SEQUOYAH FUELS
A GENERAL ATOMICS COMPANY

RE: 2309-N

April 12, 2023

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Douglas Mandeville, Senior Project Manager
U.S. Nuclear Regulatory Commission
Mailstop T-5 A-10
Washington, DC 20555-0001

RE: License No. SUB-1010; Docket No. 40-8027
Ammonium Nitrate Fertilizer Program
2022 Completion Report

Dear Mr. Mandeville:

Please find enclosed one (1) copy of the 2022 Completion Report for the Ammonium Nitrate Fertilizer Program conducted by Sequoyah Fuels Corporation (SFC).

In accordance with License No. SUB-1010 requirements, the report describes the application of facility produced ammonium nitrate fertilizer on SFC lands near Gore, Oklahoma, and the results obtained from comprehensive soil and vegetation monitoring programs. During 2022 no ammonium nitrate fertilizer was applied; however pre-season soil and vegetation monitoring was completed.

Should you require further information, please contact me at 918-489-5511. (Ext. 226)

Sincerely,

John H. Ellis
President

Enclosure

cc: Lynzie Cheatwood (ODEQ)
Doug Mandeville (NRC)

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AMMONIUM NITRATE FERTILIZER APPLICATION PROGRAM

2022 Completion Report

License SUB-1010; Docket 40-8027

April 3, 2023

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ADDENDA

2022 FERTILIZER PROGRAM COMPLETION REPORT

Sequoyah Fuels Corporation
Gore, Oklahoma

1.0 INTRODUCTION

Source Material License SUB-1010, issued to Sequoyah Fuels Corporation (SFC), authorizes the application of fertilizer onto SFC owned or controlled lands for the production of forage, utilized by cattle for grazing, or for growing crops that are not used directly as human food, such as hay or seed production. On October 1, 2015 a new Oklahoma Pollution Discharge Elimination System (OPDES) permit became effective. This new OPDES permit and subsequent renewal includes sampling and application requirements for the fertilizer program. In accordance with license and permit requirements, this completion report describes the 2022 Fertilizer Application Program.

Fertilizer was not applied during 2022. Therefore, some of the monitoring typically completed was not done. A schedule for the Ammonium Nitrate Fertilizer Program of 2023 is provided in Table 1. However, SFC does not intend to apply fertilizer in 2023.

2.0 APPLICATION AREA

Figure 1 shows the location of the fertilizer application sites.

3.0 AMMONIUM NITRATE APPLICATION

Ammonium nitrate fertilizer was not applied during 2022.

4.0 PROGRAM MONITORING RESULTS

4.1 Soil

The 2022 pre-season soil samples for the fertilizer application areas were collected in March. Since there was no application of ammonium nitrate fertilizer no mid-season or post-season soil samples were collected. The analysis results for the pre-season sampling event are provided in Table 2. The top six inches of soil was characterized for nitrate content by collecting and compositing at least twenty samples from different locations in the Agland tract (one-inch diameter cores). In addition, profile samples were collected from one location in the Agland tract at six-inch increments from surface to 48".

Soil samples have been collected as required by the OPDES permit. This permit requires that background soil samples be collected from each land application site and be analyzed for soil pH; the nutrients Total Kjeldahl Nitrogen, nitrogen, ammonia, nitrate, potassium and phosphorus; and the metals included in 40 CFR 503, "Standards for the Use or Disposal of Sewage Sludge." The analyses for background sampling are included in Table 3. Figure 1 shows the location of each fertilizer application site.

4.2 Vegetation

Forage samples were collected and analyzed from the Agland area only. Analytical data for the forage cuttings from the Agland is provided in Table 5.

Forage collected during 2022 had elevated molybdenum concentrations. SFC determined that use of the hay should be restricted.

5.0 FORAGE MANAGEMENT PROGRAM

Hay was harvested two times during 2022. Hay yields and harvest were dependent upon the weather and forage growing conditions. Approximately 528 round bales were produced from the SFC property. Round hay bales average approximately 1040 pounds.

