APPENDIX G

NMED COMMENTS ON FINAL DECOMMISSIONING PLAN SUBMITTED JANUARY 31, 2025 & LICENSEE RESPONSES

From: Diaz, Victor, ENV
To: Ron Cardarelli; Bingaman, Patrick, ENV; Fitch, Stanley, ENV; Don Flahardy; John McTigue
Cc: Paladugu, Srikanth, ENV; Bicknell, Robert, ENV; Fitch, Stanley, ENV; Diaz, Victor, ENV
Subject: RE: [EXTERNAL] Fwd: Request of information
Date: Wednesday, February 26, 2025 12:29:13 PM

Good afternoon, Ron,

Thank you for the PDFs. The Bureau has additional questions:

- What make and model, or type, of rig will be used to further auger the HRW well?
- What make and model, or type, of auger bits will be used to further auger the HRW well?
- It is noted in the DP that qualified contractors will be used on the project. What are the minimum sets of credentials to be required for the contractor and their equipment operators who further auger the HRW well?
- It will be expected by RCB that the augering company will have demonstrable experience augering radioactive and hazardous constituents as part of environmental remediation. Will this be a requirement in their contract with Thermo/CN?
- What techniques will be used to prevent scattering or slinging of the cesium-137 contaminants by augering?
- What augering techniques will be used to ensure that all or virtually all of the cesium-137 contaminants will be captured?

Please let me know if you have any questions or concerns.

Sincerely,

Victor

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May 2, 2025

Dr. Srikanth Paladugu
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525 Camino de los Marquez, Suite 1A
Santa Fe, NM 87505

Re: Final Decommissioning Plan
Response to NMED Comments Issued February 26, 2025
Thermo Eberline LLC, License No. SO067-36
5981 Airport Road Facility
Santa Fe, New Mexico

Dear Dr. Paladugu,

In response to our video conference meeting on Monday April 28, 2025, Thermo Eberline LLC (Company/Licensee) appreciates the opportunity to respond in detail to the New Mexico Environment Department's (NMED) initial comments of February 26, 2025, issued on the Final Decommissioning Plan (DP) submitted January 31, 2025. Where appropriate, proposed revisions to the Final DP are outlined (in *italics*) with reference to insertion into the Final DP. CN Associates, Inc. (CN) and the Licensee look forward to discussing these responses and reaching consensus on necessary revisions to the Final DP on future video conference meetings to facilitate completion of the Final DP.

NMED comments (**in bold**) received February 26, 2025, Licensee responses and proposed revisions to the Final DP are outlined below:

NMED Comment 1: What make and model, or type, of rig will be used to further auger the HRW well?

Licensee Response 1: The make and model of the drill rig to be used to facilitate the removal of Cs-137 impacted soil remaining from the former High Range Well (HRW) will be determined based on CN's selection of an experienced, qualified drilling contractor that possesses the equipment necessary to meet the objectives of the work. CN has identified several qualified contractors but cannot determine the specific rig make and model until a contractor is selected and contracted which in turn requires that Final DP be near approval and the scope of work, schedule, contractor and equipment availability are firmly established. The type of rig preferred for the work is a low profile auger rig typically used for caisson and foundation work, that can work within a restricted overhead clearance of 14 feet, can advance large diameter augers of 2 to 4 feet in diameter and is able to drill to depths of at least 30 feet below ground surface.

NMED Comment 2:What make and model, or type, of auger bits will be used to further auger the HRW well?

Licensee Response 2: Please see response 1 above regarding the make and model or type of auger bits. The type of auger bit preferred will be a 2 to 4 foot diameter bit. The type of auger and rig preferred will be similar to that utilized during soil removal work conducted at the HRW location in 2012 and referenced in the report entitled, "*Soil Remediation Report, Removal of Cs-137 Impacted Soil"* dated January 17, 2013 submitted to Mr. Michael Ortiz, Radiation Control Bureau, by The Isosceles Group and shown in the photographs included in Appendix B. Photographs from that report are excerpted below. That rig utilized a 2-foot diameter auger. A similar but slightly larger diameter auger (3 foot) would be preferable for soil removal work proposed under site decommissioning.

10. Bucket Auger Rig Set-up for Deep Soil Column Removal

11. Auger Soil Removal and Field Screening

NMED Comment 3: It is noted in the DP that qualified contractors will be used on the project. What are the minimum sets of credentials to be required for the contractor and their equipment operators who further auger the HRW well?

