UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

On the Matter of PUBLIC SERVICE COMPANY OF OKLAHOMA AND ASSOCIATED ELECTRIC COOPERATIVE, INC. AND WESTERN FARMERS ELECTRIC COOPERATIVE (Black Fox Station, Units 1 and 2	))))))))	Docket Nos. STN 50-556 STN 50-557

AFFIDAVIT OF VAUGHN L. CONRAD

State of Oklahoma
County of Tulsa

I, Vaughn L. Conrad, of lawful age, being first duly sworn, upon my oath certify that the statements contained in the attached pages and accompanying exhibits are true and correct to the best of my knowledge and belief.

Vaughn L. Conrad

Subscribed and sworn to before me this 6th day of November, 1978.

Roberta L. Parkey
Notary Public in and for the
State of Oklahoma

My commission expires February 5, 1982.

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TESTIMONY ON BLACK FOX STATION

COSTS OF DELAY

VAUGHN L. CONRAD

My name is Vaughn L. Conrad. I reside at 5120 South Richmond Avenue, Tulsa, Oklahoma 74135. I am Manager, Licensing & Compliance for Public Service Company of Oklahoma. As such, I am responsible for the safety and environmental licensing of the Black Fox Station for the Applicants, Public Service Company of Oklahoma, Associated Electric Cooperative, Inc., and Western Farmers Electric Cooperative and have been so designated since the inception of the Project. A statement of my background and qualifications have previously been made a part of the record in this proceeding.

The purpose of my testimony is to quantify the impacts to the Black Fox Station Nuclear Project cost and schedule which may be caused by delays in receiving timely authorization to perform safety related work on site. My attorneys have advised me that litigation involving the production of General Electric Company's "Reed Report" could extend the anticipated date of receipt of the full construction permit from ~~four~~ SEVERAL WEEKS to eighteen months in the event that the subpoena for the Reed Report is not quashed. On the basis of this advise, I have assessed in a conservative manner the impacts on the Project that such a delay could have.

BACKGROUND

The construction schedule for the Black Fox Station as it currently exists was predicated upon timely receipt of the Limited Work Authorization (LWA I) by March 20, 1978 authorizing certain non-safety related work with the full construction permit to follow in the first quarter 1979. Due to additional

environmental and site suitability hearings being held on June 5-6, 1978, the LWA I was not received by Applicants for its Black Fox Station until July 26, 1978, some 120 days after it could reasonably be expected.

Since receipt of the LWA I, construction management and its contractors, by taking advantage of the unseasonably dry weather, have been successful in accelerating the construction schedule such that some portion of the lost time has been made up. Because of this, we have not changed the commercial operating date of the Project from April, 1984 for Unit 1 and April, 1986 for Unit 2.

However, any further delay in meeting the Project's schedule, caused by a delay in receiving a full Construction Permit will cause a delay in the commercial operation date of the generating units. There is simply no more cushion in the schedule to accommodate even the minimum licensing delay. This delay is conservatively estimated to be on a day-for-day basis for each day additional authorization is not forthcoming. Naturally, disbanding construction forces and remobilizing at some future time will occasion more than a day-for-day slip.

CALCULATION ASSUMPTIONS AND MITIGATIVE ACTIONS

It must be emphasized that the uncertainty of when additional authorization can be expected completely frustrates management's ability to take mitigating action.

At this point in time, we are unable to instigate any mitigating action in our contractual, engineering, or construction schedules without fear that those actions could have even more severe impact than that which will most certainly be sustained assuming injury to the current project schedule.

Due to the gross uncertainties, the procurement schedule must remain the same in order to have materiel and equipment delivered and ready. Likewise, the

engineering effort must proceed to be able to support site activity when authorized. Finally, the engineering and procurement cycle are necessarily integrated for information flow between suppliers, consulting engineers, and construction contractors. Only by proceeding as outlined, can the Applicants even hope to hold the delay in placing the station in commercial operation to a day-for-day slip commensurate with each day of delay in receiving additional authorization.

By letter dated November 7, 1978, Applicants will request the Directorate of Nuclear Reactor Regulation to authorize additional non-safety related work under the existing Limited Work Authorization. This request in its essence asks that PSO be allowed to excavate material for the Unit 2 foundation installation. The reasons for this request are twofold. First, we expect to be able to optimize construction of the entire project through excavating the Unit 2 material now. Secondly, in light of the extensive geotechnical mapping that has been done on Unit 1 in conjunction with the penecontemporaneous deformation in the drywood coal seam, we believe it prudent to excavate now and have the Unit 2 geomapping done by the same technical team which has performed the work on Unit 1. This will allow both the Applicants and the regulatory staff to review the entire geotechnical mapping of both units in a more appropriate time frame than some two years hence.

It is important to note that this request for additional authorization will not in any way expedite or contribute to preserving the on-line commercial dates and therefore will be of no benefit in mitigating the anticipated dalays. This request would have been made in any case notwithstanding the probability of timely issuance of the full construction permit in the first quarter of 1979.

Since it appears that the full construction permit for Black Fox Station will not be forthcoming for some months because of the "Reed Report" issue, Applicants

anticipate that they will request of the Regulatory Staff and of the Board authorization to proceed with certain safety related work under a Limited Work Authorization II. These activities are those which would have been performed under the first 12 months of the full construction permit and so for impact analysis purposes this authorization can be described as being equal to a full construction permit for that period of time. Applicants certainly recognize that the request for an LWA II at this late point in time in the hearing schedule does not guarantee that the required authorizations will be granted; nor, if granted, that they will be granted in a timely manner to pick up from those activities completed under the LWA I. As a mitigating measure this too has uncertainty associated with it, such that it cannot be relied upon for planning purposes.

