CONSUMERS POWER COMPANY

APPLICATION FOR

REACTOR CONSTRUCTION PERMIT AND OPERATING LICENSE

DOCKET NO. 50-329
DOCKET NO. 50-330
AMENDMENT NO. 53

Enclosed herewith, revising and supplementing the above-entitled application, are revised pages for incorporation in the information pursuant to Sections 50.33 and 50.37 of 10CFR Part 50 (General Information). The Ceneral Information was submitted with Amendment 33 to the above dockets on November 18, 1977. The enclosed material consists of a revision to Appendix E, "Basis for Completion Date Extension", containing responses to S A Varga's letter of October 27, 1978 to S H Howell on "Request for Additional Information Regarding Construction Permit Extension."

These new and revised pages bear the notation "11/78".

Consumers Power Company

Dated: November 21, 1978

by Stephen H Howell
Stephen H Howell, Vice President

Sworn and subscribed to before me on this 21st day of November, 1978.

Betty L. Bishop
Notary Public, Jackson County, Michigan
My commission expires September 21, 1982

APPENDIX E

BASIS FOR COMPLETION DATE EXTENSION

Earliest and latest completion dates for the Midland Plant Units 1 and 2 are requested to be extended as follows:

a)	Unit 1	from	December 1, 1977 and December 1, 1978
		to	October 1, 1981 and October 1, 1982
b)	Unit 2	from	December 1, 1978 and December 1, 1979
		to	October 1, 1980 and October 1, 1981

The construction schedule for both Midland Units 1 and 2 has been delayed for reasons beyond the Applicant's control. The delays were caused by reevaluation of construction time due to changing project scope and industry experience, switching unit completion sequence, and adverse financial conditions.

Both units have been delayed 9 months due to reevaluation of construction time because of changing project scope and industry experience. Project scope changed principally because of changed design and construction criteria for safety related systems and structures. In addition, experience from the industry indicated that more time was needed to design and construct the Midland Plant.

Unit 2 was rescheduled to be completed one year ahead of Unit 1, resulting in a delay of Unit 1 of 13 months and an advance in the schedule of Unit 2 of 11 months. Unit sequence was switched because of the engineering complexities of the combined electric and process steam unit, the earlier need for the all electric unit due to projected electrical load demand and the projected need for process steam.

Both units were delayed 1 month due to a delay in actual construction remobilization in February 1973 and the advancement of Unit 2 design activities over those of Unit 1. 11/7

Both units were delayed 24 months due to adverse financial conditions in 1974 and 1975 which made it impossible to obtain financial resources on reasonable terms. This resulted in adjusting construction and engineering activities to match projected available financing.

The requested extension involves no significant hazards considerations or undue risk to the health and safety of the public.

RESPONSE TO
S A Varga Letter to S H Howell, dated 10/27/78

Questions

1. Appendix E states that construction time was reevaluated to include "changing project scope" which resulted "principally because of changed design and construction criteria for safety-related systems and structures". During our meeting of March 21 and 22, 1978, you identified the more significant examples of changing project scope which influenced schedules. Of these examples stated (as listed in our meeting summary dated March 27, 1978), specify the pacing items which contributed to the schedule delay, and specify the relative significances of the various examples specified in terms of the schedule. Provide a general chronology (by dates) for those items of changed project scope which had a pacing effect on the Midland schedule and showing overlaps of schedule influence between contributing events.

2. Appendix E states that construction time was reevaluated to include experience from the industry which indicated that more time was needed to design and construct Midland Plant Units 1 and 2. Identify and describe the specific design and construction areas for Midland Plant Units 1 and 2 for which you found the schedule to be in need of revision and the specific "industry experience" you used for the reevaluation of each such Midland area.

Response to Questions 1 and 2

The seven specific items referenced in the March 27, 1978 meeting summary have not been individually evaluated to assess their impact on the Project schedule. However, collectively these items when considered as a group does impact the schedule through additional quantities and productivity (unit/rates) adjustments and will be discussed further below.

A chronology by dates for the individual items has not been developed, but the seven items specified were added to the Project's Technical Scope during the period of job suspension (December 1970 to February 1973) and were not considered part of the Project's scheduling requirements in 1970 (October 1970 Definitive

Estimate Schedule) and no effort was made to consider these items in the schedule requirements until the scheduling effort which took place in September 1972.

It should be noted that Project activities, except for licensing support, were limited during job suspension (December 1970 to February 1973) due to the Dow/Consumers Contract requirements limiting nonrecoverable costs (cost which could not be recovered at a different site) to a designated amount prior to the receipt of the Construction Permit.

