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To:	Kalman, Kenneth; J. Paul Davis
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Subject:	[External_Sender] Approval to Sample and Analyze for Tc-99
Date:	Monday, May 13, 2019 10:54:37 AM

During our April 4-5 meetings, Ron Burrows asked a seemingly simple question. Will the proposed discharge to the Cimarron River comply with effluent limits stipulated in 10 CFR 20.2001 after applying the unity rule and including Tc-99 in the calculation? Even though the concentration of Tc-99 in the influent to the Western Area Treatment System (WATF) is expected to be well below the drinking-water-standard equivalent of 900 pCi/L (EPA), the possibility for Tc-99 to be present in ion exchange resin, biomass, discharge to the river, and treated water injected in the western upland areas, introduced a number of issues.

The May 3rd letter on Tc-99 in influent, waste, and effluent included information on the lack of available data for Tc-99. Prior to 2013, the presence of Tc-99 in groundwater was not considered an issue of importance, because Tc-99 concentrations in groundwater were far below the NRC criterion of 3,790 pCi/L site-wide. Now that disposal of waste, discharge of treated water, and underground injection issues have been raised, we recognize that we need much better definition of the nature and extent of Tc-99 impact to groundwater than the data that is available can provide.

I plan to send a letter that provides a scope of work for conducting a batch treatability test to evaluate the absorption capacity of Ambersep 21K XLT for groundwater containing both uranium and Tc-99. Veolia Nuclear Solutions / Federal Services (VNS/FS) is preparing a scope of work to conduct this treatability test, and GEL Laboratory will conduct the batch treatability test using groundwater provided by the Trust.

Before we run that test, we want to collect groundwater samples from a number of monitor wells for analysis for gross alpha, gross beta, and Tc-99. Based on that data set, we will estimate the concentration of Tc-99 in the influent to the WATF. The treatability test will then be conducted using groundwater from the monitor well that produces groundwater that yields uranium and Tc-99 concentrations that are as comparable to our estimated concentrations for both radionuclides.

We will be conducting our annual groundwater monitoring sampling event the week of the 20th, and gross alpha and gross beta are already included in the list of analytes for all environmental monitoring locations. I would like to add analysis for Tc-99 to 20 of those samples. This would increase the cost of this sampling and analysis event by approximately $2,300, all of which would come out of the Federal Account.

In addition, I would like to collect groundwater samples from another 35 monitor wells, and have them analyzed for gross alpha, gross beta, and Tc-99. This would cost approximately $10,000 for labor and expenses, and approximately $7,000 for laboratory analysis. I would propose that these costs be paid for out of Task 6, Unanticipated Work, because the need for additional Tc-99 data was not anticipated when the proposed budget for 2019 was prepared (not until April of 2019, in fact). I've attached a table showing the annual environmental monitoring locations and the additional

"groundwater assessment" locations, showing the locations, analytical parameters, and approximate analytical costs associated with this proposed work.

The gross alpha, gross beta, and Tc-99 results from these 55 locations represent only approximately 20% of the monitor wells on site, but we believe this will provide us a sufficient distribution of Tc-99 data that we can plan our treatability test appropriately. It will also provide sufficient data to determine if additional sampling and analysis for Tc-99 is desirable.

As I stated in the third paragraph, I will prepare a formal submittal containing scope of work, estimated costs, and an proposed allocation of costs. But the submittal, review, and approval of that letter would require months, and that would delay performance of the treatability test, which would delay the response to additional questions regarding the impact of Tc-99 on waste and effluent, etc. Time is of the essence, and it would be most cost-effective to perform this sampling when we are already collecting samples from many of these wells for environmental monitoring. Consequently, I need to obtain approval quickly to add these parameters and locations to our sampling plan.

Please approve via response to this e-mail the addition of Tc-99 analysis to 20 locations to the environmental monitoring program, to be charged to Task 2, License Compliance. Also please approve via response to this e-mail the sampling and analysis of 35 additional monitor wells for analysis for gross alpha, gross beta, and Tc-99. The cost for this work would be charged to Task 6, Unanticipated Work, and will be allocated to the Federal Account and the State Account in the same proportion as work charged to Task 4, Site Decommissioning; that is, 93.2% from the Federal Account, and 6.8% from the State Account.

This work will later be include in the formal request which I will submit once I obtain a scope of work and cost estimate for the batch treatability test from VNS/FS. Please call if you desire clarification or if you want to discuss the need for the sampling and analysis proposed in this e-mail.

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