



September 19, 1983

Director, Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: 10CFR Part 21 Report

Reference: Telecon between R.A. Maffei of W.J. Woolley Co.  
and E.R. Schweidinz of NRC Regional Office III,  
Dated September 8, 1983

Gentlemen:

In the referenced telecon, Mr. R.A. Maffei, the Manager of Engineering for the W.J. Woolley Company, notified the NRC of a possible 10CFR Part 21 defect on equipment being supplied by the W.J. Woolley Company to several nuclear power plants currently under construction. This letter is intended as the written report required by Part 21 as follow up to the verbal notification.

The W.J. Woolley Company supplies personnel air locks for the reactor containment systems of nuclear power plants. One type of air lock utilizes inflatable elastomeric seals around the perimeter of the doors for sealing against differential pressure. These seals are purchased from seal manufacturers who supply test data on the material to qualify it for various environmental conditions.

In order to comply with the latest regulations, the W.J. Woolley Company undertook a testing program to qualify the seals for their intended service function, by testing them in their final configuration rather than only testing the material. During this testing one of the inflatable seals manufactured by Presray Corporation ruptured.

The ruptured seal was examined by the Woolley Company and Presray to determine the cause of failure. The seal material is an EPDM elastomer with a fabric reinforcement part way around the seal. The rupture occurred in the area where the fabric ended. It was determined that the high temperature (465°F) that the seal was subjected to had weakened the EPDM and caused it to stretch resulting in a rupture.

8309230487 830919  
PDR ADOCK 05000329  
S PD

IE-19  
1/0  
W.J. Woolley Co.

The testing parameters being used were for the Midland Nuclear Station which consisted of a radiation level of  $1 \times 10^7$  rads and a temperature of 465°F. Seals of the same design had previously undergone testing to a temperature of 200°F and had not ruptured. The current test was intended to increase the temperature allowable to 465°F.

Based on these test results it has been determined that the present Presray inflatable seal is not adequate for the Midland Containment. Also, these seals are potentially inadequate for the following plants because of their relatively high temperature applications.

Grand Gulf (Drywell Lock Only)	330°F
Perry (Drywell Lock Only)	330°F
River Bend (Drywell Lock Only)	330°F
South Texas (Containment Locks)	286°F

The W.J. Woolley Company is continuing its testing program with inflatable seals manufactured by Sealmaster Corporation. This testing will be complete by October 15, 1983. The Woolley Company is also working with Presray Corporation on the design of a new inflatable seal that will have fabric reinforcement around the entire seal. Testing will begin around December 1, 1983 with test completion about February 1, 1984.

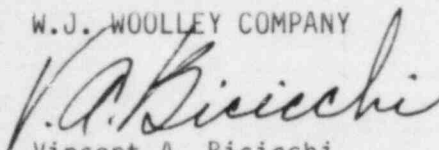
We are confident that the test program outlined above which will be finished by February 1984, will produce favorable resolution of all seal applications.

Our customers on the affected nuclear power plants will be notified by September 23, 1983.

Should you have any questions, please contact Mr. Robert A. Maffei at this office.

Very truly yours,

W.J. WOOLLEY COMPANY



Vincent A. Bivicchi  
President

VAB:djp

cc: CA Kuehl  
RA Maffei  
AB Bonifacio  
LP Eilering  
RM Callan - WMD  
DA Godfrey - NSI  
U.S. NRC, Region III  
U.S. NRC, Region IV