Callaway2COLPEm Resource

From: Kuntzleman, Nancy
Sent: Tuesday, April 07, 2009 1:06 PM
To: Ward, Jeffrey A
Cc: Olson, Bruce; Callaway2COL Resource
Subject: New NPDES Permit for Callaway Plant, Unit 1
Attachments: C__Documents and Settings_ARK2_Application Data_NRC_ADAMSDesktop_Cache_ML0906410360.pdf

Hello, Jeff!

Hope all is well with you! Spring has sprung here in Rockville. The cherry blossoms are gorgeous!

As promised during the Callaway Site Audit, I am forwarding, as an attachment, the new NPDES Discharge Permit for the Callaway Plant, Unit 1. This new permit became effective on February 13, 2009. If you have any questions, just give me a call.

Best regards,
Nancy Kuntzleman
aquatic biologist
NRO/DSER/RENV
301-415-2313

Hearing Identifier: CallawayPlant_Unit2_COL_Public
Email Number: 148

Mail Envelope Properties (CEEA97CC21430049B821E684512F6E5EB76EE3BFE2)

Subject: New NPDES Permit for Callaway Plant, Unit 1
Sent Date: 4/7/2009 1:06:16 PM
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From: Kuntzleman, Nancy

Created By: Nancy.Kuntzleman@nrc.gov

Recipients:
"Olson, Bruce" <Bruce.Olson@nrc.gov>
Tracking Status: None
"Callaway2COL Resource" <Callaway2COL.Resource@nrc.gov>
Tracking Status: None
"Ward, Jeffrey A" <ja.ward@pnl.gov>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

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Priority: Standard
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Recipients Received:

AmerenUE
Callaway Plant

PO Box 620
Fulton, MO 65251

February 20, 2009

ULNRC-05597

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001

Ladies and Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
NEW NPDES DISCHARGE PERMIT

Please find enclosed the new NPDES Discharge Permit for the Callaway Plant. The new permit became effective on February 13, 2009. This Permit is submitted in accordance with Callaway Plant Operating License NPF-30, Appendix B, Section 3.2.

This letter does not contain new commitments.

Sincerely,

Scott Sandbothe
Manager, Regulatory Affairs

BFH/nls

Enclosure

Q001
NRR

cc: Mr. Elmo E. Collins, Jr.
Regional Administrator
U.S. Nuclear Regulatory Commission
Region IV
612 E . Lamar Blvd., Suite 400
Arlington, TX 76011-4125

Senior Resident Inspector
Callaway Resident Office
U.S. Nuclear Regulatory Commission
8201 NRC Road
Steedman, MO 65077

Mr. Mohan C. Thadani (2 copies)
Licensing Project Manager, Callaway Plant
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop O-8G14
Washington, DC 20555-2738

Index and send hardcopy to QA File A160.0761

Hardcopy:

Certrec Corporation
4200 South Hulen, Suite 630
Fort Worth, TX 76109
(Certrec receives ALL attachments as long as they are non-safeguards and may be publicly disclosed.)

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Mr. Floyd Gilzow (DNR)

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-0098001
Owner:	Ameren UE
Address:	One Ameren Plaza, 1901 Chouteau Avenue, PO Box 66149, MC-602, St. Louis, MO 63166-6149
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Ameren UE, Callaway Power Plant
Address:	PO Box 620, Fulton, MO 65251
Legal Description:	See page 2
Receiving Stream:	See page 2
First Classified Stream and ID:	See page 2
USGS Basin & Sub-watershed No.:	See page 2

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

FACILITY DESCRIPTION

The Callaway Power Plant combined discharge line has a cumulative daily average flow of 5.64 MGD and a daily maximum flow of 14.4 MGD.

See next page for individual outfall descriptions

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

February 13, 2009
Effective Date

Joseph P. Bindbeutel, Acting Director, Department of Natural Resources

February 12, 2014
Expiration Date

Robert K. Morrison, P.E., Chief, Water Pollution Control Branch

FACILITY DESCRIPTION

Outfall #001 – Radwaste Treatment System - SIC #4911 (Piped to Missouri River)

This liquid radwaste system serves to collect, process, store, recycle and discharge treated waste water generated at Callaway. In addition, radioactive solids removed by this system are prepared for disposal and transported to a licensed off site disposal facility. Five general sub-systems can be defined as described below.

The Boron Recycle System receives reactor coolant for the purpose of recovering the boric acid for reuse in the plant. Boric acid is used as a neutron absorber/moderator in the primary loop.

The Liquid Radwaste System collects and processes floor and equipment drains from the containment, auxiliary building, fuel building and radwaste buildings during normal operation.

The Laundry and Hot Shower system collects waste generated from washing radioactively contaminated protective gear and clothing and personnel decontamination shower wastewater. These wastes are then transferred to the liquid Radwaste system for treatment.

The Secondary Liquid Waste system is used to process condensate demineralizer regeneration wastes and potentially radioactive liquid waste collected from the turbine building. The condensate demineralizer regeneration waste is divided into two waste streams; High TDS waste from the acid and caustic rinses used when chemically regenerating spent resin, and low TDS waste which results from the initial backflushing of unregenerated resin and the final rinsing of the regenerated resin to remove acid and caustic.

Steam Generator Blowdown is normally recycled back to the main condenser for reuse in the secondary cycle. Provisions also exist to discharge the treated blowdown via #001.
The following wastewater treatment systems are used as required to treat this waste stream for recycle or discharge in compliance with NRC requirements and are also available as auxiliary or backup treatment systems to treat this discharge for compliance with NPDES permit limitations: Evaporation and/or Mixing and/or Filtration and/or Carbon Absorption and/or Ion Exchange and/or Neutralization and/or Reuse/Recycle of Treated Effluent. All processing in the Radwaste Treatment System is done on a batch basis except steam generator blowdown. After monitoring for radioactive content, release rates are controlled administratively to ensure the "as low as practicable" radioactive discharge criteria are met.
Daily average flow is 0.027 MGD.
Daily maximum flow is 0.298 MGD
Legal Description: NE ¼, NE ¼, Sec. 14, T46N, R8W, Callaway
Latitude/Longitude: +3845424/-09146462
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-280004)

Outfall #002 - Cooling Tower Blowdown: (Piped to Missouri River)
Daily average flow is 4.84 MGD.
Daily maximum flow is 14.4 MGD.
This outfall consists of water from the Circulating Water System, the Service Water System, and the Essential Service Water (ESW) System. Blowdown from the cooling tower is necessary to maintain the dissolved solids concentration in the recirculating water system within acceptable operating limits. The ESW System is not routinely used, however water from the ESW System does mix with the other systems as it is periodically run to demonstrate operability. Additionally, the ESW System can be used to maintain proper freeboard in the ultimate heat sink pond (see Outfall #017 description) by transferring water to the Service Water System.
Legal Description: NW ¼, NW ¼, Sec. 13, T46N, R8W, Callaway
Latitude/Longitude: +3845459/-09146388
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-280004)

Outfall #003 - Water Treatment Plant Wastes (Piped to Missouri River)
Daily average flow is 0.0 MGD.
Daily maximum flow is 1.645 MGD.
(These flows represent wastewater discharged to the settling basin, actual discharge will vary depending on recycle.)Outfall #003 consists of supernatant from a wastewater treatment lagoon that treats wastewater to remove solids. The wastewater that is treated in the lagoon is mainly from the blowdown of accumulated river solids in the water treatment plant clarifiers. The sand and carbon filter backwash, oil water separator and demineralizer system wastewater is also routed to this treatment lagoon. The oil water separator flow consists of wastewater from some plant sumps as well as flow from an oil recovery well that is being used to remediate a historic on-site release. Outfall #003 is normally recycled by routing it back to the head of the water treatment plant.

