

Memo

ML18253A257

To: File
From: Royal Pond- HSE Manager/RSO
Cc: Mike Griffin
Date: July 25, 2018
Re: 2017 Dose to Public - Annual Report Correction

On July 19, 2018, during the close out meeting of the scheduled inspection of the Ross ISR Project, NRC Inspectors identified an open issue in the 2017 Annual Report, which contained a calculation of the dose to the public in the ALARA Audit report.

As stated in the 2017 Analysis of Annual Dose to Individual Members of the Public, the external exposure for public dose was based on routine gamma measurements inside of the CPP, resulting in an estimate of 5 mrem for Deep Dose Equivalent (DDE). This assumed that a visitor, vendor or contractor could be onsite for 100 hours a year (i.e., up to 2.5 weeks) in an area with exposure rates up to 50 $\mu\text{R/hr}$. The internal exposure for this same member of the public was based on routine airborne uranium samples taken inside and outside of the CPP and radon measurements taken at the environmental monitoring locations, which are located outside the CPP. The average of these airborne measurements were reflective of background concentrations, resulting in an estimate of no internal exposure (Committed Effective Dose Equivalent, or CEDE). Thus, the Total Effective Dose Equivalent (TEDE) for Dose to the Public, which is the sum of the DDE and CEDE, was calculated at 5 mrem.

What that calculation failed to consider was the potential internal exposure from radon progeny if a visitor was working inside of the CPP. To account for the potential internal exposure from radon progeny that could be encountered if a member of the public was to work within the facility, the TEDE has been recalculated using the maximum TEDE for the highest exposure group on the Ross site, which is the CPP operator group. This summary incorporates the results of routine uranium and radon measurements taken inside the CPP facility areas to determine the CEDE as well as the highest OSL data for the assigned work group.

Employee	Hours Worked	2017 Maximum CEDE (mrem)	2017 Maximum DDE (mrem)	2017 Maximum TEDE (mrem)	2017 TEDE (mrem/hr)
CPP Operator	2000	153.4	9.0	162.4	0.081
Wellfield Operator	2000	94.6	7.5	102.1	0.051

Based on the above analysis, the maximum radiation worker TEDE for employees working in the CPP in 2017 was 162.4 mrem. Based on a full year at 2,000 hours worked, the TEDE was 0.081 mrem/hr. If this maximum TEDE was applied to the postulated member of the public working in the CPP up to 100 hours in 2017, the dose to the public would be 8.12 mrem. Therefore, the corrected 2017 Dose to the Public from the Annual Report should be 8.12 mrem. At this exposure rate, a member of the public would need to be in the CPP for 1250 hours to reach the public dose limit of 100 mrem.