2836-04.

D. Current Permit Action

On June 24, 2009, August 3, 2009 and August 24, 2009, the Department received information from Hexion requesting that the Department correct emission calculations for formaldehyde and volatile organic compounds (VOC). After MAQP #2836-05 was

finalized, Hexion realized that they had submitted incorrect partial pressures with the permit application and requested to amend MAQP #2836-05. Additionally, Hexion requested that the Department add a federally enforceable permit condition requiring Hexion to meet Leak Detection and Repair (LDAR) monitoring requirements pursuant to 40 CFR §§63.162- §63.180 and the recordkeeping requirements of 40 CFR 60, Subpart VV (collectively referred to as a Leak Detection and Repair program or LDAR). Hexion is currently subject to 40 CFR 60, Subpart VV which includes monitoring and recordkeeping requirements. These requests were combined and assigned permit application number **MAQP #2836-06**; however, this permit action was never finalized.

On February 2, 2010, Hexion submitted a permit modification to increase throughput for the wastewater pits and the PF washwater tanks and the permit application was deemed complete on February 17, 2010. This permit action corrects the emissions of formaldehyde, methanol and VOCs, adds a federally enforceable permit condition for LDAR monitoring as previously requested under permit application number MAQP #2836-06, and increases the throughput limits for the wastewater pit and the PF washwater tanks. This permit also updates current permit language and rule references used by the Department. **MAQP #2836-07** replaces MAQP # 2836-05.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations, or copies where appropriate.

A. ARM 17.8, Subchapter 1 - General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.
3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

Hexion shall comply with all requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 - Ambient Air Quality, including, but not limited to:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
7. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀

Hexion must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 - Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged to an outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Hexion shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. (4) Commencing July 1, 1972, no person shall burn liquid or solid fuels containing sulfur in excess of 1 pound of sulfur per million Btu fired. (5) Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions. Hexion combusts natural gas which will meet this limitation.
6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank truck or trailer is equipped with a vapor loss control device as described in (1) of this rule.
7. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). Hexion is considered to include NSPS-affected facilities under 40 CFR Part 60 and is subject to the requirements of the following subparts:
 - a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below.
 - b. 40 CFR 60, Subpart VV - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI). The provisions of this subpart apply to affected facilities in the synthetic organic chemicals manufacturing industry for any affected facility that commences construction, reconstruction, or modification after January 5, 1981, and on or before November 7, 2006. Hexion has completed modifications after January 5, 1981; and therefore, this subpart applies.
 - c. 40 CFR 60, Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels). This subpart applies to storage vessels with a capacity greater than or equal to 75 cubic meters (m³) used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. However, this subpart does not apply to storage vessels with a capacity greater than or equal to 151 m³ storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa), or with a capacity greater than or equal to 75 m³ but less than 151 m³ storing a liquid with a maximum true vapor pressure less than 15.0 kPa. Hexion's new formaldehyde storage tank has a capacity of 85 m³, however true vapor pressure of the VOL will be less than 15.0 kPa. Therefore, this subpart does not apply to Hexion's Missoula facility.
 - d. 40 CFR 60, Subpart NNN – Standards of Performance for VOC Emissions from SOCMI Distillation Operations. This subpart applies to a distillate unit and the recovery system for which construction, modification, or reconstruction commenced after December 30, 1983. Because the distillate column at Hexion was constructed after December 30, 1983, this subpart applies. However, this subpart includes a provision to allow Hexion to comply with 40 CFR 65, Subpart D to satisfy the requirements of 40 CFR 60, Subpart NNN.
8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants. This source

shall comply with the standards and provisions of 40 CFR Part 63, as appropriate.

40 CFR 63, Subpart H – National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks. Based on the information submitted, Hexion is not subject to these provisions because Hexion requested federally enforceable permit limits to remain under the major source HAP threshold. However, Hexion submitted a request to add a permit condition requiring Hexion's methanol and formaldehyde operations to meet the requirements of 40 CFR §§63.162- §63.180 (excluding recordkeeping requirements). Hexion will continue to meet the recordkeeping requirements of 40 CFR 60, Subpart VV.

