July 25, 2022



Mr. James Smith 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

Re: Docket No. 07000925; License No. SNM-928 Cimarron Environmental Response Trust Requirements for Divested Property

Dear Sirs:

Solely as Trustee for the Cimarron Environmental Response Trust (CERT), Environmental Properties Management LLC (EPM) submits herein to the U. S. Nuclear Regulatory Commission (NRC) and the Oklahoma Department of Environmental Quality (DEQ) a response to statements made by NRC staff in a letter dated May 18, 2022. In that letter, NRC staff referenced requirements related to part of the formerly licensed site that the NRC has released for unrestricted use. As a beneficiary of the CERT, the NRC previously approved the sale of a portion of the site that had been released for unrestricted use (four parcels totaling approximately 300 acres). No requirement for the CERT to restrict future use or to maintain any controls were included as a condition of the sale. It now appears that NRC staff expects the CERT to maintain some type of isolation and control over those properties which the CERT has divested.

All but approximately 52 acres of the 800-plus acres comprising the former licensed area have been released for unrestricted use by the NRC; only 52 acres remain licensed by the NRC. The release of over 700 acres of property by the NRC was based on the results of radiological surveys of buildings, materials, soil, piping, etc. Because characterization of groundwater to determine the extent of uranium in groundwater exceeding the license-stipulated release criteria for groundwater had not been completed, NRC staff was not aware that groundwater contained uranium above the release criteria until much of the property had been released, but not yet sold.

As a result, the NRC *has* released areas of the site within which groundwater exceeds the release criteria for groundwater, and *has not* released areas of the site which comply with license criteria for *all* environmental media (collectively, the License Criteria). Condition 9 in license SNM-928, "Authorized Place of Use", reads "The licensee's Cimarron Uranium Plant, located 1/2 mile North of the Highway 33 and Highway 74 junction near Crescent, Oklahoma".

This license condition defines neither the area that was formerly licensed, not the area that remains under license. The area that remains under license can only be determined by subtracting from the total site area defined in reports generated in the 1990s those subareas that have been released per License Conditions 25, 28, 29, and 30.

EPM is preparing *Facility Decommissioning Plan – Rev 3* (the D-Plan). Section 6, "Revisions to the License" will contain several requests to amend the license. One of those license amendment requests will be to amend License Condition 9 to define the area that should remain under license. This will involve bringing portions of "Subareas" that have been released from the license back under the license, and releasing portions of "Subareas" that are currently licensed. An understanding of the basis upon which designated "Subareas" were released from the license and why some were not released is important to ensure that the redefined licensed area includes all areas where license controls should be implemented, but does not unnecessarily include areas that have been demonstrated and verified to comply with License Criteria stipulated in the license.

The Delineation and Release of "Subareas"

Based on a combination of historical knowledge of site operations and site-wide radiological characterization performed in 1994, Cimarron Corporation (the former licensee) prepared final status survey plans for the Cimarron site in accordance with the then-applicable requirements of NUREG/CR-5849, *Manual for Conducting Radiological Surveys in Support of License Termination*. The site was divided into Subareas A through O (there are two separate areas which are together designated "Subarea O").

Five of these Subareas (Subareas A through E) were designated "Phase I" areas. Phase I areas were considered "unaffected areas", defined by NUREG/CR-5849 as areas that are "not expected to contain residual radioactivity, based upon knowledge of site history and previous survey information." The first final status survey plan submitted to the NRC was the August 1995 *Final Status Survey Plan for Unaffected Areas* (ML092720449). That submittal included drawing 95MOST-RF3, "Final Status Survey Plan, Phases I, II, and III" (included as Attachment 1 to this letter), which depicted the Subareas.

Five of the Subareas (Subareas F through J) were designated "Phase II" Subareas. Portions of Phase II areas were considered unaffected and the remainder of Phase II Subareas were considered "affected areas", defined in NUREG/CR-5849 as areas that "have potential radioactive contamination (based on plant operating history) or known radioactive contamination (based on past or preliminary radiological surveillance)".

