IN THE
CIRCUIT COURT OF BUCHANAN COUNTY
STATE OF MISSOURI

STATE OF MISSOURI ex rel. Jeremiah W. (Jay) Nixon and the Missouri Department of Natural Resources,	)	
Plaintiff,	)	
v.	)	Case No. 01CV74164 Div #1
ST. JOSEPH LIGHT & POWER COMPANY,	)	
Defendant.	)	

CONSENT DECREE

Come now St. Joseph Light & Power Company (hereafter SJLP) and the Missouri Department of Natural Resources (hereafter MDNR), and state as follows:

The state of Missouri, through MDNR, for and in consideration of SJLP's agreement to complete the implementation of control strategies upon the time schedules as more fully set forth in the Consent Decree below, and SJLP for and in consideration of the state of Missouri's agreement to accept the implementation of said control strategies as sufficient, under current information and belief, to attain the federal and Missouri ambient air quality standard for sulfur dioxide (SO_2) and to accept the time table for completion of such control strategies as being as expeditious as practicable;

Now Therefore, the State of Missouri and SJLP have and do hereby agree to consent to the entry of the following Consent Decree. The parties, by their signatures hereto, acknowledge that they have read and understand the terms of this Decree and the order of the Court, and agree to be bound thereby.

The provisions of this Consent Decree shall apply to and be binding upon the parties executing this Consent Decree, their successors, assigns, agents, subsidiaries,

affiliates and lessees, including the officers, agents, servants, corporations and any persons acting under, through or for the parties agreeing hereto.

This matter coming before the Court on the petition filed by the plaintiff, State of Missouri, the Court having jurisdiction over the subject matter and the parties pursuant to § 643.151, RSMo; and being fully advised in the premises;

IT IS THEREFORE ORDERED, ADJUDGED, AND DECREED that St. Joseph Light & Power Company undertake and complete, at its Lake Road facility, Buchanan County, Missouri, the following SO_2 emission reduction program. These control measures and the associated schedule are the reasonably available control measures to be implemented to attain the national ambient air quality standard for SO_2 as required by the federal Clean Air Act Amendments of 1990.

I. Compliance Strategy

1. SJLP shall meet the following tasks to achieve attainment of the National Ambient Air Quality Standards (NAAQS) for SO_2 in the St. Joseph, Missouri area: complete coal blending modifications in the fuel yard, implement the Coal Yard and Blending System Narrative (see Appendix), complete the fuel oil switching strategy, and operate in compliance with the emission limitations and fuel requirements .

II. Fuel Requirements

2. The approved compliance plan stipulates the type of fuel that will be used in each combustion unit. Unless authorized by MDNR's Air Pollution Control Program (APCP), each unit shall operate in accordance with the requirements as stated below. These fuel requirements shall become effective upon the full execution of this consent decree. The sulfur content of the No. 2 fuel oil purchased for use in the boilers and combustion turbines shall not exceed 0.05% by weight. Low sulfur coal is defined as coal with a SO_2 emission potential of 1.2 lbs. SO_2/mmBtu or less. High or medium sulfur coal is defined as coal with a SO_2 emission potential greater than 1.2 lbs. SO_2/mmBtu. The option of fuel switching from primary to secondary fuel may trigger applicable requirements of the Clean Air Act and/or the Missouri State Implementation Plan. Compliance with the

Consent Decree alone does not exempt SJLP from these requirements. Propane may also be burned in place of No. 2 oil or coal in Boilers 1, 2, 4, 5 and 6, for light off and flame stabilization during periods of natural gas curtailment and for testing of the propane combustion system.

Unit	Primary Fuel	Secondary Fuel
Boiler #1, 2, 4	Natural Gas	No. 2 fuel oil
Boiler #3	Natural Gas	None
Boiler #5	Coal (high or medium sulfur blended w/low sulfur)	Natural Gas
Boiler #6	Coal (high or medium sulfur blended w/low sulfur)	Natural Gas
Combustion Turbine #5	Natural Gas	No. 2 fuel oil
Combustion Turbine #6	No. 2 fuel oil	Natural Gas
Combustion Turbine #7	No. 2 fuel oil	Natural Gas

3. SJLP Lake Road Plant shall comply with all requirements listed in the tables above by the effective date of this consent decree.