D. ARM 17.8, Subchapter 5 - Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. Hexion submitted the appropriate permit application fee for the current permit action.
2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

E. ARM 17.8, Subchapter 7 - Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year (tpy) of any pollutant. Hexion was required to obtain an air quality permit because the facility has a PTE more than 25 tpy of carbon monoxide (CO) and VOCs. Therefore, Hexion was required to obtain an air quality permit. .
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis

Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. Hexion submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Hexion submitted an affidavit of publication of public notice for the February 11, 2010, issue of the *Missoulian*, a newspaper of general circulation in the City of Missoula, as proof of compliance with the public notice requirements.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Hexion of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 - Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications-- Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.

This facility is a listed source, but the PTE is less than 100 tpy of any regulated pollutant (including fugitives). Therefore, Hexion is not a major stationary source. Hexion requested federally enforceable permit conditions and limitations to remain under the PSD major stationary source and Title V Operating permit threshold.

G. ARM 17.8, Subchapter 12 - Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
 - a. PTE > 100 tpy of any pollutant;
 - b. PTE > 10 tpy any one HAP, PTE > 25 ton/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
 - c. PTE > 70 ton/year of PM₁₀ in a serious PM₁₀ nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #2836-07 for Hexion's Missoula facility, the following conclusions were

made:

- a. The facility's PTE is less than 100 tpy for any pollutant.
- b. The facility's PTE is less than 10 tpy for any one HAP and less than 25 tpy of all HAPs.
- c. This source is located in a serious PM₁₀ nonattainment area.
- d. This facility is subject to a current NSPS (40 CFR 60, Subpart(s) A, VV and NNN).
- e. The facility is not subject to a current NESHAP; however Hexion requested to monitor methanol and formaldehyde operations according to the provisions of 40 CFR §§63.162 - §63.180.
- f. The source is not a Title IV affected source.
- g. The source is not a solid waste combustion unit.
- h. The source is not an EPA designated Title V source.
- i. ARM 17.8.1204(3). The Department may exempt a source from the requirement to obtain an air quality operating permit by establishing federally enforceable limitations, which limit that source's PTE.
 - i. In applying for an exemption under this section the owner or operator of the source shall certify to the Department that the source's PTE does not require the source to obtain an air quality operating permit.
 - ii. Any source that obtains a federally enforceable limit on PTE shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit.

Hexion's Missoula facility is not subject to Title V Operating Permit requirements because federally enforceable limitations have been established that limit the sources' PTE below the major source permitting threshold. The Department has determined that the annual reporting requirements contained in the permit are sufficient to satisfy this requirement.

3. ARM 17.8.1207 Certification of Truth, Accuracy, and Completeness. Hexion shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit as required by ARM 17.8.1204 (3)(b). The annual certification shall comply with requirements of ARM 17.8.1207. The annual certification shall be submitted along with the annual emission inventory information.

Based on these facts, the Department determined that Hexion will be a minor source of emissions as defined under Title V. However, if minor sources subject to NSPS are required to obtain a Title V Operating Permit, Hexion will be required to obtain a Title V Operating Permit.

III. BACT Analysis

A BACT determination is required for each new or modified source. In this case, the Department required Hexion to submit a permit application to avoid potentially violating a condition or applicable requirement of their permit. This permit action does not require any new equipment or modifications to existing equipment. It is merely to change throughput to the PF washwater tanks and the wastewater pits in addition to minor permit clarifications. Therefore, the current permit action does not require a BACT analysis.

IV. Emission Inventory

Emissions (TPY)

