Characteristic Radiological Protection Activities at Ikata NPP during outages

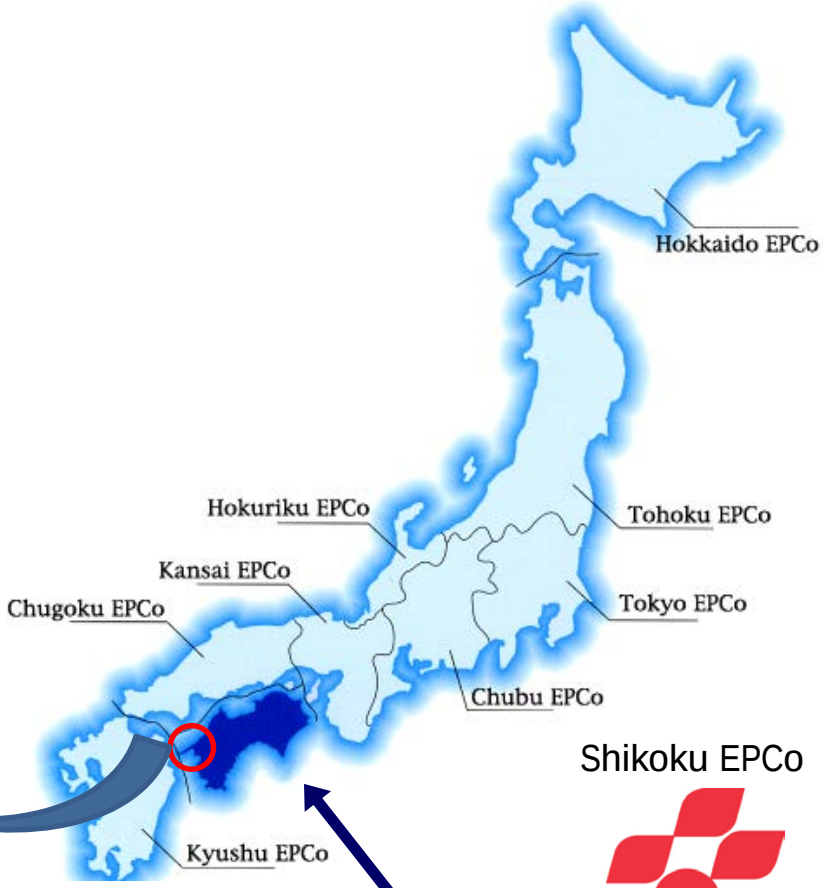
October, 2018

Shikoku Electric Power CO.,INC.

Outline



IKATA NPS is located facing Seto inland sea.



Unit 1 566MW (COD – 30 September 1977)
Unit1 is declared to be decommissioned (May 2016)

Unit 2 566MW (COD – 19 March 1982)
Unit2 is declared to be decommissioned (May 2018)

Unit 3 890MW (COD – 15 December 1994)
Unit3 is restarted (August 2016)

Characteristic RP Activities during outages

1. Working group for dose reduction
2. Suppression of radiation source increase
3. Explanatory meeting with RP representatives
4. Weekly RP Representative meeting & patrol
5. Dose reduction group competition
6. Collection and reflection of post critiques and requests from contractors
7. Other activities

1. Working group for dose reduction

RP related key information is shared among a dose reduction working group which is consisted of Station RP personnel and RP representatives of prime contractors around two month before outages. Dose reduction plans are also discussed by the group. .

(Topic Examples)

- Keep-off areas and those effective durations during outages
- Work restriction caused by special activities (e.g. Vessel Head Replacement)
- Temporary shielding and working area arrangement at congested places

(Details) Temporary shielding arrangement

Thousands of lead blankets are shared and installed according to outage activities.

