



Montana Department of
ENVIRONMENTAL **Q**UALITY

Brian Schweitzer, Governor

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April 11, 2012

Kraig Keltz
American Chemet Corporation
P.O. Box 1160
East Helena, MT 59635

Dear Mr. Keltz:

Montana Air Quality Permit #1993-16 is deemed final as of April 11, 2012, by the Department of Environmental Quality (Department). This permit is for a copper oxides and zinc oxides production operation and associated equipment. 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

Doug Kuenzli
Environmental Science Specialist
Air Resources Management Bureau
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VW:DCK
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #1993-16

American Chemet Corporation
P.O. Box 1160
East Helena, MT 59635

April 11, 2012



MONTANA AIR QUALITY PERMIT

Issued to: American Chemet Corporation
P.O. Box 1160
East Helena, MT 59635

MAQP: #1993-16
Application Complete: 02/14/2012
Preliminary Determination Issued: 03/08/2012
Department's Decision Issued: 03/26/2012
Permit Final: 04/11/2012
AFS #: 049-0003

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

Section I: Permitted Facilities

A. Plant Location

American Chemet owns and operates the East Helena facility for the primary purpose of copper oxides and zinc oxides production for use in several different industries, including marine paints and animal feeds. The American Chemet facility is located immediately south of State Highway 12, within the city limits of East Helena. The legal description is the Northwest ¼ of Section 36, Township 10 North, Range 3 West, Lewis and Clark County, Montana. A list of permitted equipment is contained in the permit analysis.

B. Current Permit Action

On February 2, 2012, the Montana Department of Environmental Quality (Department) received an application to modify American Chemet's air quality permit to propose the installation and operation a new cupric oxide plant to be constructed within the existing facility. In addition to the installation of equipment proposed under this modification, the permit action incorporates multiple equipment change notifications submitted by American Chemet. The permit also updates language and rule references used by the Department, as well as, updates the emissions inventory.

Section II: Conditions and Limitations

A. Emission Limitations

1. The average lead content of American Chemet's feed material shall be less than 0.15% on a quarterly average and 0.10% on an annual average (ARM 17.8.749).
2. Emissions from the wet scrubber (stack #3) that controls the #2 Copper Furnace shall not exceed:
 - a. 20% opacity (ARM 17.8.304)
 - b. 0.05 gr/dscf of particulate (ARM 17.8.752)
3. The #41 Copper Furnace emissions shall be controlled by a baghouse (ARM 17.8.749).
4. Emissions from the individual baghouses (stacks #2 and #31) that control the #1 Copper Furnace and the #41 Copper Furnace, shall each not exceed:

- a. 0.015 gr/dscf of particulate matter (ARM 17.8.749)
 - b. 0.007 lb/hour of lead (American Chemet Board Order dated 8/4/95 and 6/30/95 stipulation (ARM 17.8.749))
 - c. 15.4 lb of lead/calendar quarter (American Chemet Board Order dated 8/4/95 and 6/30/95 stipulation (ARM 17.8.749))
 - d. 20% opacity (ARM 17.8.752)
5. Emissions from the #11 Copper Mill Support Baghouse (stack #11) that controls the #11 Copper Mill, and the #50 Copper Sizer Feed Bin, shall not exceed:
- a. 0.015 gr/dscf of particulate (ARM 17.8.749)
 - b. 20% opacity (ARM 17.8.304)
6. Emissions from the #5 Copper Mill shall be controlled by the #5 Copper Mill Vent Baghouse (stack #4), the #5 Copper Mill Transfer Baghouse (stack #5), and the #5 Copper Mill Feed Baghouse (stack #6) (ARM 17.8.749). Emissions from each of these baghouse stacks shall not exceed:
- a. 0.015 gr/dscf of particulate (ARM 17.8.749)
 - b. 20% opacity (ARM 17.8.304)
7. Emissions from the baghouse (stack #21) that controls the gas-fired #28 Copper Furnace (#CL-056) system, shall not exceed:
- a. 0.01 gr/dscf of particulate (ARM 17.8.752)
 - b. 20% opacity (ARM 17.8.752)
8. Emissions from the baghouse (stack #28) that controls the #40 Copper Sizer shall not exceed:
- a. 0.015 gr/dscf of particulate matter (ARM 17.8.749)
 - b. 7% opacity (ARM 17.8.752)
9. Emissions from the baghouse (stack #25) that controls the #34 Copper Mill, the #35 Copper Sieve, the #36 Copper Blender, the #37 Copper Packer, #38 Copper Mill, and the #44 Copper Mill shall not exceed:
- a. 0.01 gr/dscf of particulate matter (ARM 17.8.752)
 - b. 7% opacity (ARM 17.8.752)
10. The #34 Copper Mill, the #35 Copper Sieve, the #36 Copper Blender, the #37 Copper Packer, the #38 Copper Mill, the #44 Copper Mill and their associated baghouse (stack #25) shall not exceed 7,000 hours of operation per rolling 12-month period (ARM 17.8.749).

11. Emissions from the #16 Copper Furnace, the #17 Copper Furnace, and the #18 Copper Furnace shall be controlled by a baghouse (stack #14). Emissions from stack #14 shall not exceed:
 - a. 0.01 gr/dscf of particulate matter (ARM 17.8.752)
 - b. 10% opacity (ARM 17.8.752)
12. Emissions from the individual baghouses (stack #27) that control the #3 Copper Furnace and the #4 Copper Furnace, shall each not exceed:
 - a. 0.015 gr/dscf of particulate matter (ARM 17.8.752)
 - b. 10% opacity (ARM 17.8.752)
13. Emissions from the #19 Copper Furnace, controlled by a thermal oxidation unit (stack #15), shall not exceed:
 - a. 0.10 gr/dscf adjusted to 12% carbon dioxide and calculated as if no auxiliary fuel had been used (ARM 17.8.316)
 - b. 10% opacity (ARM 17.8.316)
14. The #43 Copper Blender emissions must be controlled by a baghouse (ARM 17.8.752). Emissions from the baghouse (stack #30) that control the emissions from the #43 Copper Blender shall each not exceed:
 - a. 0.01 gr/dscf of particulate matter (ARM 17.8.752)
 - b. 7% opacity (ARM 17.8.752)
15. The #30 Copper Mill, the #32 Crusher, the #46 Copper Mill, the #47 Screen, and the #48 Copper Mill, shall be controlled by a baghouse (ARM 17.8.749). Emissions from the baghouse (stack #32) shall not exceed:
 - a. 0.015 gr/dscf of particulate matter (ARM 17.8.752)
 - b. 7% opacity (ARM 17.8.752)
16. The #31 Sieve, the #24 Copper Mill, and the #56 Copper Furnace shall be controlled by a baghouse (ARM 17.8.749). Emissions from the baghouse (stack #18) shall not exceed:
 - a. 0.01 gr/dscf of particulate matter (ARM 17.8.752)
 - b. 7% opacity (ARM 17.8.752)
17. The #60 Copper Furnace shall be controlled by a baghouse (ARM 17.8.749). Emissions from the baghouse (stack #40) shall not exceed:
 - a. 0.015 gr/dscf of particulate matter (ARM 17.8.752)
 - b. 7% opacity (ARM 17.8.752)

18. The #61 Copper Mill shall be controlled by a baghouse (ARM 17.8.749). Emissions from the baghouse (stack #41) shall not exceed:
 - a. 0.015 gr/dscf of particulate matter (ARM 17.8.752)
 - b. 7% opacity (ARM 17.8.752)
19. The #62 Copper Furnace, the #63 Copper Furnace, the #64 Copper Furnace and from transfers to and from the #62, #63, and #64 furnaces shall be controlled by a baghouse (ARM 17.8.749). Emissions from the baghouse (stack #42) shall not exceed:
 - a. 0.015 gr/dscf of particulate matter (ARM 17.8.752)
 - b. 7% opacity (ARM 17.8.752)
20. The #16 Copper Furnace and the #17 Copper Furnace must comply with the following requirements when receiving process gas from the #49 Gas Processor:
 - a. Emissions from the feed end of the #16 Copper Furnace and #17 Copper Furnace shall be controlled with a flame curtain during all periods when the copper furnace is receiving process gas from the #49 Gas Processor (ARM 17.8.752).
 - b. Emissions from the discharge end of the #16 Copper Furnace and #17 Copper Furnace shall be controlled with a double lip curtain seal, or equivalent, during all periods when the copper furnace is receiving process gas from the #49 Gas Processor (ARM 17.8.752).
 - c. Excess process gas from the #16 Copper Furnace and the #17 Copper Furnace shall be collected and routed to a continuously operated, natural gas-fired afterburner (ARM 17.8.752).
 - d. Emissions from the afterburner stack that controls emissions from the process gas – supplied #16 Copper Furnace or #17 Copper Furnace, shall not exceed 1.99 pounds per hour of carbon monoxide (CO) (ARM 17.8.749).
 - e. Emissions from the flame curtain discharge stack and the afterburner stacks shall not exceed 10% opacity (ARM 17.8.749).
 - f. The #49 Gas Processor, and the #16 Copper Furnace and the #17 Copper Furnace, when receiving process gas from the #49 Gas Processor, shall not be operated unless the afterburner and flame curtain is fully operational and providing the maximum emission reduction for which it was designed. The #16 Copper Furnace and the #17 Copper Furnace shall be equipped and operated with feed end controls that monitor the operational status (i.e., presence of a flame) of the afterburner and flame curtain (ARM 17.8.749).
21. The #55 packer and the #26 packer shall be controlled by a baghouse (ARM 17.8.749). Emissions from the baghouse (stack #35) shall not exceed:
 - a. 0.015 gr/dscf of particulate matter (ARM 17.8.749)
 - b. 20% opacity (ARM 17.8.752)