III. Emission Limitations

4. Compliance with the NAAQS at the Lake Road Plant is dependent on operation of the combustion units in accordance with the table below. The maximum allowable emission rates were developed based on the maximum hourly design rates and maximum loads submitted in the compliance plan. SJLP shall not exceed the emission rates listed as the Maximum Allowable Emission Rates on a 24-hour daily block average basis.

Unit	Max. Allowable Emission Rate ($lbs.SO_2/hr$)	($lbs.\ SO_2/mmBtu$)	
Boiler #1and #2	10.06	0.0524	All emission rates shall be effective on the date the Consent Decree is approved by the Court
Boiler #3	0.15	0.0006	
Boiler #4	16.29	0.0524	
Boiler #5	453.26	1.3490	
Boiler #6	1400.00	--------	
Combustion Turbine #5	44.30	0.0511	

Combustion Turbine #6	14.05	0.0511
Combustion Turbine #7	15.12	0.0511

IV. Compliance Monitoring

5. Compliance with the 24-hour daily block average for Boilers 5 and 6 will be determined by using the following procedures. The 24-hour daily block average is defined as a midnight to midnight block average. which includes SO_2 emission rates for only the hours during which the unit was operating. The Variable Table located in the Appendix should be used when making these calculations:

For Boiler 5:

$$\left[\frac{\sum_{hour=1}^{24}\left[\left(\frac{\#\,coal}{hour}\right)\left(\frac{\#\,S}{\#\,coal}\right)\left(\frac{F_{blend}\times\#\,SO_2}{\#\,S}\right)\right]}{\sum_{hour=1}^{24}\left(\frac{mmBtu_{(coal-gas)}}{hour}\right)}\right] \leq 1.349\left(\frac{\#\,SO_2}{mmBtu}\right)$$

For Boiler 6:

$$\left[\frac{\sum_{hour=1}^{24}\left(\frac{\#\,SO_2}{hour}\right)}{\sum_{hour=1}^{24}(operating\ \ time\ \ hours)}\right] \leq 1400\left(\frac{\#\,SO_2}{hour}\right)$$

SJLP shall conduct a stack test on Boiler 5 to confirm the appropriateness of the above equation for monitoring compliance with its SO_2 emission limit. SJLP shall submit a detailed test protocol to APCP for review and approval within thirty

days after the consent decree is approved by the court. Testing must be conducted no later than 60 days after approval of the test protocol.

6. Compliance with the emission rate of 1,400 lbs. SO_2/hr for Boiler 6 will be determined by the continuous emissions monitoring system (CEMS) that is currently operated in accordance with 40 CFR Part 75.

7. Boiler 1, 2, and 4 and combustion turbine 5, 6 and 7 have been modeled at maximum load and maximum hours of operation, as provided by SJLP. The modeling shows that these units will be in compliance with their maximum allowable emission rates when burning No. 2 fuel oil, natural gas or propane with a sulfur content of 0.05% by weight or less (hereafter referred to as compliant fuel). Therefore, the monitoring required to show compliance with this consent decree for these six units shall be monthly record keeping of the sulfur content of the fuel used.

8. Boiler 3 has been modeled at maximum load and maximum hours of operation, as provided by SJLP. The modeling shows that this unit will be in compliance with its maximum allowable emission rate when burning pipeline grade natural gas. Therefore, the monitoring required to show compliance with this consent decree for this unit shall be monthly record keeping of the fuel used.

V. Deliverables

9. SJLP shall provide the following deliverables as provided in its compliance plan:

- Stack test on Boiler 5
- Compliance Attainment Report
- Semi-annual Monitoring Reports required by Operating Permit

10. The following deliverables are to be submitted to the MDNR Air Pollution Control Program, Enforcement Section on a quarterly basis no later than 30 days after the end of the previous quarter:

a. Fuel Certification shall consist of the following:

- Submittal of a *Supplier Certificate for Fuel Oil Sulfur Content* (see Appendix). The certificate is completed by the fuel supplier and certifies the fuel is compliant,
- Submittal of a *Certificate of Fuel Sulfur Content* (see Appendix). This certifies that only compliant fuel was charged to boilers 1-4 and combustion turbines 5-7 and shall be completed by SJLP;

b. Sampling and analysis of coal blend for Boiler 5 & 6 (including the sulfur and heat content);

c. CEMS data for Boiler 6 submitted electronically in # SO_2/hour;

d. Quarterly Excess Emission Report for Boilers 5 & 6.

11. Records of the coal sampling and analysis shall be kept on file at the Lake Road Plant for a period of five years from the date of sampling.