The remaining Subareas (Subareas K through O) were designated "Phase III" Subareas; the entirety of these Subareas was considered affected.

At that time, the licensee was aware that groundwater was contaminated with uranium in portions of the site that were classified as affected, but was not aware that groundwater contamination was present in areas that were considered unaffected.

Final Status Survey Plan for Phase II Areas (ML20202A434) was submitted to the NRC in July 1995, and Final Status Survey Plan for Phase III Areas (ML20202A560) was submitted to the NRC in June 1997. Final status survey plans were revised in accordance with NRC's comments; following NRC approval, final status surveys were conducted, and final status survey reports were submitted to the NRC. A single final status survey report was submitted for all five Phase I areas. In April 1996, the NRC released the Phase I areas (Subareas A through E) for unrestricted use in License Condition 25.

Final status survey reports were submitted for each Phase II and Phase III Subarea. For some Subareas, one final status survey was submitted for buildings and shallow soil, and additional final status survey reports were submitted for concrete rubble or subsurface soil.

In April 2000, the NRC released Subareas J and O for unrestricted use in License Condition 28. In April 2001, the NRC released Subareas H, I, L, and M for unrestricted use in License Condition 29. In May 2002, the NRC released Subarea K for unrestricted use in License Condition 30. Each of these license conditions stated that the corresponding Subarea, "... is no longer licensed by NRC."

Figures submitted to the NRC in *Facility Decommissioning Plan – Rev 2* (ML21076A479) are being revised for incorporation into the forthcoming D-Plan. These figures are currently in a draft phase, and additional revision may be made prior to submitting the D-Plan. The draft versions are provided herein so NRC staff can better understand the impact of these requirements to the CERT. Resolution of these issues prior to submittal of the D-Plan will avoid the generation of requests for additional information (RAIs) that could delay construction and remediation. The following draft figures are included in Attachment 2:

- Figure 1-2, "Cimarron Site Showing Subareas" shows the relationship between the Subareas used for final status survey, and the property that is currently owned by the CERT.
- Figure 5-2, "Property Owned by the Trust" delineates the four parcels of formerly licensed property which have been divested.
- Figure 8-1, "Western Area Groundwater Remediation Areas" shows:
 - The approximate areas within which uranium concentrations exceed License Criteria in the western portion of the site, and
 - o the Subareas contained within the portion of the site.

- Figure 8-2, "Burial Area #1 Groundwater Remediation Areas" shows:
 - O The area within which uranium concentrations exceed License Criteria in the eastern portion of the site, and
 - o The Subareas contained within the areal extent of this figure.

The remainder of this letter addresses three requirements NRC staff has indicated do or will apply to both the current Trust property and properties that are no longer owned or controlled by the CERT. These requirements are:

- 1. The CERT is to maintain institutional controls ("isolation and control" is the term used by NRC staff) of both owned and divested properties.
- 2. Radiological dose from areas which have been divested will be included in a dose assessment performed prior to license termination.
- 3. Samples of subsurface soil (if brought to the surface) must be collected and analyzed to demonstrate that the radiological status of the released area has not changed.

Maintaining Control Over Divested Areas

In a May 18, 2022, letter clarifying NRC staff's comments on the pre-application audit of a draft decommissioning plan (ML22110A165, ML22110A166, and ML22110A167), the NRC stated, "... the NRC staff would still require actions on the part of CERT to maintain isolation and control of any former or current area associated with the license until such time as the license is terminated. ... Part of the reason for ensuring isolation and control of land areas associated with the license is the requirement for the NRC staff to perform a dose assessment before recommending license termination. This dose assessment will reflect contributions from the entire original site, including subareas previously released ...".

The February 2011 Consent Decree and Environmental Settlement Agreement, and the February 2011 Environmental Response Trust (the Trust Agreement) (neither are in ADAMS) stipulate the objectives of the CERT. One of the objectives stated in paragraph 2.2.1 of the Trust Agreement is to "... ultimately sell, transfer or otherwise dispose or facilitate the reuse of all or part of the Cimarron Trust Assets ...". EPM proposed to sell four parcels of Trust property to reduce site maintenance costs, to provide for the beneficial reuse of the property, and (for one of the four parcels) to relieve the Trust of liability associated with non-radiological waste contained in the former processing buildings. These four parcels are shown on Figure 5-2 in Attachment 2.

