Attachment 8

Millstone MSPI FAQs:

1. **Cooling Water Function:**

This indicator has a separate monitored system for cooling water. At MP3 there is a separate cooling water system which cools the charging pump lube oil. The system is a closed cooling water system (CCE) which is cooled by service water. *CCE is cross-connected such that during normal operations either CCE pump can supply and charging pump lube oil system. The CCE cross-connects (2 valves on the suction side and 2 valves on the discharge side) receive a safety Injection accident signal to close for accident conditions. This results in the 'A' train of CCE supplying the 'A' train of charging and the 'B' CCE train supplying the 'B' charging.* In PRA this is modeled as a separate system although unavailability is tied to charging (UAp is not based on actual CCE unavailability). When maintenance is performed on the CCE system that affects the ability to cool the charging pump lube oil the corresponding charging pump is put in pull-to-lock. Per the direction in maintenance rule this would require counting the unavailable hours against charging. *In the Maintenance Rule we do not count unavailability of charging and CCE separately, it is all counted under charging.* How would unavailability be tracked for this? If unavailability is included with HPSI can we treat the charging pump as a supercomponent which includes the lube oil system and not count demands for the CCE pump?

Proposed Response: *Do not count the closed cooling water as a separate system. Since its unavailability results in charging being unavailable (and tagged out), the unavailability would already be included under the charging train. No additional unavailability needs to be counted for CCE as a separate cooling water system. This would be consistent with how other dedicated cooling water systems are counted (Example diesel jacket water cooling). Include the pumps of these systems as active components in the HPSI indicator.*

2. **Cooling Water Function:**

This indicator has a separate monitored system for cooling water. At MP3 there is a separate cooling water system which cools intermediate head pumps (SIH). The system is a closed cooling water system (CCI) which is cooled by service water. In PRA removing a train of CCI is not modeled since the work always results in SIH being unavailable and there are no system crossties which would allow the opposite train of CCI to provide cooling. When maintenance is performed on the CCI system that affects the ability to cool the SIH pump lube oil the corresponding SIH pump is put in pull-to-lock. Per the direction in maintenance rule this would require counting the unavailable hours against SIH. *In the Maintenance Rule we do not count unavailability of SIH and CCI separately, it is all counted under SIH.* How would unavailability be tracked for this? If unavailability is included with HPSI can we treat the SIH pump as a supercomponent which includes the lube oil system and not count demands for the CCI pump?

Proposed Response: *Do not count the closed cooling water as a separate system. Since its unavailability results in SIH being unavailable (and tagged out), the unavailability would already be included under the SIH train. No additional unavailability needs to be*

counted for CCI as a separate cooling water system. This would be consistent with how other dedicated cooling water systems are counted (Example diesel jacket water cooling). Include the pumps of these systems as active components in the HPSI indicator.

3. **Service Water Function:**

In the Additional Guidance section for Clarifying Notes for Specific Systems for Cooling Water Support it specifies that service water strainers are not considered active components. At both MP2 and MP3 there are backwash valves which clean the strainers of debris. At MP2 these valves are air operated and get an accident signal to open so the strainers will not get clogged during an accident. Under normal conditions the strainers will not clog immediately, although they will after some finite duration. *Since there is not computer points or other methods to monitor these valves, it is unknown how often they actually cycle and therefore how long it would take them to clog.* At MP3 these valves are MOVs which will continue to open and close on a high DP. Neither of these valves are modeled in PRA, although PRA assumes a probability associated with the strainer being clogged. Although the strainers are not considered active, should the backwash valves be active?

