

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-0111023

Owner: City of Seligman
Address: PO Box 99, Seligman, MO 65745

Continuing Authority: Same as Above
Address: Same as Above

Facility Name: Seligman WWTF **Class D operator needed**
Facility Address: 0.26 miles South of County Road 2280, Seligman, MO 65745

Legal Description: NW¼, NW¼, Sec. 22, T21N, R28W, Barry County
Lat / Long: +3631269 / -09357229

Receiving Stream: Unnamed Tributary to Seligman Hollow (U)
First Classified Stream and ID: Big Sugar Creek (C) (03251) 303(d)
USGS Basin & Sub-watershed No.: (11070208-050001)

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

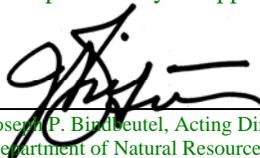
FACILITY DESCRIPTION

Emergency discharge from single cell lagoon / irrigation / sludge is retained in lagoon.

Design organic population equivalent is 1,500.
Design flow is 163,532 gallons per day (1-in-10 year design flow including net rainfall minus evaporation).
Design average daily flow is 150,000 gallons per day(dry weather flows).
Design sludge production is 30 dry tons/year.

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.

April 23, 2008 February 13, 2009
Effective Date (Revised)



Joseph P. Bindebeutel, Acting Director
Department of Natural Resources

April 22, 2013

Expiration Date
MO 780-0041 (10-93)

Cynthia S. Davies, Regional Director, Southwest Regional Office

FACILITY DESCRIPTION (continued)

Outfall #001 – Irrigation System Design

Receiving Stream Watershed: Within in two stream miles of a losing stream.

Facility Type: No-discharge Storage & Irrigation System for year round flows into lagoon.

Design Basis: Average Annual

Design dry weather flows: 150,000 gpd
 Design with 1-in-10 year flows: 163,562 gpd
 Design PE: 1,500

Storm Water Flows: (Barry County)

Average Annual Rainfall: 42.0 inches
 1-in-10 Year Annual Rainfall: 53.0 inches
 25-year-24-hour storm: 6.9 inches

1-in-10 Year Flows: Annual
 Runoff from concrete and roof areas: 0 ft
 Runoff from earth areas: (lagoon berm, lots, etc.) 2.5 ft
 Rainfall minus evaporation (R-E) on lagoon water surface: 1.8 ft

Cell #001

<u>Lagoon Dimensions:</u>	<u>(Length x Width)</u>	<u>Surface Area</u>	<u>Depth from Bottom</u>	<u>Pump down depth (from spillway)</u>
Inside Top Berm:	700' x 500'	350,000 sq.ft.	by <u>12</u> feet depth	
Emergency Spillway:	676' x 476'	321776 sq.ft.	by <u>8</u> feet depth	4.0 feet
Freeboard: (top berm to spillway):			<u>4</u> feet depth	
Maximum operating level:			<u>5</u> feet depth	5.0 feet
Minimum operating level:			<u>2</u> feet depth	10.0feet
Storage volume (minimum to maximum water levels) <u>6,539,460</u> gallons				
Berm top width: <u>4</u> feet Berm runoff area (Centerline to emergency spillway): <u>33,040</u> sq.ft.				

Storage Capacity: Average Annual

Design for dry weather flows: 90 days

Land Application:

Irrigation volume per year: 54,750,000 gallons (including 1-in-10 year flows)
 Irrigation areas: 120 acres at design loading
 Application rates per acre: 0.2 inch / hour; 1.0 inch / day; 3.0 inches / week; 24 inches / year
 Field slopes: less than 5 percent
 Equipment type: center pivot / traveling gun
 Vegetation: grass land / row crops / pasture
 Application rate is based on: plant available nitrogen loading rate

Groundwater Monitoring Well

Legal Description: NW¼, NW¼, Sec. 22, T21N, R28W, Barry County
 Lat / Long: +3631266/ -09357230
 Receiving Stream: Unnamed Tributary to Seligman Hollow (U)
 First Classified Stream and ID: Big Sugar Creek (C) (03251)
 USGS Basin & Sub-watershed No.: (11070208-050001)

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
<u>Outfall #001</u> – Emergency discharge from lagoon or irrigation sites (Note 1)						
Flow	MGD	*		*	once/day**	24 hr. estimate
Biochemical Oxygen Demand ₅	mg/L		15	10	once/week**	grab
Total Suspended Solids	mg/L		20	15	once/week**	grab
pH – Units	SU	***		***	once/week**	grab
Fecal Coliform	#/100m L	****		****	once/week**	grab
Ammonia Nitrogen as N	mg/L	****		****	once/week**	grab
Temperature (degrees)	C°	****		****	once/week**	grab
Total Phosphorus	mg/L	*		*	once/week**	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY THE FIRST REPORT IS DUE **APRIL 28, 2009**.

