

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No. MO-0101184

Owner: Bulab Realty of Missouri
Address: 1256 N. McLean Blvd., Memphis, TN, 38108

Continuing Authority: Same as above
Address: Same as above

Facility Name: Buckman Laboratories, Inc.
Facility Address: 14664 Highway 47, Cadet, Missouri 63630

Legal Description: See Page 2
UTM Coordinates: See Page 2

Receiving Stream: See Page 2
First Classified Stream and ID: See Page 2
USGS Basin & Sub-watershed No.: See Page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Buckman Laboratories is specialty chemical manufacturer (SIC codes 2899 and 2879) serving the paper and pulp, water treatment, agricultural, and leather treatment industries. Raw materials and manufactured products are stored in several tanks located in two buildings and in three tank farms. Additional small quantity raw material and products are located in a separate warehouse building. All plant processing and storage is located within secondary containment. Process wastewater is recycled back into manufacturing process via an on-site water treatment facility. All precipitation that falls in the areas of chemical handling, processing and storage is treated and excessive rainfall that exceeds capacity is shipped off-site for proper disposal at a Metropolitan St. Louis District POTW.

See Page 2 for Outfall Location and Description

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

February 3, 2012
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

February 2, 2017
Expiration Date

John Madros, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #002 – Stormwater

Outfall #002 receives stormwater runoff from most of the manufacturing plant areas. Outfall #003 and #004 no longer discharge and runoff from this portion of the plant. Their flows are now collected and pumped by pipe to Outfall #002.

Legal Description: SE ¼, SW ¼, Sec. 27, T38N, R3E, Washington County
UTM Coordinates: X= 702773, Y= 4206294
Receiving Stream: Tributary to Mill Creek (U)
First Classified Stream and ID: Mill Creek (P) (2118)
USGS Basin & Sub-watershed No.: (07140104-0301)

Design flow for 4 acre watershed with a rainfall event of 1 inch over 24 hours = 0.17 cfs
Actual flow is dependent upon precipitation.

Outfall #005 – Stormwater

Outfall #005 is an over-flow outfall from a fire pond – an industrial structure that would provide fire suppression in the event of a fire emergency. No chemical processing or storage occurs in this area.

Legal Description: NE ¼, SW ¼, Sec. 27, T38N, R3E, Washington County
UTM Coordinates: X= 702904, Y= 4206638
Receiving Stream: Tributary to Cadet Creek (U)
First Classified Stream and ID: Cadet Creek (P) (2122)
USGS Basin & Sub-watershed No.: (07140104-0301)

Actual flow is dependent upon precipitation.

SM1 - ~1,000' Downstream of SM 002

Legal Description: NW¼, NE¼, Sec. 34, T38N, R3E, Washington County
UTM Coordinates: X= 703266, Y= 4205933
Receiving Stream: Mill Creek (P)
First Classified Stream and ID: Mill Creek (P) (2118)
USGS Basin & Sub-watershed No.: (07140104-0301)

SM2 - Mill Creek at the point downstream of 002 where it leaves Buckman property

Legal Description: NW¼, NE¼, Sec. 34, T38N, R3E, Washington County
UTM Coordinates: X= 702958, Y= 4205930
Receiving Stream: Mill Creek (P)
First Classified Stream and ID: Mill Creek (P) (2118)
USGS Basin & Sub-watershed No.: (07140104-0301)

Domestic waste for the facility is collected and treated by means of a septic tank and subsurface tile field. Standard Conditions Part III applies.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

PAGE NUMBER 3 of 9

PERMIT NUMBER MO-0101184

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002 – Stormwater****</u>						
Total Precipitation	inches	*			Daily	24 hr. total
Flow	MGD	*			once/quarter****	24 hr. estimate
Chemical Oxygen Demand	mg/L	*			once/quarter****	Grab
Total Organic Carbon (TOC)	mg/L	*			once/quarter****	Grab
Settleable Solids	mL/L/hr.	*			once/quarter****	Grab
pH – Units	SU	**			once/quarter****	Grab
Ammonia as N	mg/L	*			once/quarter****	Grab
Phosphorous as P	mg/L	*			once/quarter****	Grab
1,2 – Dichloroethane	µg/L	*			once/quarter****	Grab
1,4, - Diethylene Dioxide	µg/L	*			once/quarter****	Grab
Organic Active Ingredients	µg/L	*			once/quarter****	Grab
Bis (2-chloroethyl) ether	µg/L	*			Once/Month	Grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE April 28, 2012. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions	once/year	Grab
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MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE February 28, 2013.

