

Z:\Clients\ENS\CERT\\_ClientInfo\Sites\Database\Geospatial\Maps & Dwgs\ArcGIS\BMCD\_Files\Arcdocs\2020\2022 - Decommissioning Plan\Figure 6-1\_Currently Licensed Area

# FIGURE 6-1 CURRENT LICENSED AREA FACILITY DECOMMISSIONING PLAN REVISION 3





# LEGEND

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144 A

- CERT PROPERTY LINE MARCH 2018 CURRENTLY LICENSED AREA

  - SUBAREAS
  - 100 ug/L URANIUM CONCENTRATION - 201 µg/L URANIUM CONCENTRATION

## **NOTES**

1) Basemap: Google Earth 2017

0	750 SCALE IN FEET	1	,500	
			Rev I	<u>No:</u> 0
Preparer:	TJKIMMEL		Date	9/14/2022
Reviewer	<u>:</u> EDULLE		Date:	9/14/2022
Coordinate NAD 1983	<u>System</u> StatePlane Oklahoma N	lorth F	IPS 350	01 Feet











### LEGEND

- MONITOR WELL IN ALLUVIUM
- MONITOR WELL IN SANDSTONE B
- MONITOR WELL IN SANDSTONE C +
- MONITOR WELL IN TRANSITION ZONE -+-
- ulletEXTRACTION WELL/SUMP
- INJECTION WELL(INSTALLED)  $\otimes$
- $\mathbf{\bullet}$ INJECTION WELL
- GROUNDWATER EXTRACTION PIPING TREATED WATER INJECTION PIPING GROUNDWATER EXTRACTION TRENCH TREATED WATER INJECTION TRENCH 201 ug/L URANIUM ISOPLETH REMEDIATION FACILITY **BA1-A REMEDIATION AREA** 
  - **BA1-B REMEDIATION AREA**
  - SUBAREAS PROPOSED LICENSED AREA
  - RADIOLOGICALLY CONTROLLED AREA

#### NOTES

1) Injection trench GWI-BA1-01 and extraction trench GETR-BA1-01 were installed in 2017.

2) Injection well GWI-BA1-01A and extraction wells GETR-BA1-01A and GETR-BA1-01B were installed in 2017.

3) Isopleths are drawn based on "representative" uranium concentrations, expressed in micrograms per liter ( $\mu$ g/L). With a conservatively estimated value of 1.3% for U -235 enrichment, the 201 µg/L isopleth, as shown, represents the 180 pCi/L (picocuries per liter) isopleth.

4) Basemap: Google Earth 2017







#### NOTES:

- 1. EXTRACTION AND INJECTION FLOW RATES ARE NOMINAL DESIGN RATES FOR EACH COMPONENT. EXTRACTION AND INJECTION RATES WILL VARY THROUGHOUT OPERATION. THE FLOW RATES PRESENTED ON THIS SCHEMATIC REFLECT INITIAL OPERATING CONDITIONS.
- 2. THIS SCHEMATIC IS CONCEPTUAL IN NATURE AND IS NOT INTENDED TO CONVEY ALL PIPING OR PROCESS COMPONENTS THAT WILL BE REQUIRED FOR PROPER SYSTEM DESIGN, CONSTRUCTION, OR OPERATION.
- THE COMBINED TREATMENT SYSTEM INFLUENT CONCENTRATIONS PRESENTED ON THIS SCHEMATIC REFLECT INITIAL OPERATING CONDITIONS. CONCENTRATIONS WILL VARY OVER THE COURSE OF OPERATIONS.

#### LEGEND:

U - URANIUM N - NITRATE F - FLUORIDE Tc-99 - TECHNETIUM-99 GPM - GALLONS PER MINUTE mg/L - MILLIGRAMS PER LITER ug/L - MICROGRAMS PER LITER ng/L - NANOGRAMS PER LITER Ci - INITIAL CONCENTRATION Cmax - MAXIMUM CONCENTRATION IX - ION EXCHANGE

	FIGURE 8-3 WELL FIELD & WATER TREATMENT LINE DIAGRAM FACILITY DECOMMISSIONING PLAN REVISION 3 Pate: 9/15/22										
<u>Preparer</u> : E. Pu	llcher	<u>Date</u> : 9/15/22									
<u>Reviewer</u> : E.	Dulle	<u>Date</u> : 9/15/22									

