

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-0039926

Owner: City of Neosho
Address: 203 East Main Street, Neosho, MO 64850

Continuing Authority: Same as above
Address: Same as above

Facility Name: Neosho – Crowder WWTF
Facility Address: 675 Radio Road, Neosho, MO 64850

Legal Description: NE¹/₄, NE¹/₄, Sec. 16, T42N, R32W, Newton County
UTM Coordinates: X = 376824, Y = 4075233

Receiving Stream: Unnamed Tributary to Buffalo Creek (U)
First Classified Stream and ID: Buffalo Creek (C) (3276)
USGS Basin & Sub-watershed No.: (11070208-080001)

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 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.

April 22, 2011 June 5, 2013
Effective Date Modification Date

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

April 21, 2016
Expiration Date

John Madras
John Madras, Director, Water Protection Program

FACILITY DESCRIPTION (continued)

Outfall 001 – POTW – SIC Code 4952 – **Class “B” Operator Required**

Primary Clarifier / Trickling Filter / Secondary Clarifier / Chlorine Disinfection / Sludge is land applied
Effluent is pumped from the old contact basin to the Shoal Creek WWTF (MO-0104906) and monitored for compliance under that permit. This outfall is for overflows from the old contact basin.

Design Population Equivalent is 29,000.

Design Flow is 3.0 MGD, Actual Flow is 0.4 MGD

Legal Description: NE¼, NE¼, Sec. 16, T24N, R32W, Newton County

UTM Coordinates: X = 376824, Y = 4075233

Receiving Stream: Unnamed Tributary to Buffalo Creek (U)

First Classified Stream and ID: Buffalo Creek (C) (3276) Losing Stream

USGS Basin & Sub-watershed No.: (11070208-080001)

Outfall 002 – POTW – SIC Code 4952

Partial Irrigation at golf course

Fully treated wastewater may be pumped to the golf course storage basin for irrigation

Legal Description: NE¼, NE¼, Sec. 16, T24N, R32W, Newton County

UTM Coordinates: X = 376880, Y = 4075362

Receiving Stream: Unnamed Tributary to Buffalo Creek (U) Losing stream

First Classified Stream and ID: Buffalo Creek (C) (3276)

USGS Basin & Sub-watershed No.: (11070208-080001)

Receiving Stream Watershed: within 2 miles of a losing stream.

Facility Type:

No-discharge Storage and Irrigation System.

Design Basis:

Avg Annual

Design dry weather flows 400,000 gpd

Design with 1-in-10 year flows 500,000 gpd

Design PE 29,000

Storage Basin/Tank:

Freeboard for basin: 1 foot

Storage volume (minimum to maximum water levels): 2,800,000 gallons

Days of Storage

Design for Dry weather flows: 7 days*

* Flow is only diverted to storage basin as needed for consumptive irrigation. Flow is pumped to the Shoal Creek WWTF during normal operation.

Land Application:

Irrigation Volume/year: flow is dependent upon irrigation needs.

Irrigation areas: 216 acres at design loading

Application rates/acre: .5 inch/hour; 1 inch/day; 3 inches/week; 24 inches/year

Field slopes: less than 8 percent

Equipment type: sprinklers

Vegetation: grassland

Application rate is based on hydraulic loading rate

Outfall 003 – POTW – SIC Code 4952

Overflow from golf course irrigation basin

Legal Description: NE¼, NE¼, Sec. 16, T24N, R32W, Newton County

UTM Coordinates: X = 376880, Y = 4075362

Receiving Stream: Unnamed Tributary to Hickory Creek (U)

First Classified Stream and ID: Hickory Creek (C) (3226)

USGS Basin & Sub-watershed No.: (11070208-080001)

FACILITY DESCRIPTION (continued)

Outfall 004 – POTW SIC Code 4952

Sampling at contact basin to verify removal efficiency

Legal Description: NE¼, NE¼, Sec. 16, T24N, R32W, Newton County

UTM Coordinates: X = 376824, Y = 4075233

Receiving Stream: Unnamed Tributary to Buffalo Creek (U)

First Classified Stream and ID: Buffalo Creek (C) (3276)

USGS Basin & Sub-watershed No.: (11070208-080001)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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PERMIT NUMBER MO-0039926

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 one (1) year & 364 days after the effective date of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETERS	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		15	10	once/week***	24 hr comp*****
Total Suspended Solids	mg/L		20	15	once/week***	24 hr comp*****
pH – Units	SU	**		**	once/week***	grab
Ammonia as N	mg/L	*		*	once/week***	grab
Oil & Grease	mg/L	15		10	once/week***	grab
E. Coli.*****	#/100 ml	126		126	once/week***	grab
Total Residual Chlorine (Note 1)	mg/L	0.01		0.01	once/week***	grab
Total Hardness as CaCO ₃	mg/L	*		*	once/week***	grab
Nitrate + Nitrite	mg/L	20		10	once/week***	grab
Boron, Total Dissolved	mg/L	4		2	once/week***	24 hr comp*****
Cadmium, Total Recoverable	µg/L	17		13	once/week***	24 hr comp*****
Chromium III, Total Recoverable	µg/L	*		*	once/week***	24 hr comp*****
Chromium VI, Total Dissolved	µg/L	*		*	once/week***	grab
Copper, Total Recoverable	µg/L	39		29	once/week***	24 hr comp*****
Lead, Total Recoverable	µg/L	21		21	once/week***	24 hr comp*****
Mercury, Total Recoverable (Note 3)	µg/L	0.9		0.5	once/week***	24 hr comp*****
Nickel, Total Recoverable	µg/L	131		65	once/week***	24 hr comp*****
Zinc, Total Recoverable	µg/L	455		345	once/week***	24 hr. comp.

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2011. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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PERMIT NUMBER MO-0039926

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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001 (Continued)</u>						
Cyanide, Amenable to Chlorination (Note 2)	µg/L	5			once/week***	grab
Phenol	µg/L	164		82	once/week***	grab
1,2-dichloroethane	µg/L	*		*	once/week***	grab
1,1,1-trichloroethane	µg/L	*		*	once/week***	grab
1,1,2-trichloroethane	µg/L	*		*	once/week***	grab
Sulfates	mg/L	503		250	once/week***	24 hr comp*****

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2011. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Outfall 001 only

Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions	once/year	24 hr. composite*****
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MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE May 28, 2012.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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PERMIT NUMBER MO-0039926