12. A Compliance Attainment Report shall summarize the fulfillment of the compliance measures and requirements set forth in this consent decree. The Compliance Attainment Report shall be submitted no later than 30 days after this Consent Decree is approved by the Court.

VI. Stipulated Penalties

13. In the case that SJLP fails to adhere to the requirements as stated in this consent decree, such actions will be considered a breach of contract. MDNR may, if circumstances warrant, request the re-designation of the St. Joseph area to a non-attainment status for sulfur dioxide.

14. Nothing in this consent decree judgment shall preclude MDNR from requesting the re-designation of the St. Joseph area to non-attainment status for sulfur dioxide should a violation of the SO_2 standard occur in the future.

15. In the case that SJLP fails to meet fuel requirements, emission rate limit requirements, reporting requirements, or complete a task by the time allotted in this Consent Decree, SJLP shall pay $5,000 to the Buchanan County School Fund.

VII. Dispute Resolution

16. This Court retains jurisdiction to resolve any dispute, which arises with respect to the meaning, application or implementation of this Consent Decree.

ST. JOSEPH LIGHT & POWER COMPANY

BY: D. V. Anderson

DATE: 10-6-2000

MISSOURI DEPARTMENT OF NATURAL RESOURCES

BY: Roger D. Randolph

DATE: NOV 1 2000

ATTORNEY GENERAL OF MISSOURI

Jeremiah W. (Jay) Nixon, Attorney General

BY: Timothy P. Duggan

Timothy P. Duggan, Assistant Attorney General

DATE: 10/17/00

ENTERED THIS 25th DAY OF May, 2001.

Randall R. Jackson

Judge

Appendix

Variable Table

Supplier Certificate for Fuel Oil Sulfur Content

Certificate for Fuel Sulfur Content

Coal Yard & Blending System Narrative

Variable	Definition
#coal/hour	Total hourly, as-fired coal mass rate to Boiler 5 determined by summing the weight output from each pulverizer
#S/#coal	Sulfur to coal weight fraction of each daily, post-blend, aggregate coal sample collected by the automatic sampler during coal load out to the Boiler 5 day bunkers, as determined by a recognized ASTM analysis method
F_{blend}	S-to-SO_2 conversion factor that adjusts for variable sulfur retention, based on the weight fraction of bituminous and sub-bituminous coals loaded to the Boiler 5 day bunker, determined as follows: ***F_{blend} = 1.9 * w% bituminous + 1.75 * w% sub-bituminous***
w% bituminous	The daily-weighted mass fraction of bituminous coal loaded to the Boiler 5 day bunker, as measured and recorded by the computerized fuel-blending system
w% sub-bituminous	The daily-weighted mass fraction of sub-bituminous coal loaded to the Boiler 5 day bunker, as measured and recorded by the computerized fuel-blending system
mmBtu (coal+gas)/hour	The total hourly, as fired heat input to Boiler 5 determined from the coal and gas firing rates and associated fuel heating values, determined as follows: ***mmBtu (coal+gas)/hour=#coal/hour*HV coal+NGrate*HVgas***
NGrate	The total hourly, as-fired volume of natural gas measured and recorded by the Boiler 5 gas-metering system, in units of mmcf/hour
HVcoal	The as-fired heating value of each daily, post-blend, aggregate coal loadout to the Boiler 5 day bunkers, as determined by a recognized ASTM analysis method, in units of mmBtu/#coal
HVgas	The daily, as-fired heating value of pipeline grade natural gas, as determined by a recognized ASTM analysis method, a "worst-case" gas heating value of 950 Btu/cf, or other gas-heating value factor supported by on-site records from the gas supplier, in units of Btu/ft^3 gas

St. Joseph Light & Power Company
Lake Road Plant
Supplier Certificate of Fuel Oil Sulfur Content

Under an agreement with the Missouri Department of Natural Resources and the United States Environmental Protection Agency, St. Joseph Light & Power Company (SJLP) must purchase No. 2 fuel oil with a sulfur content of not greater than 0.05% maximum by weight and obtain certification from the supplier that the oil purchased meets this specification. This "Supplier Certificate of Fuel Oil Sulfur Content" must be completed and returned to SJLP with each purchase order issued for No. 2 fuel oil.

