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-0004812

Owner: Union Electric Company (UE)

Owner's Address: P.O. Box 149, St. Louis, Missouri 63166

Operating Authority: N/A

Operating Authority's Address: N/A

Facility Name: UE, Labadie Power Plant

Facility Address: Labadie, Missouri 63055

Legal Description: Parts of Sections 7, 18 and 19, T44N, R2E, Franklin County

Receiving Stream & Basin: Missouri River (Missouri River and Eastern Tributaries Basin) (10300200-14-00) (P)

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

FACILITY DESCRIPTION

Outfall #001 - Power Plant - SIC #4911

Non-contact cooling water.
Actual flow is 1,029 MGD.
Design flow is 1,428 MGD.

(continued on next page)

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.

March 18, 1994
Effective Date

John A. Young
Director, Division of Environmental Quality

March 17, 1999
Expiration Date

ORIGINAL SIGNED BY DIRECTOR OF STAFF, CLEAN WATER COMMISSION
Director of Staff, Clean Water Commission

MO 780-0041 (10-93)

FACILITY DESCRIPTION

Outfall #002 - Power Plant - SIC #4911

Ash pond/pH neutralization.
Actual flow is 25.4 MGD.
Design flow is 57.8 MGD.

Outfall #002A - Power Plant - SIC #4911

Lift station/extended aeration/aerated sludge holding tank/sludge disposal is by contract hauler.
Design flow is 35,000 gallons per day.
Design population equivalent is 270.
Design sludge production is 5.67 dry tons/year.

Outfalls #003 - Power Plant - SIC #4911

Storm water runoff from parking areas and drives.
Representative of four similar discharge pipes, a-d.

a. 10-inch corrugated metal pipe (cmp)
b. 24-inch cmp
c. 24-inch cmp
d. 24-inch cmp

Flow is dependent upon precipitation.

Outfall #004 - Power Plant - SIC #4911

Storm water runoff from an outdoor materials storage area.
24-inch cmp
Flow is dependent upon precipitation.

Outfall #005 - Power Plant - SIC #4911

Storm water runoff from various plant yards, plant building roof drains and the access road.
24-inch cmp
Flow is dependent upon precipitation.

Outfall #006 - Power Plant - SIC #4911

Storm water runoff from the access road.
18-inch cmp*
Flow is dependent upon precipitation.

* Monitoring of Outfall #007 is representative of this discharge.

Outfall #007 - Power Plant - SIC #4911

Storm water runoff from the access road. Representative of six similar discharge pipes, a-f.
Each pipe is an 18-inch cmp.
Flow is dependent upon precipitation.

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 #001 - (Non-Contact Cooling Water)						
Flow	MGD	*		*	once/weekday**	24 hr. total
Intake Temperature	°F	*		*	once/weekday**	grab
Effluent Temperature	°F	*		*	once/weekday**	grab
Thermal Discharge (Internal Energy Increase)	btu/hour	11.16×10^9 (Note 1)			once/weekday**	n/a
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY, THE FIRST REPORT IS DUE October 28, 1994						
Outfall #001 - (Non-Contact Cooling Water)						
Whole Effluent Toxicity (WET) Test	% Survival	(See Special Condition #1)			once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY, THE FIRST REPORT IS DUE October 28, 1994						

MONITORING REPORTS SHALL BE SUBMITTED as outlined above ; THE FIRST REPORT IS DUE as outlined above
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 & August 15, 19 94 , 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 #002 - (Ash Pond)						
Flow	MGD	*		*	once/week	24 hr. total
Intake Total Suspended Solids	mg/l	*		*	once/week	grab
Effluent Total Suspended Solids***	mg/l	100		30	once/week	grab
Oil and Grease	mg/l	20		15	once/month	grab
pH - Units	SU	****		****	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY, THE FIRST REPORT IS DUE May 28, 1994						
Outfall #002 - (Ash Pond) (Note 2)						
Sulfate (as SO_4)	mg/l	*		*	once/quarter *****	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY, THE FIRST REPORT IS DUE July 28, 1994						
Outfall #002 - (Ash Pond)						
Whole Effluent Toxicity (WET) Test	% Survival	(See Special Condition #1)			once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY, THE FIRST REPORT IS DUE October 28, 1994						