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 two (2) years after the date of 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 PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u> Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		15	10	once/week***	24 hr comp*****
Total Suspended Solids	mg/L		20	15	once/week***	24 hr comp*****
pH – Units	SU	**		**	once/week***	grab
Ammonia as N (Apr 1 – Sept 30) (Oct 1 – Mar 31)	mg/L	3.7 7.5		1.4 2.9	once/week***	grab
Oil & Grease	mg/L	15		10	once/week***	grab
E. Coli*****	#/100 ml	126		126	once/week***	grab
Total Residual Chlorine (Note 1)	mg/L	0.017		0.008	once/week***	grab
Total Hardness as CaCO ₃	mg/L	*		*	once/week***	grab
Nitrate + Nitrite	mg/L	20		10	once/week***	grab
Boron, Total Dissolved	mg/L	4		2	once/week***	24 hr comp*****
Cadmium, Total Recoverable	µg/L	0.6		0.3	once/week***	24 hr comp*****
Chromium III, Total Recoverable	µg/L	348		174	once/week***	24 hr comp*****
Chromium VI, Total Dissolved	µg/L	16		8	once/week***	grab
Copper, Total Recoverable	µg/L	24		12	once/week***	24 hr comp*****
Lead, Total Recoverable	µg/L	9		5	once/week***	24 hr comp*****
Mercury, Total Recoverable (Note 3)	µg/L	0.9		0.5	once/week***	24 hr comp*****
Nickel, Total Recoverable	µg/L	131		65	once/week***	24 hr comp*****
Zinc, Total Recoverable	µg/L	295		147	once/week***	24 hr comp*****

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE June 28, 2013. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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PERMIT NUMBER MO-0039926

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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001 (Continued)</u>						
Cyanide, Amenable to Chlorination (Note 2)	µg/L	8		4	once/week***	grab
Phenol	µg/L	164		82	once/week***	grab
1,2-dichloroethane	µg/L	10		5	once/week***	grab
1,1,1-trichloroethane	µg/L	402		200	once/week***	grab
1,1,2-trichlorethane	µg/L	10		5	once/week***	grab
Sulfates	mg/L	503		250	once/week***	24 hr comp*****

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE June 28, 2013. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Outfall 001

Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions	once/year	24 hr. composite*****
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MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE May 28, 2014.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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PERMIT NUMBER MO-0039926

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OUTFALL NUMBER AND EFFLUENT PARAMETERS	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002</u> – Land Application Operational Monitoring (Note 4)						
Irrigation Period	hours	*		*	once/day	total
Volume Irrigated	gallons	*		*	once/day	total
Application Area	acres	*		*	once/day	total
Application Rate	inches	*		*	once/day	total
Rainfall	inches	*		*	once/day	total
E. Coli*****	#/100mL	126		126	once/week	grab
Nitrate + Nitrite	mg/L	*		*	once/month*****	grab
Sulfates	mg/L	*		*	once/month*****	grab
pH	mg/L	**		**	once/month*****	grab
1,2-dichloroethane	SU	*		*	once/month*****	grab
1,1,1-trichloroethane	µg/L	*		*	once/month*****	grab
1,1,2-trichlorethane	µg/L	*		*	once/month*****	grab
Boron, Total Dissolved	µg/L	4		2	once/month*****	grab
Cadmium, Total Recoverable	µg/L	20			once/month*****	grab
Chromium III, Total Recoverable	µg/L	*		*	once/month*****	grab
Chromium VI, Total Dissolved	µg/L	*		*	once/month*****	grab
Copper, Total Recoverable	µg/L	39		29	once/month*****	grab
Lead, Total Recoverable	µg/L	50			once/month*****	grab
Mercury, Total Recoverable (Note 3)	µg/L	0.9		0.5	once/month*****	grab
Nickel, Total Recoverable	µg/L	131		65	once/month*****	grab
Zinc, Total Recoverable	µg/L	455		345	once/month*****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2011 . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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PERMIT NUMBER MO-0039926

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 one (1) year & 364 days after the effective date of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002 (Continued)</u>						
Cyanide, Amenable to Chlorination (Note 2)	µg/L	5			once/month****	grab
Phenol	µg/L	164		82	once/month****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2011. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Total Kjeldahl Nitrogen	mg/L	*		*	once/year	grab
Ammonia as N	mg/L	*		*	once/year	grab

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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 10 of 21	
PERMIT NUMBER MO-0039926						
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 two (2) years after the date of 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 PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002</u> – Land Application Operational Monitoring (Note 4)						
Irrigation Period	hours	*		*	once/day	total
Volume Irrigated	gallons	*		*	once/day	total
Application Area	acres	*		*	once/day	total
Application Rate	inches	*		*	once/day	total
Rainfall	inches	*		*	once/day	total
E. Coli*****	#/100 mL	126		126	once/week	grab
Sulfates	mg/L	503		250	once/month****	grab
Nitrate + Nitrite	mg/L	*		*	once/month****	grab
pH	SU	**		**	once/month****	grab
1,2-dichloroethane	µg/L	10		5	once/month****	grab
1,1,1-trichloroethane	µg/L	402		200	once/month****	grab
1,1,2-trichlorethane	µg/L	10		5	once/month****	grab
Boron, Total Dissolved	mg/L	4		2	once/month****	grab
Cadmium, Total Recoverable	µg/L	0.6		0.3	once/month****	grab
Chromium III, Total Recoverable	µg/L	348		174	once/month****	grab
Chromium VI, Total Dissolved	µg/L	16		8	once/month****	grab
Copper, Total Recoverable	µg/L	24		12	once/month****	grab
Lead, Total Recoverable	µg/L	9		5	once/month****	grab
Mercury, Total Recoverable (Note 3)	µg/L	0.9		0.5	once/month****	grab
Nickel, Total Recoverable	µg/L	131		65	once/month****	grab
Zinc, Total Recoverable	µg/L	295		147	once/month****	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>July 28, 2013</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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 PERMIT NUMBER MO-0039926

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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002 (Continued)</u>						
Cyanide, Amenable to Chlorination (Note 2)	µg/L	8		4	once/month****	grab
Phenol	µg/L	164		82	once/month****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2013. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

<u>Outfall #002 (Continued)</u>						
Total Kjeldahl Nitrogen	mg/L	*		*	once/year	grab
Ammonia as N	mg/L	*		*	once/year	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE May 28, 2014. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 12 of 21	
					PERMIT NUMBER MO-0039926	
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 one (1) year & 364 days after the effective date of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETERS	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #003</u>						
Flow	GPD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		45	30	once/week***	grab
Total Suspended Solids	mg/L		45	30	once/week***	grab
pH – Units	SU	**		**	once/week***	grab
Ammonia as N	mg/L	*		*	once/week***	grab
Oil & Grease	mg/L	15		10	once/week***	grab
Total Residual Chlorine (Note 1)	mg/L	0.01		0.01	once/week***	grab
Total Hardness as CaCO ₃	mg/L	*		*	once/week***	grab
Cadmium, Total Recoverable	µg/L	17		13	once/week***	grab
Chromium III, Total Recoverable	µg/L	*		*	once/week***	grab
Chromium VI, Total Dissolved	µg/L	*		*	once/week***	grab
Copper, Total Recoverable	µg/L	39		29	once/week***	grab
Lead, Total Recoverable	µg/L	150.8		75.2	once/week***	grab
Mercury, Total Recoverable (Note 3)	µg/L	2.8		1.4	once/week***	grab
Nickel, Total Recoverable	µg/L	131		65	once/week***	grab
Zinc, Total Recoverable	µg/L	1157		577	once/week***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>July 28, 2011</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 13 of 21	
					PERMIT NUMBER MO-0039926	