Legal Description: SW ¼, SW ¼, Sec. 13, T46N, R8W, Callaway
Latitude/Longitude: +3845065/-09146409
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-280004)

Outfall #004 - Demineralizer System Wastes
This discharge is now included under Outfall #003.

Outfall #007 – 3 Cell Flow Through Lagoon (Piped to Missouri River)

Daily average flow is 0.0 MGD.
Daily Maximum flow is 0.040 MGD.
Design Population Equivalent is 400.
This outfall consists of a 3-cell lagoon designed to receive only sanitary, on-site cafeteria, and laboratory waste from the plant. Sludge will be stored in the lagoon. The effluent will then be discharged to a constructed wetland. The monitoring location will be at the third treatment cell. Outfall #007 is normally recycled by routing it to the water treatment plant headworks.
Legal Description: SW ¼, SW ¼, Sec. 13, T46N, R8W, Callaway
Latitude/Longitude: +3845123/-09146318
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-280004)

Outfall #009 - Intake Heater Blowdown: (Located right on Missouri River)
Daily average flow 0 MGD.
Daily maximum flow is 0.006 MGD.
The river intake structure contains two recirculating electric heaters which are used to prevent ice formation on the intake bar screens during the winter months. Outfall #009 consists of discharges from the infrequent blowdown or drainage of these boilers.
Legal Description: NW ¼, NW ¼, Sec. 5, T45N, R7W, Callaway
Latitude/Longitude: +3842127/-09144185
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-280004)

Outfalls #010, #011, #012, #014 and #015 - Storm Water Runoff
Average rainfall event is 0.7 MGD.
Once in 10 year rainfall event is 38.5 MGD.
These five outfalls discharge storm water runoff from plant and associated areas after treatment in settling ponds. "Non-process" discharges that will be discharged to SWR include three intermittent sources. Two sources are the quarterly testing of the fire protection drains and the infrequent draining of the demineralized water storage tank. The third source is the pumping of manholes, transformer and tank containments at the plant. These outfalls will be under a Storm Water Pollution Prevention Plan for this permit cycle, so no actual monitoring will take place.

Outfall #010:
Daily average flow is dependent on precipitation.
Maximum daily flow is 4.6 MGD
Legal Description: SW ¼, SW ¼, Sec. 12, T46N, R8W, Callaway
Latitude/Longitude: +3846088/-09146261
Receiving Stream: Unnamed Tributary to Logan Creek (U)
First Classified Stream and ID: Logan Creek (C) (00704)
USGS Basin & Sub-watershed No.: (10300102-280004)

Outfall #011:
Daily average flow is dependent on precipitation.
Daily Maximum flow is 19.7 MGD
Legal Description: NW ¼, SE ¼, Sec. 12, T46N, R8W, Callaway
Latitude/Longitude: +3846105/-09146002
Receiving Stream: Unnamed Tributary to Logan Creek (U)
First Classified Stream and ID: Logan Creek (C) (00704)
USGS Basin & Sub-watershed No.: (10300102-280004)

Outfall #012:
Daily average flow is dependent on precipitation. .
Daily Maximum flow is 6.6 MGD
Legal Description: NE ¼, SE ¼, Sec. 14, T46N, R8W, Callaway
Latitude/Longitude: +3845168/-09146531
Receiving Stream: Tributary to Mud Creek (U)
First Classified Stream and ID: Logan Creek (C) (00704)
USGS Basin & Sub-watershed No.: (10300102-280004)

Outfall #013: terminated

Outfall #014:
Daily average flow is dependent on precipitation.
Daily Maximum flow is 4.8 MGD
Legal Description: NW ¼, SE ¼, Sec. 11, T46N, R8W, Callaway
Latitude/Longitude: +3846128/-09147052
Receiving Stream: Cow Branch (U)
First Classified Stream and ID: Cow Creek (C) (00707)
USGS Basin & Sub-watershed No.: (10300102-280003)

Outfall #015:
Daily average flow is dependent on precipitation.
Daily Maximum flow is 2.8 MGD
Legal Description: SE ¼, NE ¼, Sec. 11, T46N, R8W, Callaway
Latitude/Longitude: +3846232/-09146506
Receiving Stream: Cow Branch (U)
First Classified Stream and ID: Cow Creek (C) (00707)
USGS Basin & Sub-watershed No.: (10300102-280003)

Outfall #016 - Cooling Tower Bypass (Piped to Missouri River)
Daily average flow is 0.777 MGD.
Daily Maximum flow is 14.4 MGD.
This outfall consists of clarified river water and wastewater that has been recycled through the water treatment plant. It is used to moderate flow through the water treatment plant and to provide carrier water in the discharge line when discharging from Outfall #001.
Legal Description: NW ¼, NW ¼, Sec. 13, T46N, R8W, Callaway
Latitude/Longitude: +3845328/-09146408
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-280004)

Outfall #017 - Ultimate Heat Sink
Daily average flow is 0 MGD.
Daily Maximum flow is 0 MGD
The Ultimate Heat Sink is a cooling pond that can provide cooling water to various plant systems during other than normal conditions.
Outfall #017 is the overflow from the Ultimate Heat Sink to local runoff. It is a no discharge outfall.
Legal Description: SE ¼, NE ¼, Sec. 14, T46N, R8W, Callaway
Latitude/Longitude: +3845363/-09146441
Receiving Stream: Unnamed Tributary to Logan Creek (U)
First Classified Stream and ID: Logan Creek (C) (00704)
USGS Basin & Sub-watershed No.: (10300102-280004)
This is a no-discharge outfall.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 - Radwaste System						
Flow	MGD	*		*	once/daily each batch	each batch total
Boron, Total Recoverable	mg/L	*		*	once/daily each batch	grab
Total Suspended Solids	mg/L	45		30	once/daily each batch	grab
Oil and Grease	mg/L	20		15	once/month	grab
Biochemical Oxygen Demand$_5$	mg/L	*		*	once/month	grab
pH – Units	SU	**		**	once/daily each batch	grab
Total Residual Chlorine	mg/L	0.2		0.104	once/month	grab
Temperature	C	*		*	once/month	grab

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

Acute Whole Effluent Toxicity (AWET) Test (Note 1) see special condition 12

MONITORING REPORTS SHALL BE SUBMITTED ONCE PER 5 YEARS; THE FIRST REPORT IS DUE January 28, 2010. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III 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

