

DEC 22 1982

Docket Nos: 50-329  
and 50-330

APPLICANT: Consumers Power Company

FACILITY: Midland Plant, Units 1 and 2

SUBJECT: SUMMARY OF MEETING HELD WITH CONSUMERS POWER ON  
ENVIRONMENTAL EQUIPMENT QUALIFICATION - JUNE 16, 1982

On June 16, 1982, the NRC staff met in Bethesda, Maryland with Consumers Power Company (CPC) and Bechtel to discuss environmental equipment qualification at the Midland Plant. This subject relates to section 3.11 of the Midland SER (outstanding open item #6). A list of meeting attendees is included as Enclosure 1. Enclosure 2 is a compilation of the handouts and visual aids used in the course of the meeting.

Summary

In response to a request by the staff in March 1982, Consumers Power submitted a revised Environmental Qualification (EQ) Report on April 30, 1982. The revised report addressed items for which more information was needed as discussed in the SER. Since the SER text was finalized by the time the revised EQ report was received, the information contained in the EQ report was not reflected in the SER. Also, at the time of SER issuance, a site audit of the Midland EQ program by the staff had been tentatively scheduled for May 24, 1982. The audit was subsequently postponed at the Applicant's request. The purpose of the June 16, 1982 meeting was to update the staff on the status of the environmental EQ program. The major item of discussion of the meeting was the methodology and assumptions used in calculating the integrated radiation dose to various items of equipment. Bechtel made a brief presentation on this subject. The staff expressed general agreement with the techniques used and requested that description of the methodology, assumptions, and the results of 2 sample calculations be submitted formally for review.

In addition to the Bechtel presentation, the following issues were discussed.

1. The staff cautioned that individual items of equipment cannot be listed as "qualified" while some of the required evaluations are still underway. For example, the EQ Report incorrectly implies some equipment as qualified for a 40 year service life without exception when the lifetime evaluation considering accident conditions is being developed.

OFFICE							
SURNAME							
DATE	3301060416	821222					
	PDR	ADOCK	05000329				
	E		PDR				

2. The staff noted that the room environments listed in Table 1.6 of the EQ Report include many areas where the maximum temperature is 104° F. The staff requires specific justification for assuming less than 212° F in any area which could be affected by high energy line break environment. It was pointed out that the table does not include results of the evaluation of high energy line breaks outside containment. This evaluation was recently completed; as a result, the maximum temperature in many areas will increase to the range of 212° F to 220° F. Consumers Power stated that Table 1.6 will be revised in an updated submittal.
3. The extent of current qualification efforts regarding mechanical equipment was briefly discussed. The principal effort to date has been directed at ensuring the operating environment was properly enveloped in the purchase specification, and that a certificate of conformance by the vendor is provided. The staff had no comments but indicated that they will address the issue of mechanical equipment qualification by reviewing the documentation for several items of mechanical equipment during the upcoming audit. CPCo agreed to identify the qualification programs, at least where evaluation has been essentially completed. The staff will select items from this list to evaluate.
4. The staff questioned whether areas outside containment had been evaluated for flooding potential. This area has been evaluated. Safety equipment at low elevations is generally contained in watertight compartments such that no equipment is subject to flooding which is not backed up by redundant equipment not subject to the same flooding sources. Flooding evaluations are continually being updated as a result of pipe route changes. Flooding potential is also considered in systems interaction walkdowns. CPCo stated that this area will be addressed in the forthcoming updated submittal. The staff indicated the flooding analysis would be carried as and open item if it is not completed before issuance of the SSER which discusses the audit.
5. Bechtel explained that the reason the radiation levels in the April 1982 EQ Report were less than the levels in November 1981 submittal even though the failed fuel level increased from .12 to 1.0 percent was because of the typographical error. Also, reevaluation of a component safety function determined that the component was not needed post-LOCA. The staff had no further questions on this subject.
6. CPCo stated that an internal audit of qualification documentation had been completed by NUTECH. The results did not change the conclusions presented in the environmental report submittal, however, additional backup documentation was being obtained to back up qualifications statements. In addition, a number of Limitorque valve programs (18) would be combined into three programs (inside containment, outside containment, and DC operator). As a result, certain revisions will be made to the submittal.

OFFICE ▶	.....	.....	.....	.....	.....	.....	.....
SURNAME ▶	.....	.....	.....	.....	.....	.....	.....
DATE ▶	.....	.....	.....	.....	.....	.....	.....