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OUTFALL NUMBER AND EFFLUENT PARAMETERS	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #003 (Continued)</u>						
Cyanide, Amenable to Chlorination (Note 2)	µg/L	5			once/week***	grab
Phenol	µg/L	164		82	once/week***	grab
1,2-dichloroethane	µg/L	*		*	once/week***	grab
1,1,2-trichloroethane	µg/L	*		*	once/week***	grab
<u>Outfall #004 – Removal Efficiency sampling (Note 5).</u>						
<u>Biochemical Oxygen Demand₅</u>	mg/L	*		*	once/week	24 hr comp*****
<u>Total Suspended Solids</u>	mg/L	*		*	once/week	24 hr comp*****

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2011. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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PERMIT NUMBER MO-0039926

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 two (2) years after the date of 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 PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #003</u> Flow	GPD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		45	30	once/week***	grab
Total Suspended Solids	mg/L		45	30	once/week***	grab
pH – Units	SU	**		**	once/week***	grab
Ammonia as N	mg/L	12.1		4.6	once/week***	grab
Oil & Grease	mg/L	15		10	once/week***	grab
Total Residual Chlorine (Note 1)	mg/L	0.017		0.008	once/week***	grab
Total Hardness as CaCO ₃	mg/L	*		*	once/week***	grab
Cadmium, Total Recoverable	µg/L	0.6		0.3	once/week***	grab
Chromium III, Total Recoverable	µg/L	348		174	once/week***	grab
Chromium VI, Total Dissolved	µg/L	14.9		7.4	once/week***	grab
Copper, Total Recoverable	µg/L	21.8		10.9	once/week***	grab
Lead, Total Recoverable	µg/L	150.8		75.2	once/week***	grab
Mercury, Total Recoverable (Note 3)	µg/L	2.8		1.4	once/week***	grab
Nickel, Total Recoverable	µg/L	131		65	once/week***	grab
Zinc, Total Recoverable	µg/L	180.4		90	once/week***	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2013. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 15 of 21	
					PERMIT NUMBER MO-0039926	
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 two (2) years after the date of 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 PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #003 (Continued)</u>						
Cyanide, Amenable to Chlorination (Note 2)	µg/L	8		4	once/week***	grab
Phenol	µg/L	164		82	once/week***	grab
1,2-dichloroethane	µg/L	162.3		80.9	once/week***	grab
1,1,2-trichlorethane	µg/L	10		5	once/week***	grab
<u>Outfall #004 – Removal Efficiency sampling (Note 5).</u>						
Biochemical Oxygen Demand ₅	mg/L	*		*	once/week	24 hr comp*****
Total Suspended Solids	mg/L	*		*	once/week	24 hr comp*****
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>July 28, 2013</u> . 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 <u>Parts I, II, & III</u> STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

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 week while discharging.
- **** Sample once per month during the months of June, July, August, September, October, and November. Samples shall be collected even if irrigation is not occurring.
- ***** Final effluent limits of 126 cfu per 100 ml daily maximum and monthly average applicable year round due to losing stream designation.
- ***** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampler.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 1 - This permit contains a Total Residual Chlorine (TRC) limit.

- (a) This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The department has determined the current acceptable ML for total residual chlorine to be 0.13 mg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. 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 0.13 mg/L will be considered violations of the permit and values less than the minimum quantification level of 0.13 mg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit.
- (b) Disinfection is required year-round unless the permit specifically states that “Final limitations and monitoring requirements for E. Coli. are applicable only during the recreational season from April 1 through October 31.” If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.
- (c) Do not chemically dechlorinate **if it is not needed to meet the limits in your permit.**
- (d) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as “0 mg/L” TRC.

Note 2 - This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved methods for cyanide. 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.

Note 3 – Monitoring for Mercury shall be conducted using EPA Method 1631E, and Method 1669 for sampling, in accordance with the August 23, 2007 memo from the U.S. EPA Office of Wastewater Management.

Note 4 – Wastewater that is irrigated shall be sampled at the irrigation pump or wet well. E. Coli samples may be taken at a point prior to the golf course storage basin.

Note 5 – The sample collection point for outfall 004 shall be taken from the contact basin. Sampling shall take place at the measurement frequency stated for Influent and Outfall 004, whether the facility is discharging or not.

C. INFLUENT MONITORING REQUIREMENTS

The facility is required to meet a removal efficiency of 65% or more. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:

SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Influent</u>			
Biochemical Oxygen Demand ₅	mg/L	once/week	24 hour composite*****
Total Suspended Solids	mg/L	once/week	24 hour composite*****

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2011.

D. 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;
 - (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.

D. SPECIAL CONDITIONS (continued)

7. The permittee shall comply with any applicable requirements listed in 10 CSR 20-8 and 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. 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.
8. Whole Effluent Toxicity (WET) Test shall be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT				
OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	MONTH
001	100%	once / year	24 hr. composite*****	Any

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

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
- (a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.
 - (b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.
 - (c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.
 - (d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.
 - (e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
 - (f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
 - (g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
 - (h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.
 - (i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
 - (j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
 - (k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
 - (l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
 - (m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.
- (2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

D. SPECIAL CONDITIONS (continued)

- (3) If the effluent fails the test, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met:
 - (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
 - (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
 - (4) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
 - (5) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
 - (6) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
 - (7) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
- (b) PASS/FAIL procedure and effluent limitations:
- (1) To pass a multiple-dilution test:
 - (a) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC) OF 30% OR LESS, the AEC must be less than three-tenths (0.3) of the LC₅₀ concentration for the most sensitive of the test organisms; **OR**,
 - (b) For facilities with an AEC greater than 30%, the LC₅₀ concentration must be greater than 100%; **AND**,
 - (c) All effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required.
- (c) Test Conditions
- (1) Test Type: Acute Static non-renewal
 - (2) All tests, including repeat tests for previous failures, shall include both test species listed below.
 - (3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
 - (4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.
 - (5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
 - (6) Unless otherwise specified above, multiple-dilution tests will be run with:
 - (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) Reconstituted water.

D. SPECIAL CONDITIONS (continued)

- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
- (8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

SUMMARY OF TEST METHODOLOGY FOR ACUTE WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for Pimephales promelas:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

D. SPECIAL CONDITIONS (continued)

9. The permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference.

The permittee shall submit to the Department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:

- (a) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
- (b) A summary of the status of Industrial User compliance over the reporting period;
- (c) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
- (d) Any other relevant information requested by the Department.

E. SCHEDULE OF COMPLIANCE

- 1. By six (6) months from issuance of this permit, the City of Neosho (City) shall submit to the Department of Natural Resources' (Department) Southwest Regional Office (SWRO) a written plan to reduce Inflow and Infiltration (I&I) to the sewer collection system. The suggested format for the plan would be to divide the collection system into designated areas that would be prioritized by the City based on currently known problem areas with target dates to TV or smoke test the lines within a given area. Lines that are newer than 15 years old may be excluded from the plan unless the City has reason to believe they are a major source of I&I. Once the plan is approved by the Department, the City shall implement the plan and provide documentation of the I&I sources, and rate its priority for correction. By December 31st of each year, the City shall submit a report to SWRO of the findings of the work accomplished during the year for the targeted area and note which I&I problems were corrected during the year.
- 2. If I&I can not be reduced below the design flow of the treatment plant, then upgrades to the wastewater treatment facility will be necessary to handle the additional flow. An engineering report shall be submitted by four (4) years from the date of issuance to SWRO either documenting that the I&I plan was successful or identify the treatment plant changes needed to treat the additional flow.
- 3. The permittee must attain compliance with the final effluent limits as soon as possible, but no later than two (2) years after issuance of this permit.
- 4. Within one year of issuance of this permit, the permittee shall submit a report detailing progress made in attaining compliance with the final effluent limits.