Source	PM	PM ₁₀	NO _x	VOC	CO	SO _x	HAPs		
							HCHO	MeOH	Phenol
Natural Gas Boiler	0.38	0.38	5.00	0.28	4.20	0.03	0.00368	0.00	0.00
Tailgas Boiler	0.00	0.00	0.00	7.58	25.76	0.00	0.35	0.29	0.00
Tailgas bypass	0.00	0.00	0.00	8.75	4.25	0.00	0.20	0.17	0.00
Methanol Tanks	0.00	0.00	0.00	0.00	0.00	0.00			0.00
Formaldehyde Storage	0.00	0.00	0.00	1.09	0.00	0.00	0.827	0.263	0.00
Formaldehyde Loading	0.00	0.00	0.00	2.09	0.00	0.00	0.420	0.0773	0.00
Formaldehyde Weigh tank	0.00	0.00	0.00	0.589	0.00	0.00	0.415	0.174	0.00
UF Resin Produced	0.00	0.00	0.00	0.00	0.00	0.00	3.98	1.79	0.00
UF Resin Storage	0.00	0.00	0.00	0.257	0.00	0.00	0.00266	0.252	0.00
UF Resin Loading	0.00	0.00	0.00	0.483	0.00	0.00	0.005	0.474	0.00
UFC Produced in Reactors	0.00	0.00	0.00	0.049	0.00	0.00	0.04	0.009	0.00
Imported UFC Storage	0.00	0.00	0.00	0.0145	0.00	0.00	0.0079	0.0063	0.00
UFC Loading	0.00	0.00	0.00	0.00572	0.00	0.00	0.00221	0.0035	0.00
PF Resin Production	0.00	0.00	0.00	1.19	0.00	0.00	0.0234	1.17	0.0017
PF Resin Storage	0.00	0.00	0.00	0.0282	0.00	0.00	0.00102	0.0214	0.00003
PF Resin Loading	0.00	0.00	0.00	0.0878	0.00	0.00	0.00	0.0823	0.00012
Methanol Storage	0.00	0.00	0.00	1.07	0.00	0.00	0.00	1.07	0.00
Methanol Loading	0.00	0.00	0.00	0.0157	0.00	0.00	0.00	0.0157	0.00
Phenol Storage	0.00	0.00	0.00	0.00275	0.00	0.00	0.00	0.00	0.00275
Phenol Scale	0.00	0.00	0.00	0.000905	0.00	0.00	0.00	0.00	0.000905
Resin Drying Pad	0.00	0.00	0.00	0.0239	0.00	0.00	0.007	0.017	0.00
Wastewater Pits*	0.00	0.00	0.00	0.00566	0.00	0.00	0.00015	0.0055	0.00
Distillate Storage	0.00	0.00	0.00	0.00503	0.00	0.00	0.000871	0.00416	0.00
Distillate Scale	0.00	0.00	0.00	0.0207	0.00	0.00	0.00745	0.0132	0.00
PF Washwater Tanks	0.00	0.00	0.00	0.000177	0.00	0.00		0.00013	0.00
Startup Formaldehyde tank	0.00	0.00	0.00	0.16	0.00	0.00	0.0137	0.147	0.00
Urea Weigh Scale	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cooling Tower	23.14	23.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitives	0.00	0.00	0.00	1.26	0.00	0.00	0.17	0.859	0.286
Total	23.62	23.62	5.0	30.82	34.21	0.03	6.47	6.91	0.292

Note: the majority of the emissions inventory was developed using the EPA Tanks Program.

* Wastewater pit calculations were completed assuming 5,176 tons UF washwater and 4,891 tons PF washwater.

Natural Gas Boiler

Heating value: 11.2 MM Btu/hr
 Fuel capacity: 100000 MM Btu/yr (company information) = 100 MMscf/yr
 Heating value: 100 MM scf/yr (conversion from Company information)
 Operating hours: 8760 hrs/year

PM Emissions		
Emission Factor:	7.6 lb/MMscf (AP-42, Table 1.4-2, 7/98)	
Calculations:	$7.6 \text{ lb/MMscf} * 100 \text{ MMscf/yr} * 0.0005 \text{ tons/lb} =$	0.38 tons/yr
PM10 Emissions		
Emission Factor:	7.6 lb/MMscf (AP-42, Table 1.4-2, 7/98)	
Calculations:	$7.6 \text{ lb/MMscf} * 100 \text{ MMscf/yr} * 0.0005 \text{ tons/lb} =$	0.38 tons/yr
CO Emissions		
Emission Factor:	84 lb/MMscf (AP-42, Table 1.4-1, 7/98)	
Calculations:	$84 \text{ lb/MMscf} * 100 \text{ MMscf/yr} * 0.0005 \text{ tons/lb} =$	4.20 tons/yr
NOx Emissions		
Emission Factor:	100 lb/MMscf (AP-42, Table 1.4-1, 7/98)	
Calculations:	$100 \text{ lb/MMscf} * 100 \text{ MMscf/yr} * 0.0005 \text{ tons/lb} =$	5.00 tons/yr
SOx Emissions		
Emission Factor:	0.6 lb/MMscf (AP-42, Table 1.4-2, 7/98)	
Calculations:	$0.6 \text{ lb/MMscf} * 100 \text{ MMscf/yr} * 0.0005 \text{ tons/lb} =$	0.03 tons/yr
VOC Emissions		
Emission Factor:	5.5 lb/MMscf (AP-42, Table 1.4-2, 7/98)	
Calculations:	$5.5 \text{ lb/MMscf} * 100 \text{ MMscf/yr} * 0.0005 \text{ tons/lb} =$	0.28 tons/yr
HAP Emissions	<i>see HAP emission inventory on file with the Department</i>	0.094 tons/yr