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #005-- Stormwater****</u> Flow	MGD	*			once/quarter****	24 hr. estimate
Chemical Oxygen Demand	mg/L	*			once/quarter****	Grab
TOC	mg/L	*			once/quarter****	Grab
Settleable Solids	mL/L/hr	*			once/quarter****	Grab
pH – Units	SU	**			once/quarter****	Grab
Ammonia as N	mg/L	*			once/quarter****	Grab
Phosphorous as P	mg/L	*			once/quarter****	Grab
1,2 – Dichloroethane	µg/L	*			once/quarter****	Grab
1,4, - Diethylene Dioxide	µg/L	*			once/quarter****	Grab
Organic Active Ingredients	µg/L	*			once/quarter****	Grab
Bis (2-chloroethyl) ether	µg/L	*			once/quarter****	Grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE April 28, 2012. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

- * Monitoring requirement only.
- ** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
- *** Sample once per quarter as define in the table below.
- **** Storm water samples shall be collected within the first 60 minutes of storm events of 0.1 inches or greater, that result in a discharge. Storm events include rainfall as well as run-off from the melting of frozen precipitation.

Sample discharge at least once for the months of:	Report is due:
January, February, March (1st Quarter)	April 28
April, May, June (2nd Quarter)	July 28
July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
 - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.
3. Permittee shall not allow fishing in Mill Creek between Outfall #002 and the point that Mill Creek leaves the Permittee's property.
4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established in Part A of the permit by the Director.
 - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
5. Report as no-discharge when a discharge does not occur during the report period.
 6. Water Quality Standards
 - (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
 - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (5) There shall be no significant human health hazard from incidental contact with the water;
 - (6) There shall be no acute toxicity to livestock or wildlife watering;
 - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

C. SPECIAL CONDITIONS (continued)

7. The permittee shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must be prepared within 30 days and implemented within 90 days of permit issuance. The SWPPP must be kept on-site and should not be sent to DNR unless specifically requested. The SWPPP must be reviewed and updated, if needed, every five (5) years or as site conditions change. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in the following document:

Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in February 2009.

The SWPPP must include the following:

- (a) A listing of specific Best Management Practices (BMPs) and a narrative explaining how BMPs will be implemented to control and minimize the amount of potential contaminants that may enter storm water. Minimum BMPs are listed in SPECIAL CONDITIONS #8 below.
 - (b) The SWPPP must include a schedule for twice per month site inspections and brief written reports. The inspections must include observation and evaluation of BMP effectiveness. Deficiencies must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report, including photographs. Any corrective measure that necessitates major construction may also need a construction permit. Inspection reports must be kept on site with the SWPPP and maintained for a period of five (5) years. These must be made available to DNR personnel upon request.
 - (c) A provision for designating an individual to be responsible for environmental matters.
 - (d) A provision for providing training to all personnel involved in material handling and storage, and housekeeping of maintenance and cleaning areas. Proof of training shall be submitted on request of DNR.
8. Permittee shall adhere to the following minimum Best Management Practices:
- (a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or warehouse activities and thereby prevent the contamination of storm water from these substances.
 - (b) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
 - (c) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so that these materials are not exposed to storm water or provide other prescribed BMP's such as plastic lids and/or portable spill pans to prevent the commingling of storm water with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
 - (d) Provide good housekeeping practices on the site to keep trash from entry into waters of the state.
 - (e) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed, to comply with effluent limits.
9. The purpose of the SWPPP and the BMPs listed herein is the prevention of pollution of waters of the state. A deficiency of a BMP means it was not effective in preventing pollution [10 CSR 20-2.010(56)] of waters of the state, and corrective actions means the facility took steps to eliminate the deficiency.
10. All fueling facilities present on the site shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures.
11. Before releasing water that has accumulated in secondary containment areas it must be examined for hydrocarbon odor and presence of a sheen. When the presence of hydrocarbons is indicated, and at a minimum of once/quarter, this water must be tested for Total Petroleum Hydrocarbons (TPH). The suggested analytical method for testing TPH is non-Halogenated Organic by Gas Chromatography method 8015 (also known as OA1 and OA2). However, if the permittee so desires to use other approved testing methods (i.e. EPA 1664), they may do so. If the concentration for TPH exceeds 10mg/L, the water shall be taken to a WWTP for treatment.
12. Substances, regulated by federal law under the Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), that are transported, stored, or used for maintenance, cleaning or repair, shall be managed according to RCRA and CERCLA.