Rev. No. 0



Z:\Clients\ENS\CERT\\_ClientInfo\Sites\Database\Geospatial\Maps & Dwgs\ArcGIS\BMCD\_Files\Arcdocs\2020\2022 - Decommissioning Plan\Figure 8-1\_Western Area GW Remediation Areas

![](_page_5_Picture_3.jpeg)

![](_page_6_Figure_0.jpeg)

Z:\Clients\ENS\CERT\\_ClientInfo\Sites\Database\Geospatial\Maps & Dwgs\ArcGIS\BMCD\_Files\Arcdocs\2020\2022 - Decommissioning Plan\Figure 8-4\_BA1 GW Remed. Forward Particle Tracking - Stag

FIGURE 8-4 BURIAL AREA #1 PARTICLE TRACKING 2022 STAGNATION ZONE ANALYSIS FACILITY DECOMMISSIONING PLAN REVISION 3

![](_page_6_Picture_4.jpeg)

![](_page_6_Picture_5.jpeg)

## LEGEND

- MONITOR WELL IN ALLUVIUM
- + MONITOR WELL IN SANDSTONE C
- MONITOR WELL IN TRANSITION ZONE
- EXTRACTION WELL
- ★ PARTICLE ADDED FOR STAGNATION ZONE ANALYSIS STAGNATION ZONE PARTICLE TRAVEL PATH

NOTES 1) GPM - GALLONS PER MINUTE.

2) BASEMAP: GOOGLE EARTH 2017

0	90 SCALE IN FEET		180	
			Rev N	<u>lo:</u> 0
Preparer: B	ELOCKWOOD		Date:	9/23/2022
<u>Reviewer:</u> N	ICRAWFORD		Date:	9/23/2022
Coordinate Sys NAD 1983 Sta	<u>stem</u> tePlane Oklahoma N	orth F	IPS 350 <sup>-</sup>	1 Feet

![](_page_7_Figure_0.jpeg)

Z:\Clients\ENS\CERT\\_ClientInfo\Sites\Database\Geospatial\Maps & Dwgs\ArcGIS\BMCD\_Files\Arcdocs\2020\2022 - Decommissioning Plan\Figure 8-5\_WA GW Remed. Forward Particle Tracking - Stag

![](_page_7_Figure_3.jpeg)

![](_page_8_Figure_0.jpeg)

![](_page_9_Picture_0.jpeg)

![](_page_9_Picture_2.jpeg)

![](_page_10_Picture_0.jpeg)

![](_page_10_Figure_12.jpeg)

Arcdocs\2020\2022 - Decommissioning Plan\Figure 8-8\_BA1 In-process GW Mon Locations

![](_page_11_Picture_0.jpeg)

![](_page_11_Figure_2.jpeg)

![](_page_12_Picture_0.jpeg)

![](_page_12_Figure_14.jpeg)

