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November 16, 1982

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
NATURAL GAS ISSUE
FILE: 0971 SERIAL: 19410

On October 19, 1982 a letter was submitted to the NRC with information requested by the Staff regarding the natural gas pipeline at the Midland Site. This letter contains additional confirmatory information about potential air shock, missile generation, heat effects, the location of the onsite regulator station, possible ignition of gas from leaks in piping internal to the evaporator building and the combination shop, and seepage of gas along underground channels.

Based on the results of the probabilistic assessment presented in the October 19, 1982 letter, and due to the close proximity of the mechanic shop and condensate return pumphouse to the natural gas pipeline, these structures were analyzed for their potential to generate air shock and missiles due to an explosion of gas taken into the building. The results verify that the consequences of any air shock would be less than 1 psi incident over pressure for any safety related structure. Further, no missiles can be generated that will impact a safety related structure. A detailed report of this analysis is provided in Appendix A.

The natural gas pipeline runs within one hundred fifty (150) feet of the borated water storage tank which is the nearest safety related structure. Therefore, an analysis was performed to determine the effects of heat generated from a natural gas fire. The results verify that the heat load on any safety related structure is acceptable. A detailed report of this analysis is provided in Appendix B.

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The location of the onsite regulator station was evaluated with respect to the evaporator building air intakes. The design of this regulator incorporates a working monitor system consisting of two stages of operating regulators such that if one regulator malfunctions the other is capable of handling the entire pressure reduction. No relief to atmosphere is necessary with this design. This type of system has been used at several locations on the Consumers Power Gas System and never have both regulators failed during the same time frame. Further, as part of Consumers Power Company Gas Department normal maintenance procedures, the regulator station is inspected at least once weekly to ensure that all equipment is operating properly.

For protection against a line rupture at the regulator location, the gas leak detection system described in the October 19, 1982 letter, will sense any pipeline abnormalities (leaks) and automatically isolate the line. The operator in the evaporator building control room also will have the capability to remotely isolate the pipeline in the event of a gas odor. We believe that, based on the design, operating experience, and the surveillance available, the location of the regulator station is acceptable.

The probabilistic assessment showed that natural gas does not represent a hazard to any safety-related structure. The automatic isolation system protects the non-safety-related structures which could otherwise build up to explosive concentrations with unacceptable frequency. The consequences of this situation could potentially impact a safety-related structure. Therefore, an analysis was performed to confirm that the automatic isolation of the natural gas pipeline will adequately protect non-safety-related structures. The results of this analysis verify that the resultant buildup of gas in non-safety-related buildings onsite does not pose a hazard or its consequences are not a concern since the frequency of the event leading to gas build up is acceptably low. A detailed report is provided in Appendix D.

Since gas lines enter only the evaporator building and the combination shop, the possibility of potential leaks internal to them was evaluated. These results verify that with the automatic isolation internal leaks cannot build up to flammable concentrations and therefore will not have any consequences on safety-related structures. Details are provided in Appendices C and D.

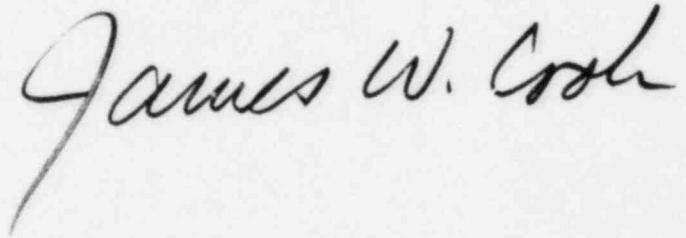
An extensive investigation was performed to identify if any other underground utilities exist in the area of the natural gas pipeline. This investigation was initiated in recognition of the phenomena of gas being channeled by other utility pipes located above the gas line and being released at a location remote from the leak. The investigation located several utilities, both active and abandoned. These all pass beneath the natural gas pipeline, and do not present a path for gas to be channeled onto the site. Any future piping installed near the natural gas pipeline will be reviewed and controlled administratively to ensure that it is not installed directly above the gas pipeline.

Another related phenomena is that of released gas being trapped underground by a frost layer in the winter. The Consumers Power Company Gas Department is well aware of this possibility. Their experience has been that this trapping of gas happens predominantly with gas at a low pressure. Gas at high pressure, like the pipeline into the site (350-400 psi), has sufficient energy

to force its way to atmosphere very quickly and does not travel long distances under the frost.

An investigation was performed to identify the routes that storm drains emptying onto the flood plain north of the site travel, to confirm that none of them originate inside a building. The results verified that none of the storm drains can present a path for gas to be transported into a building, or to a location which would present a hazard to a safety related structures.

Consumers Power Company is confident that the results of the analysis provided in the October 19, 1982 letter, when combined with the confirmatory data presented in this letter, along with the hardware changes to the gas pipeline (Figure 1), demonstrate the acceptability of natural gas as a fuel for the boilers at the Midland Site.

A handwritten signature in cursive script that reads "James W. Cook". The signature is written in black ink and is positioned to the right of the typed name.

JWC/MAF/fms

CC RJCook, Midland Resident Inspector
RHernan, US NRC
DBMiller, Midland
RWHuston, Washington

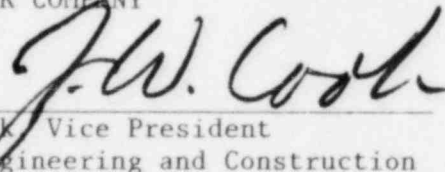
CONSUMERS POWER COMPANY
Midland Units 1 and 2
Docket No 50-329, 50-330

Letter Serial 19410 Dated November 16, 1982

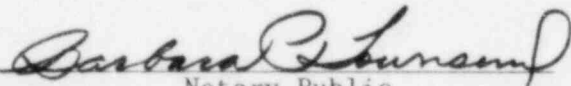
At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits information requested by the Staff regarding a natural gas pipeline at the Midland Site.

CONSUMERS POWER COMPANY

By


J W Cook, Vice President
Projects, Engineering and Construction

Sworn and subscribed before me this 16 day of November, 1982


Notary Public
Jackson County, Michigan

My Commission Expires September 8, 1984