Draft Purchase and Sale Agreements were prepared for each of the properties and submitted to the NRC and the DEQ; the agreements were then revised in accordance with NRC and DEQ comments. Article 2.8 of the Trust Agreement requires the Trustee to implement any "institutional controls or deed restrictions" requested by the NRC and the DEQ. Neither the NRC nor the DEQ requested that institutional controls or deed restrictions be added to the sale

agreements or be required as a condition of the divestiture when they approved the sale of any of the four properties.

Upon approval of the Purchase and Sale Agreements by the NRC and the DEQ, a proposal to divest the properties was submitted to the Department of Justice (DOJ). All of these agencies (DOJ, NRC, and DEQ) approved the divestiture of the four parcels of formerly licensed property, and none of the Purchase and Sale Agreements (or any other documents associated with the sale of these properties) included any requirement to maintain "isolation and control" of these areas. Retroactively imposing "actions on the part of CERT to maintain isolation and control" of any formerly licensed area until such time as the license is terminated is unreasonable.

<u>EPM requests NRC concurrence that the CERT is not and will not be required to maintain isolation or control over portions of the formerly licensed area that have been divested.</u>

Considering Dose from Divested Areas

The May 18, 2022, letter also stated, "... Part of the reason for ensuring isolation and control of land areas associated with the license is the requirement for the NRC staff to perform a dose assessment before recommending license termination. This dose assessment will reflect contributions from the entire original site, including subareas previously released ...".

As stated in the preceding section on maintaining isolation and control of property that has been divested, EPM cannot provide assurance that the radiological status of those properties will not be adversely impacted by current or subsequent owners. Those properties were released for unrestricted use by the NRC; the NRC later approved the divestiture of those properties with no restrictions on its use and no requirement for EPM to maintain any control over the property.

In addition, Supplement 1 to NUREG-1757, Consolidated Decommissioning Guidance, states that the dose assessment performed before license termination should be based on a *reasonable* exposure scenario, addressing the following scenario questions:

- How does the residual radioactivity move through the environment?
- Where can humans be exposed to the environmental concentrations?
- What is the likely land use(s) in the future for these areas?
- What are the exposure group's habits that will determine exposure?

The following sections describe for each of the four properties that have been sold why it is not reasonable to include dose from divested property in a dose assessment prior to license termination.

Property West of Highway 74

Figure 5-2 shows the approximately 117-acre property that was sold in April 2015. Figure 1-2 shows that this property consists of approximately 112 acres of land that was in unaffected Subarea E, and approximately 15 acres of land that constituted Subarea J. The final status of that property was reported in the following final status survey reports:

- For Subarea E, *Final Status Survey Report for Phase I Areas*, August 1995 (ML21155A187)
- For Subarea J, Final Status Survey Report for Phase II Subarea J, September 1997 (ML20202A639)

No soil exceeding License Criteria for soil was identified in Subarea E. After removing soil from the few locations where uranium exceeded the License Criteria, residual radioactivity in Subarea J existed in only a few locations where soil contained less than ½ of the License Criteria. Those locations were in the drainage that leads to a pond in Subarea J, and the soil at those locations is likely to have been either covered by uncontaminated sediment migrating down the drainage or transported by surface water runoff to mix with less contaminated sediment in the pond located in Subarea J. Concrete slabs that had been placed in Subarea J for erosion control were surveyed and determined to comply with surface contamination limits for unrestricted release.

