BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:

The Goodyear Tire & Rubber Company
200 Innovation Way
Akron, Ohio 44316

Work Respondent

and

Shawn and Melissa Sexton
2336 Smith Bridge Road
Jackson, Ohio 45640

and

J. Gregory Fields
156 West South Street
Jackson, Ohio 45640

and

Sanitation Commercial Services, Inc.
156 West South Street
Jackson, Ohio 45640

Landowner Respondents

FOR THE SITE KNOWN AS:

Jackson County Landfill
1841 Smith Bridge Road
Jackson, Jackson County, Ohio

DIRECTOR'S FINAL
FINDINGS AND ORDERS
FOR REMEDIAL DESIGN
AND REMEDIAL ACTION

I certify this to be a true and accurate copy of the official documents as filed in the records of the Ohio Environmental Protection Agency.

[Signature]
Date: 12/19/16
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## PREAMBLE

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It is agreed to by the Parties hereto as follows:

I. JURISDICTION

1. These Director's Final Findings and Orders ("Orders") are issued to The Goodyear Tire & Rubber Company ("Goodyear"), Shawn and Melissa Sexton, J. Gregory Fields, and Sanitation Commercial Services, pursuant to the authority vested in the Director of Ohio EPA under Ohio Revised Code ("ORC") §§ 3734.13, 3734.20, 6111.03, and 3745.01.

II. PARTIES BOUND

2. These Orders shall apply to and be binding upon Goodyear ("Work Respondent") and its successors in interest liable under Ohio law, and Shawn and Melissa Sexton, J. Gregory Fields, and Sanitation Commercial Services, Inc. ("Landowner Respondents") and their successors in interest liable under Ohio law.

3. No change in ownership or legal status of the Respondents including, but not limited to, any transfer of assets or real or personal property shall in any way alter Respondents' obligations under these Orders.

4. Work Respondent shall provide a copy of these Orders to all contractors, subcontractors, laboratories and consultants retained to conduct any portion of the Work performed pursuant to these Orders, within fourteen (14) days of the Effective Date of these Orders or upon date of retention. Work Respondent shall ensure that all contractors, subcontractors, laboratories and consultants retained to perform the Work pursuant to these Orders also comply with the applicable provisions of these Orders.

III. DEFINITIONS

5. Unless otherwise expressly provided herein, all terms used in these Orders or in any appendices shall have the same meaning as defined in ORC Chapters 3734 and 6111, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the rules promulgated thereunder. Whenever the terms listed below are used in these Orders or in any appendices, attached hereto and incorporated herein, the following definitions shall apply:


b. "Contaminant" and "Contamination" means (1) any "hazardous waste" under ORC § 3734.01(J); (2) any "industrial waste" under ORC § 6111.01(C); and/or (3) any "other wastes" under ORC § 6111.01(D), including any release of one or more of the same.
c. "Day" means a calendar day unless expressly stated to be a business day. "Business day" shall mean a day other than a Saturday, Sunday, or state holiday. In computing any period of time under these Orders, where the last day would fall on a Saturday, Sunday, or state holiday, the period shall run until the close of the next business day.

d. "Decision Document" means the document detailing the remedial action selected by Ohio EPA for the Site as set forth in the document attached to these Orders as Appendix A.

e. "Environmental Covenant" means a servitude arising under an environmental response project that imposes activity and use limitations and that meets the requirements established in ORC § 5301.82.

f. "Facility" means the approximately 18-acre footprint of the former Jackson County Landfill, which is on real property located at the southeast quarter of Section 13, Liberty Township, Jackson County, Ohio at 1841 Smith bridge Road (County Road 60), along with the approximately 1-acre Foundry Sand Area.

g. "Foundry Sand Area" means the approximately 1 acre to the east of the Jackson County Landfill footprint where foundry sand was historically disposed of, as identified in the Remedial Investigation.

h. "Feasibility Study" ("FS") means a study undertaken to develop and evaluate options for remedial action. The FS is generally performed concurrently and in an interactive fashion with the Remedial Investigation. The term also refers to a report that describes the results of the study.


j. "NCP" means the National Oil and Hazardous Substances Pollution Contingency Plan, codified at 40 C.F.R. Part 300 (1990), as amended.

k. "Ohio EPA" means the Ohio Environmental Protection Agency and its designated representatives.

l. "Orders" means these Director's Final Findings and Orders and all appendices hereto.

m. "Owner's Trust Fund" means the interest-bearing fund set up pursuant to a February 9, 1999 trust agreement to initially hold $225,000 that Landowner Respondent J. Gregory Fields and his wife, Sally A. Fields paid to fund closure and/or post-closure care, and/or corrective measures at the Site.
n. "Paragraph" means a portion of these Orders identified by an Arabic numeral or an uppercase or lowercase letter.

o. "Parties" means Respondents and the Ohio EPA.

p. "Respondents" means Goodyear, Shawn Sexton, Melissa Sexton, J. Gregory Fields, and SCS.

q. "Remedial Action" ("RA") means those activities to be undertaken by Work Respondent to implement and maintain the effectiveness of the final plans and specifications submitted by Work Respondent pursuant to the Remedial Design and Remedial Action Work Plan.

r. "Remedial Design" ("RD") means those activities to be undertaken by Work Respondent to develop the final plans and specifications for the Remedial Action pursuant to the Remedial Design and Remedial Action Work Plan.

s. "Remedial Design and Remedial Action Work Plan" ("RD/RA Work Plan") means the document submitted by Work Respondent and approved by Ohio EPA pursuant to the Performance of Work Section of these Orders.

t. "Response Costs" means all costs incurred by Ohio EPA in a manner not inconsistent with the NCP, 40 CFR Part 300 and these Orders including, but not limited to, payroll costs, contractor costs, travel costs, direct costs, overhead costs, legal and enforcement related costs, oversight costs, laboratory costs, and the costs of reviewing or developing plans, reports, and other items pursuant to these Orders, verifying the Work, or otherwise implementing or enforcing these Orders. "Past Response Costs" shall mean all such costs incurred prior to the Effective Date of these Orders, and "Future Response Costs" shall mean all such costs incurred after the Effective Date of these Orders.

u. "Section" means a portion of these Orders identified by a roman numeral.

v. "Site" means the Facility, as defined above, where the treatment, storage, and/or disposal of Waste Material has occurred, including any other area where such Waste Material has migrated or threaten to migrate.

w. "Statement of Work" ("SOW") means the "Model Statement of Work for Remedial Design and Remedial Action for the implementation of the Remedial Design and Remedial Action at the Site, as set forth in Appendix B of these Orders. The SOW is not specific to any Site.

x. "Supporting Documents" means the field sampling plan ("FSP"), quality assurance project plan ("QAPP") and health and safety plan ("HASP") developed concurrently with the RD/RA Work Plan pursuant to these Orders and Section 4 of the SOW.
y. "Transferee" means any future owner of any interest in the Site, including, but not limited to, owners of an interest in fee simple, mortgagors, easement holders, and lessees.

z. "Waste Material" means "industrial waste" and/or "other waste" as defined in ORC § 6111.01(C) and (D), and/or "hazardous wastes" as defined in ORC § 3734.01(J).

aa. "Work" means all activities Work Respondent is required to perform under the Performance of the Work by Work Respondent and Additional Work Sections of these Orders.

bb. "Work Respondent" means Goodyear.

IV. FINDINGS

6. The Director of Ohio EPA ("Director") has determined the following findings:

a. The Site is located within the southeast quarter of Section 13, Liberty Township, Jackson County, Ohio at 1841 Smith Bridge Road (County Road 60). The footprint of the Jackson County Landfill portion of the Site is approximately 24 acres and the Foundry Sand Area portion of the Site is approximately 1 acre. The Site is adjacent to the Salt Lick Creek and the Lake Katherine Nature Preserve.

b. On April 16, 1970, the Ohio Department of Health issued an approval to Mr. Donald Jenkins for operation of the Jackson County Landfill, which was at that time known as the Jenkins Sanitary Landfill.

c. From at least April 16, 1970 until March 15, 1972, Mr. Donald Jenkins owned and operated the Jackson County Landfill, aka, Jenkins Sanitary Landfill.

d. On March 15, 1972, the Ohio Department of Health approved the transfer of the Jackson County Landfill Solid Waste License to Landowner Respondent J. Gregory Fields.

e. Landowner Respondent J. Gregory Fields operated the Jackson County Landfill until at least August 31, 1987. Landowner Respondent SCS currently owns the Jackson County Landfill. Landowner Respondent J. Gregory Fields owns and controls SCS.

f. Landowner Respondents Shawn and Melissa Sexton own property which is located off Smith Bridge Road, Jackson, Ohio, east of and adjacent to the parcel.
owned by Respondent SCS, and which includes the Foundry Sand Area portion of the Site.

g. Ohio EPA files contain copies of notice of violation letters and interoffice memoranda dated November 17, 1977 through June 11, 2004, documenting the operational violations at the Jackson County Landfill, including but not limited to: landfilling outside approved vertical and horizontal boundaries, lack of adequate cover material, and the acceptance of drummed wastes that were not listed in the original operating permit.

h. During its operation, the Jackson County Landfill accepted Waste Material and/or “hazardous substances” as defined in Section 101(14) of CERCLA/SARA from various generators and transporters. Waste Materials disposed of at the Jackson County Landfill included municipal waste, Waste Material from various industrial generators, and drummed materials, including: acetone, polyester resin mixture, cyclohexanone, dichloromethane, Isobutyl alcohol, methyl ethyl ketone (MEK), methyl isobutyl ketone, toluene, xylene, and waste styrene mixture.

i. Work Respondent Goodyear is incorporated under the laws of the State of Ohio and is engaged in the business of manufacturing, distributing, and selling rubber products.

j. On June 4, 1984, in a response to a CERCLA §104(E) inquiry, Work Respondent Goodyear indicated in correspondence that it took an estimated 5,772 drums of Waste Material to the Jackson County Landfill between 1974 and 1980.

k. Work Respondent Goodyear is or has been a generator of Waste Material. Work Respondent Goodyear directly or indirectly allowed and/or directed the placement and/or disposal of Waste Material at the Site.

l. On August 1, 1984 and August 2, 1984, Ohio EPA conducted a preliminary assessment (“PA”) at the Site and prepared an Addendum to the PA.

m. On April 15, 1985, the Director issued Final Findings and Orders (1985 Orders) that removed the Jackson County Combined General Health Districts as an approved health district administering and enforcing solid waste disposal programs.

n. On May 14, 1985, the Jackson County Health Department appealed the 1985 Orders to the Environmental Review and Appeals Commission (“ERAC”).

o. On September 18, 1985, the Ohio Attorney General’s Office (Ohio AGO), on behalf of the Director, filed a motion at ERAC requesting that Landowner Respondent J. Gregory Fields be added to the 1985 Orders. ERAC granted the motion on September 19, 1985.
p. On November 27, 1985, a Settlement Agreement, which resolved the ERAC appeal, was entered into by the Jackson County Health Department, Landowner Respondent J. Gregory Fields, and the Director.

q. In a letter dated March 3, 1987, the Director stated that Landowner Respondent J. Gregory Fields had failed to comply with the Settlement Agreement and referred the matter to the Ohio AGO for further action.

r. On August 20, 1987, the Director issued Final Findings and Orders (1987 Orders) requiring Jackson County Landfill to immediately cease the acceptance of solid waste.

s. On September 10, 1987, SCS appealed the Director’s 1987 Orders to ERAC. This appeal was dismissed by ERAC on August 17, 1988. The dismissal was upheld by the Ohio Supreme Court in Sanitary Commercial Services v. Shank (1991), 57 Ohio St. 3d 178.

t. On December 7, 1994, the Director referred Landowner Respondent J. Gregory Fields to the Ohio AGO and requested the Ohio AGO initiate civil proceedings, including all necessary legal and/or equitable actions, against Mr. Fields and any other responsible parties.

u. On February 16, 1999, the Ohio AGO entered into a Consent Decree with Landowner Respondent SCS, Landowner J. Gregory Fields and his wife, Sally A. Fields (Consent Decree). The Consent Decree was filed in the United States District Court, Southern District of Ohio, Eastern Division, and required Landowner Respondents SCS and J. Gregory Fields to cease acceptance of waste at the Jackson County Landfill and pay $225,000.00 into the Owner’s Trust Fund, pursuant to a trust agreement entered into on February 9, 1999, for closure and/or post-closure care, and/or corrective measures at the Site.

v. Although Landowner Respondents SCS and J. Gregory Fields paid the $225,000.00 into the Owner’s Trust Fund for closure and/or post closure care and/or corrective measures, the current Owner’s Trust Fund balance is not adequate to conduct all required closure and post-closure care at the Site. The Owner’s Trust Fund contains a total of $327,614.37, less the final trustee’s fees as of August 19, 2016. The Owner’s Trust Fund will be used to reimburse costs associated with Site closure and post closure care activities according to the process set forth in this Order.

w. In June and August 2003, Ohio EPA collected samples from selected leachate seeps at the Site. Benzene, arsenic, and lead were detected in excess of their maximum contaminant levels (MCL), as set forth in Ohio Administrative Code (OAC) Chapter 3745-81, and, as set forth in OAC Chapter 3745-1, aluminum,
iron, nickel, zinc, and ammonia were detected in excess of water quality standards.

x. The Site is a hazardous waste facility, solid waste facility or other location where hazardous waste was treated, stored, or disposed.

y. Because of their quantity, concentration, physical or chemical characteristics, benzene, arsenic, lead, aluminum, iron, nickel, zinc, and ammonia found at the Site are "Hazardous Waste" as defined under ORC § 3734.01(J), or "Industrial Waste" or "Other Wastes" as defined under ORC § 6111.01(C) and (D).

z. The ground and surface waters at the Site are "waters of the state" as defined in ORC § 6111.01(H).

aa. Each Respondent is a "person" as defined under ORC §§ 3734.01(G) and 6111.01(l).

bb. Conditions at the Site constitute a substantial threat to public health or safety or are causing or contributing or threatening to cause or contribute to air or water pollution or soil contamination as provided in ORC § 3734.20(B).

c. The migration and threatened migration of Contaminants to ground water, or surface water at or from the Site constitutes a discharge to "waters of the state," as the term is defined in ORC § 6111.01(H).

dd. The Work required pursuant to these Orders will contribute to the prohibition or abatement of the discharge of Contaminants to waters of the State.

ee. In issuing these Orders, the Director has given consideration to, and based his determination on, evidence relating to technical feasibility and economic reasonableness of complying with these Orders, and to evidence relating to conditions calculated to result from compliance with these Orders, and their relation to the benefits to the people of the state to be derived from such compliance.

ff. The actions to be taken pursuant to these Orders are reasonable and necessary to protect the public health or safety or the environment as provided in ORC § 3734.20.

gg. Ohio EPA has incurred Response Costs and continues to incur Response Costs associated with this Site.

hh. On August 16, 2005, the Director issued Director's Final Findings and Orders (2005 Orders) to Work Respondent to complete a remedial investigation and feasibility study (RI/FS) at the Site. The RI/FS required the Work Respondent to
identify the nature and extent of Waste Material at the Site and develop alternatives to address the contamination and Site specific conditions.

ii. Ohio EPA approved the RI Report on April 29, 2009 and approved the FS Report on June 15, 2010. The RI identified public health and environmental risks at the Site resulting from the treatment, storage, or disposal of Waste Material. The RI characterized the nature and extent of the Waste Material released at the Site and the potential risks to human health and safety and the environment. The RI revealed that the principal contaminants of concern are aluminum, arsenic, tetrachloroethylene, vinyl chloride, methane, iron, lead, manganese, mercury, vanadium, zinc, xylene, di-n-butyl-phthalate, and PCBs. The RI report indicated that the soils outside of the landfill boundary were impacted with metals above action levels including aluminum, arsenic, iron, manganese, thallium, vanadium and zinc. Ground water contamination was located at three different zones and found to contain metals and volatile organic chemicals (VOCs) above their respective action levels. Soil gas sampling found an extensive number of VOCs as well as methane being released into the atmosphere, posing a risk for the gases to migrate into a building and cause risk for explosion; and leachate was found to be seeping from the landfill at a rate of up to 9,000 gallons per day.

jj. On February 13, 2015, Ohio EPA notified the public of its Preferred Plan for remediation of the Site and solicited public comments. The Preferred Plan summarizes the information presented in the RI/FS prepared by Work Respondent Goodyear and identifies and explains Ohio EPA’s preferred alternative for the remedial action at the Site. The preferred remedial alternative in this Preferred Plan includes the following elements:

i. Installation of a geomembrane cap system over the existing soil cap after it has been regraded for proper drainage;
ii. A soil gas collection system and a leachate collection system;
iii. Monitored natural attenuation of ground water;
iv. Institutional controls memorialized in an environmental covenant.

kk. On April 9, 2015, Ohio EPA held a public meeting and hearing on the Preferred Plan. The public comment period ended on April 17, 2015. Ohio EPA responded to the public comments in a responsiveness summary dated September 15, 2015.

II. On September 15, 2015, Ohio EPA issued a Decision Document, which selected the remedy for the Site. The Decision Document is attached hereto as Appendix A, and incorporated by reference herein. Ohio EPA’s responsiveness summary is also attached to the Decision Document.

V. GENERAL PROVISIONS
7. **Objectives of the Parties**

The objectives of the Parties in entering into these Orders are to protect public health and safety and the environment from the disposal, discharge, or release of Waste Material through design, construction, implementation, operation, and maintenance of the remedy by Work Respondent as set forth in the Decision Document and in accordance with these Orders.

8. **Commitment of Work Respondent**

Work Respondent agrees to perform the Work in accordance with these Orders including but not limited to the SOW, all relevant guidance documents, and all standards, specifications, and schedules as approved by Ohio EPA pursuant to these Orders. Work Respondent also agrees to reimburse Ohio EPA for all Response Costs and perform all other obligations of these Orders.

9. **Compliance with Law**

a. All activities undertaken by Respondents pursuant to these Orders shall be performed in accordance with the requirements of all applicable federal, state and local laws and regulations, and in a manner consistent with the NCP.

b. Ohio EPA expects that activities conducted pursuant to these Orders, if approved by Ohio EPA, would be considered necessary and consistent with the NCP.

c. Where any portion of the Work requires a permit, license or other authorization from Ohio EPA or any other state, federal or local government agency, Work Respondent shall submit applications in a timely manner and take all other actions necessary to obtain such permit, license or other authorization. These Orders are not, and shall not be construed to be, a permit, license or other authorization issued pursuant to any statute or regulation.

VI. **PERFORMANCE OF THE WORK BY WORK RESPONDENT**

10. **Supervising Contractor**

All Work performed pursuant to these Orders shall be under the direction and supervision of a contractor with expertise in hazardous waste site investigation and remediation. Prior to the initiation of the Work, Work Respondent shall notify Ohio EPA in writing of the name of the supervising contractor and any subcontractor to be used in performing the Work under these Orders.

11. **Remedial Design and Remedial Action**

a. **RD/RA project initiation meeting.** Within fourteen (14) days of the Effective Date of these Orders, unless otherwise mutually agreed to by the Parties. Work
Respondent shall meet with Ohio EPA to discuss the requirements of the RD/RA Work Plan.

b. **Submission of RD/RA Work Plan.** Within sixty (60) days after the Effective Date of these Orders, unless otherwise specified in writing by Ohio EPA, Work Respondent shall submit to Ohio EPA a RD/RA Work Plan and schedule for implementation of the Work required under this Section of these Orders. The RD/RA Work Plan shall provide for the design, construction, final operation and maintenance of the remedy as set forth in the Decision Document.

c. **Criteria for RD/RA Work Plan development.** The RD/RA Work Plan, Supporting Documents, and any other deliverables required under the approved RD/RA Work Plan shall be developed in conformance with the RD/RA SOW contained in Appendix B of these Orders, and the guidance documents listed in Appendix C of these Orders. The RD/RA Work Plan shall include a proposed schedule that includes a completion date for each task. If Ohio EPA determines that any additional or revised guidance documents affect the Work to be performed in implementing the RD/RA, Ohio EPA will notify Work Respondent, and the RD/RA Work Plan and other affected documents shall be modified accordingly.

d. **Handling any inconsistencies.** Should Respondents identify any inconsistency between any of the laws and regulations and guidance documents that Respondents are required to follow by these Orders, Respondents shall notify Ohio EPA in writing of each inconsistency and the effect of the inconsistencies upon the Work to be performed. Respondents shall also recommend, along with a supportable rationale justifying each recommendation, the requirement that Respondents believe should be followed. Work Respondent shall implement the affected Work as directed in writing by Ohio EPA subject to the provisions of the Dispute Resolution Section of these Orders.

e. **Review of RD/RA Work Plan.** Ohio EPA will review the RD/RA Work Plan and Supporting Documents pursuant to the procedures set forth in the Review of Submissions Section of these Orders.

f. **Implementation of the RD/RA Work Plan.** Upon Ohio EPA’s approval of the RD/RA Work Plan, Work Respondent shall implement the RD/RA Work Plan as approved. Work Respondent shall submit all plans, reports, or other deliverables required under the approved RD/RA Work Plan, in accordance with the approved schedule, for Ohio EPA’s review and approval pursuant to the Review of Submissions Section of these Orders.

12. **Operation and Maintenance Plan**

The Operation and Maintenance (O&M) Plan, including a schedule for implementation, shall be submitted in accordance with the approved RD/RA Work Plan. Ohio EPA will
review the O&M Plan pursuant to the procedures set forth in the Review of Submissions Section of these Orders. Upon approval of the O&M Plan by Ohio EPA, Work Respondent shall implement the O&M Plan. Work Respondent shall submit all plans, reports, or other deliverables required under the approved O&M Plan, in accordance with the approved O&M schedule set forth therein, for Ohio EPA's review and approval pursuant to the Review of Submissions Section of these Orders.

VII. ASSURANCE OF ABILITY TO COMPLETE WORK

13. Cost Estimates

a. Within sixty (60) days after Work Respondent's receipt of Ohio EPA's approval of the Final Design Report required under Section VI (PERFORMANCE OF WORK) of these Orders, Work Respondent shall submit to Ohio EPA a final detailed written estimate of the cost of the work associated with the long-term O&M and monitoring of the selected remedy identified in the Amended Decision Document, in current dollars ("Initial Cost Estimate") (estimated in the Decision Document to be $10,127,000.00), including any adjustments for inflation based upon the Gross Domestic Product Implicit Price Deflator ("GDP/IPD") and any adjustments for discount rates based upon the Federal Reserve Bank's 30-year Treasury Bill rate for the most recent month for which data is available.

b. Within thirty (30) days after notification of the initiation of the five-year review, Work Respondent must submit to Ohio EPA an estimated cost of the remaining O&M and monitoring Work to be performed ("Current Revised Cost Estimate") based upon the procedures described in the preceding paragraph. Information relied upon in support of the Current Revised Cost Estimate must be provided with any request for reduction. If an adjustment is made to any such Current Revised Cost Estimate for inflation and/or discount rates, an explanation shall be provided.

c. The Current Revised Cost Estimate shall reflect any adjustments caused by the Work Respondents' agreement to perform any additional O&M and monitoring Work requested by Ohio EPA pursuant to Section IX (ADDITIONAL WORK) or by any other conditions that have increased the cost of the O&M and monitoring Work to be performed under these Orders (e.g., change in contractor).

d. Work Respondent shall submit the Initial Cost Estimate and all Current Revised Cost Estimates to Ohio EPA for review and approval, which approval shall not be unreasonably withheld. Ohio EPA will review each cost estimate and notify Work Respondent in writing of Ohio EPA's approval, disapproval, or combination thereof in accordance with Section XIV (REVIEW OF SUBMISSIONS).