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

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY TYPE	SAMPLE TYPE
Outfall #002 - Cooling Tower Blowdown						
Flow	MGD	*		*	once/day	24 hr. total
Total Suspended Solids	mg/L	*		*	once/week	grab
Total Dissolved Solids	mg/L	*		*	once/week	grab
Oil and Grease	mg/L	20		15	once/quarter***	grab
Total Residual Chlorine	mg/L	0.2		0.104	once/day	grab
pH – Units	SU	****		****	continuous	24 hr. recorded
Temperature	C	*		*	once/day	grab

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

Acute Whole Effluent Toxicity (AWET) Test (Note 1) see special condition 12

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE January 28, 2010. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Chronic Whole Effluent Toxicity (CWET) Test (Note 1) see special condition 13

MONITORING REPORTS SHALL BE SUBMITTED ONCE/ 5 YEARS; THE FIRST REPORT IS DUE January 28, 2010. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III 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

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

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #003 - Water Treatment Plant						
Flow	MGD	*		*	once/week	24 hr. total
Total Suspended Solids	mg/L	100		30	once/month	grab
Oil and Grease	mg/L	20		15	once/month	grab
Total Residual Chlorine	mg/L	0.2		0.104	once/month	grab
pH - Units	SU	**		**	once/month	grab
Outfall #004 - Demineralizer System (Now included under Outfall #003)						
Outfall #007 - Sanitary Waste						
Flow	MGD	*		*	once/quarter***	24 hr. estimate
Biochemical Oxygen Demand $_5$	mg/L		65	45	once/quarter***	grab
Total Suspended Solids	mg/L		110	70	once/quarter***	grab
pH – Units	SU	**		**	once/quarter***	grab
Ammonia as N	mg/L	*		*	once/quarter***	grab
Fecal Coliform	cts/100mL	*		*	once/quarter***	grab
Oil and Grease	mg/L	15		10	once/quarter***	grab
Outfall #009 - Intake Heater Blowdown						
Flow	MGD	*		*	once/week when discharge occurs	24 hr. total
Total Suspended Solids	mg/L	100		30	once/week when discharge occurs	grab
Oil and Grease	mg/L	20		15	once/week when discharge occurs	grab
pH - Units	SU	**		**	once/week when discharge occurs	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE April 28, 2009.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III 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

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

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfalls #010, #011, #012, #014 and #015 - Storm Water Runoff, and #017 ultimate heat sink note 2						
See special condition # 9						
MONITORING REPORTS SHALL NOT BE SUBMITTED. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS						
Outfall #016 Cooling tower bypass						
Flow	MGD	*		*	once/quarter***	24 hr. estimate
Total Suspended Solids	mg/L	100		30	once/quarter***	grab
Oil and Grease	mg/L	20		15	once/quarter***	grab
Total Residual Chlorine	mg/L	0.2		0.104	once/quarter***	grab
pH – Units	SU	**		**	once/quarter***	grab
Temperature	C	*		*	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE April 28, 2009. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Acute Whole Effluent Toxicity (AWET) Test (Note 1) see special condition 12						
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE January 28, 2010. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III 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 6.0-9.0 pH units.

*** Sample once per quarter in the months of February, May, August, and November.

**** Permittee shall maintain the pH between 6.0 - 9.0 except excursions from the range are permitted subject to the following limitations:

1. The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and
2. No individual excursion from the range of pH values shall exceed 60 minutes.

Monitoring reports shall show each excursion, the duration of the excursion, and the total excursion time for each month. Should the continuous monitor fail for any reason, daily grab samples shall be provided until repairs are completed.

***** Discharge shall not cause temperature of the mixing zone to increase by more than 5 °F

Note 1 – WET Test must coincide with resumption of discharge after application of molluscicide. Sample taken for WET Test should be representative of a molluscicide dosing event. If molluscicide isn't used by December, use December as the sampling month.

Note 2-- Outfall #017 - Ultimate Heat Sink
There shall be no discharge of wastewater from this outfall to waters of the state of Missouri.

Note 3 -- The average of the temperature of outfall #002 will be used as the river discharge temperature for 316 (a) calculations.

C. SPECIAL CONDITIONS

1. In issuing this permit, the Missouri Clean Water Commission and the Missouri Department of Natural Resources has not determined whether or not the radioactive discharges from this plant will affect waters of the state. Radioactive discharges are the responsibility of the Nuclear Regulatory Commission, and any discharges of these constituents will be under their regulation.

2. Discharge Limitations - There shall be no discharge of polychlorinated biphenyl compounds.

3. Pesticides
   Any pesticide discharge from any point source shall comply with the requirements of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7W.S.C. 136 et. seq.) and the use of such pesticides shall be in a manner consistent with its label.

4. 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.
   (d) Incorporate any items or limitations concerning section 316 (a) and 316(b) of the Clean Water Act.

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

5. The permittee shall conduct the following radiological monitoring:
   a. Liquid Radwaste discharge, surface water and drinking water supply:

	LOCATION	FREQUENCY	SAMPLE TYPE
I.	Radwaste building discharge		
	a) Batch Releases	prior to each batch	a representative grab sample of each batch discharge
	b) Steam Generator Blowdown	once per day when discharging	a representative grab sample
II.	Upstream of discharge line	once/month	grab
III.	Downstream of discharge line at Portland, MO	daily with monthly composite analysis	composite

Samples of Batch Releases are to be analyzed for tritium, I-131, and gamma isotopic for each batch; and for Sr-89, Sr-90, and Fe-55 in a quarterly composite of each batch.

Samples of Steam Generator Blowdown are to be analyzed for tritium, I-131, and gamma isotopic in daily samples; and for Sr-89, Sr-90, and Fe-55 in a quarterly composite of daily samples.

Samples of Surface Water are to be analyzed for tritium and gamma isotopic in monthly samples.

b. Aquatic biota - semiannual sampling of the edible flesh of up to five commercially or recreationally important species of fish of sufficient quantity to yield a sufficient sample. Samples are to be taken at the locations specified in II and III. Samples are to be analyzed by gamma isotopic analysis. Catfish need not be included in sample.

c. Bottom Sediment - semiannual samples of bottom sediment from the locations specified in II and III. Samples are to be analyzed by gamma isotopic analysis.

d. Results of the above monitoring programs shall be reported to the Department by supplying a copy of the Annual Radiological Environmental Operating Report per Technical Specification 5.6.2 and the Annual Radioactive Effluent Release Report per Technical Specification 5.6.3 at the same time they are supplied to NRC. All data information shall be available for inspection during normal working hours.

e. The Department of Natural Resources of the State of Missouri, and any other state agency or officer designated in the State's emergency response plan or any other plan to protect its citizens from radioactive liquid discharge from the Callaway Plant, shall receive within one hour of the event, notice of any unplanned or uncontrolled liquid radioactive release in accordance with 10 CFR 50.72(a) and notification of reportable events per 10 CFR 20.2203 that involve off-site releases of liquid radioactive material.

6. 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.