Missouri Department of Natural Resources
STATEMENT OF BASIS
FOR THE PURPOSE OF MODIFICATION
OF
MO-0039926
NEOSHO – CROWDER WWTF

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Statement of Basis 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 Statement of Basis is not an enforceable part of an operating permit.

Part I – Facility Information

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

Facility Description:

Primary Clarifier / Trickling Filter / Secondary Clarifier / Chlorine Disinfection / Sludge is land applied

Part II – Modification Derivation

The purpose of this modification is to include the Pretreatment Program requirement in the permit. This facility is required to comply with the existing pretreatment program that has been approved by the Missouri Department of Natural Resources. Special Condition #9 has been added to page 21 of the permit above, which specifies the Pretreatment Program requirements.

No other changes have been made at this time. The full Factsheet has been attached.

Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0039926
NEOSHO – CROWDER WWTF

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:

- Major
- Minor
- Industrial Facility
- Variance
- Master General Permit
- General Permit Covered Facility
- And/or permit with widespread public interest

Part I – Facility Information

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

Facility Description:

Primary Clarifier / Trickling Filter / Secondary Clarifier / Chlorine Disinfection / Sludge is land applied

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

No

Application Date: 4/04/2008
Expiration Date: Sept. 4, 2008

Last Inspection: Jan. 30, 2008 In Compliance Non Compliance

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	4.65	secondary	municipal	4.0
002	0.775	secondary	municipal	4.0
003	rarely discharges	secondary	municipal	>4.0
004	Sampling tap	secondary	municipal	N/A, a sampling tap to verify removal efficiency

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

Discharge is to a losing stream. The facility has a history of inflow and infiltration issues.

Comments:

Metals limits were calculated using the new criteria. DMR data from the previous 5 years were used.

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:

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
 - Municipalities
 - Public Sewer District
 - County
 - Public Water Supply Districts
 - Private sewer company regulated by the Public Service Commission
 - State or Federal agencies

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) and/or fifty (50) or more service connections. This facility currently requires an operator with a “B” Certification Level. Please see **Appendix #1 - Classification Worksheet**. Modifications made to the wastewater treatment facility may cause the classification to be modified.

Operator’s Name: James Carnicle
 Certification Number: 7542
 Certification Level: A

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.

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

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

RECEIVING STREAM(S) TABLE:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Unnamed trib. To Buffalo Cr.	U		General Criteria	11070208	Ozark / Neosho
Buffalo Creek	C	3276	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 conducted on October 26, 2007 and approved on March 28, 2008.

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Buffalo Creek	0	0	0.1

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 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.

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

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.

As per [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.

Applicable (renewal and modifications to existing operating permits)

This facility has been approved to land apply as per Permit Standard Conditions III and a department approved bio-solids management plan.

COMPLIANCE AND ENFORCEMENT:

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

Not Applicable

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

PRETREATMENT PROGRAM:

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

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

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

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

Applicable

This permittee has an approved pretreatment program in accordance with the requirements of [40 CSR Part 403] and [10 CSR 20-6.100] and is expected to implement and enforce its approved program.

REASONABLE POTENTIAL ANALYSIS (RPA):

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

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

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)/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.

Applicable ;

Equivalent to Secondary Treatment is 65% removal [40 CFR Part 133.105(a)(3) & (b)(3)].

SANITARY SEWER OVERFLOWS (SSOs), BYPASSES, INFLOW & INFILTRATION (I&I) – PREVENTION/REDUCTION:

Sanitary Sewer Systems (SSSs) are municipal wastewater collection system that convey domestic, commercial, and industrial wastewater, and limited amounts of infiltrated groundwater and storm water (i.e. I&I), to a POTW. SSSs are not designed to collect large amounts of storm water runoff from precipitation events.

Untreated or partially treated discharges from SSSs are commonly referred to as SSOs. SSOs have a variety of causes including blockages, line breaks, sewer defects that allow excess storm water and ground water to overload the system, lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. A SSOs is defined as an untreated or partially treated sewage release from a SSS. SSOs can occur at any point in an SSS, during dry weather or wet weather. SSOs include overflows that reach waters of the state. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations. SSSs can back up into buildings, including private residences. When sewage backups are caused by problems in the publicly-owned portion of an SSS, they are considered SSOs.

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. In addition, the department considers the development of this program as an implementation of this condition.

At this time, the department recommends the US EPA's Guide for Evaluating Capacity, Management, Operation and Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document # EPA 305-B-05-002). The CMOM identifies some of the criteria used by the EPA to evaluate a collection system's management, operation, and maintenance and was intended for use by the EPA, state, regulated community, and/or third party entities. The CMOM is applicable to small, medium, and large systems; both public and privately owned; and both regional and satellite collection systems. The CMOM does not substitute for the Clean Water Act, the Missouri Clean Water Law, and both federal and state regulations, as it is not a regulation.

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

Inflow and Infiltration plan.

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.

Not Applicable

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

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:

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

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:

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

Not Applicable

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

WATER QUALITY STANDARDS:

Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:

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

Applicable

In accordance with the Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System. Furthermore, WET testing is a means by which the department determines that [10 CSR 20-7.031(3)(D, F, & G)] are being met by the permitted facility. In addition to justification for the WET testing, WET tests are required under [10 CSR 20-6.010(8)(A)4] to be performed by specialists who are properly trained in conducting the test according to the methods prescribed by the Federal Government as referenced in [40 CFR Part 136]. WET test will be required by all facilities meeting the following criteria:

Facility is a designated Major.

Facility continuously or routinely exceeds its design flow.

Facility (industrial) that alters its production process throughout the year.

Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.

Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH3)

Facility is a municipality or domestic discharger with a Design Flow > 22,500 gpd.

