

VCM EXPOSURE REDUCTION

BUDGET PROCESS DESIGN

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VCM EXPOSURE REDUCTIONBUDGET PROCESS DESIGNI. Purpose of Design and Description

The purpose of this design is to reduce the possibility of exposure to VCM by addressing several process problems.

In the old and new reactor module recovery system, there are several drains where contaminated water can be drained to an open sewer. This design proposes to eliminate this problem by installation of piping to the blowdown tank or the batch water strippers. In order to facilitate draining and flushing of resin from these vessels and lines, high pressure service water is provided between two valves, so that the drains can be flushed to the vessel or to the blowdown tank or batch water strippers.

One of the biggest problems to the new module recovery system is resin carryover into the knockout pots. Resin and chunks of PVC are knocked out in these pots by circulating water. The resin and chunks plug the pump and knockout tanks. Currently, there is no method of removing solids and chunks from the system. The pumps plug often (up to 20 times per week) and must be taken out of service and cleaned out. Each time the pump is cleaned, there exists the potential for over exposure. A backflush filter to remove solids from the seal water system will be installed with the Recovery System Revisions Project that has already been AFE'd. Dual basket strainers on the suction to the knockout pumps have also been proposed to remove chunks. However, even with these measures, there will still not be an adequate means of flushing resin and chunks from the knockout pots. This design proposes the installation of a 6-inch line from the bottom of the knockout pots to the blowdown tank. The south knockout pot has a small standpipe in it. It is proposed that this standpipe be extended and that a standpipe be installed in the north knockout pot. With these measures, material can safely be routinely removed from the knockout pots with minimal possibility of over-exposure. It will also minimize the solids and chunks that now plug the recirculation pumps.

The sight glasses and level wells on the seal water separators in the new module currently have inadequate means of flushing resin out of them. It is proposed that high pressure service water flushes be installed as a means of safely cleaning these instruments with minimal possibility of over exposure.

I. Purpose of Design and Description (Continued)

The existing water make-up and flush to the new module knockout pots is a 2" process water connection. At times, the pressure in the knockout pots exceeds process water pressure and VCM has backed up into the process water header. In order to eliminate this, the proposed design will install two 1-inch high pressure service water connections. These connections will be below the normal liquid level in the knockout pots in the area where solids accumulate. This will aid in flushing solids and chunks of PVC out of the knockout pots.

The capability to heat and recover the strainers on the suction of the new module blowdown tank pumps will be added to reduce the possibility of exposure to VCM when cleaning these strainers.

The recirculation water filters in the old module are no longer used. A small thermal expansion relief valve is provided to protect this filter. These filters with their associated relief valves will be removed to eliminate possible problems with the relief valve or pluggage in the filter due to solids accumulation.

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VCM EXPOSURE REDUCTIONBUDGET PROCESS DESIGNIII. Tie-In Work List

1. Tie in high pressure service water line 2-WP-101-H-A2-3 into discharge of high pressure service water pumps in new module. Install HPSW connections to the recirculation cooler (1-WP-113), the east and west seal water coolers (1-WP-111 and 1-WP-112), the north and south seal water separator level instruments (1-WP-109 and 1-WP-107), the north and south seal water filters (1-WP-110 and 1-WP-108), the north and south knockout pots (1-WP-103 and 106), the north and south seal water separators (2-WP-140 and 2-WP-139), and the north and south knockout pot flush lines (1-WP-104 and 1-WP-105) (see note [4], new module drawing.)
2. Remove existing 2-inch drain line on north and south knockout pots. Install new 6-inch nozzle valve where existing 2-inch nozzle is now located. Install new 6-inch nozzle on the new module blowdown tank. Run line 6-HM-114, 6-HM-115, and 6-HM-116 from knockout pots to blowdown tank.
3. Remove drain lines on north and south knockout pots.
4. Remove drain line on recirculation cooler.
5. Remove drain lines on east and west seal water coolers.
6. Remove drain lines on north and south seal water filters.
7. Remove drain lines on north and south seal water separator level instruments.
8. Remove drain lines on north and south seal water separators.
9. Install the capability to recover the blowdown tank strainers by running lines 3/4-HM-119 and 3/4-HM-120 to line 6-HM-116.
10. Install capability to strip the blowdown tank strainers by running lines 3/4-SL-117 and 3/4-SL-118 to blowdown strainers from steam supply.
11. Tie in high pressure service water line 2-WP-133 into discharge of high pressure service water pumps near the hydroquinone pumps in the old module. Install HPSW connections to north and south seal water separators (1-WP-134), T-702 and T-703 (1-WP-141), the recirculation cooler (1-WP-135), the north and south seal water pump coolers (1-WP-137 and 1-WP-136) and the north and south recirculation pumps (1-WP-138).

III. Tie-In Work List

12. Remove the recirculation pump filters in the old module with associated relief valves.
13. Remove the relief valves on the north and south seal water pump filters. (Note: New relief valves are to be installed with the small relief valve containment design. Do not remove existing relief valves until the new relief valves are installed).
14. Install new header to batch water stripper fill line. Tie in connections to T-702 and T-703 (2-HM-131), the north and south seal water pumps (2-HM-122), the recirculation cooler, the north and south seal water pump filters (2-HM-127 and 2-HM-128), the north and south seal water pump coolers (2-HM-126 and 2-HM-142), and the north and south recirculation water pumps (2-HM-129 and 2-HM-130).