MONITORING REPORTS SHALL BE SUBMITTED as outlined above ; THE FIRST REPORT IS DUE as outlined above
THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Part I & III STANDARD CONDITIONS DATED October 1, 1980 & June 22, 19 93, 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 #002A - (Sewage Treatment Plant) (Note 2)						
Flow	MGD	*		*	once/month	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/l		45	30	once/quarter *****	grab
Total Suspended Solids	mg/l		45	30	once/quarter *****	grab
pH - Units	SU	****		****	once/quarter *****	grab
Outfalls #003, #004, #005, #006 and #007 - (Storm Water) (Note 2)						
Flow	MGD	*		*	once/quarter *****	24 hr. estimate
Settleable Solids	ml/L/hr	2.0		1.0	once/quarter *****	grab
Oil and Grease	mg/l	15		10	once/quarter *****	grab
pH - Units	SU	****		****	once/quarter *****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY ; THE FIRST REPORT IS DUE July 28, 1994
THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Part I & III STANDARD CONDITIONS DATED October 1, 1980 & June 22, 19 93, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE

* Monitoring requirement only.

** Once each weekday means: Monday, Tuesday, Wednesday, Thursday and Friday.

*** Intake Total Suspended Solids values may be used to calculate "net" limitations, however, permittee must continue to maintain the ash pond system for adequate retention time for settling. River solids present in intake water are "treated" in the ash pond system but treatment levels are dependent on concentration and types of river solids present in intake water.

**** 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.

***** Once a quarter in the months of February, May, August and November.

Note 1 - The percent of concurrent receiving-stream flow that exceeds a 5 °F increase shall be computed daily and the results reported quarterly. Complete and uniform mixing shall be assumed, using the following formula:

$$\%\ \text{stream flow exceeding } 5^\circ \text{ increase} = \frac{\text{average daily btus/hour}}{\text{stream flow (cfs)} \times 11{,}200}$$

USGS stream-flow records for the Missouri River at Hermann shall be used.

Note 2 - The first quarterly report due date for this reissued permit is based on a complete calendar quarter monitoring period. Monitoring shall be reported once per quarter for the entire life of the permit. The permittee is still responsible for reporting for the preceding calendar quarter under the previous permit.

C. SPECIAL CONDITIONS

1. Whole Effluent Toxicity (WET) Tests

WET tests will be conducted annually for Outfall #001 only if biocides are used. Outfall #002 (Ash Pond) will have annual tests.

WET tests will be conducted as follows:

a. Effluent Limitations

(1) Using 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. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

(2) Using multiple-dilution test:

(a) the computed percent effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,

(b) all dilutions equal to or greater than the AEC must be nontoxic.

b. Test Schedule and Follow-Up Requirements

(1) Perform a single-dilution test in the month of July and as outlined in permit thereafter.

If the test passes the effluent limit do not repeat test until the next test period. Submit results with the annual report.

If the test fails the effluent limit, a multiple dilution test shall be performed within 30 days, and biweekly thereafter 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. The permittee shall conduct a "Toxicity Identification Evaluation" (TIE) and send report to DNR within 180 days.

(2) All failing test results shall be reported to DNR within 14 days of the availability of results.

(3) When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

C. SPECIAL CONDITIONS (continued)

1. Whole Effluent Toxicity (WET) Tests (continued)

c. 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. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

(2) To pass a multiple-dilution test:

(a) the computed percent effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,

(b) all dilutions equal to or greater than the AEC must be nontoxic.

Failure of one multiple-dilution test is considered an effluent limit violation.

d. Test Conditions

(1) Test species: Ceriodaphnia dubia and fathead minnows, Pimephales promelas. Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.

(2) Test period: 48 hours
"Acceptable Effluent Concentration" (AEC): 81% effluent (Outfall #001)
"Acceptable Effluent Concentration" (AEC): 15% effluent (Outfall #002)

(3) When dilutions are required, upstream receiving stream water will be used as dilution water, if available; otherwise, "reconstituted" water will be used. Procedures for generating reconstituted water will be supplied by the Department of Natural Resources (DNR).

(4) Tests should be run on a grab sample of the effluent. Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after collection.