Table 1

Sequoyah Fuels Corporation

Projected 2023 Ammonium Nitrate Fertilizer Application

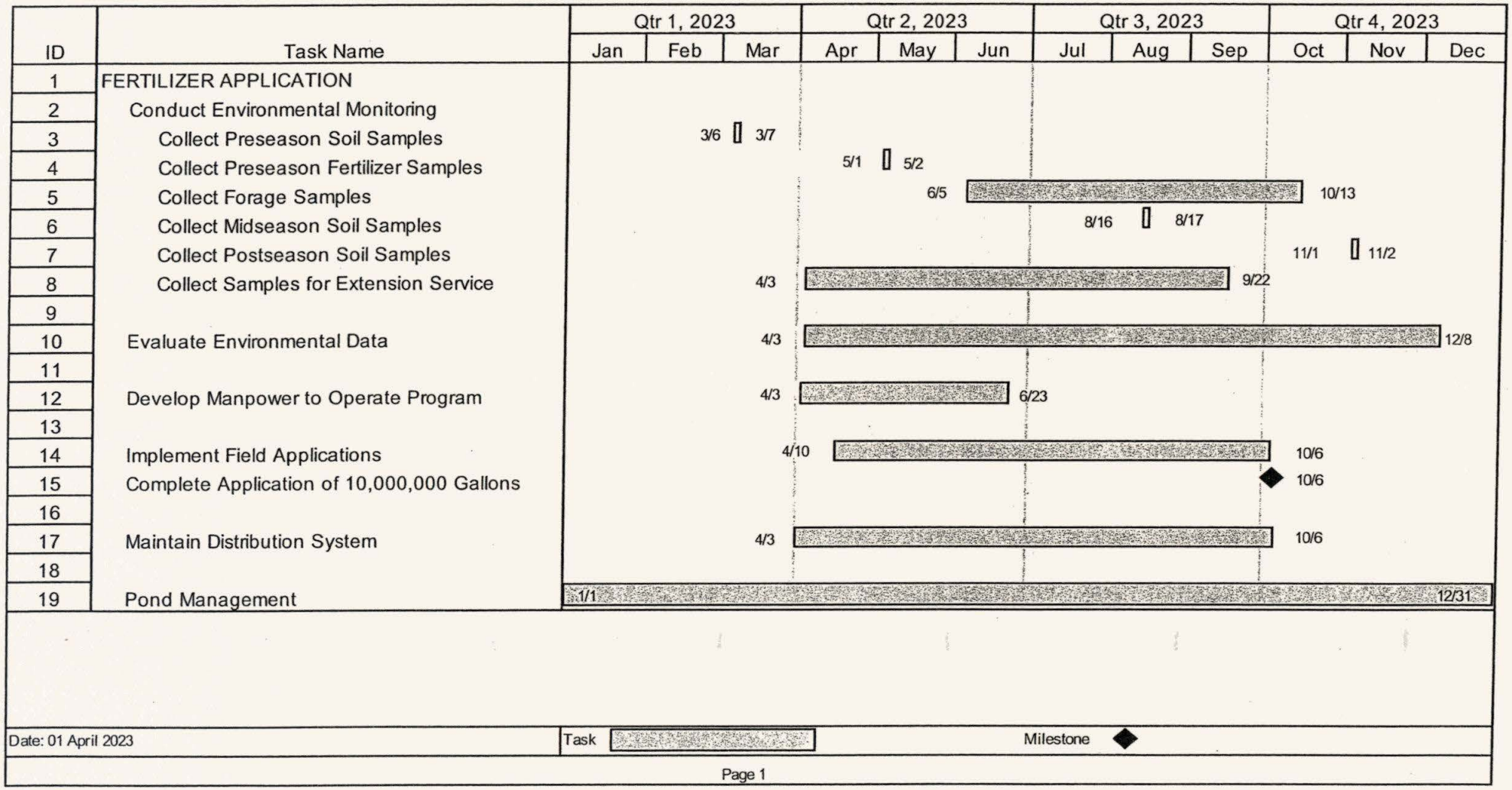

TABLE 2

Soil Nitrate Analyses
(mg/kg)

Sequoyah Acreage

	Pre-Season Results (Collected on 17 March 2022)							
Location	0-6C"	6-12"	12-18"	18-24"	24-30"	30-36"	36-42"	42-48"
Agland	13.4	1.2	<1.06	<11	<10.6	<10.6	11.2	<10.6
	No Mid-Season Soil Samples Collected in 2022							
	No Post-Season Soil Samples Collected in 2022							

Table 3
Background Soil Analyses - Fertilizer Application Sites

Parameter	Agland # 1	Agland # 2	Agland # 3	Agland # 4	North Meadow	South Meadow
Inorganic Analyses						
Ammonia (as N), mg/kg	6.6	3.9	3.6	4.5	3.1	2.2
Nitrate (as N), mg/kg	28.2	33.1	31.6	17.4	15.4	26
TKN, mg/kg	1790	1880	1640	1740	1500	2340
pH	4.34	5.83	6.32	5.18	6.02	6.33
Radiochemical Analyses						
Radium-226 pCi/g	0.779 ± 0.142	1.42 ± 0.221	0.730 ± 0.144	1.07 ± 0.202	1.28 ± 0.197	1.73 ± 0.219
Uranium, µg/g	1.92	1.99	1.93	3.26	9.55	2.47
Metals Analyses						
Arsenic, mg/kg	2.39	1.62	1.53	2.25	2.62	2.2
Cadmium, mg/kg	0.728	0.505	0.612	0.819	0.805	0.838
Chromium, mg/kg	1.14	2.02	3.57	4.09	7.55	5.45
Copper, mg/kg	6.24	3.13	1.02	2.05	2.21	1.36
Lead, mg/kg	8.65	7.09	5.54	7.38	10.7	10.1
Mercury, mg/kg	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24
Molybdenum, mg/kg	21.9	12.7	5.3	< 0.716	2.42	1.57
Nickel, mg/kg	5.72	3.43	5.61	1.33	0.906	1.57
Phosphorus, mg/kg	274	55.9	139	221	207	221
Potassium, mg/kg	731	268	324	453	293	298
Selenium, mg/kg	< 0.520	< 0.505	< 0.510	< 0.512	< 0.503	< 0.524
Zinc, mg/kg	19.8	9.19	7.95	13.9	13.3	11