Because of the contractual noncoverable costs restraint, little scheduling work occurred during job suspension until Consumers requested Bechtel in July 1972 to provide a preliminary budget and schedule based on the assumptions of remobilization in September 1972, receipt of the Construction Permit in February 1973 and Unit 1 fuel load in January 1978. This schedule is summarized in Exhibit 1 as the preliminary August 28, 1972 schedule and provided the basis for the Construction Permit (CPPR-81) completion dates (earliest date December 1, 1977 and latest date December 1, 1978).

In early September 1972, Consumers under the nonrecoverable costs limitation felt that remobilization could not occur until January 1973 and directed Bechtel to revise the August 28, 1972 schedule taking into consideration a delay of four months in remobilization and a delay of five months due to increased Project scope and changing productivity (unit/rates) resulting in a delay in fuel load of 9 months. This revision is summarized in Exhibit 1 as the Revision B September 14, 1972 schedule.

The five-month delay in the September 14, 1972 schedule critical path occurred in the completion of the auxiliary building civil/structural activities to elevation 614' and start of auxiliary building large pipe and in the bulk materials (large pipe and electrical commodities) installation duration. The civil/structural milestone and start of large pipe were delayed one month from the August 28, 1972 schedule to reflect cask drop design criteria changes. The bulk materials installation duration was extended four months due to revised productivity (unit/rates) reflecting Bechtel's experience from other jobs and changing QA requirements of 10CFR50 Appendix B. The pipefitter and electrician manpower peaking which resulted from the productivity changes was considered in developing the extension of the bulk material installation duration.

Question

3. Appendix E states that adverse financial conditions in 1974 and 1975 made it impossible to obtain financial resources on reasonable terms, that this resulted in adjusting construction and engineering activities, and resulted in a delay of 24 months for both units. Describe in greater detail how adverse financial conditions in 1974 and 1975 contributed to the delays for the Midland units. Specify what financing alternatives were considered to avoid these delays. Define the criteria which you used for judging the acceptability of these alternatives. Which specific areas of construction and engineering had the pacing influences and to what extent did each contribute to the total delay for the 24-month delay?

Response

The conditions prevailing in 1974 were bleak for the entire electric utility industry. The Arab oil embargo beginning in late 1973 began a restructuring of prices for all fuels while the inflation of 1974 and 1975 created cost pressures which electric utilities could not reflect, on a timely basis, in the prices they charged for electricity. The decision by Consolidated Edison Company of New York, to forego its regular quarterly dividend in May of 1974 shocked the investment community and vividly illustrated the impact these conditions were having upon the industry. Investors' skepticism of the industry in 1974 was reflected in the capital markets as securities underwriters were unable to market successfully the securities of some electric utilities and interest rates for both long-term and short-term debt instruments were rapidly increasing.

National Economic Research Associates, Inc, reported that as of October 15, 1974, utility construction cutbacks for the period 1974-78 total $16.1 billion. Those cutbacks affected some 132,490 megawatts of planned generating capacity, of which 89,300 megawatts were nuclear.

Consumers Power Company confronted these general conditions of 1974 with continually declining earnings, such that it was legally precluded from issuing preferred stock

by August and first mortgage bonds by September because of coverage requirements. Consumers Power Company cannot legally sell its common stock at less than par value ($10 per share) and by September of 1974 the price had dropped to 10 1/4. The price dropped below $10 in November 1974 and closed as low as $9 in December 1974. A new preference stock was issued in July of 1974. Although no coverage test is required on this stock the Company was advised by its investment bankers in October of 1974 that it would not be reasonably marketable in significant amounts. Further, the Company was advised that little investment interest existed for its unsecured indebtedness (downgraded earlier in 1974 to BBB) and any offering would be of high costs and yield limited new capital. In October the Company negotiated the sale and leaseback of $32.5 million of its nuclear fuel supplies. In November of 1974, faced with the inability to raise significant additional capital, the uncertainty of when the Michigan Public Service Commission would act on its pending applications to raise the prices charged for electricity and natural gas as well as the uncertainty surrounding the operation of the Palisades nuclear facility and the substantial additional capital necessary to continue the construction program as it then stood and refund over 86 million dollars of bonds coming due in mid 1975, the Company was forced to delay each of the Midland nuclear units. This decision was made with full knowledge that the required pro forma coverage requirements (12 months ended) for the issuance of additional first mortgage bonds and preferred stock could not recover before mid 1975 because of the delay by the Michigan Public Service Commission in granting requested rate treatment and that additional sale and leaseback arrangements might provide 20-50 million of capital to fund the construction program. Although numerous financial projections were made with various assumptions about operating conditions, regulatory treatment and the acceptance of Consumers Power Company securities to the capital markets, the November delay decision was made leaving the option for additional delay

decisions if earnings were not restored to the level necessary to attract capital by mid-1975. In early 1975, the Company negotiated a coal inventory financing and by June sold and leased back its General Office buildings. In June of 1975, the Company sold 50 million of convertible preference stock and in July, 150 million of first mortgage bonds marking its improved financial health and the acceptance of its securities by the capital markets for the first time in over ten months.