C. SPECIAL CONDITIONS (continued)

13. RECEIVING WATER MONITORING CONDITIONS

Site SM1. Downstream of Outfall 002

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Bis (2-chloroethyl) ether	Once/Month (Coincident with 002 sampling)	Grab	~1,000' Downstream of Outfall 002

Site SM2. Exit of Mill Creek from Buckman Property

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Bis (2-chloroethyl) ether	Once/Month (Coincident with 002 sampling)	Grab	Mill Creek at the point downstream of 002 where it leaves Buckman property

- a. In-stream samples should be taken at the location(s) specified on page 2 of this permit. In the event that a safe, accessible location is not present at this location, a suitable location can be negotiated with the department. Samples should be taken at least four feet from the bank or from the middle of the stream (whichever is less) and 6-inches below the surface. The upstream receiving water sample should be collected at a point upstream from any influence of the effluent, where the water is visibly flowing down stream.
- b. When conducting in-stream monitoring, the permittee shall record observations that include: the time of day, weather conditions, unusual stream/lake characteristics (e.g., septic conditions, algae growth, etc.), the stream segment (e.g., riffle, pool or run) from where the sample was collected. These observations shall be submitted with the sample results.
- c. Samples shall not be collected from areas with especially turbulent flow, still water or from the stream bank, unless these conditions are representative of the stream reach or no other areas are available for sample collection. Sampling should not be made when significant precipitation has occurred recently. Sampling should not be conducted during a rain event. The sampling event should be terminated and rescheduled if any of the following conditions occur:
 - If turbidity in the stream increases notably; or
 - If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hours
- d. Always use the correct sampling technique and handling procedure specified for the parameter of interest. Please refer to the latest edition of Standard Methods for the Examination of Water and Wastewater for further discussion of proper sampling techniques. All analyses must be conducted in accordance with an approved EPA method. Meters shall be calibrated immediately (within 1 hour) prior to the sampling event.
- e. To obtain accurate measurements, D.O., temperature and pH analyses should be performed on-site in the receiving stream where possible. However, due to high flow conditions, access, etc., it may be necessary to collect a sample in a bucket or other container. When this is necessary, care must be taken not to aerate the sample upon collection. If for any reason samples must be collected from an alternate site from the one listed in the permit, the permittee shall report the location with the sample results.
- f. Please contact the department if you need additional instructions or assistance.

C. SPECIAL CONDITIONS (continued)

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT				
OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	MONTH
002	100%	Once/year	Grab	Any

* A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampler.

Dilution Series							
AEC%= 100%	100% effluent	50% effluent	25% effluent	12.5% effluent	6.25% effluent	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
 - (a) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
 - (b) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analysis performed upon any other effluent concentration.
 - (c) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
- (2) The WET test will be considered a failure if mortality observed in effluent concentrations for either specie, equal to or less than the AEC, is significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available, synthetic laboratory control water may be used.
- (3) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.
- (4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.
 - (i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
 - (ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
- (5) Follow-up tests do not negate an initial failed test.
- (6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
- (7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test The permittee should contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the permittee does not contact THE WATER PROTECTION PROGRAM upon the third follow up test failure, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of the automatic trigger or DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

C. SPECIAL CONDITIONS (continued)

- (8) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
- (9) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
- (10) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
- (11) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) Test Conditions

- (1) Test Type: Acute Static non-renewal
- (2) All tests, including repeat tests for previous failures, shall include both test species listed below unless approved by the department on a case by case basis.
- (3) Test species: *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
- (4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.
- (5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
- (6) Tests will be run with 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent, and reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
- (8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.
- (9) Whole-effluent-toxicity test shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms

Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0101184
BUCKMAN LABORATORIES, INC.

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

A Factsheet is not an enforceable part of an operating permit.

This Factsheet is for a Industrial Facility ;

Part I – Facility Information

Facility Type: IND Facility
SIC Code(s): 2899 and 2879

Facility Description:

Buckman Laboratories is specialty chemical manufacturer (SIC codes 2899 and 2879) serving the paper and pulp, water treatment, agricultural and leather treatment industries. Raw materials and manufactured products are stored in several tanks located in two buildings and in three tank farms. Additional small quantity raw material and products are located in a separate warehouse building. All plant processing and storage is located within secondary containment. Process wastewater is recycled back into manufacturing process via an on-site water treatment facility. The water treatment consists of filtration and ozonation. The design flow is 2,986 gallons per day. All precipitation that falls in the areas of chemical handling, processing and storage is treated and excessive rainfall that exceeds capacity is shipped off-site for proper disposal at a Metropolitan St. Louis District POTW. Solids from the sedimentation process are barreled and removed as a hazardous waste.

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?

- No.