22. The #5 Copper Mill Batch Bin and the #58 Copper Sizer shall not be charged simultaneously (ARM 17.8.749).
23. The Batch Bin and the #52 Copper Mixer Feed Bin #1 shall not be charged simultaneously (ARM 17.8.749).
24. The #53 Copper Mixer and the #54 Copper Mixer shall not be charged simultaneously (ARM 17.8.749).
25. The #53 Copper Mixer Conveyor and the #54 Copper Mixer Conveyor shall not be charged simultaneously (ARM 17.8.749).
26. Except as otherwise specified in this permit, American Chemet shall not operate any process equipment that was installed after August 21, 2002, unless:
 - a. Conveyor covers or enclosures are being used and maintained on that process equipment, and/or
 - b. Transfer point covers or enclosures are being used and maintained on that process equipment, and/or
 - c. Structural enclosures surround that process equipment (ARM 17.8.749)

B. Testing Requirements

1. American Chemet shall perform compliance tests for particulate, lead, and opacity on the baghouse (stack #2) controlling the #1 Copper Furnace; testing must demonstrate compliance with the limitations in Section II.A.4. The opacity test shall consist of a minimum of 30 minutes of readings. Compliance testing shall be performed on a once every 5-year basis, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105).
2. American Chemet shall perform compliance testing (stack #31) on the baghouse controlling the #41 Copper Furnace for particulate, lead, and opacity. The testing must demonstrate that the #41 copper furnace is in compliance with the limitations in Section II.A.4. The tests shall be performed on a once every 5-year basis, or according to another testing/monitoring schedule as may be approved by the Department. The opacity test shall consist of a minimum of 30 minutes of readings (ARM 17.8.105).
3. American Chemet shall perform compliance testing for CO on the afterburner controlling emissions from the #16 Copper Furnace. The testing must demonstrate compliance with the CO limitations in Section II.A.20.d. The tests shall be performed on a once every-2-year basis, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105).
4. American Chemet shall perform compliance testing for CO on the afterburner controlling emissions from the #17 Copper Furnace, in the event the connection between the #49 Gas Processor and #17 Copper Furnace is reestablished. The testing must demonstrate compliance with the CO limitations in Section II.A.20.d. The testing shall be conducted within 180 days of connection to the #49 Gas Processor. The tests shall continue on a once every 2-year basis, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105).
5. The Department may require further testing (ARM 17.8.105).

6. All compliance source tests shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

C. Operational Reporting Requirements

1. American Chemet 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 and sources identified in Section I of 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. The information shall include the following and shall be in the units required by the Department. This information may be used for calculating operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505). American Chemet shall submit the following 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).

- a. Tons of material processed or handled by the following:

- #1 Zinc
- #1 Copper Furnace
- #2 Copper Furnace
- #3 Copper Furnace
- #4 Copper Furnace
- #5 Copper Mill
- #8 Copper Blender
- #9 Copper Blender
- #11 Copper Mill
- #11 Copper Mill Support Baghouse
- #50 Copper Sizer
- #16 Copper Furnace
- #17 Copper Furnace
- #18 Copper Furnace
- #19 Copper Furnace
- #24 Copper Sizer
- #26 Packer
- #28 Copper Furnace
- #30 Copper Mill
- #32 Crusher
- #31 Copper Seive
- #34 Copper Mill
- #35 Copper Seive
- #36 Copper Blender
- #37 Copper Packer
- #38 Copper Mill

- #40 Copper Sizer
- #41 Copper Furnace
- #43 Copper Blender
- #44 Copper Mill
- #46 Copper Mill
- #47 Copper Screen
- #48 Copper Mill
- #50 Copper Sizer
- #52 Copper Mixer
- #53 Copper Mixer
- #54 Copper Mixer
- #55 Packer
- #56 Copper Furnace
- #58 Copper Sizer
- #59 Packer
- #60 Copper Furnace
- #61 Copper Mill
- #62 Copper Furnace
- #63 Copper Furnace
- #64 Copper Furnace

- b. Hours of operation of each source of emissions at the facility
 - c. Amount of gas burned for each piece of fuel-burning equipment
 - d. Average annual lead content of the feed materials to the facility
 - e. Emission rate determined through testing for the year for each piece of equipment tested. The tests reported shall be those for the same calendar year as the annual production rates and shall include the following:
 - i. Grams/hour
 - ii. Date of test
 - iii. Average grams/hour for each source tested
 - f. Amount of process gas generated by the #49 Gas Processor.
2. The following information shall be submitted to the Department on a quarterly basis. Data for each calendar quarter shall be submitted within 45 days of the end of the quarter.
- a. Hours of operation of the #1 Copper Furnace and the #41 Copper Furnace
 - b. Pounds per quarter of lead emissions from the #1 Copper Furnace Stack (stack #2) and the #41 Copper Furnace Stack (stack #31)
 - c. The quarterly average lead content of the feed material to the facility
3. American Chemet 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 emission 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 start up 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).

4. All records compiled in accordance with this permit must be maintained by American Chemet 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).

D. Notification

American Chemet shall provide the Department with written notification of the actual start-up date of the cupric oxide plant. The notice shall be postmarked or hand-delivered no later than 15 days after the actual start-up date of the cupric oxide plant (ARM 17.8.749).

Section III: General Conditions

- A. Inspection - American Chemet 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 (Continuous Emission Monitoring Systems CEMS, Continuous Emission Rate Monitoring Systems (CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if American Chemet fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving American Chemet 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 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 Department personnel at the location of the permitted source.

- G. Permit Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by American Chemet may be grounds for revocation of this permit, as required by that section and rules adopted there under 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 proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit (MAQP) Analysis
American Chemet Corporation
Permit #1993-16

I. Introduction/Process Description

The American Chemet Corporation (American Chemet) facility is located within the City of East Helena, approximately 3 miles east of Helena. The legal description of the facility is the Northwest ¼ of Section 36, Township 10 North, Range 3 West, Lewis and Clark County, Montana.

A. Permitted Equipment

This permit covers the following equipment at the facility:

| Emitting Unit(s) | Stack ID | Control Equipment |
|--|----------|-------------------|
| #1 Zinc | #1 | Baghouse |
| #1 Copper Furnace | #2 | Baghouse |
| #2 Copper Furnace | #3 | Scrubber |
| #5 Copper Mill Vent Baghouse | #4 | Baghouse |
| #5 Copper Mill Transfer Baghouse | #5 | Baghouse |
| #5 Copper Mill Feed Baghouse | #6 | Baghouse |
| #8 Copper Blender | #7 | Baghouse |
| #9 Copper Blender | #8 | Baghouse |
| #11 Copper Mill Vent Baghouse | #9 | Baghouse |
| #11 Copper Mill Feed Baghouse | #10 | Baghouse |
| #11 Copper Mill Support Baghouse #50 Copper Sizer | #11 | Baghouse |
| #16 Copper Furnace #17 Copper Furnace #18 Copper Furnace | #14 | Baghouse |
| #16 Copper Furnace | #14A | Oxidation Unit |
| #19 Copper Furnace | #15 | Oxidation Unit |
| #24 Copper Sizer #31 Copper Seive #56 Copper Furnace | #18 | Baghouse |
| #59 Packer (Bin System) | #20 | Baghouse |
| #28 Copper Furnace | #21 | Baghouse |
| #34 Copper Mill #35 Copper Seive #36 Copper Blender #37 Copper Packer #38 Copper Mill #44 Copper Mill | #25 | Baghouse |
| #3 Copper Furnace #4 Copper Furnace | #27 | Baghouse |
| #40 Copper Sizer | #28 | Baghouse |

| Emitting Unit(s) | Stack ID | Control Equipment |
|--|----------|-------------------|
| #43 Copper Blender | #30 | Baghouse |
| #41 Copper Furnace (Outlet) | #31 | Baghouse |
| #30 Copper Mill #32 Crusher #46 Copper Mill #47 Copper Screen #48 Copper Mill | #32 | Baghouse |
| #26 Packer #55 Packer | #35 | Baghouse |
| #52 Copper Mixer #53 Copper Mixer (Bin Vent) #54 Copper Mixer (Bin Vent) #58 Copper Sizer (Closed Loop) | #36 | Baghouse |
| #41 Copper Furnace (Inlet) | #38 | Baghouse |
| #59 Packer | #39 | Baghouse |
| #60 Copper Furnace | #40 | Baghouse |
| #61 Copper Mill | #41 | Baghouse |
| #62 Copper Furnace #63 Copper Furnace #64 Copper Furnace | #42 | Baghouse |

B. Source Description

The primary purpose of the facility is the production of copper oxides and zinc oxides for use in several different industries, including the production of marine paints and animal feeds. The facility consists of numerous gas-fired and electric furnaces, mills, and blenders for the production of the oxides.

C. Permit History

Permit #685(-020674) was the first permit issued to American Chemet on November 20, 1973, for the construction of a scrubber (referred to as the Ducon scrubber) and associated duct work and settling tank to control emissions from two (#1 and #2) copper furnaces.

Permit #882 was issued on August 12, 1975, for the #19 Copper Furnace. Permit #882 replaced Permit #685(-020647).

Permit #883 was issued on June 9, 1975, for a new copper grinding facility. At the time, the facility was known as the #5 and #6 Copper Mills - which referred to the two baghouses. This permit covered the installation of the process equipment and the product recovery baghouses. Permit #883 replaced Permit #882.

Permit #934 was issued on April 6, 1976, for the #1 Copper Furnace. Permit #934 replaced Permit #883.

Permit #1020 was issued on December 21, 1976, for a copper furnace and stack. The furnaces covered by Permit #1020 were a furnace, which has been removed and sold, and the #1 Copper Furnace that was still operating. Permit #1020 replaced Permit #934.

Permit #1290 was issued on October 24, 1978, for the installation of the #9 Packer and appurtenances (three baghouses). Permit #1290 replaced Permit #1020.

Permit #1454 was issued on March 18, 1980, for the #20 Copper Furnace. The #20 Copper Furnace was the second furnace of this type at the facility. Permit #1454 replaced Permit #1290.