Licensee Response 3: Section 8.3 Decommissioning Management Positions and Qualifications of the DP, Subcontractor Project Manager (SPM), Page 87 indicates:

"*The SPM will hold a degree in a science or engineering field (or have equivalent knowledge) and will have a minimum five year of experience in environmental site remediation, at least five years of which will be in a supervisory or management role.*"

The next section, Subcontractor Field Superintendent (SFS) indicates:

"The SFS will have a minimum five years of experience in the role the subcontractor has been engaged to fulfill."

In terms of establishing the appropriate qualifications of equipment operators, CN believes that decisions regarding the credentials of the equipment operators must be made by the drilling company since they have knowledge and experience of their equipment and their operators needed to render those decisions.

NMED Comment 4: It will be expected by RCB that the augering company will have demonstrable experience augering radioactive and hazardous constituents as part of environmental remediation. Will this be a requirement in their contract with Thermo/CN?

Licensee Response 4: No, the selected contractor may not be required to have experience augering radioactive and hazardous constituents as part of environmental remediation. CN will select the drilling contractor based on the suitability of the equipment for the job and the contractors experience in operating the drill rig and advancing the augers under similar conditions. It is the drilling contractor's job to provide the means and methods to remove the soil within the targeted zones, within the constraints of site conditions and in compliance with radiation protection, monitoring and containment protocols to be stipulated and enacted by CN.

Site decommissioning efforts commonly require the engagement of numerous contractors each with expertise within their area of practice. Consistent with NUREG guidance, DP Sections 8 through 12 are dedicated to developing a management plan for decommissioning work that specifies the roles and responsibilities of the team members to ensure that those contractors/individuals with the appropriate expertise are engaged in the decision-making and execution of work within the limits of their training and expertise. This is the basis of much of the content and structure of the Final DP as required by NUREG-1757. Radiation protection, procedures for monitoring, oversight of contractors and decision-making regarding

radiation safety and waste management will be made by CN's RSO or his authorized onsite delegate. Drillers are experts at drilling. Demolition contractors are experts in demolition. A large component of the DP is dedicated to stipulating a framework for coordination and decision-making that integrates the expertise of multiple disciplines to ensure that decommissioning work is executed in a safe and reliable manner.

NMED Comment 5: What techniques will be used to prevent scattering or slinging of the cesium-137 contaminants by augering?

Licensee Response 5: Please be advised that the augering method of soil removal does not "scatter or sling" Cs-137 contaminated soil. Referring to the photographs on the prior page, the auger is advanced slowly within the subsurface soil to place soil within the auger flight. Once filled with soil in the subsurface, the auger is raised above ground surface within a contamination control area that will also be located within negative pressure containment. Soils on the auger will be subject to radioactive surveying, and collection of samples for added monitoring and transferred into a lined roll-off container within the containment zone. Section 9.4 Contamination Control Program outlines site-specific procedures for contamination control during site decommissioning work. Section 7.3 Phase 3 - Impacted Soil Removal & Post Removal Soil & Groundwater Testing describes added procedures regarding contamination control and monitoring during Cs-137 soil removal work.

NMED Comment 6: What augering techniques will be used to ensure that all or virtually all of the cesium-137 contaminants will be captured?

