UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	(	
CONSUMERS POWER COMPANY	(	Docket Nos. 50-329
(Midland Plant, Units 1 & 2)	(	50-330

NRC STAFF SUPPLEMENTAL DIRECT TESTIMONY OF SIDNEY FELD UP-DATING COAL COST ESTIMATES

This direct supplemental testimony updates the coal fuel cost estimates used in the staff's testimony on coal alternatives and the cost of replacement power. In its previously filed testimony 1 & 2/, the staff obtained a 1975 base price for high and low sulfur coal and escalated these prices at 5% per annum. The 5% escalation assumes no real increase in the price of coal and was identified by the staff as a built-in conservatism in our alternatives analysis. However, the 1975 base prices were construed by the staff as representative of prices paid by Michigan utilities for newly contracted sources of coal. Based on more recent information, it is clear that these base values understate the price of coal under new contract. Very simply, the staff relied on average 1975 prices instead of contract prices negotiated in 1975. The average, heavily weighted with prices negotiated as much as ten years into the past, produces an artificially low base value.

To rectify this situation, the staff contacted the Federal Power Commission and asked them to review price data on recently signed coal contracts. The FPC reviewed utility filings under FPC Form 423 and identified those coal contracts signed in 1976 by Michigan and neighboring Wisconsin. This review resulted in the identification of five contracts and includes price quotes on both high and low sulfur coal, and eastern and western coal. Of the five contracts identified, two are for delivered prices to coal steam plants in Michigan and three are to coal units in Wisconsin (on Lake Michigan and thus the transportation component should be similar).

The data supplied by the FPC show an average 1976 delivered price for new contracts of 124.8¢ per 10^6 BTU (high sulfur) and 140.9¢ per 10^6 BTU (low sulfur). However, it must be noted that the low sulfur coal identified by the FPC as newly contracted for does not meet the New Source Performance Standard of .6 pounds of sulfur per 10^6 BTU and consequently would not qualify as EPA quality coal. As noted in the testimony filed by R. P. Wilkinson on behalf of the Consumers Power Co., 3/ the demand for this coal is just now developing and because of supply and demand conditions is expected to increase in price sharply.

Clearly, the FPC data base is still not adequate to arrive at an estimate for EPA quality coal. Consumers Power has obtained eight estimates for eastern EPA quality coal to be provided under long term contract (Reference 3). The price ranges from 27.00 to $35.00 per ton at the mine in 1977 and freight transportation was estimated at 7.50 per ton. Assuming a heat content of 12,000 BTU per pound, an average price at the mine of 31.00 per ton (midpoint between $27 and $35), and a $7.50 per ton freight charge, the cost of this low sulfur coal would approximate 16 mills/KWh in 1977. Adopting all of the other assumptions employed on page 5 of (Reference 1), the 30 year levelized cost would approximate 34 mills/KWh.

For the high sulfur coal, the staff accepts the 1976 average price for new contracts of 124.8¢ per million BTU as identified by the FPC. Using the same assumptions as employed on page 5 of (Reference 1) produces a 30 year levelized cost of 30.2 mills/KWh.

The impact of these changes on previously filed testimony are twofold. First, with respect to the staff testimony on the Cost of Midland V. Coal Alternatives (Reference 1), the 30 year levelized fuel cost increases by 5.9 and 6.2 mills/KWh for the high and low sulfur coal alternatives, respectively. In addition, the interim power cost increases by 0.5 mills/KWh because of the higher coal fuel costs now expected for the 1981-83 time period. The impact of these changes can be seen in Table 1 below which represents a revised Table 1 from the staff testimony on the Cost of Midland V. Coal Alternatives (Reference 1). The levelized costs for both the high and low sulfur coal alternatives are increased as a result of the increased coal fuel costs making the Midland facility 30 year levelized costs more favorable.

