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-0002411
Owner:	Eaton Hydraulic
Address:	1111 Superior Avenue, Cleveland, OH 44114
Continuing Authority:	Unisys Corp.
Address:	3199 Pilot Knob Rd. – MS F1B05, Eagan, MI 55121
Facility Name:	Eaton Hydraulics LLC (former Vickers facility)
Facility Address:	2800 West 10th Street, Joplin, MO 64801
Legal Description:	See page two (2)
Latitude/Longitude:	See page two (2)
Receiving Stream:	See page two (2)
First Classified Stream and ID:	See page two (2)
USGS Basin & Sub-watershed No.:	See page two (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

See page two (2)

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.

June 12, 2009
Effective Date

July 9, 2012
Revised Date

Sara Parker Pauley
Sara Parker Pauley, Director, Department of Natural Resources

June 11, 2014
Expiration Date

John Madras
John Madras, Director, Water Protection Program

FACILITY DESCRIPTION (continued)

Outfall #002 - Industrial Storm water run-off - SIC #1629 - No **Certified Operator Required**
Storm water run-off from facility conducting environmental remediation.
Actual flow is dependent upon precipitation.

Legal Description:	NW ¼, SE ¼, NE ¼, Section 8, T27N, R33W, Jasper County
UTM:	X = 361927, Y = 4104971
Receiving Stream:	Tributary to Short Creek (U)
First Classified Stream and ID:	No discharge to classified water body in Missouri Short Creek in Kansas.
USGS Basin & Sub-watershed No.:	(11070207 – 0904)

Outfall #003 - Environmental Remediation - SIC #4959 - No **Certified Operator Required**
Treated groundwater from the RCRA corrective action program. Light Non-aqueous Phase Liquid Treatment Plant. Sludge production is less than 55 gallons per year and is hauled to local landfill for disposal.
Design flow is 0.6 MGD
Actual flow is 0.466 MGD.

Legal Description:	NW ¼, SE ¼, NE ¼, Section 8, T27N, R33W, Jasper County
UTM:	X = 362155, Y = 4105279
Receiving Stream:	Tributary to Turkey Creek (U)
First Classified Stream and ID:	Turkey Creek (P) (03216) 303(d)
USGS Basin & Sub-watershed No.:	(11070207 – 0901)

Outfall #004 - Inactive Outfall.
Discharges from this previously permitted outfall are no longer allowed. Flows from this previously permitted outfall are now diverted to Outfall #003.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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
Outfall #002						
Flow	MGD	*		*	Once/day***	24 hr. Estimate
Chemical Oxygen Demand	mg/L	*		*	Once/quarter****	grab
Total Suspended Solids	mg/L	*		*	Once/quarter****	grab
pH – Units	SU	*		*	Once/quarter****	grab
Oil & Grease	mg/L	*		*	Once/quarter****	grab

MONITORING REPORTS SHALL BE SUBMITTED two times per year; THE FIRST REPORT IS DUE October 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 Part I STANDARD CONDITIONS DATED October 1, 1980, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until two (2) years 364 days after the revised date of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #003						
Flow	MGD	*		*	Once/day	24 hr. total
Chemical Oxygen Demand	mg/L	90		60	Once/quarter****	grab
Total Suspended Solids	mg/L	100		30	Once/quarter****	grab
pH – Units	SU	**		**	Once/quarter****	grab
Oil & Grease	mg/L	15		10	Once/quarter****	grab
Temperature	°C	*		*	Once/quarter****	grab
Cyanide, Amenable to Chlorination (Note 1)	µg/L	8.1 (16 ML)		4.0 (16 ML)	Once/quarter****	grab
Barium, Total Recoverable	µg/L	*		*	Once/quarter****	grab
Cadmium, Total Recoverable	µg/L	*		*	Once/quarter****	grab
Lead, Total Recoverable	µg/L	*		*	Once/quarter****	grab
Nickel, Total Recoverable	µg/L	*		*	Once/quarter****	grab
Zinc, Total Recoverable	lb/day	*		*	Once/quarter****	grab
Zinc, Total Recoverable	µg/L	*		*	Once/quarter****	grab
Benzene	µg/L	143		71	Once/quarter****	grab
Carbon Tetra Chloride	µg/L	10.1		5.0	Once/quarter****	grab
Chloroethane	µg/L	*		*	Once/quarter****	grab
Chloroform	µg/L	945		470	Once/quarter****	grab
Ethylbenzene	µg/L	643		320	Once/quarter****	grab
Methylene Chloride	µg/L	3216		1600	Once/quarter****	grab

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

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #003 - Continued						
Tetrachloroethylene	µg/L	17.8		8.9	Once/quarter****	grab
Toluene	µg/L	*		*	Once/quarter****	grab
Trichloroethylene	µg/L	161		80	Once/quarter****	grab
Vinyl Chloride	µg/L	1055		525	Once/quarter****	grab
Xylenes, Total	µg/L	*		*	Once/quarter****	grab
1,2-cis-dichloroethene	µg/L	*		*	Once/quarter****	grab
1,2 dichloroethane	µg/L	199		99	Once/quarter****	grab
1,1 dichloroethylene	µg/L	6.4		3.2	Once/quarter****	grab
1,2-trans-dichloroethylene	µg/L	*		*	Once/quarter****	grab
1,1,1 trichloroethane	µg/L	*		*	Once/quarter****	grab
1,1,2 trichloroethane	µg/L	*		*	Once/quarter****	grab
1,1,2,2 tetrachlorothane	µg/L	22.1		11	Once/quarter****	grab

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

B. STANDARD CONDITIONS

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

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 three (3) years from the revised date of this permit 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
Outfall #003						
Flow	MGD	*		*	Once/day	24 hr. total
Chemical Oxygen Demand	mg/L	90		60	Once/quarter****	grab
Total Suspended Solids	mg/L	100		30	Once/quarter****	grab
pH – Units	SU	**		**	Once/quarter****	grab
Oil & Grease	mg/L	15		10	Once/quarter****	grab
Temperature	°C	*		*	Once/quarter****	grab
Cyanide, Amenable to Chlorination (Note 1)	µg/L	8.1 (16 ML)		4.0 (16 ML)	Once/quarter****	grab
Barium, Total Recoverable	µg/L	*		*	Once/quarter****	grab
Cadmium, Total Recoverable	µg/L	*		*	Once/quarter****	grab
Lead, Total Recoverable	µg/L	*		*	Once/quarter****	grab
Nickel, Total Recoverable	µg/L	*		*	Once/quarter****	grab
Zinc, Total Recoverable	lb/day	*		*	Once/quarter****	grab
Zinc, Total Recoverable	µg/L	*		*	Once/quarter****	grab
Benzene	µg/L	*		*	Once/quarter****	grab
Carbon Tetra Chloride	µg/L	*		*	Once/quarter****	grab
Chloroethane	µg/L	*		*	Once/quarter****	grab
Chloroform	µg/L	*		*	Once/quarter****	grab
Ethylbenzene	µg/L	*		*	Once/quarter****	grab
Methylene Chloride	µg/L	*		*	Once/quarter****	grab

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

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OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #003 – Continued						
Tetrachloroethylene	µg/L	*		*	Once/quarter****	grab
Toluene	µg/L	*		*	Once/quarter****	grab
Trichloroethylene	µg/L	*		*	Once/quarter****	grab
Vinyl Chloride	µg/L	*		*	Once/quarter****	grab
Xylenes, Total	µg/L	*		*	Once/quarter****	grab
1,2-cis-dichloroethene	µg/L	*		*	Once/quarter****	grab
1,2 dichloroethane	µg/L	*		*	Once/quarter****	grab
1,1 dichloroethylene	µg/L	*		*	Once/quarter****	grab
1,2-trans-dichloroethylene	µg/L	*		*	Once/quarter****	grab
1,1,1 trichloroethane	µg/L	*		*	Once/quarter****	grab
1,1,2 trichloroethane	µg/L	*		*	Once/quarter****	grab
1,1,2,2 tetrachlorothane	µg/L	*		*	Once/quarter****	grab

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

B. STANDARD CONDITIONS

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* 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 day during rainfall or when discharge is or may be effected by precipitation (i.e. snow, ice, etc…).
**** See table below for quarterly sampling:

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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 1 - This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved methods. The Department has determined the current acceptable ML for Cyanide amenable to Chlorination to be 16 µg/L when using the Cyanide by Automated Colorimetric Method #335.3 from the U.S.EPA National Exposure Research Laboratory. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 16 µg/L will be considered violations of the permit and values less than the minimum quantification level of 16 µg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of Cyanide in excess of the effluent limits stated in the permit.