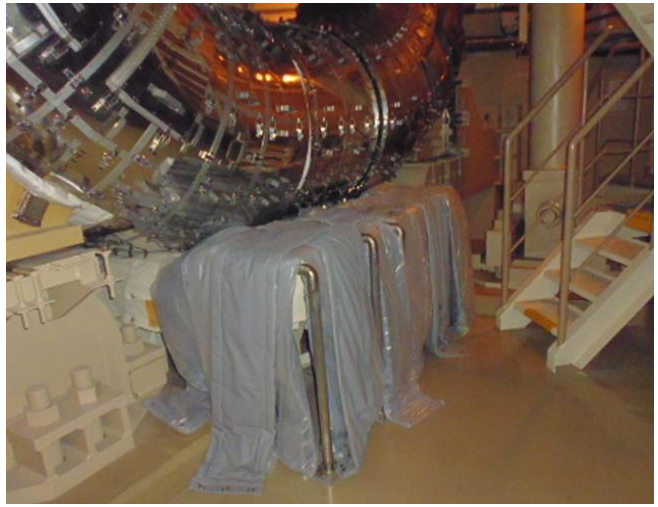
Places	Number (as a 1m lead blanket)	Remarks
Primary loop rooms	1,100	Installed by Station
Pressurizer room	100	Installed by Station
Other areas	100	Installed by Station
Rental to contactors for free	2,000	Installed by contractors
Owned by contractors	1,200	For special renovation works such as vessel head replacement
Total	4,500	

(Details) Temporary shielding installation

(Primary loop rooms)