TABLE 1

Economic Comparison of Energy Alternatives - 30 Year Levelized Costs in Mills per KWH 1/

	Midland 30 Year Levelized	High Sulfur Coal 30 Year Levelized	Low Sulfur Coal 30 Year Levelized
CAPITAL COST	19.2	14.5	12.2
O & M	2.6	6.1	2.6
FUEL	11.8	30.2	34.0
TAXES, INSURANCE & DECOMMISSIONING	9.7	7.0	5.9
INTERIM POWER	--	4.5	4.5
TOTAL COST	43.3	62.3	59.2

Discount rate - 10 percent
Plant life - 30 years
Capacity factor - 65 percent
O&M cost based on OMCST
Escalation rate of 5 percent per annum to year 2011 except 8 percent per year for nuclear fuel between 1975 and 1982.

1/ Revised Table 1 from NRC Staff Testimony of Sidney Feld on Cost of Midland V. Coal Alternatives.

The second impacted area relates to the staff testimony on the Cost of Replacement Power Resulting from Suspension (Reference 3). Here, the higher coal fuel cost estimates result in a larger fuel cost differential between coal and nuclear in the 1981-82 time frame. In 1981-82, the average coal fuel cost is now estimated at 17.9 and 18.8 mills/KWh, respectively. Using the nuclear fuel cost estimates, as reported in that previously filed testimony, results in an average differential between nuclear and coal fuel costs of approximately 11.2 mills/KWh. The cost of replacement power in million of dollars per month, as between coal vs. nuclear would thus become $5.6, $6.7, and $7.8 million per month assuming 55%, 65%, and 75% capacity factors, respectively. (See Table 2 of NRC Staff Testimony of Sidney E. Feld on Cost of Replacement Power Resulting from Suspension (Reference 2)).

An additional piece of testimony has also been prepared by the staff on the nuclear fuel costs applicable to the Midland Nuclear facility. 4/ This testimony produces a cost range for the nuclear fuel cycle of 6.8 to 17.6 mills/KWh on a 30-year levelized basis. The impact of accepting the higher end of the nuclear fuel cost range would not alter the final conclusion that the Midland facility is the most cost effective means of providing the designed power level. From Table 1 of my testimony it can been seen that the Midland Nuclear Plant maintains an estimated 15.9 mills/KWh advantage over the next most cost effective alternative. The staff's highest nuclear fuel cost estimate would result in an increment of 5.8 mills/KWh on a 30 year levelized basis which would still leave a cost advantage of 10.1 mills/KWh.

With respect to the cost of replacement power, a higher nuclear fuel cost estimate would result in a lower estimate for replacement power because this value is derived as the difference between coal and nuclear, and oil and nuclear. As the cost of the nuclear fuel increases this differential narrows. Accepting the higher end of the nuclear fuel cost range results in a 1981-82 nuclear fuel cost of about 10.8 mills/KWh. Applying this value produces costs

of replacement power as depicted in Table 2 below.

Use of the higher range of nuclear fuel costs presented by the staff (Reference 4) still shows that the Midland Facility is cost beneficial and that replacement power costs would be substantial.

TABLE 2

COST OF REPLACEMENT POWER PER MONTH 1/

CAPACITY FACTORS	COST OF REPLACEMENT POWER PER MONTH (in millions of dollars)
Coal vs. Nuclear	
55%	3.8
65%	4.5
75%	5.3
Oil vs. Nuclear	
55%	9.0
65%	10.7
75%	12.5

1/ Revised Table 2 from NRC Staff Testimony of Sidney E. Feld on Cost of Replacement Power Resulting from Suspension.

NOTE: Assumes high end of nuclear fuel cost range and revised coal fuel cost estimates.

REFERENCES

1. NRC Staff Testimony of Sidney E. Feld on Cost of Midland V. Coal Alternatives.

2. NRC Staff Testimony of Sidney E. Feld on Cost of Replacement Power Resulting from Suspension, Midland Plant, Units 1 and 2.

3. Testimony of Robert P. Wilkinson of Consumers Power Company on Coal Fuel Costs.

4. NRC Staff Supplemental Direct Testimony of Jack Roberts on Nuclear Fuel Cost Estimates.

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