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 will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.

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;

C. SPECIAL CONDITIONS (continued)

(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.

1. 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 #7 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.

2. 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.

3. 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.

4. 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.

5. Before releasing water that has accumulated in secondary containment areas it must be examined for hydrocarbon odor and presence of 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.

6. 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.

D. SCHEDULE OF COMPLIANCE

1. The permittee shall be in compliance with the Final Effluent Limitations for Outfall #003 within three (3) years from the effective date of this operating permit.

Missouri Department of Natural Resources
ADDENDUM TO FACT SHEET
FOR THE PURPOSE OF MODIFICATION
OF
MO-0002411
EATON HYDRAULICS LLC (FORMER VICKERS FACILITY)

REASON(S) FOR MODIFICATION:

The permittee submitted an application to the Department of Natural Resources, which was transmitted by a letter from Sustainable Resources Group, Incorporated, dated June 10, 2011. The letter requested several permit modifications. The permittee originally requested the modification to add additional treatment for metals, which at the time, were required to meet the effluent limits. The permittee also submitted a construction permit to the Department for the construction of those treatment facilities. The Schedule of Compliance, section D., has been modified to allow three (3) years from the issuance of the permit to meet final effluent limitations. The schedule in this permit will not be extended beyond 3 years because of the limitation in the state regulation at 10 CSR 20-7.031(10).

Several other permit modifications were requested in the letter which accompanied the application to modify the permit. Additional information was subsequently supplied from the permittee by letter dated August 24, 2011, supporting the requested changes. The requested changes are made in this modification.

- The requirement for pH was requested to be changed to monitor only for the stormwater Outfall #002. It appears that there is no exposure to pollutants that would alter the naturally occurring pH in the stormwater. It is this writer's Best Professional Judgment that there is no exposure to pollutants at this outfall, so the limitation for pH was changed to monitoring only.
- Sampling of phenol was requested to be removed from Outfall #003. The permittee has supplied revised effluent data down to the method detection limit for samples taken in the last two years. There was only one result which detected phenol, just above the method detection limit, and this result is more than ten times less than the previous permit limitation for phenol. It is this writer's Best Professional Judgment that there is no reasonable potential for phenol to cause water quality standards to be exceeded in the receiving stream, so it was removed from the sampling requirement.
- Sampling of chromium was requested to be removed from Outfall #003. The permittee has supplied effluent data for both chromium (VI) and chromium (III) and there have been no analytical results above the method detection limit in the last two years. The method detection limit for chromium (III) is more than ten times less that the previous permit limitation. It is this writer's Best Professional Judgment that there is no reasonable potential for Chromium (III) to cause water quality standards to be exceeded in the receiving stream. Chromium (III) is predominant in the natural environment. The weight of evidence is that there is no reasonable potential that the concentration of Chromium (VI) will be exceed water quality standards in the receiving stream. Both species of chromium were removed from the sampling requirement.

The name of the facility was changed to Eaton Hydraulics LLC as was presented the letter dated June 10, 2011. In addition, the watershed number in the facility description was changed to the 12-digit format currently used by the Department. The proposed treatment system for removal of zinc was not added to the facility description because it has not been constructed at this time.

Comments on the draft permit were received from the permittee by letter dated November 7, 2011. The following changes were made to address these comments.

- Outfall #004 is not an active outfall. Location information removed on page 2 of permit and the discussion of limits was removed from Fact Sheet.
- Effluent limits for Cadmium, Lead and Zinc were removed from the permit as a result of public notice comments. This facility does not contribute those pollutants, they are associated with abandoned mine lands. WET testing was also removed, as it has been demonstrated that toxicity was due to Zinc.
- Limitations on all pollutants for the stormwater (only) outfall #002 were eliminated and special conditions requiring implementation of Best Management Practices for control of pollutants in stormwater were added to the permit.

A geohydrological report, Project ID Number LWE11104, was performed by the Missouri Department of Natural Resources, Division of Geology and Land Survey to evaluate the site for construction of additional treatment equipment. The site was visited June 14, 2011 and the report is included as Appendix B to this Fact Sheet. The effluent from outfall #003 was identified as discharging to a losing stream and further indicates that the site has a complex groundwater hydrology. As a result of this evaluation, the permit limitations for outfall #003 were reevaluated. The Department also took into consideration the additional sit characterization information dated February 16, 2012, which was submitted by Unisys to the Department to address the regional zinc and groundwater conditions underlying the former Vickers site. This additional information provided better defined the groundwater flow patterns, surface water/groundwater interaction and the impact that the historic mining activities as well as the groundwater pump and treat system have on groundwater flow in this portion of theTurkey Creek watershed.

The Department has determined based upon a review if the information mentioned previously, the DGLS well completion regulations and the US EPA Superfund documents for the Oronogo-Dueneg Mining Belt Superfund site, that the discharge from outfall 003 to the losing portions of the unclassified tributary of Turkey Creek does not adversely affect the beneficial uses of the groundwater underlying the former Vickers site. The Department has determined that even though the discharge from outfall 003 may flow to losing portions of the unclassified tributary of Turkey Creek, the groundwater by virtue of the historic mining activity as well as other activities that have contributed to the contamination of the upper zone of the groundwater, had essentially had its beneficial uses removed. This is supported by the Department in 10 CSR 23-3.100(6) which has designated Jasper and Newton Counties as a special groundwater area and as a result, restricted the drilling and completion of new water supply wells in the area to the new lower groundwater zone, and by the US EPA through the Superfund program which has also extended the public water supply service to residents in the outlying areas of Jasper and Newton counties, thereby eliminating any existing or future localized drinking water usage of the upper groundwater zone. The Department would like to reiterate that Unisys operates a groundwater pump and treat system that acts as to control the localized groundwater flow and the groundwater contaminants in the vicinity of and underlying the at the former Vickers facility. This groundwater cone of depression, created by the pumping system, also affects the surface water in the immediate area downstream from the outfall that may also act to minimize the migration of the pollutants discharged from outfall 003 to downstream reaches of the unclassified tributary of Turkey Creek.

The permit limitations in effect as of June 12, 2011 are retained as interim limitations, and the final effluent limitations become effective on June 13, 2012. In consideration of the previous discussion and since the discharge monitoring data available from outfall 003 to date indicates that the concentration has not exceeded nor has the reasonable potential to exceed the applicable HHF consumption water quality criteria, in accordance with 40 CFR 122.44(d) and 10 CSR 20-7.015(7)(E) and (F), the final effluent limitations for certain applicable pollutants in the permit have been modified to monitoring only.