Application Date: 04/08/2011
Expiration Date: 09/28/2011
Last Inspection: 05/15/2009 In Compliance ;

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
002	Variable	BMP	Stormwater	0.0
005	Variable	BMP	Stormwater	0.15

Outfall #002

Legal Description: SE ¼, SW ¼, Sec. 27, T38N, R3E, Washington County
UTM Coordinates: X= 702773, Y= 4206294
Receiving Stream: Tributary to Mill Creek (U)
First Classified Stream and ID: Mill Creek (P) (2118)
USGS Basin & Sub-watershed No.: (07140104-0301)

Areas around the manufacturing plant drain into stormwater drain grates and a common conduit that empties into a ditch. This rocky drainage ditch runs downhill for approximately 300 yards before it empties into Mill Creek. The outfall is located at the confluence of Mill Creek and the ditch.

Outfall design flow for one inch precipitation over 24 hours upon 4-acre plant watershed was determined by the following equations:

[Outfall 002 drains 4 acres X 43,500 ft² X 1 inch precipitation or (1/12 ft.)] / (24 hours X 60 minutes X 60 seconds) = 0.17 cubic feet per second (cfs).

Outfall #005

Legal Description:	NE ¼, SW ¼, Sec. 27, T38N, R3E, Washington County
UTM Coordinates:	X= 702904, Y= 4206638
Receiving Stream:	Tributary to Cadet Creek (U)
First Classified Stream and ID:	Cadet Creek (P) (2122)
USGS Basin & Sub-watershed No.:	(07140104-0301)

The Cadet Plant Fire Pond is located at the northwest corner of the plant site. This is an industrial structure whose purpose is to provide approximately 5000 gallons of water/stormwater runoff in the event of a fire at the Cadet Plant. The precipitation that is collected from the areas immediately surrounding the fire pond has no chemical storage or processing that occurs in this area. The watershed of the pond is vegetated and landscaped and does not receive runoff from the immediate plant site.

Receiving Water Body's Water Quality & Facility Performance History:

The receiving stream is not impaired but the Big River is impaired for Cadmium, lead and sediment from mine tailings. A Stream Team water quality monitoring station exists near the bridge of Highway 47 on Mill Creek.

Outfall #002: See Appendix A, RPA Results for Data Summary of POCs

Outfall #005 had no detections for most parameters. The following are mean values of parameters with detections: Chemical Oxygen Demand – 34.7 mg/L; pH – within regulatory range; and total organic carbon (TOC) – 6.5 mg/L.

At approximately 1,000 feet downstream of Outfall #002 (SM1), the current permit requires a grab sample to test for Bis (2-chloroethyl) ether. This test was taken quarterly to correlate with effluent sampling. From December 2006 to the present, in stream sampling did not detect any Bis (2-chloroethyl) ether; however, the detection limit is 10 ug/L using EPA Method 8270 and the criteria are 1.4 ug/L. Another such monitoring point was within Mill Creek at the point downstream of Outfall #002 where it leaves the Buckman property (SM2). At this monitoring point, the facility found no detections of Bis (2-chloroethyl) ether.

Permittee has posted signs prohibiting fishing in Mill Creek between Outfall #002 and the point that Mill Creek leaves the Permittee's property. Bis (2-chloroethyl) ether is being discharged from Outfall #002, and the water quality standards human health fish consumption criteria is 1.4 µg/L.

Comments:

The facility has had a number of significant changes in the past several years, Outfall 001 was associated with an old process wastewater system; however, currently, the facility recycles all of its process water, so there is no discharge from 001. Outfall 002 and 005 are the two remaining outfalls. Outfall 002 receives virtually all the runoff from the entire plant. Runoff flows that once discharged from Outfall 003 are now collected and pumped to Outfall 002. Outfall 005 consists of overflow discharge from a fire pond that receives run off from the area around the pond. The watershed of the pond is landscaped and vegetated and, based on past sampling, likely has little chance of significant pollutant discharge.

For Bis (2-chloroethyl) ether, the facility had no detection at the in stream monitoring point; however, staff conducted a reasonable potential to exceed water quality standards for Bis (2-chloroethyl) ether to find that even with regulatory mixing, the discharge periodically exceeded the water quality standards. The maximum discharge value collected on 9/30/2010 was 1100 ug/L and the in stream monitoring point at SM1 and SM2 had no detection for any value. Because the reasonable potential analysis found potential for exceedences above water quality standards, we believe the in stream monitoring should continue with the special conditions outlined in the permit.

Part II – Operator Certification Requirements

Not Applicable ; This facility is not required to have a certified operator.