Permit #1585 was issued on April 29, 1981, for the installation of cyclones and a courtyard baghouse. A cyclone was installed on each of the #2, #3, and #4 Copper Furnaces. The courtyard baghouse reference was later changed to the #13 Copper Mill Baghouse. Permit #1585 replaced Permit #1454.

Permit #1589 was issued on May 7, 1981, for a crusher baghouse. The crusher baghouse became the third baghouse (named the #7 copper mill) installed on the #5 Copper Mill system that was originally covered by Permit #883.

MAQP #1993-00 was issued on February 5, 1985, for the #23 Copper Furnace. MAQP #1993-00 replaced Permit #1589.

MAQP #1993-01 was issued on February 25, 1994, for the construction and operation of the gas-fired #28 Copper Furnace. The #28 Copper Furnace would produce the premium product at American Chemet. Copper powder was the material fired in the furnace. Also, this permit alteration was the mechanism used to combine all previously existing permits issued to American Chemet for the East Helena plant into one permit. MAQP #1993-01 replaced Permits #685, #882, #883, #934, #1020, #1290, #1454, #1585, #1589, and #1993. All conditions contained in the permits became conditions in MAQP #1993-01. MAQP #1993-00 replaced MAQP #1993-01.

MAQP #1993-02 was issued on April 22, 1994, for the construction and operation of an experimental furnace (#29 Copper Furnace) and a stirred ball mill system (#30 Copper Mill). The experimental furnace was constructed and installed to allow American Chemet the opportunity to evaluate the use of other types of feed material. The #29 Copper Furnace was constructed outdoors, adjacent to the existing #1 copper furnace.

The #30 Copper Mill was installed to process some of the copper oxides previously processed in the #5 Copper Mill. The material processed was oversized lumps, which caused problems in the #5 Copper Mill. The mill was fed by a vibratory or screw-type feeder. The milled product was discharged into a 48-cubic-foot metal tote. The #30 Copper Mill was installed in an existing building located on the south side of the plant. MAQP #1993-02 replaced MAQP #1993-01.

MAQP #1993-03 was issued on February 15, 1995, for the construction and operation of new processing equipment and controls. The equipment included the #33 Copper Blender, #34 Copper Mill, #35 Copper Sieve, #36 Copper Blender, #37 Copper Packer, and the #38 Copper Mill. The emissions from this processing equipment were controlled by a Mikro Pulsaire dust collector, except for the #38 Copper Mill, that was controlled by an existing baghouse. The new equipment also included the #39 Gas Processor, which burned natural gas. This additional equipment allowed American Chemet to produce a new product.

Other changes included the construction and operation of a new baghouse to control emissions from the #3 and #4 Copper Furnaces and the addition of a #40 Copper Sizer. At the time, the #3 and #4 furnaces were controlled by a scrubber system that also controlled emissions from the #2 Copper Furnace. The change was made to decrease the inlet loading to the scrubber. The #40 Copper Sizer was new equipment added to increase the flexibility of the facility. The emissions from the sizer were controlled by a cyclone followed by a baghouse. MAQP #1993-03 replaced MAQP #1993-02.

MAQP #1993-04, issued July 17, 1996, authorized two separate projects at the facility. The first project resulted in the installation of an additional copper furnace to increase production. The new #41 Copper Furnace was identical to the #1 Copper Furnace, except for some minor changes to the feed and discharge systems. Emissions from the new #41 Copper Furnace were controlled with a pulse-jet baghouse.

The first project also included the possible construction of a new 20-meter exhaust stack. Emissions from the baghouse controlling the #1 Copper Furnace, as well as from the new baghouse controlling the #41 Copper Furnace, would be routed to the existing 8.8-meter stack or a new 20-meter stack. The construction of the #41 Copper Furnace would result in a minor increase in actual emissions from the facility (approximately 1.1 ton/year of particulate, 0.01 ton/year of SO₂, and 0.0008 ton/year of lead), but no increase in allowable particulate or lead emissions. American Chemet had until July 17, 1999, to construct a new 20-meter stack as allowed by the Board of Environmental Review (Board) order issued August 4, 1995.

The second project authorized the alteration of the existing #19 Copper Furnace. The furnace consists of two separate sections that exhaust through a single stack. The unit was modified to disable the west section and relocate the stack over the east section. The existing burner and afterburner were redesigned to improve efficiency. Also, the feed and discharge methods were redesigned from batch to continuous processing of the copper laden feed. The capacity of the furnace did not change through this alteration and, therefore, the emissions were not expected to change. These changes did not trigger review under the Montana Clean Air Act 75-2-215. MAQP #1993-04 replaced MAQP #1993-03.

MAQP #1993-05 was issued on July 2, 1997, to allow the construction of a new #42 Copper Sizer and associated baghouse, and the construction of a new #43 Copper Blender and associated baghouse.

The #42 Copper Sizer was a possible replacement for the #14 Copper Sizer (an old unit with uncertain spare parts availability). The actual shutdown date of the #14 Copper Sizer was unknown and, therefore, the new unit was permitted to operate concurrently with the old unit.

The #43 Copper Blender was installed to improve the efficiency of various facility processes. The blender had an associated natural gas-fired unit. The particulate emissions from the #43 Copper Blender were to be controlled by a new baghouse. The emissions from the dump hopper for the #42 Copper Sizer were to be controlled by the new baghouse.

The permit alteration slightly changed the language related to the #41 and #1 Copper Furnaces to clarify that the #41 and #1 Copper Furnace emissions had to vent through the same stack. Each furnace had a designated baghouse for controlling particulate and lead emissions. The stack could either be the existing 8.8-meter stack or a new 20-meter stack, which, if constructed, would replace the 8.8-meter stack. The requirement for the specific stacks and associated emission limit for lead came from the Board order issued on June 30, 1995. If American Chemet changed the discharge points of the exhaust gases, they had to run a revised dispersion model to demonstrate compliance with the ambient lead standard.

The Department of Environmental Quality (Department) also removed the conditions associated with the #29 Copper Furnace that had been permitted as an experimental unit on April 22, 1994. On March 12, 1996, American Chemet informed the Department that this unit had been permanently disabled.¹ Since the unit was no longer usable, the conditions associated with its use and emission testing were no longer needed. American Chemet was no longer authorized to use the #29 Copper Furnace. MAQP #1993-05 replaced MAQP #1993-04.

¹ In the letter, American Chemet referenced the furnace as #32 Copper Furnace. This was an incorrect number reference. The name for the furnace is #29 Copper Furnace.

MAQP 1993-06 was issued on April 17, 1998, to allow American Chemet to separate the emissions from the #1 and #41 Copper Furnaces. Originally, American Chemet had planned (and been required by MAQP #1993-04) to route the emissions from the proposed #41 Copper Furnace to the #1 Copper Furnace Stack. The company determined this was probably not feasible, based on the system configurations. However, the facility was located in an area designated as non-attainment for the lead National Ambient Air Quality Standard (NAAQS). Therefore, the Department performed modeling to demonstrate that separating the two exhausts would not violate the ambient standard for lead if ½ of the emission limit that applied to the #1 Copper Furnace Stack was applied to each of the stacks, separately.

The permitting action described above did not increase emissions from American Chemet; therefore, the Department did not perform an Environmental Assessment (EA) for the project. The relocation of the emissions from the furnace did not adversely impact the ambient air or the State Implementation Plan (SIP) provisions designed to bring the area into compliance with the ambient lead standard. MAQP 1993-06 replaced MAQP #1993-05.

MAQP #1993-07, issued August 14, 1998, allowed American Chemet to initiate four minor changes within their facility, but did not permit an increase in allowable emissions. The first change American Chemet intended to make was to replace the #32 Crusher with the #45 Crusher, and control the #45 Crusher with the baghouse that vented to Stack #5. The #32 Crusher was controlled by the baghouse venting to Stack #19. After construction, the baghouse that vented to Stack #5 would control the #6 Copper Mill and the #45 Crusher. However, American Chemet elected to not construct the #45 Crusher and to keep the #32 Crusher in service.

The second change removed the #25 Copper Shredder. The #25 Copper Shredder had been controlled by the baghouse that vented to Stack #19. Prior to MAQP #1993-07, the baghouse that vented to Stack #19 controlled the #32 Crusher, the #25 Shredder, and the #30 Copper Mill.

The third change moved the #31 sieve and controlled its emissions with the baghouse that vented to Stack #19. Prior to MAQP #1993-07, the #31 Sieve was controlled by the baghouse that vented to Stack #18. After MAQP #1993-07, the baghouse that vented to Stack #19 controlled the #30 Copper Mill and the #31 Sieve.

The fourth change relocated the #44 copper mill and controlled its emissions by the baghouse that vented to Stack #25. MAQP #1993-07 allowed the baghouse that vented to Stack #25 to control the #36 Copper Blender, the #35 Copper Sieve, the #34 Copper Mill, the #33 Copper Blender, the #37 Copper Packer, and the #44 Copper Mill. MAQP #1993-07 replaced MAQP 1993-06.

MAQP #1993-08, issued September 1, 1999, allowed American Chemet to replace the baghouse that vented to Stack #19 with a new larger capacity baghouse. The new larger capacity baghouse then vented to the new #32 Stack and controlled the emissions from the existing #30 Copper Mill and #32 Crusher. The #31 Sieve was moved to work in association with the #24 Copper Mill, and be controlled by the baghouse venting to Stack #18. Previously, MAQP #1993-07 allowed American Chemet to replace the #32 Crusher; however, American Chemet elected to not construct the #45 Crusher and kept the #32 Crusher in active service. MAQP #1993-08 allowed the facility to control the emissions from the #32 Crusher with the new baghouse.

American Chemet also installed three new process units, all controlled by a new baghouse venting to the #32 Stack. The new process units were denoted as the #46 Copper Mill, the #47 Screen, and the #48 Copper Mill. Thus, the new baghouse controlled five process units: the three new units described above and two existing units.