The revised Fact Sheet attached to this operating permit continues on the next page. This is considered a major modification and a Public Notice is required.

Date of Addendum to Fact Sheet: December 6, 2011

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December 12, 2011

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February 21, 2012

Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF RENEWAL AND MODIFICATION
OF
MO-0002411
VICKERS/EATON HYDRAULICS

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 Major ☒,

Part I – Facility Information

Facility Type: INDUSTRIAL
Facility SIC Code(s): 1629 – Heavy Construction, Not Elsewhere Classified
4959 – Sanitary Services, Not Elsewhere Classified

Facility Description:
Vickers/Eaton Hydraulics (facility) was formerly known as Vickers, Inc., and was a manufacturing plant (plant) with operations beginning in 1952 and ending in December 1987. The plant made piston and gear hydraulic pumps, motors, hydrostatic transmissions, and power steering boosters for industrial and agricultural applications. Waste generated during manufacturing included spent solvents, waste oils, paint residues, metal plating wastes, corrosives, scrap metals, cyanide, and spent kolene salts. Prior to construction of the plant, the site had been mined for lead and zinc.

The facility was formerly owned and/or operated by Sperry-Vickers, a division of Sperry Corporation, the predecessor corporate entity to Unisys Corporation. Effective January 1, 1984, the facility was owned and/or operated by Vickers, Inc., a wholly-owned subsidiary of Libby-Owens-Ford Company, later known as TRINOVA Corporations. TRINOVA Corporation changed it name to Aeroquip-Vickers, Inc. on April 17, 1997, and is the current owners of the facility to date. Manufacturing operations ceased in 1987, and the manufacturing building and associated area were sold to Able Manufacturing Corporation, which is the adjacent property to this facility. The facility operated several interim status regulated hazardous waste management units that included two (2) surface impoundments, a hazardous waste storage building, and a sludge drying basin. Other solid waste management units operated at the facility included two abandoned landfills, and additional lagoon/surface impoundment, a former drum storage area, a settling basin, tow filter basins, a contaminated drainage ditch, and elementary neutralization unit, three underground storage tank areas, a former drum rack area, a drum disposal area, and the Able Manufacturing sewer.

Current activities at this facility include operation and maintenance of the groundwater monitoring system and operation of collection and treatment system for dissolved-phase volatile organic compounds and light non-aqueous phase liquids in groundwater. A more detailed description of activities is located below for each of the outfalls.

Able Manufacturing is covered under general permit number MO-R203167.

Outfall #001 – the previous operating permit (modified on April 11, 2008) indicated "Outfall Terminated – This storm water came from off the Vickers site and was discharging on the North side of the Vickers property." Storm water run-off from Able Manufacturing is the sole source of storm water run-off that was in the previous permitted Outfall #001, which was verified on January 30, 2009, during a site-visit conducted by staff drafting this fact sheet.

Facility Description (continued):

Outfall #002 – currently this outfall consists of: (1) storm water run-off from the adjacent property (Able Manufacturing) in the southern portion of this facility's property, and eventually to the west through Outfall #002; (2) storm water run-off from this facility. Submitted DMRs document an average flow of 0.035252 MGD. During the above mentioned site-visit, facility's ground was covered by vegetation (thick-grass), with very minimal exposure of pollutant sources near the unnamed tributary. It is staff best professional judgment that a SWPPP be established and implemented in this operating permit to address storm water run-off.

Therefore, Outfall #004 is being assigned with additional explanation below.

Outfall #003 – this outfall consist of treated groundwater from the RCRA corrective action program. The combined flow from all groundwater extraction wells goes to the equalization tank, with a minor contribution from the oil/water separator tank, and VIC decanter, and thereafter, no additional water is added to the LTP process flow. Submitted DMRs document an average flow of 0.466036 MGD.

The groundwater extraction system consists of nine (9) recovery wells. Each well is equipped with a shutoff valve and an electrical disconnect switch at the well head. The pressure gauge, flow meter, sampling port, in-line strainer, and flow control valve for each extraction well are located inside the LTP.

Recovered LNAPL and groundwater mixture is pumped to the oil/water separator. Effluent (water) from the oil/water separator, after gravity separation, flows from the separator to a bag filter and then to the equalization tank. LNAPL (e.g. oil) from the oil/water separator is received at a 5,000 gallon capacity LNAPL tank. LNAPL from this tank is disposed of by incineration at an approved treatment, storage, and disposal facility, which is off-site.

The equalization tank (6,000 gallon storage capacity) represents the end source of water input to the LTP prior to treatment via the air stripping towers. The tank allows for equalization of all influent flow from groundwater recovery wells, oil/water separator, the VIC wastewater return, and other LTP water usage.

The air stripping towers consist of two (2) forced air counter-current Carbon-air stripping towers operating in series that are utilized to remove VOCs from the groundwater. Water from the equalization tank is pumped to the top of air stripper 1 and is dispersed over the full diameter of the tower. The water is spread over media which allows a maximum surface area for the transfer of VOCs from a liquid phase to gaseous phase. The water is then pumped to the top of air stripper 2 and is dispersed over the full diameter of the tower. The treated water is then pumped to the GAC system.

The VIC unit recovers VOCs from the air stream generated by the LTP. Air exhaust from the oil/water separator, flow equalization tank, and air stripper is manifolded to the VIC. The VIC decanter serves as a separator for the solvent (VOCs) and water. The decanter is a gravity separator. The heavier solvent settles to the bottom of the decanter while steam condensate water flows to the wastewater receiver tank. Water in the wastewater receiver tank is pumped back to the flow equalization tank for treatment prior to discharge from Outfall #002. Recovered solvent is pumped from the decanter to the 2,000 gallon solvent recovery tank and is disposed at an off-site location.

During the site-visit ECOR staff indicated that they wish to move effluent currently discharging from Outfall #003 to a location near the Outfall #002 location (actually in a part of the Outfall #002 structure – please see **Appendix A – Outfall Location Map and Schematic**). ECOR staff during the site-visit explained and showed staff that there was an outfall pipe already constructed with the Outfall #002 structure (constructed with Outfall #002 was first established) and is ready to discharge. Staff then informed ECOR that the switching of the effluent from Outfall #003 to near Outfall #002 is applicable, but that a Antidegradation Review would be needed to determine effluent limitations (if applicable) due to the load increase on the receiving stream. Therefore, this operating permit will contain language that will allow the facility switch outfall for the effluent.

The source of the non-contact cooling water is groundwater. Please see **Appendix A – Outfall Location Map and Schematic**.

Application Date: September 8, 2008
Expiration Date: March 4, 2009
Last Inspection: 06/03/2008 In Compliance ☒; Non-Compliance ☐

Facility Description (continued):

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
#001	Outfall removed, see facility description above.			
#002	0.055	SWPPP	Storm water run-off	~ 9.13
#003	0.722	See Outfall #003	Industrial	~ 2.38
#004	0.048	None	Non-contact cooling water	~ 9.23

Outfall #002
Legal Description: NW ¼, SE ¼, NE ¼, Section 8, T27N, R33W, Jasper County
Latitude/Longitude: +3704511/-09433122
Receiving Stream: Tributary to Short Creek (U)
First Classified Stream and ID: Short Creek (C) (09999)
USGS Basin & Sub-watershed No.: (11070207 - 160050)

Outfall #003
Legal Description: NW ¼, SE ¼, NE ¼, Section 8, T27N, R33W, Jasper County
Latitude/Longitude: +3705012/-09433032
Receiving Stream: Tributary to Turkey Creek (U)
First Classified Stream and ID: Turkey Creek (P) (03206) 303(d)
USGS Basin & Sub-watershed No.: (11070207-1600020)

Outfall #004 (New Outfall)
Legal Description: NW ¼, SE ¼, NE ¼, Section 8, T27N, R33W, Jasper County
Latitude/Longitude: +3704548/-09433085 (GIS from Department's Interactive Map View Program)
Receiving Stream: Tributary to Short Creek (U)
First Classified Stream and ID: Short Creek (C) (09999)
USGS Basin & Sub-watershed No.: (11070207 - 160050)

Comments:
Operating Permit Fees are paid up to date. Department staff drafting this fact sheet and operating permit had decided to establish comments in the applicable portions of this fact sheet rather than establishing all the comments in this section.