7. Permittee is exempt from section 311 and superfund reporting under 40 CFR 117.12 (a) 1-3 for the following chemicals: Ammonium Hydroxide, Ethylene Glycol, Hydrazine, Sodium Hydroxide, Sodium Hypochlorite, Sulfuric Acid, and Phosphoric Acid.

8. The 316 (b) study was done in 1984 and 1986. Since there have been no changes to the intake structure, the study is approved for this permit cycle.

9. The company has elected to use Best Management Practices on Storm water outfalls. Monitoring is waived for this permit cycle. If problems occur, monitoring will be re-established by the department. Periodic inspection of these outfalls will be carried out by the permittee to ascertain that BMPs are working. The permittee will create and implement a Storm Water Pollution Prevention Plan that outlines the BMPs to be used. This will be kept at the site and must be made available to inspectors upon request.

10. The Permittee has submitted a letter dated May 30, 2008 stating that none of the chemicals listed at 40 CFR 423 Appendix A as required at 40 CFR 423 .13 (d)(1) are used. This submittal is allowed at 40 CFR 423.13 (d) (3) and was submitted prior to the issuance of this permit. It is a part of the permit file for this facility.

11. Reserved for heat issues.

12. Acute Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT					
OUTFALL	LIMIT	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001	LC50 = 33.3 %	10%, unless diffusers in place	Once/ 5 years when molluscicide is used	24 hr. composite	Any, Report by 1-28-2010
#002	LC50 = 33.3 %	10%, unless diffusers in place	Annually, when molluscicide is used.	24 hr. composite	Any, but report in January. If molluscicide isn't used by December, do test in December
#016	LC50 = 33.3 %	10%, unless diffusers in place	Annually. when molluscicide is used	24 hr. composite	Same as #002

(a) Test Schedule and Follow-Up Requirements

(1) Perform a SINGLE-dilution 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.

(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), 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) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.

(5) The permittee shall submit a concise summary of all test results for the test series to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

(6) 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.

(7) 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.

(8) 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.

(9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.

(10) Submit a concise summary in tabular format of all test results with the annual report.

(b) PASS/FAIL procedure and effluent limitations:

(1) To pass a single-dilution test, 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 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.

(2) 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 LC_{50} 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. Failure of one multiple-dilution test may be considered an effluent limit violation.

(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 "Acceptable Effluent Concentration" (AEC) specified above.

(5) When dilutions are required, 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) Single-dilution tests will be run with:

(a) Effluent at the AEC concentration;

(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.

(7) 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.

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

(9) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

SUMMARY OF TEST METHODOLOGY FOR 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

13. Chronic Whole Effluent Toxicity (CWET) Tests shall be conducted as follows:

SUMMARY OF CHRONIC WET TESTING FOR THIS PERMIT					
OUTFALL	CHRONIC CRITICAL DILUTION (CCD) % **	EFFLUENT DILUTION SERIES (one dilution must be CCD)	FREQUENCY	SAMPLE TYPE	MONTH
#002	10% by default unless diffusers in place	40, 20,10,5, 2.5 %	Once per 5 years	24 hr composite	Any, but report in January 2010. If molluscicide isn't used by December, do test in December

If the CCD is 25% or less dilutions will be 4 times the CCD, two times the CCD, CCD, 1/2 CCD and 1/4 CCD. No CCD can be less than 10% unless an approved diffuser is in place.

Test	Parameter to be reported
Ceriodaphnia dubia, 7-day chronic NOEC static renewal, freshwater	Pass/Fail Survival [TLP3B]+
	No Observable Effect Concentration (lethal) on Survival [TOP3B]+
	Lowest Observable Effect Concentration (lethal) on Survival [TXP3B]+
	% Mortality at Critical Dilution [TJP3B]+
	Pass/Fail Reproduction [TGP3B]+
	No Observable Effect Concentration (sublethal) on Reproduction [TPP3B]+
	Lowest Observable Effect Concentration (sublethal) on Reproduction [TYP3B]+
	Highest % Coefficient of Variation* [TQP3B]+

Pimephales promelas (Fathead minnow), 7-day chronic NOEC static renewal, freshwater	Pass/Fail Survival [TLP6C]+
	No Observable Effect Concentration (lethal) on Survival [TOP6C] +
	Lowest Observable Effect Concentration (lethal) on Survival [TXP6C] +
	% Mortality at Critical Dilution [TJP6C]+
	Pass/Fail Growth [TGP6C]+
	No Observable Effect Concentration (sublethal) on Growth [TPP6C] +
	Lowest Observable Effect Concentration (sublethal) on Growth [TYP6C]+
	Highest % Coefficient of Variation * [TQP6C] +

* for the Chronic Critical Dilution or Control + items in brackets are for WPP use only

** CCD= (design flow of outfall in cfs) / ((7Q10*0.25) + design flow of outfall in cfs)), but not less than 10% unless diffuser in place.

(a) Chronic WET Test Schedule and Follow-Up Requirements

(1) Perform a CHRONIC MULTIPLE-dilution test in the months and at the frequency specified above. For tests which are successfully passed, submit test 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 chronic test, do not repeat the test until the next test period.

(a) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.

(b) Upstream receiving water samples shall be collected upstream from any influence of the effluent discharge.

(c) Samples submitted for analysis of upstream receiving water may be collected as a grab.

(d) 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.

(e) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the chronic WET test shall be performed at the CCD effluent concentration and the 100% effluent concentration.

(f) (reserved)

(g) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.

(h) 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.

(i) Samples submitted for analysis of downstream receiving water may be collected as a twenty-four-hour composite.

(j) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned CCD for in-stream samples.

(k) If the upstream water is unsatisfactory as a result of instream toxicity, the permittee must submit the test results exhibiting receiving water toxicity with the full test report and may thereafter substitute synthetic dilution water for the receiving water in all subsequent tests.

(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.

(3) If the effluent fails the test, another multiple dilution test shall be performed within 30 calendar days and biweekly thereafter, until one of the following conditions are met:

(a) TWO 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) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit and the narrative requirement for aquatic life protection.

(5) The permittee shall submit a summary of all chronic 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 second failed test.

(6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A chronic toxicity identification evaluation (TIE) or chronic 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 chronic TIE or chronic TRE is appropriate. The permittee shall submit a plan for conducting a chronic TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a chronic TIE or TRE. This plan must be approved by DNR before the chronic TIE or TRE is begun. A schedule for completing the chronic TIE or TRE shall be established in the plan approval.

(7) Upon DNR's approval, the chronic TIE/TRE schedule may be modified if toxicity is intermittent during the chronic TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(8) If a previously completed chronic TIE has clearly identified the cause of toxicity, additional chronic TIEs may 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 chronic TRE and reduce toxicity. The time period for completing a TRE shall not exceed 28 months.

(9) During the period that a TRE is being conducted, quarterly chronic WET testing will be required (without the follow-up requirements) even if the permit calls for yearly testing only.

(10) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.

(11) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) Test Conditions

(1) Test Type: Chronic Static 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 Short Term Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms.