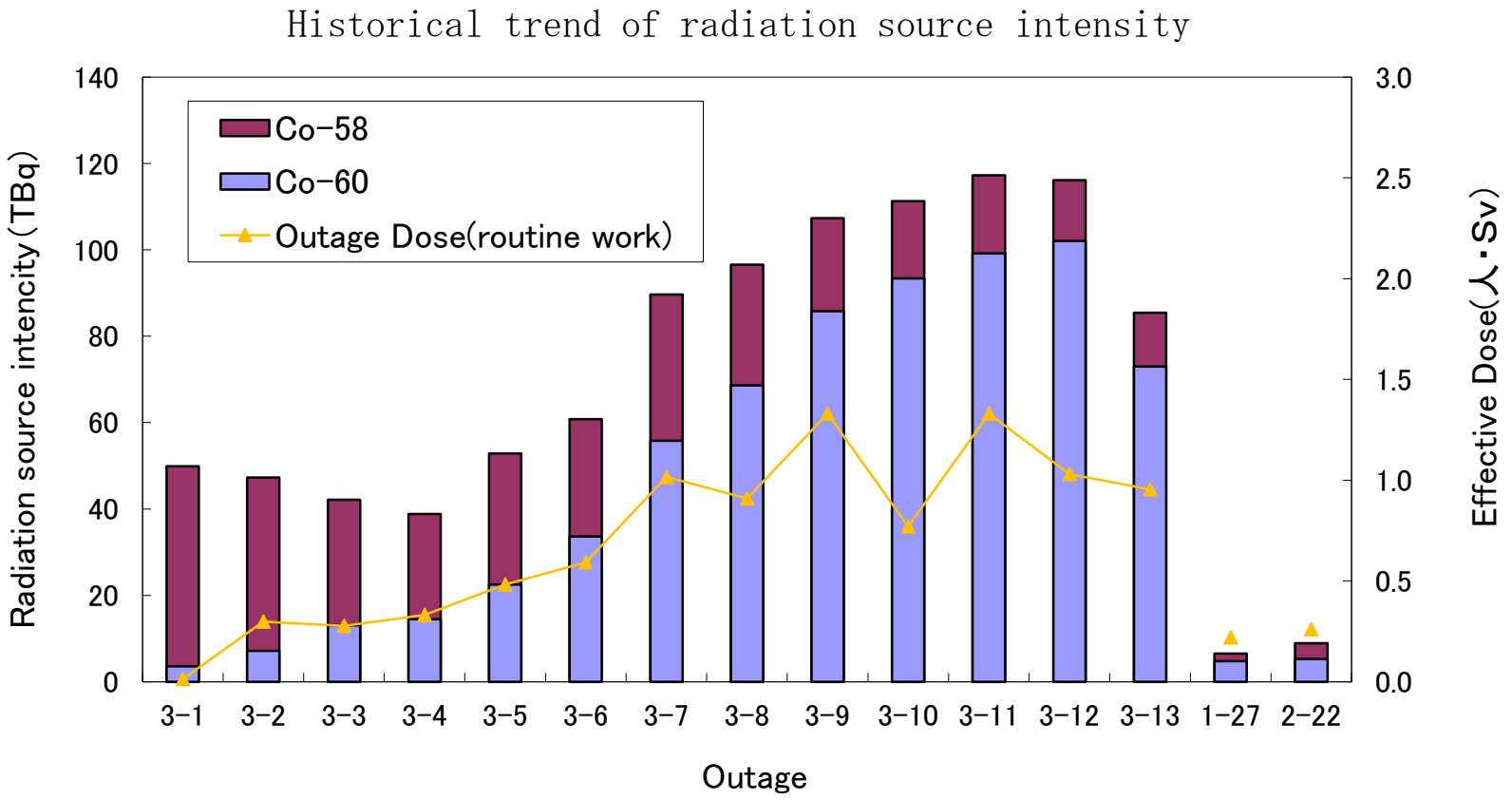






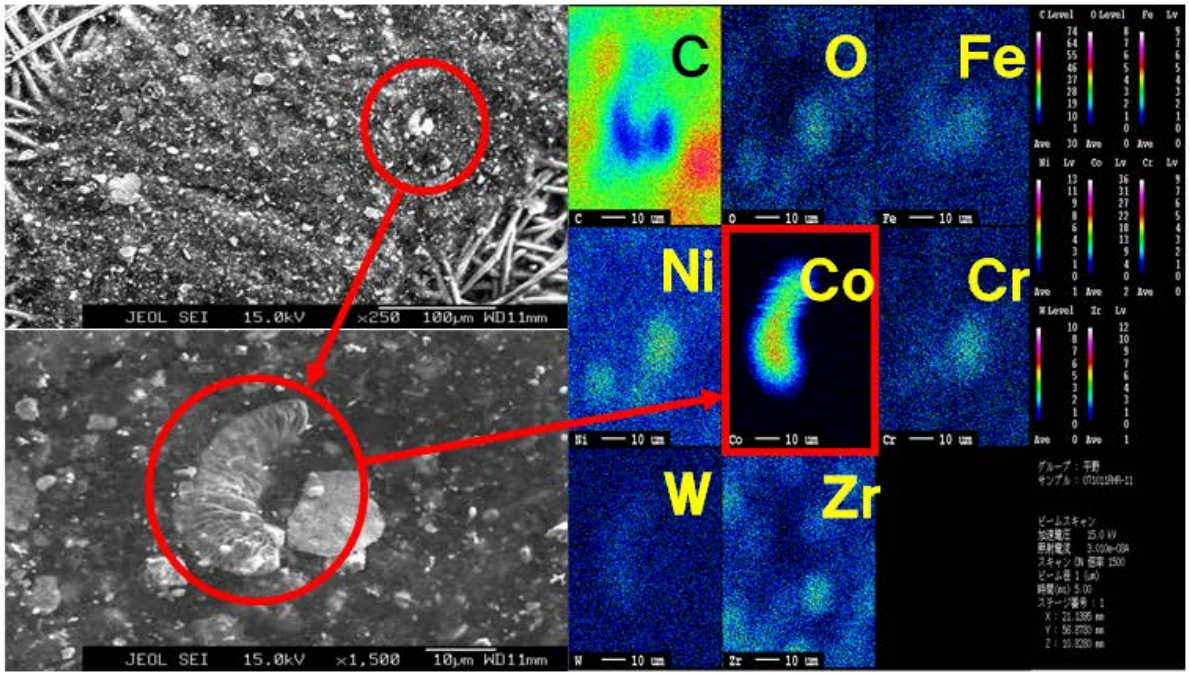
2. Suppression of radiation source increase(1/3)

Radiation source intensities (especially Co-60) of unit 3 had rapidly built up from No.6 outage.