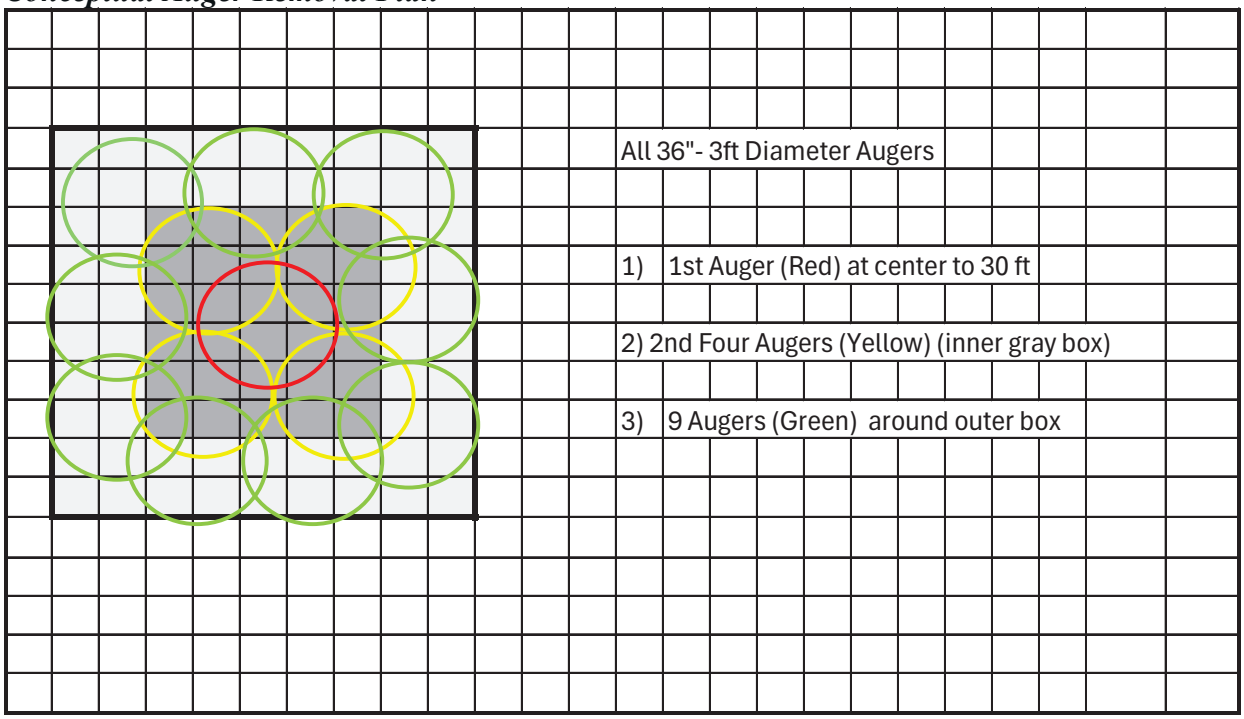
Licensee Response 6: Section 7.3.2 Remediation Techniques and supporting documentation indicate that the in-place volume of Cs-137 impacted soil is less than 20 cubic yards (cyds). To ensure "all or virtually all" Cs-137 impact to soil from the HRW is removed, a targeted volume of soil 6 to 7 times greater than and surrounding the impacted zone will be removed (estimated at 140 to 150 cyds). This removal approach is commonly referred to as "over-excavation" and essentially involves removal of a buffer of clean soil around the impacted zone to account for unavoidable mixing that will occur during the removal process in an effort to meet cleanup objectives.

Below is a more detailed description of the Cs-137 removal process by augering that could be incorporated into Section 7.3.2 Remediation Techniques for Phase 3 decommissioning work, if approved by NMED:

The extent of Cs-137 impacted soil has been conservatively estimated to be bound within an area 5 by 6 feet extending to 24 feet in depth. The actual volume of Cs-137 impacted soil within this area is estimated at less than 20 cubic yards. Removal by over-excavation using soil augers is demonstrated in the following conceptual approach. The actual approach to be employed will be a function of the actual equipment employed and may require modification. Assuming a three-foot diameter auger is used, the first boring (red) would be advanced at the

center of the former HRW to a target depth of 30 feet or less (up to six feet beyond the 24 foot estimated extent to an underlying clay). Upon completion of the boring and monitoring the hole would be backfilled with clean soil. The next four auger borings (yellow) would be advanced to the same target depth at the locations indicated to remove both residual impacted and clean backfilled soil. Each boring would be backfilled with clean soil before moving to the next location. Upon completion of the set of four yellow auger holes, a final set of nine auger holes would be advanced around the perimeter of the four yellow holes. In total, 15 auger borings each 3 feet in diameter would be advanced over a 90ft^2 area. This approach results in over-excavation beyond the limits of impact by an estimated three feet in four directions and up to six feet vertically. The total estimate volume of impacted soil to be removed including expansion is estimated at 150 cubic yards (note the DP indicates 120 and this should be updated).

Conceptual Auger Removal Plan



Please note that removal of "all or virtually all" Cs-137 from soil is not reasonably feasible, nor is it required. The highest regulatory standard for cleanup is "As Low As Is Reasonably Achievable" or ALARA which as outlined in Section 6 is removal of Cs-137 impacted soil to achieve background. In the event that achievement of background is not feasible, the Licensee will work to remove Cs-137-impacted soil to achieve a DCGL of 6.6 pCi/g, which as outlined in Section 5 of the DP would meet a TEDE of 15 mrem/yr. So, while the Licensee cannot commit to removal of "all or virtually all" of the Cs-137 located in the soil, the Licensee has committed to removal of Cs-137 to background if feasible, and if not, to meeting a higher level of cleanup than required under NMAC.

We greatly appreciate NMED's assistance in completing the DP. We hope that NMED finds the above information responsive to NMED comments and we look forward to discussing the comments, responses and revision of the Final DP during our next meeting scheduled for May 6, 2025 at 1:00pm Mountain.

Sincerely,

Ron Cardarelli

Ron Cardarelli, RSO
CN Associates, Inc.

Cc: Victor Diaz/Radiation Control Bureau
Rick Podlaski/Thermo Fisher Scientific
Tatiana Engelmann, Esq./NMED
Sarah M. Stevenson, Esq., Modrall Sperling