

Craver, Patti

From: Gibson, Lauren
Sent: Friday, March 08, 2013 4:06 PM
To: Lyon, Fred
Subject: FW: State of Washington Questioning Release from Columbia

I have not read through all of this, but it appears that they were copying me as the project manager.

Thanks,
Lauren

From: Jim Key [jimkey@keysolutionsinc.com]
Sent: Friday, March 08, 2013 1:12 PM
To: Conatser, Richard; 'Madden, Clay R.'
Cc: Gibson, Lauren
Subject: RE: State of Washington Questioning Release from Columbia

Gentlemen,

Richard FYI – Columbia Station does not make discharges of liquid rad waste so the thought of returning the water to an ODCM release point would not seem to be applicable here.

I concur with Richard’s opinion of reporting this in the annual report – when releases are taking place.

Unfortunately this is an example where the guidance not necessarily helpful.

Reg Guide 1.109:

As far as the < 10% dose pathway exclusion rule, it would be hard to interpret how to apply this. As already indicated, no dose is being generated from liquid effluent releases. So if the rule is applied to 10% of the actual liquid effluent generated dose then it would seem that the pathway in question would have to be included in the ODCM. (See mathematical proof below)

On the other hand if the statement in 1.109 is considered to apply to all the pathways in the guide then this may not be the case. I quote from the Reg Guide:

“A pathway is considered significant if a conservative evaluation yields an addition dose increment equal to or great than 10 percent of the total of all pathways considered in this guide.” [1.109, Section C - emphasis is mine]

Thus it appears the 10% rule is to be applied against all pathway considered in 1.109 regardless of whether or not they exist at a particular location (this may or may not have been the intent of that statement).

If this is the case, the ODCM need not address the issue.

NUREGS 0472/0473/1301/1302:

B/100

NUREG 1302, Control 3.11.1.3 (page 44) deals with the operability of the liquid rad waste treatment system. If the 31 day projected dose exceeds 0.06/0.02 mrem to the whole body/organ then the liquid radwaste system "shall be used to reduce release of radioactivity when the projected dose due to the liquid effluents"

Note Action – a:

"With radioactive liquid waste being discharged without treatment and in excess of the above limits...."

Does this have any relevance to the issue? – Not sure other than letting you know you do not have to process through the radwaste treatment system if within the limits of this control. By radwaste treatment system I'm thinking of the "official" ODCM/RETS release points.

NUREG 0133

Examine the discussion of NUREG 0133, Section 4.5 [page 18] as it relates to NUREG 1302, 3.11.3. Basically says alternate discharge treatment/paths are acceptable if within the limits of the control,

Mathematical Proof

Most easily stated as: "Any Dose Is 10 Percent Greater Than Zero Dose".
(Sorry – couldn't resist)

My thoughts are to document such activity in the annual report (as appropriate) along with a dose estimate – keeping in mind the potential for crossover dose pathways. I don't see this as a routine calculation. Dose assessment need only be done if conditions/assumptions used in the calcs change.

As for adding it to ODCM space, I'm inclined against it. This is not part of your effluent program nor of you REMP. It is one of those issues that pop up from time to time where the guidance is unclear or conflicting. The usual approach is to do the calc, document it and say something about it in the REMP report.

In such cases my fallback position is:

- 1) All release must be monitored (10 CFR 50, App A, General Design Criteria 60)
 - a. This means you know what it is entering the environment.
- 2) All releases must be controlled (10 CFR 50, App A, General Design Criteria 64)
 - a. This means you meant to do it. (Or had foreknowledge so as to meet Criteria 60 – my opinion)
- 3) You must be able determine the dose to the public such that the dose is unlikely to be substantially underestimated.

Have a great day,

Jim

Jim Key

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From: Conatser, Richard [mailto:Richard.Conatser@nrc.gov]
Sent: Friday, March 08, 2013 09:45 AM
To: Madden, Clay R.
Cc: Gibson, Lauren; Jim Key
Subject: FW: State of Washington Questioning Release from Columbia

INRR

Clay,

Based on the limited information in the email, it does not appear that the source of the Co-60 and Cs-137 is known. As a result, application of the RIS to the resulting liquid effluents (i.e., relinquishing the need to report the liquid release in the Annual Radioactive Effluent Release Report) would not seem appropriate. RIS 2008-003 states:

...Furthermore, before returning radioactive materials to the environment, licensees must demonstrate that these radioactive materials were previously disposed of in accordance with 10 CFR 20.2001(a)(3), or that the material is naturally occurring background radiation....

