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Power
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May 3, 1983

Harold R Denton, Director
Office of Nuclear Reactor Regulation
Division of Licensing
US Nuclear Regulatory Commission
Washington, DC 20555

MIDLAND NUCLEAR COGENERATION PLANT
MIDLAND DOCKET NOS 50-329, 50-330
COOLING POND DIKE SLOPE EROSION PROTECTION
AND DIKE SURVEILLANCE PROGRAM
FILE 0485.16.7, 0485.11, B2.5.6 SERIAL 20453

REFERENCE J W COOK LETTER TO H R DENTON, SERIAL 18859 DATED
SEPTEMBER 21, 1982

This correspondence will supplement the explanation of our commitment to implement an expanded cooling pond dike surveillance program which was discussed in our above referenced letter of September 21, 1982. In the referenced correspondence we discussed our intentions for visual inspections of the grass on the outside slope of the cooling pond dike, which would supplement our commitment to a comprehensive dike surveillance program. This correspondence will serve to define the scope of the comprehensive dike surveillance program, including visual inspections of the dike turf, with the intention of resolving the NRC's concerns related to dike erosion and dike performance which were identified in Sections 2.4.4 and 2.5.6.8 of the Midland SER of May 1982.

Erosion protection of the cooling pond dike, especially for those sections along the river, is an essential feature of the dike design. Graded rip rap has been placed to protect the outer slope of the dike to elevation 614' (100 year flood level), with one exception as discussed in FSAR Subsection 2.4.10. Seeded turfgrass has been provided above elevation 614' and extends to within two feet of the top of the dike, ie, elevation 632'. The grass seed mixture used on this portion of the dike was primarily common Kentucky Bluegrass blended with lesser portions of Creeping Red Fescue and Perennial Rye. This type of mixture is well known to have exceptionally high tolerance for the temperature extremes and diseases found in the Michigan climate. The specific proportions of the mixture were chosen to best match the soil and environmental conditions on the dike slopes.

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It is our intention to maintain the ratio of the permanent turfgrasses, ie, common Kentucky Bluegrass and Creeping Red Fescue, for the slopes of the cooling pond in the most desirable proportions and to maintain them in a dense healthy condition. That is, we will maintain the turfgrasses to a level which is consistent with our goal of the prevention of erosion. In order to maintain the two permanent dike turfgrasses in a vigorous and balanced condition, a routine maintenance program has been established which involves regular grass mowings during the growing season and an annual fertilizer application. The grass is typically maintained at an average height of 3" to 6" tall with mowings occurring as often as every 10 days in the spring. This will help in the early destruction of tall growing weeds and prevent the establishment of tree or shrub varieties. Fertilization once every year will help to maintain the proper proportions of the two permanent turfgrasses and maintaining them in a dense healthy condition, thereby, preserving the turf's disease resistance characteristics and ensuring survival under a wider range of environmental conditions.

Another essential element of our maintenance program for the turfgrass will be the repair of bare and/or damaged grassy areas on the dike in accordance with the criteria discussed below. In addition, it is our intention to take appropriate action(s), should an inspection of the grass identify the development of a turf disease or insect damage covering a significant area. Our objective will be to identify as early as possible the type of disease and insect problems which could kill the grass over an area significant in size with respect to erosion.

As indicated in our correspondence of September 21, 1982, we will repair any bare and/or damaged grassy dike areas which extend over a single plot in excess of 9 square feet that are detected during any inspection. By the use of the term bare area, we mean either an entirely bare area or one which is sufficiently thinned (bare patches) such that the turfgrass will not naturally fill in these areas through lateral growth. After the completion of an inspection, repair of the bare or damaged area(s) will be completed in a reasonable time frame such that the potential for erosion remains low. The 9 square foot plot criteria was selected on the basis of several practical considerations. A 9 square foot plot is large enough to be easily detected, but small enough to present no significant erosion problem. Should the development of a significant amount of erosion be detected in a bare and/or damaged area smaller than 9 square feet during any inspection, the erosion will be repaired and the area will be sodded or seeded. The location of a bare and/or damaged area(s) on the slope of the dike is not a factor in the timely repair of such area(s), ie, all areas in excess of our criteria regardless of location will be repaired.

The scope of the comprehensive dike surveillance program for the Midland Plant will include those applicable elements of Regulatory Guide 1.127, Revision 1 dated March 1978, which are summarized below.

I. Onsite Inspection Program for Embankment Structures (Section C.2.b)

The program will include a detailed check list to document the observations of each significant structural and hydraulic feature. Photographs will be used for comparison of previous and present conditions of any

damaged areas pertaining to Items 1 through 4a listed below, with the exception of animal burrows. The program will include observations of the following:

- 1) Settlement: The dike and the downstream toe areas will be examined for any evidence of unusual localized or overall settlement, depressions, or sink holes.
- 2) Slope Stability: The dike slopes will be examined for irregularities in alignment and variances from originally constructed slopes, unusual changes from original crest alignment and elevation, evidence of movement at or beyond the toe, and surface cracks that indicate movement. The dike slope will also be inspected for localized wet zones, erosion, animal burrows and/or other non-hydrologic scouring.
- 3) Seepage: The downstream face of the dike slopes and toes will be examined for evidence of existing or past seepage. The source of seepage will be investigated to determine the cause and potential severity affecting dike stability under all operating conditions.
- 4) Slope Protection.
 - a) Riprap and/or armor stone will be examined for evidence of settlement, displacement (voids), exposure of filter layer and/or dislocation of filter materials.
 - b) Grass will be examined for bare and/or damaged areas, localized wet zones, and the development of any significant disease or disease problems.