As a result of a questionnaire forwarded to Consumers Power Company on May 29, 1974 by the Deputy Director for Reactor Projects of the Atomic Energy Commission regarding the Company's financial status, the period from April 1974 through December of 1975 has been documented in considerable detail. Attached as Exhibit 2 is a list of the staff correspondence and the responses Consumers Power Company provided at that time.

The pacing influence contributing to the total delay of 24 months was the reduction in manual labor from approximately 1,000 persons in August 1974 to an approximate average of 200 persons in 1975. This reduction plus the 1976 time duration to restaff (approximately 6 months) to the same manual labor level of August 1974 was the pacing or principal factor contributing to the delay of 24 months. Also, engineering and procurement activities were reduced in 1975 from 300 persons to a low of approximately 100 persons. This reduction had a construction delay impact by reducing the lead time from approved design to start of construction in addition to impacting the placing of purchase orders causing delays in the delivery of materials and components.

The foregoing factors, taken together, resulted in a schedule extension of 24 months.

Question

4. Describe the special Quality Assurance provisions which were and are being implemented for materials and components as a result of the extended construction period.

Response

In order to protect existing materials and components on site, and to prevent unacceptable deterioration during the extended construction period, a joint plan was developed by Bechtel and Consumers Power Company commencing in November 1974 to address the problem. The key elements of this plan were as follows:

- Determine delivery dates for equipment and material, and arrange for storage at the vendor facility whenever possible.
- Contact vendors to determine special requirements for long-term storage. Special procedures and requirements were to be approved by Bechtel Engineering.
- For materials and components stored at the site:
  1. Modify existing Bechtel Construction storage procedures to cover the extended period.
  2. Incorporate new vendor requirements for extended storage into existing field procedures.
- Contact the Babcock & Wilcox Company (B&W) for any special requirements for NSSS-related materials and components.
- Contact the General Electric Company (GE) to arrange storage and disposition of turbine/generator components.

While the initial steps of the above-described plan were being implemented, a detailed estimate of physical requirements for site storage of materials and components was made. This included a review of all purchase orders to determine sizes and quantities, followed by a categorization into the four levels of

storage specified by ANSI N45.2.2. Following an economic analysis of alternatives to provide satisfactory site storage, the following actions were taken:

- A new 10,000 cubic foot Class A warehouse was constructed.
- An additional 60,000 cubic foot Classes B and C warehouse was constructed.
- A 60-acre plus addition to the Class D outside laydown area was scheduled, with completion specified in 1976.

Meetings were held with representatives of B&W and GE to determine requirements for the NSSS and turbine/generator equipment, respectively. B&W provided special long-term storage instructions for components within their scope of supply. An interior inspection of major NSSS vessels stored on site was recommended to determine the "as received" condition prior to extended storage. This inspection was accomplished over the summer of 1975. Special site storage facilities were designed for the reactor coolant pump motors and the reactor pressure vessel internals. Off-site storage of the turbine/generator components was arranged with commercial warehouses and GE.

By the summer of 1975, site storage procedures were modified by Bechtel Construction to reflect additional requirements for long-term storage. All long-term related storage activities undertaken were performed by Bechtel Construction Field Engineers and monitored by Bechtel Quality Control Engineers (Q-listed items), as an expanded part of their normal activities. These storage related duties were described in site storage procedures. Implementation of long-term storage requirements, where applicable, has continued to date.

Evaluations of Bechtel activities in the area of long-term storage were conducted by Consumers Power Company throughout the extended period and have continued to date where applicable. These included a formal audit program for Q-listed items

conducted by CP Co Quality Assurance Engineers and a monitoring program for non-Q-listed items conducted by Construction Field Engineers. In addition, inspections by NRC Region III Inspection and Enforcement have reviewed Consumers Power Company's activities in the area of long-term storage on a routine basis.

