Communities for Clean Water

June 13, 2023

By email to: emla-nepa@em.doe.gov

Attn: NEPA Document Manager
U.S. DOE Environmental Management
Los Alamos Field Office
1200 Trinity Drive, Suite 400
Los Alamos, NM 87544

Re: Public Comments about the Scope of the Hexavalent Chromium Interim Measure Environmental Assessment

Dear NEPA Document Manager:

Communities for Clean Water (CCW) appreciate the extension of time to Tuesday, June 13, 2023 to provide informed comments about the scope of the Hexavalent Chromium Interim Measure Environmental Assessment (EA) due to lack of access to the internet last week. Please consider our substantive comments timely for consideration in the draft EA, and the CCW recommended Environmental Impact Statement (EIS).

CCW is a coalition of Indigenous, Land-Based, and conservation organizations who work together to safeguard clean water in the Rio Grande watershed. Our mission is to ensure that community waters impacted by pollution from Los Alamos National Laboratory (LANL) are kept safe for drinking, agriculture, sacred ceremonies, and a sustainable future.

Our growing coalition includes **Amigos Bravos**, **Breath of My Heart Birthplace**, **Concerned Citizens for Nuclear Safety**, **Honor Our Pueblo Existence**, **New Mexico Acequia Association**, **Partnership for Earth Spirituality**, and **Tewa Women United**.

CCW brings together the vast expertise and commitment of widely respected and well-tested advocacy groups from culturally diverse backgrounds. Collectively, we represent the only community-based coalition in Northern New Mexico that is monitoring toxic threats from LANL and driving public policy changes informed by scientific evidence. https://www.ccwnewmexico.org/

CCW comments identify potential alternatives, information and analyses relevant to the National Environmental Policy Act (NEPA) evaluation.

Definition of LANL

CCW uses the term "LANL" to describe Los Alamos National Laboratory (LANL), operated by the U.S. Department of Energy (DOE), its semi-autonomous agency, the National Nuclear Security Administration (NNSA), and its contractor, Triad National Security LLC (Triad). and the DOE Office of Environmental Management Los Alamos Field Office (EM-LA) and its contractor, N3B Los Alamos LLC, and all their subcontractors.

An Environmental Impact Statement is Required Now

LANL has proposed an EA for the CrVI plume. An EA is not needed. An EIS is. An EA will not address the complex technical and policy issues for the CrVI plume, including the movement of contamination in the regional drinking water aquifer and the EPA-designated Española Basin Sole Source Aquifer. CCW supports LANL preparing an EIS now for the CrVI plume and its impacts to the regional drinking water aquifer and the EPA-designated Española Basin Sole Source Aquifer.

EA Expires at the end of 2023?

CCW understands from conversations with regulators that the EA expires at the end of 2023. We searched for a source of this statement, but were unable to locate one. Please include cites to the document and the statement in the draft EA.

Location of Administrative Records?

Where is the location of the Administrative Record (AR) for the NEPA analysis? Where are the ARs for New Mexico Environment Department (NMED) groundwater discharge permits DP-1793 (land application) and DP-1835 (extraction and injection wells)? Where is the AR(s) for the hexavalent chromium plume that has been growing for nearly 20 years? Where is the AR for the CrVI interim measures? Please include cites to the ARs administered by the Permittees and the New Mexico Environment Department (NMED) in this matter.

It's Premature to Declare a Final Remedy Because the Nature and Extent of the Cr VI Plume Has Yet to be Determined

CCW objects to the assumption that the EA/EIS will include the Final Remedy. As detailed in the May 31, 2023 NMED correspondence to Mr. Arturo Duran, of the Los Alamos Field Office, LANL has not identified the nature and extent of the hexavalent chromium (Cr VI) plume.[1] It is premature to identify the Final Remedy without first determining the nature and extent of the CrVI plume. CCW objects to inclusion of a Final Remedy in the EA/EIS until the nature and extent is established. Please delete "final remedy" language from the materials supporting the preparation of this EA/EIS.