						-	Fig Pre-C	gure \$ const	9-1 ruc1	Revisi ion Sc	on ( cheo	0 dule									
ID	Task Name	Duration	Start	Finish	Qtr 3, 2022 Jul Aug	Sep	Qtr 4, 20 Oct N	)22 ov Dec	Qtr Jar	1, 2023 Feb   N	Mar	Qtr 2, 2 Apr   N	2023 May Jur	Qtr Jul	3, 2023 Aug	Sep	Qtr 4, 20 Oct N	23 ov De	Qt c Ja	r 1, 202 n   Fet	24 0 Mar
1	Decom. Plan-Rev3	386 days	Fri 9/30/22	Fri 3/22/24	<i></i>																
2	EPM submits formal D-Plan	0 days	Fri 9/30/22	Fri 9/30/22		•	9/30														
3	NRC Accepts D-Plan for Technical Review	65 days	Fri 9/30/22	Thu 12/29/22			,							×							
4	NRC Reviews D-Plan	86 days	Fri 12/30/22	Fri 4/28/23								h									
5	NRCs Issues RAIs	0 days	Fri 4/28/23	Fri 4/28/23								۲	4/28								
6	EPM Prepares & Issues RAI Responses	45 days	Mon 5/1/23	Fri 6/30/23							,										
7	NRC Drafts SER, EA, License Amendment	190 days	Mon 7/3/23	Fri 3/22/24																	
8	License Amendment	153 days	Mon 3/25/24	Wed 10/23/24													,				0-
9	NRC and EPM Reach Concurrence on Draft License Amendment	43 days	Mon 3/25/24	Wed 5/22/24																	
10	License Amendment Issued	110 days	Thu 5/23/24	Wed 10/23/24																	
11	Design, Bidding, and Contracting	458 days	Mon 5/1/23	Wed 1/29/25								8									
12	Prepare remediation infrastructure and facilities bid packages	170 days	Mon 5/1/23	Fri 12/22/23		den e de la constante de la co															
13	Bidders to prepare and submit bids	70 days	Mon 12/25/23	Fri 3/29/24																	
14	Request and Obtain Construction Funding Approval	148 days	Mon 4/1/24	Wed 10/23/24		no Conserve da mende da finalmente Per samare a por una reconcipio e re															
15	Execute Contracts	70 days	Thu 10/24/24	Wed 1/29/25		tion for a first sector of the first sector of						×									
16	Pre-Mobilization	14 days	Thu 1/30/25	Tue 2/18/25		ndo ben de fonçand plat des bas des ere															

	Prepai Reviewer: J.	rer: E. Dulle; Hesemann;	Date: 08 Date: 08	8/31/22 8/31/22
1, 2024   Qtr 2, 2024   Qtr 3,   Feb   Mar   Apr   May   Jun   Jul	2024 Qtr Aug Sep Oct	4, 2024   Nov   Dec	Qtr 1, 202 Jan Fet	5 C Mar /
0				
			Page	1 of 1

![](_page_14_Figure_0.jpeg)

	Prepai Reviewer: J.	<sup>r</sup> er: E. Dulle; D Hesemann; D	ate: 08/31/22 ate: 08/31/22
		2026	
Quarter		1st Quarter	
Oct Nov	Dec	Jan	Feb
1	1/19	-	
			Page 1 of 1

# Figure 9-3 - Revision 0 Remediation Schedule

Remediation Area	ne iths)		20	)26		2027					2028					)29			2	030		Γ	20	31			20	32			20	)33			203	34	
Remediation Area	Tin (Mor	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	0 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	4 U
BA1-A	150	Time	e to	Red	uce l	Jrani	um t	:o <	NRC	Crite	erion	1																									
BA1-B	62	Time	e to	Red	uce l	Jrani	um 1	:o <	NRC	Crite	erion	1																									
Water Treatment	126	Time	e Ur	Jranium Treatment System Operates <sup>1</sup>																																	
Water Pumping & Injection	150	Time	e Pu	impi	ng &	Inje	ction	Con	tinu	es																											
												120																									
WAA U>DCGL	135	Time	e to	Red	uce I	Jran	ium 1	:0 <	NRC	Crite	erior	1													2				19 - C								
1206 North	5			◀		Time	e to l	Redu	ice L	Jrani	ium t	:0 <	NRC	Crit	erio	n																					
WU-BA3	48	Tim	e to	Red	uce	Jran	ium 1	:0 <	NRC	Crit	erior	)																									
Water Pumping & Treatment	135	Tim	e Pu	ımpi	ng &	Ura	nium	Trea	atme	ent S	yste	m O	pera	ates <sup>1</sup>																							
WU-BA3 Injection	48	Trea	reated Water Injection																																		

1

Notes:

<sup>1</sup>Either treatment system may be bypassed if the concentration of uranium in the influent is less than 30  $\mu$ g/L.