Other - Please justify

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

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

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

Not Applicable

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

Part V – Effluent Limits Determination

Outfall #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	
BOD ₅	MG/L	1		15	10	No	
TSS	MG/L	1		20	15	No	
pH	SU	1	*		*	No	
TEMPERATURE	°C	1/8	*		*		***
AMMONIA AS N (MAY 1 – OCT 31)	MG/L	2/3/5	3.7		1.4		***
AMMONIA AS N (NOV 1 – APR 30)	MG/L	2/3/5	7.5		2.9		***
ESCHERICHIA COLI	**	1/2	Please see Escherichia Coli (E. coli) in the Derivation and Discussion Section below.				
E. COLI.	**	1/2		126	126**		
CHLORINE, TOTAL RESIDUAL	MG/L	1/2	0.017		0.008	YES	0.01/0.01
HARDNESS	MG/L	9	*		*	YES	***
OIL & GREASE (MG/L)	MG/L	1	15		10		***
BORON	µg/L	2/3	3278		1634	YES	2000
CADMIUM	µg/L	2/3	0.6		0.3	YES	17/13
CHROMIUM (III), TOTAL DISSOLVED	µg/L	2/3	348		174		***
CHROMIUM (VI), TOTAL RECOVERABLE	µg/L	2/3	16		8		***
COPPER, TOTAL RECOVERABLE	µg/L	2/3	19		9	YES	39/29
LEAD, TOTAL RECOVERABLE	µg/L	2/3	9		5	YES	21/21
MERCURY	µg/L	2/3	0.9		0.5	YES	0.7/0.5
NICKEL	µg/L	2/3	131		65	YES	266/200
ZINC	µg/L	2/3	267		133	YES	455/345
CYANIDE	µg/L	2/3	8.1		4.0	YES	7/5
PHENOL	µg/L	2/3	164		82	YES	133/100
1,2 DICHLOROETHANE	µg/L	2/3	10		5	YES	5
1,1,1 TRICHLOROETHANE	µg/L	2/3	328		163	YES	***
1,1,2 TRICHLOROETHANE	µg/L	2/3	8		4	YES	***
SULFATES	mg/L	2/3	8		4	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.						

Outfall #002 – Golf Course Irrigation
EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
IRRIGATION PERIOD	HOURS	1	*		*	No	
VOLUME IRRIGATED	GALLONS	1	*		*	No	
APPLICATION AREA	ACRES	1	*		*	No	
APPLICATION RATE	INCHES	1	*		*	No	
RAINFALL	INCHES	1	*		*	No	
TOTAL KJELDAHL NITROGEN	MG/L	1	*		*		***
AMMONIA AS N	MG/L	1/9	*		*		***
NITRATE + NITRITE	MG/L	1/9	*		*		***
E. COLI.	# / 100 ML	1/2	126		126		
SULFATES	MG/L	1/2	8		4		250
PH	SU	1	6-9		6-9		***
1,2 DICHLOROETHANE	MG/L	2/3	8		4	YES	5
1,1,1 TRICHLOROETHANE	MG/L	2/3	328		163	YES	***
1,1,2 TRICHLOROETHANE	MG/L	2/3	8		4	YES	***
BORON	µg/L	2/3	3278		1634	YES	2000
CADIUM	µg/L	2/3	0.6		0.3	YES	17/13
CHROMIUM (III), TOTAL DISSOLVED	µg/L	2/3	348		174		***
CHROMIUM (VI), TOTAL RECOVERABLE	µg/L	2/3	16		8		***
COPPER, TOTAL RECOVERABLE	µg/L	2/3	19		9	YES	39/29
LEAD, TOTAL RECOVERABLE	µg/L	2/3	9		5	YES	21/21
MERCURY	µg/L	2/3	0.9		0.5	YES	0.7/0.5
NICKEL	µg/L	2/3	131		65	YES	266/200
ZINC	µg/L	2/3	267		133	YES	455/345
CYANIDE	µg/L	2/3	8.1		4.0	YES	7/5
PHENOL	µg/L	2/3	164		82	YES	133/100
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 E. Coli. is a geometric mean.
 *** Parameter not previously established in previous state operating permit.

Basis for Limitations Codes:

- | | |
|--|------------------------------------|
| 1. State or Federal Regulation/Law | 7. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 4. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 11. WET Test Policy |
| 6. Dissolved Oxygen Policy | 12. Antidegradation Review |

OUTFALLS #001 AND # 002 – DERIVATION AND DISCUSSION OF LIMITS:

Discharge is to a losing stream. Therefore limits were derived based on chronic criteria or groundwater protection criteria, whichever was more protective. The treated effluent being applied to the golf course has never been properly characterized and evaluated. This is of concern because the presence of karst topography in the area. In an area such as this, there is the potential for contamination of groundwater and subsequently drinking water supplies. Therefore, we have increased the monitoring requirements for outfall 002 in order to properly characterize the effluent being generated and land applied by this facility.

- **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.
- **Biochemical Oxygen Demand (BOD₅).** Effluent limitations from the previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **Total Suspended Solids (TSS).** Effluent limitations from the previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **pH.** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **Total Ammonia Nitrogen.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU. No mixing considerations allowed; therefore, WLA = appropriate criterion.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: May 1 – October 31

Chronic WLA: C_e = 1.5 mg/L

LTA_c = 1.5 mg/L (0.780) = **1.2 mg/L** [CV = 0.6, 99th Percentile, 30 day avg.]

MDL = 1.2 mg/L (3.11) = 3.7 mg/L [CV = 0.6, 99th Percentile]

AML = 1.2 mg/L (1.19) = 1.4 mg/L [CV = 0.6, 95th Percentile, n =30]

Winter: November 1 – April 30

Chronic WLA: C_e = 3.1 mg/L

LTA_c = 3.1 mg/L (0.780) = **2.4 mg/L** [CV = 0.6, 99th Percentile, 30 day avg.]

MDL = 2.4 mg/L (3.11) = 7.5 mg/L [CV = 0.6, 99th Percentile]

AML = 2.4 mg/L (1.19) = 2.9 mg/L [CV = 0.6, 95th Percentile, n =30]

- **Escherichia coliformi (E. coli).** Discharges to losing streams shall not exceed 126 per 100 ml at any time, as per 10 CSR 20-7.031(4)(C).

- **Total Residual Chlorine (TRC)**. Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L.

Chronic WLA: $C_e = 10 \mu\text{g/L}$
LTA_c = 10 (0.527) = **5.3** µg/L [CV = 0.6, 99th Percentile]

MDL = 5.3 (3.11) = 16.5 µg/L [CV = 0.6, 99th Percentile]
AML = 5.3 (1.55) = 8.2 µg/L [CV = 0.6, 95th Percentile, n = 4]

Total Residual Chlorine effluent limits of 0.017 mg/L daily maximum, 0.008 mg/L monthly average are recommended if chlorine is used as a disinfectant. Standard compliance language for TRC, including the minimum level (ML), should be included in the permit.

- **Total Hardness as CaCO₃**. Monitoring only due to variability of metals toxicity due to hardness.
- **Nitrate + Nitrite**. Protection of Groundwater & Drinking Water Supply CCC = 10 mg/L.

WLA = 10 mg/L
Set the Average Monthly Limit equal to the WLA [per EPA/505/2-90-001 Section 5.4.4]
AML = 10 mg/L
MDL = AML(2.01) [CV = 0.6, MDL = 99th percentile : AML = 95th percentile, n = 4]
MDL = 10.0(2.01) = 20.1 mg/L

MDL = 20 mg/L
AML = 10mg/L

- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Cyanide, Amenable to Chlorination**. Protection of Aquatic Life CCC = 5 µg/L, Background Cn = 0 µg/L

Chronic WLA: $C_e = 5 \mu\text{g/L}$
LTA_c = 5 (0.527) = **2.6** µg/L [CV = 0.6, 99th Percentile]

MDL = 2.6 (3.11) = 8 µg/L [CV = 0.6, 99th Percentile]
AML = 2.6 (1.55) = 4 µg/L [CV = 0.6, 95th Percentile, n = 4]

The effluent limitation above is below the minimum quantification level (ML) of the most common and practical EPA approved methods. The department has determined that current acceptable ML for Cyanide, Amendable 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. Therefore, the operating permit will contain a Note indicating such.

