



State of Ohio Environmental Protection Agency

STREET ADDRESS:

Central District Office

MAILING ADDRESS:

Lazarus Government Center
50 W. Town St., Suite 700
Columbus, Ohio 43215

TELE: (614) 728-3778 FAX: (614) 728-3898
www.epa.state.oh.us

P.O. Box 1049
Columbus, OH 43216-1049

CERTIFIED MAIL #91 7108 2133 3932 4449 3732

September 28, 2010

Al Quagliotti, P.G.
Tetra Tech, NUS, Inc.
Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

**Re: Review of Pre-Investigation Evaluation Report
Former Kilgore Manufacturing Company Property
Westerville, Delaware County, Ohio
Project ID #121001187012**

Dear Mr. Quagliotti:

On August 10, 2010, the Ohio Environmental Protection Agency (Ohio EPA) received the *Pre-Investigation Evaluation Report* (PER) for the former Kilgore Manufacturing Company property located at 600 North Spring Street, Westerville, Delaware County, Ohio. The PER was prepared by Tetra Tech, NUS Inc. on behalf of Otterbein College (now Otterbein University) following Section VIII. *Remedial Investigation and Feasibility Study* (RI/FS) of draft consent decree (the most current version is August 3, 2010) for implementation of the RI/FS. (Although the consent decree remains in draft form, a revised version should not affect our comments on the PER.)

Ohio EPA has completed its review of the PER and provides the following comments to be addressed in the appropriate RI/FS work plan documents in conformance with the consent decree, the RI/FS statement of work, applicable state and federal law, and the guidance documents listed in an attachment to the consent decree.

General Comments

A. OAC 3745-27-13

Include a brief description of the Ohio Administrative Code (OAC) 3745-27-13 authorization for disturbances where hazardous or solid waste facility was operated for Areas of Concern (AOC) 3 and AOC 8.

http://www.epa.ohio.gov/portals/34/document/guidance/gd_631.pdf

http://www.epa.ohio.gov/portals/34/document/currentrule/3745-27-13_current.pdf

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

B. VAP Standards

Voluntary Action Program (VAP) unrestricted use standards including the generic direct contact standards for residential or unrestricted use are not applicable to remedial response sites. See General Comments G and I for further information on screening levels. For future work, plans and RI/FS documentation, consider tabulating the available data in comparison to screening levels described below, using a standardized reporting format in accordance with the *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments, Final, EPA/540/R-97/033, Publication 9285.7, NTIS PB97-963305, Office of Emergency and Remedial Response, Washington, D.C.)* (U.S. EPA, 2001).
http://www.epa.gov/superfund/programs/reforms/docs/vv_RAGsD.pdf

C. ARARs

See the Ohio EPA Division of Emergency and Remedial Response (DERR) guidance titled *Use of Applicable or Relevant and Appropriate Requirements in the Ohio EPA Remedial Response Program* and the list available through the agency web site at <http://www.epa.ohio.gov/portals/30/rules/RR-034LIST.pdf>. See General Comment G, MCLS, and Specific Comment Section 7.3., Federal, ARARS, State Requirements, and TBCs.

D. Background

For screening purposes, the background sampling should be performed in a reference location pre-approved by Ohio EPA and in media of similar type and in a horizon as those evaluated at the site. The background level should be calculated according to the method provided in Ohio EPA DERR *Use of Background for Remedial Response Sites* (Ohio EPA DERR, 2009) as point values equal to upper quartile plus 1.5 times (interquartile range) of the data set.
<http://www.epa.ohio.gov/portals/30/rules/bgground%20guidance.pdf>

E. CSM

All potentially exposed receptors including residential, commercial, industrial and recreational should be included in the Conceptual Site Model (CSM). It may be cost-effective to determine the intended future site use prior to risk assessment, applying the process described in *Reuse Assessment: A Tool to Implement the Superfund Land Use Directive* (OSWER 9355.7-06P) (U.S. EPA, 2001).
<http://www.epa.gov/superfund/policy/pdfs/reusefinal.pdf>

F. Ground Water Guidance

The Remedial Response Program relies on the *Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring* (TGM).
<http://www.epa.ohio.gov/ddagw/tgmweb.aspx>

G. MCLs

Ohio EPA DERR Remedial Response Program does not use the maximum contaminant levels (MCLs) for screening purposes; rather, the approach customarily followed by the Remedial Response Program is to determine a cumulative risk for the site. The cumulative risk are not to exceed our risk goal of hazard quotient (HQ) of one and lifetime cancer risk (LCR) of 1E-05. See comments on U.S. EPA's Regional Screening Levels (RSLs) in General Comment I. Comparison to RSLs or ecological screening levels is useful to identify early data needs; however, the object of the remedial investigation is to collect and evaluate data of sufficient quality to support a baseline risk assessment to determine the need for remedial action and to select feasible remedial options. MCLs may be used as Applicable or Relevant and Appropriate Requirements (ARARs) at the final phase of the RI/FS in the section of remediation goals.