(4) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 20%, "reconstituted" water will be used as dilution water. Procedures for generating constituted water will be supplied by the MDNR upon request.

(5) Multiple-dilution tests will be run with the dilution series indicated at the beginning of this special condition and 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent.

(6) If reconstituted-water control mortality for a test species exceeds 20%, the entire test will be rerun.

(7) If upstream control mortality exceeds 20%, the entire test will be rerun using reconstituted water as the dilutant.

(8) See the attachment to the permit entitled "Summary of Test Conditions and Methods for Chronic Whole Effluent Toxicty Tests" for more test conditions.

(c) Methodology

(1) *Ceriodaphnia dubia* chronic static renewal 7-day survival and reproduction test, Method 1002.0, EPA-821-R-02-013 (October 2002. A minimum of ten (10) replicates with one (1) organism per test chamber, must be used in the control and in each of the 5 effluent dilutions of this test. One of the effluent dilutions must be the critical dilution as specified in the permit special conditions. This test should be terminated when 60% of the surviving females in the control produce three broods or at the end of eight days, whichever comes first. If these criteria are not met at the end of 7 days, the test must be repeated.

(2) *Pimephales promelas* (Fathead minnow) chronic static renewal 7-day larval survival and growth test, Method 1000.0, EPA-821-R-02-013 (October 2002). A minimum of five (5) replicates with ten (10) organisms per replicate must be used in the control and in each of the 5 effluent dilutions of this test. One of the effluent dilutions must be the critical dilution as specified in the permit special conditions. This test should be terminated at the end of 7 days.

(3) The $NOEC_L$ (No Observed Lethal Effect Concentration) is defined as the greatest effluent dilution at and below which lethality that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic lethal test failure (chronic $NOEC_L$ test) is defined as a demonstration of a statistically significant lethal effect at test completion to a test species at or below the critical dilution.

(4) The $NOEC_S$ (No Observed Sublethal Effect Concentration) is defined as the greatest effluent dilution at and below which sublethality (inhibited reproduction in the *Ceriodaphnia dubia* test or inhibited growth in the Fathead minnow test) that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic sublethal test failure (chronic NOECS test) is defined as a demonstration of a statistically significant sublethal effect at test completion to a test species at or below the critical dilution.

(d) Test acceptance

(1) The permittee shall repeat a test, including the control and all effluent dilutions, if the procedures and quality assurance requirements defined in the test methods or in this permit are not satisfied, including the following additional criteria:

(2) The toxicity test control (0% effluent) must have survival equal to or greater than 80%.

(3) The mean number of *Ceriodaphnia dubia* neonates produced per surviving female in the control (0% effluent) must be 15 or more.
(4) Sixty (60) percent or more of the surviving *Ceriodaphnia dubia* control females must produce three broods.
(5) The mean dry weight of the surviving Fathead minnow larvae at the end of the 7 days in the control (0% effluent) must be 0.25 mg per larvae or greater.
(6) The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for the young of surviving females in the *Ceriodaphnia dubia* reproduction test and for the growth and survival endpoints of the Fathead minnow test.
(7) The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or sublethal effects are exhibited for the young of surviving females in the *Ceriodaphnia dubia* reproduction test and for the growth and survival endpoints of the Fathead minnow test.
(9) 60% or more of the surviving *Ceriodaphnia dubia* in the control or all of the dilutions must be female. This must be confirmed at the end of the test.

(e) Statistical Interpretation

(1) For the *Ceriodaphnia dubia* survival test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA-821-R-02-013 or most recent update
(2) For the *Ceriodaphnia dubia* reproduction test and the Fathead minnow larval survival and growth test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA-821-R-02-013 or most recent update. 03-07

SUMMARY OF TEST CONDITIONS AND METHODS FOR CHRONIC WHOLE-EFFLUENT TOXICITY TESTS

Chronic Whole Effluent Toxicity tests 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 Short Term Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms.

Test conditions for Ceriodaphnia dubia:

Test type:	static renewal
Duration	7 days, or when 60% of control animals produce 3 broods, but not more than 8 days
Effect measured	decrease in reproduction, death
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination (50-100 ft-c)
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Test solution replacement frequency	Daily
Age of test organisms:	less than 24 hour old
No. of test concentration	5, one must be the critical dilution indicated in permit special conditions for chronic WET tests
No. of animals/test vessel:	1
No. of replicates/concentration:	10
No. of organisms/concentration:	10
Feeding regime:	0.1 mg/day of trout chow, cerophyll, and yeast
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	The highest concentration that causes no observed effect (NOEC) and the lowest concentration that does cause an effect LOEC) for survival and reproduction

Test conditions for (Pimephales promelas):

Test type	Static renewal
Test duration:	7 days
Effect measured	decrease in growth (weight), death
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination (50-100 ft-c)
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	300-500 mL (minimum)
Volume of test solution:	250 mL (minimum)
Test solution replacement frequency	Daily
Age of test organisms:	less than 48 hours (all same age within 8 hours)
No. of test concentrations	5, one must be the critical dilution indicated in permit special conditions for chronic WET test
No. of animals/test vessel:	10
No. of replicates/concentration:	5 (minimum)
No. of organisms/concentration:	50 (minimum) single dilution method
Feeding regime:	0.1 ml containing 700-1000 brine shrimp 3 times a day at 4 hour intervals
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:	The highest concentration that causes no observed effect (NOEC) and the lowest concentration that does cause an effect LOEC) for survival and growth

(03-07)

Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF RENEWAL OF MO-0098001
AMEREN UE, CALLAWAY POWER PLANT

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

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

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

This Factsheet is for a Major ☒, Industrial Facility ☒

Part I – Facility Information

Facility Type: Industrial
Facility SIC Code(s): 4911

Facility Description: nuclear power plant

Application Date: March 20. 2008
Expiration Date: October 2, 2008
Last Inspection: In Compliance ☒;

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
#001	0.46	none	Rad waste	0
#002	22.32	none	Cool tower blowdown	0
#003	2.55	none	Water treatment plant waste	0
#007	0.06	Sanitary waste water lagoon	Sanitary waste water lagoon	0
#009	0.009	Intake heater blowdown	Intake heater blowdown	0
#010	7.13	Settling pond	Storm Water	1.5
#011	30.54	Settling pond	Storm Water	2.0
#012	10.23	Settling pond	Storm Water	4.5
#013	eliminated	---	Now flows to #012	---
#014	7.44	Settling pond	Storm Water	4.0
#015	4.34	Settling pond	Storm Water	4.0
#016	22.32	Settling pond	Cooling Tower bypass	0
#017	0	none	Ultimate heat sink	0

Water Quality History: No significant non compliances. Had radiation (Tritium) leak in main discharge pipeline. New line is now completed.

Comments: All radioactive analytes are regulated by Nuclear Regulatory Commission, not the Missouri Department of Natural Resources.

