ARKANSAS DEPARTMENT OF
POLLUTION CONTROL AND ECOLOGY

MINUTE ORDER NO. 75-7

LOCATION - SUBJECT: Southwestern Electric Power Company

January 24, 1975

The Commission, having considered the following Applications for Permit submitted by the following respective firms and having reviewed the staff recommendations and the Summary Reports attached hereto does hereby approve said Applications subject to the conditions contained with the Application, Summary Reports, or amendments thereto; provided, however, that the applicant complies with all general terms of the permit and all special terms and conditions to the permit, if any, which are so specified.

APPLICATION FOR PERMIT - PROCESS CONTROL EQUIPMENT

PERMIT NO.	FACILITY & LOCATION	COST
276-A	Southwestern Electric Power Company Gentry, Arkansas	$17,000,000

The Summary Reports, prepared by the staff, are designed to facilitate the administration of the air pollution control program for the State of Arkansas and, otherwise, for the convenience of the Commission and other interested persons. Copies of these Minute Orders, the Permits, and the Summary Reports are to be attached to the Applications for Permit which are on file in the Department's central office. It is further noted that the approvals of these applications are based upon information contained within the Application for Permit - not the Summary Reports. Nevertheless, the applicant is expected to forthwith notify the Department of any discrepancies found between the two documents.

COMMIS-
SIONERS

Chairman

Submitted by J. E. SOUTHALL Date Passed 1/24/75

DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
D.A.P.C.

SUMMARY REPORT RELATIVE TO PERMIT APPLICATION

SUBMITTED BY: SOUTHWESTERN ELECTRIC POWER COMPANY (SWEPCO)

428 Travis Street, Shreveport, Louisiana 71156

CSN: 040107

FIRST SUBMITTAL: May 3, 1974 AMENDED: January 8, 1975

CASE REFERENCES: Flint Creek Power Plant

SUMMARY: GENERAL:

SWEPCO has proposed a 550 megawatt coal-fired power plant to be installed near Gentry and to be named the Flint Creek Power Plant - Unit 1. During hearings before the Public Service Commission (Docket No. U-2532), in which hearings the Department participated as an intervenor, it was determined that an increase in height of the boiler stack was necessary to avoid potential downwash effects. It was further determined that a stack 2.5 times the height of the nearest structure is generally recognized as sound engineering practice to avoid such downwash effects. It was also determined that generally accepted atmospheric dispersion modeling techniques are not designed to consider downwash effects and, therefore, the estimated ambient concentrations resulting from the operation of the plant as given in the application were questionable in reliability.

On January 8, 1975, SWEPCO submitted a revised Environmental Impact Statement reflecting, among other things, an increase in

(Continued)

ESTIMATED COST: $17,000,000 TOTAL PROJECT: $101,000,000

COMMENCEMENT OF INSTALLATION: Upon approval of PSC and CPC&E

COMMENCEMENT OF OPERATION: May, 1978

REVIEWED BY: LEH & CDH APPROVED: JES

RECOMMENDATION: Approval

ASSIGNED PERMIT NUMBER: 276-A

COMMISSION MINUTE ORDER NUMBER:

stack height from that originally proposed of 241' to 540', which latter height conforms to the 2.5 rule. SWEPCO has not yet been able to complete the detailed dispersion analysis incorporating the 540' stack height necessary to submit a completed amended application for permit to this Department. Although the amended application has not been fully completed, the staff recommends that the Commission, nevertheless, issue a permit subject to the conditions set forth herein because of the following considerations:

(1) The Department's modeling efforts associated with its participation in the Public Service Commission's hearings provided information indicating that the projected emissions from a 600' stack would comply with Section 8 of the Air Code with a considerable margin of safety. Thus, it can be safely assumed that the same modeling techniques would indicate compliance at 540' but with a somewhat lesser margin of safety.

(2) The timing of the regularly scheduled Commission meetings and the anticipated completion of the amended application would require that a special meeting of the Commission would be necessary to facilitate construction of the facility should the issuance of the permit not be approved on this date.