IMPACT OF LWA I COMPLETION WITHOUT SUBSEQUENT SAFETY RELATED AUTHORIZATION

Applicants believe that they can reasonably expect to complete substantial portions of the non-safety related work authorized under the LWA I by March 1, 1979, such that a LWA II or full Construction Permit to perform safety related work must be in hand in order to preserve cost and schedule. Accordingly, an analysis was performed to quantify the financial impacts to the Project and ultimately to Applicants' rate payers of the delay in receiving the subsequent authorization. In any construction project there are those costs which are sustained regardless of construction productivity. Those costs include expenses of a site staff, equipment standby and material storage, and maintenance of the existing worksite in protecting it from the ravages of weather.

In the event that work could not proceed on the scheduled basis on March 1, 1979, the following costs would be incurred with no productivity toward completion of generating units:

Cost A	- Site Maintenance - Per Day	
	(1) Security Force	$ 1,600.00
	(2) Site Services	3,300.00
	(3) Equipment Standby	4,400.00
	(4) PSO Site Labor	11,400.00
	TOTAL	$20,700.00/day
Cost B	- Interest on Project cost through 2/79 Daily Charges	24,670.00
	TOTAL (A + B)	$45,370.00/day

These estimates are additionally conservative* in that in the event of a

*The straight line method of calculation has been used rather than the more realistic declining balance method because the straight line method is conservative by its very nature. The impacts thus calculated are less than those which could be expected to actually occur.

lengthy delay it does not include the otherwise necessary expenses associated with materiel storage, more extensive protection measures for the previously accomplished site work, and the expenses of demobilizing the construction work force and re-mobilizing that work force after safety related construction is authorized.

Since any delay is now estimated to represent at least a day-for-day slip in the commercial operation, project charges associated with that delay can be itemized as follows:

Cost C - Additional daily interest on equipment and materiels upon completion of project (assuming present procurement schedule)

Unit 1	$102,000.00
Unit 2	73,000.00
TOTAL UNIT 1 & 2	$175,000.00/day

Cost D - Additional daily escalation on construction equipment and materiels upon completion of project.

Unit 1	$ 45,900.00
Unit 2	61,000.00
TOTAL UNITS 1 & 2	117,900.00/day
TOTAL (C + D)	$292,900.00

The total impact for a day-for-day slip in receiving timely authorization (either an LWA II or a full CP) to enable the scheduled construction to proceed after March 1, 1979 would be the summation of Items A, B, C and D above to represent an equivalent of $338,270.00 per day. These are increased expenditures which must be capitalized into the overall cost of the project thus adding to the cost of electricity ultimately paid for by Applicants' customers.

IMPACTS DUE TO THE COMPLETION OF LWA II ACTIVITIES WITHOUT SUBSEQUENT AUTHORIZATION

Assuming that a LWA II were authorized for the Black Fox Station Project before March 1, 1979 an impact analysis can be done to quantify the impact of LWA II work being completed without receipt of a full Construction Permit. The analysis follows the same form of that done above. Conservatively estimating that a construction delay were suffered in March 1980, the following costs would be incurred:

Cost A'	- Site Maintenance - per day	
	(1) Security Force	$ 1,600.00
	(2) Site Services	3,300.00
	(3) Equipment Standby	4,400.00
	(4) PSO Site Labor	19,050.00
	TOTAL	$ 28,350.00/day
Cost B'	- Interest on Project cost through 2/80 Daily Charges	56,950.00
	TOTAL (A' + B')	$ 85,300.00/day

Due to the day-for-day slip on placing the units in commercial operation the following costs would also be incurred:

Cost C'	- Additional daily interest on equipment and materiels upon completion of project (assuming present procurement schedule)	
	UNIT 1	$ 75,500.00
	UNIT 2	67,300.00
	TOTAL UNIT 1 & 2	$142,800.00/day
Cost D'	Additional daily escalation on construction equipment and materiels upon completion of project:	
	UNIT 1	$ 75,500.00
	UNIT 2	16,600.00
	TOTAL UNIT 1 & 2	$ 92,100.00/day

TOTAL (C' + D')	$234,900.00

The overall impact of a delay in the project taken at this time represents summation of costs A', B', C' and D' which is equivalent to $320,200.00 per day.

It should be noted that neither analysis includes the replacement power cost that may be associated with the fact that the Black Fox Station will not be available to produce energy on its scheduled dates. These costs cannot be precisely estimated because they are highly dependent upon the Applicants' and the nations energy situation at that time. It is quite conceivable that a national energy shortfall in the mid 1980's could render replacement power unavailable at any price.

SUMMARY

The above analyses demonstrate the magnitude of the costs associated with delay in receiving timely authorizations to perform scheduled work for the Black Fox Station. Due to the variability of the length of the actual delay that may be experienced, it is extremely difficult for Applicants to take mitigative measures such as contract re-negotiation for services, equipment and material, which could ameliorate those impacts that are estimated above. In addition to the sizeable direct costs associated with maintaining the site in its "ready to proceed" condition, extremely large charges are expected from escalation and additional interest on construction monies expended due to the certain slip in commercial operation. Finally, it must be recognized that the Applicants and their customers will also suffer the economic impacts associated with purchasing replacement power in the time frame between the eventual commercial operation that which is anticipated by the present schedule.

Since Applicants have been precluded from providing adequate on-system capacity to provide energy for their customers, there is no guarantee that power rationing or blackouts will not occur.

Previous circumstances associated with this docket have simply squeezed the construction schedule to such a point that delays cannot be made up through additional shifts or re-scheduling of the construction sequence.