II. Technical Evaluation (Section C.3)

In the event that the general dike inspection data indicates significant changes have occurred, the dike will then be evaluated for an assessment of the hydraulic and hydrologic capacities and for structural stability based on the changes or affected parameters.

III. Frequency of Inspection (Section C.4)

- a) The frequency of the routine inspection program is described below.
 1. General Dike Inspection: The general inspection of the dike will be made at 1 year intervals for the first four years after the plant goes critical and at two-year intervals for the following four years. The general inspection will be repeated at the end of each following five years. The general inspections will be conducted under the direction of a knowledgeable engineer. The scope of the general dike inspection is described in Items I.1 thru I.4a above.
 2. Grass Inspection: The inspection of grass as described in Item I.4.b above will be made at least three times each year,

i.e., once each during the spring, summer and fall seasons. The grass inspection may be included in or independent of the general dike inspection.

3. Limited Inspection: The inspection of the dike for animal burrows and/or other non-hydrologic scouring will be made once a year throughout the operating life of the plant. These limited scope inspections may be included in or independent of the general dike inspections.
- b) Special inspections of the dike and grass will be performed immediately after any of the unusual events listed below have occurred at the Plant site. These inspections will not be considered as a part of the inspection frequency listed in Item III.a above.
 1. Water level in the Tittabawassee River equals to or exceeds:
 - a. Elevation 614' above mean sea level; a grass inspection will be performed.
 - b. Elevation 631' above mean sea level; a general dike inspection, which will include a grass inspection, will be performed.
 2. Tornado at the Plant site.
 3. Intense local rainfall equal to or exceeding 4-1/2 inches within a 24-hour period.
 4. Earthquake with a magnitude equivalent to the OBE or greater at the Plant site.

IV. Inspection Report (Section C.5)

A technical report will be prepared to present the results of each general dike inspection. These reports will include the results of visual inspections and information relative to changes in or the continuation of abnormal conditions noted since the previous inspection. The reports will also include any extreme unusual events as described in Item III.b above that have occurred since the last inspection. The reports will be kept at the Plant site for reference purposes and will be available for inspection by regulatory authorities. The reports will be retired upon the retirement of the Midland Nuclear Plant.

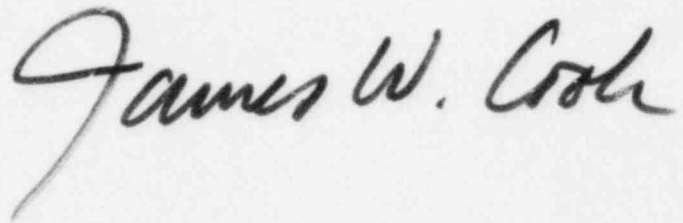
The inspection frequencies identified above and in our September 21, 1982 correspondence are considered by Consumers Power to be more than adequate to document the performance and the stability of the cooling pond dike as well as identifying required maintenance. The composite frequency described above exceeds the requirements of the Federal Energy Regulatory Commission for hydro power dams (every 5 years), the Michigan Department of Natural Resources for non-private impoundment structures (every 3-5 years), and Revision 1 of Regulatory Guide 1.127 for water control structures associated with Nuclear

Power Plants (every year for the first 4 years, every 2 years for the next 4 years, every 5 years thereafter, and special inspections).

In conclusion, we believe that we have satisfactorily addressed the concerns of the Staff identified in Subsections 2.4.4 and 2.5.6.8 of the May 1982 SER and those identified in Supplement 2 of the Midland Safety Evaluation Report, Subsection 2.5.4.7 by meeting and exceeding the requirements of Regulatory Guide 1.127 as it applies to a dike surveillance program. More importantly, this dike surveillance program will ensure the stability and integrity of the pond dikes as the result of the early detection of developing deficiencies.

JWC/RLT/PS/dlm

CC RHernan, NRC
RJCook, Midland, NRC
DSHood, NRC
DBMiller, Midland

A handwritten signature in dark ink, reading "James W. Cook". The signature is written in a cursive style with a large, sweeping initial "J".

CONSUMERS POWER COMPANY
Midland Units 1 and 2
Docket No 50-329, 50-330

Letter Serial 20453 Dated May 3, 1983

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits correspondence which supplements our previous letter of September 21, 1982 and which addresses the NRC's SER concerns identified in Sections 2.4.4 and 2.5.6 of NUREG-0793, related to periodic inspections of the Midland cooling pond dike. This submittal also addresses the Staff concerns identified in Section 2.5.4.7 of Supplement No 2 to the SER.

CONSUMERS POWER COMPANY

By

J W Cook
J W Cook, Vice President
Projects, Engineering and Construction

Sworn and subscribed before me this 9th day of May 1983

Beverly A. Avery
Beverly A. Avery Notary Public
Jackson County, Michigan

My Commission Expires January 16, 1985