

From: [Brown, David](#)
To: [Saxton, John](#)
Cc: [Gersey, Linda](#)
Subject: RE: Clarifications on Implementing Methods to Meet Commitments
Date: Monday, November 23, 2015 1:59:57 PM

John,

I reviewed Strata's Nov. 5, 2015, e-mail clarification of its previous commitments.

1. With regard to how Strata will account for occupational exposure outside the CPP for employees whose dose is monitored in accordance with 10 CFR 20.1502, Strata previously stated by letter dated July 30, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15224B400) that it would monitor the header houses and deep disposal well building for (1) particulate matter, (2) radon, and (3) radon progeny. In its November 5, 2015, e-mail below, Strata stated it would not perform monthly monitoring for radon progeny (i.e., using the modified Kusnetz method) in header houses and the deep disposal well building so long as it was monitoring radon using a track-etch device. Strata will assume equilibrium to calculate radon progeny concentrations from measured radon concentrations. Strata further committed to resuming surveys for radon progeny (using the modified Kusnetz method) if the radon concentrations meet or exceed 10% of the applicable limit in 10 CFR Part 20, Appendix B, Table 1. I find Strata's revised commitment is conservative and reasonable because a separate measurement of radon progeny is no longer needed if the licensee is measuring radon and assuming radon progeny is in equilibrium with radon.
2. As noted in NRC staff's November 19, 2015 verification letter (ADAMS Accession No. ML15302A405), Strata has committed to conducting experiments to determine the portion of the Central Processing Plant (CPP) ventilation flow rate attributable to passive ventilation (i.e., open doors). In its November 5, 2015, e-mail below, Strata provided additional clarification that it would only account for passive ventilation if it is determined to be greater than 5 percent of the total ventilation rate. I find that a 5 percent threshold is reasonable because it only applies to one source (i.e., air effluent from occupied spaces of the CPP) that is expected to be a minor contribution to overall site-wide air effluent quantities.
3. As noted in NRC staff's November 19, 2015 verification letter (ADAMS Accession No. ML15302A405), Strata previously committed to estimating air effluent quantities from the deep disposal well building by combining monitoring results for particulate matter in air with ventilation fan exhaust flow rates from the building. However, in its November 5, 2015, e-mail below, Strata clarified that: (1) the DDW building will not have a ventilation fan; (2) all pumps and other equipment for the DDW are in the CPP; and (3) the DDW building will only have a sealed wellhead. Strata further clarified that it would not measure particulate matter in the DDW building, but commits to monitoring radon using a track-etch device. I find Strata's clarification reasonable and appropriate because there is very little potential for airborne particulate matter in the DDW building if it only contains the DDW wellhead.

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From: Saxton, John
Sent: Thursday, November 05, 2015 3:15 PM
To: Brown, David <David.Brown@nrc.gov>
Subject: FW: Clarifications on Implementing Methods to Meet Commitments

Dave,

This email from strata addresses several items which we should discuss next week.

John

From: Nikolas Roche [<mailto:NRoche@stratawyo.com>]
Sent: Thursday, November 05, 2015 3:05 PM
To: Saxton, John
Cc: Mike Griffin
Subject: [External_Sender] Clarifications on Implementing Methods to Meet Commitments

John,

Strata would like to clarify how it will meet several commitments.

Determination of the Concentration of Radon Progeny:

Strata has committed to conducting surveys for radon progeny in any areas which will routinely exceed 10% of the limit. To verify that the concentration levels are below applicable limits, and in accordance with operations at other In Situ Recovery (ISR) facilities, Strata was planning on conducting monthly surveys for radon progeny in each header house and in the deep disposal well building by obtaining grab air samples in these locations and utilizing the modified kusnetz method to determine the concentration of radon progeny. However, Strata has also committed to conducting an effluent monitoring program which will include the placement of passive track-etch cups in these locations. Strata has stated that it will account for the radon progeny by assuming a 1:1 equilibrium factor. As the concentration of radon progeny will be obtained through the effluent monitoring program, Strata proposes to not conduct monthly surveys for radon progeny through grab air samples and the modified kusnetz method while the passive track-etch cup method for surveying for radon concentrations is employed for the effluent monitoring program. Thus Strata will utilize the passive track-etch cup detectors, and the assumed 1:1 equilibrium factor, to determine the concentration levels of radon progeny in the headerhouses and deep disposal well building until such time that the effluent monitoring plan no longer includes the use of passive track-etch detectors. At that time Strata will utilize grab air samples and the modified kusnetz method as described in Strata's Technical Report Section 5.7.3.2.