Part III – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

As per Missouri’s Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into the below listed seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall’s Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

All Other Waters [10 CSR 20-7.015(8)]:

10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream’s beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

RECEIVING STREAM(S) TABLE:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Mill Creek	P	2118	LWW, AQL, WBC(B)	07140104	Ozark/ Meramec Drainage
Unnamed Tributary to Cadet Creek	U	-	General Criteria		

* - Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery(CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND), Groundwater (GRW).

** - Ecological Drainage Unit

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Mill Creek	0.1	0.1	1.0

THE MAY 1998 STORM WATER MANAGEMENT PLAN FOR BUCKMAN LABORATORIES, PREPARED BY THE FORRESTER GROUP, MEASURED BASE FLOW IN MILL CREEK AT 12 CFS.

MIXING CONSIDERATIONS TABLE:

MIXING ZONE (CFS) [10 CSR 20-7.031(4)(A)...]		ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(4)(A)...]	
7Q10	30Q10	1Q10	7Q10
0.025	0.25	0.025	0.025

Mixing Zone: Allowed [10 CSR 20-7.031(4)(A)4.B.(II)(a)]. ¼ of the mixing zone volume.

Zone of Initial Dilution: Allowed [10 CSR 20-7.031(4)(A)4.B.(II)(b)]. One tenth (0.1) of the mixing zone volume

RECEIVING STREAM MONITORING REQUIREMENTS:

At approximately 1,000 feet downstream of Outfall #002, the current permit requires a grab sample to test for Bis (2-chloroethyl) ether. This test was taken quarterly to correlate with effluent sampling. From December 2006 to the present, in stream sampling did not detect any Bis (2-chloroethyl) ether. Another such monitoring point was within Mill Creek at the point downstream of Outfall #002 where it leaves the Buckman property. At this monitoring point, the facility found no detections of Bis (2-chloroethyl) ether.

Site SM1. Downstream of Outfall 002

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Bis (2-chloroethyl) ether	Once/Month (Coincident with 002 sampling)	Grab	~1,000’ Downstream of Outfall 002

Site SM2. Exit of Mill Creek from Buckman Property

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Bis (2-chloroethyl) ether	Once/Month (Coincident with 002 sampling)	Grab	Mill Creek at the point downstream of 002 where it leaves Buckman property

Part IV – Rationale and Derivation of Effluent Limitations & Permit Conditions

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:

As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

Not Applicable ;

The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

ANTI-BACKSLIDING:

A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

- Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.

ANTIDegradation:

In accordance with Missouri’s Water Quality Standard [10 CSR 20-7.031(2)], the Department is to document by means of Antidegradation Review that the use of a water body’s available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

- Renewal no degradation proposed and no further review necessary.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:

As per [10 CSR 20-6.010(3)(B)], ...An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

BIOSOLIDS & SEWAGE SLUDGE:

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address:

<http://dnr.mo.gov/env/wpp/pub/index.html>, items WQ422 through WQ449.

Not applicable;

This condition is not applicable to the permittee for this facility.

COMPLIANCE AND ENFORCEMENT:

Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

Not Applicable ;

The permittee/facility is not currently under Water Protection Program enforcement action.

PRETREATMENT PROGRAM:

The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a Publicly Owned Treatment Works [40 CFR Part 403.3(q)].

Pretreatment programs are required at any POTW (or combination of POTW operated by the same authority) and/or municipality with a total design flow greater than 5.0 MGD and receiving industrial wastes that interfere with or pass through the treatment works or are otherwise subject to the pretreatment standards. Pretreatment programs can also be required at POTWs/municipals with a design flow less than 5.0 MGD if needed to prevent interference with operations or pass through.

Several special conditions pertaining to the permittee's pretreatment program may be included in the permit, and are as follows:

- Implementation and enforcement of the program,
- Annual pretreatment report submittal,
- Submittal of list of industrial users,
- Technical evaluation of need to establish local limitations, and
- Submittal of the results of the evaluation

Not Applicable ;

The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

REASONABLE POTENTIAL ANALYSIS (RPA):

Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

In accordance with [40 CFR Part 122.44(d)(iii)] if the permit writer determines that any give pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

Applicable ;

A RPA was conducted on appropriate parameters. Please see **APPENDIX # – RPA RESULTS**.

REMOVAL EFFICIENCY:

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

Not Applicable ;

Influent monitoring is not being required to determine percent removal.

SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):

Sanitary Sewer Overflows (SSOs) are defined as an untreated or partially treated sewage release are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSO's have a variety of causes including blockages, line breaks, and sewer defects that allow excess storm water and ground water to (1) enter and overload the collection system, and (2) overload the treatment facility. Additionally, SSO's can be also be caused by lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations.

Additionally, Missouri RSMo §644.026.1 mandates that the Department require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities.

- Not applicable. This facility is not required to develop or implement a program for maintenance and repair of the collection system; however, it is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state.