CCW cites the May 31, 2023 *Notice of Disapproval: Chromium Interim Measures and Characterization Work Plan,* HWB-LANL-22-076:

> **General Comment No. 1**
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> After the submission of the Interim Measures and Characterization Work Plan (Work Plan) on September 29, 2022, the NMED Hazardous Waste Bureau (HWB) directed DOE to **not restart operations** at CrEX-1, CrEX-2, CrEX-3, CrIN-1, CrIN-2, and CrIN-3, that had been offline due to electrical issues, until further notice via an email sent and received on November 21, 2022. Additionally, NMED Ground Water Quality Bureau (GWQB) directed DOE in a letter, *Corrective Action Plan Response and Further Action Required, LANL Underground Injection Control Wells,* DP-1835, to cease all injections authorized under Discharge Permit 1835 (DP-1835) by April 1, 2023. Due to this change in regulatory directive after the submission of the Work Plan, additional revisions to the Work Plan are required. p. 1.
>
> **General Comment No. 2**
>
> Section 4.1, Objective 1: provide Interim measures to Prevent Migration of the Plume Beyond the Laboratory Boundary, of the Work Plan must be revised to include a discussion of alternative injection scenarios (i.e., shallow infiltration gallery, conversion of existing well outside the plume to an injection well, constructing a new injection well outside the plume boundary, etc.) The Work Plan must also be revised to include a proposal from DOE for an investigation activity that will achieve the regulatory requirement to implement an alternative injection well location for the treated water. Id.

[1] May 31, 2023 New Mexico Environment Department correspondence to Los Alamos National Laboratory re: *Review, Annual Progress Report on Chromium Plume Control Interim Measure Performance, July 2021 through March 2022,* EMID-702741, and May 31, 2023 New Mexico Environment Department correspondence to Los Alamos National Laboratory re: *Notice of Disapproval, Chromium Interim Measures and Characterization Work Plan* (EM2022-0582)*,* EMID-702742.

And

22. Section 4.2.1, Plume Horizontal and Vertical Extent, p. 16

DOE Statement: "The exact locations of the monitoring wells will be established in collaboration with NMED and will be dependent on local topography, cultural site locations, and infrastructure constraints."

NMED Comment: Revise the test to include a statement that additional monitoring wells may be required after the completion of the Work Plan activities if the extent of contamination has not yet been defined. p. 8.

These are but three recent examples of the complexity of the CrVI plume that require LANL to bypass the EA and prepare an EIS.

Groundwater Discharge Permits DP-1793 and DP-1835 Require Chromium Standards Equal to Less Than (<) 90 Percent of Numeric Standards of 20.6.2.3103 NMAC

CCW participated in the extensive negotiations and public hearings for the five-year groundwater discharge permits DP-1793 (land application of treated waters) and DP-1835 (six Class V underground injection control (UIC) extraction and injection wells). We note that the chromium standards required in the permits are 45 parts per billion (ppb). The 20.6.2.3103 NMAC standard is 50 ppb. At the time, the Permittees were confident that the CrVI investigation soon would be resolved. We provide cites to the two groundwater discharge permits below:

DP-1793 (Effective date: July 27, 2015; term ended July 27, 2020) for land application of treated waters. On page 1 of the final permit, it requires:

> Prior to discharge, all groundwater will be treated to achieve standards equal to less than (<) 90% of the numeric standards of 20.6.2.3103 NMAC and <90% of the numeric standards established for tap water in Table A-1 for constituents not listed in 20.6.2.3103 NMAC. https://www.env.nm.gov/wp-content/uploads/sites/12/2016/05/DP1793-Permit-07-27-2015.pdf

DP-1835 (Effective date: August 31, 2016; it may have expired August 31, 2021 or will expire on August 31, 2023) for the extraction and injection wells. On page 1 (AR 37682) of the final permit, it requires:

> The groundwater to be treated and discharged may contain water contaminants which may be elevated above the standards of Section 20.6.2.3103 NMAC and/or toxic pollutants as defined in Subsection WW of 20.6.2.7 NMAC. Prior to discharge, all groundwater will be treated to achieve standards less than (<) 90% of the numeric standards of 20.6.2.3103

> NMAC and <90% of the numeric standards established for tap water in Table A-1 for constituents not listed in 20.6.2.3103 NMAC. [*See also* § IV. Conditions, No. 5, AR 37686] https://hwbdocuments.env.nm.gov/Los%20Alamos%20National%20Labs/TA%2003/37680.pdf

The EA/EIS must address the DP-1793 and DP-1835 permit conditions that require the treated waters meet a chromium standard of less than (<) the 20.6.2.3103 numeric standard of 50 ppb. The permitted standard is 45 ppb. All plume maps must reflect the plume boundary of 45 ppb and not 50 ppb.

Status of Renewal of DP-1793 and DP-1835

CCW requests that the EA/EIS include information about when the administrative processes for renewal of these two NMED permits would begin.