<http://www.epa.ohio.gov/portals/30/rules/RR-038.pdf>

<http://www.epa.ohio.gov/portals/30/rules/screening.pdf>

H. MEC

The munitions and explosives of concern (MEC) left over at the site should be evaluated, hazard assessed and the residue should be disposed appropriately. For assessment, use the methodology described in the U.S. EPA 2008 interim guidance titled *Munitions and Explosives of Concern Hazard Assessment Methodology*, Publication Number EPA 505B08001. Interim, October 2008.

http://www.epa.gov/fedfac/documents/docs/mec_ha_methodology_interim.pdf

I. RSLs (formerly PRGs)

The screening levels used during the RI/FS should include the RSLs. The current application of RSLs replaces the older preliminary remediation goals (PRGs). The residential RSLs (and adjustments by 0.1 for non-carcinogens) are to be used for screening new and existing data. See the U.S. EPA Region 9 web site <http://www.epa.gov/region9/superfund/prg/> for the most recent listing of the RSLs used by U.S. EPA Regions 3, 6 and 9. See General Comment G for a web link to Ohio EPA DERR Remedial Response Program screening level guidance.

J. Wetland

Include a brief description of the application for a Nationwide Permit or individual permit (if required) process including cultural resources investigation and endangered species survey. Ohio Administrative Code (OAC) 3745-1-54 requires "an appropriate wetland evaluation methodology acceptable to the director." In general, the Ohio Rapid Assessment Method (ORAM) has been accepted for use in Ohio.

<http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx#ORAM>

K. Reference

Provide a copy of the *W.R. Grace And Company* 1961 referenced report or provide its location in the PER appendix.

Specific Comments

2.1 Project Initiation Meeting

For the project initiation meeting, include a summary of the discussion and conclusions in bulleted format.

3.0 Description of Current Conditions

- 3.1. In Section 3.3 *Description of the Areas of Concern*, identify the basis of the conversion of volumes into tons for each of the AOCs. Provide an estimated volume of waste in AOC 8.
- 3.2. Characterization of the backfill used in any of the AOCs, especially AOCs 3, 4 and 5, should be addressed in the RI/FS work plan.
- 3.3. Include any special requirements or precautions related to the potential for encountering munitions and MEC at the site in the field sampling plan (FSP) and health and safety plan (HASP).
- 3.4. The stream area is identified in Figures 8 and 10, in the January 2000 UXB International, Inc. *Report of Preliminary UXO Assessment and Geophysical Investigation*, based on an EM31 data vertical, in-phase geophysical survey (see Appendix B). Add a map of AOC 2 showing the surface drainage.
- 3.5. The RI/FS work plan should include petroleum as chemicals of concern (COCs) in AOC 5 and an evaluation of the vapor intrusion pathway.
<http://www.epa.ohio.gov/portals/30/rules/DI-033.pdf>
<http://www.epa.ohio.gov/portals/30/rules/VI%20guidance.pdf>
- 3.6. Include any special requirements or precautions in the FSP and HASP related to the potential for encountering unexploded ordinance (UXO) at the site, especially in AOC 6 and AOC 8.
- 3.7. Explain why there is uncertainty in the acreage of AOC 8, ranging from two and one-half acres to eight acres.
- 3.8. Include a map for AOC 8 showing the approximate locations of the 20 exploratory trenches based on Figure 3, *Site Map*, dated December 1996 by Lawhon & Associates, Inc. (see Appendix B).