The Proposed Facility

The Flint Creek Power Plant Unit No. 1 will have a net capability of 528,000 KVA, and will operate at 3,600 r.p.m., 18,000 volts, 3-phase, 60 cycles. It will be cooled with hydrogen at 60 lbs. per square inch gauge pressure (psig).

The plant will have a 3,973,000 lb/hr steam generating unit which will operate at 2,500 lbs. psig with 1,000°F. steam at the high-pressure turbine inlet. In the high-pressure turbine the steam will be expanded to approximately 609 lbs. psig at 634°F. and then will be returned to the intermediate-pressure turbine after reheat to the 1,000°F. temperature level.

The steam will again be expanded to 165 lbs. psig and 700°F. and then passed to a low-pressure turbine. The low-pressure turbine will continue to expand the steam to about 2.5 inches of mercury absolute pressure, exhausting it to a shell and tubular condenser. The condenser will extract the latent heat of condensation and return cool, high-purity water to the steam generation cycle. All three turbines will be mounted on a single shaft, which will drive the electric generator. This is termed a "tandem-compound" arrangement.

Two forced draft fans will supply combustion air to the furnace, while two induced draft fans will transfer the products of combustion to the boiler stack. The forced draft fans will be provided with inlet silencers and the induced draft fans will be accoustically insulated for noise suppression.

The boiler will be equipped with over-fire air ports to lower flame temperature and thereby reduce the formation of NO_x. Two regenerative-type air heaters will exchange heat between the hot combustion gases leaving the boiler and the incoming cool air supply going to the combustion chamber of the boiler.

Two electrostatic precipitators will be used to remove the suspended fly ash particulate in the combustion gases. These precipitators are designed to remove 99.6% of the particulate (fly ash) in the combustion gases.

Other major equipment will be a tubular-type surface condenser, feedwater pumping equipment, a regenerative feedwater heating system, a water treating system for providing plant make-up, coal and ash handling and storage systems, and a cooling lake for heat dissipation.

Special conditions of the permit are as follows:

(1) Emissions from facility shall comply with all applicable emission regulations and boundary line standards adopted by the Commission and the United States Environmental Protection Agency.

(2) Emissions from the facility shall not interfere with the attainment and maintenance of the National Ambient Air Quality Standards.

(3) Applicant shall comply with all monitoring requirements established by the United States Environmental Protection Agency and other monitoring requirements established as conditions of this permit.

(4) The facility shall be designed and so constructed to facilitate the installation of flue gas scrubbers should such scrubbers be later found necessary to comply with requirements of the United States Environmental Protection Agency or should such scrubbers be later found necessary by the Commission to protect the health and welfare of the public.

(5) Prior to January 1, 1976, the permittee shall submit to the Department approvable plans for an air quality monitoring program which program will be initiated at least 18 months prior to commencement of Unit No. 1's operation and which program shall continue in a manner approved by the Commission. The required plans shall specify, as a minimum, the contaminants and effects to be monitored; the methods to be employed; descriptions of sampling schedules, sampling equipment and locations of such equipment; and the procedures by which sampling and analytical data is to be compiled, evaluated and reported. Additionally, the plan shall demonstrate the adequacy of the necessary procedures and of the response-capabilities of the sampling system to assure that maximum ground-level concentrations of sulfur dioxide, directly attributable from the facility, do not exceed 533 $\mu g/m^3$ for any thirty minute duration.

(6) Prior to January 1, 1977, the permittee shall submit to the Department an approvable plan setting forth procedures for coal sampling and, as necessary, coal blending in order that compliance with the New Source Performance Standards for sulfur dioxide will be assured.

(7) This permit is subject to revocation should the applicant fail to comply with any of the above stated conditions or fail to submit in a timely fashion to this Department a completed amended application for permit, which application shall contain all such information as the Director may reasonably require to demonstrate compliance with all applicable provisions of the Air Code.