In this case, it is not clear why the backwash water could not be collected and returned to an ODCM release point. Again, this is based on the limited amount of information supplied below. If you would like the NRC to pursue a formal response to this and other questions, like the burial issues and resuspension from buried waste, you would need to go through your licensing manager to request an NRC response.

Best Regards,

Richard L. Conatser

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From: Madden, Clay R. [mailto:CRMADDEN@energy-northwest.com]
Sent: Thursday, March 07, 2013 10:27 PM
To: Conatser, Richard; jimkey@keysolutionsinc.com
Subject: State of Washington Questioning Release from Columbia

Lynn Albin of Washington State Department of Health is asking me if a specific release being planned at Columbia Generating Station needs to be processed and documented as a release in our annual effluent report. I gave her my opinion and told her I'd try to reach you two as a sanity check.

Detail of Release Scenario:

We are currently vacuuming sediment from our spray ponds. The vacuum exhaust (water and sediment) is being pumped onto some nets to capture the sediment and allow the water to pass through.

- The sediment will be disposed of onsite iaw 10CFR50.75(g) based on an agreement with Washington State

- The water is collected, filtered through some sand filters, and then returned to the spray pond. Soon, the sand filters will need to be backwashed. The plan is to backwash them and "release" the water and any suspended solids to a slit trench which we call "Outfall 3". Outfall 3 is onsite and is not described as a "release" or "discharge" point in the ODCM (only described in our NPDES permit).

Activity:

Sediment:

We have sampled and analyzed the sediment in the spray ponds.

Average Co-60 activity in wet sediment = 0.12 pCi/gm

Average Co-60 activity in dry sediment = 1.25 pCi/gm

Average Cs-137 activity in dry sediment = 0.05 pCi/gm

Limits for disposal onsite iaw agreement with Washington State and consistent with a decommissioning dose of <15 mrem/yr to the public from direct exposure and resuspension.

Maximum Values Allowed for Sediment Disposal	
Isotope	Limits (pCi/gm)
Co-60	5
Mn-54	30
Zn-65	50
Cs-134	10
Cs-137	20

Water:

We have continuous monitors on Service Water and no activity above background is observed.

We take monthly grab samples and no activity is seen in the water.

My position:

There are three possible sources of the sediment activity

- Co-60 from Columbia River water sediment activity from DOE operations (REMP reports from the Hanford Site have shown Co-60 in some river bank samples upstream from Columbia Generating Station).
- Co-60 from Columbia Generating Station gaseous effluent which are trapped by the spray of the spray pond
- Cs-137 as NORM (Columbia has not seen Cs-137 in gaseous effluents since 1990)

If I assume it is all from Columbia Generating Station, I turn to NRC RIS 2008-03 and conclude that

- The water can go into the slit trench as per scenario 2 on page 3 (third paragraph) of the RIS. Now, we are planning to take periodic samples of the water and some soil samples in the trench following the activity.
- The RIS does not apply to activity in solid materials or soil but the soil is being disposed of onsite iaw with agreements with Washington State.
- The activity in sediment is less than 10CFR30 exempt concentration limits

	Maximum Values Allowed for Onsite	10CFR30 Exempt Concentrations	Activity Seen in Soil

	Disposal		
Isotope	Limits (pCi/gm)	pCi/gm	pCi/gm dry
Co-60	5	500	1.25
Mn-54	30	1000	
Zn-65	50	1000	
Cs-134	10	90	
Cs-137	20	--	0.05

I am very open-minded to:

- a) Adding the slit trench or the onsite sediment/sludge disposal cells as onsite release points in the ODCM.
- b) Documenting all this in the annual effluent report and start calculating dose to the public from resuspension of soil from the onsite sediment/sludge disposal areas if it would be helpful to the public or regulators.

Do either of you have an opinion as to what would be most helpful to all stakeholders?

Note: I use the terms "release" and "discharge" as per RG 1.21 Rev 2

Respectfully,

Clay

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