Water Quality History:
On June 3, 2008, SWRO staff conducted a routine inspection of this facility and documented, among other things, that the permittee is not maintaining all the information required by the existing operating permit's Standard Condition Part I, Section A, Item 5.a RECORDING OF RESULTS or rather items usually contained in a laboratory bench sheet. SWRO staff also indicated there was a concern regarding the validity of data for pH. The non-compliance did not warrant issuance of a Notice of Violation.

Water Quality History (continued):
DMR review resulted with a couple of missing DMRs from both Outfalls. Outfall #003 DMRs indicated a WET test violation occurred in 2003 & 2007; a Zinc Dissolved in 2003, and five cyanide violations in first months of 2006. However, staff drafting this fact sheet and operating permit question the accuracy of these DMR violations for Cyanide. DMRs indicate that the reported concentration was 5µg/L, which is the Chronic Criteria. The Cyanide effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved methods. The Department has determined the current acceptable ML for Cyanide amenable to Chlorination to be 16 µg/L when using the Cyanide by Automated Colorimetric Method #335.3 from the U.S.EPA National Exposure Research Laboratory. The operating permit will require the permittee to conduct analyses in accordance with this method, or equivalent, and report actual analytical values. The minimum quantification level does not authorize the discharge of Cyanide in excess of the effluent limits stated in the permit.

On 01/07/2009 the SWRO issued a LOW for a reported permit level of 7µg/L for Cyanide.

Part II – Operator Certification Requirements

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

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.

Losing [10 CSR 20-7.015(4)]: ☒

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**
Flow from Outfall #002				11070207	Ozark / Neosho
Unnamed tributary to Short Creek	U	---	General Criteria		
Unnamed tributary to Short Creek ~ 2.83 miles below Outfall #002	U	---	**Losing**, General Criteria		
Short Creek (Kansas – Missouri State line) ~ 4.75 miles below Outfall	†	09999	†		
Turkey Creek (Kansas)	‡	09999	‡		

RECEIVING STREAM(S) TABLE (CONTINUED):

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Flow from Outfall #003				11070207	Ozark / Neosho
Unnamed tributary to Turkey Creek (Missouri)	U	---	**Losing**, General Criteria		
Turkey Creek (Missouri)	P	03216	LWW, AQL, WBC-B***		

* - 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
*** - UAA has not been conducted.
† - Per Kansas Department of Health and Environment (KDHE), Short Creek is classified as GP – General Purpose Waters; and it is Designated for Expected Aquatic Life Use Water & for Contact Recreational Uses – primary contact recreation stream segment is by law or written permission of the landowner open to and accessible by the public.
‡ - Per KDHE, Turkey Creek is classified as GP; and it is Designated for Special Aquatic Life Use Water & for Contact Recreational Uses – Secondary contact recreation stream segment is not open to and accessible by the Public under Kansas Law.

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Unnamed tributary to Short Creek	0.0	0.0	0.0
Unnamed tributary to Turkey Creek	0.0	0.0	0.0

MIXING CONSIDERATIONS TABLE:
Mixing Zone: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].
Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)].

RECEIVING STREAM MONITORING REQUIREMENTS:
No receiving water monitoring requirements recommended at this time.

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. New information is available to the permit writer that were not available at the time of drafting the previous permit.

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; and

☒ - Proposed outfall location modification for this facilities process wastewater, by the permittee, to a different receiving stream may require the permittee to undergo/conduct an Antidegradation Review. The operating permit will contain language indicating such based on [10 CSR 20-7.031(2)(D)], the three (3) levels of protection provided by the antidegradation policy in subsections (A), (B), and (C) of this section shall be implemented according to procedures developed by the Department. On April 20, 2007, the Missouri Clean Water Commission approved *Missouri Antidegradation Rule and Implementation Procedure* (Antidegradation Rule), which is applicable to new or upgraded/expanded facilities. The implementation of the Antidegradation Rule occurred on August 31, 2008. Any construction permit application or other applicable permit applications submitted prior to August 31, 2008, will not be required to have an Antidegradation Review.

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.

BIO-SOLIDS, SLUDGE, & SEWAGE SLUDGE:
Bio-solids are solid materials resulting from wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sludge is any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. 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.

☒ - Industrial sludge production at this facility is less than 55 gallons per year. Sludge is taken to the Prairie View Landfill for disposal.

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)].

☒ 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.

☒ Applicable;

A RPA was not conducted on Outfall #002 due to the fact that it contains both storm water run-off and non-contact cooling water. Additionally, a RPA was not conducted on Outfall #003 (except for Arsenic and Nickel Total Recoverable) due to the fact that the parameters in the previous state operating permit (with some additional) "have been detected in the groundwater beneath and beyond the subject units/areas and are reasonably expected to be in or derived from waste managed at these units/areas," – MHWMF Permit MOD007155781. The MHWMF Permit can be found at the following web address: http://www.dnr.mo.gov/env/hwp/permits/mod007155781/070621-finalI.pdf. Table I – Groundwater Protection Standards contains the list of pollutants with reasonable potential. Pollutants on this list with ** will not be established in this operating permit (i.e. Acetone, 2-butanon(MEK), Carbon disulfide, 1,2-dichlorobenzene, and 4-Methyl-2-pentanone (MBIK). These pollutants have been detected in the groundwater but are designated as "monitor only" parameter as they appear to represent releases to groundwater attributable to entities other than the permittee.

Additionally, the pollutant parameters that contained a monitoring only requirement in the previous state operating permit will now contain an effluent limitation. Because Arsenic had a monitoring only requirement before it is being removed form the permit. Nickel contained a limitations before, therefore, it will be reduced to a monitoring only requirement.

RPA

CONSTITUENT	CMC*	RWC ACUTE*	CCC*	RWC CHRONIC*	REASONABLE POTENTIAL	# OF SAMPLES**	CV***
ARSENIC, TOTAL RECOVERABLE	N/A	N/A	20	12.8	NO	65	0.459
NICKEL, TOTAL RECOVERABLE	705	74	78	74	NO	66	0.217

N/A – Not Applicable
* - 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.

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

Also, it has been determined that this facility does not have reasonable potential to cause or contribute to violations of water quality standards for Cadmium, Lead, Zinc, or toxicity. Cadmium, Lead & Zinc are from abandoned mine lands and residual contamination from historic mining, and are not associated with this facility.

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 (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm .

☒ Not Applicable;
Influent monitoring for the purpose of this operating permit is not being required to determine percent removal.