14. Performance Guarantee
In order to secure the full and final completion of the O&M and monitoring Work in accordance with these Orders, within sixty (60) days following the Effective Date of these Orders or within sixty (60) days following Ohio EPA’s approval of the Initial Cost Estimate, whichever date is later, Work Respondent shall establish financial security for the benefit of Ohio EPA in an amount at least equal to the Initial Cost Estimate. Thereafter, Work Respondent shall maintain financial security in an amount at least equal to the Current Revised Cost Estimate (“Financial Assurance”). Work Respondent may use one or more of the Financial Assurance mechanisms described in subparagraphs (i) through (iv) below.

Work Respondent shall submit draft Financial Assurance instruments and related documents to Ohio EPA, concurrently with Work Respondent’s submission of the Initial Cost Estimate, for Ohio EPA’s review and approval in accordance with Section XIV (REVIEW OF SUBMISSIONS).

(i) A trust fund administered by a trustee which is an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency, that is acceptable to Ohio EPA. The trust agreement shall provide that the trustee shall make payments from the fund, (1) as Work Respondent shall direct in writing to pay invoices submitted by Work Respondent from the fund for Work expenditures made by approved contractors engaged by Work Respondent; Work Respondent must only direct payment of invoices for which Work Respondent has submitted a notification to Ohio EPA’s Site Coordinator, in accordance with Section XIV (REVIEW OF SUBMISSIONS) of these Orders or (2) in the event of a failure of performance as described in this Section, to pay any other person whom Ohio EPA determines has performed or will perform the Work required by these Orders at the direction of Ohio EPA.

(ii) One or more irrevocable letter(s) of credit, payable at the direction of Ohio EPA, into a standby trust fund that meets the requirements of the trust fund described in subparagraph (i) above. The letter(s) of credit must be issued by one or more financial institution(s) (1) that has the authority to issue letters of credit and (2) whose letter-of-credit operations are regulated and examined by a federal or state agency. The letter(s) of credit must be irrevocable and issued for a period of at least one (1) year. The letter(s) of credit must provide that upon its expiration date, the letter(s) of credit will be automatically extended for a period of at least one (1) year unless, at least one hundred and twenty (120) days before the current expiration date, the issuing institution notifies the Work Respondent and Ohio EPA by certified mail of a decision not to extend the expiration date. Under the terms of the letter(s) of credit, the one hundred and twenty (120) days will begin on the date when the Work Respondent
and Ohio EPA have received the notice, as evidenced by the return receipts.

iii. A policy of insurance that (1) provides Ohio EPA with rights as a beneficiary, which is acceptable to Ohio EPA and (2) is issued by an insurance carrier that has the authority to issue insurance policies in Ohio and whose insurance operations are regulated and examined by a federal or state agency. The insurance policy shall be issued for a face amount at least equal to the Initial Cost Estimate or Current Revised Cost Estimate, whichever is the most current estimate, except for those costs covered by another Financial Assurance instrument, as permitted in subparagraphs (i), (ii) and (iv) herein. The policy shall provide that the insurer shall make payments as the Work Respondent shall direct in writing to (1) reimburse Work Respondent for expenditures made by Work Respondent for Work performed in accordance with these Orders or (2) pay any other person whom Ohio EPA determines has performed or will perform the Work in accordance with these Orders, up to an amount equal to the face amount of the policy. The policy shall also provide that it may not be canceled, terminated or non-renewed and that it shall remain in full force and effect in the event that (1) the Work Respondent is named as a debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy) of the U.S. Code or (2) Ohio EPA issues a Performance Failure Notice under this Section of these Orders.

iv. An escrow agreement administered by an escrow agent which is an entity that has the authority to act as an escrow agent and whose escrow banking operations are regulated and examined by a federal or state agency, that is acceptable to Ohio EPA. The escrow account shall be an interest-bearing account in an amount agreed upon by the Parties, and shall be dedicated solely for the payment of costs associated with the long-term O&M and monitoring work at the Site. The escrow agreement shall provide that the escrow agent make payments from the escrow account at a rate of one dollar ($1.00) per one dollar ($1.00) spent, (1) as Work Respondent shall direct in writing to pay invoices submitted by Work Respondent from the escrow account for Work expenditures made by approved contractors engaged by Work Respondent; Work Respondent must only direct payment of invoices for which Work Respondent has submitted a notification to Ohio EPA’s Site Coordinator, in accordance with Section XIV (REVIEW OF SUBMISSIONS) of these Orders or (2) in the event of a failure of performance as described in this Section, to pay any other person whom Ohio EPA determines has performed or will perform the Work required by these Orders at the direction of Ohio EPA.

b. Within thirty (30) days of notification of Ohio EPA’s approval, the executed Financial Assurance instrument(s) provided pursuant to this Section (including,
without limitation, the original versions of letters of credit and other negotiable instruments issued for Ohio EPA’s benefit) shall be submitted by Work Respondent to the Ohio EPA Site Coordinator in accordance with Section XIV (REVIEW OF SUBMISSIONS) of these Orders.

c. Whenever the Current Revised Cost Estimate exceeds the amount of Financial Assurance already provided pursuant to this Section by more than fifteen percent (15%), the Work Respondent shall, within sixty (60) days thereafter, obtain and present to Ohio EPA, for review and approval a revised form of Financial Assurance (and otherwise acceptable under this Section) that reflects such cost increase.

d. In the event that an institution involved in the management of funds provided to guarantee performance under this Section, or responsible for providing such performance guarantee, becomes unable to perform its obligations, or to provide the funds or financial resources for the Work as required by these Orders, Ohio EPA shall issue a written notification to Work Respondent of such incapacity. Thereafter, within sixty (60) days of receipt of such notification, Work Respondent shall either secure proper performance of the guarantee from the institution to satisfy Ohio EPA, or submit to Ohio EPA for approval an alternative form of Financial Assurance that meets the requirements of this Section. Work Respondent’s inability to post Financial Assurance shall in no way excuse performance of any other requirements of these Orders, including, without limitation, the Work Respondent’s obligation to complete the O&M and monitoring Work in accordance with the terms hereof.

15. Performance Failure

a. Financial Assurance instruments provided pursuant to this Section shall provide Ohio EPA with immediate access to resources, whether in cash or in kind services, to continue and complete the O&M and monitoring Work in the event Ohio EPA determines that Work Respondent (1) has ceased implementation of any portion of the O&M and monitoring Work, (2) is significantly or repeatedly deficient or late in their performance of the O&M and monitoring Work, or (3) is implementing the O&M and monitoring Work in a manner that may cause a substantial threat to public health or safety or the environment. Upon making such determination, Ohio EPA may issue a written notice (“Performance Failure Notice”) to the Work Respondent and the Financial Assurance provider of Work Respondents’ failure to perform. The Performance Failure Notice will specify the grounds upon which such a notice was issued and will provide the Work Respondent with a period of fourteen (14) days within which to remedy the circumstances giving rise to the issuance of such notice. Upon the expiration of the 14-day notice period, Work Respondent may invoke the procedures set forth in Section XV (DISPUTE RESOLUTION), to dispute Ohio EPA’s determination.
that any of the circumstances described in clauses (i), (ii) or (iii) of this paragraph has occurred.

b. Failure by the Work Respondent to remedy the relevant Performance Failure to Ohio EPA’s satisfaction before the expiration of the fourteen-day notice period specified in this paragraph shall trigger Ohio EPA’s right to have immediate access to and benefit of the Financial Assurance provided pursuant to this Section, and Ohio EPA may, at any time after the expiration of the fourteen-day notice period, order Work Respondent to cease performance of the Work and direct the Financial Assurance provider to immediately (1) deposit into a newly created trust fund approved by Ohio EPA, the remaining funds obligated under the Financial Assurance instrument or (2) arrange for performance of the O&M and monitoring Work in accordance with these Orders.

c. If Ohio EPA has issued a Performance Failure Notice but is nevertheless unable after reasonable efforts to secure the resources (whether in cash or in-kind services) necessary to continue and complete the O&M and monitoring Work from the Financial Assurance instrument(s) posted by Work Respondent pursuant to this Section, then, upon receiving written notice from Ohio EPA, Work Respondent shall (in the event Work Respondent does not prevail in Dispute Resolution, if any, as set forth in Section XV (DISPUTE RESOLUTION) of these Orders), secure the resources available under the Financial Assurance mechanism, or deposit into an account specified by Ohio EPA, in immediately available funds and without setoff, counterclaim, or condition of any kind, a cash amount equal to the Current Revised Cost Estimate.

d. If Work Respondent disputes an Ohio EPA determination under this paragraph that identifies a substantial threat to public health or safety or the environment that warrants immediate action, Ohio EPA may direct the Trustee of the trust account newly-created by Ohio EPA following the Performance Failure Notice to make any appropriate payments from such trust fund to address such threat. Otherwise, Ohio EPA may direct the Trustee to not make any payments from the newly-created trust fund, pending resolution of a dispute. If Work Respondent prevails in dispute resolution, all funds in the newly-created trust fund, including any interest that accrued on the funds, shall be returned to a Financial Assurance provider who has agreed to continue providing Financial Assurance to the Work Respondent.

16. Reduction of Amount of Financial Assurance

Concurrent with the submission of the Current Revised Cost Estimate, if the Work Respondent believes that the estimated cost to complete the remaining O&M and monitoring Work has decreased below the aggregate amount of the Financial Assurance mechanism or mechanisms selected by Work Respondent, the Work Respondent may, at the time of submittal of the Current Revised Cost Estimate, submit
a written request to Ohio EPA to reduce the current amount of Financial Assurance to an amount no less than the Current Revised Cost Estimate. If Ohio EPA decides to accept such a proposal, Ohio EPA shall issue a notification to the Work Respondent of such decision in writing. After receiving Ohio EPA’s written acceptance, which shall not be unreasonably withheld, Work Respondent may reduce the amount of the Financial Assurance in accordance with and to the extent permitted by such written acceptance.

17. Release of Financial Assurance

Work Respondent may petition Ohio EPA to allow the release or discontinuance of the Financial Assurance required hereunder. Work Respondent shall submit a written proposal for such release to Ohio EPA which shall specify the basis for the requested release (e.g., full and final completion of the O&M and monitoring Work). If Ohio EPA decides to accept such a proposal, Ohio EPA shall notify the Work Respondent and the provider of the Financial Assurance of such decision in writing. The provider of the Financial Assurance may be released from its obligations under the instrument only upon a written release from Ohio EPA. Work Respondent’s Financial Assurance obligations required within this Section will automatically terminate upon termination of these Orders pursuant to Section XXV herein. Ohio EPA will notify the provider of the release of its obligations within 45 days of termination of these Orders.

VIII. LAND USE AND CONVEYANCE OF TITLE

18. Environmental Covenant

Within thirty (30) days after the Effective Date of these Orders, or after acquiring an interest in the property, Landowner Respondents shall record with the Jackson County Recorder’s Office an Environmental Covenant for the property that is part of the Site owned by the Landowner Respondents. The Environmental Covenant shall be consistent with the template contained in Appendix E, shall be signed by Landowner Respondents, and shall be approved and signed by Ohio EPA. The Parties agree that the Environmental Covenant will not restrict hunting in the portion of the Site that is outside of the boundaries of the Facility. The Environmental Covenant shall be recorded in the deed or official records of the County Recorder of Jackson County, Ohio pursuant to R.C. 5301.82. The terms and conditions of the Environmental Covenant are incorporated into these Orders and shall be binding upon Respondents. Thereafter, if Landowner Respondents convey any interest in the property included in the Site, each deed, title, or other instrument shall contain a notice stating that the property is subject to these Orders and shall reference any monitoring, treatment, or containment systems present on the property as a result of these Orders.
19. **Proof of Filing Environmental Covenant**

Within thirty (30) days after filing with the Jackson County Recorder the executed Environmental Covenant, Landowner Respondents shall certify to Ohio EPA that the Environmental Covenant has been filed for recording, and include with the certification a file and date-stamped copy of the recorded Environmental Covenant. If the Environmental Covenant is violated or breached by Respondents, the Landowner Respondents shall be in violation of these Orders.

20. **Land Use Self-Reporting Requirement**

Landowner Respondents shall ensure, and submit on an annual basis written documentation verifying, that no portion of the Site is being used in any manner that would adversely affect the integrity of any security, containment, treatment, or monitoring systems at the Site. Work Respondent shall submit on an annual basis, written documentation verifying that any security, containment, treatment, or monitoring systems are in place and operational.

21. **Notice of Intention to Transfer Property**

Prior to each conveyance by Landowner Respondents of an interest in any portion of the Site, including but not limited to easements, deeds, leases and mortgages, Landowner Respondents shall notify Transferee of the existence of the security, containment, treatment, or monitoring systems and activity and use limitations, and shall provide a copy of these Orders to Transferee. Landowner Respondents shall notify Ohio EPA at least ten (10) days after each conveyance of an interest in any portion of the Site that is owned by Landowner Respondents. Landowner Respondents' notice shall include the name and address of the Transferee and a description of the provisions made for the continued access to and maintenance of the security, containment, treatment, and monitoring systems.

22. **Instrument and Confirmation of Conveyance**

Upon each conveyance by Landowner Respondents of an interest in any portion of the Property, including but not limited to easements, deeds, leases and mortgages, Landowner Respondents shall include in the instrument of conveyance a restatement consistent with paragraph 10 of the Environmental Covenant. Within thirty (30) days after each conveyance of an interest in any portion of the Site that is owned by Landowner Respondents, Landowner Respondents shall submit to Ohio EPA, via certified mail, the following information:

a. A copy of the deed or other documentation evidencing the conveyance;
b. The name, address, and telephone number of the new property owner and the name, address, and telephone number of the contact person for the property owner;

c. A legal description of the property, or the portion of the property, being transferred;

d. A survey map of the property, or the portion of the property, being transferred; and

e. The closing date of the transfer of ownership of the property, or portion of the property.

IX. ADDITIONAL WORK

23. Ohio EPA or Work Respondent may determine that in addition to the tasks defined in the approved RD/RA Work Plan, additional Work may be necessary to accomplish the Objectives of the Parties as provided in the General Provisions Section of these Orders. Additional Work may also include, pursuant to ORC § 3734.20 or other applicable law, the implementation of interim actions to address substantial threats to public health or safety or the environment should such threats be identified during the conduct of the RD/RA.

24. Within ninety (90) days of receipt of written notice from Ohio EPA that additional Work is necessary, unless otherwise specified in writing by Ohio EPA, Work Respondent shall submit a proposed addendum to the RD/RA Work Plan ("RD/RA Work Plan Addendum"), which contains (a) a work plan for the implementation of the additional Work, (b) any revisions to the Supporting Documents and other RD/RA deliverables, as appropriate, (c) a schedule for the performance of the additional Work, and (d) revisions to other schedules impacted by the additional Work, if any. If Work Respondent disputes the necessity of additional Work, Work Respondent shall initiate the procedures for dispute resolution set forth in the Dispute Resolution Section of these Orders within fourteen (14) days after receipt of Ohio EPA's notification of the need for additional Work. The RD/RA Work Plan Addendum shall conform to the standards and requirements set forth in the documents attached to these Orders as Appendices B and C (RD/RA SOW and List of Relevant Guidance Documents). Upon approval of the RD/RA Work Plan Addendum by Ohio EPA pursuant to the Review of Submissions Section of these Orders, Work Respondent shall implement the approved RD/RA Work Plan Addendum in accordance with the schedules contained therein.

25. If Work Respondent determines that additional Work is necessary, Work Respondent shall submit a proposal to Ohio EPA to explain what the additional Work is, why the additional Work is necessary, and what impact, if any, the additional Work will have on the RD/RA Work Plan and schedule. If Ohio EPA concurs with the request to perform additional Work, Work Respondent shall submit a RD/RA Work Plan
Addendum, as described above, for the performance of additional Work. The RD/RA Work Plan Addendum shall conform to the standards and requirements set forth in the documents attached to these Orders as Appendices B and C. Upon approval of the RD/RA Work Plan Addendum by Ohio EPA pursuant to the Review of Submissions Section of these Orders, Work Respondent shall implement the approved RD/RA Work Plan Addendum in accordance with the schedules contained therein. Additional Work does not include any activity performed in response to an emergency at the Site for which Work Respondent submits to Ohio EPA written notice of the performed activity.

X. SAMPLING AND DATA AVAILABILITY

26. Unless otherwise agreed to by the Site Coordinators, Work Respondent shall notify Ohio EPA not less than fifteen (15) days in advance of environmental soil and water sample collection activity. Upon request, Work Respondent shall allow split and/or duplicate samples to be taken by Ohio EPA or its designated contractor. Ohio EPA shall also have the right to take any additional samples it deems necessary. Upon request, Ohio EPA shall allow Work Respondent to take split and/or duplicate samples of any samples Ohio EPA takes as part of its oversight of Work Respondent's implementation of the Work. Unless such samples are taken on an emergency basis, Ohio EPA shall make reasonable efforts to provide three (3) working days' notice of such sampling to allow Work Respondent to participate as indicated. In the event of an emergency sampling event, Work Respondent shall make reasonable efforts to inform the Ohio EPA Site Coordinator as soon as practicable.

27. Within seven (7) days of Work Respondent's receipt of a request by Ohio EPA, Work Respondent shall submit to Ohio EPA copies of the results of all sampling and/or tests or other data, including raw data and original laboratory reports, generated by or on behalf of Work Respondent with respect to the Site and/or the implementation of these Orders. An electronic copy shall also be provided in a format approved by Ohio EPA. Work Respondent may submit to Ohio EPA any interpretive reports and written explanations concerning the raw data and original laboratory reports. Such interpretive reports and written explanations shall not be submitted in lieu of original laboratory reports and raw data. Should Work Respondent subsequently discover an error in any report or raw data, Work Respondent shall promptly notify Ohio EPA of such discovery and provide the correct information.

XI. ACCESS

28. Subject to Paragraph 29, Work Respondent and Ohio EPA and its contractors shall have access at all reasonable times to the Site and any other property to which access is required for the implementation of these Orders, to the extent access to the property is controlled by Respondents. Access under these Orders shall be for the purposes of conducting any activity related to these Orders including but not limited to the following:
a. Monitoring the Work;
b. Conducting sampling [including background monitoring wells];
c. Inspecting and copying records, operating logs, contracts, and other documents related to the implementation of these Orders;
d. Conducting investigations, tests, and other activities associated with the implementation of these Orders; and
e. Verifying any data and/or other information submitted to Ohio EPA.

29. To the extent that the Site or any other property to which access is required for the implementation of these Orders is owned or controlled by persons other than Landowner Respondents, Work Respondent shall use its best efforts to secure access from such persons for Work Respondent and Ohio EPA and its contractors as necessary to effectuate these Orders. Copies of each access agreement obtained by Work Respondent shall be provided to Ohio EPA upon execution of the access agreement. If any access required to implement these Orders is not obtained prior to Work Respondent’s submission of the RD/RA Work Plan, unless otherwise agreed to in writing by Ohio EPA, Work Respondent shall promptly notify Ohio EPA in writing of the steps Work Respondent has taken to attempt to obtain access. Ohio EPA may, as it deems appropriate, assist Work Respondent in obtaining access.

30. Notwithstanding any provision of these Orders, the State of Ohio retains all of its access rights and authorities, including enforcement authorities related thereto, under any applicable statute or regulation including but not limited to ORC §§ 3734.20 and 6111.05.

XII. DESIGNATED SITE COORDINATORS

31. Within seven (7) days of the Effective Date of these Orders, Work Respondent shall notify Ohio EPA, in writing, of the name, address and telephone number, and email address of its designated Site Coordinator and Alternate Site Coordinator.

32. As used in these Orders, the term “Site Coordinator” refers interchangeably to the Site Coordinator and the Alternate Site Coordinator designated for a named party. If any designated Site Coordinator is changed, the identity of the successor will be given to the other Party at least seven (7) days before the changes occur, unless impracticable, but in no event later than the actual day the change is made.

33. To the maximum extent practicable, except as specifically provided in these Orders, communications between Work Respondent and Ohio EPA concerning the implementation of these Orders shall be made between the Site Coordinators. Work Respondent’s Site Coordinator shall be available for communication with Ohio EPA
regarding the implementation of these Orders for the duration of these Orders. Each Site Coordinator shall be responsible for ensuring that all communications from the other Party are appropriately disseminated and processed. Work Respondent’s Site Coordinator shall be present on the Site or on call during all hours of Work at the Site.

34. Without limitation of any authority conferred on Ohio EPA by statute or regulation, Ohio EPA’s Site Coordinator’s authority includes but is not limited to the following:

a. Directing the type, quantity and location of samples to be collected by Work Respondent pursuant to an approved Work Plan;

b. Collecting samples;

c. Observing, taking photographs, or otherwise recording information related to the implementation of these Orders, including the use of any mechanical or photographic device;

d. Directing that the Work stop whenever Ohio EPA’s Site Coordinator determines that the activities at the Site may create or exacerbate a threat to public health or safety, or threaten to cause or contribute to air or water pollution or soil contamination;

e. Conducting investigations and tests related to the implementation of these Orders;

f. Inspecting and copying records, operating logs, contracts and/or other documents related to the implementation of these Orders; and

g. Assessing Respondents’ compliance with these Orders.

XIII. PROGRESS REPORTS AND NOTICE

35. Unless otherwise directed by Ohio EPA, Work Respondent shall submit a written progress report to the Ohio EPA by the tenth (10) day of every month. Work Respondent shall simultaneously send a copy of each progress report to J. Gregory Fields or his successor. At a minimum, the progress reports shall include that information designated in Section 10 of the SOW. Monthly reports may not be used to propose modifications to approved plans; Work Respondent shall submit such requests to Ohio EPA in a separate written correspondence.

36. Unless otherwise agreed to, progress reports shall be sent by e-mail with confirmed receipt and by hard copy to the address listed below. All other documents (two copies) required to be submitted pursuant to these Orders to Ohio EPA shall be sent to the following agency address(s):
Maria Galanti, or her successor  
Ohio EPA, DERR  
Southeast District Office  
2195 Front Street  
Logan, Ohio 43138  

Email address: Maria_Galanti@epa.ohio.gov

and

John Rochotte, or his successor  
Ohio EPA, DERR  
Southeast District Office  
2195 Front Street  
Logan, Ohio 43138  

Email address: John_Rochotte@epa.ohio.gov

All written (including electronic) correspondence to Work Respondent shall be directed to:

Mr. Ronald Clark, or his successor  
The Goodyear Tire & Rubber Company  
200 Innovation Way  
Akron, Ohio 44136  

Email address: ron_clark@goodyear.com

All communications, oral or written, with Landowner Respondents SCS and J. Gregory Fields shall be directed to:

Mr. J. Gregory Fields  
156 West South Street  
Jackson, Ohio 45640  
(740) 286-2594

And

Mr. Jack Van Kley  
Van Kley & Walker, LLC  
132 Northwoods Blvd., Suite C-1  
Columbus, Ohio 43235
(614) 431-8900
ivankley@vankleywalker.com

All communications, oral or written, with Landowner Respondents Shawn Sexton and Melissa Sexton shall be directed to:

Mr. Shawn Sexton
2336 Smith Bridge Road
Jackson, Ohio 45640
(740) 285-7641 or (740) 285-7333
sextonsexc@gmail.com

A Party may designate an alternative contact name or address upon written notification to the other Party and in accordance with the Designated Site Coordinators Section of these Orders, as applicable.

