

September 12, 2019

Mr. Ken Kalman  
U.S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852-2738

Mr. Paul Davis  
Oklahoma Department of Environmental Quality  
707 North Robinson  
Oklahoma City, OK 73101

Mr. Robert Evans  
U.S. Nuclear Regulatory Commission  
1600 East Lamar Blvd; Suite 400  
Arlington, TX 76011-4511

Re: Docket No. 70-925; License No. SNM-928  
Scope of Work and Cost Estimate to Perform Batch Treatability Test for Tc-99

Dear Sirs:

This submittal represents a revision to e-mails sent September 10 and September 11, 2019 and supersedes them. This submittal includes a revision of the April 1, 2019 proposed budget for 2019 reflecting the changes requested by the NRC; this revision is identified herein as "2019 Proposed Budget – Revision 2".

### **Background**

Evaluation of the presence of technetium-99 (Tc-99) in groundwater in relation to the planned water treatment process has identified previously unanticipated radiological impacts to ion exchange resin and bioreactor solids. Previous treatability testing demonstrated that the ion exchange resin will adsorb Tc-99 but did not produce the data needed to determine if essentially all the Tc-99 in the groundwater that was treated was retained by the resin. Consequently, the potential for Tc-99 to be present in effluent from the proposed ion exchange system and the potential for Tc-99 to accumulate in bioreactor solids produced during biodenitrification needs to be evaluated.

Detection limit issues we addressed during our August 29th meeting result in a limitation to the information that can be gleaned from a treatability test. The treatability test *can* determine that bioreactor solids *definitely will* be categorized as low level radioactive waste (LLRW), but it *cannot* determine that bioreactor solids *definitely won't* be categorized as LLRW. Consequently, *the 90% design for the water treatment and waste management systems will accommodate the worst case scenario; that is, bioreactor solids will accumulate Tc-99 and be disposed of as LLRW.*

Because the approved scope of work and budget for 2019 did not include treatability testing, approval of a scope of work and cost estimate must be approved to proceed with treatability testing. This e-mail provides a scope of work and estimated cost to perform batch treatability testing for Tc-99, with a proposed means to fund the treatability testing. The following scope of work is generic; a more detailed work plan will be finalized through collaboration with the laboratory after obtaining approval of scope and funding from the NRC and the DEQ.

It is our understanding that, because the design of decommissioning facilities and processes is based upon the worst case scenario (i.e., bioreactor solids are LLRW), treatability testing need not be completed for the NRC and the DEQ to initiate detailed technical review of the decommissioning plan and radiation protection plan.

#### **Scope of Work**

- Upon approval of the scope of work and funding, Veolia Nuclear Solutions – Federal Services (VNSFS) will generate a detailed work plan for treatability testing. Environmental Properties Management (EPM) and Burns & McDonnell Engineering Company, Inc. (BMcD) will review the work plan prior to submission to GEL.
- Upon execution of a contract for treatability testing, GEL will obtain sufficient Ambersep 21K XLT® to set up batch treatability tests.
- Enercon Services (Enercon) will obtain groundwater from existing monitor wells selected jointly by VNSFS and BMcD based on historic data. A larger groundwater sample will be obtained from one selected well for sediment quantification. Groundwater samples will be shipped to GEL.
- GEL will filter > 10 micron sediment from the larger sample to determine the quantity of > 10 micron sediment that may be filtered from in influent to the water treatment facilities.
- GEL will filter > 10 micron sediment from each groundwater sample and acidify the filtrate to the design pH.
- GEL will conduct batch tests for the groundwater from up to three wells in accordance with the treatability testing work plan.
- VNSFS and EPM will receive the treatability test data from GEL. VNSFS will Q-review and evaluate the data and generate a draft report on the results of the treatability test.
- EPM and BMcD will review and comment on the draft report.
- VNSFS will produce a final report based on comments from EPM and BMcD.
- EPM will submit the final treatability test report to the NRC and the DEQ.

### **Funding**

EPM has received the estimated cost for each company to perform their portion of this scope of work. Both VNSFS and BMcD have already incurred costs for work performed. They reviewed the results of the 2013 treatability tests, estimated influent concentrations, evaluated the concentration of Tc-99 from the influent to the bioreactor to the bioreactor sludge, communicated with GEL regarding setting up batch tests, detection limits and costs, and communicated with Dupont about resin availability. The following cost estimates include approximately \$17,000 in previously incurred costs for VNSFS and BMcD. Estimated costs by vendor are:

- VNSFS – \$35,000
- GEL – \$30,000
- BMcD – \$15,000
- Enercon – \$3,500
- EPM (my time only) – \$6,000
- Total cost – \$89,500

The approved budget for 2019 already provides \$85,499 in funding for Task 6, “Unanticipated Work”. However, the approved budget states that unanticipated work cannot be performed without NRC and DEQ approval of a scope of work, estimated cost, and allocation of costs. Task 6 of the approved budget for 2019 already provides the following funding:

- \$15,499 for EPM costs
- \$50,000 for “Subcontractor” costs
- \$20,000 for “Other Expenses”

EPM proposes to assign the funding to perform this work to Task 6, re-allocating some funding from Task 4 “Site Decommissioning” to Task 6. EPM proposes to assign the following costs for treatability testing to Task 6 as follows:

- EPM – Change funding for EPM Associate 22 to approximately \$6,000 in Task 6
- BMcD – Assign \$15,000 to “Burns & McDonnell Support” in Task 6
- VNSFS – Assign \$35,000 to “VNS-FS Support” in Task 6.
- GEL – Assign \$30,000 to “GEL Support” in Task 6
- Enercon – Assign \$3,500 to “Enercon Support” in Task 6

These changes increase the authorized funding for Task 6 from \$85,499 to \$96,431, a difference of \$10,932. \$11,000 was removed from the funding for “VNS-FS Support” in Task 4. This



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change was made so that approval to perform this work does not increase the total authorized funding for work performed in 2019. These changes are reflected in the attached "2019 Proposed Budget – Revision 2".

**Allocation Among Trust Accounts**

EPM proposes that, as with other remediation costs, 93.2% of these costs be funded from the Federal Environmental Cost Account and 6.8% of these costs be funded from the State Environmental Cost Account. Upon approval of this scope of work and cost allocation, EPM will prepare and submit a schedule for treatability testing.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jeff Lux".

Jeff Lux, P.E.  
Trustee Project Manager

Attachment

cc: NRC Public Document Room (electronic copy only)  
Michael Broderick, DEQ (electronic copy only)

**CIMARRON ENVIRONMENTAL RESPONSE TRUST  
2019 PROPOSED BUDGET - REVISION 2**

Task No.	Task Description					REIMBURSABLE EXPENSES				
		Category	Hourly Rate	Hours	Cost	Item	Quantity	Unit	Cost per Unit	Total Cost
1	Administration	Associate (15)	\$253.00	268	\$67,804	Burns & McDonnell Support	1	Lump	\$30,000	\$30,000
		Associate (22)	\$214.00	548	\$117,272	Office Expense	12	Mo	\$2,000	\$24,000
		Travel & Incidentals			\$5,000	Utilities	15	Mo	\$700	\$10,500
						Taxes	1	Lump	\$8,000	\$8,000
						Site Maintenance	1	Lump	\$40,000	\$40,000
						Legal Expenses	1	Lump	\$10,000	\$10,000
						Document Management & Shipping	1	Lump	\$1,000	\$1,000
Task Subtotals				816	\$190,076				\$123,500	
Task Total									\$313,576	
2	License Compliance	Associate (15)	\$253.00	66	\$16,698	Burns & McDonnell Support	1	Lump	\$60,000	\$60,000
		Associate (22)	\$214.00	372	\$79,608	Enercon Support	1	Lump	\$387,000	\$387,000
		Travel & Incidentals			\$3,000	Monitor Well Access	1	Lump	\$8,000	\$8,000
						Lab Analysis	34	each	\$300	\$10,200
						Field Supplies	34	Lump	\$40	\$1,360
Task Subtotals				438	\$99,306				\$466,560	
Task Total									\$565,866	
3	Federal Agency Fees					NRC Fees	1	Lump	\$600,000	\$600,000
Task Subtotals				0	\$0					\$600,000
Task Total										\$600,000
4	Site Decommissioning Federal Account - \$4,698,320 State Account - \$342,796	Associate (15)	\$253.00	426	\$107,778.00	Burns & McDonnell Support	1	Lump	\$1,723,000	\$1,723,000
		Associate (22)	\$214.00	936	\$200,304	Enercon Support	1	Lump	\$155,000	\$155,000
		Travel & Incidentals			\$12,000	VNS-FS Support	1	Lump	\$1,170,000	\$1,170,000
						Lab Analysis (2 targeted events)	100	each	\$100	\$10,000
						Well Access	2	each	\$8,000	\$16,000
						Surveyor	1	Lump	\$5,000	\$5,000
						Sampling Expense	100	each	\$40	\$4,000
Task Subtotals				1362	\$320,082				\$3,083,000	
Task Total									\$3,403,082	
5	State Agency Fees					DEQ Fees	1	Lump	\$70,000	\$70,000
Task Subtotals				0	\$0					\$70,000
Task Total										\$70,000
6	Out of Scope Work	Associate (15)	\$253.00	8	\$2,024	Burns & McDonnell Support	1	Lump	\$15,000	\$15,000
		Associate (22)	\$214.00	28	\$5,992	GEL Support	1	Lump	\$30,000	\$30,000
						VNS-FS Support	1	Lump	\$35,000	\$35,000
			Travel & Incidentals			\$4,915	Enercon Support	1	Lump	\$3,500
Task Subtotals				36	\$12,931					\$83,500
Task Total										\$96,431
Total Estimated Budget					\$622,395					\$5,048,955