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;

- Population Equivalent greater than two hundred (200): ☒

This facility currently requires an operator with D 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: Steven Weiss, Ameren Services, 1901 Chouteau Ave, St. Louis, MO 63166
Certification Number: 9639
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 list effluent limitations for specific parameters, which are presented in each outfall's Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

Missouri or Mississippi River [10 CSR 20-7.015(2)]: ☒

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**
Mud Creek	U	--	Narrative criteria	10300102	OZARK/ MOREAU/ LOUTRE
Logan Creek	U	--	Narrative criteria		
Cow Branch	U	--	Narrative criteria		
Missouri River	P	00701	IRR,LWW,AQL,SCR, DWS,IND,WBC***		

* - 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 7-13-2005 and approved on DATE or disapproved on DATE.

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Cow Creek U	0	0	0
Mud Creek U	0	0	0
Logan Creek U	0	0	0
Missouri River P		61,000	

MIXING CONSIDERATIONS TABLE:

MIXING ZONE (CFS) [10 CSR 20-7.031(4)(A)4.B.(II)(a)]			ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(4)(A)4.B.(II)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
	15,250			1,525	

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

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

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

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

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

☒ - 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.

APPLICABLE PERMIT PARAMETERS:
Effluent parameters contained in Factsheets and Missouri State Operating Permits are obtained from Technology Based Effluent Limit (TBEL), Missouri's Effluent Regulations [10 CSR 20-7.015], Missouri's Water Quality Standards [10 CSR 20-7.031], previous Missouri State Operating Permits, and from Operating Permit Applications.

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)].

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

REMOVAL EFFICIENCY:
Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs). Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm

Not Applicable ☒;
This wastewater treatment facility is not a POTW. Influent monitoring is not being required to determine percent removal.

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

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

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

Not Applicable ☒;
This permit does not contain a SOC.

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

Applicable ☒;
A SWPPP shall be developed and implemented for storm water outfalls and shall incorporate required practices identified by the department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

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

Not Applicable ☒;
This operating permit is not drafted under premises of a petition for variance.

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

Not Applicable ☒;
Wasteload allocations were not calculated.

WLA MODELING:

Not Applicable ☒;
A WLA study was either not submitted or determined not applicable by department staff.

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

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 specialist 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 <u>all</u> 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 NH_3)
☐ Facility is a municipality or domestic discharger with a Design Flow $\geq$ 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

Applicable ☒;
Missouri River is listed on the 2003 Missouri 303(d) List for PCBs and Chlordane.

☒ – This facility is not considered to be a source of the above listed pollutant(s) or considered to contribute to the impairment of the Missouri river.

Part V – Effluent Limits Determination

Outfall #001 – Radwaste Treatment System - SIC #4911 (Piped to Missouri River)

Daily average flow is 0.027 MGD.
Daily maximum flow is 0.298 MGD
Legal Description: NE ¼, NE ¼, Sec. 14, T46N, R8W, Callaway
Latitude/Longitude: +3845424/-09146462
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-28004)

#001 EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMIT	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	SAME
BOD_5	MG/L	1	*		*	NO	SAME
TSS	MG/L	1	45		30		SAME
pH	SU	1	6-9		6-9	NO	SAME
CHLORINE, TOTAL RESIDUAL	MG/L	3	0.2		0.104	YES	190/* UG/L
OIL & GREASE (MG/L)	MG/L	1	20		15	NO	SAME
BORON, TOTAL RECOVERABLE	MG/L	3	*		*	NO	SAME
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only
** -reserved
*** - Parameter not previously established in previous state operating permit.
N/A – Not applicable

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

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- **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.

- **Boron, total recoverable.** Monitoring only retained from previous permit, and is deemed to be protective.

- **Biochemical Oxygen Demand (BOD_5).** Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **Total Suspended Solids (TSS).** Limit from 40 CFR 423 .13. Effluent limitations have been retained from previous state operating permit and is deemed to be protective.

- **pH**. Limit from 40 CFR 423.13. Effluent limitations have been retained from previous state operating permit, and is deemed to be protective,

- **Total Residual Chlorine (TRC)**. 40 CFR 423 also governs this analyte in addition to the calculated limits below.

Limits have been calculated for the discharge of TRC: Warm-water Protection of Aquatic Life CCC = 10 ug/L, CMC = 19 ug/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 ug/L.

Chronic WLA: $C_e = 10\ ((0.462 + 15{,}250)) / 0.462$
$C_e = 330{,}097$ ug/L

Acute WLA: $C_e = 19\ ((0.462 + 4.62) / 0.462$, used 4.62 due to not over 10 times design flow rule
$C_e = 209$ ug/L

LTA_c = 330,097 ug/L (0.527) = 173,961 ug/L [CV = 0.6, 99th Percentile]
LTA_a = 209 ug/L (0.321) = 67.08 ug/L [CV = 0.6, 99th Percentile]

MDL = 67.08 ug/L (3.11) =208.64 ug/L [CV = 0.6, 99th Percentile]
AML = 67.08 ug/L (1.55) = 103.97 ug/L [CV = 0.6, 95th Percentile, n = 4]

Total Residual Chlorine effluent limits of 0.209 mg/L daily maximum, 0.104 mg/L monthly average are recommended if chlorine is used as a disinfectant. Since limits at 40 CFR 423 are set below 0.209 mg/l, that limit of 0.2 mg/l will be used for daily.

- **Oil & Grease**. Limit from 423.13. Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.
- **Temperature.** Monitoring Only

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

- **Outfall #001 WET Tests**. WET Testing schedules and intervals are established in accordance with the department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.
  ☒ Acute

  ☒ No less than **ONCE/5 YEARS:** based on the fact that this is an intermittent discharge.

Allowable Effluent Concentration (AEC) calculations determine if the facility is to conduct single dilution or multiple dilution WET testing. Facilities that discharge to unclassified or Class C receiving streams, the AEC% is 100%. Facilities with less than 100% for an AEC% will have multiple dilution WET testing. Facilities that discharge to Lakes and have Acute WET testing, the AEC% is 100% due to [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] ZID not allowed for Lakes.

Allowable Effluent Concentration % for Acute WET test = (Design flow in CFS of outfall #001 / ((7Q10 x 0.25 x 0.1) + (design flow in cfs of outfalls #001))

(0.447 cfs) / ((15,250 cfs x 0.25 x 0.1) + 0.447 cfs =0.001171 = 0.0117= 10% by default, unless diffuser is put in place.

Outfall #002 - Cooling Tower Blowdown: (Piped to Missouri River)
Daily average flow is 4.84 MGD.
Daily maximum flow is 14.4 MGD.
This outfall consists of water from the Circulating Water System, the Service Water System, and the Essential Service Water (ESW) System. Blowdown from the cooling tower is necessary to maintain the dissolved solids concentration in the recirculating water system within acceptable operating limits. The ESW System is not routinely used, however water from the ESW System does mix with the other systems as it is periodically run to demonstrate operability. Additionally, the ESW System can be used to maintain proper freeboard in the ultimate heat sink pond (see Outfall #017 description) by transferring water to the Service Water System.
Legal Description: NW ¼, NW ¼, Sec. 13, T46N, R8W, Callaway
Latitude/Longitude: +3845459/-09146388
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-28004)
#002 EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	SAME
TOTAL SUSPENDED SOLIDS	MG/L	1	*		*	NO	SAME
TOTAL DISSOLVED SOLIDS	MG/L	1	*		*	NO	SAME
PH	SU	1	6-9		6-9	NO	SAME
OIL & GREASE (MG/L)	MG/L	9	20		15	NO	SAME
SULFATE	Mg/L	3	*		*	NO	SAME
TOTAL RESIDUAL CHLORINE	mg/L	3	0.2		0.104	YES	190/*MG/L
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only
** - reserved.
*** - Parameter not previously established in previous state operating permit.
N/A – Not applicable

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

OUTFALL #002 – DERIVATION AND DISCUSSION OF LIMITS:

- **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.

