



FEMA

JAN 27 2014

Mr. Bill Potter
Senior Emergency Services Coordinator
Nuclear Preparedness Program
California Office of Emergency Services
3650 Schriever Avenue
Mather, CA 95655

Dear Mr. Potter:

The Federal Emergency Management Agency (FEMA) Region IX will no longer enforce any requirements of the Planning Standards and related criteria of 44 CFR 350/NUREG 0654 or evaluate any criteria or portions of any criteria of the Radiological Emergency Preparedness Program Manual involving the storage, distribution and/or use of potassium iodide (KI) for the counties and local jurisdictions within the Emergency Planning Zones for the San Onofre Nuclear Generating Station. This decision does not interfere with the protective action decisions concerning the health and safety of the public made by the state, counties and/or local jurisdictions. It only relates to FEMA no longer enforcing or evaluating any Planning Standard or criteria concerning KI.

The reasoning behind this decision is as follows:

San Onofre Nuclear Generating Station (SONGS) Unit 2 was taken out of service on January 9, 2012 and Unit 3 was taken offline on January 31, 2012. On June 7, 2013 Southern California Edison (SCE) announced their decision to permanently close SONGS and begin the decommissioning process. On June 12, 2013 SCE submitted their Certification of Permanent Cessation of Power Operations of SONGS to the Nuclear Regulatory Commission (NRC). Unit 3 was defueled in September 2012. Unit 2 was defueled in July 2013.

By January 31, 2014, Units 2 and 3 will have been in a cold shutdown mode for two or more years. All fuel has been removed from both units and been transferred to the Spent Fuel Pool. Non-irradiated fuel bundles received by SONGS for refueling have been shipped to other facilities offsite for reconfiguration for use in other nuclear facilities.

Radioiodine is a fission product produced within the fuel of an operating reactor. Once all fuel is removed from the reactor there may be some residual fission products produced within the fuel rods, including radioiodine, in small quantities due to residual fission as the fuel cools. However, the amount produced is very minimal and decreases rapidly with time.

Potassium iodide (KI) is a thyroid blocking agent. The stable (non-radioactive) iodide is absorbed by the thyroid when KI is ingested. The absorption of the stable iodide by the thyroid prior to or shortly after inhalation of radioiodine prevents or lowers the absorption of radioiodine. The dose received from radioiodine by not being absorbed by the thyroid is therefore greatly reduced.

2.3.4. Considerations for Potassium Iodide (KI)³

FDA updated its guidance on the use of KI as a thyroid blocking agent during radiological emergencies in 2001 (FDA 2001 and FDA 2002). FDA based these dose recommendations on a review of the thyroid cancer data from the Chernobyl reactor accident of April 1986 and the experience of Poland in administering KI following the Chernobyl release (FDA 2001).

FDA recommends the following—

Children 0-18 years of age: Administer KI when the projected radiation dose to the thyroid from exposure to radioiodine is 5 rem (50 mSv) or greater.

Pregnant and lactating women: Administer KI when the projected radiation dose to the thyroid from exposure to radioiodine is 5 rem (50 mSv) or greater.

Adults up to 40 years of age: Administer KI when the projected radiation dose to the thyroid from exposure to radioiodine is 10 rem (100 mSv) or greater.

Adults over 40 years of age: Administer KI when the projected radiation dose to the thyroid from exposure to radioiodine is over 500 rem (5 Sv) in order to prevent hypothyroidism.

Estimating the owner controlled area or the Exclusionary Area Boundary is about 0.4 miles from the spent fuel pool: Using NRC's computer code Rapid Assessment System for Consequence Analysis (RASCAL) version 4.2 for a dose projection, releasing 900 Ci of I-131 over one hour (0.25 Ci/sec), 5 mph wind, and the most conservative Atmospheric Stability Class (E) projects 6.8 rem thyroid CDE at 0.3 miles and 3.5 rem at 0.5 miles or about 5 rem at 0.4 miles.

The principle concern is that of Radioiodine-131, which has a half-life of 8.04 days. Virtually all radioiodine produced within the fuel while in operation has decayed and is non-existent. The only radioiodine remaining in the fuel would be due to residual fission, which in itself is minimal and can only be produced in very small quantities which rapidly diminish. There are insufficient quantities of radioiodine within the spent fuel to generate a release of radioiodine that could exceed the lowest Protective Action Guide. A release of radioiodine from the spent fuel pool is not a concern.

In the unlikely event of a Spent Fuel Pool accident, the iodine isotopes which contribute to an off-site dose from an operating reactor accident are not present, so potassium iodide (KI) distribution off-site would no longer serve as an effective or necessary supplemental protective action.¹

The consideration of the use of KI would not be necessary when iodine releases are no longer a concern.²

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Based upon the above, FEMA Region IX will no longer enforce or evaluate any requirements for the storage, distribution or use of KI in the jurisdictions within the Emergency Planning Zones surrounding the San Onofre Nuclear Generating Station.

Sincerely,



Richard Grundstrom
Technological Hazards Branch Chief
National Preparedness Division
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, California 94607

Office: 1-510-627-7240
Cell: 1-510-508-6437

1. NRC: NSIR/DPR-ISG-02, INTERIM STAFF GUIDANCE, EMERGENCY PLANNING EXEMPTION REQUESTS, FOR DECOMMISSIONING NUCLEAR POWER PLANTS.
2. NUREG-1738: Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants.
3. PAG Manual *Protective Action Guides*, And Planning Guidance For Radiological Incidents. U.S. Environmental Protection Agency, Draft for Interim Use and Public Comment, March 2013.