Tail Gas Boiler

CO		
Emission Factor:	85 lb/hr (Source Test on boiler, 10/4/95)	
Calculations:	$85 \text{ lb/hr} * 8660 \text{ hrs/year} * 0.0005 \text{ tons/lb} * (1-93) =$	25.76 tons/yr
VOC		
Emission Factor:	175 lb/hr (Assumes TOC=VOC, Source Test on boiler, 10/4/95)	
Calculations:	$175 \text{ lb/hr} * 8660 \text{ hrs/year} * 0.0005 \text{ tons/lb} * (1-0.99) =$	7.58 tons/yr
Methanol (MeOH)		
Emission Factor:	3.3 lb/hr (Assumes TOC=VOC, In-house test conducted on 12/2007)	
Calculations:	$3.3 \text{ lb/hr} * 8660 \text{ hrs/year} * 0.0005 \text{ tons/lb} * (1-0.98) =$	0.29 tons/yr
Formaldehyde (HCHO)		
Emission Factor:	4 lb/hr (MAQP# 2836-04, per Hexion submittal 12/5/2008)	
Calculations:	$4 \text{ lb/hr} * 100 \text{ hrs/year} * 0.0005 \text{ tons/lb} * (1-0.98) =$	0.35 tons/yr

Bypass Emissions from Tailgas Boiler

CO (from bypass)		
Emission Factor:	85 lb/hr (Source Test on boiler, 10/4/95)	
Calculations:	$85 \text{ lb/hr} * 100 \text{ hrs/year} * 0.0005 \text{ tons/lb} =$	4.25 tons/yr
VOC (from bypass)		
Emission Factor:	175 lb/hr (Assumes TOC=VOC, Source Test on boiler, 10/4/95)	
Calculations:	$175 \text{ lb/hr} * 100 \text{ hrs/year} * 0.0005 \text{ tons/lb} =$	8.75 tons/yr
Methanol (MeOH) (from bypass)		
Emission Factor:	3.3 lb/hr (Emission rate based on ratio of MeOH to TOC=VOC, Source Test on boiler, 10/4/95)	
Calculations:	$3.3 \text{ lb/hr} * 100 \text{ hrs/year} * 0.0005 \text{ tons/lb} =$	0.17 tons/yr

Formaldehyde Production (HCHO from bypass)
 Emission Factor: 4 lb/hr (MAQP# 2836-04, test on boiler at 100% * 2, 6/5/92)
 Calculations: 4 lb/hr * 100 hrs/year * 0.0005 tons/lb = 0.20 tons/yr

Phenol (from bypass)
 Emission Factor: 0 lb/hr (MAQP# 2836-04, test on boiler at 100%, 8/5/92)
 Calculations: 0 lb/hr * 100 hrs/year * 0.0005 tons/lb = 0.00 tons/yr

Miscellaneous PM Emissions:

Urea Weigh Scale

Maximum Urea Used: 100,000 ton/yr (permit limit)
 PM Emissions:
 Emission Factor: 0.19 lb/ton (AP-42, Table 8.2-1, 7/93, 0.19 lb/ton for urea bagging)
 Control Efficiency: 99% (Packed column wet scrubber)
 Calculations: 0.19 lb/ton * 100,000 ton/yr = 19,000 lb/yr
 19,000 lb/yr * 0.0005 ton/lb = 9.5 ton/yr
 9.5 ton/yr * (1.00 - 0.99) = 0.10 ton/yr

PM₁₀ Emissions: Assume all particulate matter is PM₁₀.
 Emission Factor: 0.19 lb/ton (AP-42, Table 8.2-1, 7/93, 0.19 lb/ton for urea bagging)
 Control Efficiency: 99% (Wet Scrubber)
 Calculations: 0.19 lb/ton * 100,000 ton/yr = 19,000 lb/yr
 19,000 lb/yr * 0.0005 ton/lb = 9.5 ton/yr
 9.5 ton/yr * (1.00 - 0.99) = 0.10 ton/yr