The staff requested that the planned updated submittal be available a minimum of three weeks prior to the site audit. This is necessary to enable the staff and its consultants to review it prior to the audit. At the conclusion of the meeting, it was estimated by Consumers Power that preparations for the audit could be completed as early as August 1982.

Ronald W. Hernan  
Licensing Project Manager  
Licensing Branch #4  
Division of Licensing

Enclosures:  
As stated

OFFICE	DL:LB#4	DL:LB#4					
SURNAME	RHernan:ms	EAdensam					
DATE	12/10/82	12/11/82					

MIDLAND

Mr. J. W. Cook  
Vice President  
Consumers Power Company  
1945 West Parnall Road  
Jackson, Michigan 49201

cc: Michael I. Miller, Esq.  
Ronald G. Zamarin, Esq.  
Alan S. Farne1l, Esq.  
Isham, Lincoln & Beale  
Three First National Plaza,  
51st floor  
Chicago, Illinois 60602

James E. Brunner, Esq.  
Consumers Power Company  
212 West Michigan Avenue  
Jackson, Michigan 49201

Ms. Mary Sinclair  
5711 Summerset Drive  
Midland, Michigan 48640

Stewart H. Freeman  
Assistant Attorney General  
State of Michigan Environmental  
Protection Division  
720 Law Building  
Lansing, Michigan 48913

Mr. Wendell Marshall  
Route 10  
Midland, Michigan 48640

Mr. Roger W. Huston  
Suite 220  
7910 Woodmont Avenue  
Bethesda, Maryland 20814

Mr. R. B. Borsum  
Nuclear Power Generation Division  
Babcock & Wilcox  
7910 Woodmont Avenue, Suite 220  
Bethesda, Maryland 20814

Cherry & Flynn  
Suite 3700  
Three First National Plaza  
Chicago, Illinois 60602

Mr. Don van Farrowe, Chief  
Division of Radiological Health  
Department of Public Health  
P.O. Box 33035  
Lansing, Michigan 48909

Mr. Steve Gadler  
2120 Carter Avenue  
St. Paul, Minnesota 55108

U.S. Nuclear Regulatory Commission  
Resident Inspectors Office  
Route 7  
Midland, Michigan 48640

Ms. Barbara Stamiris  
5795 N. River  
Freeland, Michigan 48623

Mr. Paul A. Perry, Secretary  
Consumers Power Company  
212 W. Michigan Avenue  
Jackson, Michigan 49201

Mr. Walt Apley  
c/o Mr. Max Clausen  
Battelle Pacific North West Labs (PNWL)  
Battelle Blvd.  
SIGMA IV Building  
Richland, Washington 99352

Mr. I. Charak, Manager  
NRC Assistance Project  
Argonne National Laboratory  
9700 South Cass Avenue  
Argonne, Illinois 60439

James G. Keppler, Regional Administrator  
U.S. Nuclear Regulatory Commission,  
Region III  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Mr. J. W. Cook

- 2 -

cc: Lee L. Bishop  
Harmon & Weiss  
1725 I Street, N.W., Suite 506  
Washington, D. C. 20006

Mr. Ron Callen  
Michigan Public Service Commission  
6545 Mercantile Way  
P.O. Box 30221  
Lansing, Michigan 48909

Mr. Paul Rau  
Midland Daily News  
124 McDonald Street  
Midland, Michigan 48640

Billie Pirner Garde  
Director, Citizens Clinic  
for Accountable Government  
Government Accountability Project  
Institute for Policy Studies  
1901 Que Street, N.W.  
Washington, D. C. 20009

LIST OF ATTENDEES

NRC

R. LaGrange  
H. Walker  
L. Bell  
R. Hernan

Consumers Power Company

J. Zabritski  
P. Jacobsen  
R. Huston  
D. Budzik

Bechtel

R. Schrauder  
D. Lewis  
K. Prasad

## NORMAL OPERATION

- 1.0 %  
● ~~0.12%~~ FAILED FUEL
- 80% AVAILABILITY



# **DESIGN BASIS ACCIDENT**

- **CONTAINMENT**
  - Airborne Gamma
  - Sump Flooding Gamma
  - Plateout Gamma
  - Airborne Beta
  - Plateout Beta
- **AIRBORNE CONSIDERATIONS**
  - Some Internal Structures
  - Semi-Infinite Cloud for Beta
  - Plateout Area = Heat Sink Area
- **AUXILIARY BUILDING**
  - Contained Sources
  - Containment Penetrations