(5) 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.

C. SPECIAL CONDITIONS (continued)

1. Whole Effluent Toxicity (WET) Tests (continued)

d. Test Conditions (continued)

(6) 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.

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

(8) If mortality in the upstream receiving stream water control exceeds 10%, the MDNR should be notified immediately for guidance on how to proceed.

(9) The following information will be reported: Time and date of effluent collection. Time and date of arrival of effluent to laboratory and effluent temperature. Time and date of test initiation. Initial pH, dissolved oxygen, ammonia, total residual chlorine, conductivity, and temperature measurements. Final measurements of each test concentration of pH, dissolved oxygen, ammonia-N, and conductivity. Daily measurements of temperature. Time of any adjustments to dissolved oxygen. Results of all toxicity tests including controls and reference toxicant tests and date reference toxicant test was last performed. Date the report of tests was completed and the signature of person conducting tests and the Director of the laboratory.

(10) All other test methods and procedures should be consistent with guidance given in the EPA Handbook 600/4-90/027, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (4th edition), published September, 1991 or subsequent updates.

2. Report as no-discharge when a discharge does not occur during the report period.

3. This permit may be modified, or alternatively revoked and reissued, to 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:

(a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

(b) Controls any pollutant not limited in the permit.

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

C. SPECIAL CONDITIONS (continued)

4. There shall be no release of polychlorinated biphenyl compounds (PCBs) to waters of the state at or above the level of quantification currently defined as 1 ug/l or 1 ppb.

5. Discharge of wastewater from this facility must not alone or in combination with other sources cause the receiving stream to violate the following:

   (a) Water temperatures and temperature differentials specified in Missouri Water Quality Standards shall be met.

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

7. Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day.

8. An upset provision, identical to the upset provision set forth at 10 CSR 122.41(n), is hereby incorporated in this permit.

9. 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 ug/l);

      (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4 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.

10. Permittee is to abandon the treatment facilities described herein and shall connect the tributary waste load to trunk sewers within 90 days of notice of availability if trunk sewers operated by one of the authorities outlined in Section (3)(B) 1 or 2 of Clean Water Commission Regulation 10 CSR 20-6.010 are made available to the site during the time a valid discharge permit exists.

C. SPECIAL CONDITIONS (continued)

11. The following criteria shall be applicable to all waters of the state at all times including mixing zones:

(A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;

(B) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;

(C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses; and

(D) Waters shall be free from substances or conditions in sufficient amounts to have a harmful effect on human, animal or aquatic life.

12. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities

a. Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.

13. Treatment or Storage of Ash from Power Plants

(a) Disposal of ash is not authorized by this permit.

(b) This permit does not pertain to permits for disposal of ash or exemptions for beneficial uses of ash under the Missouri Solid Waste Management Law and regulations.

(c) This permit does not authorize off-site storage, use or disposal of ash in regard to water pollution control permits required under 10 CSR 20-6.015 and 10 CSR 20-6.200.

(d) Subsurface discharges from wastewater treatment ponds or ash ponds shall, at the property boundary, meet the effluent limitations for subsurface waters of the state under 10 CSR 20-7.015(7), with appropriate consideration of up-gradient water quality.

November 5, 1993

FACT SHEET

UE, Labadie Power Plant

NPDES No. MO-0004812

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollutant Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States. 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. Permits in Missouri are issued by the Director of the Department of Natural Resources 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).

Union Electric Company, P.O. Box 149, St. Louis, Missouri 63166, has applied for reissuance of State Operating Permit No. MO-0004812 for its Labadie Power Plant in Labadie, Missouri. The Labadie Power Plant is a coal fired generating station providing electrical services. The Standard Industrial Classification (SIC) code is 4911.

The application for discharge permit requests authorization for seven (7) discharges. These outfalls are described below:

001 Non-contact cooling water
Water is withdrawn form the river, passed through condensers and other heat exchangers, and returned to the river.
Design flow is 1,428 MGD. Actual flow is 1,029 MGD.

002 Ash Pond
The pond provides treatment for fly ash, bottom ash and low volume waste and treated sanitary waste streams.
Design flow is 57.8 MGD. Actual flow is 25.4 MGD.