Strata has reasonable assurance that the use of the detectors which are placed for the effluent monitoring program will satisfy the regulatory requirements for surveying for radon progeny

concentrations as this method is consistent with Regulatory Guide 8.30, Revision 1, Section 2.3, which states: "NRC regulations permit measurements of concentrations of either radon itself or the radon daughters. Thus either type of measurement is acceptable. However, at UR facilities, measurements of daughters are considered by the staff to be more appropriate." Strata believes that the placement of track-etch devices will be acceptable in this situation as the track-etch devices are adequate to meet the applicable sensitivities required, and the assumption of a 1:1 equilibrium value is conservative. Additionally, the headerhouses have ventilation systems which continuously vent any radon which may be present, and the deep disposal well building currently only consists of a sealed wellhead. All pumps and other equipment for the deep disposal well are contained in the plant. Thus Strata has reasonable assurance that the radon progeny concentrations in the buildings will not exceed Strata's internal limit of 0.08WL, and will also not exceed 10% of the limit, 0.03 WL.

As the track-etch detectors will be submitted quarterly and Regulatory Guide 8.30, Revision 1, requires obtaining monthly samples if the concentrations are above 10% of the limit, Strata commits to conducting grab air samples for radon daughter surveys at the frequency described in the TR Section 5.7.3.2 if the analysis of the track-etch detectors indicates that the concentrations are at or above 10% of the limit.

Passive Ventilation Determination for Strata's Effluent Monitoring Program

As part of Strata's effluent monitoring program, Strata has committed to conducting weekly surveys for particulate matter in the air. The weekly surveys will be composited and submitted quarterly to an outside accredited laboratory. The obtained concentration of particulate matter will then be multiplied by the ventilation rate of the building to estimate the quantity of effluent which is emitted from the processing plant. The ventilation rate of the building when the building doors are closed will be the ventilation rate of two exhaust fans which are used in the ventilation system. However, during the summer months, the doors to the building will be open as a cooling effect and also to potentially provide dilution to concentrations of radionuclides present in the building. To account for any ventilation which may be occurring due to passive ventilation, Strata commits to conducting experiments to better understand the passive ventilation component of the ventilation system. This will verify if the rate of passive ventilation is negligible when compared to the active ventilation and can thus be ignored, or to quantify the passive ventilation rate and thus provide a more accurate estimate of the quantity of effluents released from the processing plant building. Strata will assume that the passive ventilation does not need to be accounted for when estimating the quantity of effluent released from the plant building if the passive ventilation rate is less than 5% of the total ventilation rate.

Surveys for Particulate Matter in the Deep Disposal Well Building

As part of Strata's effluent monitoring plan, Strata committed to undertaking weekly grab air samples to survey for particulate matter in the air. Strata originally committed to conducting the surveys in the headerhouses and the deep disposal well (DDW) building. However, additional information has been obtained since the submittal of the proposed effluent monitoring plan, namely the fact that there will not be a ventilation fan installed on the DDW building. Additionally, all pumps and other equipment for the DDW are housed in the main processing plant. The DDW

building currently only holds the wellhead for the DDW. As there will be no ventilation fan installed on the building and the building only houses a sealed wellhead, Strata proposes that surveys for particulate matter are not needed in the DDW building as the building does not need to be considered a source for the release of effluent to the atmosphere. Strata still commits to placing a passive track-etch detector in the building to measure the concentration of radon.

Thank you for your time,

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