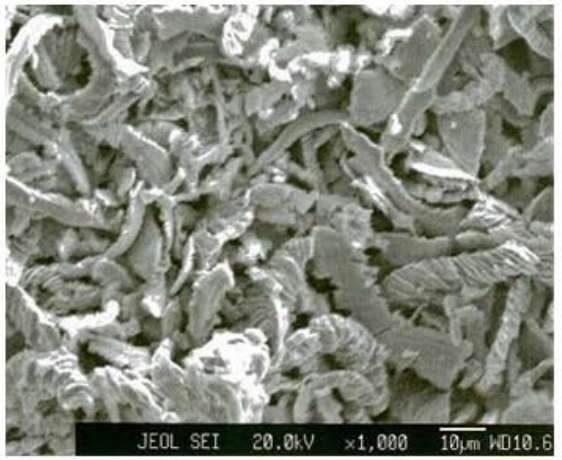


2. Suppression of radiation source increase(2/3)

Insufficient removing of stellite® shavings during valve maintenances was estimated as the main reason of the build-up.



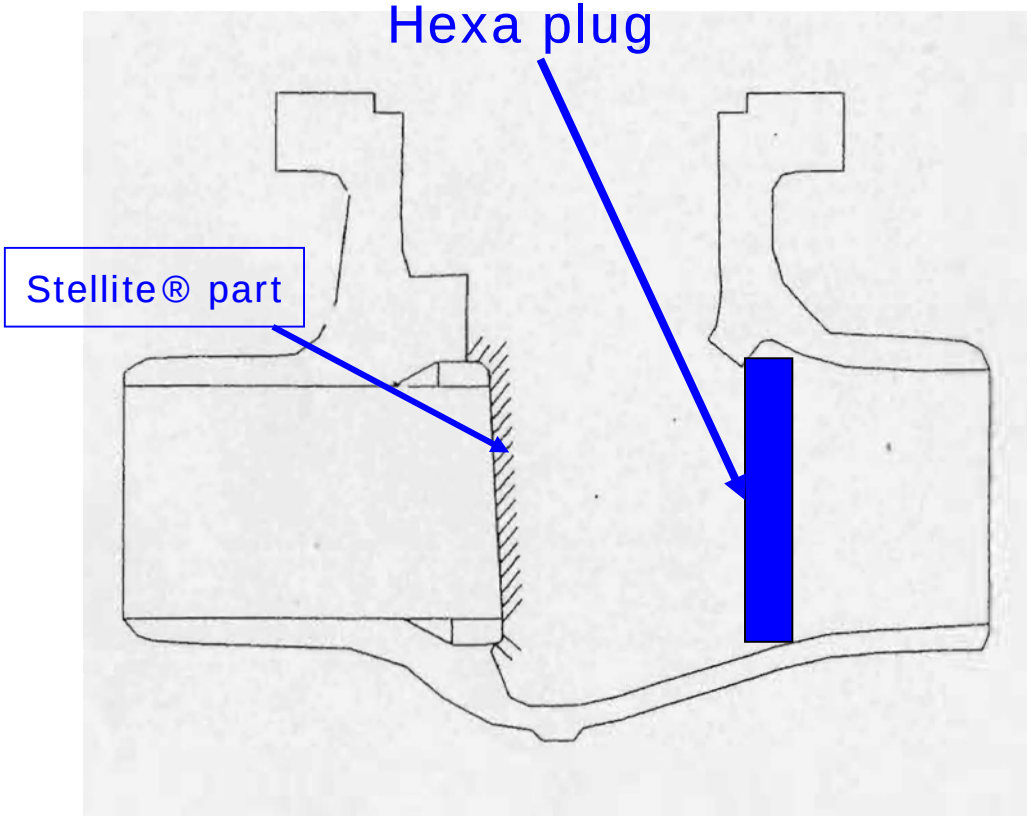
(A crud analysis result by an Electron Probe Micro Analyzer)



(Stellite shavings)

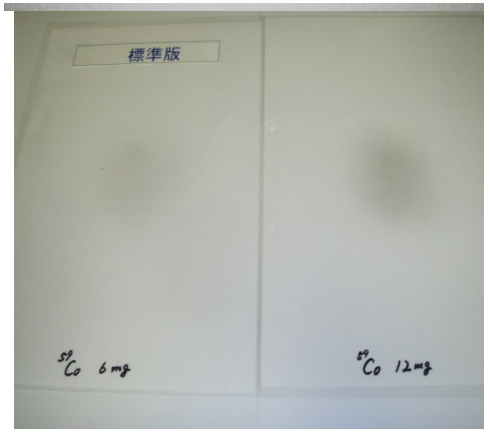
2. Suppression of radiation source increase(3/3)

Hexa plug installation and cleaning reference usages during valve maintenance have been conducted as countermeasures of source increase since No.9 outage.