- 3.9. Include a figure showing the locations of underground utilities and planned utilities at the site, which may be important in identifying potential migration pathways. In addition, look for any old maps that would show field tiling.
- 3.10. Table 3-1, *Potential Chemicals of Concern*, is incomplete. Add the following list of potential chemicals of concern that have historically been identified at the site: arsenic, beryllium, cadmium, chromium (hexavalent), nickel, thallium, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, hydrocarbons, perchlorate, potassium picrate, antimony trisulfide, trinitrotoluene, and dinitrotoluene. Other chemicals commonly used in the manufacture of fireworks include carbon, cesium, chlorine, lithium, rubidium, and titanium.
- 3.11. Clarify the size of the former underground storage tank (UST). Section 3.3.5 *AOC 5 Manufacturing Area Former UST Location*, gives the size of the UST as being 2,500 gallons; however, in Section 4.4.5, *AOC - UST in Former Manufacturing Area*, the size is listed as 3,500 gallons. In addition, state the contents of the UST and its use at the facility. Include the appropriate COCs, based on the former contents of the UST, for the planned soil and ground water sampling of AOC 5.
- 3.12. In Section 3.3.5 on page 3-7, explain the relevance of "VAO" standards.
- 3.13. Section 3.3.8, *AOC 8 Former Burial Trench Area*, lists the size of the 15 test trenches and pit. If possible, show the approximate locations of these test trenches and pit on a figure in map view and in cross-sectional views.
- 3.14. Geologic cross sections, Figures 3-5 through 3-8, should include sections parallel to the ground water flow direction and perpendicular to the ground water flow direction.

4.0 Existing Data Analysis

- 4.1. Section, *AOC 1 – Unidentified Rectangular Feature*, 4.4.1 states "... it is unknown if the chromium is the more toxic hexavalent form..." Under the current guidelines (U.S. EPA 1986), Chromium VI (e.g., hexavalent chromium) is classified as Group A – known human carcinogen by the inhalation route of exposure. Carcinogenicity by the oral route of exposure cannot be determined and is classified as Group D (U.S. EPA, IRIS). It may be cost-effective to request from the chemical laboratory to perform a speciation of the total chromium in soil.
<http://www.epa.gov/cancerguidelines/guidelines-carcinogen-risk-assessment-1986.htm>
<http://www.epa.gov/ncea/iris/subst/0144.htm>

- 4.2. In Section 4.5.2, *Soil*, the potential migration of contaminants is not taken into account for AOC 4. Explain why migration is not applicable to AOC 4. Also, add AOC 8 to this discussion.
- 4.3. Table 4-2, *Off-Site Laboratory Analytical Methods Summary*, is incomplete. See Specific Comment 3.10 for additional chemicals. Ensure that the practical quantitation limits are at or below the RSLs and ecological screening levels. The reporting limits (RLs) should be established early in the RI/FS process, together with the Data Quality Objectives (DQOs). The selected laboratory and analytical method should assure that the results will be generated with sensitivity adequate to the Ohio EPA DERR recommended screening levels (SLs) (U.S. EPA, 2008). Any chemical with RL greater than SL cannot be eliminated from the data set used for baseline risk assessment. Instead, it should be assumed that it is present at a concentration equal to one-half of the RL and should be processed as a COC. Please note that the adjusted SL for perchlorate in water is 0.0026 mg/L, and the SL for hexavalent chromium in soil is 0.29 mg/kg.
<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=569fa78170e3bcc5b19b8c75021eb640&rgn=div5&view=ext&node=40:22.0.1.1.1&idno=40>
- 4.4. Revise Tables 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, 4-13, 4-14, 4-15 and 4-16 to include RSLs. Note that VAP unrestricted use standards, including the generic direct contact standards for residential or unrestricted use, are not applicable to remedial response sites. See General Comments B. Revise Table 5-2, *Groundwater VAP/MCL Exceedances of Regulatory Standards*, accordingly.
- 4.5. Re-evaluate the ground water flow direction using new data and use Figure 4-2, *Locations of Areas of Concern & existing Monitoring Wells*, as a base map for a ground water potentiometric surface map showing the direction of ground water flow at the site.

5.0 Conceptual Site Model

- 5.1. In Section 5.1, *Site Location*, the surrounding land use to the north should include residential development. This document states "...the CSM depicts the general Site location, the Areas of Concern, a simplified geologic cross section, and illustrates a few of the potential receptors [...] North: Vacant field and wooded land..." In the CSM described in the text and presented in Figure 5.1 (see Specific Comment 5.7), there are potentially misleading errors and inconsistencies, for example:

- The arrow which is supposed to point North, is actually pointing to the South-East.
- Instead of a "vacant field" to the North, there is already residential development.
- Neither the exposure media, nor the pathways have been identified. Only the on-site trespassers along with ecological receptors and the off-site residents have been identified as potentially exposed.
- Identify potential exposure pathways including utility corridors and transport mechanisms.
- Potential off-site receptors, including residents and nearby students, need to be identified in the CSM.