Outfall #001 – Land Application Operational Monitoring (Notes 2 & 3)

Lagoon Freeboard	feet	*			once/month	measured
Irrigation Period	hours	*			daily	total
Volume Irrigated	gallons	*			daily	total
Application Area	acres	*			daily	total
Application Rate	inches / acre	*			daily	total
Rainfall	inches	*			daily	total

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY THE FIRST REPORT IS DUE **APRIL 28, 2009**.

Outfall #001 – Irrigated Wastewater (Notes 4)

Total Kjeldahl Nitrogen as N	mg/L	*			once/quarter*****	grab
Nitrate / Nitrite as N	mg/L	*			once/quarter*****	grab
Ammonia as N	mg/L	*			once/quarter*****	grab
Total Phosphorus as P	mg/L	*			once/quarter*****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE **APRIL 28, 2009**. THERE SHALL BE NO DISCHARGE OF FLOATING OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 4 of 7	
					PERMIT NUMBER MO-0111023	
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 #001</u> – Ground Water Monitoring Wells						
Groundwater Depth	feet	*		*	once/quarter*****	Note 5
Nitrate / Nitrite as N	mg/L			10	once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE APRIL 28, 2009 . THERE SHALL BE NO DISCHARGE OF FLOATING 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 <u>Parts I & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * Monitoring requirement only.
- ** Monitor only when discharge occurs. Report as no-discharge when a discharge does not occur during the report period.
- *** pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.0 pH units.
- **** Comply with water quality standards per Special Conditions #5.
- ***** **Sampling shall occur once per quarter in the periods of January through March, April through June, July through September, and October through December, please note that monitoring reports shall be submitted no later than the 28th day of the month following the monitoring period (April 28th, July 28th, October 28th, and January 28th, respectively).** For tracking purposes samples taken anytime in the first quarter (January through March) will be recorded by the department as though they were taken in March, samples taken anytime in the second quarter (April through June) will be recorded by the department as though they were taken in June, samples taken anytime in the third quarter (July through September) will be recorded by the department as though they were taken in September, and samples taken in the fourth quarter (October through December) will be recorded by the department as though they were taken in December.

Note 1 - No-discharge Facility requirements: Wastewater shall be stored and land applied during suitable conditions so that there is no-discharge from the lagoon or irrigation site. An emergency discharge may occur when excess wastewater has accumulated above feasible irrigation rates due to precipitation exceeding the 1-in-10 year 365 day rainfall or the 25-year-24-hour storm event.

Note 2 Records shall be maintained and summarized into an annual operating report, which shall be submitted by **January 28th** of each year for the previous calendar year. The report shall include the following:

- a. Record of maintenance and repairs during the year, average number of times per month the facility is checked to see if it is operating properly, and description of any unusual operating conditions encountered during the year;
- b. The number of days the lagoon has discharged during the year, the discharge flow, the reasons discharged occurred and effluent analysis performed; and
- c. A summary of the irrigation operations including freeboard at the start and end of the irrigation season, the number of days of irrigation for each month, the total gallons irrigated, the total acres used, crops grown, crop yields per acre, the application rate in inches per acre per day and for the year, the monthly and annual precipitation received at the facility and summary of testing results.

Note 3 – Lagoon freeboard shall be reported as lagoon water level in feet below the overflow level. See Special Conditions for Wastewater Irrigation System requirements.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 4 – Wastewater that is irrigated shall be sampled at the irrigation pump or wet well.

Note 5 - Measure depth of groundwater as feet below the ground surface.

