

From: Richard Andrews <dick0645@yahoo.com>
Sent: Friday, March 28, 2014 7:44 PM
To: NRCExecSec Resource; OWH Cody Winchester
Subject: Another NRC Blog, Remembering the TMI Accident

Another blog I sent to the NRC after they brought up the anniversary of the TMI accident.

Lest We Forget - The NRC had a role in causing the accident at TMI

I am glad the NRC is reflecting on the accident at Three Mile Island. They have although, conveniently failed to mention their role in contributing to this tragedy. Inadequate reactor operator training was one of the root causes of the accident. And of course we know that the NRC is responsible for the licensing and the training of every single licensed reactor operator. More than this, the NRC's culpability goes even deeper. For years prior to the TMI accident the NRC created and perpetuated a dangerous operator mind-set. The NRC focused on preventing the reactor cooling system from becoming overfilled and over pressurized. They wanted operators to prevent the reactor cooling system from "going solid" at any cost. The NRC did not want system pressure relief valves to be actuated causing a Loss of Coolant Accident (LOCA). While this sounds like a good thing, it lead operators to do exactly the wrong thing during their response to the TMI accident. Let me try and explain. Once the normal heat removal capability of the reactor cooling system failed, the reactor and the reactor cooling system heated up causing the level in the pressurizer (a surge tank connected to the coolant system and located at a position above the reactor) to increase and the pressure in the cooling system to increase. The pressure reached the point where a pressure-relief valve automatically lifted as designed to relieve the over pressure. Unknown to the operators the relief valve failed to re-close when pressure was reduced causing an on-going LOCA. As precious reactor cooling fluid was being lost from the system, automatic fluid makeup systems cut in, actuated by the low system pressure. These makeup systems were doing exactly what they were designed to do - keep the fuel in the reactor covered and cooled with water. If these makeup systems had been allowed to continue operation the reactor fuel would never have melted and the TMI accident would not have occurred. However, the mind-set to avoid overfilling the coolant system, resulted in operator action that overrode the automatic response by throttling and then securing this vital makeup flow. The NRC inappropriately addressed only one aspect of nuclear safety at the expense of the big picture, that is keeping the reactor covered and cooled with water. This negative training directly lead to operator error that caused the accident. To their credit the NRC made improvements to their regulatory process after TMI, but to my knowledge they have never fessed up to messing up the industry's operator training program. And that is inexcusable.

From: Richard Andrews <dick0645@yahoo.com>
Sent: Monday, March 31, 2014 8:38 AM
To: NRCExecSec Resource
Subject: Updated NRC Blog on the NRC's Role in Causing the Accident at TMI

Dear Executive Secretary,

I have included an updated blog I have attempted to place on the NRC Blog site. I consulted a fellow former NRC licensed senior operator who was directly involved in the licensed operator training program in the years leading up to the TMI accident.

Most of the changes I have made to the blog represent his first hand knowledge of the "negative training" that was imposed on all nuclear power plant licensees prior to the TMI accident.

Thanks for patiently putting up with my concerns.

Rich Andrews

Lest We Forget - The NRC played a role in causing the accident at TMI

I am glad the NRC is reflecting on the accident at Three Mile Island. As we reflect we must take a look at our roles leading up to and during the accident.

The NRC has done a masterful job of pointing out the shortcomings of the industry they regulate. It is human nature I think for us to find it easier to point the finger at others rather than at ourselves. The NRC, to this very day, has not adequately pointed the finger at themselves for contributing to this accident. They have conveniently failed to mention their role in this tragedy. Inadequate reactor operator training was one of the root causes of the accident. And of course we know that the NRC is responsible for the licensing and the training of every single licensed reactor operator. More than this, the NRC's culpability goes much deeper.

For years prior to the TMI accident the NRC created and perpetuated a dangerous operator mind-set. They mandated extensive training and annual re-training for all reactor operators at all nuclear power plants that emphasized the dangers of overfilling the reactor cooling system. The NRC training focused on preventing the reactor cooling system from becoming overfilled and over pressurized. They wanted operators to prevent the reactor cooling system from "going solid" at any cost.

The NRC did not want system pressure relief valves to be actuated causing a Loss of Coolant Accident (LOCA). While this sounds like a good thing, it lead operators to do exactly the wrong thing during their response to the TMI accident. Let me try and explain.

Once the normal heat removal capability of the reactor cooling system failed, the reactor and the reactor cooling system heated up causing the level in the pressurizer (a surge tank connected to the coolant system and located at a position above the reactor) to increase and the pressure in the cooling system to increase. The pressure reached the point where a pressure-relief valve automatically lifted as designed to relieve the over pressure. Unknown to the operators the relief valve failed to re-close when pressure was reduced causing an on-going LOCA. As precious reactor cooling fluid was being lost from the system, automatic fluid makeup systems cut in, actuated by the low system pressure. These makeup systems were doing exactly what they were designed to do - keep the fuel in the reactor covered and cooled with water. If these makeup systems had been allowed to continue operation the reactor fuel would never have melted and the TMI accident would not have occurred. However, the NRC-perpetuated operator mind-set to avoid overfilling the coolant system, resulted in operator action that overrode the automatic response by throttling and then securing this vital makeup flow. The NRC inappropriately stressed, in the operator training

program, only one aspect of safety at the expense of the big picture, that is, keeping the reactor covered and cooled with water. This negative training directly lead to operator error that caused the accident.

To their credit the NRC made improvements to their regulatory process after TMI, but to my knowledge they have never fessed up to messing up the reactor operator-training program. And that is inexcusable.