(Cleaning gauze)



(References)

3. Explanatory meeting with RP Representatives

RP manager explains the dose targets and important RP notices to RP representatives of contractors and RP technicians through the explanatory meeting one month before outages. They are expected to conduct RP trainings on all worker.

(Topic Examples)

- Dose targets for Station, prime contractors, and major jobs
- Designation of dose reduction model groups
- Contents of a training text and important notices

4. Weekly RP representative meeting & patrol

Station RP personnel and RP representatives of primary contractors hold a weekly meeting to discuss the expected progress of next week and current statuses of CRE target achievement, etc. after radiologically controlled area patrols with the aim of field observation .

(Topic Examples)

- Observation results during patrols
- Dose target achievement rates including countermeasures for improvement
- Current progresses of dose reduction model groups

5. Dose reduction group competition

Around 5 to 8 dose reduction model groups are designated from every primary contactor through an explanatory meeting with RP representatives. One or two groups would be commended by Station's superintendent according to RP representatives' assessment.

(Assessment factors)

- ALARA plan qualities, processes, and achievements
- Self assessment results and reflection to the next outage

6. Collection and reflection of post critiques and requests from contractors

Requests for RP administration, RP related equipment and material improvement are widely invited from not only station personnel, but also contractors after outages.

(Examples)

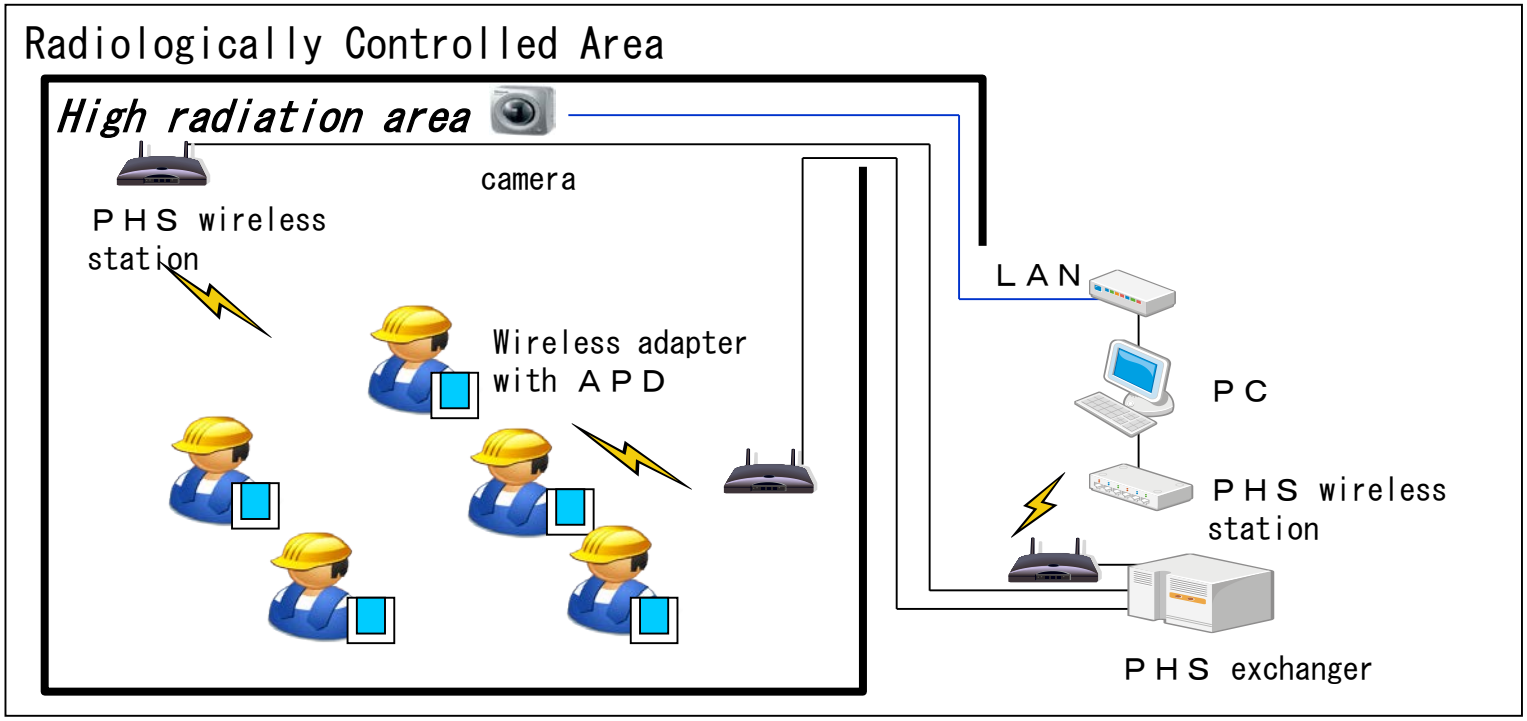
- A water supply room and a washing room installation in the RCA
- Introduction of wide type adhesive tape
- Additional Self Contained Breathing Apparatuses (SCBAs: About 300)