C. SPECIAL CONDITIONS

1. Report as no-discharge when a discharge does not occur during the reporting period.
2. Outfalls must be marked in the field and on the topographic site map submitted with the permit application.
3. Permittee will cease discharge by connection to area wide wastewater treatment system within 180 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. Water Quality Standards

- (a) Discharges to waters of the state shall not cause a violation of water quality standards rule 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;

C. SPECIAL CONDITIONS (continued)

- (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.

6. 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.

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities

- (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
- (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids that are removed from the domestic wastewater treatment lagoon during lagoon clean out and maintenance activities. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids from the lagoon. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

8. Lagoons and earthen basins shall have a liner that is designed, constructed and maintained in accordance with 10 CSR 20-8.020(13)(A)4. If operating records indicate, excessive percolation, the department may require a water balance test in accordance with 10 CSR 20-8.020(16) or other investigations to evaluate adequacy of the lagoon seal. The department may require corrective action as necessary to eliminate excess leakage.

9. The permittee shall develop and implement a program for maintenance and repair of the collection system. The recommended guidance is the US EPA's Guide For Evaluating Capacity, Management, Operation, And Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document number EPA 305-B-05-002). The permittee shall submit a report semi-annually in **April and October** with the Discharge and Monitoring reports which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility.

10. The permittee shall comply with any applicable requirements listed in 10 CSR 20-8 and 10 CSR 20-9. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the department for review and, if deemed necessary, approval.

9. Wastewater Irrigation System

- (a) Discharge Reporting. Any unauthorized discharge from the lagoon or irrigation system shall be reported to the department as soon as possible but always within 24 hours. Discharge is allowed only as described in the Facility Description and Effluent Limitations sections of this permit.

C. SPECIAL CONDITIONS (continued)

- (b) Irrigation Design. Permittee shall operate the land application system in accordance with 10 CSR 20-8.020(15). Permittee shall operate the land application system in accordance with the design parameters listed in the Facility Description section of this permit:
- (1) No-discharge System. When the Facility Description is “No-discharge”, wastewater must be stored and irrigated at appropriate times. There shall be no-discharge from the irrigation site or storage lagoon except due to precipitation exceeding either the 1-in-10 year rainfall event for the design storage period or the 25-year-24-hour rainfall event.
- (c) Lagoon Operating Levels – No-discharge Systems. The minimum and maximum operating water levels for the storage lagoon shall be clearly marked. Each lagoon shall be operated so that the maximum water elevation does not exceed one foot (1’) below the overflow point except due to any exceedance of the 1-in-10 year or 25-year-24-hour rainfall events. Wastewater shall be land applied whenever feasible based on soil and weather conditions and permit requirements. Storage lagoon(s) shall be lowered to the minimum operating level prior to each winter by November 30th.
- (d) Emergency Spillway. Lagoons and earthen storage basins should have an emergency spillway to protect the structural integrity of earthen structures during operation at near full water levels and in the event of overflow conditions. The spillway shall be at least one foot (1’) below the top of berm. The department may waive the requirement for overflow structures on small existing basins.
- (e) General Irrigation Requirements. The wastewater irrigation system shall be operated so as to provide uniform distribution of irrigated wastewater over the entire irrigation site. A complete ground cover of vegetation shall be maintained on the irrigation site unless the system is approved for row crop irrigation. Wastewater shall be land applied only during daylight hours. The wastewater irrigation system shall be capable of irrigating the annual design flow during an application period of less than 100 days or 800 hours per year.
- (f) Saturated / Frozen Conditions. There shall be no irrigation during frozen, snow covered, or saturated soil conditions. There shall be no irrigation on days when more than 0.2 inches of precipitation is received or when there is observation by operator of an imminent or impending rainfall event.
- (g) Buffer Zones. There shall be no irrigation within 300 feet of any down gradient pond, lake, sinkhole, losing stream or water supply withdrawal; 100 feet of gaining streams or tributaries; 150 feet of dwellings; or 50 feet of the property line.
- (h) Public Access Restrictions. Public access shall not be allowed to the irrigation site(s). Fencing and public access restrictions to land application sites shall be in accordance with requirements in 10 CSR 20-8.020(15)(B)(5).
- (i) Equipment Checks During Irrigation. The irrigation system and application site shall be visually inspected at least once per day during wastewater irrigation to check for equipment malfunctions and runoff from the irrigation site.
- (j) Operation and Maintenance Manual. The permittee shall develop, maintain and implement an Operation and Maintenance (O&M) Manual that includes all necessary items to ensure the operation and integrity of the waste handling and land application systems. Copies of the O&M Manual and subsequent revisions shall be submitted to the departments’ Water Pollution Control Program and the appropriate Regional Office for review and approval. The O&M Manual shall be reviewed and updated at least every five years.
- (k) Nitrogen Loading Rates. Wastewater irrigation rates shall not exceed a nitrogen application rate of 150 pounds total nitrogen per acre per year. The calculation procedures are as follows: $(\text{Total N}) \times (0.226) \times (\text{inches per acre irrigated}) = \text{pounds total N per acre}$. Where $\text{Total N} = [\text{Total Kjeldahl Nitrogen (TKN) as N}] + [\text{Nitrate Nitrogen as N}]$. If the applied wastewater exceeds 150 pounds total nitrogen per acre/year or if the applied wastewater exceeds ten (10) mg/L of nitrate nitrogen as N, the permittee must reduce the application rates or submit a revised permit application to request use of the Plant Available Nitrogen (PAN) method based on crop nitrogen requirements for harvested crops. PAN availability factors for surface application are: $[\text{Ammonia N} \times 0.6] + [\text{Nitrate N} \times 0.9] + [\text{Organic N} \times 0.6] = \text{PAN}$.