- **Total Dissolved Solids.** Limit from 423.13. Monitoring retained from previous permit, and is deemed to be protective.

- **Total Suspended Solids (TSS).** Limit from 423.13. Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **pH**. Limit from 423.13. Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **Oil & Grease**. 40 CFR 423.13

- **Temperature.** Monitoring Only

- **Total Residual Chlorine (TRC).**

Limits have been calculated for the discharge of TRC: Warm-water Protection of Aquatic Life CCC = 10 ug/L, CMC = 19 ug/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 ug/L.

Chronic WLA: C_e = 10 ((22.32 + 15,250)) /22.32
C_e = 6842.44 ug/L

Acute WLA: C_e = 19 ((22.32 +223.20)/ 22.32, used 22.32 due to not over 10 times design flow rule
C_e =209. ug/L

LTA_c = 6842 ug/L (0.527) = 3,605 ug/L [CV = 0.6, 99th Percentile]
LTA_a = 209 ug/L (0.321) = 67.08 ug/L [CV = 0.6, 99th Percentile]

MDL = 67.08 ug/L (3.11) =208.64 ug/L [CV = 0.6, 99th Percentile]
AML = 67.08 ug/L (1.55) = 103.97 ug/L [CV = 0.6, 95th Percentile, n = 4]

Total Residual Chlorine effluent limits of 0.208 mg/L daily maximum, 0.104 mg/L monthly average are recommended if chlorine is used as a disinfectant. Since limits at 40 CFR 423 are set below 0.209 mg/l, that limit of 0.2 mg/l will be used for daily.

Outfall #002 WET Tests. 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.

☒ Chronic

☒ No less than **ONCE/PERMIT CYCLE:**
- ☒ Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
- ☒ Facility has Water Quality-based effluent limitations for toxic substances (other than NH_3).

☒ Acute

☒ No less than **ONCE/YEAR:**
- ☒ Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
- ☐ Facility continuously or routinely exceeds their design flow.
- ☐ Facility exceeds its design population equivalent (PE) for BOD_5 whether or not its design flow is being exceeded.
- ☒ Facility has Water Quality-based effluent limitations for toxic substances (other than NH_3).

Allowable Effluent Concentration (AEC) calculations determine if the facility is to conduct single dilution or multiple dilution WET testing. Facilities that discharge to unclassified or Class C receiving streams, the AEC% is 100%. Facilities with less than 100% for an AEC% will have multiple dilution WET testing. Facilities that discharge to Lakes and have Acute WET testing, the AEC% is 100% due to [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] ZID not allowed for Lakes.

Allowable Effluent Concentration % for Acute WET test = (Design flow in CFS of outfall #002) / ((7Q10 x 0.25 x 0.1) + (design flow in cfs of outfalls # 002))

(22.32 cfs) / ((15,250 cfs x 0.25 x 0.1) + 22.32 cfs = 0.055 = 5.5%= 10% by default unless diffuser is put in place.

Critical Chronic Dilution (CCD) % for Chronic WET test= Design flow in CFS of outfalls #001, 002, 003, and 016 / ((7Q10 x 0.25) + (design flow of #001, 002,003 and 016)

= 22.32 cfs / ((15,250cfs x 0.25) + (22.32 cfs) = 0.00573 = 0.573% = 10 % by default

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

Outfall #003 - Water Treatment Plant Wastes (Piped to Missouri River)

Daily average flow is 0.0 MGD.
Daily maximum flow is 1.645 MGD.
(These flows represent wastewater discharged to the settling basin, actual discharge will vary depending on recycle.) Outfall #003 consists supernatant from a wastewater treatment lagoon that treats wastewater to remove solids. The wastewater that is treated in the lagoon is mainly from the blowdown of accumulated river solids in the water treatment plant clarifiers. The sand and carbon filter backwash, oil water separator and demineralizer system wastewater is also routed to this treatment lagoon. The oil water separator flow consists of wastewater from some plant sumps as well as flow from an oil recovery well that is being used to remediate a historic on-site release. Outfall #003 is normally recycled by routing it back to the head of the water treatment plant.
Legal Description: SW ¼, SW ¼, Sec. 13, T46N, R8W, Callaway
Latitude/Longitude: +3845065/-09146409
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-28004)

#003 EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	SAME
TOTAL SUSPENDED SOLIDS	MG/L	1	100		30	NO	SAME
pH	SU	1	6-9		6-9	NO	SAME
OIL & GREASE (MG/L)	MG/L	1	20		15	NO	SAME
TOTAL RESIDUAL CHLORINE	MG/L	1	0.2		0.104	YES	190/* UG/L
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only
** - # of colonies/100mL; the Monthly Average for Fecal Coliform is a geometric mean.
*** - Parameter not previously established in previous state operating permit.
N/A – Not applicable

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

OUTFALL #003 – DERIVATION AND DISCUSSION OF LIMITS:

- **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.

- **Total Suspended Solids (TSS).** Limit from 423.13. Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **pH**. Limit from 423.13. Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **Total Residual Chlorine (TRC)**. See calculations at outfall #002 , above.

- **Oil & Grease**. Limit from 40 CFR 423.13. Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **Outfall #003 WET Tests**. Since this flow is recycled back to treatment headworks, no WET test is required.

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

Outfall #007 – 3 Cell Flow Through Lagoon (Piped to Missouri River)

Daily average flow is 0.0 MGD.
Maximum flow is 0.040 MGD.
Design Population Equivalent is 400.
This outfall consists of a 3-cell lagoon designed to receive only sanitary and on-site cafeteria waste from the plant. Sludge will be stored in the lagoon. The effluent will then be discharged to a constructed wetland. Outfall #007 is normally recycled by routing it to the water treatment plant headworks.
Legal Description: SW ¼, SW ¼, Sec. 13, T46N, R8W, Callaway
Latitude/Longitude: +3845123/-09146318
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-28004)

#007 EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	SAME
TOTAL SUSPENDED SOLIDS	MG/L	1		110	70	NO	SAME
BIOLOGICAL OXYGEN DEMAND$_5$	MG/L	1		65	45	NO	SAME
pH	SU	1	6-9		6-9	NO	SAME
OIL & GREASE (MG/L)	MG/L	9	15		10	YES	20/15
FECAL COLIFORM	#/100mL	4	*		*	YES	***
AMMONIA AS N	Mg/L	11	*		*	YES	***
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only
** - # of colonies/100mL; the Monthly Average for Fecal Coliform is a geometric mean.
*** - Parameter not previously established in previous state operating permit.
N/A – Not applicable

Basis for Limitations Codes:

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

OUTFALL #007 – DERIVATION AND DISCUSSION OF LIMITS:

- **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 (BOD_5).** Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **Total Suspended Solids (TSS).** Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **pH**. Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **Fecal Coliform.** Monitoring only added.