Cooling Tower Emissions

PM and PM₁₀ Emissions
 Operating rate: 168 kgal/hr (permit limit)
 Emission factor: 0.3145 lb/kgal (assuming Liq. Drift of 1.7 lb/kgal and TDS + 18000 ppm)
 Calculations: 0.3145 lb/kgal * 168 kgal/hr = 5.284 lb/hr
 5.284 lb/hr * 8760 hrs/yr * 0.0005 ton/lb = 23.14 tons/yr

Other Miscellaneous Formaldehyde Emissions:

UF Resin Reactor Emissions:
 Max Production 398 MMlb/yr (permit limit)
 Emission Factor: 2.00e-05 lb/lb (Hexion Source test 10/6/95)
 Calculations: 0.000020 lb/lb * 398 MMlb/yr = 7960.0 lb/yr
 7960.0 lb/yr * 0.0005 ton/lb = 3.98 ton/yr

UFC Production Emissions:
 Max Production 2 MMlb/yr (permit limit)
 Emission Factor: 4.00e-05 lb/lb (Hexion 10/6/95 Submittal)
 Calculations: 0.000040 lb/lb * 2 MMlb/yr = 80.0 lb/yr
 80.0 lb/yr * 0.0005 ton/lb = 0.04 ton/yr

PF Resin Reactor Emissions:
 Max Production 117 MMlb/yr (permit Limit)
 Emission Factor: 4.00e-07 lb/lb (Hexion 10/6/95 Submittal)
 Calculations: 0.0000004 lb/lb * 117 MMlb/yr = 46.8 lb/yr
 46.8 lb/yr * 0.0005 ton/lb = 0.02 ton/yr

Resin Drying Pad Emissions:
 Resin Drying pad throughput: 500,000 lb/yr (46, 089 gallons per Hexion)
 Maximum Resin Density: 10.8 lb/gallon
 Resin Liquid Content: 10% wt per % liquid (Hexion submittal)
 Maximum HCHO Resin content: 0.028 % liq per % HCHO
 Calculations: 46,089 gal * 10.8 lb/gal * 0.10 * 0.00028 = 13.94 lb/yr
 13.94 lb/yr * 0.0005 ton/lb = 0.007 tpy

Formaldehyde Fugitive Emissions (valves, pumps, flanges, etc):
 Emission Factor: SOCFI FACTOR (Hexion Submittal)
 Calculations: 234.94 lb/yr
 234.94 lb/yr * 0.0005 ton/lb = 0.1174 ton/yr

Other Miscellaneous Methanol Emissions:

UF Resin Reactor Emissions:

Max Production 398 MMlb/yr (permit Limit)
Emission Factor: 9.00e-06 lb/lb (Hexion Source test 10/6/95)
Calculations: 0.000009 lb/lb * 398 MMlb/yr = 3582.0 lb/yr
3582.0 lb/yr * 0.0005 ton/lb = 1.79 ton/yr

UFC Production Emissions:

Max Production 2 MMlb/yr (permit limit)
Emission Factor: 9.00e-06 lb/lb (Hexion Source test 10/6/95)
Calculations: 0.000009 lb/lb * 2 MMlb/yr = 18.0 lb/yr
18.0 lb/yr * 0.0005 ton/lb = 0.009 ton/yr

PF Resin Reactor Emissions:

Max Production 117 MMlb/yr (permit limit)
Emission Factor: 2.00e-05 lb/lb (Hexion 10/6/95 Submittal)
Calculations: 0.00002 lb/lb * 117 MMlb/yr = 2340 lb/yr
2340 lb/yr * 0.0005 ton/lb = 1.17 ton/yr

Fugitive Emissions:

Emission Factor: SOCFI FACTOR (Hexion Submittal)
Calculations: 1718.91 lb/yr
1718.91 lb/yr * 0.0005 ton/lb = 0.85 ton/yr

Resin Drying Pad Emissions:

Resin Drying pad throughput: 500,000 lb/yr (46,089 gallons per Hexion)
Maximum Resin Density: 10.8 lb/gallon
Resin Liquid Content: 10% wt per % liquid (Hexion submittal)
Maximum HCHO Resin content: 0.068 % liq per % HCHO
Calculations: 46,089 gal * 10.8 lb/gal * 0.10 * 0.00068 = 33.84 lb/yr
33.84 lb/yr * 0.0005 ton/lb = 0.017 tpy