**Missouri Department of Natural Resources
Statement of Basis
Seligman WWTF
NPDES #: MO-0111023
Barry County**

A Statement of Basis (Statement) gives pertinent information regarding the applicable regulations and rational for the development of the NPDES Missouri State Operating Permit (operating permit). This Statement includes Wasteload Allocations, Water Quality Based Effluent Limitations, and Reasonable Potential Analysis calculations as well as any other calculations that effect the effluent limitations of this operating permit. This Statement does not pertain to operating permits that include sewage sludge land application plans and variance procedures, and does not include the public comment process for this operating permit.

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

Part I – Facility Information

Facility Type: POTW
Facility SIC Code(s): 4952

Facility Description: Emergency discharge from single cell lagoon / irrigation / sludge is retained in lagoon.

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.232	Secondary	domestic – municipal	1.7

Water Quality History: None.

Comments: The permit is being modified to change the Special Conditions. On page four (4) Ground Water Monitoring Wells: Removed pH, Ammonia Nitrogen as N and Temperature. Reporting frequency was changed to Quarterly. Total Phosphorus was added to the emergency discharge sampling.

Part II – Operator Certification Requirements

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:

Applicable :

- Population Equivalent greater than two hundred (200):
- Fifty (50) or more service connections:
- Private sewer company regulated by the Public Service Commission:
- Department required:
- Owned and/or operated by:
 - Municipality:
 - Public Sewer District:
 - County:
 - Public Water Supply:

This facility is required to have a Certified Level Operator, please see **Appendix A**

Operator's Name: Duane Corn
 Certification Number: 8983
 Certification Level: D

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 list 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.

Please mark the correct designated waters of the state categories of the receiving stream.

Missouri or Mississippi River [10 CSR 20-7.015(2)]: Yes ; No
 Lake or Reservoir [10 CSR 20-7.015(3)]: Yes ; No
 Losing [10 CSR 20-7.015(4)]: Yes ; No
 Metropolitan No-Discharge [10 CSR 20-7.015(5)]: Yes ; No
 Special Stream [10 CSR 20-7.015(6)]: Yes ; No
 Subsurface Water [10 CSR 20-7.015(7)]: Yes ; No
 All Other Waters [10 CSR 20-7.015(8)]: Yes ; No

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**
Unnamed Tributary to Seligman Hollow	U	N/A	General Criteria and Losing	11070208	Ozarks / Neosho

* - 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).

** - Ecological Drainage Unit

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Unnamed Tributary to Seligman Hollow (U)	0	0	0

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)].

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); CFR §122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

- All limits in this statement are at least as protective as those previously established; therefore, backsliding does not apply.

ANTIDEGRADATION:

Policies which ensure protection of water quality for a particular water body where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as outstanding natural resource waters. Antidegradation requirements are consistent with 40 CFR 131.12 that outlines methods used to assess activities that may impact the integrity of a water and protect existing uses. This policy may compel the state to maintain a level of water quality above those mandated by criteria.

Not Applicable ;
Renewal of permit for existing facility.

