

**From:** Mary Lampert <mary.lampert@comcast.net>  
**Sent:** Monday, August 24, 2015 3:13 PM  
**To:** McKinley, Raymond  
**Subject:** [External\_Sender] Re: Pilgrim Scram - MSIV

Thank you for your quick and full response.

Mary

Sent from my iPhone

On Aug 24, 2015, at 2:08 PM, "McKinley, Raymond" <[Raymond.McKinley@nrc.gov](mailto:Raymond.McKinley@nrc.gov)> wrote:

Good Afternoon Mary,

The licensee is still in the process of performing their post trip review, and our inspectors are performing follow-up inspections as well.

When one MSIV goes closed at 100% power, reactor pressure rises which in turn causes reactor power to rise. Eventually, power and pressure reach their associated reactor protection system setpoints and cause an automatic scram. It is usually a relay race as to which signal is received first, but reactor power is usually the first parameter to trigger the scram.

Based on our initial review, it appears that the reactor scrambled on Average Power Range Monitor (APRM) High Neutron Flux. The Reactor High Pressure scram signal was also received, but it occurred just after the APRM High Flux was received.

The Reactor Protection Scram setpoints are set low enough to prevent fuel damage for postulated transients such as the one experienced on Saturday. The case of one MSIV closing at full power is less severe than some other transients since the other 3 steam lines remained in service thus suppressing the peak reactor pressure and power rise. There was no indication of a fuel problem during or after the transient, nor would we expect to see a fuel problem following such a transient given that the reactor protection system functioned as designed. Licensee's routinely monitor for fuel leaks by measuring and trending plant offgas and reactor coolant chemistry and radioactivity, and there are activity limits as governed by the plant's operating license. If a fuel leak were to develop for any reason, then it would be detected, and the licensee would need to comply with the conditions of their license. Our NRC inspectors also perform control room walkdowns on a daily basis and they look at parameters such as offgas activity, so a fuel leak would not go unnoticed. We will also take a look at activity levels before the scram and after the plant starts up and reaches 100% steady state. At this point, the need for fuel sipping is not indicated.

The licensee is required to submit a Licensee Event Report (LER) for this scram within 60 days which will provide the details of the event and the results of the licensee's investigation. In addition, NRC will discuss this event and any findings in our 3<sup>rd</sup> Quarter Inspection Report which will be issued in November.

Sincerely,

Ray McKinley  
Chief, Division of Reactor Projects Branch 5  
U.S. NRC Region I

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**From:** Mary Lampert [<mailto:mary.lampert@comcast.net>]  
**Sent:** Sunday, August 23, 2015 4:12 PM  
**To:** Dean, Bill <[Bill.Dean@nrc.gov](mailto:Bill.Dean@nrc.gov)>; McKinley, Raymond <[Raymond.McKinley@nrc.gov](mailto:Raymond.McKinley@nrc.gov)>  
**Cc:** Dave Lochbaum <[dlochbaum@ucsusa.org](mailto:dlochbaum@ucsusa.org)>; [weavenel@gmail.com](mailto:weavenel@gmail.com); Becky Chin <[rebeccaichin@hotmail.com](mailto:rebeccaichin@hotmail.com)>; James lampert <[james.lampert@comcast.net](mailto:james.lampert@comcast.net)>; marischka dopp <[marischka@comcast.net](mailto:marischka@comcast.net)>; Nancy Nowak <[nowakdux@gmail.com](mailto:nowakdux@gmail.com)>; Pat Gagnon <[bceagles@gmail.com](mailto:bceagles@gmail.com)>  
**Subject:** [External\_Sender] Pilgrim Scram - MSIV

Hello:

I'm confused about the scram Saturday at Pilgrim. Closure of 1 MSIV at 100% power should not scram the reactor. I understand that the logic about MSIV closings at full power is: 1 never – 2 maybe (if they were in the same steam line no, if in 2 different steam lines yes) – 3 MSIV's closed will always scram the plant. When 1 MSIV closes at 100% power the steam flow from that steam line will be diverted to the other 3 steam lines and the high flow in each of those other 3 steam lines will not cause a trip on Main Steam line High Flow (MSLHF).

Potential causes: MSLHF trip devices are set too low then a full scram will occur. Another possible cause of the scram could be that the MSIV closed too fast and caused a pressure spike on the reactor. That potential pressure spike is usually not high enough to cause the reactor to scram on high pressure (around 1085 PSIG).

**Q.1. What was the cause(s)?**

What that pressure spike can do is cause the reactor flux (neutron population which equals power) to increase rapidly and cause a sudden over powering of the reactor. That sudden over powering would be detected by the Average Power Range Monitors (APRMS) and that would scram the reactor. That type of event also has the potential to cause fuel damage.

**Q.2. We want to know if NRC is requiring an investigation to determine if there was damage and if there was an investigation the result.**

Fuel damage shows up in 2 ways.

The first indication would be in the plant off gas release. An increase can be determined by a comparison of the off gas release rate before the scram with the off gas release rate after the scram. Any prolonged increase would indicate fuel damage, this is best measured after the plant is at full power for a few days and monitored for a month or so to determine if the increased off gas level stays up or returns to the previous level.

**Q.3. Please provide report.**

The second way to determine fuel damage is to Sip the used fuel after it is removed from the reactor during a refuel outage. This would only be done if there is an indication of an increase in the off gas release rate as determined by the first indication. All this data (except for Sipping) is continually recorded in the control room.

**Please provide report if sipping was required and the result.**

Thank you,

Mary Lampert

Pilgrim Watch/Town of Duxbury Nuclear Advisory Committee