Also, American Chemet requested an extension of time to construct a 20-meter stack that would exhaust emissions from the #1 and #41 Copper Furnaces. The new stack was approved in a previous permit (MAQP #1995-05) and a Board order issued on June 30, 1995. MAQP #1993-08 granted American Chemet an extension to construct the taller stack. Under MAQP #1993-08, the new stack had to be constructed no later than August 31, 2002.

American Chemet is located in a non-attainment area for the national ambient air quality standard for lead. MAQP #1993-08 did not increase lead emissions, and the process equipment within the facility that might possibly contribute to ambient lead concentrations was not affected by the alterations. A small increase in particulate emissions from the facility was anticipated as a result of emissions from the new stack (#32); however, modeling was not required due to the diminutive nature of the emissions increase. The permitted alterations would not adversely impact the SIP for lead in East Helena. MAQP #1993-08 replaced MAQP #1993-07.

MAQP #1993-09 was issued September 22, 2000, for an alteration of MAQP #1993-08. American Chemet proposed to install and operate a new gas processor (#49 gas processor) to supply process gas to an existing copper furnace (#16 Copper Furnace). The #49 gas processor would have enough capacity to supply process gas for two additional copper furnaces. The permitting action allowed American Chemet to operate two additional copper furnaces in conjunction with the #49 gas processor, in the future. The two additional copper furnaces would be the #17 Copper Furnace and the #18 Copper Furnace or the #28 Copper Furnace. The #49 gas processor would replace the #39 gas processor that would be removed from service.

The site where American Chemet is located is currently non-attainment for the national ambient air quality standard for lead. The permit did not allow an increase in allowable lead emissions, and the process equipment within the facility that could possibly contribute to ambient lead concentrations was not affected by the alterations proposed. A small increase in CO emissions from the facility was anticipated as a result of emissions from the new #49 gas processor. However, modeling was not required because of the small increase in emissions. The alterations would not adversely impact the SIP for lead in East Helena. MAQP #1993-09 replaced MAQP #1993-08.

MAQP #1993-10 was issued January 20, 2001, for a modification of Permit #1993-09. On September 27, 2000, the Department received American Chemet's initial request to change conditions in Permit MAQP #1993-09.

American Chemet requested removal of the condition in Section II.A.22.b that required the operation of a nitrogen gas purge at the discharge end of any copper furnace receiving process gas from the #49 gas processor.

The company also requested deletion of the notification requirements contained in Sections II.D.1, II.D.2, II.D.4, and II.D.5 of MAQP #1993-09.

Additionally, American Chemet requested permission to control CO emissions from the three copper furnace - #49 gas processor combinations with individual afterburners, instead of just one afterburner. The Department agreed to this approach and apportioned the original CO limit between the three afterburners. All three afterburners were required to be source tested.

Finally, the company requested a de minimis determination on their proposal to vent the #44 Copper Mill's baghouse directly to atmosphere, instead of venting it to the inlet of the baghouse associated with Stack #25. The Department agreed to the change, but added the same limits to the #44 Copper Mill, as applied to the baghouse associated with Stack #25.

The American Chemet site is located in a lead non-attainment area. The permitting action did not increase lead emissions. A minor increase in CO emissions (0.21 tpy) from the facility was anticipated as a result of the emissions from the two additional incinerators associated with the new #49 gas processor. Modeling was not required because of the minimal increase in emissions. MAQP #1993-10 replaced MAQP #1993-09.

MAQP #1993-11 was issued on October 12, 2001, to allow for a modification of MAQP #1993-10. The modification reflected changes to the #5 Copper Mill and related conditions in MAQP #1993-10. Further analysis of the permit application and historical records concluded that the proposed changes would be de minimis and that a permit alteration was not required. Additionally, the Department had previously issued de minimis determinations on other equipment changes. All of these changes were incorporated in this permit modification and are discussed below:

- In a letter dated January 24, 2001, American Chemet requested a de minimis determination on the replacement of the baghouse on the #1 Copper Furnace. The new baghouse is identical to the baghouse on the #41 Copper Furnace. The baghouse proposed for the #1 Copper Furnace differs from the original one with minor changes in operating parameters. Because American Chemet is located in a lead non-attainment area and because the #1 Copper Furnace is a minor source of lead emissions, the Department modeled the new baghouse parameters and concluded that the proposed changes complied with the East Helena lead SIP. Therefore, in a letter dated March 22, 2001, the Department agreed that the proposed change was de minimis in nature.
- In a letter dated March 12, 2001, American Chemet requested a de minimis determination on ancillary equipment upgrades to the baghouse on the #41 Copper Furnace. American Chemet proposed to replace the blower fan and motor in order to increase the airflow rate through the baghouse from 5,800 to 6,600 actual cubic feet per minute (acfm). Additionally, American Chemet proposed to upgrade the #1 Copper Furnace baghouse so that it would have operating parameters identical to the baghouse on the #41 Copper Furnace. Because American Chemet is located in a lead non-attainment area and because the #1 and #41 Copper Furnaces are minor sources of lead emissions, the Department modeled the new parameters on both baghouses and concluded that the proposed changes complied with the East Helena lead SIP. Therefore, in a letter dated March 22, 2001, the Department agreed that the proposed changes were de minimis in nature.
- In an application received on August 2, 2001, American Chemet requested an alteration of MAQP #1993-10 to replace a fan and the particle classification system on their #5 Copper Mill to increase the process rate of the #5 Copper Mill. The Department's review concluded that the proposed changes would not increase the "Potential to Emit (PTE)" since the emissions from the three, product-recovery baghouses and the product-recovery cyclone associated with the #5 Copper Mill would not increase. Therefore, the proposed changes were determined to be de minimis in nature. However, the review of historical Department records for earlier permits on the #5 Copper Mill revealed that conditions from an earlier permit had not been carried forward. As a result of a previous Best Available Control Technology (BACT) analysis, conditions had been placed on a #5 Copper Mill baghouse in Permit #1589 by the Department's predecessor, the Department of Health & Environmental Sciences. These conditions were inadvertently left out of MAQP #1993-01 when it was issued to consolidate all of American Chemet's earlier permits. Therefore, the Department restored those conditions as part of this permit action.

- As part of this permit modification, the Department clarified the names for two copper mills and their associated product recovery units and updating the equipment list. The product recovery baghouses associated with the two copper mills have in the past been referred to individually as “copper mills.” These names potentially led readers into thinking that there were six copper mills, instead of only two copper mills and six product recovery baghouses. This permit action also clarified the limitations and conditions on the two copper mills and their associated baghouses. Additionally, the inventory of potential emissions was updated. MAQP #1993-11 replaced MAQP #1993-10.

On July 11, 2002, American Chemet was issued **MAQP #1993-12**. This modification included the installation and operation of a pilot plant to test a new production operation. American Chemet proposed to use an existing baghouse to control the particulate emissions from the pilot plant. Based on the emission limits for the existing baghouse, the potential emissions from the pilot plant are less than 15 tons per year (tpy). Therefore, the proposed change was accomplished through the de minimis rule.

The modification also addressed a previously issued de minimis determination on another equipment change. In a letter dated January 11, 2002, American Chemet requested a de minimis determination on the upgrade of the #14 Copper Sizer. The new Copper Sizer (Copper Sizer #50) incorporates the process baghouse which controlled the #14 Copper Sizer into its closed-loop system design. In a letter dated January 16, 2002, the Department agreed that the proposed change was de minimis in nature.

Additionally, the permit action reflected a request by American Chemet to delete the notification requirements in Section II.D.2, II.D.3, and II.D.5 of MAQP #1993-11, which have been met, and change the name of Stack 14 to Stack 14, 14A, 14B, and 14C. MAQP #1993-12 replaced MAQP #1993-11.

On August 20, 2002, the Department received American Chemet’s request for a modification of Permit #1993-12 for the addition of a federally enforceable condition (Section II.A.25 of MAQP #1993-13) to allow for a de minimis friendly permit. The condition requires American Chemet to utilize, on new equipment installed after August 21, 2002, conveyor covers or enclosures, transfer point covers or enclosures and structural enclosures surrounding process equipment unless otherwise specified in the permit. **MAQP #1993-13** replaced Permit #1993-12.

On December 2, 2003, the Department issued **MAQP #1993-14** to American Chemet which was a modification to MAQP #1993-13, including several previous requests to make changes to the facility under ARM 17.8.745, the de minimis rule. On September 26, 2003, American Chemet requested an extension to permit condition Section II.A.6. The condition was originally added to the air quality permit to assist with any potential emission problems, which could have affected the East Helena Lead SIP. American Chemet had no plans to construct the 20-meter stack. However, the facility wanted to keep the option available for future use.

On September 8, 2003, the Department received a request from American Chemet to upgrade the pilot plant, permitted in MAQP #1993-12 to a full scale operation. The pilot plant was installed as a test unit of a new technology for producing copper oxide. The proposed unit, referred to as the #56 Copper Furnace, uses the baghouse, which controls the #24 Copper Mill (Stack #18) for product recovery in the same manner as the pilot plant. The #56 Copper furnace feed system is controlled by the baghouse at the #15 Copper Sizer (Stack #13). Based on the information submitted by American Chemet, the Department determined the upgrade to fall within the de minimis rule, ARM 17.8.745, because the potential emissions were well below 15 tpy, and the modification did not violate any conditions of the existing permit.

In addition, on September 13, 2002, the Department received American Chemet's proposed facility modifications for the purpose of enabling an increase in production and improving material handling efficiency. The project affected the facility's sizing, mixing and packaging processes. The new equipment included a copper furnace and associated baghouse, a new conveying system and associated feed bins, 3 copper mixers and associated bins, bin vents and boiler, and a packer with associated baghouse, bins, and bin vents. The Department determined that the modifications met the criteria set forth in ARM 17.8.745 because the increase in emissions for the facility was less than 15 tpy.