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

  Outfall #007 WET Tests. Since this flow is recycled back to treatment headworks, no WET test is required.

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

Outfall #009 - Intake Heater Blowdown: (Located on Missouri River)

Daily average flow 0 MGD.
Daily maximum flow is 0.006 MGD.
The river intake structure contains two recirculating electric heaters which are used to prevent ice formation on the intake bar screens during the winter months. Outfall #009 consists of discharges from the infrequent blowdown or drainage of these boilers.
Legal Description: NW ¼, NW ¼, Sec. 5, T45N, R7W, Callaway
Latitude/Longitude: +3842127/-09146185
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-28004)

#009 EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	SAME
TOTAL SUSPENDED SOLIDS	MG/L	1	100		30	NO	100/30
pH	SU	1	6-9		6-9	NO	6-9
OIL & GREASE	MG/L	1	20		15	NO	SAME
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only
** - # of colonies/100mL; the Monthly Average for Fecal Coliform is a geometric mean.
*** - Parameter not previously established in previous state operating permit.
N/A – Not applicable

Basis for Limitations Codes:

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

OUTFALL #009 – DERIVATION AND DISCUSSION OF LIMITS:

- **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.

- **Total Suspended Solids (TSS).** Limit from 423.13. Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **pH**. Limit from 40 CFR 423.13 Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **Oil & Grease**. Limit from 40 CFR 423.13. Conventional pollutant, effluent limitation for protection of aquatic life; 10 monthly average, 15 mg/L daily maximum.

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

Outfalls #010, #011, #012, #014, #015 and #017 - Storm Water Runoff

For this permit cycle, Best Management Practices are being implemented. The permittee will develop a Storm Water Pollution Prevention Plan within 3 months of permit issuance and have it available at the site.

Outfall #016 - Cooling Tower Bypass (Piped to Missouri River)

Daily average flow is 3.32 MGD.
Maximum daily flow is 14.4 MGD.
This outfall consists of clarified river water and wastewater that has been recycled through the water treatment plant. It is used to moderate flow through the water treatment plant and to provide carrier water in the discharge line when discharging from Outfall #001.
Legal Description: NW ¼, NW ¼, Sec. 13, T46N, R8W, Callaway
Latitude/Longitude: +3846128/-09147052
Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri (P) (00701)
USGS Basin & Sub-watershed No.: (10300102-28004)

#016 EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	SAME
TOTAL SUSPENDED SOLIDS	MG/L	1	100		30	NO	100/30
pH	SU	1	6-9		6-9	NO	6-9
OIL & GREASE	MG/L	1	20		15	NO	SAME
TOTAL RESIDUAL CHLORINE	Mg/L	1	0.2		0.104	YES	190/* MG/L
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only
** - # of colonies/100mL; the Monthly Average for Fecal Coliform is a geometric mean.
*** - Parameter not previously established in previous state operating permit.
N/A – Not applicable

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

OUTFALL #016 – DERIVATION AND DISCUSSION OF LIMITS:

- **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.

- **Total Suspended Solids (TSS).** Limit from 423.13. Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **Total Residual Chlorine (TRC)**. See calculations at outfall #002, above.

- **pH**. Limit from 423.13. Effluent limitations have been retained from previous state operating permit, and is deemed to be protective.

- **Oil & Grease**. Limit from 423.13. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

- **Temperature.** Monitoring Only

- **Outfall #016 WET Tests**. WET Testing schedules and intervals are established in accordance with the department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.

  ☒ Acute

  ☒ No less than **ONCE/YEAR:**
  - ☒ Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
  - ☐ Facility continuously or routinely exceeds their design flow.
  - ☐ Facility exceeds its design population equivalent (PE) for BOD_5 whether or not its design flow is being exceeded.
  - ☒ Facility has Water Quality-based effluent limitations for toxic substances (other than NH_3).

  Allowable Effluent Concentration (AEC) calculations determine if the facility is to conduct single dilution or multiple dilution WET testing. Facilities that discharge to unclassified or Class C receiving streams, the AEC% is 100%. Facilities with less than 100% for an AEC% will have multiple dilution WET testing. Facilities that discharge to Lakes and have Acute WET testing, the AEC% is 100% due to [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] ZID not allowed for Lakes.

  Allowable Effluent Concentration % for Acute WET test = (Design flow in CFS of outfall #016) / ((7Q10 x 0.25 x 0.1) + (design flow in cfs of outfalls # 002))

  (22.32 cfs) / ((15,250 cfs x 0.25 x 0.1) + 22.32 cfs =0.055 = 5.5%= 10% by default unless diffuser is put in place.

- **Minimum Sampling and Reporting Frequency Requirements**. Sampling and reporting frequency requirements have been retained from previous state operating permit, and is deemed to be protective.

Part VI – Administrative Requirements

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

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

☒ - The Public Notice period for this operating permit was from October 3, 2008 to November 3, 2008. Responses to the Public Notice of this operating permit warranted the modification of the terms and conditions of this permit. Outfall #018 was eliminated and the analytes and WET testing in that outfall (which was an artificial composite of other outfalls) distributed to outfalls #001, #002, and #016.

DATE OF FACT SHEET: AUGUST 13, 2008

COMPLETED BY:

TIM STALLMAN, ENVIRONMENTAL SPECIALIST
WATER PROTECTION PROGRAM
PERMITTING AND ENGINEERING SECTION
NPDES AND STORM WATER PERMITS UNIT

Part VII – Appendices

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

APPENDIX # - 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	0
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	0
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	0
Raw wastes subject to toxic waste discharge	6	0
SECONDARY TREATMENT		
Trickling filter and other fixed film media with secondary clarifiers	10	0
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	0
Stabilization ponds without aeration	5	0
Aerated lagoon	8	0
Advanced Waste Treatment Polishing Pond	2	0
Chemical/physical – without secondary	15	0
Chemical/physical – following secondary	10	0
Biological or chemical/biological	12	0
Carbon regeneration	4	0
DISINFECTION		
Chlorination or comparable	5	0
Dechlorination	2	0
On-site generation of disinfectant (except UV light)	5	0
UV light	4	0
SOLIDS HANDLING - SLUDGE		
Solids Handling Thickening	5	
Anaerobic digestion	10	0
Aerobic digestion	6	0
Evaporative sludge drying	2	0
Mechanical dewatering	8	0
Solids reduction (incineration, wet oxidation)	12	0
Land application	6	0
Total from page **TWO (2)**	----	
Total from page **ONE (1)**	---	
Grand Total	---	1

☐ - A: 71 points and greater
☐ - B: 51 points – 70 points
☐ - C: 26 points – 50 points
☒ - D: 0 points – 25 points