Other Miscellaneous Phenol Emissions:

PF Resin Reactor

Max Production 117 MMlb/yr (permit limit)
Emission Factor: 2.00e-08 lb/lb (Hexion 10/6/95 Submittal)
Calculations: 0.00000002 lb/lb * 117 MMlb/yr = 2.34 lb/yr
2.34 lb/yr * 0.0005 ton/lb = 0.00117 ton/yr

Fugitive Emissions:

Emission Factor: SOCFI Average FACTOR (Hexion Submittal)
Calculations: 572.12 lb/yr
572.12 lb/yr * 0.0005 ton/lb = 0.286 ton/yr

V. Existing Air Quality

The Missoula area is currently listed as a nonattainment area for PM₁₀. However, the Department believes that the modifications to the existing facility will not result in any adverse impacts to the local air quality.

VI. Ambient Air Impact Analysis

The Department believes that the emissions from the facility will not cause or contribute to a violation of any ambient air quality standard. The Department has also determined that the impact from this permitting action will be minor.

VI. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

VII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
P.O. Box 200901, Helena, Montana 59620
(406) 444-3490

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Hexion Specialty Chemicals, Inc.

Montana Air Quality Permit Number: 2836-07

Preliminary Determination Issued: March 19, 2010

Department Decision Issued: April 21, 2010

Permit Final: May 7, 2010

1. *Legal Description of Site:* Hexion operates a formaldehyde and thermoset production facility located at 3670 Grant Creek Road in Missoula, Montana. The legal description is the West ½ of Section 8, Township 13 North, Range 19 West in Missoula County. A list of equipment at the facility is contained in the permit analysis of MAQP #2836-07.
2. *Description of Project:* On February 2, 2010, Hexion submitted a permit modification to increase throughput for the wastewater pits and the PF washwater tanks and the application was deemed complete on February 17, 2010. In addition to increasing throughput, this permit action would also correct the emissions of formaldehyde, methanol and VOCs, and add a federally enforceable permit condition to require monitoring under 40 CFR Part 63.
3. *Objectives of Project:* Hexion facility manufactures blends of formaldehyde and thermoset resins. The main purpose of the current permit action is to update emission factors for formaldehyde, methanol and VOCs, to add a permit condition to require additional monitoring under 40 CFR Part 63, and to increase the throughput limits for the wastewater pit and the PF washwater tank.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the “no-action” alternative. The “no-action” alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the “no-action” alternative to be appropriate because Hexion demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the “no-action” alternative was eliminated from further consideration.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a BACT analysis, would be included in MAQP #2836-07.
6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.
7. *The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The “no-action” alternative was discussed previously.*

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Geology and Soil Quality, Stability and Moisture			X			Yes
D	Vegetation Cover, Quantity, and Quality			X			Yes
E	Aesthetics				X		Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
H	Demands on Environmental Resource of Water, Air and Energy			X			Yes
I	Historical and Archaeological Sites				X		Yes
J	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

Any impacts resulting from the proposed project to terrestrial and aquatic life and habitats would be minor because all proposed activities would take place within the Hexion property boundary, an existing industrial site. Minor impact to the surrounding area from the air emissions (see Section VI of the permit analysis) would be realized due to dispersion of pollutants.

Terrestrials (such as deer, antelope, rodents, and insects) might frequent the area. However because other industrial sources are located near this facility, terrestrials that routinely inhabit the area are accustomed to the industrial characteristics of the site. Because the facility is an existing industrial site and the modifications are minor, there would be little, if any, impacts to terrestrial and aquatic life and habits.

B. Water Quality, Quantity and Distribution

Any impacts resulting from the proposed project to water quality, quantity, and distribution would be minor, if any, because there will be no new construction at the facility and all activities would take place within the defined property boundary, an existing industrial site. This project would add monitoring requirements, increase the throughput to the washwater pits, and correct emission calculations. The overall impacts to water quality, quantity, and distribution from the proposed permit modifications, resulting in air emissions and deposition of air emissions would be minor.

C. Geology and Soil Quality, Stability and Moisture

Any impacts resulting from the proposed project to geology and soil quality, stability, and moisture would be minor because all proposed activities with respect to permit limits/conditions would take place within the defined Hexion property boundary, an existing industrial site. Hexion owns approximately 22 acres and has developed 5 acres. Therefore, approximately 17 acres would remain as open space. The issuance of this permit would not result in any new

construction outside the area already disturbed, therefore, minor impacts on the soil quality, stability, moisture, or geology would occur.