SCHEDULE OF COMPLIANCE (SOC):

A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Not Applicable ;

This permit does not contain a SOC.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

Applicable ;

A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the Department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

VARIANCE:

As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

Not Applicable ;

This operating permit is not drafted under premises of a petition for variance.

WASTE LOAD ALLOCATIONS (WLA) FOR LIMITS:

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

Not Applicable ;

Wasteload allocations were not calculated.

WLA MODELING:

There are two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs). If TBELs do not provide adequate protection for the receiving waters, then WQBEL must be used.

Not Applicable ;

A WLA study was either not submitted or determined not applicable by Department staff.

WATER QUALITY STANDARDS:

Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones.

Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:

A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Applicable ;

Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. and the Water Quality Standards 10 CSR 20-7.031(3)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc...); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by all facilities meeting the following criteria:

- Facility is a designated Major.
- Facility (industrial) that alters its production process throughout the year.
- Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.

40 CFR 122.41(M) - BYPASSES:

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from “bypassing” untreated or partially treated sewage (wastewater) beyond the head-works. A bypass, which includes blending, is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri’s Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

- Not Applicable, this facility does not bypass.

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

Not Applicable ;

This facility does not discharge to a 303(d) listed stream.

Part V – Effluent Limits Determination

Outfall #002 – Stormwater Outfall

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

EFFLUENT LIMITATIONS TABLE OUTFALL #002:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
TOTAL PRECIPITATION	INCHES	NA	*			YES	REVISED
TOTAL FLOW	MGD	NA	*			NEW	
CHEMICAL OXYGEN DEMAND	MG/L	NA	*			NO	
TOTAL ORGANIC CARBON (TOC)	MG/L	NA	*			NO	
SETTLABLE SOLIDS	M/L/L/HR	NA	*			NO	
pH	SU	NA	**			YES	6.0-9.0
AMMONIA AS N	MG/L	NA	*			NO	
TOTAL PHOSPHORUS AS P	MG/L	NA	*			NO	
1,2 – DICHLOROETHANE	µG/L	NA	*			NO	
1,4 – DIETHYLENE DIOXIDE	µG/L	NA	*			NO	
ORGANIC ACTIVE INGREDIENTS	µG/L	NA	*			NO	
BIS (2-CHLOROETHYL) ETHER	µG/L	NA	*			NO	
WHOLE EFFLUENT TOXICITY (WET) TEST	% Survival	11	Please see WET Test in the Derivation and Discussion Section below.				
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only.

** The pH is limited to the range of 6.5-9.0 pH units.

OUTFALL #002 – DERIVATION AND DISCUSSION OF LIMITS:

- **Total Precipitation.** Total precipitation measured in total daily inches per day. Includes rainwater or snowmelt.
- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of runoff discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Chemical Oxygen Demand (COD).** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 002.
- **Total Organic Carbon (TOC).** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 002.
- **Settleable Solids (SS).** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 002.
- **pH.** Effluent limitations have been modified from previous state operating permit. According to 10 CSR 20-7.031(E), pH must be maintained from 6.5 to 9.0 SU. please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **Total Ammonia Nitrogen.** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 002.

- **Total Phosphorus as P.** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 002.
- **Methylene Chloride.** Removed. The permittee indicated that methylene chloride is no longer used and. Discharge monitoring data collected during previous state operating permit have been reassessed and no reasonable potential was found. Therefore, this parameter has been removed from the state operating permit. See Appendix A. RPA Results for Outfall 002.
- **1,2 Dichloroethane.** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 002.
- **1,4 Diethylene Dioxide.** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 002.
- **Organic Active Ingredients.** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 002.
- **Bis (2-chloroethyl) ether.** Monitoring only. The discharge monitoring data collected during previous state operating permit have been reassessed and this pollutant has a reasonable potential to exceed water quality standards in the receiving stream's after mixing. Moreover, the facility monitors the receiving stream at two locations. This in stream monitoring corresponds with the sampling from Outfall 002. No detections were found during any stream monitoring, where these same sampling event at the facility outfall found detections on occasion above water quality standards. Because the outfall monitoring demonstrated a reasonable potential to exceed water quality standards, Water Protection Program staff has determined that in stream sampling must continue as defined in the permit. The in stream monitoring will continue in lieu of a limitation (as described in the September 2006 permit, the rationale for the in stream monitoring was to demonstrate that no **actual** in stream exceedence will occur); therefore, monitoring only has been retained from previous state operating permit. The permittee is to continue to locate the source area for the pollutant and reduce or eliminate the amount of the pollutant getting into stormwater. See Appendix A. RPA Results for Outfall 002.
- **WET Test.** WET Testing schedules and intervals are established in accordance with the Department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.