Status of LANL and Los Alamos County Applications to the Office of the State Engineer for a Permit to Change an Existing Water Right in Support of the Chromium Plume Interim Measure and Chromium Plume Center Characterization

The status of two LANL and Los Alamos County applications to the Office of the State Engineer to support the hexavalent chromium plume interim measure must be discussed in the draft EA/EIS. These applications are:

1. A May 12, 2016 LANL and Los Alamos County application (Non 72-12-1) to the Office of the State Engineer for a permit to change the existing water right referred to above to use alternative diversion measurement for five piezometers. The request states:

> Due to the low pumping rates through flexible tubing bundles, it is requested that discharge volumes from sampling and extended pumping from the five piezometers be measured, utilizing an arithmetic method using purge rate and time to calculate the volume of water purged. Id., p. 1.

Did the Office of the State Engineer approve the requested May 12, 2016 change? If so, were any changes made to the request? CCW is requesting information about the status because we have filed requests for public information to which a response has not been received.

2. An application to move over 600 acre feet per year (afy) of groundwater to support the hexavalent chromium plume interim measure was submitted to the Office of the State Engineer. What is the status of the application?

Answers to these questions will provide information to frame the alternatives for an EA or EIS.

CCW supports the June 2023 comments submitted by the Buckman Direct Diversion Board about the scope of the EA

CCW supports the June 2023 Buckman Direct Diversion Board comments, with our modifications, including:

- The need for the EA/EIS to analyze the connection between surface and groundwater with a focus on whether and how Interim Measures pumping of the extraction wells could deplete Rio Grande surface flows, which are a present and future use of the resource for drinking water. All analyses must include the potential cumulative impacts and how those impacts may affect off-site resources, such as the Rio Grande and the springs along the Rio Grande.
- Analyses of the method of offset or identifying consumptive use. Upstream depletions of the BDD Project intake that are not offset may directly affect the BDD's ability to provide water to its customers.
- Analyses of whether the Interim Measure under the 2016 NMED Order on Consent for LANL is an adequate mechanism to assure that the CrVI plume is sufficiently characterized in a timely manner. The analyses must include remediation and protection for present and future use of potentially affected resources, including the Rio Grande and the springs along the Rio Grande.
- The need for the EA/EIS to clearly define, explain and provide adequate supportive documentation of the four options under Alternative 1: the "Adaptive Site Management."
- The No Action Alternative should be that, no action. It appears the No Action Alternative to "Continue Interim Measures and Plume Characterization" is pumping and extracting up to 280 gallons per minute under the Interim Measures as was done in late 2022.
- There are four options under the Alternative 1: Adaptive Site Management. Each option must be analyzed for the timeframes to complete the options.
- The four options are:
    - Option 1 ("Expanded Pump and Treat with Expanded Injection") must be fully analyzed and explained to the public;
    - Option 2 ("Expanded Pump and Treat with Land Application") must be analyzed and fully explained to the public;
    - Option 3 ("Expanded Pump and Treat with Injection and/or Land Application and in-situ Treatment") must be fully analyzed and explained to the public; and
    - Option 4 ("Monitored Natural Attenuation") must be fully analyzed and explained to the public.

- The need to clearly delineate the land application locations, volumes and times under DP-1793 and Option 2 ("Land Application").
- To ensure adequate public outreach, LANL must at a minimum:
    - mail out notices of the comment period to all people on the NMED Facility Mailing List for LANL,
    - post the notices to the LANL Electronic Public Reading Room,
    - in consultation with communities, host in person and virtual community meetings,
    - place informative ads in local and statewide newspapers, and
    - produce paid broadcasts on local radio stations during drive times. Many times these broadcasts are done in the middle of the night because they are not paid broadcasts to the detriment of the public.

Protection of the Regional Drinking Water Aquifer and the EPA Designated Española Basin Sole Source Aquifer

The draft EA must provide analyses and answers to the following questions:

- Has LANL created an interactive, publicly available model demonstrating in real-time the pumping effects of the extraction wells on the regional drinking water aquifer?
- Has LANL created an interactive, publicly available model demonstrating in real-time the pumping effects of the extraction wells on the EPA designated Española Basin Sole Source Aquifer?
- Has LANL created an interactive, publicly available model demonstrating in real-time the effects of the injection wells on the regional drinking water aquifer?
- Has LANL created an interactive, publicly available model demonstrating in real-time the effects of the injection wells on the EPA designated Española Basin Sole Source Aquifer?

If not, CCW urges LANL to create an interactive, publicly available model demonstrating in real-time the pumping effects of the extraction wells and the effects of the injection wells to the regional drinking water aquifer and the EPA-designated Española Basin Sole Source Aquifer.