XIV. REVIEW OF SUBMISSIONS

37. Ohio EPA shall review any work plan, report, or other item required to be submitted pursuant to these Orders.

38. Upon review, Ohio EPA may in its sole discretion: (a) approve the submission in whole or in part; (b) approve the submission with specified conditions; (c) modify or, modify and approve, the submission; (d) disapprove the submission in whole or in part; or (e) any combination of the above. The results of Ohio EPA’s review shall be detailed in writing and shall identify any conditions, modifications and/or deficiencies. Excluded from Ohio EPA approval pursuant to this Section are the health and safety plan (HASP), progress reports, and the PER (which is subject to approval as a constituent of the RI/FS Work Plan).

39. In the event that Ohio EPA approves an initial submission, Work Respondent shall proceed to take such action as required by Ohio EPA. In the event that Ohio EPA approves with conditions or modification an initial submission, Work Respondent shall either (a) proceed to take such action as required by Ohio EPA, or (b) initiate the procedures for dispute resolution set forth in the Dispute Resolution Section of these Orders, within fourteen (14) days of receipt of Ohio EPA's written response to Work Respondent's submission. Work Respondent shall proceed to take any action required by an unmodified or unconditioned portion of the submission, as those portions are considered approved.

40. In the event that Ohio EPA disapproves an initial submission in whole or in part and notifies Work Respondent in writing of the deficiencies Work Respondent shall within thirty (30) days, or such longer period of time as specified by Ohio EPA in writing, correct the deficiencies, and/or incorporate the conditions, and submit a revised submission to Ohio EPA for approval. The revised submission shall incorporate all of
the changes, additions, and/or deletions specified by Ohio EPA in its notice of disapproval. Revised submissions shall be accompanied by a letter indicating how and where each of Ohio EPA's comments was incorporated into the revised submission. To facilitate review of the revised submission, those portions of the document not affected by the Ohio EPA comments should remain unchanged. The letter accompanying the submission should indicate, however, any indirect changes necessitated by Ohio EPA's comments.

41. To the extent that Work Respondent disputes any of Ohio EPA's changes, additions, and/or deletions to an initial submission, Work Respondent shall initiate the procedures for dispute resolution set forth in the Dispute Resolution Section of these Orders, within fourteen (14) days after receipt of Ohio EPA's written notice of disapproval. Notwithstanding the disapproval, Work Respondent shall proceed to take any action required by a portion of the submission that is not specified as disapproved in the notice of disapproval.

42. In the event that Ohio EPA disapproves or modifies a revised submission, in whole or in part, and notifies Work Respondent in writing of the deficiencies, Work Respondent shall within thirty (30) days, or such longer period of time as specified in writing by Ohio EPA, to (a) correct the deficiencies and incorporate all changes, additions, and/or deletions, and submit the revised submission to Ohio EPA for approval, or (b) initiate the dispute resolution process pursuant to the Dispute Resolution Section of these Orders. If Work Respondent fails to submit a revised submission incorporating all changes, additions, modifications and/or deletions within thirty (30) days, or such longer period of time as specified by Ohio EPA in writing, or alternatively, fails to initiate the procedures for dispute resolution set forth in the dispute resolution section of these Orders, Work Respondent shall be considered in breach and/or violation of these Orders. If Work Respondent is in breach and/or violation of these Orders, Ohio EPA retains the right to perform any additional remediation, conduct a complete or partial RD or RA; and/or enforce the terms of these Orders as provided in the Reservation of Rights Section of these Orders.

43. All work plans, reports, or other items required to be submitted to Ohio EPA under these Orders shall, upon approval by Ohio EPA, be deemed to be incorporated in and made an enforceable part of these Orders. In the event that Ohio EPA approves a portion of a work plan, report, or other item, the approved portion shall be deemed to be incorporated in and made an enforceable part of these Orders.

XV. DISPUTE RESOLUTION

44. The Site Coordinators shall, whenever possible, operate by consensus.

45. In the event of a disapproval, or an approval with condition(s) or modification(s) by Ohio EPA of a submission by Work Respondent, or a disagreement regarding the Work performed under these Orders or reimbursement of Response Costs, or any other
activity or situation in which Dispute Resolution is expressly authorized herein, Work Respondent’s Site Coordinator shall notify Ohio EPA’s Site Coordinator in writing that Work Respondent wishes to invoke an informal dispute pursuant to this Section. The notification to invoke an informal dispute shall occur prior to the submission deadline.

46. The Parties shall have ten (10) days from the date written notice of the informal dispute is received by Ohio EPA’s Site Coordinator to negotiate in good faith to resolve the dispute. This informal dispute resolution period may be extended by agreement of the Site Coordinators for up to twenty (20) additional days.

47. In the event that the dispute is not resolved during the informal dispute resolution period, Work Respondent’s Site Coordinator shall notify Ohio EPA’s Site Coordinator in writing by the end of the informal dispute resolution period that Work Respondent wishes to invoke a formal dispute pursuant to this Section. This notice shall include a brief description of the item(s) in dispute. Within twenty (20) days of receipt of the written notice invoking the formal dispute resolution procedure, the Site Coordinators shall exchange written positions, including technical rationale supporting their positions. The Site Coordinators shall have ten (10) days from the date they have exchanged written positions to negotiate in good faith to resolve the formal dispute. This formal dispute period may be extended by agreement of the Site Coordinators for up to twenty (20) additional days.

48. In the event the dispute is not resolved in the formal dispute resolution period, Work Respondent’s Site Coordinator shall notify Ohio EPA’s Site Coordinator in writing by the end of the formal dispute resolution period whether Work Respondent wishes to submit final written positions to a DERR Manager for review and resolution. The Site Coordinators shall have ten (10) days from the end of the formal dispute resolution period to submit their written positions. The DERR Manager will resolve the dispute based upon and consistent with these Orders, the SOW, the RD/RA Work Plan, and applicable or relevant and appropriate federal and state laws. The decision of the DERR Manager is considered final for the purposes of these Orders.

49. The pendency of a dispute under this Section shall extend only the time period for completion of the item(s) in dispute, except that upon mutual agreement of the Site Coordinators, any time period may be extended as is deemed appropriate under the circumstances. Such agreement shall not be unreasonably withheld by Ohio EPA. Elements of the Work not affected by the dispute shall be completed in accordance with the applicable schedules and time frames.

XVI. UNAVOIDABLE DELAYS

50. Work Respondent shall cause all Work to be performed in accordance with applicable schedules and time frames set forth in these Orders or any approved work plan unless any such performance is prevented or delayed by an event that constitutes an unavoidable delay. For purposes of these Orders, an "unavoidable delay" shall mean an event beyond the control of Work Respondent that prevents or delays
performance of any obligation required by these Orders and that could not be overcome by due diligence on the part of Work Respondent. Increased cost of compliance, among other circumstances, shall not be considered an event beyond the control of Work Respondent for the purposes of these Orders.

51. Work Respondent shall notify Ohio EPA in writing within ten (10) days after the occurrence of an event that Work Respondent contends is an unavoidable delay. Such written notification shall describe the anticipated length of the delay, the cause or causes of the delay, the measures taken and to be taken by Work Respondent to minimize the delay, and the timetable under which these measures will be implemented. Work Respondent shall have the burden of demonstrating that the event constitutes an unavoidable delay.

52. If Ohio EPA does not agree that the delay has been caused by an unavoidable delay, Ohio EPA will notify the Work Respondent in writing of that finding and of the noncompliance with these Orders at which point Work Respondent may invoke the formal dispute resolution procedures in the Dispute Resolution Section of these Orders. If Ohio EPA agrees that the delay is attributable to an unavoidable delay, Ohio EPA will notify Work Respondent in writing of the length of the extension for the performance of the obligations affected by the unavoidable delay.

XVII. REIMBURSEMENT OF COSTS

53. Ohio EPA has incurred and continues to incur Response Costs in connection with the Site. Work Respondent shall reimburse Ohio EPA for all Response Costs incurred both prior to and after the effective date of these Orders. Ohio EPA shall be reimbursed for Past Response Costs incurred as of the Effective Date of these Orders, to the extent such costs were incurred in a manner not inconsistent with the NCP, 40 CFR Part 300 pursuant to paragraph 54 below. Subject to paragraph 55, Ohio EPA shall also be reimbursed for all Future Responses Costs incurred after the Effective Date of these Orders to the extent such costs were incurred in a manner not inconsistent with the NCP, 40 CFR Part 300.

54. Within sixty (60) days of receipt of an itemized invoice for the Response Costs incurred prior to the Effective Date of these Orders, Work Respondent shall remit a check to Ohio EPA for the full amount invoiced.

55. For Response Costs incurred after the Effective Date of these Orders, Ohio EPA will submit to Work Respondent on an annual basis an itemized invoice of its Response Costs for the previous year. Within sixty (60) days of receipt of such itemized invoice, Work Respondent shall remit payment for all of Ohio EPA's Response Costs from the previous year, unless Work Respondent invokes the procedures for dispute resolution set forth in the Dispute Resolution Section of these Orders. To the extent Work Respondent disputes the accuracy of the State of Ohio's request for reimbursement or whether costs are inconsistent with the NCP, Work Respondent shall initiate the formal
dispute resolution provisions of the Dispute Resolution Section within fourteen (14) days after receipt of Ohio EPA's request for reimbursement of costs. Should Work Respondent dispute a portion of the Response Costs set forth in an itemized statement, but not all of the costs, Work Respondent shall timely approve the uncontested portion pursuant to the provisions of the Reimbursement of Costs Section. To the extent Work Respondent disputes the accuracy of the State of Ohio's request for reimbursement or whether costs are inconsistent with the NCP, Work Respondent shall initiate the formal dispute resolution provisions of the Dispute Resolution Section within fourteen (14) days after receipt of Ohio EPA's request for reimbursement of costs. Should Work Respondent dispute a portion of the response costs set forth in an itemized statement, but not all of the costs, Work Respondent shall pay the uncontested portion pursuant to the provisions of the Reimbursement of Costs Section. In the event that Work Respondent does not remit payment of Response Costs within ninety (90) days after receipt of such invoice, Work Respondent shall remit payment for the unpaid balance and the interest accrued on the unpaid balance. Interest shall accrue beginning sixty (60) days from the date of the invoice until the date payment is remitted, and shall be calculated at the rate specified by ORC § 5703.47(B) or any subsequent rate adjustments.

56. Work Respondent shall remit payments to Ohio EPA pursuant to this Section as follows:

a. Payment shall be made by bank check payable to "Treasurer, State of Ohio / Hazardous Waste Special Cleanup Account" and shall be forwarded to Office of Fiscal Administration, Attn: Carol Butler, Ohio EPA, Lazarus Government Center, P.O. Box 1049, Columbus, Ohio 43216-1049;

b. A copy of the transmittal letter and check shall be sent to the Fiscal Officer, DERR, Ohio EPA, P.O. Box 1049, Columbus, Ohio 43216-1049, and to the Ohio EPA Site Coordinator; and

c. Each payment shall identify the name and address of the party making payment, the Site name, and Ohio EPA's revenue number identified on the associated invoice.

57. Ohio EPA shall reimburse Work Respondent for costs associated with Site closure and/or post closure care activities from the Owner's Trust Fund until the Owner's Trust Fund is fully utilized. Ohio EPA shall remit payment by check, payable to the Goodyear Tire & Rubber Company to the person listed in Paragraph 3b. Reimbursement shall occur as follows:

a. Work Respondent shall submit a summary of itemized costs and supporting documentation to Ohio EPA no more frequently than a quarterly basis for costs Work Respondent has incurred for closure and/or post closure care activities at the Site.
b. Ohio EPA shall review the itemized submittal to confirm that the expenditures were undertaken consistent with the Remedial Design and Remedial Action Work Plan and consistent with the stipulations of the Owner's Trust Fund.

c. Within sixty (60) days of Ohio EPA's receipt of the Work cost materials described in subparagraph 57.a, Ohio EPA shall either (i) remit payment to Work Respondent as provided in this Paragraph; or (ii) notify Work Respondent in writing if Ohio EPA determines that any costs were incurred not in accordance with the Remedial Design and Remedial Action Work Plan, and/or the stipulations of the Owner's Trust Fund. If the parties cannot resolve their differences with respect to the disputed costs described in subparagraph 57.c.ii, either party may invoke the procedures for dispute resolution set forth in the Dispute Resolution Section of these Orders.

XVIII. ACCESS TO INFORMATION

58. Upon request, Work Respondent shall provide to Ohio EPA within fourteen (14) days, copies of all documents and information within its possession or control or that of its contractors or agents relating to events or conditions at the Site including but not limited to manifests, reports, correspondence, or other documents or information related to the Work. This provision shall not be a limitation on any request for information to the Work Respondent by Ohio EPA made under state or federal law for information relating to events or conditions at the Site. Work Respondent shall provide J. Gregory Fields with a copy of the work plans, reports, and other deliverables at the time these documents are submitted to Ohio EPA (copies need not be provided to Mr. Fields' counsel).

59. Work Respondent may assert a claim that documents or other information submitted to Ohio EPA pursuant to these Orders are confidential under the provisions of OAC Rule 3745-50-30 or ORC § 6111.05(A). If no such claim of confidentiality accompanies the documents or other information when it is submitted to Ohio EPA, it may be made available to the public without notice to Work Respondent.

60. Work Respondent may assert that certain documents or other information are privileged under the attorney-client privilege or any other privilege recognized by state law. If Work Respondent makes such an assertion, it shall provide Ohio EPA with the following: (1) the title of the document or information; (2) the date of the document or information; (3) the name and title of the author of the document or information; (4) the name and title of each addressee and recipient; (5) a general description of the contents of the document or information; and (6) the privilege being asserted by Work Respondent.
61. No claim of confidentiality shall be made with respect to any data or reports, including but not limited to laboratory or interpretive reports, and all sampling, analytical, and monitoring data.

62. Work Respondent shall preserve for the duration of these Orders and for a minimum of ten (10) years after termination of these Orders, all documents and other information within its possession or control, or within the possession or control of its contractors or agents, which in any way relate to the Work notwithstanding any document retention policy to the contrary. Work Respondent may preserve such documents by microfiche or other electronic or photographic device. At the conclusion of this document retention period, Work Respondent shall notify Ohio EPA at least sixty (60) days prior to the destruction of these documents or other information; and upon request, shall deliver such documents and other information to Ohio EPA.

XIX. PERIODIC REVIEW

63. Work Respondent shall conduct studies and investigations as requested by Ohio EPA in order to permit Ohio EPA to conduct reviews as to the effectiveness of the Remedial Action at least every five (5) years as described in section 121(c) of CERCLA and any applicable regulations.

64. If Ohio EPA determines that information received, in whole or in part, during a review conducted pursuant to the Periodic Review Section of these Orders indicates that the Remedial Action is not protective of public health and safety and the environment, the Work Respondent shall undertake any further response actions Ohio EPA has determined are appropriate. Work Respondent shall submit a plan for such work to Ohio EPA for approval in accordance with the procedures set forth in the Review of Submissions Section of these Orders, within thirty (30) days of receiving a request from Ohio EPA to submit such a work plan.

65. Work Respondent may invoke the procedures in the Dispute Resolution Section to dispute (1) Ohio EPA's determination that the RA is not protective of public health and safety and the environment, or (2) Ohio EPA's selection of further response actions.

XX. MODIFICATIONS

66. These Orders may be modified by agreement of the Parties. Modifications shall be in writing, signed by the authorized representative of the Work Respondent and by the Director, and shall be effective on the date entered in the Journal of the Director of Ohio EPA.

XXI. INDEMNITY
67. Work Respondent agrees to indemnify, save, and hold harmless Ohio EPA from any and all claims or causes of action arising from, or related to, the implementation of these Orders or to events or conditions at the Site, including any acts or omissions of Work Respondent, and their successors in interest. Said indemnification shall not apply to acts or omissions of the State of Ohio, its employees, agents or assigns at, on, upon, or related to the Site if said acts are negligent, performed outside the scope of employment or official responsibilities, or performed with malicious purpose, in bad faith, or in a wanton or reckless manner. Ohio EPA shall not be considered a party to and shall not be held liable under any contract entered into by Respondents in carrying out the activities pursuant to these Orders. Ohio EPA agrees to provide notice to Respondents within thirty (30) days after receipt of any claim that may be the subject of indemnity as provided in this Section, and to cooperate with Work Respondent in the defense of any such claim or action against Ohio EPA.

XXII. CONTRIBUTION AND AGREEMENT NOT TO REFER

69. With respect to matters addressed in these Orders, the Parties hereto agree that these Orders constitute an administrative settlement for purposes of CERCLA sections 113(f)(2) and 113(f)(3)(B), 42 U.S.C. § 9613(f)(2) and § 9613(f)(3)(B), pursuant to which Respondents have resolved their liability to the State, and that Respondents are entitled to contribution protection and contribution rights as of the Effective Date of these Orders as to any liable persons who are not parties to these Orders, as provided by CERCLA section 113(f)(2) and (f)(3)(B), 42 U.S.C. § 9613(f)(2) and (f)(3)(B), provided that Respondents comply with these Orders. The "matters addressed" in these Orders are all investigative and remedial actions taken or to be taken and all response costs incurred or to be incurred by Ohio EPA or any other person with respect to the Site, including without limitation the Work and Response Costs under these Orders.

70. During the implementation of these Orders, and provided Respondents are in compliance with these Orders, Ohio EPA agrees not to refer Respondents to the Ohio AGO for enforcement, or take administrative enforcement action against Respondents or their successors in interest for Work required under these Orders at the Site. Upon termination of these Orders pursuant to the Termination Section, Ohio EPA agrees to not refer Respondents to the Ohio AGO for enforcement, or take administrative enforcement action against Respondents and their successors in interest liable under Ohio law for Work required under these Orders at the Site.

XXIII. OTHER CLAIMS

71. Nothing in these Orders shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any person, firm, partnership, or corporation not a Party to these Orders, for any liability arising from, or related to, events or conditions at the Site.
XXIV. RESERVATION OF RIGHTS

72. Ohio EPA reserves the right to seek legal and/or equitable relief to enforce the terms and conditions of these Orders, including penalties against Respondents for noncompliance with these Orders. Except as provided herein, Respondents reserve any rights they may have to raise any legal or equitable defense in any action brought by Ohio EPA to enforce the terms and conditions of these Orders.

73. Ohio EPA reserves the right to terminate these Orders and/or perform all or any portion of the Work or any other measures in the event that the requirements of these Orders are not wholly complied with within the time frames required by these Orders provided the Work at issue is not being disputed pursuant to the Dispute Resolution Section of these Orders.

74. Ohio EPA reserves the right to take any action, including but not limited to any enforcement action, action to recover costs, or action to recover damages to natural resources, pursuant to any available legal authority as a result of past, present, or future violations of state or federal laws or regulations or the common law, and/or as a result of events or conditions arising from, or related to, the Site. Respondents reserve their rights to defend any such enforcement action, action to recover costs, or action to recover damages to natural resources and to raise any counterclaim, affirmative defense, third party claim or cross claim which they may have with respect to these actions. Upon termination pursuant to the Termination Section of these Orders, Respondents shall have resolved their liability to Ohio EPA only for the Work performed pursuant to these Orders.

75. Respondents reserve all rights, claims, demands and causes of action they may have against any and all persons and entities who are not parties to these Orders, including rights of contribution against any other parties who may be liable for actual or threatened releases of Contamination at the Site.

76. Nothing in these Orders shall be construed to reduce or revoke the release of liability, satisfaction of lawsuit, or contribution protection provided by Paragraphs 15 and 17 of the Consent Decree between the State of Ohio and SCS, J. Gregory Fields, and Sally Fields.

XXV. TERMINATION

77. Respondents' obligations under these Orders shall terminate upon Ohio EPA's written approval of Work Respondent's written certifications to Ohio EPA that all Work required to be performed under these Orders including payment of Response Costs has been completed. The Work Respondent's certifications shall contain the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate, and complete." These certifications shall be submitted by Work Respondent to Ohio EPA and shall be signed by a responsible official of Work
Respondent. The termination of Respondents' obligations under these Orders shall not terminate the Respondents' obligations under the Reservation of Rights, Access to Information, Indemnity, Other Claims, Contribution and Agreement Not to Refer, and Land Use and Conveyance of Title Sections of these Orders. Once submitted, the Ohio EPA Site Coordinator shall make his/her best efforts to promptly review Work Respondent's written certifications for approval or disapproval and approve or disapprove such certifications.

**XXVI. WAIVER AND AGREEMENT**

78. In order to resolve disputed claims, without admission of fact, violation, or liability, Respondents consent to the issuance of these Orders, and agrees to comply with these Orders.

79. Respondents hereby waive the right to appeal the issuance, terms and conditions, and service of these Orders and Respondents hereby waive any and all rights that it may have to seek administrative or judicial review of these Orders either in law or equity.

80. Notwithstanding the waiver herein of Respondents' right to appeal or seek administrative or judicial review, Ohio EPA and Respondents agree if these Orders are appealed by any other party to the Environmental Review Appeals Commission, or any court, Respondents retain the right to intervene and participate in such appeal. In such event, Respondents shall continue to comply with these Orders notwithstanding such appeal and intervention unless these Orders are stayed, vacated or modified.

**XXVII. EFFECTIVE DATE**

81. The Effective Date of these Orders shall be the date these Orders are entered in the Journal of the Director of Ohio EPA ("Effective Date").

**XXVIII. SIGNATORY AUTHORITY**

82. Each undersigned representative of a Party to these Orders certifies that he or she is fully authorized to enter into these Orders and to legally bind such Party to these Orders.
IT IS SO ORDERED AND AGREED:

OHIO ENVIRONMENTAL PROTECTION AGENCY

Craig W. Butler, Director
Ohio Environmental Protection Agency

12/14/16
Date
IT IS SO AGREED:

The Goodyear Tire & Rubber Company

BY: ____________________________
Signature

______________________________
Date

Dennis E. McGavis, Vice President, EHS & Sustainability

Printed Name & Title
Sanitation Commercial Services, Inc.

BY: Sanitation Commercial Services, Inc.

Signature: J. Gregory Fields

Date: 10-25-16

Printed Name & Title: J. Gregory Fields, Pres.

J. Gregory Fields

BY: J. Gregory Fields

Date: 10-25-16
Shawn Sexton

BY: Shawn Sexton

Signature

SHAWN SEXTON LAND OWNER

Printed Name & Title

11-2-16

Date
APPENDIX A

DECISION DOCUMENT
Decision Document

FOR THE REMEDIATION OF THE
JACKSON COUNTY LANDFILL
CITY OF JACKSON, JACKSON COUNTY, OHIO

Ohio Environmental Protection Agency
Division of Environmental Response and Revitalization
Southeast District Office
September 2015

I certify this to be a true and accurate copy of the official documents as filed in the records of the Ohio Environmental Protection Agency.

By: [Signature]
Date: 9-15-15
Ohio EPA Announces Decision Document

On February 13, 2015, Ohio EPA issued a Preferred Plan that outlined Ohio EPA's preferred alternative to remediate contamination at the Jackson County Landfill site. Ohio EPA held a public meeting on April 9, 2015 at the Jackson City Council Chambers located at 199 Portsmouth Street in Jackson, to explain the Preferred Plan. Oral and written comments were accepted at this meeting during the comment period which ran from February 17, 2015 to April 17, 2015. Section 8.0 (Response to Comments) of this Decision Document summarizes the comments and Ohio EPA's responses.

