

From: Pete Eselgroth
To: A. Randolph Blough, Bill Bateman, Brian Holian, David Lew, Emmett Murphy, Jack Strosnider, Marsha Gamberoni, Michael Modes(...)
Date: Mon, Jul 31, 2000 4:47 PM
Subject: Fwd: IP2 Primary to Secondary Measurements

I'll be looking for help in finding someone in the NRC with experience in tritium analysis related to SG pri/sec leakage, to interface with IP2 residents. If a recipient of this fwded email has a clue on this, plz let me know. txs

Peter

CC: Peter Habighorst

A1194

From: Peter Habighorst
To: Pete Eselgroth
Date: Mon, Jul 31, 2000 4:22 PM
Subject: IP2 Primary to Secondary Measurements

Pete,

As you are aware Con Edison has been performing a number of steam generator tritium samples on the four steam generators over the weekend. The limitations of tritium samples are establishment of "equilibrium" conditions, low reactor coolant system tritium concentrations (.044 micro curies/ml vs. 1.5 micro curies/ml during power operations), and uncertainty in auxiliary feedwater flows to each of the generators. Positive items for this analysis is the solubility of tritium (no hideout), high enough concentrations within the RCS, and ability to distinguish between steam generators (MSIVs) are shut.

21, 22, and 23 steam generator tritium samples have been in the range of $1.2E-5$ micro curies/ml. This equates well to condensate storage tank concentration of $1E-5$ micro curies/ml (injection source with AFW). The three steam generators have adequate volume change over with steam generator blowdowns, atmospheric dump valve opening, and drains from steam traps upstream of the main steam isolation valves.

24 steam generator currently has a tritium concentration of $2.5E-5$ micro curies/ml. This would currently translate into a 7 gallon per day leak rate in the steam generator. Con Edison is in the process of maximizing removal rate from the steam generator, upstream traps, blowdown flowrates, and use of the atmospheric dump valve. They plan on taking a sample around 4:00 a.m. tomorrow with the generator isolated after maximizing removal rate. Con Edison's goal is to have 5 volume removal from each steam generator. I told chemistry personnel that I would like a discussion tomorrow morning with the results in the 24 steam generator.

The last time Con Edison performed tritium analysis during shutdown was in October, 1999. Back then, a good correlation existed between the tritium results and then the subsequent air ejector monitor results (once secondary system in service). The difference now is that the concentration of tritium in the RCS is significantly lower than back in October, 1999.

Some observations thus far: no procedure controls for sampling and analysis, but rather a work order step list, no use of external operating experience of units restoring power from a SGTL or SGTR, and no thoughts by Con Edison to remove the uncertainty of low AFW flowrates (i.e. use of temporary flow instrumentation).

IN CONCLUSION, IT WOULD BE GOOD TO ENGAGE SOMEONE IN THE NRC WITH AN ABUNDANCE OF KNOWLEDGE IN TRITIUM ANALYSIS FOR PRIMARY TO SECONDARY LEAKAGE. THIS IS IMPORTANT GIVEN THE CURRENT CMOA AND PAST EXPERIENCE AT INDIAN POINT 2.

CC: Leanne Harrison, Scott Barber