# **SOURCE TERM CRITERIA**

- **REG GUIDE 1.89, REV 1 (proposed)**
- **REG GUIDE 1.7**
- **REG GUIDE 1.4**
- **NUREG-0588**
- **NUREG-0737**

# **SOURCE DISTRIBUTION**

- **INSTANTANEOUS RELEASE**
- **INSTANTANEOUS UNIFORM MIXING**

# CONTAINMENT AIRBORNE

TID 14844

- 0 - 2 HOURS
  - 100% Noble Gases
  - 50% Halogens
  - 50% Cesiums
- GREATER THAN 2 HOURS
  - 100% Noble Gases
  - 2.25% Halogens
- DILUTION VOLUME =  $1.67 \times 10^6$  FT<sup>3</sup>
- MINIMUM CONTAINMENT FREE VOLUME

100% Noble Gas  
25% Iodines

# REACTOR BUILDING SUMP

TID 14844

- 50% HALOGENS  
25% Iodines  
1% Particulates
- 50% CESIUMS
- 1% PARTICULATES
- DILUTION VOLUME = 50,780 FT<sup>3</sup>
- 1 RCS VOLUME + MINIMUM BWST VOLUME
- 10,679 FT<sup>3</sup> + 40,101 FT<sup>3</sup> (300,000 gal)

# COMPUTER CODES

- ORIGEN
- SOURCE 2 (NE 602)
- GRACE2 (NE 348)
- GRACE1 (NE 347)
- QAD-CG (NE 007)
- CONTDOSE (NE 014)
- RADSPEC

SUMMARY OF COMPUTER PROGRAMS USED

SOURCE 2

INPUT            CURIES PER ISOTOPE  
                  ENERGY STRUCTURE  
                  TIMES OF INTEREST

OUTPUT           CURIES & MeV/SEC FOR  
                  EACH SPECIFIED TIME

QAD

INPUT            GAMMA ENERGIES  
                  SOURCE STRENGTH MeV/SEC  
                  COMBINATORIAL GEOMETRY PACKAGE  
                  APPROPRIATE CONVERSION FACTORS  
                  TO RAD/HR  
                  DOSE BUILDUP FACTORS  
                  DOSE RECEIVER LOCATIONS  
                  SOURCE DIVISION GRID

OUTPUT           DOSE RATE AT RECEIVER LOCATIONS  
                  (RAD/HR)

GRACE 2  
&  
GRACE 1

INPUT            GAMMA ENERGIES  
                  SOURCE STRENGTH MeV/SEC  
                  SOURCE MULTIPLICATION FACTOR  $CM^{-3}$   
                  SOURCE RADIUS, CM  
                  SOURCE HEIGHT, CM  
                  SHIELD THICKNESSES CM  
                  RECEIVER INTERVALS

OUTPUT

GRACE 2          DOSE RATES (RAD/HR) ALONG RADIAL  
                  AXIS AT THE VERTICAL MIDPOINT

GRACE 1          DOSE RATE (RAD/HR) ALONG VERTICAL  
                  AXIS CYLINDER MID PLANE

CONTDOSE

INPUT

CURIES BY ISOTOPE  
SPRAY REMOVAL COEFFICIENTS  
CONTAINMENT VOLUME & HEIGHT  
PLATEOUT AREA  
TIMES FOR WHICH INFORMATION  
IS DESIRED

OUTPUT

BETA AIRBORNE AND PLATEOUT  
DOSE RATE & CUMMULATIVE DOSE  
GAMMA PLATEOUT DOSE

RADSPEC

INPUT

TIME (HR) DOSE RATE RAD/HR

OUTPUT

TOTAL INTEGRAT DOSE  
(RADS) vs TIME





MEETING SUMMARY DISTRIBUTION

Docket No(s): 50-329/330

NRC/PDR

Local PDR

NSIC

PRC System

LB #4 r/f

Attorney, OELD

E. Adensam

R. Hernan

Project Manager

Licensing Assistant

M. Duncan

D. Hood

NRC Participants:

R. LaGrange

H. Walker

L. Bell

R. Hernan

bcc: Applicant & Service List