002A Sludge Holding Tank

Sludge disposal is by contract hauler.

003 Stormwater Runoff (SW001)
Storm water runoff from parking areas and drives.
Representative of four similar discharge pipes, a-d.
a. 10-inch corrugated metal pipe (cmp)
b. 24-inch cmp
c. 24-inch cmp
d. 24-inch cmp
Flow is dependent upon precipitation.

004 Stormwater Runoff (SW002)
Storm water runoff from an outdoor materials storage area.
24-inch cmp
Flow is dependent upon precipitation.

005 Stormwater Runoff (SW003)
Storm water runoff from various plant yards, plant building roof drains and the access road.
24-inch cmp
Flow is dependent upon precipitation.

006 Stormwater Runoff (SW004)
Storm water runoff from the access road.
18-inch cmp*
Flow is dependent upon precipitation.
* Monitoring of Outfall #007 is representative of this discharge.

007 Stormwater Runoff (SW005)
Storm water runoff from the access road. Representative of six similar discharge pipes, a-f.
Each pipe is an 18-inch cmp.
Flow is dependent upon precipitation.

The Labadie Power Plant, Outfalls #001 and #002, currently discharges at an average of 1,054 MGD. The plant discharges into the Missouri River (Missouri River and Eastern Tributaries Basin), in parts of Sections 7, 18 and 19, T44N, R2E, Franklin County.

According to 10 CSR 20-7.031 Missouri Water Quality Standards, Missouri Department of Natural Resources (the Department) "defines the Clean Water Commission's water quality objectives in terms of water uses to be maintained and the criteria to protect those uses". For the portion of the Missouri River, where this outfall discharges, the Water quality Standards list the following beneficial water uses to be maintained:

Aquatic-life protection (general warm-water fishery); livestock, wildlife watering; drinking-water supply; irrigation; industrial; boating.

In order to protect these beneficial uses and the water quality of the Missouri River, effluent limitations are being established under Federal and State laws. Domestic waste discharges are limited under the Department's current Effluent Regulations, 10 CSR 20-7.015. The current department "Effluent Regulations", 10 CSR 20-7.015(2)(C) states that non-domestic water contaminant sources "shall meet the applicable control technology currently effective as published by the Environmental Protection Agency (EPA) in 40 CFR 405-571 as revised on July 1, 1987. Where there are no such standards available or applicable the department shall set specific parameter limitations using best professional judgement." Guided by the Effluent Regulations and the Water Quality Standards, the Department has established the limitations noted in the draft permit.

Effluent limitations are being established for the seven outfalls as noted above using the existing permit, BATEA guidelines (40 CFR 423), the Water Quality Standards Review Sheet as drafted by the Water Quality Management Section, and the permit writer's "best professional judgement". These limits represent BATEA requirements for this facility. Other point sources discharge from the plant site. These include the intake screen wash and strainer backwash; the clarifier strainer and stormwater runoff; and the deicing line. These discharges are river water being returned to the river and monitoring requirements are proposed for these outfalls. The stormwater runoff at the site can be grouped into four drainage categories; 1) Areas where stormwater collects and is retained on site; 2) Areas which drain to the ash pond; 3) Discharges on the plant perimeter which do not reach surface waters as discrete point sources; and 4) Direct discharges to surface water, via point sources. Monitoring requirements are only proposed for the last.

The self monitoring requirements for this discharge were developed by the Department of Natural Resources in compliance with 10 CSR 20-7.015.

The standard conditions attached to the draft permit are applied to all state operating permittees. They reflect requirements of federal (40 CFR 122) and state law (10 CSR 20-Chapter 6) with respect to state operating permittee duties, responsibilities and liabilities.

This permit will expire five (5) years from date of issuance.

A copy of the public notice and this fact sheet are being forwarded to the applicant, the District Engineer of the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Environmental Protection Agency and the Missouri Department of Conservation. Other interested individuals may obtain a copy on request by writing to the address listed below for comment letters.

The proposed determinations of the draft permit are tentative pending the public notice process. Persons wishing to comment upon or object to the proposed determinations are invited to submit them in writing to: Department of Natural Resources, Division of Environmental Quality, (Missouri Clean Water Commission), P.O. Box 176, Jefferson City, Missouri 65102, ATTN: Daniel R. Schuette, Chief of Permit Section. Please include the application number of the draft permit in all comment letters.