Based on the Preferred Plan and the consideration of comments received during the comment period, Ohio EPA is issuing this Decision Document identifying the selected remedial alternative for the cleanup of the contaminated soil and groundwater at the site, and providing the rationale for the selection. It also includes summaries of other remedial alternatives evaluated at this site.

Ohio EPA is issuing this Decision Document in a manner consistent with Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). It summarizes information found in detail in the RI/FS reports and other documents contained in the administrative record file for this site. Ohio EPA encourages the public to review these documents to gain a better understanding of the site and the activities that have been conducted at the site.

ERAC Appeal Period: As a final action of the Director of Ohio EPA, the Decision Document may be appealed to the Environmental Review Appeals Commission (ERAC) pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set for the action complained of and the grounds upon which the appeal is based. The appeal must be filed with ERAC (77 South High Street, 17th Floor, Columbus, OH 43215) within 30 days after notice of the Director’s action.

Additional Information: Available from the Ohio EPA Southeast District Office located at 2195 E. Front St., Logan, Ohio 43138, or from the Site Coordinator, Dustin Tschudy, at (740) 380-5253 or via email at dustin.tschudy@epa.ohio.gov. Additional information is also available at the information repository located at the Jackson County Library, 21 Broadway Street, Jackson, Ohio 45640, (740) 286-4111, Monday & Wednesday 10 am – 6 pm; Tuesday & Thursday 10 am - 6 pm; Friday 10 am - 5 pm and Saturday 10 am –2 pm.
DECLARATION

SITE NAME AND LOCATION

Jackson County Landfill
1841 Smith Bridge Road
Jackson, Jackson County, Ohio

STATEMENT OF BASIS AND PURPOSE

This Decision Document presents the selected remedial action for the Jackson County Landfill in Jackson, Jackson County, Ohio, chosen in accordance with the policies of the Ohio Environmental Protection Agency, statutes and regulations of the State of Ohio, and the NCP, 40 CFR Part 300.

ASSESSMENT OF THE SITE

Actual and threatened releases of leachate with hazardous constituents and methane gas at the site, if not addressed by implementing the RA selected in the Decision Document, constitute a substantial threat to public health or safety and are causing or contributing to air or water pollution or soil contamination.

The Jackson County Landfill began operations in 1970 as a municipal solid waste landfill accepting more than 5,000 drums of industrial waste for disposal between 1974 and 1980. The landfill ceased accepting waste in 1987; however it was never properly closed, leading to outbreaks of leachate throughout the landfill.

DESCRIPTION OF THE SELECTED REMEDY

The major components of the selected remedial alternative include: a geomembrane cap, ground water monitoring, a soil gas collection system, a leachate collection system, site security, a long term operations and maintenance plan, institutional controls, and a potential contingency to evaluate and possibly install a wetland for treatment of leachate if a sufficient amount of leachate is being generated.

STATUTORY DETERMINATIONS

The selected remedial action is protective of human health and the environment, complies with legally applicable state and federal requirements, is responsive to received public input and is cost-effective. The remedy uses permanent solutions and treatment technologies to the maximum extent practicable to reduce toxicity, mobility and volume of hazardous substances at the site. The effectiveness of the remedy will be reviewed regularly.

Craig W. Butler, Director
Date 9/14/15
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Primary Contaminants of Concern

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</tbody>
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1.0 EXECUTIVE SUMMARY

On April 29, 2009, the RI report was approved by Ohio EPA. The RI report documented the existence of contamination throughout the landfill which would require clean up. The primary contaminants of concern (COCs) at the site are shown in Table 3 of this Decision Document, and include: aluminum, arsenic, manganese, tetrachloroethylene, vinyl chloride, antimony, cobalt, mercury, benzene, cadmium, chromium, selenium, barium, copper, lead, methane, zinc, di-n-butyl-phthalate, and PCBs. Additional details concerning the health risks associated with each primary COC are located in Appendix B.

This Decision Document summarizes information on the range of remedial alternatives evaluated, identifies Ohio EPA's selected remedial alternative, and explains the reasons for selection of the remedial alternative. The Decision Document is based on: a RI report, approved April 29, 2009; a report approved June 15, 2010, prepared by Goodyear; and the July 6, 2012 Ohio EPA approval of Goodyear's request for an exemption pursuant to Ohio Revised Code (ORC) 3734.02(G) with respect to several landfill capping requirements.

The major health and environmental risks of this site primarily result from potential future use scenarios. At present, the landfill does not meet Ohio's laws and regulations pertaining to proper closure and there is a risk from the presence and migration of soil gas, some of which contains high concentrations of methane. The primary COCs at the site are shown in Table 3 in this Decision Document. Additional details concerning the health risks associated with each primary COC are located in Appendix A.

Ohio EPA's selected remedial alternative should yield a permanent solution for risks associated with the contaminated media at the site. The expectations for the selected alternative include:

- Reduction of human health risks to within or below acceptable limits, and protection of human health and the environment from exposure to COCs, which are above acceptable limits in the ground water, soil and surface water.

- Short and long-term protection of public health and the environment.

- Compliance with applicable or relevant and appropriate requirements (ARARs) through the completion of a landfill cap and the collection and appropriate treatment of landfill leachate and soil gas.

- Cost-effectiveness and limitation of expenses to what is necessary to achieve the selected alternative expectations.

The major components of the selected remedial alternative include: landfill capping, ground water monitoring, and collection of the leachate for off-site disposal.

Ohio EPA finds that these measures will protect public health and the environment by reducing risk to acceptable levels once the RA objectives have been achieved.
2.0 SUMMARY OF SITE CONDITIONS

2.1 Site History

The Jackson County Landfill site is located in a mixed area of residential properties and undeveloped rural land primarily used for hunting. The site is approximately 24 acres in size and is located at 1841 Smith Bridge Road (County Road 60), Jackson, Ohio, as shown in Figure 1 and Drawing 2. Salt Lick Creek is present west and north of the landfill and Lake Katharine State Nature Preserve is located on the west side of Salt Lick Creek. Private land abuts the landfill on the southeast side. This private land is used by an excavating company for the storage and repair of equipment and by a private hunting club. There is a maintenance garage, used by the excavating company, located approximately 50 feet southeast of the landfill property line. The private hunting club's lodge is also southeast of the landfill located approximately 100 feet from the property line. The hunting lodge is occupied most weekends by the members. In addition, there is a storage shed located approximately 60 feet from the landfill property line. Although none of these structures are occupied full time, the lodge is often occupied on the weekends.

A chronological list of owners, operators and/or disposers at the site property is shown in Table 1.

<table>
<thead>
<tr>
<th>Owners, Operators and/or Disposers</th>
<th>Property Usage</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donald Jenkins</td>
<td>Owner and operator</td>
<td>April 1970 - March 1972</td>
</tr>
<tr>
<td>J. Gregory Fields (Sanitation Commercial Services)</td>
<td>Owner</td>
<td>March 1972 - present</td>
</tr>
<tr>
<td>J. Gregory Fields (Sanitation Commercial Services)</td>
<td>Operator</td>
<td>March 1972 - September 1987</td>
</tr>
<tr>
<td>Shawn and Melissa Sexton</td>
<td>Owners</td>
<td>March 15, 1999 to present</td>
</tr>
</tbody>
</table>

Note: this is not an exhaustive list; other disposers may be identified.

During its operation between April 1970 and September 1987, the Jackson County Landfill accepted "industrial waste" and/or "other waste" as defined in ORC § 6111.01 (C) and (D), and/or "hazardous wastes" as defined in ORC § 3734.01(J), and/or "hazardous substances" as defined in Section 101(14) of the Comprehensive Environmental Response, Compensation & Liability Act / Superfund Amendment and Reauthorization Act (CERCLA/SARA). Wastes disposed of at the Jackson County Landfill included municipal waste and drummed materials, including: acetone, polyester resin mixture, cyclohexanone, dichloromethane, isobutyl alcohol, methyl ethyl ketone, methyl isobutyl ketone, toluene, xylene, and waste styrene mixture. Foundry sand containing certain metals (including arsenic, barium, cadmium, lead and mercury) was also used as daily cover at the site and was disposed of in a staging area on the property, the portion of which is currently owned by the Sextons.

According to records obtained by Ohio EPA in response to information requests, between approximately 1974 and 1980, the owner/operator of Jackson County Landfill accepted and
disposed of at least 5,772 drums that contained contaminants. The landfill permanently ceased accepting waste in approximately September 1987. However, the landfill was never properly closed, nor was the minimal cap which was placed on the waste, maintained. As a result, there have been releases of hazardous wastes occurring since at least 1996. In 1996, Ohio EPA found elevated concentrations of ammonia, iron, nickel, and lead above water quality criteria in leachate originating at the landfill. In addition, three volatile organic compounds (VOCs) – benzene, xylene and 1,2,4-trimethylbenzene were found. Benzene was detected above both the screening criteria and its maximum contaminant level (MCL). The detection of these compounds and metals indicated that constituents were being released into the environment from the landfill.

Prior enforcement activities associated with the site include Director’s Final Findings and Orders (DFFOs) issued August 20, 1987 ordering the proper closure of the landfill, ground water monitoring, and abatement of leachate at the Jackson County Landfill. When the DFFOs were not followed, additional enforcement was taken by the Ohio Attorney General’s Office against Sanitary Commercial Services/Mr. J. Gregory Fields. This enforcement case was settled with a Consent Decree dated February 16, 1999 issued by the United States District Court for the Southern District of Ohio, Eastern Division. The Consent Decree required Sanitation Commercial Services, Inc., et al. to pay $225,000 into a trust fund for the purpose of closure and post-closure care of the Jackson County Landfill. However, due to the disposal of hazardous waste at the landfill constructed for the acceptance of solid waste and the extensive leachate problem, it was determined that a Remedial Investigation and Feasibility Study (RI/FS) would be conducted in order to investigate, and evaluate cleanup options for properly closing the landfill.

On August 16, 2005, Goodyear and Sanitation Commercial Services entered into DFFOs for the completion of a RI/FS for the Jackson County Landfill. This Preferred Plan describes the findings from the RI/FS and proposes a remedy based on these findings.

On December 8, 2011, Goodyear submitted a request to Ohio EPA for an exemption from landfill capping requirements pursuant to ORC 3734.02(G). Upon review of the request for an exemption, Ohio EPA found that Goodyear had made a technical demonstration that an exemption from certain capping requirements was unlikely to adversely impact human health, safety or the environment. Accordingly, Ohio EPA approved Goodyear’s exemption request on July 6, 2012. The exemption allows the following modifications as part of the remedy:

- Regrade and use existing soils that have been shown through testing to have the required permeability as the minimum 18-inch thick soil barrier.
- Flexibility on placing the soil cap above all areas of waste placement due to constraints such as the slope along the western landfill boundary which will make it impracticable for the soil cap to be placed in some areas.
- Since the existing soil cover may be used instead of off-site borrow soil, pre-construction permeability testing for the soil will not be needed. Goodyear is expected to perform tests on borrow soils if needed to supplement the existing soil cover.
- The existing soil cover will not need the same testing and specification requirements as a recompacted soil barrier, so these testing and specification requirements are not required. As an alternative, Goodyear would develop construction quality controls, for Ohio EPA approval, during remedial design.
The cap protection layers are expected to be 24 inches instead of the 30-inch freeze protection requirement. This is due to the fact that the average soil temperatures in the area of the Jackson County Landfill do not warrant a 30-inch thick cap layer for freeze protection.

2.2 Site Characteristics

Pursuant to the 2005 RI/FS DFFOs, Goodyear completed RI/FS activities and submitted RI and FS reports, which were approved by Ohio EPA DERR on April 29, 2009 and June 15, 2010, respectively. The RI/FS activities identified the nature and extent of contamination at the site, and developed alternatives to address the contamination and site specific conditions.

Additionally, the data obtained were used to conduct a baseline risk assessment, which is an evaluation of the site risks to human health and the environment. The RI and FS reports contain more detailed information. These reports, along with other site related materials, are located in the information repository at the Jackson County Library and at Ohio EPA's Southeast District Office in Logan, Ohio.

The RI report, prepared by Goodyear's consultant, Parsons, between July 7, 2007 and April 29, 2009, indicated that:

- The landfill wastes cover approximately 24 total acres with an additional one acre area, located just east of the landfill waste, filled with foundry sand (see Drawing 2).

- The landfill cover and the thickness of the cover material were evaluated. The cover thickness varies from less than 12 inches to over 50 inches thick (see Drawing 3).

- The soils outside of the landfill boundary were impacted with metals above action levels. The metals that were above action levels were: aluminum, arsenic, iron, manganese, thallium, vanadium, and zinc (see Drawing 4).

- Ground water contamination has been located at three different zones, defined by the depth of the ground water zone below ground surface. The shallow upper zone, located in the Massillon Sandstone, is monitored by two wells, MW-6 and MW-9S. The shallow intermediate zone, most likely the Sciotoville Shale formation, is monitored by five wells, MW-2, MW-4, MW-6L, MW-7 and MW-9L. The third zone, referred to as the deep zone, is the Sharon Conglomerate and is monitored by seven wells, MW-1, MW-2D, MW-3, MW-5, MW-6D, MW-7D and MW-9D. The monitoring wells range in depth between 17 feet and 172 feet below ground surface. VOCs and metals were detected in all three ground water zones. However, while there were seven different VOCs found in ground water above their respective action levels; only vinyl chloride and tetrachloroethylene exceeded their MCLs. In addition, there were nine different metals detected above the action level. Of the detected metals, only arsenic and mercury were found above their respective MCLs. There have been no interim or removal actions completed on the ground water plume (see Drawing 5).

- Soil gas (air present in soil) sampling found an extensive number of VOCs as well as methane being released to the atmosphere. As the air migrates or travels in the
subsurface along lines of least resistance it will move to locations where it can be released to the atmosphere. On the Jackson County Landfill, soil gas has been visible as air bubbles appearing in puddles of water which have accumulated on the land surface. There were 22 VOCs detected above their respective action levels in the soil gas samples which were collected. In addition, methane, an explosive gas, was detected in 13 out of 20 samples. The concentrations of methane ranged from a low of 2.6% to a high of 71% by volume of the sample. The greatest risk from methane is posed by the potential migration of the gas into a building where it can build up and cause an explosion. Sample GS-17 was collected adjacent to the storage shed; methane was detected at 48% by volume in this sample. The sample collected closest to the maintenance garage, GS-03, detected methane at 54% by volume. However, samples collected directly below the hunting lodge were non-detect for methane although one sample collected below the garage detected methane at 2.6% by volume (see Drawing 9).

- Leachate was sampled at 14 seeps. In addition to analyzing the leachate, the amount of leachate flowing from the landfill was also measured. There were four VOCs, one semi-volatile organic compound (SVOC) and 14 metals found above the action level. The quantity of leachate water ranged from a low of 0.83 gallons per minute (gpm) [1,195.2 gallons per day] to a high of 6.53 gpm [9,403.2 gallons per day] (see Drawing 7).

- Sediment (soil which is under water) was sampled at the leachate seeps and at four drainage ditches where the leachate flows off-site. The leachate sediment contained six metals above action levels while the ditch sediment samples contained one SVOC and five metals above action levels (see Drawings 6 & 8).

2.3 Summary of Site Risks

As part of the RI/FS, an Ecological Risk Assessment was conducted by Goodyear and approved by Ohio EPA on March 12, 2009. A human health baseline risk assessment was conducted by Goodyear and approved by Ohio EPA on April 6, 2009 (see Section 2.3.2). The baseline risk assessment evaluated current and potential risks to human health as the result of exposure to COCs present at the site. The results demonstrated that the existing COCs in environmental media pose or potentially pose unacceptable risks under a hypothetical future residential use scenario. The Ecological Risk Assessment indicated a potential risk to ecological receptors sufficient to trigger the need for remedial actions. Information on the primary COCs can be found in Appendix A.

2.3.1 Risks to Human Health

The baseline risk assessment for human health is an estimate of the likelihood of health problems occurring if no cleanup action is taken at the site. To estimate baseline risk, a four-step process is undertaken.

**Step 1. Analyze Contamination:** The concentrations of COCs at the site, as well as past scientific studies on the effects these COCs have had on people, are reviewed. Comparisons of site-specific concentrations of COCs and concentrations reported in
past studies help determine which COCs are most likely to pose the greatest threat to human health.

Step 2. Estimate Exposure: The different ways that people might be exposed to the COCs (exposure pathways), the concentrations that people might be exposed to, and the potential frequency and duration of the exposure are evaluated. A reasonable maximum exposure scenario is calculated, which portrays the highest level of human exposure that could reasonably be expected to occur.

Step 3. Assess Potential Health Dangers: The information from Step 2 is combined with data on the toxicity of each COC to assess potential health risks. Two types of risk are considered: cancer risk and non-cancer hazards. The likelihood of cancer resulting from a site is expressed as an upper bound probability of 1 in 100,000, or 1x10^{-5}. In other words, for every 100,000 people that could be exposed, one extra case of cancer may occur as a result of exposure to site COCs. For non-cancer health effects, a hazard index (HI) or hazard quotient (HQ) is calculated (quotient refers to the effects of an individual COC, whereas index refers to the combined effects of all of the COCs). The key concept is that a "threshold level" (measured as an HQ or HI of 1) exists below which non-cancer health effects are no longer expected.

Step 4. Characterize Site Risk: A determination is made as to whether site risks are great enough to cause health problems for people at or near the site. The potential risks from the individual pathways are added up to determine the total cumulative risk to human health.

A human health risk assessment for the site was prepared to evaluate potential adverse impacts to human health posed by COCs in soil, groundwater, seep water (leachate), soil gas, sediment, and in the following exposure pathways: current and future on-site recreational users — adults and children; future commercial workers, future construction workers, hypothetical future residents, and hypothetical future ground water users. If site-specific data were not available, standard defaults were used.

Recreational Use
The risk assessment calculations show that the total cancer risk and total HI resulting from exposure to COCs including aluminum, arsenic, barium, cadmium, iron, manganese, mercury, thallium, vanadium, benzene, benzo(a)pyrene, 1,4-dichlorobenzene and Polychlorinated Biphenyls [PCBs] (Aroclors 1242, 1248, 1254 and 1260) in soil, sediment, and seep water for a current/future adult recreational user were calculated to be 8.7 x 10^{-6} and 0.1, respectively. Both the total cancer risk and the total HI level are below the target cancer risk level of 1 x 10^{-5} and target hazard level of 1. Therefore, exposure to the contaminants in soil, sediment and seep water should not result in adverse health effects for the current/future adult recreational user.

The risk assessment calculations show that the total cancer risk and total HI resulting from exposure to COCs including aluminum, arsenic, barium, cadmium, iron, manganese, mercury, thallium, vanadium, benzene, benzo(a)pyrene, 1,4-dichlorobenzene and PCBs (Aroclors 1242, 1248, 1254 and 1260) in soil, sediment, and seep water for a current/future adolescent recreational user were calculated to be 1.2 x 10^{-5} and 0.5, respectively. The total
cancer risk is just slightly above the target cancer risk level of $1 \times 10^{-5}$ while the total HI level is below the target hazard level of 1.

**Commercial Use**
The risk assessment calculations show that the total cancer risk and total HI resulting from exposure to COCs including aluminum, arsenic, iron, manganese, thallium, vanadium, benzene, trichloroethene, vinyl chloride, cis-1,2-dichloroethene, tetrachloroethylene, xylenes, etc. in soil, soil gas, and ground water for a future commercial worker were calculated to be $9.5 \times 10^{-6}$ and 0.8, respectively. The total cancer risk and total hazard risk are both below the target cancer risk level of $1 \times 10^{-5}$ and the target hazard level of 1. Therefore, potential exposure to chemicals in soil and ground water for future commercial use should not result in adverse health effects for this category of receptor.

**Construction Worker**
The risk assessment calculations show that the total cancer risk and total HI resulting from direct contact to COCs including aluminum, arsenic, barium, iron, lead, manganese, mercury, thallium, vanadium, benzene, trichloroethene, vinyl chloride, cis-1,2-dichloroethene, tetrachloroethylene, etc. in soil and ground water for a future construction worker were calculated to be $6 \times 10^{-7}$ and 16, respectively. The total cancer risk is below the target cancer risk level of $1 \times 10^{-5}$; however, the total HI exceeds the target hazard level of 1. The primary COCs associated with the exceedance for this receptor are aluminum and manganese detected in soil and the pathway of concern is inhalation of particulates during construction activities. The highest concentration of aluminum was detected at sampling location B-2 at a depth of 0-2 feet and the highest concentration of manganese was detected at sampling location B-4 at a depth of 1-2 feet.

**Residential Use**
The risk assessment calculations show that the total cancer risk and total HI resulting from direct contact to COCs including aluminum, arsenic, iron, manganese, thallium, vanadium, benzene, tetrachloroethylene, trichloroethene, vinyl chloride, cis-1,2-dichloroethene, ethylbenzene, xylene, etc. in soil, soil gas and ground water for a future hypothetical adult resident were calculated to be $3 \times 10^{-5}$ and 3, respectively. Both the total cancer risk and the total HI exceed the target cancer risk level of $1 \times 10^{-5}$ and the target hazard level of 1. The primary COCs associated with the exceedance for this receptor population are benzene and xylene detected in soil gas and the pathway of concern is inhalation of volatiles from soil in an enclosed space.

The risk assessment calculations show that the total cancer risk and total HI resulting from direct contact to COCs in soil and ground water for a future hypothetical child resident were calculated to be $2.0 \times 10^{-5}$ and 5, respectively. Both the total cancer risk and the total HI exceed the target cancer risk level of $1 \times 10^{-5}$ and the target hazard level of 1. The primary COCs associated with the exceedance for this receptor population are xylenes (detected in soil gas), and arsenic and iron (detected in soil). The pathway of concern is inhalation of volatiles from soil in an enclosed space along with the incidental ingestion of soil.
Ground Water Use

The risk assessment calculations show that for a future hypothetical adult resident the total cancer risk and total HI resulting from ingestion of ground water are $3 \times 10^{-4}$ and 13, respectively. Both the total cancer risk and total HI exceed the target cancer risk level of $1 \times 10^{-5}$ and the target hazard level of 1. When the risk from drinking ground water is added to the risk from soil exposure for a hypothetical adult resident, the total risk for a hypothetical adult resident increases to $3 \times 10^{-4}$ for total cancer risk and 16 for total HI.

The risk assessment calculations show that for a future hypothetical child resident who ingests ground water the total cancer risk and total HI are $1 \times 10^{-4}$ and 31, respectively. Both the total cancer risk and total HI exceed the target cancer risk levels of $1 \times 10^{-5}$ and the target hazard level of 1. The primary COCs associated with this exceedance are PCE, vinyl chloride, arsenic, antimony, cobalt, iron, manganese and mercury. For a hypothetical future child resident who ingests ground water and is also exposed to contaminated soil, the risk increases to $1 \times 10^{-4}$ for cancer risk and 36 for total HI.

These risks and hazard levels indicate that there is a potential risk to children and adults from direct exposure to contaminated soil and ground water. These risk estimates are based on current and future reasonable maximum exposure scenarios and were developed by taking into account various conservative assumptions about the frequency and duration of an individual's exposure to the soil, ground water and leachate, as well as the toxicity of the COCs including aluminum, manganese, benzene, xylene, arsenic, iron, tetrachloroethylene, vinyl chloride, antimony, cobalt and mercury.