American Chemet also proposed to remove the #11 Copper Mill Vent Baghouse and the #11 Copper Mill Feed Baghouse. Some of the equipment controlled by those baghouses were also removed or shut down. The remaining equipment was to be controlled by the #11 Copper Mill Support Baghouse. The #21 Copper Furnace was also removed from the permit. American Chemet requested that the outlet grain loading limitation for several emitting units be reduced. The grain loading limitation was lowered for the emissions from the following equipment: Stack #14 (controlling emissions from the #24 Copper Mill, the #28 Copper Furnace), Stack #25 (controlling emissions from the #33 Copper Blender, the #34 Copper Mill, the #35 Copper Sieve, the #36 Copper Blender, and the #37 Copper Packer).

Furthermore, American Chemet requested the following equipment and associated baghouses be restricted to an operating limit of 7,000 hours per rolling 12-month period: #33 Copper Blender, the #34 Copper Mill, the #35 Copper Sieve, the #36 Copper Blender, the #37 Copper packer, the #44 Copper Mill, the #16, #17, and #18 Copper Furnaces, the #38 Copper Mill, and the #42 Copper Sizer.

American Chemet proposed to upgrade the pollution control equipment for the #2 Copper Furnace and the Copper Furnace by installing a new baghouse dust collector that serves both units. Currently, the #2 Copper Furnace emissions are controlled by a wet scrubber. Emissions from the #19 Copper Furnace are currently controlled by a thermal oxidation unit. MAQP #1993-14 replaced MAQP #1993-13.

The Department received a request from American Chemet on August 1, 2006, to make several administrative changes to MAQP #1993-14 to better reflect current operations at the facility. On September 12, 2006, American Chemet submitted an application to the Department for a modification to MAQP #1993-14. The request included the installation and operation of a new piece of process equipment to be called the #60 Copper Furnace. The permit application was withdrawn by American Chemet on December 5, 2006. Therefore, the action included the following proposed amendments presented in American Chemet's letter dated August 1, 2006;

- Removal of the #23 Copper furnace, scrubber, and associated conditions (removed from service)
- Removal of the #51 Copper Furnace, baghouse, and associated conditions (never installed)
- Increase in baghouse flow rate on the #1 Copper Furnace Baghouse from 6,600 cfm to 8,100 cfm
- Increase in baghouse flow rate on the #41 copper furnace baghouse from 6,600 cfm to 8,100 cfm
- Change in production rate of #41 Copper Furnace
- Removal of notification requirements that have been met
- Correct administrative error from previous permitting action to reflect hours of operation for the #16, #17, and #18 Copper Furnaces from 7,000 hours per year to 8,760 hours per year
- Removal of the following sources which have been removed from service:

- ▶ #15 Copper Sizer (stack 13) – this baghouse stack is now combined with Stack #18 as one emission point associated with the #56 Copper furnace, #24 Copper Mill, and #31 Sieve
- ▶ #26 Packer is no longer at Stack #20 – the #26 Copper Packer is now controlled by Stack #35, which also control the #55 Packer
- ▶ #33 Copper Blender at Stack #25
- ▶ #42 Copper Sizer at Stack #29 and associated baghouse
- Lower emission limits in the following sources from 0.02 gr/dscf to 0.015 gr/dscf:
 - ▶ #5 Copper Mill Vent Baghouse
 - ▶ #5 Copper Mill Transfer baghouse
 - ▶ #11 Copper Mill Vent baghouse
 - ▶ #11 Copper Mill Feed baghouse
 - ▶ #11 Copper Mill Support baghouse
 - ▶ #3 & #4 Copper furnace baghouse
 - ▶ #40 Copper Sizer baghouse

American Chemet proposed to maintain the option of combining emissions from the #1 and #41 Copper Furnaces into one 20 meter stack. Since this condition was a Board Order, the Department was unable to extend the date of compliance. Therefore, the condition was removed from the permit.

In addition, American Chemet proposed to maintain the option of combining emissions from the #2 Copper Furnace (currently routed to a wet scrubber) and the #19 Copper Furnace (currently routed to a thermal oxidizer), and route them to a baghouse. According to the ARM 17.8.762, because the facility did not commence construction on this project within 3 years, the condition was considered revoked. **MAQP #1993-15** replaced MAQP #1993-14.

D. Current Permit Action

On February 2, 2012, the Department received an application to modify American Chemet's air quality permit for the proposed installation and operation of a new Cupric Oxide Plant to be constructed within the existing building. The proposed plant will consist of the following permitted units;

- #60 Copper Furnace (Rotary Kiln Dryer)
- #61 Copper Mill
- #62 Copper Furnace
- #63 Copper Furnace
- #64 Copper Furnace

Additionally, the permit action incorporates the following equipment change notifications submitted by American Chemet;

- Permit conditions related the #17 Copper Furnace and #18 Copper Furnace receipt of process gas from the #49 Gas Processor were removed. American Chemet requested that testing be discontinued on the #17 Copper Furnace and further detailed in subsequent correspondence that the process lines delivering process gas from the #49 Gas Processor were removed. In accordance with ARM 17.8.762, conditions related to the #18 Copper [Notifications received 05/9/2006 and 05/15/2006].
- According to the ARM 17.8.762, because the facility did not commence construction on this project within 3 years, the condition was considered revoked.
- Install additional baghouse on #41 Copper Furnace - inlet (stack #38) [De minimis notification received 05/23/2007].

- Upgrade the #11 Copper Mill Support baghouse (stack #11), increasing stack flow rate to 8,000 cfm [De minimis notification received 03/12/2008].
- Removal of the #27 Packer and replacement by the #59 packer and new baghouse (stack #39). Existing baghouse (stack #20) will control the #59 Packer Bin System and the new baghouse will control emissions from the #59 Packer only [De minimis notification received 12/15/2009].
- Replacement of the baghouse controlling emissions from the #52 Copper Mixer. Baghouse volume flow rate and emission rate specifications were identical [De minimis notification received 02/20/2012].

In addition, the permit action updates language and rule references used by the Department and update the emissions inventory to incorporate the additional emitting units. **MAQP #1993-16** will replace MAQP #1993-15.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technologies (RACT) 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).

American Chemet shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited, 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 (SO₂)
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide (NO₂)
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide (CO)
5. ARM 17.8.213 Ambient Air Quality Standards for Ozone (O₃)
6. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter (PM)
7. ARM 17.8.222 Ambient Air Quality Standards for Lead
8. ARM 17.8.223 Ambient Air Quality Standard for Particulate Matter with an Aerodynamic Diameter of Ten Microns or Less (PM₁₀)

American Chemet must demonstrate 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 into the 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 that reasonable precautions are taken to control emissions of airborne particulate matter. (2) Under this rule, American Chemet 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, allow or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.
4. ARM 17.8.310 Particulate Matter, Industrial Processes. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.
5. ARM 17.8.316 Incinerators. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any incinerator, particulate matter in excess of 0.10 grains per standard cubic foot of dry flue gas, adjusted to 12% carbon dioxide and calculated as if no auxiliary fuel had been used. Further, no person shall cause or authorize to be discharged into the outdoor atmosphere from any incinerator emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes. This rule applies to the #19 Copper Furnace. For the afterburners permitted under #1993-10 these requirements are superseded by the requirements in MCA 75-2-215.
6. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in 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). The owner and operator of any stationary source or modification, as defined and applied in 40 CFR Part 60, shall comply with the NSPS. The American Chemet facility is not an NSPS affected source because it does not meet any of the definitions in 40 CFR Part 60; therefore, this rule does not apply to this facility.

D. ARM 17.8, Subchapter 4, Stack Height and Dispersion Techniques, including, but not limited to:

1. ARM 17.8.401 Definitions. This rule includes a list of definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.402 Requirements. American Chemet must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). The proposed height of the new or altered stack for American Chemet is below the allowable 65-meter GEP stack height.

E. 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. American Chemet submitted the appropriate 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.

F. 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 to construct, alter, or use an air contaminant source, which has the PTE more than 25 tons per year (tpy) of any pollutant. American Chemet has the PTE more than 25 tpy of PM, PM₁₀, and CO; therefore, an air quality permit is required.
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 When Permit Required--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, alteration or use of a source. American Chemet submitted the appropriate 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. American Chemet submitted an affidavit of publication for the January 26, 2012, issue of the *Independent Record*, a newspaper of general circulation in the City of Helena, Montana.
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. American Chemet is required to install on the new or altered source the maximum air pollution control capability, which is technically practicable and economically feasible, except that BACT shall be utilized. A discussion of the BACT Analysis is contained in Section III of this 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 American Chemet 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 Additional 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 altered 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 of 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 in emissions because 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 17.8.734 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.
15. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, MCA.

G. 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 FCAA that it would emit, except as this subchapter would otherwise allow.

American Chemet is not a major stationary source since this facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions). Therefore, a New Source Review (NSR) analysis is not required.

H. 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 of any single Hazardous Air Pollutant (HAP), or PTE > 25 tpy of any combination of HAP's, or lesser quantity as the Department may establish by rule.
 - c. PTE > 70 tpy of PM₁₀ in a serious PM₁₀ non-attainment 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 #1993-16 for American Chemet, 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 single HAP and less than 25 tpy of combined HAPs.
 - c. This source is not located in a serious PM₁₀ non-attainment area.

- d. This facility is not subject to any current NSPS.
- e. This facility is not subject to any current NESHAP standards.
- f. This source is not a Title IV affected source.
- g. This source is not an EPA designated Title V source.

Based on these facts, the Department has determined that American Chemet will be a minor source of emissions as defined under Title V.