APPLICABLE PERMIT PARAMETERS:

Effluent parameters for conventional, non-conventional, and toxic pollutants have been obtained from the previous NPDES operating permit for this facility, technology based effluent limits, and from appropriate sections of the renewal application.

COMPLIANCE AND ENFORCEMENT:

Action taken by the department to resolve violations of the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of an operating permit.

Not Applicable ;
The permittee/facility is not under enforcement action and is considered to be in compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of an operating permit.

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 ;
At this time, the permittee is not required to implement and enforce a Pretreatment Program.

REASONABLE POTENTIAL ANALYSIS (RPA):

Limitations must control all pollutants or pollutant parameters that are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above the Missouri Water Quality Standards.

Not Applicable ;
A RPA was not conducted for 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 (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs). 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

Applicable ;

Equivalent to Secondary Treatment is 65% removal [40 CFR Part 105(a)(3) & (b)(3)].

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.

Applicable ;

The permittee is required to develop or implement a program for maintenance and repair of the collection system and shall be required in this operating permit by either means of a Special Condition or Schedule of Compliance.

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):

A plan to schedule activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. The plan may include, but is not limited to, treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Not Applicable ;

At this time, the permittee is not required to develop and implement a SWPPP.

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 to 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:

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

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:

Not Applicable ;

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

WHOLE EFFLUENT TOXICITY (WET) TEST:

As per [10 CSR 20-7.031(1)(CC)], a toxicity test conducted under specified laboratory conditions on specific indicator organism; and as per [40 CFR Part 122.2], the aggregate toxic effect of an effluent measured directly by a toxicity test.

Not Applicable ;

At this time, the permittee is not required to conduct WET test for this facility. This is a no discharge facility.

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 ;

Big Sargar Creek is listed on the 2002 Missouri 303(d) List for Nutrients.

– This facility is considered to be a source of or has the potential to contribute to the above listed pollutant(s). A TMDL has been written for the site. The facility is considered to be a no discharge facility. Therefore there should be no impacts to the stream. Phosphorus Monitoring will be added to the emergency discharge.

Outfall #001 – Main Facility Outfall

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	S
BOD ₅ **	MG/L	1		15	10	NO	S
TSS **	MG/L	1		20	15	NO	S
PH (S.U.)	SU	1	ABOVE 6		ABOVE 6	NO	S

AMMONIA AS N	MG/L	5, 2	****		****	NO	S
FECAL COLIFORM	***	2	****		****	NO	S
TEMPERATURE	°C	5, 2	****		****	NO	S
TOTAL PHOSPHORUS	MG/L	9	*		*	YES	NONE.
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

*** - Monitoring requirement only**

*** - # of colonies/100mL; the Monthly Average for Fecal Coliform is a geometric mean.

**** - Comply with water quality standards per Special Conditions #5.

N/A – Not applicable

S – Same as previous operating permit

Basis for Limitations Codes:

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

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

Biochemical Oxygen Demand (BOD₅).

- 15 mg/L as a Weekly Average and 10 mg/L as a Monthly Average. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

Total Suspended Solids (TSS).

- 20 mg/L as a Weekly Average and 15 mg/L as a Monthly Average. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

pH.

- pH is to be maintained at or above 6.0 pH units. for Daily Maximum and Monthly Average, as per [10 CSR 20-7.015]. pH is measured in pH units and is not to be averaged.

Temperature. Comply with water quality standards per Special Conditions #5.

Total Ammonia Nitrogen. Comply with water quality standards per Special Conditions #5. Shall not cause a violation of water quality standards rule 10 CSR 20-7.031, including both specific and general criteria.

Fecal Coliform. Shall not cause a violation of water quality standards rule 10 CSR 20-7.031, including both specific and general criteria.

Total Phosphorus. Monitoring only as per the TMDL.