See the *Soil Screening Guidance – Attachment A: Conceptual Site Mode Summary*, EPA540/R-96/018, July 1996 (U.S. EPA, 1996) and the *Framework for Cumulative Risk Assessment*, EPA630/P-02/001F, May 2003 (U.S. EPA, 2003).

<http://www.epa.gov/superfund/health/conmedia/soil/pdfs/attacha.pdf>

<http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=54944>

- 5.2. In Section 5.5, *Ground Water Migration Pathways and Receptors*, explain how the hydraulic gradient was determined.
- 5.3. Section 5.7, *Soil Migration Pathways*, should include air, surface water and ground water media.
- 5.4. Add a row for AOC 8 in Table 5-1, *Identified Areas of Concern (AOCs)*.
- 5.5. Data gaps identified in Table 5-2, *Ground Water VAP/MCL Exceedances of Regulatory Standards*, should be addressed in the RI/FS work plan.
- 5.6. In Table 5-4, *Potential Human Health Exposure Pathways*, the ground water to air and soil to air exposure pathways may be complete because mercury (Hg⁰) and some petroleum hydrocarbons are volatiles in terms of vapor intrusion. In addition, the pathway determination for the ground water direct contact and soil to ground water ingestion and dermal contact are deemed incomplete due to the statement that "connection to public water supply is required." Substantiate the existence of an apparent city ordinance that requires this. An environmental covenant may be required for this site to prohibit access to ground water exposure pathways. (See Ohio Revised Code (ORC) §§ 5301.80 - .92).

Section 7.2 Remedial Action Objectives

- 7.2.1. A baseline risk assessment must be performed to demonstrate carcinogenic and non-carcinogenic human health risk posed by the contamination at the site. See General Comment G.
- 7.2.2. Prepare remedial action objectives (RAOs) that are specific to both cancer and non-cancer risks using risk levels acceptable to Ohio EPA. The RAOs should address all potential COCs including petroleum and other volatile chemicals. See Specific Comment 5.6.

Section 7.3 Federal, ARARs, State Requirements, and TBCs

7.3.1 Chemical-Specific ARARs and TBCs.

- Cite OAC 3745-81-11 and 3745-81-12 that contains the MCLs for inorganic and organic chemicals.
- See the General Comment I on U.S. EPA Region 9 RSLs.
- Cite OAC 3745-1-05 (A-C) and OAC 3745-1-07 for surface water ARARs including the Antidegradation Policy for Surface Water and Water Quality Criteria.
- For petroleum UST corrective action, see the Bureau of Underground Storage Tank Regulations' rule, OAC 1301:7-9-13.

7.3.2 Location-Specific ARARs and TBCs

- For endangered plant species, see the Ohio Department of Natural Resources (ODNR) statute, ORC § 1518.02, and rule, OAC 1501:18-1, for the List of Endangered Plant Species.
- For endangered animal species, see the ODNR statute, ORC § 1531.25, and rule, OAC 1501:31-23, for the List of Endangered Animal Species.
- For wetland narrative criteria, see OAC 3745-1-51.
- For water, see Section 401 of the Clean Water Act and ORC § 6111.30.

7.3.3 Action-Specific ARARs

For "digging" where a hazardous or solid waste facility was located, see ORC § 3734.02; and for disturbances where a hazardous or solid waste facility was operated, see OAC 3745-27-13.

- For wetland antidegradation, see OAC 3745-1-54.
- For general analysis of hazardous waste, see OAC 3745-54-13.
- For the environmental covenant, see ORC §§ 5301.80 - .92.