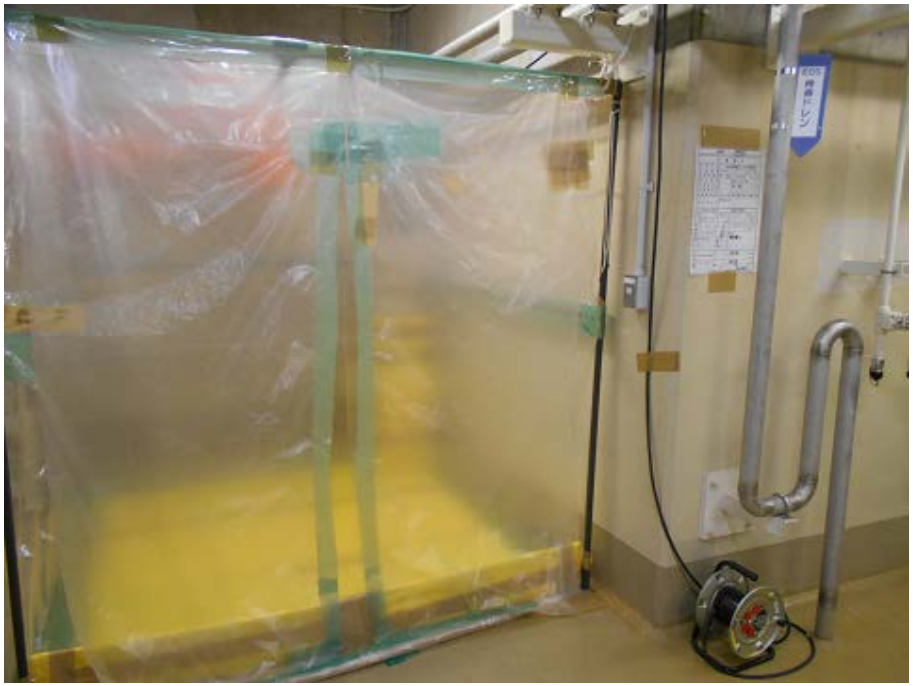
7. Other activities (1/3)

A remote monitoring system of Alarm Pocket Dosimeters (APD) is used by RP technicians to monitor worker exposures at a low radiation area in a timely manner.



7. Other activities (2/3)

Custom-made green houses are provided from Station RP section in accordance with contractors' requests to minimize worker exposures of preparation works.



7. Other activities (3/3)

Smear sample auto measuring devices, cloths monitors, and Personal Protective Equipment (PPE) monitors are installed to detect radioactive contamination in an early stage.



6 Smear devices (for unit-3)



6 cloths monitors before unit-3 portal monitors



7 PPE monitors in unit-3 RCA

Questions?



Ikata town flower : Japanese silver leaf