2.3.2 Risks to Ecological Receptors

An Ecological Risk Assessment (ERA) was conducted as part of the RI at the site. The ERA was conducted in order to assess potential impacts of COCs on ecological receptors (non-human, non-domesticated species) at the site. Specifically, a Level I scoping ERA determined that based on the history of activities at the site and the surrounding land use, the site has the potential to pose a risk to ecological receptors. Thus, a Level II screening ERA was conducted. The Level II ERA for the site includes a comparison of site-specific data to screening benchmark values and the identification of relevant and complete exposure pathways between each medium of concern and ecologically significant receptors for the site COCs.

For the chemicals that exceed the screening benchmark values and where a completed exposure pathway exists, a Level III baseline ERA was conducted. The approach for the Level III baseline ERA consisted of the calculation of HQs using site-specific exposure factors, chemical-specific and species-specific toxicity values and representative endpoint species. Upon completion of the Level III baseline ERA for the site, the following COCs in various media were determined to pose a potential risk to ecological receptors:

- **Soils/Sediments**: aluminum, antimony, barium, cadmium, cobalt, iron, lead, manganese, mercury, nickel, selenium, thallium zinc, cyclohexane, isopropylbenzene, methylcyclohexane, benzaldehyde, naphthalene, PCBs – Aroclors 1232, 1242, 1248, 1254, and 1260.
- Surface Water: aluminum, barium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, silver, vanadium, zinc, chloroethane, chloromethane, cyclohexane, methylcyclohexane, xylenes, 2,4,6-trichlorophenol, anthracene, benzaldehyde, caprolactam, carbazole, dibenzofuran, di-n-butyl phthalate, fluoranthene, pyrene, PCBs – Aroclors 1232, 1242, 1248, 1254, and 1260.

While cyclohexane and xylene are identified as a potential risk to ecological receptors, the ERA concluded that these contaminants of potential concern did not pose a significant risk to ecological receptors at or near the site.

3.0 REMEDIAL ACTION OBJECTIVES

An FS was conducted by Goodyear to define and analyze appropriate remedial alternatives. The study was conducted with Ohio EPA oversight and was approved on June 15, 2010.

As part of the RI/FS process, remedial action objectives (RAOs) were developed in accordance with the NCP, pursuant to the federal CERCLA, 42 U.S.C. §9601, as amended, and U.S. EPA guidance. The RAOs are goals that a remedy should achieve in order to ensure protection of human health and the environment.

The RAOs for the site include:

<table>
<thead>
<tr>
<th>TABLE 2. REMEDIAL ACTION OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landfill Cover</td>
</tr>
<tr>
<td>Human Health and Ecological Risk</td>
</tr>
<tr>
<td>Prevent exposure (i.e. incidental ingestion) to soil with concentrations of chemicals of concern (COCs) in excess of risk based standards or calculated site background concentrations. See Table 3. See the Soil (Human) Section of Table 3.</td>
</tr>
<tr>
<td>Prevent direct contact with contaminated surface soils and consumption of contaminated food. See Table 3. See the Soil (Ecological) Section of Table 3.</td>
</tr>
</tbody>
</table>

| Ground Water                        |
| Human Health Risk                   |
| Prevent direct contact and ingestion of ground water with concentrations of COCs in excess of risk based standards, background levels or Maximum Contaminant Levels. See Table 3. See the Ground Water (Human) Section of Table 3. |

| Soil Gas                            |
| Human Health Risk                   |
| Prevent exposure (i.e. inhalation) to soil gas with concentrations of COCs in excess of risk based standards. See Table 3. See the Soil Gas (Human) Section of Table 3. |

<table>
<thead>
<tr>
<th>Leachate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
Many of the remediation levels (RLs) for protection of human health were established using the acceptable excess lifetime cancer risk and non-cancer hazard goals identified in the DERR Technical Decision Compendium (TDC) document "Human Health Cumulative Carcinogenic Risk and Non-carcinogenic Hazard Goals for DERR Remedial Response and Federal Facility Oversight," dated August 21, 2009. These goals are given as $1 \times 10^{-5}$ (i.e., 1 in 100,000) excess lifetime cancer risk and a HI of 1, and were established using the default exposure parameters provided by U.S. EPA or site-specific information. This TDC can be found at http://www.epa.ohio.gov/portals/30/rules/riskgoal.pdf. Some of the RLs were established through a determination of the site-specific background concentration of the chemical of concern. The groundwater RLs are based either on the legally permissible level for a drinking water supply, MCL, on a calculated level for the protection of human health, or on a site specific background concentration.

The Ecological Preliminary RLs are either from established Ohio EPA Surface Water Quality Criteria, a calculated site-specific background level unique to this site, or from an established literary source.

The numerical RLs for the site are shown below in Table 3.

<table>
<thead>
<tr>
<th>Media (Pathway)</th>
<th>Contaminant of Concern</th>
<th>Maximum Level Detected (Location/Date)</th>
<th>Remediation Levels</th>
<th>Target Level Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil (Human)</td>
<td>Aluminum</td>
<td>8,970 mg/kg (Boring B-2; 12/13/06)</td>
<td>8,270 mg/kg</td>
<td>Calculated Site Background</td>
</tr>
<tr>
<td>Arsenic</td>
<td></td>
<td>11.9 B mg/kg (seep soil 10-1; 11/1/07)</td>
<td>8.8 mg/kg</td>
<td>Calculated Site background</td>
</tr>
<tr>
<td>Manganese</td>
<td></td>
<td>5,860 J mg/kg (seep soil 22-3; 11/11/07)</td>
<td>678 mg/kg</td>
<td>Calculated Site background</td>
</tr>
<tr>
<td>Iron</td>
<td></td>
<td>757,000 mg/kg (seep soil 10-1; 11/1/07)</td>
<td>25,245 mg/kg</td>
<td>Calculated Site background</td>
</tr>
<tr>
<td>Ground Water (Human)</td>
<td>Tetrachloroethylene</td>
<td>0.015 mg/l (MW-60; 3/20/08)</td>
<td>0.005 mg/l</td>
<td>MCL</td>
</tr>
<tr>
<td>Vinyl Chloride</td>
<td></td>
<td>0.0025 mg/l (MW-60; 3/20/08)</td>
<td>0.002 mg/l</td>
<td>MCL</td>
</tr>
<tr>
<td>Arsenic</td>
<td></td>
<td>0.020 mg/l (MW-4; 3/20/07)</td>
<td>0.010 mg/l</td>
<td>MCL</td>
</tr>
<tr>
<td>Antimony</td>
<td></td>
<td>0.0023 mg/l (MW-7; 3/18/08)</td>
<td>0.006 mg/l</td>
<td>MCL</td>
</tr>
<tr>
<td>Cobalt</td>
<td></td>
<td>0.284 mg/l (MW-2; 3/27/07)</td>
<td>0.317 mg/l</td>
<td>Calculated Human Health level</td>
</tr>
<tr>
<td>Media (Pathway)</td>
<td>Contaminant of Concern</td>
<td>Maximum Level Detected (Location/Date)</td>
<td>Remediation Levels</td>
<td>Target Level Basis</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------</td>
<td>----------------------------------------</td>
<td>-------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Iron</td>
<td>69.5 mg/l (MW-4; 3/28/07)</td>
<td>115.650 mg/l</td>
<td>Calculated Site background</td>
<td></td>
</tr>
<tr>
<td>Manganese</td>
<td>18.8 mg/l (MW-2; 3/27/07)</td>
<td>3.252 mg/l</td>
<td>Calculated Site background</td>
<td></td>
</tr>
<tr>
<td>Mercury</td>
<td>0.0122 J mg/l (MW-1; 3/27/07)</td>
<td>0.002 mg/l</td>
<td>MCL</td>
<td></td>
</tr>
<tr>
<td>Soil Gas (Human)</td>
<td>Benzene 1,700 µg/m³ (GS-06; 3/30/07)</td>
<td>1,133 µg/m³</td>
<td>Calculated Human Health Level</td>
<td></td>
</tr>
<tr>
<td>Xylenes</td>
<td>56,000 µg/m³ (GS-06; 3/30/07)</td>
<td>40,000 µg/m³</td>
<td>Calculated Human Health Level</td>
<td></td>
</tr>
<tr>
<td>Soil (Ecological)</td>
<td>Cadmium 8.7 mg/kg (seep soil 10-1; 1/11/07)</td>
<td>4 mg/kg</td>
<td>Efroymson, 1997a</td>
<td></td>
</tr>
<tr>
<td>Chromium</td>
<td>35.5 mg/kg JE 22 (boring B-3; 12/12/06)</td>
<td>26 mg/kg</td>
<td>Eco SSL for avian invertebrates</td>
<td></td>
</tr>
<tr>
<td>Cobalt</td>
<td>25.1 mg/kg JE 54 (boring B-3; 12/12/06)</td>
<td>120 mg/kg</td>
<td>Eco SSL for avian invertebrates</td>
<td></td>
</tr>
<tr>
<td>Lead</td>
<td>37.4 mg/kg JS 72 (boring B-3; 12/12/06)</td>
<td>40.5 mg/kg</td>
<td>Efroymson, 1997a</td>
<td></td>
</tr>
<tr>
<td>Manganese</td>
<td>5,860 mg/kg J (seep soil 22-3; 1/11/07)</td>
<td>678 mg/kg</td>
<td>Site-specific calculated background value</td>
<td></td>
</tr>
<tr>
<td>Selenium</td>
<td>4.6 mg/kg B (seep soil 10-1; 1/11/07)</td>
<td>0.52 mg/kg</td>
<td>Terrestrial plant benchmark value (Efroymson, 1997c)</td>
<td></td>
</tr>
<tr>
<td>Thallium</td>
<td>10.2 mg/kg B G (seep soil 10-2; 1/11/07)</td>
<td>1.3 mg/kg</td>
<td>Maximum detected site-specific background value</td>
<td></td>
</tr>
<tr>
<td>PCBs</td>
<td>230 µg/kg (seep soil 8-2; 1/11/07)</td>
<td>0.0003 mg/kg</td>
<td>Soil invertebrate benchmark value (Efroymson, 1997b)</td>
<td></td>
</tr>
<tr>
<td>Seep Water (Ecological)</td>
<td>Aluminum (total) 219,000 µg/l (Seep-53; 10/19/06)</td>
<td>53,259 µg/l</td>
<td>Site-specific calculated background value</td>
<td></td>
</tr>
<tr>
<td>Barium – (total)</td>
<td>6,180 µg/l (Seep-03; 10/19/06)</td>
<td>220 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Barium – dissolved</td>
<td>380 µg/l (Seep 9; 1/15/07)</td>
<td>85.3 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Cobalt - total</td>
<td>262 µg/l (Seep-93; 10/19/06)</td>
<td>42.5 µg/l</td>
<td>Site-specific calculated background value</td>
<td></td>
</tr>
<tr>
<td>Copper – total</td>
<td>327 J µg/l (Seep-03; 10/19/06)</td>
<td>27.5 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Copper - dissolved</td>
<td>10.4 B µg/l (Seep 5; 1/16/07)</td>
<td>27 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Media (Pathway)</td>
<td>Contaminant of Concern</td>
<td>Maximum Level Detected (Location/Date)</td>
<td>Remediation Levels</td>
<td>Target Level Basis</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------------</td>
<td>--------------------------------------</td>
<td>-------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Iron - total</td>
<td>1,260,000 µg/l (Sept-03; 10/19/06)</td>
<td>115,650 µg/l</td>
<td>Site-specific calculated background value</td>
<td></td>
</tr>
<tr>
<td>Iron - dissolved</td>
<td>51,900 µg/l (Sept 6; 11/17/07)</td>
<td>5,990 µg/l</td>
<td>Maximum detected site-specific background value</td>
<td></td>
</tr>
<tr>
<td>Lead - total</td>
<td>336 µg/l (Sept-03; 10/19/06)</td>
<td>32.8 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Lead - dissolved</td>
<td>Non-detect</td>
<td>25.9 µg/l</td>
<td>Site-specific calculated background values</td>
<td></td>
</tr>
<tr>
<td>Manganese - total</td>
<td>17,400 J µg/l (Sept-03; 10/19/06)</td>
<td>3,252 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Manganese - dissolved</td>
<td>2,480 J µg/l (Sept-5; 11/17/07)</td>
<td>1,759 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Mercury - total</td>
<td>1.9 µg/l (Sept-5; 11/17/07)</td>
<td>0.91 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Mercury - dissolved</td>
<td>0.25 µg/l (Sept-5; 11/17/07)</td>
<td>0.77 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Vanadium</td>
<td>467 µg/l (Sept-03; 10/19/06)</td>
<td>44 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Zinc - total</td>
<td>1,380 µg/l (Sept-03; 10/19/06)</td>
<td>355 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Zinc - dissolved</td>
<td>61.8 µg/l (Sept-2; 11/18/07)</td>
<td>347 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Xylenes</td>
<td>100 µg/l (Sept-2; 11/18/07)</td>
<td>27 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
<tr>
<td>Di-n-butyl-phthalate</td>
<td>10 µg/l (Sept-2; 11/19/06)</td>
<td>1 µg/l</td>
<td>Effroyson, 1997a</td>
<td></td>
</tr>
<tr>
<td>PCBs</td>
<td>0.24 µg/l (Sept-4; 11/17/07)</td>
<td>0.001 µg/l</td>
<td>Ohio EPA Surface Water Criteria (OMZA)</td>
<td></td>
</tr>
</tbody>
</table>


### 4.0 SUMMARY OF REMEDIAL ALTERNATIVES

A total of seven remedial alternatives were considered in the FS, as identified in Table 4 below. A brief description of the major features of each of the remedial alternatives follows. More detailed information about these alternatives can be found in the FS. The proposed remedy in this Preferred Plan includes modifications pursuant to the ORC 3734.02(G) exemption approved on July 6, 2012.
<table>
<thead>
<tr>
<th>Alternative</th>
<th>Table 4. Summary Description of Remedial Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No Action – site conditions remain unchanged</td>
</tr>
<tr>
<td>2 a</td>
<td>Soil Cap with Leachate Treatment in On-site Wetland – existing soil cap would be enhanced with additional soil; leachate would be treated in a created wetland on-site; landfill gas would be vented; and restoration of ground water to beneficial reuse through monitored natural attenuation.</td>
</tr>
<tr>
<td>2 b</td>
<td>Soil Cap with Leachate collection and Off-site Leachate Disposal – existing soil cap would be enhanced with additional soil; leachate would be collected and transported to off-site treatment facility; landfill gas would be vented; and restoration of ground water to beneficial reuse through monitored natural attenuation.</td>
</tr>
<tr>
<td>3 a &amp; Modified 3 a</td>
<td>Geomembrane Cap system with Leachate Treatment in On-site Wetland – existing landfill cap would be reworked, and a geomembrane cap system would be placed over current soils; leachate would be directed to a created wetland on-site; landfill gas would be vented; and restoration of ground water to beneficial reuse through monitored natural attenuation.</td>
</tr>
<tr>
<td>3 b &amp; Modified 3 b</td>
<td>Geomembrane Cap system with Leachate Collection and Off-site Leachate Disposal - existing landfill cap would be reworked, and a geomembrane cap system would be placed over current soils; leachate would be collected and transported to off-site treatment facility; landfill gas would be vented; and restoration of ground water to beneficial reuse through monitored natural attenuation.</td>
</tr>
<tr>
<td>4 a &amp; Modified 4 a</td>
<td>Dual Layer Cap with Leachate Treatment in On-site Wetland – a dual layer cap system would be placed over the existing soil cover after it has been recompacted and regraded for proper drainage; leachate would be treated in a created wetland on-site; landfill gas would be vented; and restoration of ground water to beneficial reuse through monitored natural attenuation.</td>
</tr>
<tr>
<td>4 b &amp; Modified 4 b</td>
<td>Dual Layer Cap with Leachate Collection and Off-site Leachate Disposal - a dual layer cap system would be placed over the existing soil cover after it has been recompacted and regraded for proper drainage; leachate would be collected and transported to off-site treatment facility; landfill gas would be vented; and restoration of ground water to beneficial reuse through monitored natural attenuation.</td>
</tr>
</tbody>
</table>

4.1 No Action Alternative

The “no action alternative” is a required remedial alternative. The NCP requires evaluation of a no action alternative to establish a baseline for the comparison of other remedial alternatives. Under this option, no remedial activities or monitoring are conducted at the site.
Potential exposure to contaminated media is not controlled or prevented. There are no costs associated with this remedy since there is no action to be taken.

4.2 Remedial Alternatives

The FS proposed six potential active remedial alternatives for the Jackson County Landfill. The alternatives vary based on possible capping enhancements and the proposed treatment alternative for the leachate. All alternatives with an “a” designation propose treatment of the leachate in an on-site constructed wetland. All “b” alternatives propose the collection and transportation of the leachate to an off-site location for treatment and proper disposal. All of the alternatives include several common elements. In order to minimize duplication of the same information, all of the common elements are summarized here rather than under each different alternative.

Landfill Gas: Pipe vents (approximately one per acre) will be installed within the landfill limits to passively vent gas from the landfill. Whether there is a need to burn the soil gas will be evaluated during the design, along with any applicable permitting requirements.

Access: Gates will be installed at the access roads and fences will be extended approximately 20 feet on each side to limit human access to the property. Warning signs will be installed around the landfill as determined in the remedial design. The gates will comply with the requirement of Ohio Administrative Code (OAC) 3745-27-11(H)(7) to block the access road from unauthorized entry to the site.

Institutional Controls: Institutional controls and land use restrictions following the Ohio Uniform Environmental Covenants Act (UECA) of 2004 will be implemented to prohibit residential occupation of the site. The restrictions also will prohibit the use of ground water beneath the landfill for potable and/or agricultural purposes. Lastly, the restrictions will prohibit building or placing any permanently occupied structure on the landfill itself.

Maintenance: The cap system will be maintained and monitored in accordance with the Operation and Maintenance Plan prepared during remedial design to meet the requirements of OAC 3745-27-12, 3745-27-14, and 3745-27-19 for ground water monitoring, explosive gas monitoring, post-closure care, surface water management, and leachate management.

Ground Water: An active ground water treatment system is not being proposed. Instead, the ground water below the site will be restored to beneficial reuse through natural attenuation, and monitored to evaluate the ground water quality and natural attenuation of contaminants over time after the landfill cap is installed until the ground water RIs listed in Table 3 are demonstrated to be met. The details of the ground water monitoring plan will be determined during the design phase of the remedy.

Alternative 2a: Soil Cap with Leachate Treatment in On-site Wetland

In addition to the common elements listed above, this alternative consists of the repair of the existing soil cap to provide a minimum two foot thick compacted soil cover. After clearing and grubbing of the surface vegetation, the existing topsoil will be removed and set aside for
reinstallation over the repaired cap. The existing cap soils will be regraded or supplemented to provide a minimum two-foot thick soil cap with proper drainage. The existing surface of the cap will be recompacted. The entire surface may not require regrading or compaction if the existing grade and compaction meets design requirements. The capital cost estimate is based on the entire surface requiring regrading and compaction. In addition, the soil cap will be designed to provide a minimum of two feet of soil cover over the existing soil in the seep (leachate) flow channels on the landfill.

A leachate collection system will be installed to capture leachate from the landfill. The leachate will be pumped or transported by gravity, if possible, to an on-site constructed wetland for treatment. The required wetland area will be approximately 4 acres. The discharge from the wetland will flow to Salt Lick Creek. The inflow to the wetland will incorporate a holding/equalization structure to provide for minimum flow through the treatment wetland during periods of low flow. Additionally, a surface water pond may be added to provide water to maintain a minimum flow; the need for this potential element will be determined during design. After the holding/equalization structure, the leachate water will pass through a filter system to remove suspended solids before entering the treatment wetland. The filter system will serve to remove PCBs detected in the seep water. A tall fence will be installed around the treatment wetland to deter deer from grazing on the wetland vegetation.

It will take approximately five years to establish the wetland. Prior to the wetland becoming fully functional, the leachate will need to be collected and hauled off-site for proper treatment and disposal. The yearly estimated cost to haul the leachate off-site is $1,170,000. Note that the purpose of the cap under this alternative is to prevent direct contact with the waste. This proposed capping alternative will not prevent the development of leachate.

**Estimated Capital Cost:** $3,718,000  
**Estimated Annual O&M Cost:** $1,372,000  
**Estimated Present Worth Cost of O&M:** $8,171,000  
**Estimated Construction Time:** 8 months

**Alternative 2b: Soil Cap with Leachate Treatment with Offsite Leachate Disposal**

In addition to the common elements listed above, Alternative 2b consists of the repair of the landfill cap in the same manner as described in alternative 2a. However, the proposed treatment of the leachate differs.

A leachate collection system will be installed to capture leachate from the landfill. The leachate will be pumped or transported by gravity to an on-site holding structure. Once the holding structure is full, or based on a pre-scheduled date, the leachate will be transported to the local publicly owned treatment works (POTW - wastewater treatment plant) for treatment and disposal. The estimated yearly cost for hauling the leachate is $1,170,000. Leachate will be collected and hauled from the site for 30 years. Note that the purpose of the cap under this alternative is to prevent direct contact with the waste. This proposed capping alternative will not prevent the development of leachate.

**Estimated Capital Cost:** $3,818,000  
**Estimated Annual O&M Cost:** $1,332,000
Estimated Present Worth Cost of O&M: $20,477,000
Estimated Construction Time: 8 months

Alternative 3a: Geomembrane Cap with Leachate Treatment in On-Site Wetland

In addition to the common elements listed above, this alternative consists of placing a geomembrane cap system over the existing soil cap after it has been recompacted and regraded for proper drainage. The existing soil will be reworked and compacted to achieve permeability of $1 \times 10^{-6}$ cm/sec or as low of permeability as can be reasonably achieved (goal of $1 \times 10^{-6}$ cm/sec). Any added soil to this layer will be clay soil that can achieve a compaction of $1 \times 10^{-6}$ cm/sec. The cap system will consist of (from bottom to top):

- A recompacted soil layer (soil already on site with additional soil added if needed to achieve minimum of 18 inch base) to serve as a bedding and low permeability layer.
- A geocomposite (consisting of a geonet and geotextile filters) to capture and transport venting gas to passive vents and to capture and transport leachate to a collection piping system.
- A 40 mil geomembrane liner.
- A geocomposite to collect and transport surface water infiltration to a perimeter drainage system.
- A 24 inch thick protective cover soil layer.
- A 6 inch thick topsoil layer (using existing topsoil and supplemented with additional soil as required).

The final surface grade will be designed to provide for surface drainage to eliminate any low lying areas on the cap that would retain surface water.

The leachate collection system is the same as described in alternative 2a except that the piping will be incorporated into the geocomposite system. It will take approximately five years to establish the wetland. Prior to the wetland becoming fully functional, the leachate will need to be collected and hauled off-site for proper treatment and disposal. However, the capping system for this alternative incorporates a geocomposite layer which will help prevent leachate. As a result, during the 5 years in which the wetland is becoming established, the cost for hauling the leachate off-site for treatment and disposal is estimated to be $272,500 per year instead of the estimated $1,170,000 as described in alternative 2a and 2b.

Estimated Capital Cost: $7,669,000
Estimated Annual O&M Cost: $453,500
Estimated Present Worth Cost of O&M: $3,130,000
Estimated Construction Time: 8 months

Subsequent to the submittal and approval of the FS, Goodyear evaluated a modification to alternatives 3a, 3b, 4a and 4b. The modification proposed the elimination of the geosynthetic gas venting/leachate collection layer as proposed in the FS. The removal of this layer, which is not required by OAC 3745-27-08, results in an overall reduction in the amount of leachate.
which is generated and reduces the overall costs of these remedial alternatives by $588,000. Ohio EPA reviewed the proposed modification for these alternatives and agrees with Goodyear’s changes. Therefore, Modified Alternatives 3a, 3b, 4a and 4b, which were not included in the original FS, are included within this Preferred Plan.