Proposed Response: *Do not include the backwash valves since the MSPI documentation specifically states that the strainers are not included.*

4. **Service Water and Closed Cooling Water Function:**

PRA does not model removing either a train of service water or a train of RBCCW from service. They assume these trains are always available. There are testing evolutions which align the system such that flow balances are impacted such that accident flows can not be provided to the required components. The system engineer counts this as train unavailability. What should be used for the train unavailability Fussel-Vesely. Using the pump unavailability would not be accurate since an individual pump is less important than the train. Additionally, the individual pump unavailability is not determined by the system engineer. The PRA success criteria is as follows:

- 1 of 2 service water pumps taking suction from the intake structure bay supplying that train's RBCCW heat exchanger, diesel jacket and lube oil cooler,
- Isolates non-essential flow paths during design basis events

Proposed Response: *Use the Fussel Vesely of a failed train or a component that would be approximately the same as taking a train out. The pump numbers are not an adequate representation of the entire train being out.*

5. **General Question:**

Appendix F discusses what qualifies as an active component. It discusses redundant valves and which ones are considered active. It is our interpretation that within a train, two valves in series that are required to close or in parallel that are required to open do not need to be included as active components as long as the failure only impacts one train.

The basis for this is the low likelihood in PRA of both valves failing. It is also our interpretation that that within a system, two valves in series that are required to close or in parallel that are required to open need to be included as active components if the failure impacts both trains. The basis for this is the consequences of the valves not working is severe. Based on these interpretations there are several configurations on MP3 which we are unclear as to whether the valves should be considered active.

a) MP3 has three charging pumps. To meet the accident condition flow requirements the recirculation line for a CCP must be isolated. Each pump has one MOV on the its recirculation line. There is an additional MOV on the common line (Figure 1). Therefore for each pump either the common MOV or the branch line MOV must go closed. If the branch line MOVs and the common MOV do not close, all trains are lost. *The success criteria for HPSI is 2 of 4 high head pumps taking suction from refueling water storage tank injecting into 3 of 4 RCS cold legs (or 3 of 3 intact RCS cold legs).* Would these valves be considered active?