I certify, to the best of my knowledge and belief, that the No. 2 fuel oil supplied by

_____ to St. Joseph Light & Power Company's Lake Road Plant under SJLP Purchase Order No. _____ had a sulfur content of not more than 0.05% by weight.

Signed: _____

Printed Name: _____

Title: _____

Company: _____

Date: _____

St. Joseph Light & Power Company
Lake Road Plant
Certificate of Fuel Sulfur Content

St. Joseph Light & Power Company, under an agreement with the Missouri Department of Natural Resources and the United States Environmental Protection Agency, must not burn fuel in certain Lake Road Plant generating units with a sulfur content greater than 0.05% maximum by weight.

I certify, to the best of my knowledge and belief, that during the following time period _____ either Natural Gas, Propane or No. 2 fuel oil with a sulfur content of not more than 0.05% by weight was burned in the following Lake Road Plant units:

Boilers No. 1, 2, 3 and 4, and Combustion Turbines No. 5, 6 and 7.

Signed: _____

Printed Name: _____

Title:

St. Joseph Light & Power Company

Date: _____

St. Joseph Light & Power Company
Lake Road Plant
Coal Yard & Blending System Narrative

This Coal Yard & Blending System Narrative is meant to be illustrative of the processes and procedures followed by St. Joseph Light & Power Company (SJLP). SJLP reserves the right to make changes in these processes and procedures, provided such changes have no material impact on emissions.

The Lake Road Plant coal handling system consists of equipment that unloads coal from rail cars, transfers it to external storage areas and reclaims it later for use within the plant. Currently, two separate western coals are received, including a lower Btu (low sulfur) PRB coal and a higher Btu Hanna Basin coal. These coals are maintained in separate storage piles in the coal yard and later blended together in accurately controlled proportions during the reclaim process. The coal is used to fuel two coal-fired boilers: Boiler 5 (a pulverized coal or PC boiler) and Boiler 6 (a cyclone boiler). The coal blend proportions required for Boiler 5 are generally different than that required for Boiler 6. The coal for Boiler 6 must first be processed through coal crushers before being transferred to the plant.

Typically, coal is unloaded from rail cars with a rotary dumper into underground hoppers. From there it is transferred with a system of conveyors (Conveyors 3A, 3B, 3C, 6 and 7) which carries it to an above-ground stockout point in the middle of the coal yard storage area. Conveyors 3A, 3B, 3C and 6 are short conveyors which collect the coal from the unloading hoppers and transfers it to Conveyor 7. Conveyor 7 is a long inclined conveyor which carries the coal from below grade to the above-ground stockout point. From this location, the coal is pushed by coal dozer to its respective long-term storage area. Low Btu coal is primarily stored on the west side of the coal yard and high Btu coal on the east side. It typically takes two days to unload a unit-train shipment of coal and one or two additional days to complete pushing it to its long-term storage area.

Two reclaim points are provided in the coal yard to accomplish the blending process. The normal reclaim point for low Btu coal is located directly under the discharge end of Conveyor 7 (near the middle of the coal storage area). A below-grade hopper system at this location accepts coal supplied from the yard and feeds it onto Conveyor 8. Conveyor 8 is a long inclined conveyor which then transfers the coal to the top of the crusher house, located at the east end of the coal yard. The normal reclaim point for high Btu coal is located at the northeast corner of the coal storage area. A below-grade hopper system, similar to that used to feed Conveyor 8, is provided at this location to feed Conveyor 1, which also transfers coal to the top of the crusher house. A PLC-based, high-precision control system has been installed on the reclaim feeders supplying Conveyors 8 and 1 to achieve the accurately controlled blend-proportions required for proper operation and compliance.

The crusher house is the building which contains the two coal crushers used to crush coal sent to Boiler 6. It also serves as the mixing point for the two coal flow streams in the blending process. The discharges of Conveyors 8 and 1 feed into a common chute (located at the top of the crusher house) which has been modified to allow good co-mingling of the two flow streams. This chute then empties into a hopper system which feeds the Boiler 6 coal crushers. Bypass chutes are provided around each coal crusher for Boiler 5 coal, which normally does not require pre-crushing. The outputs of the coal crushers, and their bypass chutes for Boiler 5, discharge onto Conveyor 3.