**Modified Alternative 3a: Geomembrane Cap with Leachate Treatment in On-Site Wetland**

In addition to the common elements listed above, this alternative consists of placing a geomembrane cap system over the existing soil cap after it has been recompacted and regraded for proper drainage. The existing soil will be reworked and compacted to achieve permeability of $1 \times 10^{-6}$ cm/sec or as low of permeability as can be reasonably achieved (goal of $1 \times 10^{-8}$ cm/sec). Any added soil to this layer will be clay soil that can achieve a compaction of $1 \times 10^{-6}$ cm/sec. The cap system will consist of (from bottom to top):

- A recompacted soil layer (soil already on site with additional soil added if needed to achieve minimum of 18 inch base) to serve as a bedding and low permeability layer.
- A 40 mil geomembrane liner.
- A geocomposite to collect and transport surface water infiltration to a perimeter drainage system.
- A 24 inch thick protective cover soil layer.
- A 6 inch thick topsoil layer (using existing topsoil and supplemented with additional soil as required). The 6 inch topsoil layer is included in the 24 inches required for the protective cover soil layer.

The final surface grade will be designed to provide for surface drainage to eliminate any low lying areas on the cap that would retain surface water.

It will take approximately five years to establish the wetland. Prior to the wetland becoming fully functional, the leachate will need to be collected and hauled off-site for proper treatment and disposal. During the 5 years in which the wetland is becoming established, the cost for hauling the leachate off-site for treatment and disposal is estimated to be $272,500 per year instead of the estimated $1,170,000 as described in alternatives 2a and 2b.

**Estimated Capital Cost:** $7,081,000  
**Estimated Annual O&M Cost:** $453,500  
**Estimated Present Worth Cost of O&M:** $3,130,000  
**Estimated Construction Time:** 8 months

**Alternative 3b: Geomembrane Cap with Leachate Treatment at POTW**

In addition to the common elements listed above, Alternative 3b consists of the same proposed capping alternative as described in Alternative 3a. The leachate collection system is the same as described in alternative 2b. In summary, the cap will consist of a new geomembrane capping system while the leachate will be collected on-site and transported to the local POTW for proper treatment and disposal. Note that the capping system for this alternative incorporates a geocomposite layer which will help prevent leachate. As a result,
much less leachate is anticipated and the associated operation and maintenance costs are lower.

**Estimated Capital Cost:** $7,644,000  
**Estimated Annual O&M Cost:** $433,500  
**Estimated Present Worth Cost of O&M:** $3,071,000  
**Estimated Construction Time:** 9 months

**Modified Alternative 3b: Geomembrane Cap with Leachate Treatment at POTW**

In addition to the common elements listed above, Modified Alternative 3b consists of the same proposed capping alternative as described in Modified Alternative 3a. The difference between this alternative and alternative 3a is that the leachate will be collected and hauled off-site for treatment. Under this alternative, a wetland will not be established.

**Estimated Capital Cost:** $7,056,000  
**Estimated Annual O&M Cost:** $433,500  
**Estimated Present Worth Cost of O&M:** $3,071,000  
**Estimated Construction Time:** 9 months

**Alternative 4a: Dual Layer Cap with Leachate Treatment in On-site Wetlands**

In addition to the common elements listed above, Alternative 4a consists of placing a dual layer cap system over the existing soil cover after it has been recompacted and regraded for proper drainage. The dual layer cap system would consist of (from bottom to top):

- A recompacted soil layer to serve as a bedding layer.
- A geocomposite (consisting of a geonet and geotextile filters) to capture and transport venting gas to passive vents and to capture and transport leachate to a collection piping system.
- An 18 inch thick clay layer compacted to a permeability of $1 \times 10^{-6} \text{ cm/sec}$. A potential alternative to the clay layer will be a geosynthetic clay liner (GCL). The GCL would consist of a bentonite mat either separate or attached to the 40 mil geomembrane liner and would provide the same dual layer of low permeability protection as the clay layer and geomembrane. During the design phase, a final decision will be made on whether 18 inches of clay or the GCL will be used for the cap.
- A 40 mil geomembrane liner.
- A geocomposite to collect and transport surface water infiltration to a perimeter drainage system.
- A 24 inch thick protective cover soil layer (18 inch required with GCL).
- A 6 inch thick topsoil layer (using existing topsoil and supplemented as required).

The existing cap surface will be recompacted and then regraded or supplemented to provide proper drainage. No minimum thickness for this soil layer is required as long as the thickness provides adequate protection of the geofabrics against penetration from materials in the waste. The final surface grade will be designed to provide for surface drainage to eliminate any low lying areas on the cap that would retain surface water.
Under this scenario, the wetland will be constructed to treat leachate. See alternative 2a for details.

Estimated Capital Cost: $8,944,000
Estimated Annual O&M Cost: $431,250
Estimated Present Worth Cost for O&M: $3,034,000
Estimated Construction Time: 9 months

**Modified Alternative 4a: Dual Layer Cap with Leachate Treatment in On-site Wetland**

In addition to the common elements listed above, Modified Alternative 4a consists of placing a dual layer cap system over the existing soil cover after it has been recompacted and regraded for proper drainage. However, as mentioned earlier, the modified alternatives 4a and 4b eliminate the installation of the geosynthetic gas venting/leachate collection layer. The dual layer cap system would consist of (from bottom to top):

- A recompacted soil layer to serve as a bedding layer.
- An 18 inch thick clay layer compacted to a permeability of $1 \times 10^{-6}$ cm/sec. A potential alternative to the clay layer will be a GCL. The GCL would consist of a bentonite mat either separate or attached to the 40 mil geomembrane liner and would provide the same dual layer of low permeability protection as the clay layer and geomembrane. During the design phase, a final decision will be made on whether 18 inches of clay or the GCL will be used for the cap.
- A 40 mil geomembrane liner.
- A geocomposite to collect and transport surface water infiltration to a perimeter drainage system.
- A 24 inch thick protective cover soil layer (18 inch required with GCL).
- A 6 inch thick topsoil layer (using existing topsoil and supplemented as required).

The existing cap surface will be recompacted and then regraded or supplemented to provide proper drainage. No minimum thickness for this soil layer is required as long as the thickness provides adequate protection of the geofabrics against penetration from materials in the waste. The final surface grade will be designed to provide for surface drainage to eliminate any low lying areas on the cap that would retain surface water.

Under this scenario, the wetland will be constructed to treat leachate. See alternative 2a for details.

Estimated Capital Cost: $8,256,000
Estimated Annual O&M Cost: $431,250
Estimated Present Worth Cost for O&M: $3,034,000
Estimated Construction Time: 9 months

**Alternative 4b: Dual Layer Cap with Leachate Treatment at POTW**

In addition to the common elements listed above, the capping alternative under this scenario is the same as the cap described for alternative 4a, above.
The leachate collection and treatment system is the same as described under alternative 2b.

**Estimated Capital Cost:** $8,816,000
**Estimated Annual O&M Cost:** $411,250
**Estimated Present Worth Cost for O&M:** $2,729,000
**Estimated Construction Time:** 9 months

**Modified Alternative 4b: Dual Layer Cap with Leachate Treatment at POTW**

In addition to the common elements listed above, the capping alternative under this scenario is the same as the cap described for modified alternative 4a, above.

**Estimated Capital Cost:** $8,228,000
**Estimated Annual O&M Cost:** $411,250
**Estimated Present Worth Cost for O&M:** $2,729,000
**Estimated Construction Time:** 9 months

### 5.0 COMPARISON AND EVALUATION OF ALTERNATIVES

### 5.1 Evaluation Criteria

Ohio EPA considers eight criteria, as outlined in the NCP, to evaluate the various remedial alternatives individually and against each other in order to select a remedy. A more detailed analysis of the remedial alternatives can be found in the FS report. The eight evaluation criteria are listed and discussed below.

| **1. Overall Protection of Public Health and the Environment** | determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment. |
| **2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)** | evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified. |
| **3. Long-Term Effectiveness and Permanence** | evaluates the ability of an alternative to maintain protection of human health and the environment over time. |
| **4. Reduction of Toxicity, Mobility, or Volume of Contaminants Through Treatment** | evaluates the amount of contamination present, the ability of the contamination to move in the environment, and the use of treatment to reduce harmful effects of the principal contaminants. |
| **5. Short-Term Effectiveness** | evaluates the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation. |
| **6. Implementability** | evaluates the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services. |
7. **Cost** – includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today’s dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

8. **Community Acceptance** – considers whether the local community agrees with Ohio EPA’s analyses and preferred alternative. Comments received on the Preferred Plan are an important indicator of community acceptance.

Evaluation Criteria 1 and 2 are threshold criteria required for acceptance of an alternative that has accomplished the goal of protecting human health and the environment and has complied with the law. Any acceptable remedy must comply with both of these criteria. Evaluation Criteria 3 through 7 are the balancing criteria used to select the best remedial alternative(s) identified in the Preferred Plan. Evaluation Criterion 8, community acceptance, is a modifying criterion that will be evaluated through public comment on the alternatives received during the comment period.

### 5.2 Analysis of Evaluation Criteria

This section examines how each of the evaluation criteria is applied to each of the remedial alternatives found in Section 4.2 and compares how the alternatives achieve the evaluation criteria.

**Overall Protection of Human Health and the Environment**

Evaluation of the overall protectiveness of the alternatives focuses on whether each alternative achieves adequate protection of human health and the environment and identifies how site risks posed through each pathway being addressed are eliminated, reduced or controlled by the alternative. This evaluation also includes consideration of whether the alternative poses any unacceptable short-term or cross-media impacts.

**No Action Alternative**: The “no action alternative” is not protective of human health and the environment. There are potential contaminants and exposures that need to be addressed. Because this alternative is not protective of human health and the environment it has been eliminated from consideration under the remaining seven criteria.

**Alternative 2a**: Exposure to soil gas and contaminated soil is eliminated. Ground water exposure is controlled through Use Restrictions and monitored natural attenuation.

**Alternative 2b**: Exposure to soil gas and contaminated soil is eliminated. Ground water exposure is controlled through Use Restrictions and monitored natural attenuation.

**Alternative 3a & Modified Alternative 3a**: Exposure to soil gas and contaminated soil is eliminated. Ground water exposure is controlled through Use Restrictions and monitored natural attenuation.
Alternative 3b & Modified Alternative 3b: Exposure to soil gas and contaminated soil is eliminated. Ground water exposure is controlled through Use Restrictions and monitored natural attenuation.

Alternative 4a & Modified Alternative 4a: Exposure to soil gas and contaminated soil is eliminated. Ground water exposure is controlled through Use Restrictions and monitored natural attenuation.

Alternative 4b & Modified Alternative 4b: Exposure to soil gas and contaminated soil is eliminated. Ground water exposure is controlled through Use Restrictions and monitored natural attenuation.

Compliance with ARARs

ORC 3734.02(G) is an ARAR. Accordingly, the issuance of the ORC 3734.02(G) Exemption renders the modified alternatives 3a, 3b, 4a, and 4b ARAR compliant as to landfill capping design and is protective of human health and the environment.

Alternative 2a: Does not comply with the current landfill capping regulations but does comply with air pollution, prohibition against open dumping, well design, closure and explosive gas monitoring regulations.

Alternative 2b: Does not comply with the current landfill capping regulations but does comply with air pollution, open dumping, well design, closure and explosive gas monitoring regulations.

Alternative 3a & Modified Alternative 3a: With the issuance of the ORC 3734.02(G) Exemption, this modified alternative complies with capping ARARs. In addition, the location of the gas collection layer will be moved to accommodate the alternative capping design. This alternative complies with other applicable regulations including control of air pollution, open dumping, well design, closure and explosive gas monitoring regulations.

Alternative 3b & Modified Alternative 3b: With the issuance of the ORC 3734.02(G) Exemption, this modified alternative complies with capping ARARs. In addition, the location of the gas collection layer will need to be moved to accommodate the alternative capping design. However, OAC 3745-27-08(D)(27) does not require a specific location for this layer so moving it to accommodate an alternative capping design does not violate any ARARs. This alternative complies with other applicable regulations including control of air pollution, open dumping, well design, closure and explosive gas monitoring regulations.

Alternative 4a & Modified Alternative 4a: Complies with all applicable or relevant and appropriate requirements after the issuance of the ORC 3734.02(G) Exemption.
Alternative 4b & Modified Alternative 4b: Complies with all applicable or relevant and appropriate requirements after the issuance of the ORC 3734.02(G) Exemption.

Long-Term Effectiveness and Permanence

Alternative 2a: The source of the contaminants is not removed. Exposure to contaminants is controlled through a variety of mechanisms including an augmented soil cap, soil gas vents and management of the leachate through the creation of a wetland. However, long term maintenance is required. The wetland may need additional management as the efficiency of this remedy element is linked to the weather and adequate water.

Alternative 2b: The source of the contaminants is not removed. Exposure to contaminants is controlled through a variety of mechanisms including an augmented soil cap, soil gas vents and a leachate management system. However, long term maintenance is required. The leachate collection system must be carefully monitored to ensure that the collection system does not become too full.

Alternative 3a & Modified Alternative 3a: The source of the contaminants is not removed. However, the quality of the landfill cap should significantly reduce the quantity of leachate produced. Soil gas vents and a leachate management system included in the remedy will control exposure to these two potential sources of contaminants. Long term maintenance is required for all of the remedy components. The wetland may need additional management as the efficiency of this remedy element is linked to the weather and adequate water.

Alternative 3b & Modified Alternative 3b: The source of the contaminants is not removed. However, the quality of the cap should significantly reduce the quantity of leachate produced. Soil gas vents and the leachate management system included in the remedy will control exposure to these two potential sources of contaminants. Long term maintenance is required for all of the remedy components. The leachate collection system must be carefully monitored to ensure that the collection tank does not become too full.

Alternative 4a & Modified Alternative 4a: The source of the contaminants is not removed. However, the proposed landfill cap should result in the least amount of leachate produced compared to the other potential remedies. Soil gas vents and the leachate management system included in the remedy will control exposure to these two potential sources of contaminants. Long term maintenance is required for all of the remedy components. The wetland may need additional management as the operational efficiency of this remedy element is linked to the weather and adequate water.

Alternative 4b & Modified Alternative 4b: The source of the contaminants is not removed. However, the proposed landfill cap should result in the least amount of leachate produced compared to the other potential remedies. Soil gas vents and the leachate management system included in the remedy will control
exposure to these two potential sources of contaminants. Long term maintenance is required for all of the remedy components. The leachate collection system must be carefully monitored to ensure that the collection tank does not become too full.

Reduction of Toxicity, Mobility or Volume by Treatment

**Alternative 2a:** Wastes are left in place so there is no reduction in volume, toxicity or mobility. However, the wastes are covered, the leachate is collected and transported to an on-site wetland, and the soil gas collection system is designed to prevent migration of the soil gas to an adjacent property. If the soil gas is flared, exposure will be prevented. Absent flaring, the soil gas is transferred from the soil to the atmosphere.

**Alternative 2b:** Wastes are left in place so there is no reduction in volume, toxicity or mobility. However, the wastes are covered, the leachate is collected and transported off-site to the local wastewater treatment plant and the soil gas collection system is designed to prevent migration of the soil gas to an adjacent property. If the soil gas is flared, exposure will be prevented. Absent flaring, the soil gas is transferred from the soil to the atmosphere.

**Alternative 3a & Modified Alternative 3a:** Wastes are left in place so there is no reduction in volume, toxicity or mobility. However, the wastes are covered, the leachate is collected and transported to an on-site wetland (Modified Alternative 3a produces significantly less leachate), and the soil gas collection system is designed to prevent migration of the soil gas to an adjacent property. If the soil gas is flared, exposure will be prevented. Absent flaring, the soil gas is transferred from the soil to the atmosphere.

**Alternative 3b & Modified Alternative 3b:** Wastes are left in place so there is no reduction in volume, toxicity or mobility. However, the wastes are covered, the leachate is collected and transported off-site to the local wastewater treatment plant (Modified Alternative 3b produces significantly less leachate) and the soil gas collection system is designed to prevent migration of the soil gas to an adjacent property. If the soil gas is flared, exposure will be prevented. Absent flaring, the soil gas is transferred from the soil to the atmosphere.

**Alternative 4a & Modified Alternative 4a:** Wastes are left in place so there is no reduction in volume, toxicity or mobility. However, the wastes are covered, the leachate is collected and transported to an on-site wetland, and the soil gas collection system is designed to prevent migration of the soil gas to an adjacent property. If the soil gas is flared, exposure will be prevented. Absent flaring, the soil gas is transferred from the soil to the atmosphere.

**Alternative 4b & Modified Alternative 4b:** Wastes are left in place so there is no reduction in volume, toxicity or mobility. However, the wastes are covered, the leachate is collected and transported off-site to the local wastewater treatment plant and the soil gas collection system is designed to prevent migration of the soil gas to an adjacent property. If the soil gas is flared, exposure will be
prevented. Absent flaring, the soil gas is transferred from the soil to the atmosphere.

**Short-Term Effectiveness**

**Alternative 2a:** The greatest short term risk will be exposure to dust during the construction/augmentation of the soil cover. Dust can be controlled during construction. Gas vents will not provide immediate mitigation of gas migration and leachate may need to be temporarily collected until the wetland is constructed and fully operational. Construction workers may need to wear appropriate protective clothing or other protective gear during construction. Estimated construction time is eight months although the wetland may take up to five years to become established.

**Alternative 2b:** The greatest short term risk will be exposure to dust during the construction/augmentation of the soil cover. Dust can be controlled during construction. Gas vents will not provide immediate mitigation of gas migration. Construction workers may need to wear appropriate protective clothing or other protective gear during construction. Estimated construction time is 8 months.

**Alternative 3a & Modified Alternative 3a:** The greatest short term risk will be exposure to dust during the construction of the landfill cap. There is approximately six times more soil movement and dust generation expected with this alternative than with alternative 2a. However, dust can be controlled during construction. Gas vents will not provide immediate mitigation of gas migration and leachate may need to be temporarily collected until the wetland is constructed and fully operational. Construction workers may need to wear appropriate protective clothing or other protective gear during construction. Estimated construction time is nine months although the wetland may take up to five years to become established.

**Alternative 3b & Modified Alternative 3b:** The greatest short term risk will be exposure to dust during the construction of the landfill cap. There is approximately six times more soil movement and dust generation expected with this alternative than with alternative 2b. Dust can be controlled during construction. Gas vents will not provide immediate mitigation of gas migration. Construction workers may need to wear appropriate protective clothing or other protective gear during construction. Estimated construction time is nine months.

**Alternative 4a & Modified Alternative 4a:** The greatest short term risk will be exposure to dust during the construction of the landfill cap. There is approximately eight times more soil movement and dust generation expected with this alternative than with alternative 2a. However, dust can be controlled during construction. Gas vents will not provide immediate mitigation of gas migration and leachate may need to be temporarily collected until the wetland is constructed and develops. Construction workers may need to wear appropriate protective clothing or other protective gear during construction. Estimated construction
time is nine months although the wetland may take up to five years to become established.

Alternative 4b & Modified Alternative 4b: The greatest short term risk will be exposure to dust during the construction of the landfill cap. There is approximately eight times more soil movement and dust generation expected with this alternative than with alternative 2b. Dust can be controlled during construction. Gas vents will not provide immediate mitigation of gas migration. Construction workers may need to wear appropriate protective clothing or other protective gear during construction. Estimated construction time is nine months.

Implementability

Alternative 2a: All components of the remedy are well known and readily constructed. Materials required to construct the cap include approximately 20,000 cubic yards (CY) of fill to augment existing cover soil. Once constructed, the wetland is easy to operate, but it will require time to reach maturity. During the time needed for the wetland to mature, leachate may need to be collected and transported off-site for treatment. In addition, wetlands do not work as efficiently during colder weather. An NPDES permit is required for discharge from treatment wetlands. Long term sampling of the discharge will be required under an NPDES permit.

Alternative 2b: All components of the remedy are well known and readily constructed. Materials required to construct the cap include approximately 20,000 CY of fill to augment existing cover soil. The leachate collection system does not require any special considerations other than a possible pumping system to the holding tank. Disposal at a POTW must be coordinated and preapproved. Sampling of leachate will be required to ensure that the leachate concentrations meet the POTW's limits.

Alternative 3a & Modified Alternative 3a: All components of the remedy are well known and readily constructed although the construction is more complex than for remedy 2a. Materials required to construct the cap include 20,000 CY of soil to augment the existing cover soil; 120,000 square yards (SY) of geocomposite for gas collection/leachate collection (not included in Modified Alternative 3a); 120,000 SY of 40 mil HDPE geosynthetic layer; 120,000 SY of geocomposite for a drainage layer; 78,000 CY of protective cover soil and 19,400 CY of topsoil. Once constructed, the wetland is easy to operate but it will require time to reach maturity. During the time needed for the wetland to mature, leachate may need to be collected and transported off-site for treatment. In addition, wetlands do not work as efficiently during colder weather so additional maintenance may be needed. An NPDES permit is required for discharge from treatment wetlands. Long term sampling of the discharge will be required under an NPDES permit.

Alternative 3b & Modified Alternative 3b: All components of the remedy are well known and readily constructed although the construction is more complex than for remedy 2b. Materials required to construct the cap include 20,000 CY of soil
to augment the existing cover soil; 120,000 SY of material for the geocomposite for gas collection / leachate collection (not included in Modified Alternative 3b); 120,000 SY of 40 mil HDPE geosynthetic material; 120,000 SY of geocomposite material for drainage layer; 78,000 CY of protective cover soil and 19,400 CY of topsoil. The leachate collection system does not require any special considerations other than a possible pumping system to the holding tank. Disposal of the leachate at the POTW must be coordinated and preapproved. Sampling of the leachate will be required to ensure that the leachate concentrations meet the POTW's limits.

Alternative 4a & Modified Alternative 4a: All components of the remedy are well known and readily constructed although the construction is more complex than for remedy 3a. Materials required to construct cap include 10,000 CY of soil to augment existing cover soil; 120,000 SY of a geocomposite for gas collection / leachate collection (not included in Modified Alternative 4a); 58,000 CY of clean clay (1 x 10^{-6} permeability) or 120,000 SY of GCL – low permeability layer; 120,000 SY of 40 mil HDPE geosynthetic material; 120,000 SY of geocomposite material for drainage layer; 78,000 CY [or 58,000 CY with GCL] of protective cover soil and 19,400 CY of topsoil. Once constructed, the wetland is easy to operate, but it will require time to reach maturity. During the time needed for the wetland to mature, leachate may need to be collected and transported off-site for treatment. In addition, wetlands do not work as efficiently during colder weather so additional maintenance may be needed. An NPDES permit is required for discharge from treatment wetlands. Long term sampling of the discharge will be required under an NPDES permit.

Alternative 4b & Modified Alternative 4b: All components of the remedy are well known and readily constructed although the construction is more complex than for remedy 3b. Materials required to construct the cap includes 10,000 CY of soil to augment existing cover soil; 120,000 SY of geocomposite for gas collection / leachate collection (not included in Modified Alternative 4b); 58,000 CY of clean clay (1 x 10^{-6} permeability) or 120,000 SY of GCL – low permeability layer; 120,000 SY of 40 mil HDPE geosynthetic material; 120,000 SY of geocomposite material for drainage layer; 78,000 CY [or 58,000 CY with GCL] of protective cover soil and 19,400 CY of topsoil. The leachate collection system does not require any special considerations other than a possible pumping system to the holding tank. Disposal at the POTW must be coordinated and preapproved. The leachate will be sampled to ensure that any chemicals in the leachate meet the POTW's limits.