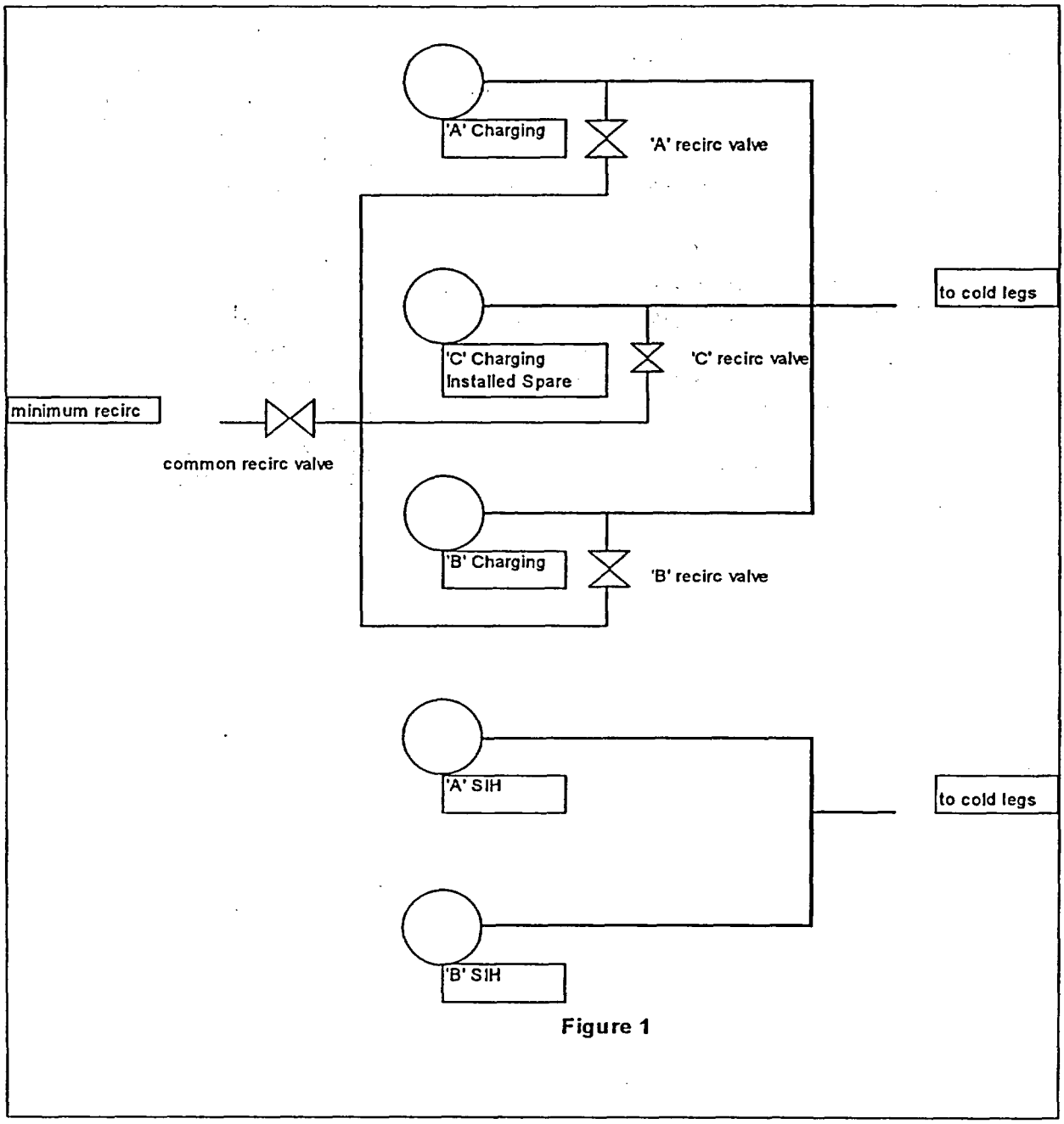
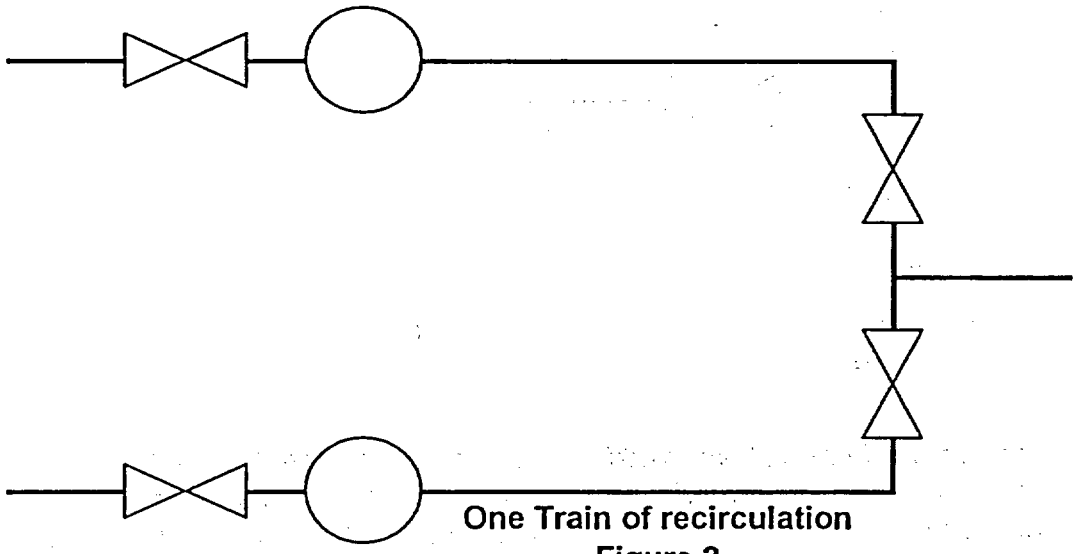


Figure 1

Proposed Response: ***The charging minimum recirculation valves would not be considered active valves.*** *This system may be considered a four train system. Failure of any single valve does not result in the failure of any train. There are no combinations of two valve failures that result in the failure of the system. Failure of combinations of two valves can only result in the failure of a single train. Therefore the valves may be considered redundant and are not considered active valves.*

b) For recirculation MP3 has a two train system. Each train consists of two pump trains, of which one pumping train is required for recirculation (Figure 2). The pumping train consists of a suction MOV from the sump, a pump, and a

discharge MOV to a common line which provides suction to either the intermediate head pumps or charging pumps. Each pumping train has its own discharge valves to the common header and can not be cross-connected. Since only one pumping train is required, are the suction and discharge valves considered active?