Section 7.4 General Response Actions

- 7.4.1. Limited actions (*i.e.*, Land Use Controls (LUCs)) are termed institutional controls under the Remedial Response Program and require an environmental covenant per ORC §§ 5301.80 - .92.
<http://www.epa.ohio.gov/LinkClick.aspx?fileticket=sW9HrwpQQLs%3d&tabid=3071>
- 7.4.2. For Table 7-1, *Remediation Technologies*, identify preliminary remedial action alternatives either as engineering controls or institutional controls. The feasibility study will likely need to include remedial action alternatives, including both engineering and institutional controls.
- 7.4.3. Once the remedial action alternatives are sufficiently defined, each alternative will be assessed against eight evaluation criteria, including the following:
- Threshold Criteria
 - Overall protection of human health and the environment
 - Compliance with ARARs
 - Balancing Criteria
 - Long-term effectiveness and permanence
 - Reduction of toxicity, mobility, or volume through treatment
 - Short-term effectiveness
 - Implementability
 - Cost
 - Modifying Criteria
 - Community Acceptance (public notice and public hearing by Ohio EPA)

8.2 Ground Water Data Needs

- 8.2.1. For AOC 6, explain the relevance of “VAO” standards.
- 8.2.2. The last bullet under the ground water data gaps is incomplete. Include AOC 8 in the ground-water evaluation.

- 8.2.3. Develop a proposed sample location map and include it in the RI/FS work plan.

Include information on the condition of existing monitoring wells at the site. If the monitoring wells are being considered for use in the remedial investigation, then they need to be evaluated to determine if any of them are suitable for use. Include the procedures for redeveloping the existing site monitoring wells and ground water sampling techniques in the RI/FS work plan. Address any special well construction requirements for wells in or around wetlands. If the monitoring wells are damaged or otherwise unsuitable, they need to be properly abandoned in accordance with the well sealing guidance, *State of Ohio Technical Guidance for Sealing Unused Wells* by the State Coordinating Committee on Ground Water. See General Comment H.

<http://www.dnr.state.oh.us/Portals/7/pubs/pdfs/wellsealing.pdf>

- 8.2.4. The need to determine aquifer characteristics and to measure the ground water flow direction(s) should be addressed in the RI/FS work plan.

8.3 Soil Data Needs

- 8.3.1. Explain the rationale or statistical basis for the selection of two additional soil borings from many of the AOCs for confirmation and/or characterization.
- 8.3.2. Explain the sampling rationale for the selection of the 20 soil borings planned for characterizing AOC 8.
- 8.3.3. Include a drawing showing the approximate location of proposed delineation trenches.
- 8.3.4. In the HASP, fully describe health and safety precautions when handling MEC and/or UXO constituents.

8.4 Additional Wetlands Identification

See General Comment J on wetland permitting requirements. Also include the date (June 22, 2005) from the referenced Civil & Environmental Consultants, Inc. (CEC) report and include the report in Section 9.0, *References*. See General Comment H.

8.5 DQOs

Develop site specific data quality objectives (DQOs) for the RI/FS and include them in the RI/FS work plan. Laboratory reporting limits (RLs) must be at or below the corresponding RSLs (multiplied by 0.1 for non-carcinogens); otherwise, every chemical with a RL greater than the RSL should be assumed to be present in the respective

medium at a concentration equal to one-half of the RL in order to collect and evaluate data of sufficient quality to support a baseline risk assessment.

Response Required

Within 30 days of receipt of this letter containing Ohio EPA's comments on the PER, unless otherwise specified by Ohio EPA, please submit to Ohio EPA a RI/FS work plan in accordance with the draft consent order, the RI/FS statement of work and applicable state and federal law.

Please submit two copies of the RI/FS work plan documents (one hard copy and one indexed electronic copy on compact disc) to my attention. Additionally, please send one hard copy of the RI/FS work plan documents to Mark Rickrich, DERR Enforcement Coordinator.

Ohio EPA's review of the PER does not constitute an approval of the document. Additionally, the absence of comments on the PER does not eliminate the discussion of any item in the subsequent RI/FS process. If you have any questions concerning this letter, please contact Robin Roth at (614) 466-2476.

Sincerely,



Robin Roth
Site Coordinator
Division of Emergency and Remedial Response
Central District Office

c: Rebecca Vasquez-Skillings, Otterbein University
Ron Kuis, Ronald L. Kuis & Associates
CDO Files #121001187012

ec: Deborah Strayton, Manager, DERR-CDO
Ken Schultz, Assistant Manager, DERR-CDO
Mark Rickrich, DERR-ACRE
Janusz Byczkowski, DERR-ACRE
Mark Navarre, Legal Office
Mike Bondoc, DDAGW-CDO
Tim Kern, AGO, EES