Acute

No less than ONCE/YEAR:

- Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
- Facility continuously or routinely exceeds their design flow.
- Facility exceeds its design population equivalent (PE) for BOD₅ whether or not its design flow is being exceeded.
- Facility has Water Quality-based effluent limitations for toxic substances (other than NH₃).

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified, Class C, Class P (with default Mixing Considerations), or Lakes [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

Acute AEC% = 100%

- **Minimum Sampling and Reporting Frequency Requirements.** Sampling and reporting frequency requirements have been retained from previous state operating permit.

OUTFALL #005 – STORMWATER OUTFALL

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

EFFLUENT LIMITATIONS TABLE OUTFALL #005:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
TOTAL FLOW	MGD	NA	*			NEW	
CHEMICAL OXYGEN DEMAND	MG/L	NA	*			NO	
TOTAL ORGANIC CARBON (TOC)	MG/L	NA	*			NO	
SETTLABLE SOLIDS	ML/L/HR.	NA	*			NO	
pH	SU	NA	**			YES	6.0-9.0
AMMONIA AS N	MG/L	NA	*			NO	
PHOSPHORUS AS P	MG/L	NA	*			NO	
1,2 – DICHLOROETHANE	µG/L	NA	*			NO	
1,4 – DIETHYLENE DIOXIDE	µG/L	NA	*			NO	
ORGANIC ACTIVE INGREDIENTS	µG/L	NA	*			NO	
BIS (2-CHLOROETHYL) ETHER	µG/L	NA	*			NO	
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only.

** The pH is limited to the range of 6.5-9.0 pH units.

OUTFALL #005 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of stormwater discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Chemical Oxygen Demand (COD).** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 005.
- **Total Organic Carbon (TOC).** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 005.
- **Settleable Solids (SS).** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 005.
- **pH.** Effluent limitations have been modified from previous state operating permit. According to 10 CSR 20-7.031(E), pH must be maintained from 6.5 to 9.0 SU. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **Total Ammonia Nitrogen.** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 005.
- **Total Phosphorus as P.** Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 005.
- **Methylene Chloride.** Removed. The permittee indicated that methylene chloride is no longer used and. Discharge monitoring data collected during previous state operating permit have been reassessed and no reasonable potential was found. Therefore, this parameter has been removed from the state operating permit. See Appendix A. RPA Results for Outfall 005.

- **1.2 Dichloroethane**. Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 005.
- **1.4 Diethylene Dioxide**. Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 005.
- **Organic Active Ingredients**. Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 005.
- **Bis (2-chloroethyl) ether**. Monitoring only. Discharge monitoring data collected during previous state operating permit have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, monitoring only has been retained from previous state operating permit. See Appendix A. RPA Results for Outfall 005.
- **Minimum Sampling and Reporting Frequency Requirements**. Sampling and reporting frequency requirements have been retained from previous state operating permit.

PART VI: Finding of Affordability

Pursuant to Section 644.145, RSMo., the Department is required to determine whether a permit or decision is affordable and makes a finding of affordability for certain permitting and enforcement decisions. This requirement applies to discharges from combined or separate sanitary sewer systems or publically-owned treatment works.

Not Applicable;

The Department is not required to determine findings of affordability because the facility is not a **combined or separate sanitary sewer system for a publically-owned treatment works**.

Part V – Administrative Requirements

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

PUBLIC NOTICE:

The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

- The Public Notice period for this operating permit is tentatively schedule to begin on (DATE) or is in process.

DATE OF FACT SHEET: AUGUST 3, 2011

COMPLETED BY:

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Part VII – Appendices

APPENDIX A – RPA RESULTS

THE TABLE BELOW CONTAINS AN ANALYSIS THAT MAY NOT BE APPLICABLE FOR MANY OF THE PARAMETERS; HOWEVER, THE ANALYSIS WAS RETAINED TO ESTIMATE THE FATE OF THE POLLUTANTS ONCE DISCHARGED INTO THE RECEIVING STREAM. POLLUTANTS SUCH AS 1, 4 DIOXANE, AMMONIA (NH3), BIS (2-CHLOROETHYL) ETHER, METHLENE CHLORIDE ARE TOXIC POLLUTANTS THAT CAN BE ASSESSED ADEQUATELY WITH THE METHODS SHOWN BELOW. 1, 2 – DICHLOROETHANE AND 1,4 - DIETHYLENE DIOXIDE WERE REMOVED FROM THE ANALYSIS BECAUSE NO DETECTIONS WERE FOUND IN ANY SAMPLE.