SANITARY SEWER OVERFLOWS (SSOS), AND INFLOW & INFILTRATION (I&I):
Collection systems are a critical element in the successful performance of the wastewater treatment process. Under certain conditions, poorly designed, built, managed, operated, and/or maintained systems can pose risks to public health, the environment, or both. Causes of SSOs include, but are not limited to, the following: high levels of I&I during wet weather; blockages; structural, mechanical, or electrical failures; collapsed or broken sewer pipes; insufficient conveyance capacity; and vandalism. Effective and continuous management, operation, and maintenance, as well as ensuring adequate capacity and rehabilitation when necessary are critical to maintaining collection system capacity and performance while extending the life of the system.

☒ 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.

☒ Applicable;
The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(10)].

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 *Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* [EPA 832-R-92-006] (Storm Water Management), 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.

WASTELOAD 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.

☒ Applicable;
Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
Cs = upstream concentration
Qs = upstream flow
Ce = effluent concentration
Qe = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

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.

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.

☒ Not Applicable;

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

☒ Applicable;

The 1st Classified receiving stream (for Outfall #003) is listed on the 2006 Missouri 303(d) List for Zinc from multiple lead and zinc abandoned mine lands.

☒ – This facility is considered to be a source of or has the potential to contribute to the above listed pollutant(s). The TMDL for Turkey Creek was completed on 07/22/2009 and approved by the EPA on 10/25/2006. Although the TMDL considers the facility to be a source of Zinc contamination, the facility does not in fact contribute Zinc. The facility is a groundwater treatment system for solvents as part of a hazardous waste cleanup, and introduces no Zinc via this treatment process. Therefore, it is proper to determine that the facility does not represent a reasonable potential to contribute to future violations of the Water Quality Standards. The historic mining operations at the site are responsible for the Zinc contamination. According to the TMDL, the facility's WLA for dissolved zinc and total recoverable zinc in pounds per day (Zn D lb./day and Zn TR lb./day) are 1.5 lb. and 1.6 lb., respectably. These figures show that the facility's contribution is 4.5% of the total 33 lb. of D Zn and 4.3% of the 37 lb. total of the Zn TR reaching the stream per day. But this temporary activity has already decreased and will continue to decrease as less and less solvent is available for recovery in the groundwater. Because of local hydrology and historic mining operations, the ground water flows surfaces and flows to surface receiving streams throughout the area, regardless of whether this groundwater pumping action occurs or not. The U.S. EPA has undertaken a cleanup of Zinc contamination via a superfund action. Until this massive area-wide cleanup is completed, the stream will remain impaired.

Part V – Effluent Limits Determination

Outfall #002 – Main Facility Outfall

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1/9	*		*	NO	
COD	MG/L	1/9	*		*	NO	
TSS	MG/L	1/9	*		*	YES	100 DAILY/50 MONTHLY
PH	SU	1/9	*		*	YES	6.5 – 9.0
OIL & GREASE	MG/L	1/9	*		*	YES	15 DAILY/10 MONTHLY
MONITORING FREQUENCY	Once per quarter after precipitation events shall be established in the operating permit.						

* - Monitoring requirement only. A Stormwater Pollution Prevention Plan was added to the special conditions in the 2011 modification.

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Lagoon Policy
5. Ammonia Policy
6. Dissolved Oxygen Policy
7. Antidegradation Policy
8. Water Quality Model
9. Best Professional Judgment
10. TMDL or Permit in lieu of TMDL
11. WET Test Policy

OUTFALL #002 – DERIVATION AND DISCUSSION OF LIMITS:

This outfall contains only storm water run-off. Non-contact cooling water is not discharged and discharge from Outfall #004 is not authorized in this permit. However, monitoring requirements for typical industrial storm water run-off facilities will be implemented for this outfall.

The operating permit will contain language for the permittee to develop a SWPPP. The purpose of the SWPPP is the control of sediment and other pollution that is associated with storm water.

Outfall #003 – Treated Groundwater – Environmental Remediation

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED ***	PREVIOUS PERMIT LIMITATIONS***
FLOW	MGD	1	*		*	NO	
COD	MG/L	1/9	90		60	NO	
TSS	MG/L	1	100		30	NO	
PH	SU	2	6.5 – 9.0		6.5 – 9.0	NO	
OIL & GREASE	MG/L	2	15		10	NO	
TEMPERATURE	°C	2/9	*		*	NO	
NICKEL, TR	µG/L	1/2	*		*	NO	
HAZARDOUS CONSTITUENTS FOUND IN GROUNDWATER (HCGRW)							
CYANIDE, AMENABLE TO CHLORINATION	µG/L	2/3	8.1		4.0	NO	
BARIUM, TR	µG/L	2/3	*		*	NO	
CADMIUM, TR	µG/L	2/3	*		*	YES	0.6/0.3
LEAD, TR	µG/L	2/3	*		*	YES	9.0/4.5
ZINC, TR	µG/L	2/3/10	*		*	YES	215/107
ZINC, TR	LB/DAY	2/3/10	*		*	YES	1.08/.054
BENZENE	µG/L	2/3	10.1		5	YES	143/71
CARBON TETRACHLORIDE	µG/L	2/3	10.1		5.0	NO	
CHLOROETHANE	µG/L	2/3	*		*	NO	
CHLOROFORM	µG/L	2/3	11.5		5.7	YES	945/470
CIS -1,2 DICHLOROETHENE	µG/L	2/3/9	*		*	NO	* / *
1,2 DICHLOROETHANE	µG/L	2/3	10.1		5	YES	199/99
1,1 DICHLOROETHYLENE	µG/L	2/3	6.4		3.2	NO	
ETHYLBENZENE	µG/L	2/3	643		320	NO	
METHYLENE CHLORIDE	µG/L	2/3/9	9.5		4.7	YES	3216/1600
1,2 TRANSDICHLORETHYLENE	µG/L	2/3	201		100	YES	*/*
1,1,1 TRICHLORETHANE	µG/L	2/3	402		200	YES	*/*
1,1,2 TRICHLOROETHANE	µG/L	2/3	10.1		5	YES	*/*
1,1,2,2 TETRACHLOROEHTANE	µG/L	2/3	0.34		0.17	YES	22.1/11
TETRACHLOROETHYLENE	µG/L	2/3	1.6		0.8	YES	17.8/8.9
TOLUENE	µG/L	2/3/9	2010		1000	YES	*/*
TRICHLOROETHYLENE	µG/L	2/3	10.1		5	YES	161/80
VINYL CHLORIDE	µG/L	2/3/9	4		2	YES	1055/525
XYLENES (TOTAL)	µG/L	2/3	20,000		10,000	YES	*/*
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
** - Parameter not previously established in previous state operating permit.
*** - When compared to final effluent limitations for Outfall #003 in the 12/14/2010 permit modification.
TR – Total Recoverable

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Lagoon Policy
5. Ammonia Policy
6. Dissolved Oxygen Policy
7. Antidegradation Policy
8. Water Quality Model
9. Best Professional Judgment
10. TMDL or Permit in lieu of TMDL
11. WET Test Policy

OUTFALL #003 – DERIVATION AND DISCUSSION OF LIMITS:
The parameter BOD_5 has been removed from this outfall, the average of the past 5 years DMR was 1.7 mg/L and the maximum reported value was 3 mg/L. It is staff best professional judgment that COD is a better parameter for the protection of the stream's water quality.

The pollutant parameter Arsenic, Total Recoverable has been removed from this permit. A RPA documented that it did not have a reasonable potential to cause or contribute to exceedances of Missouri's Water Quality. Additionally, the analysis results for Arsenic, Total Recoverable were below the detection limit; and there is no know justification on why the parameter was established in the operating permit.

The parameters 2 Chloroethyl Vinyl Ether and 1,1 Dichloroethane were removed because they were listed as one of the HCGRW in the HWP permit. Additionally, the DMRs were reviewed and all analysis were below the detection limit.