Conveyor 3 is a long inclined conveyor which transfers blended coal from the discharge point of the crusher house (located at ground level) to the top of the power plant, where it can be directed to the Boiler 5 coal bunkers or the Boiler 6 coal silos. A motor-operated flop gate is located at the discharge end of Conveyor 3 to allow transfer of coal to the appropriate boiler. Conveyor 4, and its associated tripper gates, carries coal from the discharge of Conveyor 3 to the two coal bunkers supplying Boiler 5. Conveyors 5 and 5A perform a similar function to transfer coal to the two coal silos for Boiler 6.

As part of the compliance effort, a new fully-automated coal sampling system has been installed on Conveyor 3 to provide separate daily coal samples for the blended coal transferred to Boiler 5 and Boiler 6. The sampling system is equipped with a flop gate arrangement, electrically interlocked with the Conveyor 3 discharge flop gate, to maintain separate samples for the coal transferred to each boiler. Daily samples for each boiler are collected in large barrel containers located in the sample-receiving building under Conveyor 3. The samples are then reduced and analyzed each day for sulfur and Btu content (and other parameters) by Lake Road Laboratory Technicians. The coal sampling and laboratory analysis process in performed in accordance with ASTM standards.

The control center for the reclaim process is located in the crusher house. The coal handler overseeing this operation monitors and controls the process from this location. He starts and stops conveying and other equipment as necessary, sets desired reclaim feed rates and blend-proportions using the new PLC-based blending controls, and monitors all the various status indications provided on the control system CRT screens. New belt scales have been installed on Conveyors 8, 1 and 3 to provide highly-accurate measurement of coal flow for control and indication. Cameras are installed to monitor continuity of coal flow at each reclaim point, with TV monitors located in the crusher house control room. This allows early detection of pluggage problems caused by wet coal. New vibrating equipment has also been installed on the reclaim hoppers to assist when this occurs.

Two other coal handlers typically take part in the daily reclaim operation. A dozer operator retrieves each of the two coals from their respective long-term storage areas and pushes them to the appropriate reclaim conveyor intake point. A third coal handler is generally stationed at the plant-end of the conveying system to monitor filling of the bunkers and silos. The coal handler overseeing the controls maintains continuous communication with the other two coal handlers via a dedicated plant radio system.

On a typical day, coal handlers begin by transferring blended coal to the Boiler 6 silos until lunchtime at 11:00 AM. After lunch, they fill the Boiler 5 bunkers, which usually takes about two hours. The Boiler 6 silos are generally topped off before the end of the workday.

The target (desired) coal blend for each boiler is established each day by plant management. This target is set, based on current operating conditions, on heat input considerations and on achieving compliance with the enforceable SO_2 limits. The coal handler operating the controls enters the appropriate blend-proportion setpoints to achieve the target and monitors the process to maintain continuous proper operation through the day. At the end of the workday, he records the actual tonnage amounts (as determined by the new belt scales) of each coal transferred to each boiler on a logsheet. As-fired coal scales are also provided on each boiler. These scales measure the coal flow as it is transferred from the plant bunkers and silos to their respective boilers. Daily (midnight to midnight) readings of these scales are recorded by plant operators to identify daily fuel burn.

As mentioned earlier, when either coal is unloaded it is first transferred by Conveyor 7 to a discharge point at ground level directly over the normal reclaim point for low Btu coal. This is convenient when receiving low Btu coal since it reduces the amount of stockout and reclaim dozer work required during this period; however, it presents a complication for periods when receiving high Btu coal since the normal reclaim point for low Btu coal would be covered with high Btu coal. To address this issue, the blending system was designed so that either reclaim conveyor (Conveyor 8 or Conveyor 1) has sufficient capacity and turndown capability to serve as the high-percentage or low-percentage intake. This allows Conveyor 1 to be used as the reclaim for low Btu coal and Conveyor 8 as the reclaim for high Btu coal during periods when high Btu coal is being unloaded. To accomplish this, a 3-4 day supply of low Btu coal must be stockpiled in a separate area on the east side of the coal yard (near the Conveyor 1 intake) in preparation for receiving each shipment of high Btu coal.

October 2000

St. Joseph Light & Power Company

EPA Rulemakings

CFR: 40 C.F.R. 52.1320(d)

FRM: 66 FR 57389 (11/15/2001)

PRM: 66 FR 57407 (11/15/2001)

State Submission: 07/16/2001

State Final: 03/29/2001

APDB File: MO-154

Description: The EPA approved a Consent Decree which will result in attainment and maintenance of the SO_2 NAAQS in St. Joseph (Buchanan County), Missouri.

Difference Between the State and EPA-Approved Regulation

None.