The NRC retained the Oak Ridge Institute for Science and Education (ORISE) to conduct a confirmatory survey for Phase I Subareas A through E. ORISE reported the results of the confirmatory survey of Subareas A through E in *Confirmatory Survey of the Phase I Unaffected Areas, Kerr-McGee Corporation, Cimarron Facility*, March 1996 (ML092680319). The confirmatory survey report concluded, "The ESSAP [Environmental Survey and Site Assessment Program] confirmatory measurements are consistent with the licensee's measurements and support the licensee's conclusion that total uranium concentrations and exposure rates within the Phase I areas satisfies NRC guidelines for release to unrestricted use."

The NRC conducted a confirmatory survey of Subarea J during a 1998 NRC inspection. NRC Inspection Report 70-925/98-02 stated, "NRC measurements confirmed that Sub-Area J soil and sediment had less than 30 pCi/g uranium."

This 117-acre property contains approximately ten acres of land in the Cimarron River floodplain on which grass can be grown for cattle feed. The property outlined in purple was purchased by Snake Creek Ranch, Inc. for cattle grazing; to date is has remained fallow. The likely future land use is fallow ground and fishing in the pond.

Southwest Quarter of Section 12

Figure 5-2 shows the approximately 140-acre property that was sold in November 2017. Figure 1-2 shows that this property was located in unaffected Subarea A. Subarea A was truly

unaffected, being uphill, upstream, and upgradient from licensed operations; it was and remains unaffected by those operations. The final status of this property was reported in *Final Status Survey Report for Phase I Areas*, August 1995 (ML21155A187).

The results of the confirmatory survey conducted by ORISE for the Phase 1 areas (which included Subarea A) are described above. Since its sale, it has been used intermittently (i.e., during only some years) for growing and harvesting grass for cattle feed.

Two Properties Containing Former Licensed Facilities

Figure 5-2 shows the approximately 24-acre property that was sold in January 2015 and the approximately 1-acre property that was sold in July 2018. Figure 1-2 shows that the 24-acre property consists of land that was in partially affected Subareas H and I, affected Subareas K and L, and small portions of unaffected Subareas A and E. The 1-acre property consists of land that was in Subarea I and a small portion of Subarea E.

As described above, Subareas A and E were verified to be unaffected; the results of the confirmatory survey conducted for the Phase 1 areas by ORISE (which included Subareas A and E) are described above.

The final status of the rest of these two properties was reported in the following five final status survey reports:

- Final Status Survey Report, Subarea H, November 1998 (ML20203M180)
- Final Status Survey Report, Subarea I, June 1999 (ML20212L572)
- Final Status Survey Report, Subarea K, February 2000 (ML20213C529)
- Final Status Survey Report for Subarea L (Subsurface), May 1996 (ML20202A535, ML20202A557, and ML20202A558)
- Final Status Survey Report for Subarea L, July 1998 (ML20205L576)

The NRC conducted a confirmatory survey of Subarea L during a 1999 NRC inspection. NRC Inspection Report 70-925/99-02 stated, "NRC measurements ... showed that the samples met the release criteria. Radiation exposure levels at Sub-Area L were less than 10 μ R/hr above background levels."

The NRC conducted a confirmatory survey of Subareas H, I, and M during a 2000 NRC inspection. NRC Inspection Report 70-925/00-01 stated, "NRC analysis results ... confirmed that these areas met the approved release criteria for BTP Option 1."

The NRC conducted a confirmatory survey of Subareas G and K during a 2001 NRC inspection. NRC Inspection Report 70-925/01-01 stated, "... confirmatory measurements were consistent with the licensee's determination that Sub-Areas K and G of the Cimarron Site meets (sic) the criteria established in NRC License SNM-928, License Condition 27 for unrestricted use."

None of the divested property should be included in a future dose assessment because they were long ago released for unrestricted use by the NRC, and the NRC later approved the divestiture of the properties with no restrictions on its use and no requirement for EPM to maintain control over them. In addition, based on the potential future use of the land, it is not reasonable to assume that a member of the public would occupy and consequently receive dose from both these properties and the current CERT property.

EPM requests NRC concurrence that divested portions of the formerly licensed site (for which the NRC approved divestiture with no institutional controls or deed restrictions) will not be included in the final dose assessment performed for license termination.