Parameter	Pond Area	Timber North # 1	Timber North # 2	Timber South # 1	Timber South # 2	Timber South # 3
Inorganic Analyses						
Ammonia (as N), mg/kg	2.1	2.7	3.7	3.0	1.8	1.8
Nitrate (as N), mg/kg	14.2	9.6	22.3	27.4	25.5	13.2
TKN, mg/kg	2020	2470	1850	2290	2090	1740
pH	6.35	5.4	4.9	5.28	5.2	5.5
Radiochemical Analyses						
Radium-226 pCi/g	1.04 ± 0.163	1.57 ± 0.249	1.07 ± 0.188	1.58 ± 0.243	1.29 ± 0.189	1.27 ± 0.201
Uranium, µg/g	2.41	5.24	16.8	12.2	9.78	2.12
Metals Analyses						
Arsenic, mg/kg	2.94	1.2	3.85	1.98	4.33	2.81
Cadmium, mg/kg	1.01	< 0.502	1.77	0.991	1.54	1.35
Chromium, mg/kg	6.9	< 0.703	11.4	4.46	6.8	11.2
Copper, mg/kg	0.913	< 0.602	3.02	2.78	1.54	1.04
Lead, mg/kg	9.66	< 0.390	15.1	14.8	13.6	10.7
Mercury, mg/kg	< 0.24	< 0.24	< 0.23	< 0.24	< 0.24	< 0.24
Molybdenum, mg/kg	< 0.710	< 0.703	1.14	< 0.694	< 0.721	< 0.729
Nickel, mg/kg	< 0.710	< 0.703	8.94	0.892	< 0.721	16.9
Phosphorus, mg/kg	< 10.1	192	282	280	224	168
Potassium, mg/kg	326	17.3	564	574	381	542
Selenium, mg/kg	< 0.507	< 0.502	< 0.520	< 0.496	< 0.515	< 0.521
Zinc, mg/kg	12.4	< 0.703	37.8	23.3	17.1	14.2

Note: Samples collected during August 2005.

Table 4
Annual Post-Season Soil Analyses - Fertilizer Application Sites

Parameter	Agland #1 Composite	Agland #2 Composite	Agland #3 Composite	Pond Area Composite	N. Meadow Composite	Timber S#2 Composite	S. Meadow Composite
No Post-Season Soil Samples Collected in 2022							
Inorganic Analyses							
Ammonia (as N), mg/kg							
Nitrate (as N), mg/kg							
TKN, mg/kg							
pH							
Radiochemical Analyses							
Radium-226 pCi/g							
Uranium, µg/g							
Metals Analyses							
Arsenic, mg/kg							
Cadmium, mg/kg							
Chromium, mg/kg							
Copper, mg/kg							
Lead, mg/kg							
Mercury, mg/kg							
Molybdenum, mg/kg							
Nickel, mg/kg							
Phosphorus, mg/kg							
Potassium, mg/kg							
Selenium, mg/kg							
Zinc, mg/kg							

TABLE 5

Forage Analyses

Location (Cutting)	Sample Date	As mg/kg	B mg/kg	Co mg/kg	Cu mg/kg	Fe mg/kg	Mn mg/kg	Mo mg/kg	Ni mg/kg	Pb mg/kg	V mg/kg	Zn mg/kg	U mg/kg	Th-230 pCi/g	Ra-226 pCi/g	NO3-N mg/kg
Sequoyah Acreage																
Agland (1st)	06/27/22	<1	<20	<1	6.77	51.3	268	184	<2	<0.5	<2	46.1	0.0111	0.0201	0.0113	<1.06
Agland (2nd)	10/12/22	<1	<50	<1	<5	68.9	54.9	58.3	<2.5	<2	<2.5	<25	<0.004	0.00752	0.0212	<185
Caution Levels[1]		100	150	10	100	1000	1000	20	50	30	50	500	-	-	-	2800

[1] Caution Levels do not mean that forage with higher concentrations cannot be safely fed to livestock, but that certain precautions and additional treatments and supplements may be prudent.

Figure 1

Fertilizer Application Sites
Background Soil Sample Locations
Collected on 04 Aug 2005