Cost

The total cost of the potential remedies, including construction costs and the present estimated cost of operation and maintenance (O&M) [present worth costs are based on 30 years of O&M minus a discount rate of 5% to account for the decreased value of the dollar in the future] are summarized below.

Alternative 2a: Total cost including capital construction costs and O&M is $11,889,000.
Alternative 2b: Total cost including capital construction costs and O&M is $24,295,000. This remedy is the most expensive alternative due to the very high O&M costs.

Alternative 3a: Total cost including capital construction costs and O&M is $10,799,000.

Modified Alternative 3a: Total cost including capital construction costs and O&M is $10,211,000.

Alternative 3b: Total cost including capital construction costs and O&M is $10,715,000.

Modified Alternative 3b: Total cost including capital construction costs and O&M is $10,127,000. This remedy is the least expensive alternative.

Alternative 4a: Total cost including capital construction costs and O&M is $11,878,000.

Modified Alternative 4a: Total cost including capital construction costs and O&M is $11,290,000.

Alternative 4b: Total cost, including capital construction costs and O&M is $11,545,000.

Modified Alternative 4b: Total cost including capital construction costs and O&M is $10,957,000.

Community Acceptance

Ohio EPA received comments from interested parties at the public meeting held April 9, 2015 at the Jackson City Council Chambers located at 199 Portsmouth Street in Jackson, Ohio, and during the public comment period, which ran between February 17, 2015 and April 17, 2015. Those comments and Ohio EPA’s responses are included in Section 8.0 (Response to Comments) of this Decision Document.

5.3 Summary of Evaluation Criteria

A summary of the evaluation of the site remedial alternatives is included in Table 5 below.

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Table 5. Evaluation of Site Remedial Alternatives
6.0 OHIO EPA'S SELECTED REMEDIAL ALTERNATIVE

During the time when Ohio EPA was reviewing the possible clean-up alternatives, a modification to alternatives 3 and 4 was evaluated by Goodyear. On January 26, 2012, Goodyear submitted to Ohio EPA a proposal to modify alternatives 3a, 3b, 4a and 4b. The modification consisted of eliminating the geosynthetic gas venting / leachate collection layer. Based on the analysis which was performed for this site, the removal of this layer results in less leachate being generated than when this layer is left in place. Ohio EPA's review of the modified alternatives found that the modification was beneficial for the site remedial alternatives. The elimination of this layer results in a decrease in the amount of leachate generated, resulting in a better environmental alternative and, ultimately, a slightly less expensive alternative as the modification resulted in a decrease of $588,000 compared with the original costs. Prior to the installation of the cap, the effects of eliminating the geosynthetic gas venting/leachate collection layer will be evaluated to ensure that hydrostatic pressure does not develop beneath the geomembrane liner which could result in liner failure. If the evaluation shows that a liner failure could occur then a geosynthetic gas venting/leachate collection layer may be installed.

Based upon the selection criteria, the selected remedial alternative for addressing the exposure pathways and the lack of an adequate cap at the Jackson County Landfill site is Modified Alternative 3b. Initially, this alternative did not fully comply with applicable ARARs, specifically, OAC 3745-27-08(D), (Sanitary Landfill facility construction). Goodyear submitted a request for an exemption from specific requirements of OAC 3745-27-08(D) in a letter dated December 8, 2011. After evaluating the exemption request, and looking at the site specific conditions which exist at the Jackson County Landfill, the Director of Ohio EPA granted the exemption request on July 6, 2012.

The selected remedial alternative will achieve the goal of protecting human health and the environment while costing less than the other remedial alternatives. In addition, while Ohio EPA prefers natural alternatives such as a wetland for the treatment of leachate, the current modeling predicts that there will be insufficient leachate generated to maintain a wetland within a couple of years of cap construction. Therefore, the selected alternative includes the collection and off-site disposal of any generated leachate. The selected alternative reduces risk within a reasonable time frame at less cost than any other combination of alternatives, and provides for long-term reliability of the remedy. However, if there is still a significant quantity of leachate being produced after the remedy has been operational for at least two years, then the wetland alternative will be reevaluated by Goodyear based on the
environmental conditions which exist at that time. If the evaluation indicates that adequate conditions for a wetland exist and will be sustained over time, then with review and approval by the Ohio EPA, a wetland may replace the collection and hauling of leachate off site for disposal.

Based on information presently available, Ohio EPA believes the selected remedial alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to balancing criteria in that it: 1) is protective of human health and the environment; 2) complies with ARARs; 3) is cost-effective; 4) uses permanent solutions and alternative treatment technologies (e.g., innovative) to the maximum extent practicable; and 5) satisfies the preference for treatment as a principal element.

Further description of each aspect of Ohio EPA's Selected Remedial Alternative is contained in the following sections:

6.1 LANDFILL COVER

Modified Alternative 3b consists of placing a geomembrane cap system over the existing soil cap after it has been regraded for proper drainage. The existing soil will be reworked to achieve a permeability of $1 \times 10^{-6}$ cm/sec or as low as can be reasonably achieved. Any added soil to this layer will be clay soil that can achieve a compaction of $1 \times 10^{-6}$ cm/sec. The cap system will consist of (from bottom to top):

- A soil layer (soil already on site with additional soil added if needed to achieve minimum of 18 inch base) to serve as a bedding and low permeability layer.

- A 40 mil geomembrane liner.

- A geocomposite drainage system to collect and transport surface water infiltration to a perimeter drainage system.

- A 24 inch thick protective cover soil layer.

- A 6 inch thick topsoil layer (using existing topsoil and supplemented with additional soil as required). The 6 inch topsoil layer is included in the 24 inches required for the protective cover soil layer.

The final surface grade will be designed to provide for surface drainage to eliminate any low lying areas on the cap that would retain surface water.

The cap system will be maintained and monitored in accordance with the O&M Plan prepared during remedial design to meet the requirements of CAC 3745-27-12, 3745-27-14, and 3745-27-19.

In addition to the cap system described above, gates will be installed at the access roads and fences will be extended approximately 20 feet on each side to limit human access to the property. Warning signs will be installed around the landfill as determined during remedial design.
Institutional controls and land use restrictions following the Ohio UECA of 2004 will be implemented to prohibit residential occupation of the site. The restrictions will prohibit building or placing any permanently occupied structure on the landfill itself.

The performance standards are met when:

- Cap installation as described above is completed to prevent exposure to waste and migration of the chemicals of concern from the waste (See Drawings 2 and 3) to the surrounding environmental media. The cap will pass an Ohio EPA inspection to ensure that each improvement has been implemented.

- A long-term O&M plan for the cap is implemented to ensure that exposure to contaminated environmental media is prevented (See Table 2: Remedial Action Objectives) and the cap passes Ohio EPA inspections during the O&M period.

- Site access controls (i.e., fencing and signage) to prevent exposure to contaminated media (See Table 2: Remedial Action Objectives) are established and pass periodic compliance inspections, until such time that such access controls are no longer necessary.

- Environmental covenants, including restrictions to prevent intrusive activities on-site, have been recorded in the Jackson County Recorder's Office and copies are provided to Ohio EPA. On-site intrusive activities could increase exposure to contaminated environmental media (See Table 2: Remedial Action Objectives).

6.2 GROUND WATER

The ground water will be monitored to ensure that the chemicals present in the ground water decrease over time through natural attenuation, with the goal of achieving drinking water standards for those chemicals with a drinking water standard, calculated health based clean-up standards for those chemicals without a drinking water standard or background concentrations for those chemicals which occur naturally. The current contaminants which exceed drinking water standards are: vinyl chloride, tetrachloroethylene, mercury and arsenic (See Table 3 Contaminants of Concern and Remediation Levels).

Institutional controls will be established on the site to prevent extraction and use of ground water (except for investigative and cleanup purposes) to prevent exposure to contaminated ground water.

The performance standards are met when:

- A ground water monitoring program capable of detecting contaminant level trends is established. A ground water monitoring plan will be developed during the remedial design phase of the project and will remain in place until ground water at the site achieves the RIs listed in Table 3 for a minimum of eight consecutive sampling events collected quarterly over a period of two years.
• Ground water sample analyses in all the monitoring wells in the site monitoring well network (see Appendix B, Drawing 5) must meet the numerical performance standards in Table 3 before the ground water monitoring program can be terminated. The ground water must meet the RLs listed in Table 3 for a minimum of eight consecutive sampling events collected quarterly over a period of two years.

• Environmental covenants, including restrictions on the use of ground water, have been recorded in the Jackson County Recorder’s Office and copies are provided to Ohio EPA. These restrictions apply in perpetuity, subject to amendment or termination.

6.3 SOIL GAS

Elevated methane levels and a variety of VOCs have been detected in the soil gas on the property adjacent to the site, but still within the landfill limits (See Appendix E, Drawing 9). Pipe vents (approximately one per acre) will be installed within the landfill limits to passively vent gas from the landfill. Whether there is a need to burn the soil gas will be evaluated during the remedial design.

Institutional controls will be established on the site property to control future construction of occupied structures, unless it can be documented that these structures meet applicable standards. This will help prevent exposure to contaminated soil gas and protect human health. Property owner concurrence will be necessary for establishment of the institutional controls.

The performance standard is met when:

• A soil gas collection system to prevent migration of soil gas, which contains contaminants exceeding the RLs listed in Table 3, to adjacent properties is installed. After the gas collection system is installed, the soil gas present in the area outside of the gas collection system must be sampled in order to demonstrate that the migration of contaminated soil gas to the adjacent property has been prevented by the soil gas collection system. A soil gas monitoring plan will be developed during the remedial design phase of the project to ensure continued compliance.

• Soil gas collection can be terminated when all soil gas monitoring points (See Appendix B, Drawing 9) are demonstrated to be below the values in Table 3 for a minimum of eight consecutive sampling events collected quarterly over a period of two years.

• Environmental covenants, including restrictions on the construction of occupied structures unless the indoor air in these structures can be demonstrated to meet the RLs listed in Table 3, have been recorded in the Jackson County Recorder’s Office and copies are provided to Ohio EPA.

6.4 LEACHATE CONTROL
A leachate collection system will be installed to capture leachate from the landfill. The leachate will be pumped or transported by gravity to an on-site holding structure. Once the holding structure is full, or based on a pre-scheduled date, the leachate will be transported to the local POTW for treatment and disposal. The capping system for the preferred remedial alternative incorporates a geocomposite layer which will help prevent leachate. As a result, much less leachate is anticipated and the associated O&M costs are lower.

The performance standard is met when:

- The leachate collection system construction is completed such that leachate emanating from the landfill is collected and properly disposed of, which will prevent exposure to contaminants exceeding the RLs listed in Table 3.

- A leachate monitoring plan will be developed during remedial action. This plan will include periodic reporting of leachate generation amounts and leachate sampling results.

- Leachate sample analysis at the site must be demonstrated to meet the numerical standards in Table 3 before the leachate monitoring program can be terminated.

- Evaluate and possibly install a wetland for the treatment of leachate if more leachate is generated than is currently predicted after the cap has been installed. If the wetland is a viable alternative, it will eliminate the need to collect, store and then transport leachate off-site for treatment and disposal.

7.0 Documentation of Significant Changes

Ohio EPA received comments on the Preferred Plan, but no significant changes have been made to the selected remedial alternative. The Agency's responses to the comments are provided in Section 8.0 (Response to Comments).

8.0 Response to Comments

A public meeting/hearing was held on April 9, 2015 to present the Agency's Preferred Plan for the Jackson County Landfill site and to solicit public comment. Additionally, oral and written comments were accepted at this meeting and during the comment period which ran from February 17, 2015 to April 17, 2015.

Ohio EPA received comments at the public hearing and during the public comment period. A stenographic record of the public hearing portion of the meeting is attached. For those comments received by the Agency, a summation of each comment (in bold) followed by the Agency's response (in plain text) is presented below.

All written comments received are available for review at Ohio EPA's Southeast District Office located at 2195 E. Front Street, Logan, Ohio 43138, and at the site’s public repository, located at the Jackson County Library, 21 Broadway Street, Jackson, Ohio 45640.
Comment 1: In the Site History section of the Preferred Plan, Table 1, Ohio EPA acknowledges that the Site was an operational landfill from approximately April 1970 until September 1987. The Site History, however, does not accurately depict the nature of the waste that was disposed of at the Site or the large number of generators, arrangers, and transporters whose waste was disposed of at the Site. In the Decision Document, the Site History section should be amended as follows:

- Table 1: Owners, Operators and/or Disposers – The title of this table should be revised to “Owners and Operators” and the table row listing Goodyear should be deleted; unless the Decision Document lists all waste generators, it should not include Goodyear in a manner that suggests Goodyear was the sole “disposer” at the Site.

- Section 2.1: The first paragraph directly below Table 1 should be deleted and replaced with the following:

  During its operation between April 1970 and September 1987, the Jackson County Landfill accepted “industrial waste” and/or “other waste” as defined in Ohio Revised Code (ORC) § 6111.01 (C) and (D), and/or “hazardous wastes” as defined in ORC § 3734.01(J), and/or “hazardous substances” as defined in Section 101(14) of the Comprehensive Environmental Response, Compensation & Liability Act / Superfund Amendment and Reauthorization Act (CERCLA/SARA) (Ohio EPA, August 2005). Wastes disposed of at the Jackson County Landfill included municipal waste and drummed materials, including: acetone, polyester resin mixture, cyclohexanone, dichloromethane, isobutyl alcohol, methyl ethyl ketone, methyl isobutyl ketone, toluene, xylene, and waste styrene mixture. Foundry sand containing certain metals (including arsenic, barium, cadmium, lead and mercury) that OSCO Industries, Inc. sent to the Site was also used as daily cover at the Site and was disposed of in a staging area on the Sexton property of the Site.

  According to records provided by Goodyear in response to Ohio EPA information requests, between approximately 1974 and 1980, the owner/operator of Jackson County Landfill accepted and disposed of approximately 5,772 drums that contained contaminants from Goodyear. The landfill permanently ceased accepting waste in approximately September 1987. However, the landfill was never properly closed, nor was the minimal cap which
was placed on the waste, maintained. As a result, there have been releases of hazardous wastes occurring since at least 1996. In 1996, Ohio EPA found elevated concentrations of ammonia, iron, nickel, and lead above water quality criteria in leachate originating at the landfill. In addition, three volatile organic compounds (VOCs) – benzene, xylene and 1,2,4-trimethylbenzene were found. The benzene was detected above both the screening criteria and its maximum contaminant level (MCL). The detection of these compounds and metals indicated that constituents were being released into the environment from the landfill.

Response 1:

Table 1 has been modified to reflect the requested changes.

Section 2.1 has been modified to incorporate some of the requested changes. The first two paragraphs in Section 2.1 have been modified with the following language:

During its operation between April 1970 and September 1987, the Jackson County Landfill accepted "industrial waste" and/or "other waste" as defined in Ohio Revised Code (ORC) § 6111.01 (C) and (D), and/or "hazardous wastes" as defined in ORC § 3734.01(J), and/or "hazardous substances" as defined in Section 101(14) of the Comprehensive Environmental Response, Compensation & Liability Act / Superfund Amendment and Reauthorization Act (CERCLA/SARA) (Ohio EPA, August 2005). Wastes disposed of at the Jackson County Landfill included municipal waste and drummed materials, including: acetone, polyester resin mixture, cyclohexanone, dichloromethane, isobutyl alcohol, methyl ethyl ketone, methyl isobutyl ketone, toluene, xylene, and waste styrene mixture. Foundry sand containing certain metals (including arsenic, barium, cadmium, lead and mercury) was also used as daily cover at the Site and was disposed of in a staging area on the property, the portion of which is currently owned by the Sextons.

According to records obtained by Ohio EPA in response to information requests, between approximately 1974 and 1980, the owner/operator of Jackson County Landfill accepted and disposed of at least 5,772 drums that contained contaminants. The landfill permanently ceased accepting waste in approximately September 1987. However, the landfill was never closed, nor was the minimal cap which was placed on the waste, maintained. As a result, there have been releases of hazardous wastes occurring since at least 1996. In 1996, Ohio EPA found elevated concentrations of ammonia, iron, nickel, and lead above water quality criteria in leachate originating at the landfill. In addition, three volatile organic compounds (VOCs) – benzene, xylene and 1,2,4-trimethylbenzene were found. Benzene was detected above both the screening criteria and its maximum contaminant level (MCL). The
detection of these compounds and metals indicated that constituents were being released into the environment from the landfill.

Comment 2: Section 2.3.1 describes the Human Health Risk Assessment that was performed for the Site. It should be noted that the Residential Use scenario is not a realistic complete exposure pathway at the Site. There is not currently a residential receptor, and because an institutional control will be placed on the landfill cap area of the Site, there will not be a future residential receptor. The Decision Document and selected remedy should not be based in whole or in part on the residential use considerations from the risk assessment.

Response 2: Ohio EPA agrees. However, when selecting a remedy, Ohio EPA must evaluate all potential exposure pathways to both current and potential future receptors. Due to the risks associated with a residential use of the Site, Ohio EPA has selected institutional controls to restrict residential use of the Site. Therefore, it was deemed inappropriate to exclude a residential use consideration.

Comment 3: Section 2.3.2 describes the Ecological Risk Assessment (ERA) that was conducted at the Site to assess potential impacts of contaminants of concern (COCs) on ecological receptors at and surrounding the Site. At the April 9, 2015 public meeting, a question was posed about potential impacts to Salt Lick Creek from leachate generated at the Site. It should be noted that in 2004 a biological and water quality survey of Salt Lick Creek was conducted, and the resulting Ohio EPA report concluded that “[l]eachate associated with the Jackson County Landfill is not having a negative influence on fish and macroinvertebrate communities of Salt Lick Creek.” Page 1, Biological and Water Quality Study of Salt Lick Creek, Jackson County Landfill, Ohio (Ohio EPA, Division of Surface Water, February 25, 2005).

The list of COCs posing a potential risk to ecological receptors in the Preferred Plan is also misleading and should be clarified in the Decision Document, as the current description conflicts with the findings and conclusions of the approved ERA.

For example, the Preferred Plan lists cyclohexane as a potential risk to ecological receptors in both soils and surface water. Cyclohexane, however, is listed as a contaminant of potential ecological concern (COPEC) in the ERA only because there was no screening level to which to compare concentrations. In addition, cyclohexane was only detected in 7 of the 63 soil samples analyzed and 8 of the 16 seep samples analyzed. Section 5.0 of the ERA (“Conclusions”), does not list cyclohexane as a COPEC.
Similarly, the Preferred Plan lists xylene as a potential risk to ecological receptors, but xylene was only detected in 3 of the 16 leachate seep samples above the COPEC screening level. Section 4.17 of the ERA ("Discussion") concluded that "since there were only three detections of xylene that were above the promulgated OMZA [Outside Mixing Zone Average] and no detection of xylenes above the OMZM [Outside Mixing Zone Maximum], the concentrations of xylenes detected in the leachate seeps do not appear to pose a significant risk to site aquatic life."

The Decision Document should clearly state that the ERA did not find these COPECs to pose a significant risk to ecological receptors at or near the Site.

Response 3: Section 2.3.2 has been modified to reflect the conclusions made in the Ecological Risk Assessment. The following sentence was added to Section 2.3.2:

While cyclohexane and xylene are identified as a potential risk to ecological receptors the ERA concluded that these contaminants of potential concern did not pose a significant risk to ecological receptors at or near the site.

Comment 4: Although the Hydrologic Evaluation of Landfill Performance (HELP) model concluded that less leachate would be generated if a geosynthetic gas venting/leachate collection layer was not installed as a cap component, a remedial design engineer should perform a thorough evaluation of the feasibility of eliminating this component of the cap to ensure that hydrostatic pressure does not develop beneath the geomembrane liner which could result in liner failure.

Response 4: Ohio EPA agrees that the effects of eliminating the geosynthetic gas venting/leachate collection layer should be evaluated to ensure that hydrostatic pressure does not develop beneath the geomembrane liner which could result in liner failure. The Decision Document reflects this suggestion.

Comment 5: Section 6.1 of the Preferred Plan states the "existing soil will be reworked and compacted...." (Emphasis added). Pursuant to ORC 3734.02(G), however, the Agency's July 6, 2012 Director's Final Findings and Orders ("3734.02(G) DFFO") approved an exemption from OAC 3745-27-08(D)(21)(g)(i)-(iv) (regarding re-compacted soil barriers). Paragraph 8(d) of 3734.02(G) DFFO concluded that "[a] re-compacted soil barrier would not be placed on the landfill; therefore, adherence to the specifications in (D)(21)(g)(i)-(iv) is not warranted." In the Decision Document, this language should be
corrected to delete reference to a requirement to compact existing soil as part of the remedy.

In describing the components of the cap system for the preferred remedy, the first bullet in Section 6.1 of the Preferred Plan also states a "recompacted soil layer (soil already on site with additional soil added if needed to achieve minimum of 18 inch base) to serve as a bedding and low permeability layer..." However, Paragraph 8(a) of the 3734.02(G) DFFO approved "an exemption from the requirement to construct an eighteen-inch thick soil barrier in order to allow the use of existing re-graded soil cover as the soil barrier with the intent to achieve an average of at least 18 inches of soil cover over the entire landfill." Emphasis added. The Decision Document should include the correct cover requirements pursuant to the 3734.02(G) DFFO.

Finally, the fourth and fifth bullets in Section 6.1 state that the landfill cap will include a "24 inch thick protective cover soil layer" and a "6 inch thick topsoil layer (using existing topsoil and supplemented with additional soil as required)." The 3734.02(G) DFFO, however, found that the minimum cap thickness of 30 inches in OAC 3745-27-08(D)(26)(b) was not required because the average soil temperatures in the area of the Site do not warrant a thirty-inch thick cap protection layer for freeze protection. Pursuant to OAC 3745-27-08(D)(26)(d), the top soil layer is considered a part of the protective cover (i.e. the cap protection layer should "have sufficient fertility in the uppermost portion to support vegetation"). Thus, it is important that the Decision Document confirms that the 6 inch thick topsoil layer is included in the 24 inch protective cover. If not, the selected remedy protective cover is not consistent with the less than 30 inch protective cover as approved in the 3734.02(G) DFFO.

Response 5: The Decision Document has been modified so that it is consistent with the Agency’s July 6, 2012, Director’s Final Findings and Orders referenced above.

Comments from Wendy Stewart

Comment 6: The Preferred Plan (PP) discusses groundwater (and other environmental media) contamination at the site, but given that the wastes have been present at the site for over 30 years and leaking/leaching into the groundwater and soils without any controls in place, more discussion (and possibly investigation) is
warranted so that the residents are made aware of the full extent of the contaminated groundwater plume, soils, and local streams. Explain the full extent of contamination to environmental media and offsite properties. How far would one have to be from the site so that the total cancer risk and total hazard index are not exceeded for groundwater use and soil exposure; how far has the contamination been spread to unacceptable levels? Based on the answers to these questions, if additional hazards are present in adjacent properties, none of the preferred alternatives are adequate because they don’t address all of the contamination created by the wastes in the landfill. What is going to be done to remediate offsite properties?