Preparer: E. Dulle; Date: 09/16/22 Reviewer: J. Hesemann; Date: 09/23/22

![](_page_15_Figure_6.jpeg)

	2038						2039																
		Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2
	J	Α	S	0	Ν	D	J	F	Μ	Α	Μ	J	J	Α	S	0	Ν	D	J	F	Μ	Α	Μ
Post-Remediation Monitoring	ĺ																						
1 <sup>st</sup> Quarter Sample, Analyze, Q-Review																							
2 <sup>nd</sup> Quarter Sample, Analyze, Q-Review																							
3 <sup>rd</sup> Quarter Sample, Analyze, Q-Review																							
4 <sup>th</sup> Quarter Sample, Analyze, Q-Review										-													
5 <sup>th</sup> Quarter Sample, Analyze, Q-Review																							
6 <sup>th</sup> Quarter Sample, Analyze, Q-Review																							
7 <sup>th</sup> Quarter Sample, Analyze, Q-Review																							
8 <sup>th</sup> Quarter Sample, Analyze, Q-Review																							
Dismantle & Dispose of Material										<u> </u>					Ì							<u> </u>	Ť
Sample & Analyze Resin & Filter Media																							
Demobilize/Ship Filter Systems																							
Dispose/Ship Resin										Not	te: t	he "	P" c	lesig	gnat	es a	mo	nth	spe	nt p	lann	ing	the
Demobilize/Ship Resin Processing System																							
Demobilize/Ship Ion Exchange Systems																							
Demobilize/Ship Pumps, Tanks, Etc.																							
Remove/Ship Wells, Piping, Utilities																							
Final Status Survey																							
Draft & Submit Final Status Survey Plan																							
NRC Review																							
Finalize Final Status Survey Plan																							
Conduct Final Status Survey																							
Prepare Final Status Survey Report																							
NRC Review																							
Finalize Final Status Survey Report																							
License Termination Process																							
Prepare Dose Model																							
NRC Review																							
Finalize Dose Model																							
Apply for License Termination																							
Terminate SNM-928																							

# Preparer: E. Dulle; Date: 09/29/22 Reviewer: J. Hesemann; Date: 09/30/22

20	40					
		Q3			<b>Q4</b>	
J	J	Α	S	0	Ν	D
	P					
)&I	).		Р			
			•	Р		
	-					Р
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# Figure 9-4 - Revision 0 Post-Remediation Schedule

						2041							2042														43		
	Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2	
	JF	Μ	Α	M	J	J	Α	S	0	Ν	D	J	F I	Μ	Α	Μ	J	J	Α	S	0	Ν	D	J	F	Μ	Α	Μ	J
Post-Remediation Monitoring																													
1 <sup>st</sup> Quarter Sample, Analyze, Q-Review																													
2 <sup>nd</sup> Quarter Sample, Analyze, Q-Review																													
3 <sup>rd</sup> Quarter Sample, Analyze, Q-Review																													
4 <sup>th</sup> Quarter Sample, Analyze, Q-Review																													
5 <sup>th</sup> Quarter Sample, Analyze, Q-Review																													
6 <sup>th</sup> Quarter Sample, Analyze, Q-Review																													
7 <sup>th</sup> Quarter Sample, Analyze, Q-Review																													
8 <sup>th</sup> Quarter Sample, Analyze, Q-Review																													
Dismantle & Dispose of Material																													
Sample & Analyze Resin & Filter Media																													
Demobilize/Ship Filter Systems																													
Dispose/Ship Resin																													
Demobilize/Ship Resin Processing System																													
Demobilize/Ship Ion Exchange Systems																													
Demobilize/Ship Pumps, Tanks, Etc.	Р																												
Remove/Ship Wells, Piping, Utilities	Р																												
Final Status Survey																													
Draft & Submit Final Status Survey Plan																													
NRC Review																													
Finalize Final Status Survey Plan																													
Conduct Final Status Survey																													
Prepare Final Status Survey Report																													
NRC Review																													
Finalize Final Status Survey Report																													
License Termination Process																													
Prepare Dose Model																													
NRC Review																													
Finalize Dose Model																													
Apply for License Termination																													
Terminate SNM-928																													

# Preparer: E. Dulle; Date: 09/29/22 Reviewer: J. Hesemann; Date: 09/30/22

![](_page_18_Figure_0.jpeg)

![](_page_19_Figure_0.jpeg)

Z:\CLIENTS\ERT\129852\_CERT-DECOM2021\STUDIES\REMEDIATION\DP REV 3\FIGURES\NATIVE FILES\FIGURE 10-2.DWG 9/9/2022 8:46 AM ALANSTAETT

![](_page_20_Figure_0.jpeg)

![](_page_21_Figure_0.jpeg)