I. MCA 75-2-215, Solid or Hazardous Waste Incineration - additional permit requirements:

1. MCA 75-2-215 requires air quality permits for all new commercial solid waste incinerators. In a previous permitting action, American Chemet complied with this requirement. In accordance with MCA 75-2-211(9)(b), the current permit action does not require the preparation of an environmental impact statement, and therefore is not subject to the provisions of MCA 75-2-215.
2. MCA 75-2-215 requires the applicant to provide, to the Department's satisfaction, a characterization and estimate of emissions and ambient concentrations of air pollutants, including HAPs from the incineration of solid or hazardous waste. The Department determined that the information submitted in a previous permit application fulfilled this requirement. The current permit action does not require the preparation of an environmental impact statement, and therefore is not subject to the provisions of MCA 75-2-215.
3. MCA 75-2-215 requires that the Department reach a determination that the projected emissions and ambient concentrations constitute a negligible risk to public health, safety, and welfare. The Department previously determined negligible risk through a health risk assessment. The current permit action does not require the preparation of an environmental impact statement, and therefore is not subject to the provisions of MCA 75-2-215.
4. MCA 75-2-215 requires the application of pollution control equipment or procedures that meet or exceed BACT. The current permit action does not require BACT because the Department determined that the modifications meet the criteria set forth in ARM 17.8.745 because the proposed increase in emissions for the facility will be less than 15 tons per year. Furthermore, the current permit action does not require the preparation of an environmental impact statement, and therefore is not subject to the provisions of MCA 75-2-215.

III. BACT Determination

A BACT determination is required for each new or altered source. American Chemet shall install on the new or altered source the maximum air pollution control capability, which is technically practicable and economically feasible, except that best available control technology shall be utilized.

American Chemet has proposed the use of product recovery baghouse controls to minimize particulate emissions. The baghouse equipment will serve as product recovery control, where filters will capture fugitive particulate matter and return collected material to the appropriate process stream as a raw material. Baghouse control equipment are used to collect dry particles from a gas stream as the stream passes through the fabric dust filter, the dust particles are collected and retained by the fabric. A Baghouse is very efficient at removing small particles and high particulate mass loadings, with removal efficiencies commonly ranging from 95% to 99%. A baghouse can achieve high

removal efficiencies and the installation and operation costs of a baghouse are considerably less than other particulate control options; such as electrostatic precipitators.

American Chemet currently employs baghouse controls as the predominate means of particulate control throughout the facility. Furthermore, the Department has recognized this control options suitability for other similar sources. Therefore, the Department determined that the installation, operation, and maintenance of a baghouse constituted BACT for the current permit action.

IV. Emission Inventory

A. Facility Wide Emissions

| Emissions Tons/Year [PTE] ^(a) | | | | | | | | | |
|--|-------------------|------------------|-------------------|--------------------|--------------|-----------------|-----------------|-------------|-------------|
| Emissions Table | PM ^(b) | PM ₁₀ | PM _{2.5} | PM _{cond} | CO | NO _x | SO ₂ | VOC | Pb |
| Table IV.B | 82.34 | 82.34 | -- | -- | -- | -- | -- | -- | -- |
| Table IV.C ^(c) | 0.78 | 0.78 | 0.78 | 0.59 | 8.75 | 10.41 | 0.06 | 0.57 | -- |
| Table IV.D | -- | -- | -- | -- | 26.16 | -- | -- | -- | -- |
| Table IV.E | -- | -- | -- | -- | -- | -- | -- | -- | 0.0308 |
| Total Emissions ► | 83.13 | 83.13 | 0.78 | 0.59 | 34.91 | 10.41 | 0.06 | 0.57 | 0.03 |

^(a) Emission calculations based on continuous operation at 8,760 hours per year

^(b) PM emissions presented are assumed to be PM₁₀

^(c) PM emission represent the sum of the filterable and condensable particulate matter (CPM) fractions. All CPM is considered to be PM_{2.5}

| | |
|---|--|
| acfm, actual cubic feet per minute | PTE, Potential To Emit |
| CO, carbon monoxide | PM, particulate matter |
| dscf, dry standard cubic feet | PM _{COND} , condensable particulate matter |
| dscfm, dry standard cubic feet per minute | PM _{2.5} , particulate matter with an aerodynamic diameter of 2.5 microns or less |
| °F, degrees Fahrenheit | [Sum of condensable and filterable] |
| gr, grains | PM ₁₀ , particulate matter with an aerodynamic diameter of 10 microns or less |
| Hg, mercury | scf, standard cubic feet |
| lb. pound | SO ₂ , oxides of sulfur |
| MMscf, million standard cubic feet | tpy, tons per year |
| NO _x , oxides of nitrogen | VOC, volatile organic compounds |
| Pb, lead | |

B. Material Processing & Handling Emissions

Density Correction Equation:

$$[\text{acfm} \rightarrow \text{dscfm}] = (\text{acfm}) * (P1 / P2) * (T1 / T2) * (1-M/100)$$

where: acfm, company provided data

P1, barometric pressure at site elevation (26 inch Hg)

P2, barometric pressure at standard conditions

T1, temperature at standard conditions (° Rankine)

T2, stack gas temperature degrees (°Rankine)

M, stack gas moisture content (%)

Particulate Emissions Equation:

$$E = (\text{dscfm}) * (60 \text{ min/hr}) * (1 \text{ lb} / 7000 \text{ gr}) * (\text{ER})$$

where: E, particulate emissions in lbs/hr

dscfm, corrected dry gas volume flow rate

ER, controlled emission rate in grains per dscf

Note: Controlled emission rate based on MAQP emission limit or BACT determination

Table IV.B

| Stack ID | Emitting Unit(s) | Local Exhaust Parameters | | | | Controlled Emission Rate (gr/dscf) | Particulate Emissions | |
|----------|---|--------------------------|---------|-----------|------------------|------------------------------------|-----------------------|-------|
| | | acfm | dscfm | Temp (°F) | Moisture Content | | (lbs/hr) | (tpy) |
| #1 | #1 Zinc [Baghouse] | 9500 | 7499.05 | 98 | 4% | 0.01 | 0.64 | 2.82 |
| #2 | #1 Copper Furnace [Baghouse] | 8100 | 5116.88 | 230 | 5% | 0.015 | 0.66 | 2.88 |
| #3 | #2 Copper Furnace [Scrubber] | 8000 | 4588.24 | 300 | 5% | 0.05 | 1.97 | 8.61 |
| #4 | #5 Copper Mill Transfer Baghouse | 2999 | 2544.32 | 70 | 2% | 0.015 | 0.33 | 1.43 |
| #5 | #5 Copper Mill Support Baghouse | 1200 | 1018.07 | 70 | 2% | 0.015 | 0.13 | 0.57 |
| #6 | #5 Copper Mill Support Baghouse | 2999 | 2544.32 | 70 | 2% | 0.015 | 0.33 | 1.43 |
| #7 | #8 Copper Blender [Baghouse] | 6200 | 5260.02 | 70 | 2% | 0.01 | 0.45 | 1.97 |
| #8 | #9 Copper Blender [Baghouse] | 2000 | 1696.78 | 70 | 2% | 0.01 | 0.15 | 0.64 |
| #9 | #11 Copper Mill Vent Baghouse | 1500 | 1272.59 | 70 | 2% | 0.015 | 0.16 | 0.72 |
| #10 | #11 Copper Mill Feed Baghouse | 3500 | 2969.37 | 70 | 2% | 0.015 | 0.38 | 1.67 |
| #11 | #11 Copper Mill Support Baghouse #50 Copper Sizer | 8000 | 6787.13 | 70 | 2% | 0.015 | 0.87 | 3.82 |
| #14 | #16 Copper Furnace [Baghouse] #17 Copper Furnace #18 Copper Furnace | 6000 | 5090.34 | 70 | 2% | 0.01 | 0.44 | 1.91 |
| #15 | #19 Copper Furnace [Oxidation Unit] | -- | 5600.00 | -- | -- | 0.1 | 4.80 | 21.02 |
| #18 | #24 Copper Sizer [Baghouse] #31 Copper Seive #56 Copper Furnace | 4000 | 3393.56 | 70 | 2% | 0.01 | 0.29 | 1.27 |
| #20 | #59 Packer Bin System [Baghouse] | 4752 | 4031.55 | 70 | 2% | 0.01 | 0.35 | 1.51 |
| #21 | #28 Copper Furnace [Baghouse] | 5235 | 4441.33 | 70 | 2% | 0.01 | 0.38 | 1.67 |
| #25 | #34 Copper Mill [Baghouse] #35 Copper Seive #36 Copper Blender #37 Copper Packer #38 Copper Mill #44 Copper Mill | 4188 | 3553.06 | 70 | 2% | 0.01 | 0.30 | 1.33 |
| #27 | #3 Copper Furnace [Baghouse] #4 Copper Furnace | 5500 | 4371.11 | 100 | 3% | 0.01 | 0.37 | 1.64 |
| #28 | #40 Copper Sizer [Baghouse] | 4499 | 3816.91 | 70 | 2% | 0.01 | 0.33 | 1.43 |
| #30 | #43 Copper Blender [Baghouse] | 7000 | 5076.66 | 160 | 2% | 0.01 | 0.44 | 1.91 |
| #31 | #41 Copper Furnace [Outlet Baghouse] | 8100 | 5116.88 | 230 | 5% | 0.015 | 0.66 | 2.88 |
| #32 | #30 Copper Mill [Baghouse] #32 Crusher #46 Copper Mill #47 Copper Screen #48 Copper Mill | 8333 | 6893.45 | 78 | 3% | 0.015 | 0.89 | 3.88 |
| #35 | #26 Packer [Baghouse] #55 Packer | 5300 | 4496.47 | 70 | 2% | 0.01 | 0.39 | 1.69 |
| #36 | #52 Copper Mixer [Baghouse] #53 Copper Mixer (Bin Vent) #54 Copper Mixer (Bin Vent) #58 Copper Sizer (Closed Loop) | 5300 | 4496.47 | 70 | 2% | 0.01 | 0.39 | 1.69 |
| #38 | #41 Copper Furnace [Feed Baghouse] | 6600 | 4205.88 | 224 | 5% | 0.015 | 0.54 | 2.37 |
| #39 | #59 Packer [Baghouse] | 5000 | 4263.60 | 70 | 2% | 0.015 | 0.55 | 2.40 |
| #40 | #60 Copper Furnace [Baghouse] | 2500 | 1624.30 | 225 | 3% | 0.015 | 0.21 | 0.91 |
| #41 | #61 Copper Mill [Baghouse] | 5000 | 4263.60 | 70 | 2% | 0.015 | 0.55 | 2.40 |
| #42 | #62 Copper Furnace [Baghouse] | 8000 | 6821.75 | 70 | 2% | 0.015 | 0.88 | 3.84 |

| | | | | | | | | |
|--|--|--|--|--|--|--|-------|-------|
| | #63 Copper Furnace #64 Copper Furnace #61 Copper Mill Feed Bin | | | | | | | |
| Total Material Processing & Handling Emissions ► | | | | | | | 18.80 | 82.34 |