- **Phenol**. Protection of Aquatic Life CCC = 100 µg/L.

Chronic WLA: $C_e = 100 \mu\text{g/L}$
LTA_c = 100(0.527) = **52.7** µg/L [CV = 0.6, 99th Percentile]

MDL = 52.7(3.11) = 164 µg/L [CV = 0.6, 99th Percentile]
AML = 52.7(1.55) = 82 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **1,2-dichloroethane.** Protection of Groundwater & Drinking Water Supply CCC = 5 µg/L.

$$\text{WLA} = 5 \text{ } \mu\text{g/L}$$

Set the Average Monthly Limit equal to the WLA [per EPA/505/2-90-001 Section 5.4.4]

$$\text{AML} = 5 \text{ } \mu\text{g/L}$$

$$\text{MDL} = \text{AML}(2.01) \quad [\text{CV} = 0.6, \text{MDL} = 99^{\text{th}} \text{ percentile} : \text{AML} = 95^{\text{th}} \text{ percentile}, n = 4]$$

$$\text{MDL} = 5(2.01) = 10.05 \text{ } \mu\text{g/L}$$

$$\text{MDL} = 10 \text{ } \mu\text{g/L}$$

$$\text{AML} = 5 \text{ } \mu\text{g/L}$$

- **1,1,1-trichloroethane.** Protection of Groundwater & Drinking Water Supply CCC = 200 µg/L.

$$\text{WLA} = 200 \text{ } \mu\text{g/L}$$

Set the Average Monthly Limit equal to the WLA [per EPA/505/2-90-001 Section 5.4.4]

$$\text{AML} = 200 \text{ } \mu\text{g/L}$$

$$\text{MDL} = \text{AML}(2.01) \quad [\text{CV} = 0.6, \text{MDL} = 99^{\text{th}} \text{ percentile} : \text{AML} = 95^{\text{th}} \text{ percentile}, n = 4]$$

$$\text{MDL} = 200(2.01) = 402 \text{ } \mu\text{g/L}$$

$$\text{MDL} = 402 \text{ } \mu\text{g/L}$$

$$\text{AML} = 200 \text{ } \mu\text{g/L}$$

- **1,1,2-trichloroethane.** Protection of Groundwater & Drinking Water Supply CCC = 5 µg/L.

$$\text{WLA} = 5 \text{ } \mu\text{g/L}$$

Set the Average Monthly Limit equal to the WLA [per EPA/505/2-90-001 Section 5.4.4]

$$\text{AML} = 5 \text{ } \mu\text{g/L}$$

$$\text{MDL} = \text{AML}(2.01) \quad [\text{CV} = 0.6, \text{MDL} = 99^{\text{th}} \text{ percentile} : \text{AML} = 95^{\text{th}} \text{ percentile}, n = 4]$$

$$\text{MDL} = 5(2.01) = 10.05 \text{ } \mu\text{g/L}$$

$$\text{MDL} = 10 \text{ } \mu\text{g/L}$$

$$\text{AML} = 5 \text{ } \mu\text{g/L}$$

- **Sulfates.** Protection of Drinking Water Supply CCC = 250 µg/L.

$$\text{WLA} = 250 \text{ } \mu\text{g/L}$$

Set the Average Monthly Limit equal to the WLA [per EPA/505/2-90-001 Section 5.4.4]

$$\text{AML} = 250 \text{ } \mu\text{g/L}$$

$$\text{MDL} = \text{AML}(2.01) \quad [\text{CV} = 0.6, \text{MDL} = 99^{\text{th}} \text{ percentile} : \text{AML} = 95^{\text{th}} \text{ percentile}, n = 4]$$

$$\text{MDL} = 250(2.01) = 503 \text{ } \mu\text{g/L}$$

$$\text{MDL} = 503 \text{ } \mu\text{g/L}$$

$$\text{AML} = 250 \text{ } \mu\text{g/L}$$

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 = 162 mg/L.

Due to the absence of contemporaneous effluent and in stream 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
Boron	N/A	N/A
Cadmium	N/A	0.889
Chromium III	N/A	0.860
Copper	N/A	0.960
Lead	N/A	0.721
Mercury	N/A	N/A
Nickel	N/A	0.997
Zinc	N/A	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.

- **Total Dissolved Boron.** Protection of Groundwater CCC = 2000 µg/L.

WLA = 2000 µg/L

Set the Average Monthly Limit equal to the WLA [per EPA/505/2-90-001 Section 5.4.4]

AML = 2000 µg/L

MDL = AML(2.01) [CV = 0.6, MDL = 99th percentile : AML = 95th percentile, n = 4]

MDL = 2000(2.01) = 4020 µg/L

MDL = 4 mg/L

AML = 2 mg/L

- **Total Recoverable Cadmium.** Protection of Aquatic Life CCC = 0.3 µg/L.

Chronic = 0.3/0.889 = 0.34 µg/L

Chronic WLA: C_c = 0.34 µg/L

LTA_c = 0.34(0.527) = 0.2 µg/L [CV = 0.6, 99th Percentile]

MDL = 0.2(3.11) = 0.6 µg/L [CV = 0.6, 99th Percentile]

AML = 0.2(1.55) = 0.3 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Chromium III.** Protection of Aquatic Life CCC = 182 µg/L.

Chronic = 182/0.860 = 212 µg/L

Chronic WLA: C_c = 212 µg/L

LTA_c = 212(0.527) = 112 µg/L [CV = 0.6, 99th Percentile]

MDL = 112(3.11) = 348 µg/L [CV = 0.6, 99th Percentile]

AML = 112(1.55) = 174 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Dissolved Chromium VI.** Protection of Aquatic Life CCC = 10 µg/L. Chromium VI limits must be expressed as a Total Dissolved value. Therefore it is not necessary to utilize a conversion factor to express the limit as a total recoverable limit.

Chronic WLA: C_c = 10 µg/L

LTA_c = 10(0.527) = 5 µg/L [CV = 0.6, 99th Percentile]

MDL = 5(3.11) = 16 µg/L [CV = 0.6, 99th Percentile]

AML = 5(1.55) = 8 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Copper.** Protection of Aquatic Life CCC = 11.2 µg/L.

Chronic = $11.2/0.960 = 12 \mu\text{g/L}$
Chronic WLA: $C_e = 12 \mu\text{g/L}$
 $LTA_c = 12(0.527) = 6 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]

MDL = $6(3.11) = 19 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]
AML = $6(1.55) = 9 \mu\text{g/L}$ [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Lead.** Protection of Aquatic Life CCC = 4.2 µg/L.