Minimum Sampling and Reporting Frequency Requirements.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	ONCE/DAY	MONTHLY
BOD ₅	ONCE/WEEK	MONTHLY
TSS	ONCE/WEEK	MONTHLY
PH	ONCE/WEEK	MONTHLY
TEMPERATURE	ONCE/WEEK	MONTHLY

AMMONIA AS N	ONCE/WEEK	MONTHLY
FECAL COLIFORM	ONCE/WEEK	MONTHLY

Outfall #001 – Monitoring well
 EFFLUENT LIMITATIONS TABLE

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
NITRATE AS N	MG/L	2			10	YES	MONITORING

Nitrates / Nitrites Per 10 CSR 20-7 Table A, Nitrate / Nitrite shall not exceed 10 mg/L for groundwater standards

Land application and Irrigation

The land application Operational Monitoring and the Monitoring Tests for the Irrigated Wastewater are standard for all land application permits. The Irrigated Wastewater monitoring is necessary to determine Phosphorus and Nitrogen loading for the plants.

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.

Date of Factsheet: January 29, 2008

Kristen Pattinson
 WP Permitting and Assistance Unit
 (417) 891-4300
 kristen.pattinson@dnr.mo.gov

Appendix A

10 CSR 20-9.020

All wastewater treatment systems serving a population equivalent greater than two hundred (200) or with fifty (50) or more service connections, owned or operated by or for municipalities, public sewer districts, counties, public water supply districts, private sewer companies regulated by the Public Service Commission and the state or federal agencies.

Column A			Column B		
Item	Points Possible	Points Assigned	Item	Points Possible	Points Assigned
Maximum population equivalent (P.E.) served, peak day	1 pt. Per 10,000 PE or major fraction thereof	0	EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY		
Design flow (avg. day) or peak month's flow, (avg. day) whichever is larger	Maximum: 10 Points 1 pt. Per MGD or major fraction thereof	0	Maximum: 10 points		
REQUIRED LABORATORY CONTROL Performed by plant personnel (highest level only)			Missouri or Mississippi River	0	
Lab work done outside the plant	0		All other stream discharges except to losing streams and stream reaches supporting whole body contact reaction	1	
Push – button or visual methods for simple tests such as pH, settleable solids	3	3	Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5		Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
More advanced determinations such as BOD seeding procedure, fecal coliform, nutrients, total oils, phenols, etc.	7		HEADWORKS - PRELIMINARY TREATMENT		
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10		Raw wastes subject to toxic waste discharges	6	
TOTAL Page 1 Column A		3	Screening and/or comminution	3	3
			Grit removal	3	
			Plant pumping of main flow (lift station at the headworks)	3	
			PRIMARY TREATMENT		
			Primary clarifiers	5	
			Combined sedimentation/digestion	5	
			Chemical addition (except chlorine, enzymes)	4	
			TOTAL Page 1 Column B		6

Column A				Column B			
Item		Points Possible	Points Assigned	Item		Points Possible	Points Assigned
Direct reuse or recycle of effluent		6		SECONDARY TREATMENT			
Land Disposal – Low rate (Irrigation) < 24” year		3	3	Trickling filter and other fixed film media with secondary clarifiers		10	
Land Disposal – High rate (Irrigation) > 24” year		5		Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)		15	
Overland flow		4		Stabilization ponds without aeration		5	5
Variation in Raw Wastes (highest level only) (DMR exceedances & Design Flow exceedances)				Aerated lagoon		8	
Variations do not exceed those normally or typically expected		0		Advanced Waste Treatment Polishing pond		2	
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow		2		Chemical/physical – without secondary (carbon filters such as at Wilson’s Creek WWTF)		15	
Recurring deviations or excessive variations of more than 200 percent in strength and/or flow		4	4	Chemical/physical – following secondary (adding alum etc. for phosphorous removal)		10	
SOLIDS HANDLING - SLUDGE				Biological or chemical biological (multi stage such as Seymour’s phosphorous removal)		12	
Thickening (belt thickeners such as Hollister)		5		Carbon Regeneration		4	
Anaerobic digestion		10		DISINFECTION			
Aerobic digestion		6		Chlorination or comparable		5	
Evaporative sludge drying		2		Dechlorination		2	
Mechanical dewatering		8		On-site generation of disinfectant (except ultraviolet light)		5	
Solids reduction (incineration, wet oxidation)		12		Ultraviolet light		4	
Land application		6		TOTAL Page 2 Column B			5
TOTAL Page 2 Column A			7	TOTAL Page 2 Column B			
Grand Total			21	PREPARED BY:			
Level of Certification Required				<u>Kristen Pattinson</u> <u>October 31, 2008</u> (Name) (Date)			
D	C	B	A				
≤ 25	26 – 50	51 – 70	≥71				