See Figure 2.31 *Groundwater Elevation Map* for the changing elevations of the plume in the regional drinking water aquifer due to extractions and injections. *See N3B Submittal of the Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer under Discharge Permit 1835, Calendar Year 2023 Quarter 1 (Jan. 1 to March 31, 2023), Class V Underground Injection Control Wells,* June 5, 2023, EM2023-0338.

See also Table 2.3-2 *Groundwater Monitoring Wells Analytical Results Summary Table – CY 2023 Quarter 1, DP-1835.* Id.

In 2023, CrVI levels in monitoring wells have been increasing and decreasing. For example:

R-62	1/12/23	326 ug/L
R-62	1/12/23	342 ug/L
R-62	1/12/23	344 ug/L
R-70 S2	1/9/23	155 ug/L
R-70 S2	2/1/23	148 ug/L
R-70 S2	3/7/23	140 ug/L

In 2020 (during the start of the pandemic) LANL switched from the Thin-Plate Spline (TPS) interpolation method [Id., p. 26] to the Bayesian Canonical Correlation Regression (BCCR) (Carson 2020) method. In calendar year 2023 Quarter 1 LANL reverted back to TPS. These types of changes require the public to ask questions. LANL states:

> This change was made because of the greater representation of TPS in the scientific literature.
>
> The primary difference between the two methods is the incorporation of prior information as an initial estimate of water levels. Id.

To understand the difference between the two models, to create a consistent source of data, and to alleviate public concern about the switch back and forth between models, NMED must require LANL to run the data from 2020 to 2023 in the TPS interpolation method.

We learned in the First Quarterly Report that nearly 18 million gallons (approximately 54 afy) were extracted from the regional drinking water aquifer. Id., Table 2.13-1, p. 34. And that nearly 18 million gallons (approximately 54 afy) were injected into the regional drinking water aquifer. Id., Table 2.12-1, p. 30.

Use MODFLOW Modeling Going Forward – Not FEHM Modeling

CCW objects to the use of the LANL's Finite Element Heat and Mass Transfer Code (FEHM) for the CrVI plume. While FEHM is used throughout the DOE complex, it does not efficiently facilitate communities' work with technical experts. Use of FEHM requires these experts to learn FEHM, whereas technical experts around the world are familiar with USGS's modular hydrologic model, MODFLOW. MODFLOW is the international standard for simulating and predicting groundwater conditions and groundwater/surface water interactions.

Detections of CrVI exceedances have been ongoing since 2004 – nearly 20 years. It is time for NMED to order LANL to use MODFLOW across the LANL site generally, and for the chromium plume specifically. We cannot waste any more time to stop migration of the CrVI plume towards drinking water supplies and the Rio Grande.

All Future Wells Must be Single Screen Monitoring Wells

LANL has been struggling with installing multi-screen monitoring wells that do not capture data about contamination in the regional drinking water aquifer. They are expensive and do not provided the data to address the movement of the CrVI in the regional drinking water supply. It is time for NMED to order LANL to install only single screen monitoring wells in order to provide reliable and accurate data to address the CrVI plume migration. Having clean data to make informed decision-making will offset the extra cost for single screen wells.

Comments about the May 8 – 9, 2023 PowerPoint Presentation, *Welcome to the Public Scoping Meeting for the [Hexavalent] Chromium Interim Measures [delete: and Final Remedy] Environmental Assessment*

Slide 8 *Purpose and Need* states:

> The primary objective of the IM is to control downgradient migration of the hexavalent chromium plume, with the benefit of removing some chromium mass from the regional aquifer.

Please define in the draft EA/EIS the following terms in the NEPA document: "downgradient migration" and "removing some." Does "downgradient" mean horizontal migration? Vertical migration? Or both? Does "some" mean all? A certain percentage? If so, what is the range of the percentage?

Slide 9 does not include links to the December 2015 documents that provide the bases for the proposed "renewal" of the EA. The documents are: *Environmental Assessment for [Hexavalent] Chromium Plume Control Interim Measure and Plume-Center Characterization, LANL, Los Alamos, New Mexico* (DOE/EA-2005, December 2015) and *Finding of No Significant Impact* (FONSI, December 2015). Links to those documents would have assisted the public in providing informed public comments.

Slide 12 provides the names of EM-LA and Contractor Representatives, but does not provide contact information for them, including email addresses and phone numbers.

Conclusion

CCW supports the preparation of an environmental impact statement now for the CrVI plume to address its impacts to the regional drinking water aquifer and the EPA-designated Española Basin Sole Source Aquifer.

Please contact Joni Arends, of Concerned Citizens for Nuclear Safety, with any questions or concerns about these comments.

Sincerely,

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