D. Vegetation Cover, Quantity, and Quality

The operation would take place within Hexion's existing industrial site and no new construction or ground disturbance to the area would be required. Any modifications to the existing facility would take place in an area that has previously been disturbed. The Department previously contacted Montana Natural Heritage Program (MNHP) in an effort to determine if there are any species of concern in or near this area. MNHP noted that there are no species of concern in the area. Emissions from the operation could affect vegetation cover, quantity, and quality in the project area. However, pollutants would be widely dispersed before settling upon vegetation and surrounding soils. The Department believes that any resulting impacts from this permit action would be minor.

E. Aesthetics

Hexion is an existing industrial operation located in the City of Missoula in a predominantly commercial/industrial area. The Roseburg Forest Products – Missoula Mill is located south of the existing facility as well as other commercial/industrial enterprises. Visible emissions from the source would be limited to 20% opacity, and noise generated by the operation would be minor due to the nature of the business. This project would not result in equipment modifications or new construction at the existing facility. Therefore, the Department believes no additional impacts to aesthetics would result from the additional throughput.

F. Air Quality

The air quality impacts from Hexion's project would be minor, if any. The proposed project would result in a small emission increase (<1 tpy) in various air pollutants, the vast majority of which would be methanol, formaldehyde and VOCs. Hexion's Missoula facility is not subject to Title V Operating Permit major source requirements because federally enforceable limitations have been established to limit the sources' PTE below the major source threshold. MAQP #2836-07 would include conditions limiting the opacity.

The Department believes that modifications to the facility, operating under the limits and conditions included in this permit would not cause or contribute to a violation of any applicable ambient air quality standard. The effects on air quality would be minor and therefore, the Department determined that ambient air impacts from this permitting action would be minor.

G. Unique Endangered, Fragile, or Limited Environmental Resources

In an effort to identify any unique endangered, fragile, or limited environmental resources in the area, the Department contacted the MNHP. Search results concluded there are eight species of concern in the area. The area in this case is defined by the township and range of the proposed site, with an additional one-mile buffer. The species of special concern identified by MNHP include the *Swainson's Hawk*, *Flammulated Owl*, *Westslope Cutthroat Trout*, *Bull Trout*, *Fringed Myotis*, *Gray Wolf*, *Western Skink*, and *A Subterranean Amphipod*.

The Hexion site has historically been used for industrial purposes. Any changes in operation associated with the proposed modification and increase in throughput would take place within the existing Hexion property boundary. Because industrial operations have been ongoing within the existing property boundary for an extended period of time and potential permitted emissions from Hexion show compliance with all applicable air quality standards, it is unlikely that any of these species of special concern would be affected by the proposed project. Overall,

any impacts to any unique endangered, fragile, or limited environmental resources would be minor.

H. Demands on Environmental Resource of Water, Air and Energy

The operation would result in minor demands on the environmental resource of water and air, as discussed in Sections 7.B and 7.F of this EA. Because the operation is an existing operation and the current permit action would result in a small amount of additional water and energy consumption, the impacts would be minor. Overall, any impacts to the demands on the environmental resources of water, air, and energy from Hexion's proposed permit modifications would be minor.

I. Historical and Archaeological Sites

In an effort to identify any historical and archaeological sites near the proposed project area, the Department contacted the Montana Historical Society, State Historic Preservation Office (SHPO). According to SHPO records, there are no previously recorded historic or archaeological sites within the project area. However, SHPO has reported that the absence of recorded cultural/historical properties in the search locale may be due to a lack of previous inventory. The project would not result in additional ground disturbance. Given the low likelihood that cultural resources exist in the area, the Department determined that this current permit action would not impact any cultural or historic sites.

J. Cumulative and Secondary Impacts

Overall, any cumulative and secondary impacts from the proposed permit modification on the physical and biological resources of the human environment in the immediate area would be minor due to the fact that the predominant use of the surrounding area would not change as a result of the proposed project. The Department believes that this facility would operate in compliance with all applicable rules and regulations as outlined in MAQP #2836-07.