Chronic = $4.2/0.721 = 6 \mu\text{g/L}$
Chronic WLA: $C_e = 6 \mu\text{g/L}$
 $LTA_c = 6(0.527) = 3 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]

MDL = $3(3.11) = 9 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]
AML = $3(1.55) = 5 \mu\text{g/L}$ [CV = 0.6, 95th Percentile, n = 4]

- **Total Dissolved Mercury.** Protection of Aquatic Life CCC = 0.5 µg/L. There is no conversion factor for mercury under chronic criteria.

Chronic = 0.5 µg/L
Chronic WLA: $C_e = 0.5 \mu\text{g/L}$
 $LTA_c = 0.5(0.527) = 0.3 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]

MDL = $0.3(3.11) = 0.9 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]
AML = $0.3(1.55) = 0.5 \mu\text{g/L}$ [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Nickel.** Protection of Aquatic Life CCC = 78.3 µg/L.

Chronic = $78.3/0.997 = 79 \mu\text{g/L}$
Chronic WLA: $C_e = 79 \mu\text{g/L}$
 $LTA_c = 79(0.527) = 42 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]
MDL = $42(3.11) = 131 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]
AML = $42(1.55) = 65 \mu\text{g/L}$ [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Zinc.** Protection of Aquatic Life CCC = 177 µg/L.

Chronic = $177/0.986 = 179.5 \mu\text{g/L}$
Chronic WLA: $C_e = 179.5 \mu\text{g/L}$
 $LTA_c = 179.5(0.527) = 94.6 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]

MDL = $94.6(3.11) = 294.2 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]
AML = $94.6(1.55) = 146.6 \mu\text{g/L}$ [CV = 0.6, 95th Percentile, n = 4]

- **WET Test.** WET Testing schedules and intervals are established in accordance with the department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow. (Any schedule more frequent than what is established below will need justification. If a WET testing schedule is not listed below, but has been determined appropriate, please justify here. If a facility has multiple schedules, then the most frequent should be used.)

Chronic Acute Not Applicable

- **No less than once per year**

Outfall #003 – Golf Course Irrigation Basin overflow

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	No	
BOD	GALLONS	1		45	30	YES	15/10
TSS	ACRES	1		45	30	YES	20/15
pH	SU	1	6-9		6-9	No	
AMMONIA AS N	MG/L	1/9	12.1		4.6		***
SULFATES + CHLORIDES	MG/L	1/2	1639		816.9		***
OIL & GREASE	MG/L	1	15		10		***
TOTAL RESIDUAL CHLORINE	MG/L	1/2	0.017		0.008		***
CADMIUM	µg/L	2/3	0.6		0.3		***
CHROMIUM (III), TOTAL DISSOLVED	µg/L	2/3	348		174		***
CHROMIUM (VI), TOTAL RECOVERABLE	µg/L	2/3	14.9		7.4		***
COPPER, TOTAL RECOVERABLE	µg/L	2/3	21.8		10.9		***
LEAD, TOTAL RECOVERABLE	µg/L	2/3	150.8		75.2		***
MERCURY	µg/L	2/3	2.8		1.4		***
NICKEL	µg/L	2/3	131		65		***
ZINC	µg/L	2/3	180.4		90		***
CYANIDE	µg/L	2/3	8		4		***
PHENOL	µg/L	2/3	164		82		***
1,2 DICHLOROETHANE	MG/L	2/3	162.3		80.9		***
1,1,2 TRICHLOROETHANE	MG/L	2/3	68.7		34.3		***

* Monitoring requirement only. ** # of colonies/100mL; the Monthly Average for E. Coli. is a geometric mean.

*** Parameter not previously established in previous state operating permit.

Basis for Limitations Codes:

- | | |
|--|------------------------------------|
| 7. State or Federal Regulation/Law | 7. Antidegradation Policy |
| 8. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 9. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 10. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 11. Ammonia Policy | 11. WET Test Policy |
| 12. Dissolved Oxygen Policy | 12. Antidegradation Review |

OUTFALL 003 – DERIVATION AND DISCUSSION OF LIMITS

This outfall discharges into a gaining stream watershed. Discharges from this outfall are infrequent and overflow events rarely exceed 2 days. Therefore acute criteria apply to discharges from this outfall.

- **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.
- **Biochemical Oxygen Demand (BOD₅), Total Suspended Solids.** 10 CSR 20-7.015 (8) (B) 1. Monthly average of 30 mg/L, weekly average of 45 mg/L.
- **pH.** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

- **Total Ammonia Nitrogen.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU. No mixing considerations allowed; therefore, WLA = appropriate criterion.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	12.1
Winter	6	7.8	12.1

Acute WLA: $C_e = 12.1 \text{ mg/L}$

$LTA_a = 12.1 \text{ mg/L} (0.321) = 3.9 \text{ mg/L}$ [CV = 0.6, 99th Percentile, 30 day avg.]

MDL = 3.9 mg/L (3.11) = 12.1 mg/L [CV = 0.6, 99th Percentile]

AML = 3.9 mg/L (1.19) = 4.6 mg/L [CV = 0.6, 95th Percentile, n = 30]

- **Total Residual Chlorine (TRC).** Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L. There are no disinfection limits for this outfall. Chlorine however is present in the effluent.

Chronic WLA: $C_e = 10 \text{ µg/L}$

$LTA_c = 10 (0.527) = 5.3 \text{ µg/L}$ [CV = 0.6, 99th Percentile]

MDL = 5.3 (3.11) = 16.5 µg/L [CV = 0.6, 99th Percentile]

AML = 5.3 (1.55) = 8.2 µg/L [CV = 0.6, 95th Percentile, n = 4]

Total Residual Chlorine effluent limits of 0.017 mg/L daily maximum, 0.008 mg/L monthly average are recommended if chlorine is used as a disinfectant. Standard compliance language for TRC, including the minimum level (ML), should be included in the permit.

- **Total Hardness as CaCO₃.** Monitoring only due to variability of metals toxicity due to hardness.
- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Cyanide, Amenable to Chlorination.** Protection of Aquatic Life CCC = 5 µg/L, Background Cn = 0 µg/L

Chronic WLA: $C_e = 5 \text{ µg/L}$

$LTA_c = 5 (0.527) = 2.6 \text{ µg/L}$ [CV = 0.6, 99th Percentile]

MDL = 2.6 (3.11) = 8 µg/L [CV = 0.6, 99th Percentile]

AML = 2.6 (1.55) = 4 µg/L [CV = 0.6, 95th Percentile, n = 4]

The effluent limitation above is below the minimum quantification level (ML) of the most common and practical EPA approved methods. The department has determined that current acceptable ML for Cyanide, Amendable 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. Therefore, the operating permit will contain a Note indicating such.

- **Phenol.** Protection of Aquatic Life CCC = 100 µg/L.