Subsurface Soil Sampling

Construction activities such as civil site work to prepare for the construction of groundwater treatment facilities, the excavation of trenches, and the installation of wells will bring subsurface soil to the surface. If any of that subsurface material contains uranium at concentrations above the License Criteria, this may impact the surficial soil that was previously sampled and analyzed to provide the data set used to demonstrate compliance with License Criteria for the release of several former Subareas. It is highly unlikely that the small quantity of soil brought to the surface during installation of wells could sufficiently impact a 100 m² area at the surface to result in exceedance of the License Criteria. However, if soil exceeding License Criteria existed where civil site work and trench excavation is present in the subsurface, the radiological status of the surficial soils could be significantly impacted.

The draft *Facility Decommissioning Plan – Rev 3* submitted for the pre-application audit stated that subsurface (greater than 1 foot in depth) soil brought to the surface during decommissioning activities would be subject to radiological surveys. In a letter dated January 31, 2022, NRC staff requested information showing that radiological scans can be used to compare with License Criteria. The scanning proposed in the draft D-Plan was not intended to compare soil with the License Criteria, but to identify "hot spots" should waste or debris containing licensed material be encountered during excavation. EPM asserted that the collection of soil samples for laboratory analysis should not be required for areas that had been released from the license.

In a May 18, 2022, letter, NRC staff stated that the NRC "must have reasonable assurance that the licensee's actions after performing any release surveys have not changed the radiological status of land areas associated with the license. ... As CERT's license is not expected to be terminated for many years in the future, the NRC staff considers it more efficient to perform reasonable surveys during groundwater remediation efforts."

EPM accepts the NRC staff's assertion that radiological surveys should be conducted to demonstrate that compliance with License Criteria has not been impacted by decommissioning activities. The purified uranium received at the Cimarron site does not contain enough of the

daughter isotopes to enable hand-held survey instruments to be used for comparison with License Criteria. EPM performed an investigation at the site which demonstrated that uranium concentrations cannot be correlated to scanning/survey measurements at concentrations near the License Criteria for soil. The collection and laboratory analysis of soil samples is required to demonstrate compliance with License Criteria.

The D-Plan *will* include plans to collect samples of subsurface soil that is brought to the surface during decommissioning activities for laboratory analysis. However, as explained above, the CERT has no control over the approximately 300 acres of property which have been released from the license and subsequently divested. Consequently, neither radiological surveys nor soil sample collection for analysis will be performed if subsurface soil is brought to the surface in those properties.

EPM requests NRC concurrence that no radiological surveys, sampling, or analysis of subsurface soil will be required for subsurface soil brought to the surface within the divested properties.

If you have any questions or desire clarification, please call me at (405) 641-5152.