A RPA was not conducted on Outfall #003 (except for Arsenic and Nickel Total Recoverable) due to the fact that the parameters in the previous state operating permit (with some additional) "have been detected in the groundwater beneath and beyond the subject units/areas and are reasonably expected to be in or derived from waste managed at these units/areas," – MHWMF Permit MOD007155781. Additionally, Outfall #003 effluent is expected to be treated groundwater for VOC's; therefore, effluent limitations are applicable.

- **Flow**. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent 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).** The previous state operating permit effluent limitations of 90 mg/l as a daily maximum and 60 mg/L are being retained and have been reassessed and verified that they are still protective of the receiving stream's Water Quality.

- **Total Suspended Solids (TSS).** The previous state operating permit effluent limitations of 100 mg/l as a daily maximum and 30 mg/L are being retained and have been reassessed and verified that they are still protective of the receiving stream's Water Quality.

- **pH**. Effluent limitation range of 6.5 – 9.0 pH SU as per 10 CSR 20-7.031(4)(E).

- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

- **Temperature.** Monitoring requirement only and is being retained from previous state operating permit.

- **Nickel, Total Recoverable.** RPA conducted on Nickel, Total Recoverable and analysis indicated that Nickel does not have potential to cause or contribute to violations of Missouri's Water Quality Standards in the receiving stream. The previous operating permit had limitations; therefore, this operating permit shall only have a monitoring requirement only.

- **Cyanide, Amenable to Chlorination.** HCGRW pollutant – effluent limitations are applicable. Protection of Aquatic Life CCC = 5 µg/L, CMC = 22 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  Chronic WLA: C_e = 5 µg/L
  Acute WLA: C_e = 22 µg/L

  LTA_c = 5 (0.527) = **2.6** µg/L [CV = 0.6, 99th Percentile]
  LTA_a = 22 (0.321) = 7.1 µg/L [CV = 0.6, 99th Percentile]

  MDL = 2.6 (3.11) = 8.1 µg/L [CV = 0.6, 99th Percentile]
  AML = 2.6 (1.55) = 4.0 µg/L [CV = 0.6, 95th Percentile, n = 4]

Metals
Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and "The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion" (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness = 200 mg/L (per TMDL).

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the Department, partitioning evaluations may be considered and site-specific translators developed.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Cadmium	0.924	0.889
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Lead	0.721	0.721
Nickel	0.998	0.997
Zinc	0.978	0.986

Conversion factors for Cd and Pb are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 162 mg/L.

- **Barium, Total Recoverable**. HCGRW pollutant – effluent limitation applicable. However, Barium, Total Recoverable does not have an established criteria for surface water designated uses. Therefore, a monitoring only requirement shall be established in the operating permit.

- **Cadmium, Total Recoverable**. Effluent limit has been replaced with "monitoring only". Cadmium contributions are from abandoned mine lands and residual underground Cadmium from mining operations. This Cadmium is not associated with the groundwater remediation activities at this site.

- **Chromium (III), Total Recoverable**. See Chromium (VI), Dissolved.

- **Chromium (VI), Dissolved**.

  Sampling of chromium was requested to be removed from Outfall #003 by letter dated August 24, 2011. The permittee has supplied effluent data for both chromium (VI) and chromium (III) and there have been no analytical results above the method detection limit in the last two years. The method detection limit for chromium (III) is more than ten times less than the previous permit limitation. It is this writer's Best Professional Judgment that there is no reasonable potential for Chromium (III) to cause water quality standards to be exceeded in the receiving stream. Chromium (III) is predominant in the natural environment. The weight of evidence is that there is no reasonable potential that the concentration of Chromium (VI) will be exceed water quality standards in the receiving stream. Both species of chromium were removed from the sampling requirement.

- **Lead, Total Recoverable**. Effluent limit has been replaced with "monitoring only". Lead contributions are from abandoned mine lands and residual underground Lead from mining operations. This Lead is not associated with the groundwater remediation activities at this site.

- **Zinc, Total Recoverable**. Effluent limit has been replaced with "monitoring only". Zinc contributions are from abandoned mine lands and residual underground Zinc from mining operations. This Zinc is not associated with the groundwater remediation activities at this site.

Other Toxics:

A geohydrological report, Project ID Number LWE11104, was performed by the Missouri Department of Natural Resources, Division of Geology and Land Survey to evaluate the site for construction of additional treatment equipment. The site was visited June 14, 2011 and the report is included as Appendix B to this Fact Sheet. The effluent from outfall #003 was identified as discharging to a losing stream. As a result of this evaluation of the stream, the permit limitations for outfall #003 were reevaluated to be protective of the designated uses for Groundwater and Drinking Water Supply.

The Groundwater and Drinking Water Supply are more restrictive for some of the toxic pollutants below.

- **Benzene**. HCGRW pollutant – effluent limitation applicable. Protection of Human Health Fish Consumption = 71 µg/L, Protection of Drinking Water Supply, and Groundwater = 5 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 5 µg/L

  MDL = 5 µg/L (2.01) = 10.1 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 5 µg/L [5.4.4, Page 104, TSD]

- **Carbon Tetrachloride**. HCGRW pollutant – effluent limitation applicable. Protection of Human Health Fish Consumption, Drinking Water Supply, and Groundwater = 5 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 5 µg/L

  MDL = 5.0 µg/L (2.01) = 10.1 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 5.0 µg/L [5.4.4, Page 104, TSD]

- **Chloroethane**. HCGRW pollutant – effluent limitation applicable. Criteria could not be determined for this parameter; therefore, the continuation of a monitoring only shall be implemented.

- **1,1,1 Trichlorethane**. HCGRW pollutant – effluent limitation applicable. However, the only criteria available for this pollutant is Protection of DWS and GRW. The 1st classified stream has neither of these protection; therefore, a monitoring only requirement will be established in the operating permit.

- **1,1,1 Trichlorethane**. HCGRW pollutant – effluent limitation applicable. Protection of Drinking Water Supply and Groundwater = 200 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 200 µg/L

  MDL = 200 µg/L (2.01) = 402 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 200 µg/L [5.4.4, Page 104, TSD]

- **1,1,2 Trichlorethane**. HCGRW pollutant – effluent limitation applicable. Protection of Drinking Water Supply, and Groundwater = 5.0 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 5 µg/L

  MDL = 5.0 µg/L (2.01) = 10.1 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 5.0 µg/L [5.4.4, Page 104, TSD]

- **1,1,2,2 Tetrachloroethane**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life – Human Health Consumption (HHF) = 11 µg/L. Protection of Drinking Water Supply, and Groundwater = 0.17 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 0.17 µg/L

  MDL = 0.17 µg/L (2.01) = 0.34 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 0.17 µg/L [5.4.4, Page 104, TSD]

- **1,1 Dichloroethylene**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life – Human Health Consumption (HHF) = 3.2 µg/L. Protection of Drinking Water Supply, and Groundwater = 7 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 3.2 µg/L

  MDL = 3.2 µg/L (2.01) = 6.4 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 3.2 µg/L [5.4.4, Page 104, TSD]

- **1,2 Transdichloroethylene**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life – Human Health Consumption (HHF) = 140,000 µg/L. Protection of Drinking Water Supply, and Groundwater = 100 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 100 µg/L

  MDL = 100 µg/L (2.01) = 201 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 100 µg/L [5.4.4, Page 104, TSD]

- **Vinyl Chloride**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life – Human Health Consumption (HHF) = 525 µg/L. Protection of Drinking Water Supply, and Groundwater = 2 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 2 µg/L