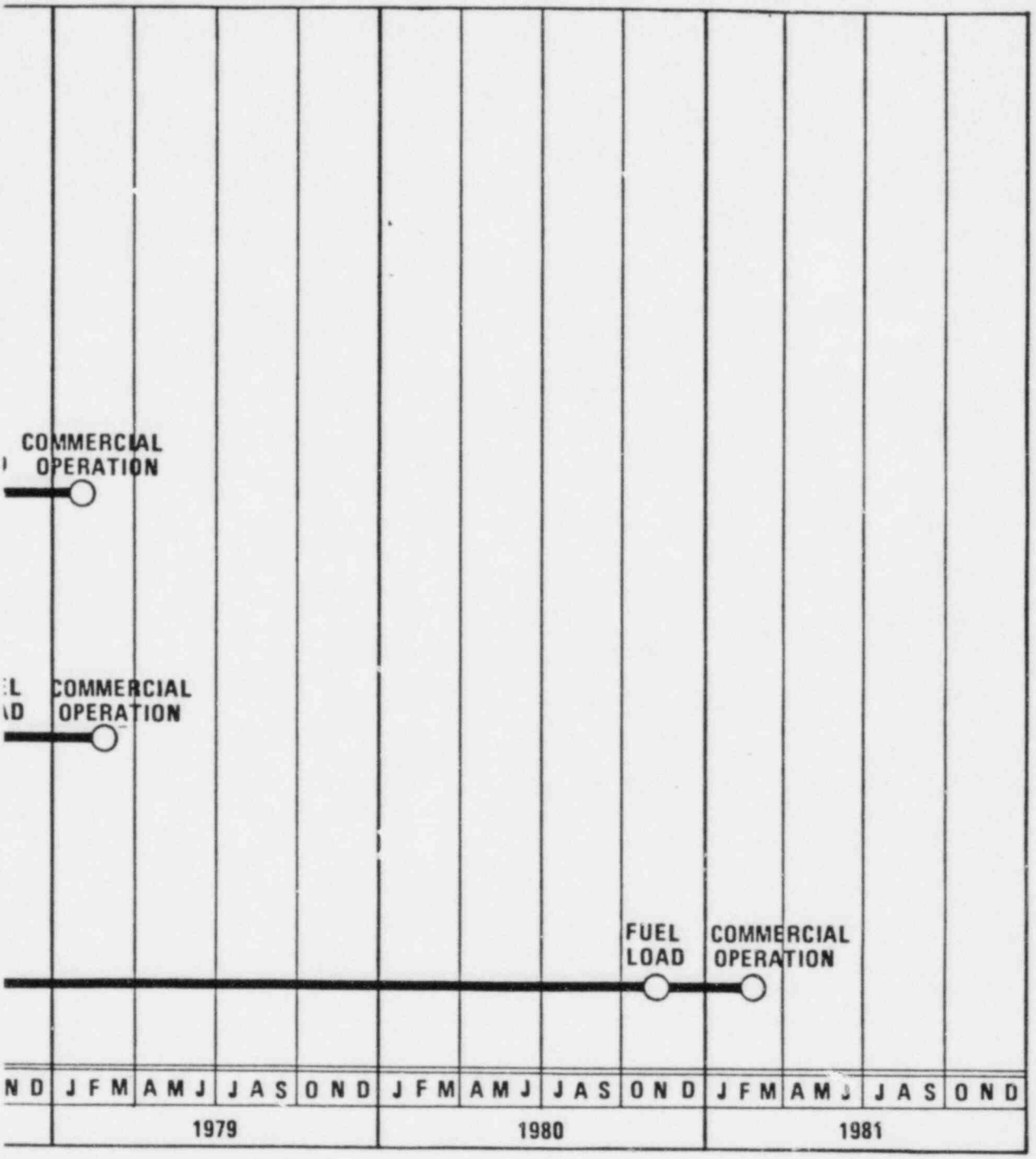
Question

5. Appendix E accounts for 33 months of delay due to changing project scope (9 months) and financial conditions (24 months). However, the delay associated with operation of the first operating unit is 34 months (ie, the difference between December 1, 1977 and October 1, 1980. What is the reason for this one additional month of delay?

Response

The additional month delay to the 9-month and 24-month delays previously discussed was added to the Project schedule in February 1973. This schedule is summarized as the Revision 5, March 29, 1973, schedule in Exhibit 1 and is due to the actual remobilization of Bechtel in February 1973 instead of the January 1973 planned remobilization contained in the September 14, 1972 schedule basis. Also, the decision to complete Unit 2 first was made at this time and the status of design, procurement and construction of this unit was behind Unit 1 necessitating more work to do or catch up; this impacted the end date. When considered together, these two items resulted in a 1-month delay.

EXHIBIT 1



ID PROJECT

SCHEDULE MILESTONES

DLAND PROJECT MANAGEMENT 11/13/78

EXHIBIT 2

1974 & 1975 Correspondence Regarding the Financial Status of Consumers Power Company

Date of NRC Request	Date of Consumers Power Company Response
May 29, 1974	June 13, 1974
June 12, 1974	June 17, 1974
September 13, 1974	March 17, 1975
September 13, 1974	May 19, 1975
September 13, 1974	August 18, 1975
September 13, 1974	November 10, 1978
September 13, 1974	March 2, 1976