C. Natural Gas Combustion Emissions

$$E = (\text{MMscf/yr}) * (\text{EF}) * (8760) * (0.0005 \text{ tons/lb})$$

where: E, pollutant emissions in tons/year

EF, emission factor = lbs emitted/MMscf of natural gas consumed [Basis: AP- 42 Table 1.4-1, 7/98]

EF PM_{2.5}, 7.6 lbs emitted/MMscf

EF PM_{cond}, 5.7 lbs emitted /MMscf

EF CO, 84 lbs emitted /MMscf

EF NO_x, 100 lbs emitted /MMscf

EF SO₂, 0.6 lbs emitted /MMscf

EF VOC, 5.5 lbs emitted /MMscf

Table VI.C

| | | Combustion Emissions | | | | | | | | | | | | |
|------------------------------|-------------------------------------|----------------------|----------|-------|--------------------|-------|----------|-------|-----------------|-------|-----------------|-------|----------|-------|
| Stack ID | Emitting Unit(s) | Usage | PM | | PM _{cond} | | CO | | NO _x | | SO ₂ | | VOC | |
| | | (MMscf/yr) | (lbs/yr) | (tpy) | (lbs/yr) | (tpy) | (lbs/yr) | (tpy) | (lbs/yr) | (tpy) | (lbs/yr) | (tpy) | (lbs/yr) | (tpy) |
| #1 | #1 Zinc | 8.6 | 65.36 | 0.03 | 49.02 | 0.02 | 722.40 | 0.36 | 860.00 | 0.43 | 5.16 | 0.00 | 47.30 | 0.02 |
| #2 | #1 Copper Furnace | 18.2 | 138.32 | 0.07 | 103.74 | 0.05 | 1528.80 | 0.76 | 1820.00 | 0.91 | 10.92 | 0.01 | 100.10 | 0.05 |
| #3 | #2 Copper Furnace | 8 | 60.80 | 0.03 | 45.60 | 0.02 | 672.00 | 0.34 | 800.00 | 0.40 | 4.80 | 0.00 | 44.00 | 0.02 |
| #14 | #16 Copper Furnace | 1 | 7.60 | 0.00 | 5.70 | 0.00 | 84.00 | 0.04 | 100.00 | 0.05 | 0.60 | 0.00 | 5.50 | 0.00 |
| | #17 Copper Furnace | 0.1 | 0.76 | 0.00 | 0.57 | 0.00 | 8.40 | 0.00 | 10.00 | 0.01 | 0.06 | 0.00 | 0.55 | 0.00 |
| | #18 Copper Furnace | 3.7 | 28.12 | 0.01 | 21.09 | 0.01 | 310.80 | 0.16 | 370.00 | 0.19 | 2.22 | 0.00 | 20.35 | 0.01 |
| #14A | #16 Copper Furnace - Oxidation Unit | 1.75 | 13.30 | 0.01 | 9.98 | 0.00 | 147.00 | 0.07 | 175.00 | 0.09 | 1.05 | 0.00 | 9.63 | 0.00 |
| #14B | #17 Copper Furnace - Oxidation Unit | 1.75 | 13.30 | 0.01 | 9.98 | 0.00 | 147.00 | 0.07 | 175.00 | 0.09 | 1.05 | 0.00 | 9.63 | 0.00 |
| #15 | #19 Copper Furnace & Oxidation Unit | 11.4 | 86.64 | 0.04 | 64.98 | 0.03 | 957.60 | 0.48 | 1140.00 | 0.57 | 6.84 | 0.00 | 62.70 | 0.03 |
| #18 | #56 Copper Furnace | 0.4 | 3.04 | 0.00 | 2.28 | 0.00 | 33.60 | 0.02 | 40.00 | 0.02 | 0.24 | 0.00 | 2.20 | 0.00 |
| #21 | #28 Copper Furnace | 18 | 136.80 | 0.07 | 102.60 | 0.05 | 1512.00 | 0.76 | 1800.00 | 0.90 | 10.80 | 0.01 | 99.00 | 0.05 |
| #27 | #3 Copper Furnace | 5.35 | 40.66 | 0.02 | 30.50 | 0.02 | 449.40 | 0.22 | 535.00 | 0.27 | 3.21 | 0.00 | 29.43 | 0.01 |
| | #4 Copper Furnace | 5.35 | 40.66 | 0.02 | 30.50 | 0.02 | 449.40 | 0.22 | 535.00 | 0.27 | 3.21 | 0.00 | 29.43 | 0.01 |
| #30 | #43 Copper Blender - Boiler | 2.19 | 16.64 | 0.01 | 12.48 | 0.01 | 183.96 | 0.09 | 219.00 | 0.11 | 1.31 | 0.00 | 12.05 | 0.01 |
| #31 | #41 Copper Furnace | 39 | 296.40 | 0.15 | 222.30 | 0.11 | 3276.00 | 1.64 | 3900.00 | 1.95 | 23.40 | 0.01 | 214.50 | 0.11 |
| #33 | #49 Gas Processor | 22.6 | 171.76 | 0.09 | 128.82 | 0.06 | 1898.40 | 0.95 | 2260.00 | 1.13 | 13.56 | 0.01 | 124.30 | 0.06 |
| #38 | #41 Copper Furnace | 39 | 296.40 | 0.15 | 222.30 | 0.11 | 3276.00 | 1.64 | 3900.00 | 1.95 | 23.40 | 0.01 | 214.50 | 0.11 |
| #40 | #60 Copper Furnace | 21.9 | 166.44 | 0.08 | 124.83 | 0.06 | 1839.60 | 0.92 | 2190.00 | 1.10 | 13.14 | 0.01 | 120.45 | 0.06 |
| Combustion Emission Totals ► | | | 1583.00 | 0.79 | 1187.25 | 0.59 | 17496.36 | 8.75 | 20829.00 | 10.41 | 124.97 | 0.06 | 1145.60 | 0.57 |

D. #49 Gas Processor and #16 and #17 Furnace Oxidation Unit(s) - CO Emissions

Natural Gas Process Rate: 9000 scf/hr
 Produced CO Rate: 1800 scf/hr [Maximum Design Capacity]
 CO Reformed Gas Density: 0.078035 lbs/scf
 Furnace CO Conversion Rate: 7.0 lbs/hr [single furnace]
 Control Equipment: Afterburner (Oxidation Unit)
 CO Control Efficiency (Ce): 95% [BACT Application]

$$E = (\text{lbs/hr Cor} - \text{lbs/hr Coc}) * 8760 \text{ hrs/yr} * (1 - .95 \text{ Ce})$$

where: E, emissions of CO in lbs/hr
 Cor, CO reformed gas produced in lbs/hr
 Coc, CO gas converted in furnace reaction in lbs/hr

Table IV.D

| | | | | | | | | | |
|----------------------------------|----------------------|---------------------------------|--------|----------------------------|----------------------|--------------------------------|--------|------------------------------|-------|
| Process Rate (scf/hr) 9000 | Reformed Gas [CO] | | | Furnace CO Conversion Rate | | CO Emissions | | | |
| | Density (lbs/scf) | Production (scf/hr) (lbs/hr) | | Single (lbs/hr) | Combined (lbs/hr) | Uncontrolled (lbs/hr) (tpy) | | Controlled (lbs/hr) (tpy) | |
| | 0.078035 | 1800 | 140.46 | 7.00 | 21.00 | 119.46 | 523.25 | 5.97 | 26.16 |

E. Process Emissions - Lead

Basis: Environmental Review Board - American Chemet Board Order dated 8/4/1995 and 6/30/1995 limiting lead emissions.

Table IV.E

| Emitting Unit | Lead Emissions | |
|--------------------|----------------|--------|
| | (lbs/Yrs) | (tpy) |
| #1 Copper Furnace | 30.80 | 0.0154 |
| #41 Copper Furnace | 30.80 | 0.0154 |
| Total Emissions ▶ | 61.60 | 0.0308 |

V. Existing Air Quality

American Chemet's plant is located in an area designated as non-attainment for SO₂. SO₂ emissions from American Chemet are minimal compared to the standards and American Chemet's SO₂ emissions are not included in the SO₂ SIP for the East Helena area.

On November 8, 2011 the United States Environmental Protection Agency (USEPA) issued comment designating all of Montana as unclassifiable/attainment for the 2008 lead NAAQS. However, the American Chemet Board Order dated 8/4/95 and 6/30/95 stipulations are still in effect. The limits contained in the lead SIP are the same as those contained in Sections II.A.5 and II.A.6 of MAQP #1993-16. The changes occurring at the facility from this permit action will not result in increased lead emissions to the atmosphere.

VI. Air Quality Impacts

Although the facility is located within an SO₂ nonattainment area, the facility-wide PTE for SO₂ is insignificant and any the contributions to ambient concentrations of SO₂ would be negligible. Furthermore, no significant contributory sources of lead or SO₂ exist within the East Helena air

shed. Therefore the Department determined that the impacts from this permitting action will be minor. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

VII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment:

| 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.

VIII. Environmental Assessment

An Environmental Assessment was not required for this permitting action because it is considered an administrative action.

