

1. Introduction

The works which performed in the radiation controlled area are managed by some techniques such as radiation work permission, Pre-Job Briefing, ALARA and the like. Especially, during the overhaul period, people can overlook some important points because so many works are simultaneously performed in the radiation controlled area. That might cause over exposure or spread of contamination, although works are managed like above. So we introduce Hold/Witness point¹(H/W point) operated by Hanul NPP #1 for radiation safety management among various efforts to prevent the problems.

2. Methods

Management outline of H/W point at Hanul plant 1 are like below.

- ① Choose important works from all radiation works which are conducted during overhaul, considering collective exposure, radiation rate of work area, contamination and so on.
- ② Select important point for each work which we chose in step ①
 - 18th overhaul on Hanul unit 2 (2013) : Select 50 H/W point items
 - 19th overhaul on Hanul unit 1 (2013) : Select 52 H/W point items
- ③ Assign the work confirmer (General manager or Senior manager or HP) base on H/W point importance and risk of the works
- ④ Managing H/W point of the works have to be checked by designated confirmer in order to go to next step.

ie) Hold/Witness point

work	time	Items to be confirmed	confirmer	Purpose
Refueling	Before and after refueling	<ul style="list-style-type: none"> ▪Change <u>KRT 011/012MA</u>² Set Point ▪Block the way around transfer canal 	General manager	<ul style="list-style-type: none"> ▪Important step ▪Management exposure
work	time	Items to be confirmed	confirmer	Purpose
Nozzle Dam	10 minutes before start	<ul style="list-style-type: none"> ▪Check putting on Air-harness and protection goods 	General manager	<ul style="list-style-type: none"> ▪Management contamination
Access to reactor bottom	Request hatch open	<ul style="list-style-type: none"> ▪Check thimble is out or not 	Senior manager	<ul style="list-style-type: none"> ▪Management exposure

¹ • Hold Point is a mandatory verification point beyond which a work cannot proceed without approval by the Engineer or Consultant or Municipality Inspector. The work cannot proceed until the Engineer or Consultant is able to verify the quality of the completed work and releases the Hold by means of Inspection Request approval.

• Witness Point is an identified point in the process where the Engineer or Consultant may review, witness, inspect method or process of work. The activities however may proceed.

² KRT 011/012MA : Radiation monitoring system of reactor cavity

Free access of personal hatch	Request hatch open (submit paper)	▪Radioactive concentration and operation mode	HP	▪Important step
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3. Conclusion

The application of H/W point is able to prevent people from missing key point through systematic work-area inspection and improve radiation safety awareness of employees. As a result, contamination spreading has been prevented and workers radiation exposure has been minimized. In conclusion, continuous H/W point operations will enhance radiation safety management ability and minimize the radiation exposure.

4. Reference

<http://www.qualityengineersguide.com>