Ex5

From: RIV Michael S. Peck
To: RIV David Graves; Jack Donohew - NRR
Date: 2/3/05 10:11AM
Subject: ACT: Conference Call - CWY MSIV Operability Question

Ex5

Gentlemen:

[redacted]

Technical Specifications

The Callaway Plant has one MSIV on each main steam line. Each MSIV has two independent closing actuation trains. Technical Specification 3.7.2 provides the plant with an 8 hour out of service time LCO (Modes 1, 2,& 3) to restore an inoperable MSIV. Surveillance Requirement SR 3.7.2 requires each MSIV to close in less than 5 seconds. The Technical Specification Bases for SR 3.7.2 states that each actuator train is required to close the MSIV in less than 5 seconds.

Licensing Bases

FSAR Section 10.3.1.1. " Safety Design Bases," states for the MSIVs:

* SAFETY DESIGN BASIS THREE - Component redundancy is provided so that safety functions can be performed, assuming a single active component failure coincident with the loss of offsite power (GDC-34).

* MAIN STEAM ISOLATION VALVES AND BYPASS ISOLATION VALVES - One MSIV and associated bypass isolation valve (BIV) is installed in each of the four main steam lines outside the containment and downstream of the safety valves. The MSIVs are installed to prevent uncontrolled blowdown from more than one steam generator. The valves isolate the nonsafety-related portions from the safety-related portions of the system. The valves are bidirectional, double disc, parallel slide gate valves. Stored energy for closing is supplied by accumulators which contain a fixed mass of high pressure nitrogen and a variable mass of high pressure hydraulic fluid. For emergency closure, a solenoid is energized which causes the high pressure hydraulic fluid to be admitted to the top of the valve stem driving piston and also causes the fluid stored below the piston to be dumped to the fluid reservoir. Two separate pneumatic/ hydraulic power trains are provided. Electrical solenoids for the separate pneumatic/hydraulic power trains are energized from separate Class IE sources. If both trains of control power are lost, the MSIVs will fail as is. The valves are designed to close between 1.5 to 5 seconds against the flows associated with line breaks on either side of the valve, assuming the most limiting normal operating conditions prior to occurrence of the break. Valve closure capability is tested in the manufacturer's facility by pressurizing the valve body and closing the valve twice, each time with a different set of actuator controls. Preservice and inservice tests are also performed as discussed in Sections 10.3.4.2 and 10.3.4.3, respectively.

FSAR Section 10.3.3. stated:

* SAFETY EVALUATION SAFETY EVALUATION THREE - As indicated by Table 10.3-3, no single failure will compromise the system's safety functions. All vital power can be supplied from either onsite or offsite power systems, as described in Chapter 8.0.

Callaway Accident Analysis

The Callaway Calculation of Record (COR) for the containment pressure/temperature response to a MSLB (Calculation M-YY-43) assumes a diesel generator fails start. As a result, only one containment

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heat removal train is available to mitigate the accident. Under this scenario, all four MSIVs were assumed to close, crediting the redundant actuators. This assumption limits the MSL blowdown to only the faulted steam generator and results in a 48.1 psig peak containment pressure (FSAR Table 6.2.1-58.MSLB case 12).

The licensee determined that the COR did not bound the accident case with a MSIV actuator removed from service. This was due to limitations in the assumed containment heat removal capability (attached condition adverse to quality record). However, the licensee replaced the containment coolers during Refueling Outage 12. The new coolers provided greater containment cooling capability than assumed in the COR. The licensee credited this additional cooling capability in an GL 91-18 operability evaluation and concluded that peak post accident was bounded with one actuator removed from service.

Licensee's Position

The licensee prepared a Technical Specification Interpretation during the 1980s which provided an 72 hour out of service time for the MSIV actuators. The licensee subsequent evaluated this interpretation under 50.59 and concluded a license amendment was not required. The bases of the 50.59 conclusion was the resulting small increase in CDF (5.4 E-5 to 5.8 E-5) during the time an actuator would be removed from service. The licensee added this interpretation to the licensee control Technical Requirements Manual after we raised the issue of question of MSIV operability.

Resident's Prospective

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From: Michael S. Peck RIV
To: Alan Wang; Robert Gramm NRR
Date: 1/3/05 10:04AM
Subject: ACT: CWY MSIV Operability Question

Duplicate

[redacted] Ex 5

Thank you,
Michael Peck, SRI

The Callaway Plant has one MSIV on each main steam line. Each MSIV has two independent trains of closing solenoids. Technical Specification 3.7.2 provide the Callaway Plant with an 8 hour action to restore an inoperable MSIV. Surveillance Requirement SR 3.7.2 requires each MSIV to close in less than 5 seconds. The bases for Surveillance Requirement 4.7.2 stated that each actuator train was required to close each MSIV in less than 5 seconds.

FSAR Section 10.3.1.1, Safety Design Bases stated:

SAFETY DESIGN BASIS THREE - Component redundancy is provided so that (MSIV) safety functions can be performed, assuming a single active component failure coincident with the loss of offsite power (GDC-34).

MAIN STEAM ISOLATION VALVES AND BYPASS ISOLATION VALVES - One MSIV and associated bypass isolation valve (BIV) is installed in each of the four main steam lines outside the containment and downstream of the safety valves. The MSIVs are installed to prevent uncontrolled blowdown from more than one steam generator. The valves isolate the nonsafety-related portions from the safety-related portions of the system. The valves are bidirectional, double disc, parallel slide gate valves. Stored energy for closing is supplied by accumulators which contain a fixed mass of high pressure nitrogen and a variable mass of high pressure hydraulic fluid. For emergency closure, a solenoid is energized which causes the high pressure hydraulic fluid to be admitted to the top of the valve stem driving piston and also causes the fluid stored below the piston to be dumped to the fluid reservoir. Two separate pneumatic/ hydraulic
power trains are provided. Electrical solenoids for the separate pneumatic/hydraulic power trains are energized from separate Class IE sources. If both trains of control power are lost, the MSIVs will fail as is. The valves are designed to close between 1.5 to 5 seconds against the flows associated with line breaks on either side of the valve, assuming the most limiting normal operating conditions prior to occurrence of the break. Valve closure capability is tested in the manufacturer's facility by pressurizing the valve body and closing the valve twice, each time with a different set of actuator controls. Preservice and inservice tests are also performed as discussed in Sections 10.3.4.2 and

FSAR Section 10.3.3, SAFETY EVALUATION, stated:

SAFETY EVALUATION THREE - As indicated by Table 10.3-3, no single failure will compromise the (MSIV) system's safety functions. All vital power can be supplied from either onsite or offsite power systems, as described in Chapter 8.0.

FSAR Section7.3.7.1.2, Design Bases, stated:

The design bases for the main steam and feedwater isolation actuation system are provided in Section 7.3.8. The design bases for the remainder of the main steam and feedwater isolation system are that the system isolates the main steam and feedwater when required, and that no single failure can prevent any valve from performing its required function. See Section 7.3.8 for additional discussion.

CC: Alan Wang; Charles Stancil, Jr.; David Dumbacher; Frank Brush; Michael Webb;

Robert Gramm; Ron A Kopriva; Theodore Tjader; Travis Rhoades rel