8. *The following table summarizes the potential economic and social effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.*

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores			X			Yes
B	Cultural Uniqueness and Diversity				X		Yes
C	Local and State Tax Base and Tax Revenue			X			Yes
D	Agricultural or Industrial Production			X			Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities				X		Yes
G	Quantity and Distribution of Employment				X		Yes
H	Distribution of Population				X		Yes
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity				X		Yes
K	Locally Adopted Environmental Plans and Goals				X		Yes
L	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

The predominant use of the surrounding area is industrial/commercial and would not change as a result of the project. The Department believes the operation would have minor effects on any native or traditional lifestyles or communities (social structures or mores) of the proposed area of operation because the facility is an existing industrial site, and the permit modifications are minor.

B. Cultural Uniqueness and Diversity

The cultural uniqueness and diversity of this area would not be impacted by Hexion. The predominant use of the surrounding area would remain as industrial/commercial. Therefore, the cultural uniqueness and diversity of the area would not be affected.

C. Local and State Tax Base and Tax Revenue

There would be no additional employees required as a result of this permit action. Hexion would remain responsible for all appropriate state and county taxes imposed upon the business' operation. In addition, Hexion employees would continue to contribute to the overall income base of the area. The Department believes that this project would have minor additional impacts to the local and state tax base and tax revenue.

D. Agricultural or Industrial Production

Hexion would have a minor impact on local industrial production. Hexion would operate in an existing industrial building(s) located in an area that is predominantly industrial/commercial. There would not be a change in agricultural production and minor changes to local industrial production due to Hexion's increase in production. Overall, changes to agricultural and industrial production in the area would be minor.

E. Human Health

The Clean Air Act established two types of NAAQS, Primary and Secondary. Primary Standards set limits to protect public health, including, but not limited to, the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary Standards are set to protect public welfare, such as unacceptable damage to crops and vegetation, buildings and property, and ecosystems. Under MAQP #2836-02, Hexion demonstrated that Hexion's operation would comply with all applicable ambient air quality standards. There may be minor effects on human health due to the small emission's increase of pollutants (primarily formaldehyde and methanol). MAQP #2836-07 incorporates conditions to ensure that the facility would operate in compliance with all applicable rules and standards, and these rules and standards are designed to protect human health. Hexion's proposed changes would be considered a minor. Therefore, the permit action at the existing facility would result in a minor risk to human health in the surrounding area.

F. Access to and Quality of Recreational and Wilderness Activities

Because the facility would operate in an existing building located in an area that is predominantly industrial/commercial, the permit modification would not change or affect any access to, or quality of, any recreation or wilderness activities in the area.

G. Quantity and Distribution of Employment

Hexion has been in operation for several years, and the size and nature of the project would remain essentially the same as a result of this permit modification. Therefore, modifications to the existing facility would not result in an increase in employees and the Department believes this project would not impact the quantity and distribution of employment in the area.

H. Distribution of Population

Hexion is located in Missoula, Montana which has a population of approximately 64,000. The current permit action would not result in an increase in employment or change to population. Therefore, the Department believes that changes to operation would not impact the distribution of population in the project area

I. Demands for Government Services

Government services would be required for acquiring the appropriate permits from government agencies. In addition, the permitted source of emissions would be subject to periodic inspections by government personnel. However, demands for additional government services would be minor.

J. Industrial and Commercial Activity

The current permit action would change various aspects of the previously permitted Hexion facility operations, specifically related to formaldehyde production and operation requirements but would not result in an overall change in facility purpose. Therefore, the proposed permit modification would not impact any industrial or commercial activity in the area beyond those impacts already realized through previous permit actions for Hexion.

K. Locally Adopted Environmental Plans and Goals

The Department is not aware of any locally adopted environmental plans or goals in the immediate area that may be affected by the project. Because the facility is existing, the Department believes this project would not impact or change any other environmental plans and goals.

L. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from the proposed permit modification on the economic and social resources of the human environment in the immediate area, would be minor, due to the fact that the predominant use of the surrounding area would not change as a result of the proposed project. The Department believes that this facility would continue to operate in compliance with all applicable rules and regulations as outlined in MAQP #2836-07.

Recommendation: No Environmental Impact Statement (EIS) is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for expansion of the formaldehyde production and changes in operation at Hexion. MAQP #2836-07 includes conditions and limitations to ensure the facility will operate in compliance with

all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Previously contacted Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Resources Management Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

EA prepared by: Jenny O'Mara

Date: March 11, 2010