  MDL = 2 µg/L (2.01) = 4.0 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 2 µg/L [5.4.4, Page 104, TSD]

- **Trichloroethylene**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life – Human Health Consumption (HHF) = 80 µg/L. Protection of Drinking Water Supply, and Groundwater = 5 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 5 µg/L

  MDL = 5 µg/L (2.01) = 10.1 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 5 µg/L [5.4.4, Page 104, TSD]

- **1,2 Dichloroethane**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life – Human Health Consumption (HHF) = 99 µg/L. Protection of Drinking Water Supply, and Groundwater = 5 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 5 µg/L

  MDL = 5 µg/L (2.01) = 10.1 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 5 µg/L [5.4.4, Page 104, TSD]

- **Chloroform**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life – Human Health Consumption (HHF) = 470 µg/L. Protection of Drinking Water Supply, and Groundwater = 5.7 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 5.7 µg/L

  MDL = 5.7 µg/L (2.01) = 11.5 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 5.7 µg/L [5.4.4, Page 104, TSD]

- **Cis-1,2-dichloroethene (aka 1,2 cis-dichloroethen)**. HCGRW pollutant – effluent limitation applicable. However, no criteria available for this pollutant. Therefore, a monitoring only requirement will be retained.

- **Ethylbenzene**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life – Human Health Consumption (HHF) = 320 µg/L. Protection of Drinking Water Supply, and Groundwater = 700 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 320 µg/L

  MDL = 320 µg/L (2.01) = 643 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 320 µg/L [5.4.4, Page 104, TSD]

- **Methylene Chloride**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life – Human Health Consumption (HHF) = 1600 µg/L. Protection of Drinking Water Supply, and Groundwater = 4.7 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 4.7 µg/L

  MDL = 4.7 µg/L (2.01) = 9.5 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 4.7 µg/L [5.4.4, Page 104, TSD]

- **Tetrachloroethylene**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life – Human Health Consumption (HHF) = 8.85 µg/L. Protection of Drinking Water Supply, and Groundwater = 0.8 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 0.8 µg/L

  MDL = 0.8 µg/L (2.01) = 1.6 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 0.8 µg/L [5.4.4, Page 104, TSD]

- **Toluene**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life – Human Health Consumption (HHF) = 8.85 µg/L. Protection of Drinking Water Supply, and Groundwater = 1000 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 1000 µg/L

  MDL = 1000 µg/L (2.01) = 2010 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 1000 µg/L [5.4.4, Page 104, TSD]

  Due to the high level allowable and DMRs documenting that analytical results for this pollutant are under the MDL (5 µg/L), an effluent limitation will not be established. Therefore, a monitoring requirement shall be established.

- **Xylene (Total)**. HCGRW pollutant – effluent limitation applicable. Protection of Drinking Water Supply, and Groundwater = 10,000 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA).

  WLA = 10,000 µg/L

  MDL = 10,000 µg/L (2.01) = 20,100 µg/L [CV = 0.6, 99th Percentile, Table 5-3 TSD]
  AML = WLA = 10,000 µg/L [5.4.4, Page 104, TSD]

  Due to the high level allowable and DMRs documenting that analytical results for this pollutant are under the MDL (5 µg/L), an effluent limitation will not be established. Therefore, a monitoring requirement shall be established.

- **Phenol**. HCGRW pollutant – effluent limitation applicable. Protection of Aquatic Life = 100 µg/L. Protection of Drinking Water Supply = 100 µg/L, and Groundwater = 300 µg/L. Receiving stream is unclassified; therefore, mixing considerations are not applicable (criteria = WLA). Sampling of phenol was requested to be removed from Outfall #003.

  By letter dated August 24, 2011, the permittee has supplied revised effluent data down to the method detection limit for samples taken in the last two years. There was only one result which detected phenol, just above the method detection limit, and this result is more than ten times less than the previous permit limitation for phenol. It is this writer's Best Professional Judgment that there is no reasonable potential for phenol to cause water quality standards to be exceeded in the receiving stream, so it was removed from the sampling requirement.

- **Minimum Sampling and Reporting Frequency Requirements**. It is staff's best professional judgment that an once per quarter minimum sampling schedule be required in order to have a significant data set for future renewal RPAs. The flow will be modified from once/week to daily.

OUTFALL #004 –DISCUSSION:

Discharges from this previously permitted outfall are no longer allowed. Flows from this previously permitted outfall are now diverted to Outfall #003.

Part VI – 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:
As per the Missouri Clean Water Law, the Missouri Clean Water Commission, and the federal Clean Water Act, persons wishing to comment on Missouri State Operating Permits are directed to do so by a Department approved Public Notice coversheet. This Public Notice coversheet is attached to a Missouri State Operating Permit during the Public Notice period.

☒ - The Public Notice period for this operating permit was from April 24, 2009, to May 25, 2009. The Department did not receive any comments for this facility. The permit is to be issued.

DATE OF FACT SHEET: MARCH 9, 2009. **REVISED:** DECEMBER 6, 2011, DECEMBER 13, 2011, JUNE 20, 2012

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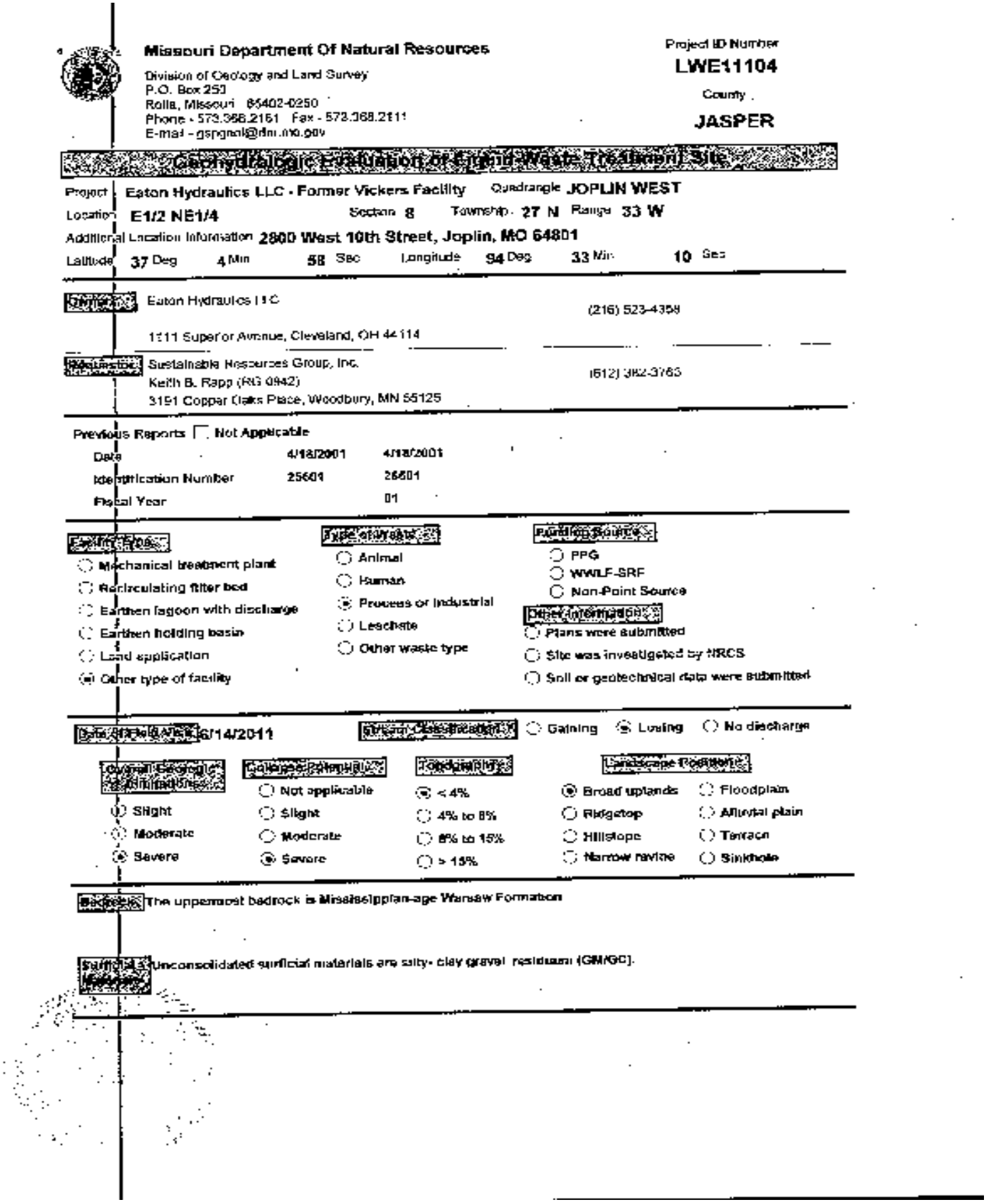
Part VII – Appendices