Sincerely,

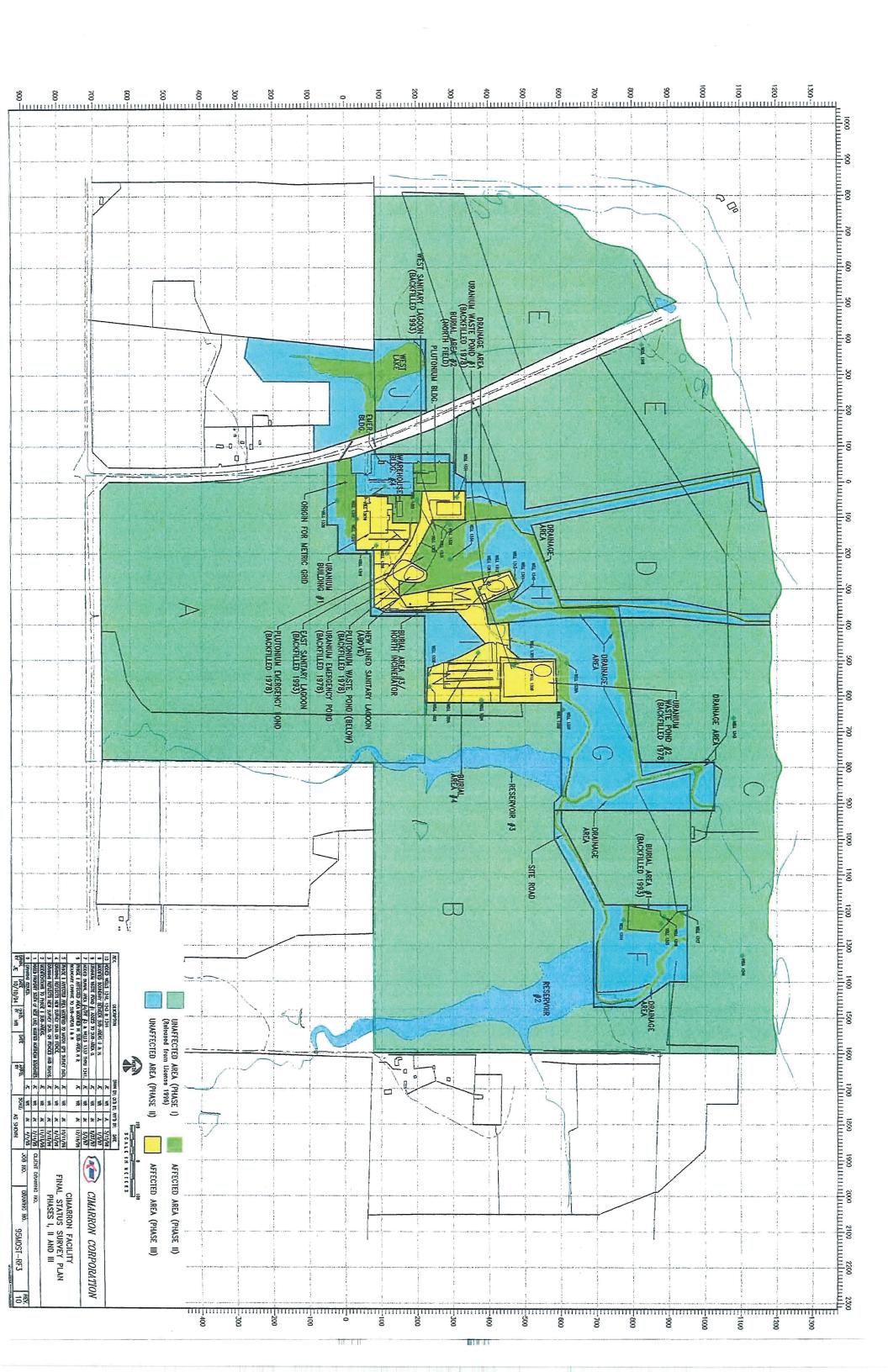
Jeff Lux, P.E. Project Manager

cc: Michael Broderick, Oklahoma Department of Environmental Quality

Robert Evans, NRC Region IV NRC Public Document Room

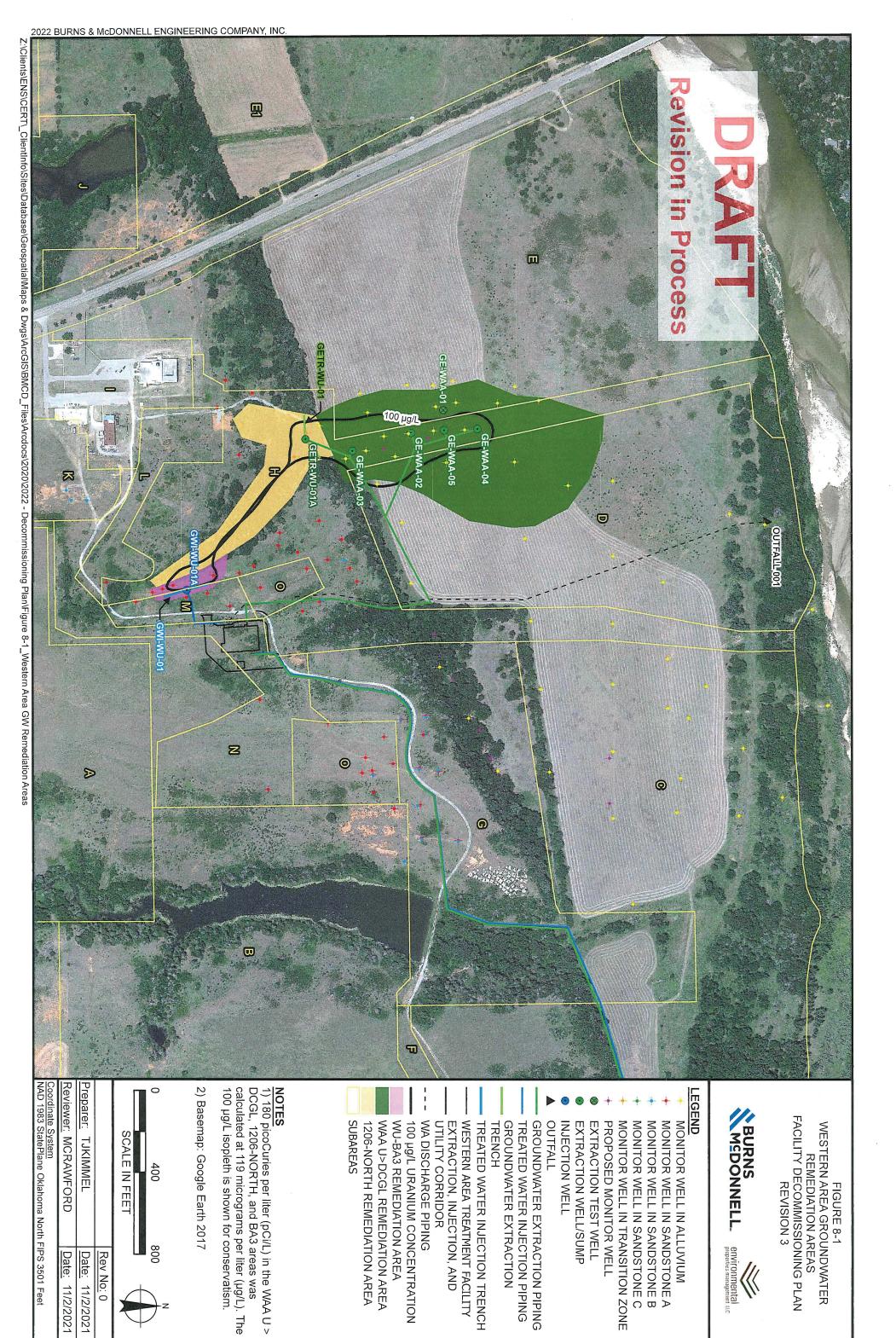
DEQ VCP Repository

| | | ATTACHMENT 1 |
|-------------------|-----------------------|---------------------------------|
| DRAWING 95MOST-RF | 3, "FINAL STATUS SURV | EY PLAN, PHASES I, II, and III" |
| | | |



ATTACHMENT 2 DRAFT FIGURES BEING PREPARED FOR FACILTIY DECOMMISSIONING PLAN – REV 3





- MONITOR WELL IN ALLUVIUM MONITOR WELL IN SANDSTONE B
- MONITOR WELL IN SANDSTONE C MONITOR WELL IN TRANSITION ZONE
- PROPOSED MONITOR WELL
- EXTRACTION WELL/SUMP
- INJECTION WELL(INSTALLED)
- 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 **BA1-C REMEDIATION AREA SUBAREAS**

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

100 200 SCALE IN FEET



FIGURE 8-2 BURIAL AREA #1 GROUNDWATER **REMEDIATION AREAS** FACILITY DECOMMISSIONING PLAN **REVISION 3**





| | Rev No: 0 |
|---------------------------|------------------------|
| <u>Preparer:</u> TJKIMMEL | <u>Date:</u> 11/2/2021 |
| Reviewer: MCRAWFORD | <u>Date:</u> 11/2/2021 |
| | |

<u>Coordinate System</u> NAD 1983 StatePlane Oklahoma North FIPS 3501 Feet