Comment period opens November 5, 1993, and all comments received prior to December 6, 1993, will be considered in the formulation of all final determinations regarding this application. If response to the public notice indicates significant public interest, a public hearing may be held after due notice. Public hearing and/or issuance of the NPDES permit will be processed according to 10 CSR 20-6.020.

Copies of all draft permits, comments and other information are available for inspection and copying at the Department of Natural Resources, Division of Environmental Quality, (Missouri Clean Water Commission), P.O. Box 176, 205 Jefferson Street, Jefferson City, Missouri 65102.

WATER QUALITY STANDARDS REVIEW SHEET

FACILITY NAME: UE-Labadie Power Plant NPDES #: Mo0004812

DESIGN FLOW: #001: Once-through cooling water---1,428 MGD
#002: Ash pond, pH neutralization---57.8 MGD

RECEIVING STREAM: Missouri River STREAM CLASS: P

BENEFICIAL USES: Aquatic-life protection (general warm-water fishery); livestock, wildlife watering; drinking-water supply; irrigation; industrial; boating.

RECEIVING-STREAM LOW FLOW: 20,000 cfs

The maximum allowable heat discharge was reviewed in light of the current mixing-zone regulations: a maximum of 5.5×10^9 btu/hr would assure that the ambient temperature was not raised more than 5°F at the edge of the mixing zone (mixing zones may be up to 25% of the stream volume) at low flow:

20,000 cfs x 25% x 60 x 60 x 62 lbs/ft^3 x 5°F = 5.5×10^9 btus

The current limit is 11.16 billion btus\hr. Output of 5-10 billion btus\hr have been reported in recent years; this suggests compliance with current limits, but theoretical exceedence of the 5.5 billion btus\hr at low stream flow. However, the "5 above ambient" requirement is an older criterion without a strong correlation with biological impact, and the Standards allow 316(a) studies to be used to establish alternative criteria. Since Labadie's large heat output could significantly increase the temperature in a large portion of a major river, a review of 316(a) studies was requested to re-confirm that aquatic life in the outfall area are adequately protected. These studies had not been reviewed for some time. The summary of studies appear to be adequate and persuasive that aquatic life is being protected.

The ~10% increase to 11.16 billion btus/hour requested by the company is allegedly a reporting adjustment and represents no additional heat output. The increase is acceptable, based on the permittee's assertion that actual heat output has been within 3% for the past 17 years and will not significantly increase in the future.

A daily computation of the theoretical mixing-zone size (expressed as percent of stream flow) exceeding the 5-degree-above-ambient temperature will be required. This will be based on daily heat output and concurrent river flow, and will document the extent of 5-degree exceedences (if any), and show any trends in thermal output. This data will be especially useful, with the possibility of decreased upstream release flows in the future.

NFR and oil-and-grease limits are satisfactory.

Sulfate data from the #002 discharge show an average of 250 mg/l for the past two years; with a high value of 348 mg/l. The Missouri River

averages 125-150 mg/l; therefore:
89 cfs / 5,000 cfs (in a mixing zone) = ~1/55
250 - 125 = 125 mg/l difference
125 mg/l x (1/55) = 2-3 mg/l; that is, only about 2-3 mg/l sulfate increase above ambient at the edge of the mixing zone, which does not violate criteria. Because of the overall trend of increasing sulfates in the Missouri River, however, monitoring should be continued.

WET tests:

Outfall #001---Annual whole-effluent toxicity (WET) testing at the beginning of the next permit period should be required to confirm non-toxicity. WET testing may be waived if no biocides are used. The acceptable effluent concentration (AEC) is:
1428 MGD = 2210 cfs
2210 cfs / (500 cfs + 2210 cfs) = 0.81
81% = AEC

Outfall #002---Annual testing is required. The AEC is:
57.8 mgd = 89 cfs
20,000 x 25% x 10% = 500 cfs = ZID
89 / (500 cfs + 89 cfs) = 1/7
1/7 = 15% = AEC

Reviewer: RG UPDATE: 2-7-94 Section Chief: JH