Chronic WLA: $C_e = 100 \text{ µg/L}$

$LTA_c = 100(0.527) = 52.7 \text{ µg/L}$ [CV = 0.6, 99th Percentile]

MDL = 52.7(3.11) = 164 µg/L [CV = 0.6, 99th Percentile]

AML = 52.7(1.55) = 82 µg/L [CV = 0.6, 95th Percentile, n = 4]

- 1,2-dichloroethane.** Human Health Protection – Fish Consumption = 99µg/L

Chronic WLA = 99 µg/L
 LTA_c = 99(0.527) = **52.2** µg/L [CV = 0.6, 99th Percentile]

MDL = 52.2(3.11) = 162.3 µg/L [CV = 0.6, 99th Percentile]
 AML = 52.2(1.55) = 80.9 µg/L [CV = 0.6, 95th Percentile, n = 4]
- 1,1,2-trichloroethane.** Human Health – Fish Consumption = 42 g/L

Chronic WLA = 42 µg/L
 LTA_c = 42(0.527) = **22.1** µg/L [CV = 0.6, 99th Percentile]

MDL = 22.1(3.11) = 68.7 µg/L [CV = 0.6, 99th Percentile]
 AML = 22.1(1.55) = 34.3 µg/L [CV = 0.6, 95th Percentile, n = 4]
- Sulfates + Chlorides.** Protection of Aquatic Life CCC = 1000 mg/L

Chronic WLA = 1000 mg/L
 LTA_c = 1000(0.527) = **527** mg/L [CV = 0.6, 99th Percentile]

MDL = 527(3.11) = 1639 µg/L [CV = 0.6, 99th Percentile]
 AML = 527(1.55) = 816.9 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 = 162 mg/L.

Due to the absence of contemporaneous effluent and in stream 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	N/A	0.889
Chromium III	N/A	0.860
Copper	0.960	0.960
Lead	0.721	0.721
Mercury	0.850	N/A
Nickel	N/A	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.

- **Total Recoverable Cadmium.** Protection of Aquatic Life CCC = 0.3 µg/L.

Chronic = $0.3/0.889 = 0.34$ µg/L
Chronic WLA: $C_e = 0.34$ µg/L
 $LTA_c = 0.34(0.527) = 0.2$ µg/L [CV = 0.6, 99th Percentile]

MDL = $0.2(3.11) = 0.6$ µg/L [CV = 0.6, 99th Percentile]
AML = $0.2(1.55) = 0.3$ µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Chromium III.** Protection of Aquatic Life CCC = 182 µg/L.

Chronic = $182/0.860 = 212$ µg/L
Chronic WLA: $C_e = 212$ µg/L
 $LTA_c = 212(0.527) = 112$ µg/L [CV = 0.6, 99th Percentile]

MDL = $112(3.11) = 348$ µg/L [CV = 0.6, 99th Percentile]
AML = $112(1.55) = 174$ µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Dissolved Chromium VI.** Protection of Aquatic Life CMC = 15 µg/L. Chromium VI limits must be expressed as a Total Dissolved value. Therefore it is not necessary to utilize a conversion factor to express the limit as a total recoverable limit.

Chronic WLA: $C_e = 15$ µg/L
 $LTA_a = 15(0.321) = 4.8$ µg/L [CV = 0.6, 99th Percentile]

MDL = $4.8(3.11) = 14.9$ µg/L [CV = 0.6, 99th Percentile]
AML = $4.8(1.55) = 7.4$ µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Copper.** Protection of Aquatic Life CMC = 21 µg/L.

Acute = $21/0.960 = 21.9$ µg/L
Acute WLA: $C_e = 21.9$ µg/L
 $LTA_a = 21.9(0.321) = 7$ µg/L [CV = 0.6, 99th Percentile]

MDL = $7(3.11) = 21.8$ µg/L [CV = 0.6, 99th Percentile]
AML = $7(1.55) = 10.9$ µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Lead.** Protection of Aquatic Life CMC = 109 µg/L.

Acute = $109/0.721 = 151.2$ µg/L
Acute WLA: $C_e = 151.2$ µg/L
 $LTA_a = 151.2(0.321) = 48.5$ µg/L [CV = 0.6, 99th Percentile]

MDL = $48.5(3.11) = 150.8$ µg/L [CV = 0.6, 99th Percentile]
AML = $48.5(1.55) = 75.2$ µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Dissolved Mercury.** Protection of Aquatic Life CMC = 2.4 µg/L.

Acute = $2.4 / 0.85$ µg/L = 2.8
Acute WLA: $C_e = 2.8$ µg/L
 $LTA_a = 2.8(0.321) = 0.9$ µg/L [CV = 0.6, 99th Percentile]

MDL = $0.9(3.11) = 2.8$ µg/L [CV = 0.6, 99th Percentile]
AML = $0.9(1.55) = 1.4$ µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Nickel.** Protection of Aquatic Life CCC = 78.3 µg/L.

Chronic = $78.3/0.997 = 79$ µg/L
Chronic WLA: $C_e = 79$ µg/L
LTA_c = $79(0.527) = 42$ µg/L [CV = 0.6, 99th Percentile]
MDL = $42(3.11) = 131$ µg/L [CV = 0.6, 99th Percentile]
AML = $42(1.55) = 65$ µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Zinc.** Protection of Aquatic Life CMC = 177 µg/L.

Acute = $177/0.978 = 181$ µg/L
Acute WLA: $C_e = 181$ µg/L
LTA_c = $181(0.321) = 58$ µg/L [CV = 0.6, 99th Percentile]

MDL = $58(3.11) = 180.4$ µg/L [CV = 0.6, 99th Percentile]
AML = $58(1.55) = 90$ µg/L [CV = 0.6, 95th Percentile, n = 4]

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:

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

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

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

DATE OF FACT SHEET: APRIL 12, 2011

REVISED DATE: MAY 21, 2013

COMPLETED BY:

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Part VII – Appendices

APPENDIX # 1- CLASSIFICATION WORKSHEET:

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	3
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	3
EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
PRELIMINARY TREATMENT - Headworks		
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	5
Combined sedimentation/digestion	5	
Chemical addition (except chlorine, enzymes)	4	
REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)		
Lab work conducted outside of plant	0	
Push – button or visual methods for simple test such as pH, Settleable solids	3	
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	
More advanced determinations such as BOD seeding procedures, E. Coli., nutrients, total oils, phenols, etc.	7	7
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
ALTERNATIVE FATE OF EFFLUENT		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	3
High rate	5	
Overland flow	4	
Total from page ONE (1)	----	27

APPENDIX #1 - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)		
Variation do not exceed those normally or typically expected	0	
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	4
Raw wastes subject to toxic waste discharge	6	
SECONDARY TREATMENT		
Trickling filter and other fixed film media with secondary clarifiers	10	10
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Waste Treatment Polishing Pond	2	
Chemical/physical – without secondary	15	
Chemical/physical – following secondary	10	
Biological or chemical/biological	12	
Carbon regeneration	4	
DISINFECTION		
Chlorination or comparable	5	5
Dechlorination	2	
On-site generation of disinfectant (except UV light)	5	
UV light	4	
SOLIDS HANDLING - SLUDGE		
Solids Handling Thickening	5	
Anaerobic digestion	10	
Aerobic digestion	6	6
Evaporative sludge drying	2	
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	6
Total from page TWO (2)	----	31
Total from page ONE (1)	---	27
Grand Total	---	58

- A : 71 points or greater
- B: 51 points - 70 points
- C: 26 points - 50 points
- D: 0 points - 25 points