Analysis Prepared by: D. Kuenzli

Date: 02/17/2012

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: American Chemet Corporation
P.O. Box 1160
East Helena, MT 59635

Montana Air Quality Permit Number: 1993-16

Preliminary Determination Issued: 03/08/2012

Department Decision Issued: 03/26/2012

Permit Final: 04/11/2011

1. *Legal Description of Site:* The facility is located in Northwest ¼ of Section 36, Township 10 North, Range 3 West, Lewis and Clark County, Montana.
2. *Description of Project:* Proposed installation and operation of a cupric oxide plant within the existing American Chemet Corporation (American Chemet) facility. The process description is discussed in Section I.B. of the permit analysis to MAQP #1993-16.
3. *Objectives of Project:* The objective of the project would be to expand production capability and generate business and revenue for the company.
4. *Alternatives Considered:* In addition to the proposed action, the Department considered the “no-action” alternative. The “no-action” alternative would deny issuance of the air quality permit to the proposed facility. However, the Department does not consider the “no-action” alternative to be appropriate because FSI 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 listing of the enforceable permit conditions and a permit analysis, including a BACT analysis, would be contained in MAQP #1993-16.
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 would be reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and would not unduly restrict private property rights.
7. The following table summarizes the potential physical and biological effects of the project on the human environment. The “no-action” alternative was discussed previously.

| Potential Physical and Biological Effects | | | | | | | |
|---|--|-------|----------|-------|------|---------|-------------------|
| | | 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 Resource | | | 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 Department has prepared the following comments.

A. Terrestrial and Aquatic life and Habitats

This permit action would authorize the proposed installation of addition production equipment within an existing facility. There would not be any new construction or ground disturbance to the site. Construction activities would be limited to the interior of the facility and portions of the facility's exterior normally exposed to industrial activity. Emissions from the operation could affect terrestrial and aquatic life and habitats in the project area. However, any emissions and resulting impacts from adding equipment to an existing operation would expect to be minor.

B. Water Quality, Quantity and Distribution

This permit action would not cause additional impacts to water quantity or distribution in the project area. The operation would continue to take place within existing industrial site and would not discharge process water as part of the project.

Emissions from the project could affect water quality in the project area. However, as described in Section 7.F of this EA, any emissions and resulting deposition impacts from the current permit action would expect be minor due to the low concentration of the pollutants emitted and dispersion characteristics of pollutants and the atmosphere.

C. Geology and Soil Quality, Stability, and Moisture

The equipment would operate within an existing facility and no additional disturbance to an undeveloped area would be required. However, the additional equipment at the existing operation would result in a minor amount of additional air pollution emissions to the ambient environment. Any impact from deposition of these pollutants would be expected to be minor due to dispersion characteristics of pollutants and the atmosphere and the low concentration of the pollutants emitted.

D. Vegetation Cover, Quantity, and Quality

The new equipment would be operated within an existing building and no new construction or ground disturbance to the area would be required. Emissions from the operation may affect vegetation cover, quantity, and quality in the project area. However, any resulting impacts from additional emissions from this project would be expected to be minor.

E. Aesthetics

The operation may have moderate impacts on the aesthetic nature of the project area. The proposed equipment is designed with local ventilation and associated baghouse control device, therefore, result emissions would be minor. Any impact nearby residents would be expected to be minor.

However, the current permit action would add equipment to an existing operation and no new construction would be required. Visible emissions from the source would continue to be limited to 20% opacity. Further, noise generated by the operation would be minor due to the nature of the business. Overall, the permit modification would expect to have only minor impacts to the aesthetics of the immediate area.

F. Air Quality

The current permit action would create a minor amount of additional emissions and therefore, the air quality impacts from this action would be expected to be minor. MAQP #1993-16 would include conditions limiting the pollutant emissions and opacity. The Department determined that the proposed equipment would not cause or contribute to a violation of any applicable ambient air quality standard. Therefore, the Department determined that ambient air impacts from this permitting action would be expected to 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 previously contacted the Montana Natural Heritage Program, Natural Resource Information System (NRIS). The NRIS search identified several species of special concern in the vicinity of the project area included two vertebrate animals and a single vascular plant. Identified species include: the Great Blue Heron, the Veery, and the Wedge-leaved Saltbrush. The search area was defined by the section, township, and range of the proposed location with an additional (1) one mile buffer zone.

While the facility is located within close proximity to areas which maybe periodically occupied by the listed species of concern, the proposed construction and operations are to be conducted within in the interior of a manufacturing building located on an existing industrial site and would not be expected to disrupt any natural habitat. Due to the fact that no disturbance of previously undeveloped portions of the site would be required under this permit action, and that conditions would be placed in MAQP #1993-16, the Department determined that adding new equipment to an existing facility would not likely impact to any species of special concern. Therefore, the Department determined that impacts to unique endangered, fragile, or limited environmental resources from this permitting action would be expected to be minor.

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

Adding new equipment to an existing 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 considered small by industrial standards, and the fact that this permit action authorizes a limited expansion of the facility, the Department has determined that a relatively small amount of additional energy would be required for operation. Overall, the demands on the environmental resources of water, air, and energy would be expected to be minor.

I. Historical and Archaeological Sites

In an effort to identify any historical and archaeological sites near the proposed project area, the Department previously contacted the Montana Historical Society, State Historic Preservation Office (SHPO). According to SHPO records, there have been several previously recorded historic or archaeological sites within the proposed area. In addition, there have been previously conducted cultural resource inventories done in the area.

SHPO recommends that any structures over 50 years of age be recorded and a determination of their eligibility for the National Register of Historic Places be made. The proposed construction related to the permit action will occur within an existing manufacturing building and no potentially historic structure will be altered or affected, there is a low likelihood that cultural property will be impacted. The Department determined that due to the age of the existing building and the lack of any land disturbance, the chance of the project impacting any cultural or historic sites would be expected to be minor.

J. 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 could be expected to operate in compliance with all applicable rules and regulations as would be outlined in MAQP #1993-16.

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

| Potential Economic and Social Effects | | | | | | | |
|---------------------------------------|---|-------|----------|-------|------|---------|-------------------|
| | | 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 Department has prepared the following comments.

A. Social Structures and Mores

The permit modification would not expect to have any effect on any native or traditional lifestyles or communities (social structures or mores) of the proposed area as the project is small by industrial standards. The predominant use of the surrounding area is industrial/commercial and would not change as a result of the project. The project would be expected to cause only minor impacts on social structure and mores.

B. Cultural Uniqueness and Diversity

The addition of equipment to the existing operation would not have any effect on cultural uniqueness and diversity of the proposed area because the permit modification would be considered minor by industrial standards. Additionally, the predominant use of the surrounding area would not change as a result of the project.

C. Local and State Tax Base and Tax Revenue

The project (adding new equipment) would have a minor impact on the local and state tax base and tax revenue. Any impacts to the local and state tax base and tax revenue would be minor as the proposed construction project would be considered relatively minor. Additionally, American Chemet does not anticipate an increase in employment associated with the proposed project. Therefore any impact to local and state tax base/revenue would be expected to be minor.

D. Agricultural or Industrial Production

The proposed equipment addition at American Chemet would have a minor impact on local industrial production. The operation is located in an existing industrial building, located in an area that is predominantly industrial/commercial with the exception of a nearby residential areas. The new equipment would not cause a change in agricultural production as it would be operated at an existing facility. The project would cause a minor change in local industrial production, due to increased production at the facility. Therefore, the proposed permit action would result in minor changes to industrial production but no change to agricultural production.

E. Human Health

Due to the nature and size of the proposed project no additional effects on human health due to the emission of pollutants are expected. Furthermore, MAQP #19963-16 would incorporate conditions to ensure that the facility would operate in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health.

F. Access to and Quality of Recreational and Wilderness Activities

The addition of new equipment to an existing operation located in a mixed area that is predominantly industrial/commercial would not affect any access to or quality of any recreation or wilderness activities in the area.

G. Quantity and Distribution of Employment

American Chemet currently employs 110 people in the East Helena facility. The proposed process line will not require an increase in employment. Therefore, the project would have a minor impact on the quantity and distribution of employment in the area.

H. Distribution of Population

No additional employment is expected as a result of the proposed project, therefore, no impact on the distribution of population in the project area would be expected to occur.

I. Demands for Government Services

Demands on government services from the proposed permit modification would be minor. American Chemet would be required to procure the appropriate permits (including a state air quality permit) and any permits for the associated activities of the project. Processing and

compliance verification with those permits would require minor services from the government. Overall, any demands on government services resulting from the proposed permit modification would be expected to be minor.

J. Industrial and Commercial Activity

The operation would result in a minor impact on local industrial and commercial activity. The proposed permit modification would cause only minor additional impacts to any industrial or commercial activity in the area beyond those impacts already realized through the initial air quality permit.

K. Locally Adopted Environmental Plans and Goals

The Department is not aware of any locally adopted environmental plans or goals in the immediate area affected by the project. The state standards would be protective of the project area.

L. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from this project would result in minor impacts to the economic and social aspects of the human environment in the immediate area due to the relatively small size of the operation. Due to the relatively small size of the project, the industrial production and tax revenue would be slightly impacted by the project. In addition, the Department believes that this facility would continue to operate in compliance with all applicable rules and regulations as outlined in the air quality permit.

Recommendation: An EIS is not required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is to add new equipment to an existing operation of a manufacturing facility. MAQP #1996-16 includes conditions and limitations to ensure that the facility would operate in compliance with all applicable rules and regulations. In addition, as detailed in the above EA, there are no significant impacts associated with the project.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Natural Heritage Program, National Resource Information System (NRIS) and Montana Historical Society, State Historic Preservation Office (SHPO).

Individuals or groups contributing to this EA: Department of Environmental Quality Permitting and Compliance Division (Air Resources Management Bureau), Montana Natural Heritage Program, State Historic Preservation Office.

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Date: 02/27/2012