Appendix A – Outfall Location Map and Schematic

APPENDIX B – GEOHYDROLOGICAL



Missouri Department Of Natural Resources

Division of Geology and Land Survey
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Project ID Number
LWE11104

County
JASPER

Geohydrologic Evaluation of Liquid Waste Treatment Site

Project: Eaton Hydraulics LLC - Former Vickers Facility Quadrangle: JOPLIN WEST

Location: E1/2 NE1/4 Section: 8 Township: 27 N Range: 33 W

Additional Location Information: 2800 West 10th Street, Joplin, MO 64801

Latitude: 37 Deg 4 Min 58 Sec Longitude: 94 Deg 33 Min 10 Sec

Owner: Eaton Hydraulics LLC (216) 523-4359
1111 Superior Avenue, Cleveland, OH 44114

Consultant: Sustainable Resources Group, Inc. (612) 382-3765
Keith B. Rapp (RG 0942)
3191 Copper Oaks Place, Woodbury, MN 55125

Previous Reports ☐ Not Applicable

Date	4/18/2001	4/18/2001
Identification Number	25601	25601
Fiscal Year		01

Facility Type:
- ○ Mechanical treatment plant
- ○ Recirculating filter bed
- ○ Earthen lagoon with discharge
- ○ Earthen holding basin
- ○ Land application
- ◉ Other type of facility

Type of Waste:
- ○ Animal
- ○ Human
- ◉ Process or Industrial
- ○ Leachate
- ○ Other waste type

Funding Source:
- ○ PPG
- ○ WWLF-SRF
- ○ Non-Point Source

Other Information:
- ○ Plans were submitted
- ○ Site was investigated by NRCS
- ○ Soil or geotechnical data were submitted

Date Site Visited: 6/14/2011 Stream Classification: ○ Gaining ◉ Losing ○ No discharge

Overall Geologic Limitations:
- ○ Slight
- ◉ Moderate
- ○ Severe

Collapse Potential:
- ○ Not applicable
- ○ Slight
- ○ Moderate
- ◉ Severe

Topography:
- ◉ < 4%
- ○ 4% to 8%
- ○ 8% to 15%
- ○ > 15%

Landscape Position:
- ◉ Broad uplands
- ○ Ridgetop
- ○ Hillslope
- ○ Narrow ravine
- ○ Floodplain
- ○ Alluvial plain
- ○ Terrace
- ○ Sinkhole

Bedrock: The uppermost bedrock is Mississippian-age Warsaw Formation

Surficial Materials: Unconsolidated surficial materials are silty- clay gravel residuum (GM/GC).

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[illegible]

- ◯ Installation of clay pad
- ◯ Diversion of subsurface flow
- ◯ Rock excavation
- ◯ Compaction
- ◯ Artificial sealing
- ◉ Limit excavation depth

[illegible]

[illegible]

[illegible]

- ◯ Partical size analysis
- ◯ Standard Proctor density
- ◯ Permeability coefficient for undisturbed sample
- ◯ Atterburg limits
- ◯ Overburden thickness
- ◯ Permeability coefficient for remolded sample

[illegible]

- ◉ Groundwater elevation
- ◉ Direction of groundwater flow
- ◯ 25-year flood level
- ◯ 100-year flood level

[illegible]

- ◯ Before exploration
- ◯ During construction
- ◯ After construction
- ◉ Not necessary

Remarks

The Eaton Hydraulics LLC Storage Basin is located in an industrialized area on a ridge above Turkey Creek. The site is 527 feet west of the intersection of Schifferdecker Avenue and Missouri 66, in Joplin, Missouri. The site elevation is at 1,030 feet above mean sea level (msl).

The facility discharges through Leadville Hollow to Turkey Creek. From the northeast corner of the site, treated effluent is discharged into an underground drain for 1,000 feet. When the discharge resurfaces, it flows for 1,200 feet along a channel that has been lined with concrete for storm water drainage. It then flows for another 1.7 miles through an unlined gravel channel before entering Turkey Creek. Leadville Hollow was determined to exhibit losing conditions during the site visit. Other streams adjacent to Leadville Hollow were also observed to exhibit losing conditions. Streams to the south of the site have been previously evaluated as gaining, indicating complex groundwater hydrology in close proximity to the site. No karst features such as sinkholes, springs or caves were observed in the vicinity of the site.

Surficial materials observed at the site are 10 to 20 feet of moderate- to high- permeability silty-clay gravel residuum (GM/GC). These materials are derived from shale, limestone and chert. The uppermost bedrock is the Mississippian-age Warsaw Formation, which exhibits moderate to high permeability in this area. The formation consists of thick beds of limestone and chert. Underlying the Warsaw Formation is the Mississippian-age Burlington- Keokuk Limestone, which exhibits moderate- to high- permeability. This formation typically consists of thick beds of limestone with some chert.

The facility is a hazardous waste site that consists of air stripping units that treat VOC- contaminated groundwater and discharges it into an outfall that flows into Leadville Hollow to the northeast. The evaluation request is for installation of an earthen storage basin with a composite clay and HDPE liner. The site has two mapped underground mine workings located beneath it. Other unknown mines may be located on the site. Multiple mining prospects have also been mapped at the site. While no karst features were observed at the site, the landscape in this area has been altered by industrial development and could potentially obscure karst features such as sinkholes.

This site receives a severe collapse potential and a severe geologic limitations rating based on the proximity to underground mining operations and losing classification of the receiving stream. A severe collapse potential prohibits the construction of an earthen storage facility at this site. Typically, any liquid waste treatment system with a high collapse potential should be structurally reinforced. Considering the potential for encountering mining features in this area, it is recommended that excavation depth be limited.

The site has been shown to be a risk to groundwater sources and due to the complex groundwater hydrology that exists at the site it is recommended that the groundwater be monitored. If the liquid waste treatment system should ever function improperly, regional groundwater supplies could be impacted.

This document is a preliminary report. It is not a permit. Additional data may be required by the Department of Natural Resources prior to the issuance of a permit. This report is valid only at the above location and becomes invalid one year after the report date below.

Report By: Blake Southerman

Report Date:

CC: WPP, SWRO, WPCP-Charles Harwood