Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

BBS Ltr.#830-74

Dresden Nuclear Power Station
R. R. #1
Morris, Illinois 60450
November 19, 1974

Mr. James G. Keppler, Regional Director
Directorate of Regulatory Operations-Region III
U. S. Atomic Energy Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

SUBJECT: REPORT OF ABNORMAL OCCURRENCE PER SECTION 6.6.A OF THE TECHNICAL SPECIFICATIONS
UNIT 3 A AIR EJECTOR RUPTURE DISC FAILURE

References: 1) Regulatory Guide 1.16 Rev.1 Appendix A

2) Notification of Region III of AEC Regulatory Operations
Telephone: Mr. P. Johnson, 0845 hours on November 11, 1974
Telegram: Mr. J. Keppler, 0930 hours on November 11, 1974

3) Drawing Number: M-371

Report Number: 50-249/1974-34

Report Date: November 19, 1974

Occurrence Date: November 9, 1974

Facility: Dresden Nuclear Power Station, Morris, Illinois

IDENTIFICATION OF OCCURRENCE

Failure of Unit 3 "A" air ejector rupture disc.

CONDITIONS PRIOR TO OCCURRENCE

Prior to the failure, the 3A off gas recombiner was being placed in service. The unit was in the run mode. At the time of the occurrence, the unit was at an electrical load of 190 megawatts, and thermal power was approximately 600 megawatts.

DESCRIPTION OF OCCURRENCE

At approximately 0720 hours on November 9, 1974, the 3A off gas recombiner was being placed in service. While the recombiner was being valved in a

noise resembling a water hammer or a detonation was heard. Shortly after this incident occurred, stack gas activity started to increase, and vacuum began to drop. During the investigation of the increase in stack gas activity, steam jet air ejector 3B was placed in service and steam jet air ejector 3A was valved out. After the steam jet air ejectors were changed, vacuum continued to decrease and it became necessary to manually trip the turbine. Following the turbine trip, a reactor scram occurred. The subsequent investigation revealed that the noise that was heard was not a water hammer but a detonation in the off gas system. Upon further investigation it was found that the 3A off gas filter was damaged, and the 3A air ejector rupture disc was blown.

DESIGNATION OF APPARENT CAUSE OF OCCURRENCE (Design Deficiency)

It is believed that the detonation of the off gas occurred when the 3A recombiner outlet valve was opened. When the recombiner outlet valve came off the closed seat, a spark may have occurred which caused the detonation.

ANALYSIS OF OCCURRENCE

During and after the explosion, the safety of the plant and public was not in jeopardy. At no time during or after the off gas explosion was the Technical Specification release limit of 700,000 uCi/sec. exceeded. It was calculated that, for a two hour period, the release reached approximately 640,000 uCi/sec. Also, preliminary isotopic analysis results were performed on upwind, downwind, and soil and grass samples which were collected on November 10, 1974. The results indicate no radionuclide concentration attributable to this occurrence.

CORRECTIVE ACTION

The immediate corrective action taken was to change over steam jet air ejectors, and initiate an investigation into the problem. Following the reactor scram, the steam jet air ejector rupture disc was replaced and the 3A off gas filter was isolated.

FAILURE DATA

In regards to off gas explosions, there were no previous failures in which the new off gas system has been involved. One previous failure on Unit 2 which occurred on March 27, 1973 was due to a detonation by welding operations in the off gas filter area.

Sincerely,

Arthur M Roberts

for B. B. Stephenson
Superintendent

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