OUTFALL #002 RPA RESULTS.

Outfall #002

Classified:	P Stream	Qe = 0.01
Facility Name:	Buckman Laboratories	Qs 1Q10 = 0
Permit Number:	MO-0101184	Qs 30Q10 = 1
Stream Name:	Mill Creek	Qs 7Q10 = 0.1

Qs = Stream 7Q10 flow (ft³/s), or 1Q10, or 30Q10
Qe = Effluent **design** flow (ft³/s)
Cs = combined stream concentrations (see Footnote 1 below)
Ce = maximum effluent concentration
NA = not applicable

$$C = \frac{(C_s * Q_s) + (C_e * Q_e)}{(Q_e + Q_s)}$$

<i>UNITS:</i> Metals = ug/L; Ammonia, O&G = mg/L	<i>Aquatic Life Acute (Cc)</i>	<i>Aquatic Life Chronic (Cc)</i>	CV	Maximum Conc'tn (Ce)	Upstream WQ (Cs) ¹	RPTE Calculation	Receiving Stream Concentration (C)-MZ	Receiving Stream Concentration (C)-ZID	RPTE (Y/N)
1,4 Dioxane (ug/L)			1.37	414.00	0.01	1.99	0.03	1.99	N
NH3 (mg/L)	12.1	1.5	0.53	1.40	0.01	0.003	0.010	0.003	N
Bis(2- chloroethyl) ether (ug/L)			2.89	1100.00	0.01	7989.81	79.12	3994.91	Y
COD (mg/L)			0.56	54.30	0.01	120.31	1.20	60.16	N
Methylene chloride (ug/L)			0.00	0.10	0.01	0.10	0.01	0.06	N
Organic active ingredients (40 CFR455) (ug/L)			2.01	71.44	0.01	564.25	5.60	282.13	N
Total Phosphorus (mg/L)			1.24	0.73	0.01	3.17	0.04	1.59	N
Total Organic Carbon (TOC) (mg/L)			0.44	20.90	0.01	39.88	0.40	19.94	N

Footnote 1: Upstream concentration is assumed.

Assumptions and Basis: Qe=the assumed stormwater discharge.
Zeros in the dataset were assigned ½ the detection limit (DL)

Steam Flow and Mixing Zone Determination:

Mixing Zone (MZ): one-quarter (1/4) of the stream volume of flow; length (1/4) mile [10 CSR 20-7.031(4)(A)4.B.(III)(a)].

Zone of Initial Dilution (ZID): One-tenth (0.1) of the mixing zone volume of flow, not to exceed 10 times the effluent design flow. [10 CSR 20-7.031(4)(A)4.B.(III)(b)].

Notes:

-Units are (µg/L) unless otherwise noted.

-If the number of samples is greater than 10, then the CV value must be used in the WQBEL for the applicable constituent.

-Coefficient of Variation (CV) is calculated by dividing the standard deviation of the sample set by the mean of the same sample set.

C – Receiving Stream Concentration. It is the concentration of the toxicant or the parameter toxicity in the receiving water after mixing (if applicable).

N – the number of samples for each parameter was 17 except for Bis (2-chlorethyl) ether, n=30.

Multiplying Factor: 99% Confident Level and 99% Probability Basis

PRTE – Reasonable Potential to Exceed. It is where and effluent is projected or calculated to cause an excursion above a Water Quality Standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

Reasonable Potential Analysis is conducted per (TSD, EPA/505/2-90-001, Section 3.3.2). A more detailed version including Calculations of this RPA is available upon request.

OUTFALL #005 RPA RESULTS: Outfall #005 had numerous non-detection values for each parameter. Staff believes that an analysis will not show a reasonable potential to extend. The average chemical oxygen demand (COD) value was 34.9 mg/L. Total Organic Carbon (TOC) was 6.5 mg/L.

Part VIII – Public Notice Comments

Comment: The citizens of Cadet, Mo and surrounding communities believe that if Buckman Labs is allowed to dump their wastewater, it will have a severe impact on the quality of the water in Mill Creek. The impact will be irreversible and will be detrimental to their lives, their livestock, the environment and any wild life that comes in to contact with the creek. The citizens request that the DNR deny the renewal of Permit # MO-0101184, for the Cadet Buckman Lab Plant application to release their wastewater discharge into Mill Creek.

Response: The application for renewal for Buckman Laboratories is not a permit allowing for the discharge of wastewater into Mill Creek or Cadet Creek. This permit is and will continue to be a Stormwater discharge only permit. Buckman Laboratories has been and will continue to transport all wastewater from their facility to the St. Louis Metropolitan Sewer District for proper disposal.