One Train of recirculation
Figure 2

Proposed Response: *Yes since the pumping trains can not be crosstied. Thus the failure of a single valve will result in the failure of a train.*

c) At MP3 there are two trains for hot leg injection. Each train has a MOV in its discharge line to the cold legs and there is also a MOV in the common line to the cold legs. *These MOVs are open during normal operation and therefore do not need to change position for cold leg injection or recirculation.* During switchover to hot leg injection, the discharge MOV to the cold legs is closed and the hot leg injection MOV is opened for one train and then the other train and then the common cold leg MOV is closed. To meet the hot leg injection requirements either the two discharge MOVs or the common cold leg MOV need to be closed. *The PRA success criteria for cold leg injection is for HPSI is 2 of 4 high head pumps taking suction from refueling water storage tank injecting into 3 of 4 RCS cold legs (or 3 of 3 intact RCS cold legs). The 4 trains consist of 2 charging and 2 SIH. PRA does not model hot leg injection (although they do think they should and will update it in the next model revision independent of MSPI) so there is no PRA success criteria. Design Basis would require one of 2 SIH trains because it is assumed that the other is lost due to loss of power on one train.* Would these valves be considered active?

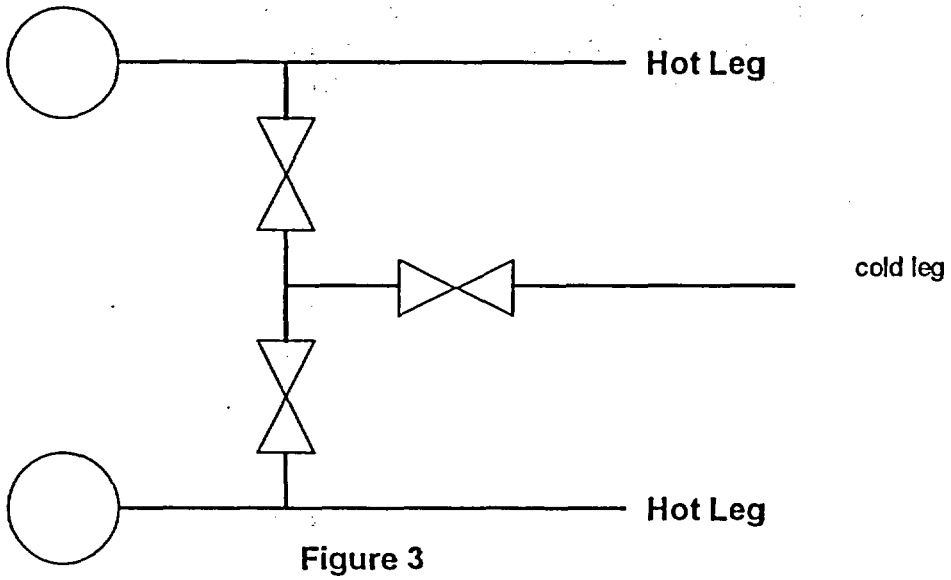
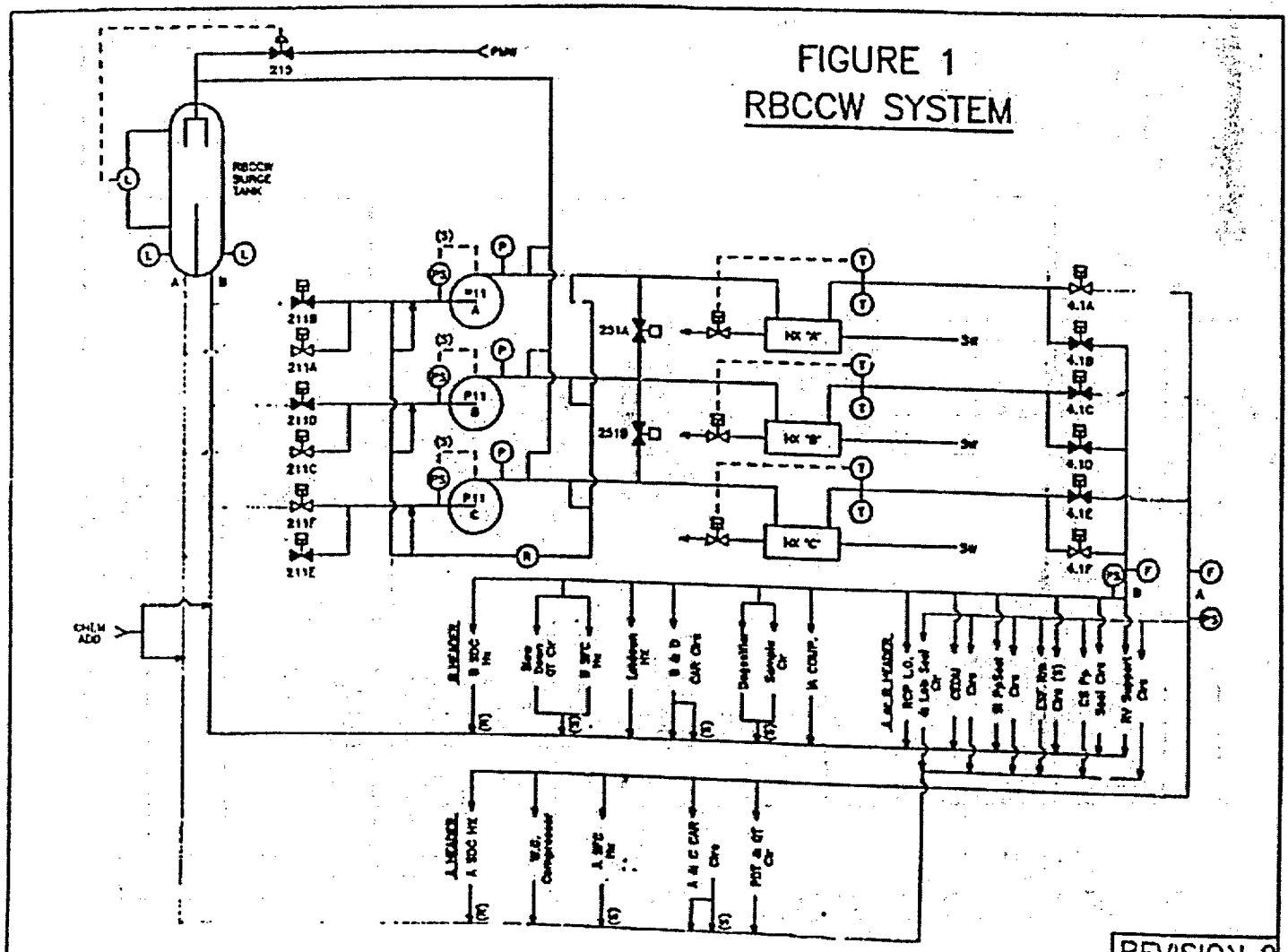


Figure 3

Proposed Response:. *These valves would not be considered active valves. This is considered a two train system. Failure of any single valve would not result in the failure of a train. Failure of any combination of two valves would at most fail one train only, but not the system. Therefore the valves may be considered redundant and are not considered active valves for the MSPI.*

FIGURE 1
RBCCW SYSTEM



REVISION 2

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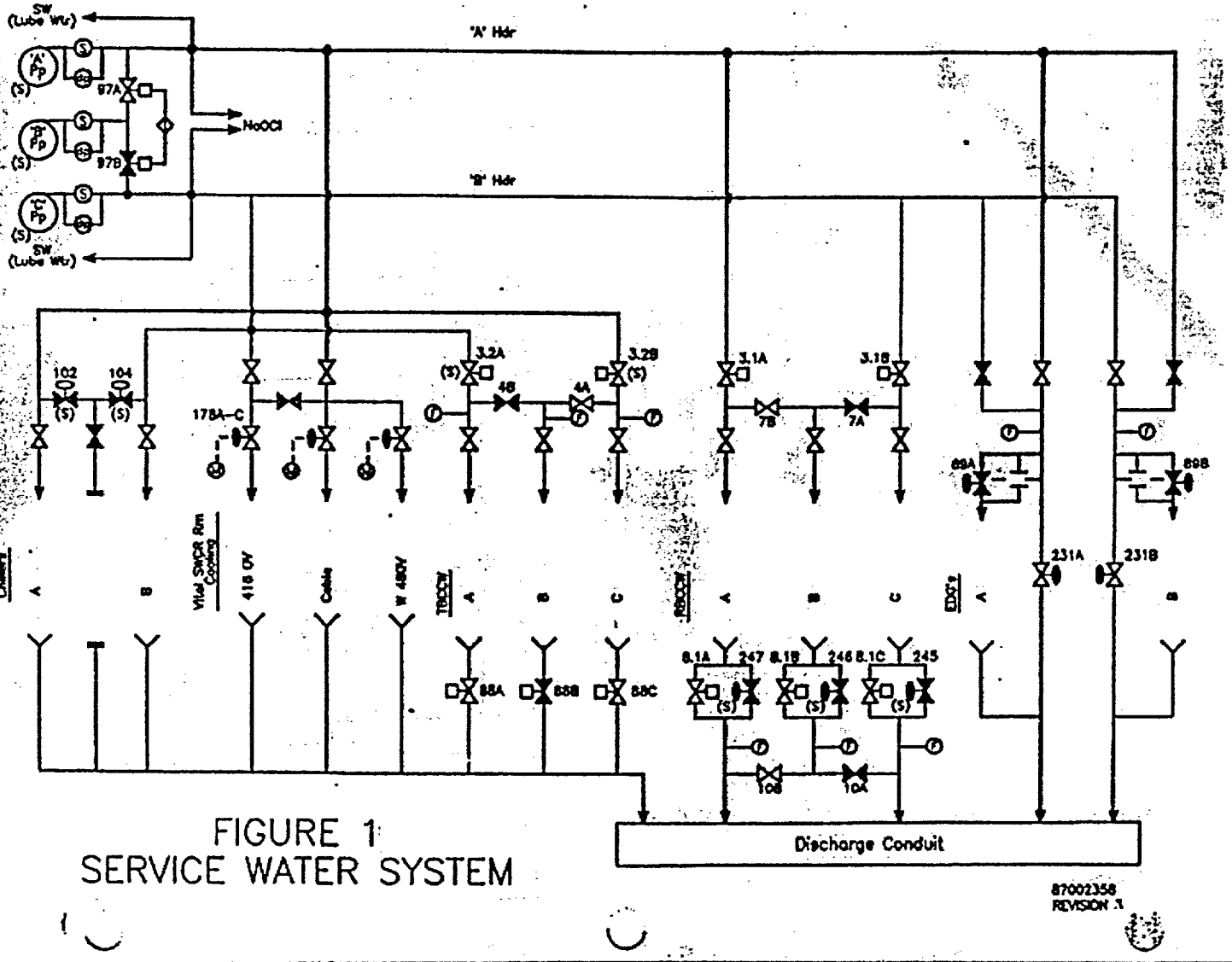

FIGURE 1
SERVICE WATER SYSTEM