Response 6: The Remedial Investigation (RI) explains the full extent of contamination in detail, a copy of this can be found at Ohio EPA’s Southeast District Office in Logan, Ohio. Based on sample results from the RI, remediation of offsite properties has been determined to be unnecessary, as the investigation did not find any contaminants that exceed standards at offsite locations that were sampled.

Comment 7: What are the acceptable rates for natural attenuation of the contaminants in groundwater? What if the rates are not met? The PP should address this.

Response 7: There is not an identified or established “acceptable rate” for the natural attenuation of the contaminants in the groundwater. The attenuation of groundwater contaminants is typically assessed via the five-year review of the selected site remedy, to ensure that the contaminants are degrading at a rate so that the remedial action objectives (RAOs) will be met in a reasonable timeframe. If Ohio EPA determines that natural attenuation is not occurring in a reasonable timeframe, then additional work may be required at the site so that the RAOs are achieved in a shorter period of time. Public health is a primary consideration in all remedy decisions and evaluations of timeframes to reach RAOs. If concerns would arise at any time indicating an unacceptable threat to public health or the environment, then immediate actions would be required to address this threat.

Comment 8: A 40 mil geomembrane liner is not sufficient enough to prevent tearing and destruction of the liner during construction. A 60 mil (or preferably 80 mil liner) is more suited for use especially because the local soils are going to be used and will contain very large rocks, etc. that will tear the liner.

Response 8: Tearing of the liner due to large rocks at the Site is unlikely, because according to the December 8, 2011 approved exemption request submitted by Goodyear, if the existing soils at the Site are found to contain large rocks that would compromise the geomembrane liner, then
granular material or a geotextile underlay will be added to protect the liner.

**Comment 9:** The typical compaction rate for soils is $1 \times 10^7$ cm/sec; however, the PP goes even further to make allowance for "as low of a permeability as can be reasonably achieved". The compaction rate should be $10^7$, without exception.

**Response 9:** According to OAC Rule 3745-27-08 (D)(21)(g), cap soil barrier layers shall have a maximum permeability of $1 \times 10^6$ cm/s. The requirement to achieve a maximum permeability of $1 \times 10^6$ cm/s was exempted by Ohio EPA as set forth in the July 6, 2012 Director’s Final Findings and Orders. The exemption was granted because existing soils at the Site are going to be regraded and used as the soil barrier layer.

**Comment 10:** How often will the Ohio EPA monitor the site to ensure that all systems are being maintained, especially the leachate collection system (trucking of leachate for offsite treatment) to ensure that the responsible party is removing the leachate properly?

**Response 10:** During and after the cap installation, Ohio EPA will maintain a regular presence at the site (e.g. a typical Ohio EPA response is usually a minimum of once every two weeks during active field construction activities and a minimum of bimonthly thereafter to observe remedy performance until stabilization has occurred) to ensure that the reduction in leachate has stabilized and to ensure that the cap is working effectively. Once this has occurred, Ohio EPA will reduce its onsite monitoring frequency appropriately (e.g. annual operation and maintenance inspections are typically conducted by Ohio EPA at sites like the Jackson County Landfill). If a reduction in leachate values has not occurred, Ohio EPA will investigate the reason behind the lack of reduction and determine what additional actions could be taken at the Site to reduce the leachate. As a part of Ohio EPA’s regular initial inspections, we will also be checking to make sure that the collected leachate is being handled in accordance with the Site’s approved work plan.

**Comment 11:** The only remedy, which was not considered as a part of this PP, that meets all of the evaluation criteria is to remove the waste. Why was this not considered and evaluated?

**Response 11:** Ohio EPA considers several factors (criteria) when deciding on a certain remedy for a site. The first and foremost criterion is protection of human health and the environment. Other criteria take into account the following factors: whether the remedy can meet clean-up standards; compliance with environmental laws; controlling sources of contamination; reduction or elimination of future releases; long-term reliability and effectiveness; reduction in toxicity, mobility or volume of waste; short-term effectiveness; implementability; and cost. Upon
consideration of all of these factors, the removal of waste was determined to not be a feasible option, as the landfill has contamination throughout, not just in one particular location. Therefore, removing certain portions of the landfill where manifests may indicate that certain contaminants were disposed of is not possible, as the entire landfill would need to be excavated to reduce leachate, not just portions of it. To dig, characterize and haul away waste in its entirety at the site is infeasible as it would cost an exorbitant amount, and be a significant undertaking to complete, which is why it was not included as a remediation option.

Comment 12: Goodyear was approved for an exemption request to OAC 3745-27-08(D). There are many requirements in this rule - what requirements are being exempted and why?

Response 12: In a letter dated Dec. 8, 2011, Goodyear submitted a request, pursuant to ORC 3734.02(G), exempting them from several of the requirements contained within OAC Rules 3745-27-08(D)(21) and (26), associated with the construction of a dual layer, low permeability cap on the Jackson County Landfill. Specifically, Goodyear requested that the landfill be exempted from:

a) OAC rule 3745-27-08(D)(21)(a)(i) requires that the re-compacted soil barrier layer in the composite cap system be at least eighteen (18) inches thick, or include a geosynthetic clay liner that complies with paragraph (D)(9) of the rule with an engineered sub-base, constructed in accordance with paragraph (D)(22) of the rule. Goodyear requested an exemption to the requirement to construct an eighteen-inch thick soil barrier in order to allow the use of existing re-graded soil cover as the soil barrier with the intent to achieve an average of at least 18 inches of soil cover over the entire landfill.

b) OAC rule 3745-27-08(D)(21)(d) requires that the soil cap be placed above all areas of waste placement. Goodyear stated that there may be constraints such as the slope along the western landfill boundary which will make it impracticable for the agreed upon cap to be placed in some areas. The actual constraints will be determined during the remedial design of the landfill cap.

c) OAC rule 3745-27-08(D)(21)(f)(iii) requires that pre-construction testing of the borrow soils include performing a re-compacted laboratory permeability test using ASTM D5084-00e1 (falling head) as a frequency of no less than once for every ten thousand cubic yards. Goodyear proposes to use the existing soil cover for the landfill's borrow soil, consequently borrow soils should not be needed. If borrow soils are needed, Goodyear will perform the tests specified in (D)(21)(f)(i) and (ii) but not in (iii) as the borrow soils, if needed, will only be used to supplement the existing soil cover.

d) OAC rule 3745-27-08(D)(21)(g)(i-iv) requires that the re-compacted soil barrier layer in the composite cap system be constructed in lifts and to certain specifications, and be compacted to certain specifications. Goodyear
requested an exemption from these requirements as the re-graded existing soil cover would be used for the soil barrier. A re-compacted soil barrier would not be placed on the landfill, therefore adherence to the specifications in (D)(21)(g)(ii-iv) is not warranted.

e) OAC rule 3745-27-08(D)(21)(i) requires quality control testing of the constructed lifts be performed to determine the density and moisture content according to certain specifications. Goodyear requested an exemption from these requirements as the re-graded existing soil cover would be used for the soil barrier. As an alternative, Goodyear would develop construction quality controls, for Ohio EPA approval, during remedial design.

f) OAC rule 3745-27-08(D)(26)(b) requires that cap protection layers be a minimum of thirty (30) inches thick in the area of the Jackson County Landfill. Goodyear requested an exemption from this requirement, as the average soil temperatures in the area of Jackson County Landfill do not warrant a thirty-inch thick cap protection layer for freeze protection.

Ohio EPA approved the exemption request on July 6, 2012.

Comment 13: A soil gas collection system is discussed in Section 6.3 of the PP, but there is no soil gas collection layer as a part of the selected alternative. Wouldn’t this be added to the alternative?

Response 13: On Jan. 26, 2012, Goodyear submitted to Ohio EPA a proposal to modify alternatives 3a, 3b, 4a and 4b. The modification consisted of eliminating the geosynthetic gas venting / leachate collection layer. Based on the analysis that was performed for this site the removal of this layer results in less leachate being generated than if this layer is left in place. Ohio EPA’s review of the modified alternatives found that the modification was beneficial for the site remedial alternatives. The elimination of this layer results in a decrease in the amount of leachate generated resulting in a better environmental alternative and, ultimately, a slightly less expensive alternative as the modification resulted in a decrease of $588,000 over the original costs. As noted in the response to Comment 4, the effects of eliminating the geosynthetic gas venting/leachate collection layer will be evaluated to ensure that hydrostatic pressure does not develop beneath the geomembrane liner which could result in liner failure. Depending on the results of the evaluation, a geosynthetic gas venting/leachate collection layer may be necessary to protect the landfill liner integrity.

Comments from William Martin
*Comments generated via transcript from the April 9, 2015, public meeting

Comment 14: All of the focus for remediating the landfill has been on the cap. What about the floor of the landfill? What about the clay liner that was put in before they put in the waste? Is that clay liner impervious?
Response 14: The permeability of the liner under the landfill is not known. Therefore, our goal is to prevent water from entering the landfill and thus creating leachate which could migrate out of a poorly lined landfill. This is achieved through the proposed remedy by enhancing the existing landfill cover and preventing the generation and uncontrolled migration of leachate through the prevention of direct contact with buried waste materials. As a part of the proposed remedy for the site, the ground water will be monitored to evaluate ground water quality and the natural attenuation of contaminants at the site over the long term in order to verify that the remedy is in fact preventing permeation of water into the landfill and creating leachate.

Comment 15: Where is the water table? Is that water table high enough so that the waste is sitting in the water? And if it is, if the bottom of the landfill is soddened, it doesn’t make a lot of difference what they do with the cap at the top, it leaks out the bottom.

Response 15: The uppermost water table at the site is located in a sandstone unit, at an approximate elevation of 750 feet above mean sea level (see Geologic Cross Section D -D', drawing No. 15 of the Remedial Investigation Report Revision 3, April 2009). The water level in this sandstone unit dissects the elevation of landfill waste and water likely flows into the waste. Precipitation also contributes to water going into the waste. At this time, it is not known what percentage of water going into the waste is from the sandstone unit and what percentage is from precipitation. The construction of the landfill cap will reduce infiltration of water into the waste and help minimize water or leachate being released from the landfill waste. After the cap is installed, required Operation and Maintenance inspections will be conducted as well as groundwater monitoring. This will allow us to determine if any leachate outbreaks are occurring and allow the evaluation of cap performance. Should these inspections and monitoring reveal that additional corrective measures are needed, they can be addressed in the required Five-Year Review of facility conditions, or sooner if necessary.

Comment 16: Why was digging the drums up and disposing of them at an approved hazardous waste landfill not considered as an alternative?

Response 16: See Response # 11. Also, it was stated by the landfill operator during past interviews, that the standard practice during the time period that the landfill was in operation, was to drive a bulldozer over the drums to crush them. Therefore, it is believed that the bulk of any contaminants contained within the drums have previously been dispersed into the landfill area and any attempts to remove drums would not provide any additional environmental benefit. In fact, excavation within the landfill would likely result in other issues such as strong odors released in the area and/or contaminant runoff issues.
Comment 17: Could landfill records show where the drums were placed or could subsurface imaging be used to locate the drum? Could the areas showing the highest contamination concentrations be evaluated to see if drums would be located in those areas?

Response 17: See above response to Comment #15. Ohio EPA has been unable to locate many of the landfill’s historical operating records due to the sale of Sanitary Commercial Services to Mid-American Waste Management Systems, Inc. Ohio EPA has contacted Mid-American Waste Management Systems Inc. in regard to the historical records, and the company has not been able to locate these records. It is Ohio EPA’s understanding, from past interviews of site owners/employees, that the common practice at the site was to crush the drums prior to placing them in the landfill, so excavating the drums would not provide any additional environmental benefit.

Comment 18: Why will on-site soils used for cover on the cap not be required to have preconstruction permeability testing conducted to ensure that the soil is impervious?

Response 18: On-site soils will not be required to have preconstruction permeability testing prior to use, due to the approved exemption to the requirements in OAC Rule 3745-27-08(D)(21)(f) as set forth in Ohio EPA’s July 6, 2012 Directors Final Findings and Orders. OAC Rule 3745-27-08(D)(21)(f) pertains to pre-construction testing of borrow soils used for the landfill’s soil barrier; this exemption was approved because the borrow soils will only be used to supplement the existing soil cover, if in fact they are needed at all. In the event that borrow soils are needed, the testing specified in paragraphs (i) and (ii) of OAC Rule 3745-27-08(D)(21)(f) will be performed on borrow soils, but the testing specified in paragraph (iii) will not be performed.

Comment 19: Why was the freeze protection layer reduced from 30 inches to 24 inches? Reducing the thickness of the freeze protection layer based on average temperatures is irrelevant. The thickness of the freeze protection layer should be based on the deepest freeze you get that can tear up the permeability of those soils in the cap.

Response 19: Ohio EPA approved the reduced freeze protection layer thickness as set forth in Ohio EPA’s July 6, 2012 Directors Final Findings and Orders. In the December 8, 2011 exemption request, Goodyear provided sufficient evidence to Ohio EPA to document that the temperatures in Jackson County did not warrant a 30-inch freeze protection layer. The Ohio Agricultural Research and Development Center maintains a weather station in Jackson, Ohio which records soil temperatures at 2 inches and 4 inches below the ground surface (BGS). A review of the soil temperature data at 4 inches found that the soil temperature was below 32 degrees Fahrenheit less than 11 days per year on average since 2006, with a maximum of 32 consecutive days occurring in 2007. The
lowest recorded temperature since 2006 at four inches BGS was 25.2 degrees Fahrenheit. Based on this information, a 30-inch cover is not necessary to freeze protection of the Landfill.

Comment 20: Why not require the dual cover, which is Alternative 4? It costs a little more but not that much more. I would think that you'd get more benefit than the cost is.

Response 20: The primary issues at the Site are the generation and uncontrolled migration of leachate, and the prevention of direct contact with buried waste materials. Leachate generation was modeled for both the geomembrane cap system and the dual layer cap system using the Hydrologic Evaluation of Landfill Performance (HELP) Model. The results of the model showed that the dual layer cap system would result in a 99.99 percent efficiency in reducing water percolation through the landfill cap while the geomembrane cap system would result in a 99.67 percent efficiency in reducing water percolation through the landfill cap. Based on the results of the HELP Model, Ohio EPA does not feel that requiring a dual layer cap system would provide a significant additional benefit to the overall effectiveness of the remedy at the Site.

Comment 21: I don't think the taxpayers should be paying any of this. It's someone else's drums, somebody else's hazardous waste. They ought to be responsible for it.

Response 21: Remedial work at the Site will not be funded by tax dollars. Ohio EPA has identified responsible parties who contributed to the contamination issues at the Site that will be responsible for paying for all of the clean-up and remediation activities and additional responsible parties may be brought in at a future date to share in funding the remediation.

Comment 22: What financial responsibility requirement is there to assure performance in the future? Is there a bond? Will there be a bond required as part of this?

Response 22: As a part of the RD/RA process, the respondent is required to secure and maintain a mechanism in which to assure the ability to complete work, also known as financial assurance (FA). The amount required to be maintained by the respondent is directly related to the estimated cost of the preferred remedial alternative that is identified in the preferred plan and, ultimately the selected remedy within the decision document. FA is required for long-term operation and maintenance and monitoring of the selected remedy. FA can be any one of four mechanisms which are available for respondents to meet their FA obligations: a trust fund; letter of credit; escrow agreement; or a certificate of insurance for an insurance policy. If the respondent fails to maintain the remedy after notification from the Agency, the program has the right to have immediate access to, and benefit of, the FA provided pursuant to the 'Assurance of Ability to Complete Work' provision of the RD/RA orders.
9.0 References


Parsons, May 2010, Feasibility Study

Parsons, April 2009, Human Health Risk Assessment

Parsons, April 2009, Remedial Investigation Report

Parsons, February 2009, Ecological Risk Assessment,
APPENDIX A
Glossary of Terms
<table>
<thead>
<tr>
<th>Glossary of Terms</th>
<th>Description</th>
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<tbody>
<tr>
<td>Action Level</td>
<td>A concentration for a contaminant of concern that has been determined by regulation or through a risk assessment to be protective of human health or ecological receptors. This concentration value could be based on a preliminary remediation goal (PRG); a drinking water maximum contaminant level (MCL); or a background concentration (background).</td>
</tr>
<tr>
<td>Adsorb</td>
<td>The adhesion in an extremely thin layer of molecules (as of gases, solutes, or liquids) to the surfaces of solid bodies or liquids with which they are in contact.</td>
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<tr>
<td>Aquifer</td>
<td>An underground geological formation capable of holding and yielding water.</td>
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<tr>
<td>ARARs</td>
<td>Applicable or relevant and appropriate requirements. Those rules that strictly apply to remedial activities at the site or those rules whose requirements would help achieve the remedial goals for the site.</td>
</tr>
<tr>
<td>Baseline Risk Assessment</td>
<td>An evaluation of the risks to humans and the environment posed by a site in the absence of any remedial action, which also determines the extent of cleanup needed to reduce potential risk levels to within acceptable ranges.</td>
</tr>
<tr>
<td>Carcinogen</td>
<td>A chemical that causes cancer.</td>
</tr>
<tr>
<td>Contaminants of Concern (COCs)</td>
<td>Chemicals identified at the site that are present in concentrations that may be harmful to human health or the environment.</td>
</tr>
<tr>
<td>Decision Document</td>
<td>A statement issued by the Ohio EPA giving the director's selected remedy for a site and the reasons for its selection.</td>
</tr>
<tr>
<td>Ecological Receptor</td>
<td>Animals or plant life exposed or potentially exposed to chemicals released from a site.</td>
</tr>
<tr>
<td>Environmental Covenant</td>
<td>A servitude arising under an environmental response action that imposes activity and use limitations and that meets the requirements established in ORC Section 5301.82.</td>
</tr>
<tr>
<td>Exposure Pathway</td>
<td>Route by which a chemical is transported from the site to a human or ecological receptor.</td>
</tr>
<tr>
<td>Feasibility Study</td>
<td>A study conducted to ensure that appropriate remedial alternatives are developed and evaluated such that relevant information concerning the remedial action options can be presented to a decision-maker and an appropriate remedy selected.</td>
</tr>
<tr>
<td>Final Cleanup Levels</td>
<td>Final cleanup levels identified in the Decision Document along with the RAoOs and performance standards.</td>
</tr>
<tr>
<td><strong>Hazardous Substance</strong></td>
<td>A chemical that may cause harm to humans or the environment.</td>
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<tr>
<td><strong>Hazardous Waste</strong></td>
<td>A waste product listed or defined by RCRA that may cause harm to humans or the environment.</td>
</tr>
<tr>
<td><strong>Human Receptor</strong></td>
<td>A person/population exposed to chemicals released at a site.</td>
</tr>
<tr>
<td><strong>Leachate</strong></td>
<td>Water contaminated by contact with landfill wastes.</td>
</tr>
<tr>
<td><strong>Maximum Contaminant Level (MCL)</strong></td>
<td>The highest level of a contaminant that is allowed in a public drinking water supply. The level is established by U.S. EPA and incorporated into OAC 3745-81-11 and 3745-81-12.</td>
</tr>
<tr>
<td><strong>NCP</strong></td>
<td>National Oil and Hazardous Substances Pollution Contingency Plan, codified at 40 C.F.R. Part 300 (1980), as amended. A framework for remediation of hazardous substance sites specified in CERCLA.</td>
</tr>
<tr>
<td><strong>O&amp;M</strong></td>
<td>Operation and maintenance. Long-term measures taken at a site, after the initial remedial actions, to assure that a remedy remains protective of human health and the environment.</td>
</tr>
<tr>
<td><strong>Performance Standard</strong></td>
<td>Measures by which Ohio EPA determines if RAOs are met.</td>
</tr>
<tr>
<td><strong>Remediation Levels (RLs)</strong></td>
<td>Initial clean-up levels that (1) are protective of human health and the environment and (2) comply with ARARs. They are developed early in the process (scoping) based on readily available information and are modified to reflect the results of the baseline risk assessment. They are also used during the analysis of remedial alternatives in the RI/FS.</td>
</tr>
<tr>
<td><strong>Present Worth Cost</strong></td>
<td>Estimated current cost, or value, of the future remedial costs to be expended, typically discounted at the current market rate. Provides a solid basis for comparing costs of each of the remedial alternatives.</td>
</tr>
<tr>
<td><strong>Remedial Action Objectives (RAOs)</strong></td>
<td>Specific goals of the remedy for reducing risks posed by the site.</td>
</tr>
<tr>
<td><strong>Remedial Investigation</strong></td>
<td>A study conducted to collect information necessary to adequately characterize the site for the purpose of developing and evaluating effective remedial alternatives.</td>
</tr>
<tr>
<td><strong>Response to Comments</strong></td>
<td>A summary of all comments received concerning the Preferred Plan and Ohio EPA response to the comments.</td>
</tr>
<tr>
<td><strong>Site</strong></td>
<td>A site is defined as the property which is being investigated and wherever the contamination from the property has come to be located. A &quot;site&quot; is not limited by property boundaries but includes wherever the waste from the property has migrated or been placed.</td>
</tr>
<tr>
<td>Water Quality Criteria</td>
<td>Chemical, physical and biological standards that define whether a body of surface water is unacceptably contaminated. These standards are intended to ensure that a body of water is safe for fishing, swimming and as a drinking water source. These standards can be found in OAC Chapter 3745-1.</td>
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APPENDIX B
Primary Contaminants of Concern
Primary Contaminants of Concern

A total of 19 primary contaminants of concern (COCs) have been identified that pose the greatest potential risk to human health and the environment at this site. Details from the Agency for Toxic Substances and Disease Registry (ATSDR Toxicological Profiles are provided below on each primary COC (except for the information on methane)).

**Aluminum** is the most abundant metal in the earth's crust. It is always found combined with other elements such as oxygen, silicon, and fluorine. Aluminum as the metal is obtained from aluminum-containing minerals. Small amounts of aluminum can be found dissolved in water. Aluminum metal is light in weight and silvery-white in appearance. Aluminum is used for beverage cans, pots and pans, airplanes, siding and roofing, and foil. Aluminum is often mixed with small amounts of other metals to form aluminum alloys, which are stronger and harder. Aluminum compounds have many different uses, for example, as alums in water-treatment and alumina in abrasives and furnace linings. They are also found in consumer products such as antacids, astringents, buffered aspirin, food additives, and antiperspirants.

**Antimony** is a silvery-white metal that is found in the earth's crust. Antimony ores are mined and then mixed with other metals to form antimony alloys or combined with oxygen to form antimony oxide. Little antimony is currently mined in the United States. It is brought into this country from other countries for processing. However, there are companies in the United States that produce antimony as a by-product of smelting lead and other metals. Antimony isn't used alone because it breaks easily, but when mixed into alloys, it is used in lead storage batteries, solder, sheet and pipe metal, bearings, castings, and pewter. Antimony oxide is added to textiles and plastics to prevent them from catching fire. It is also used in paints, ceramics, and fireworks, and as enamels for plastics, metal, and glass.

**Arsenic** is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic can combine with oxygen, chlorine and sulfur to form inorganic arsenic compounds. The main use of inorganic arsenic compounds is to preserve wood. Organic arsenic compounds are used primarily as pesticides. Breathing high levels of inorganic arsenic can cause throat and lung irritation. Ingesting high levels of arsenic can result in death, while at lower levels it can result in nausea, decreased red and white blood cell production, and damage to blood vessels. Skin contact can cause redness and swelling. Arsenic is a known human carcinogen.

**Barium** is a silvery-white metal which exists in nature only in ores containing mixtures of elements. It combines with other chemicals such as sulfur or carbon and oxygen to form barium compounds. Barium compounds are used by the oil and gas industries to make drilling muds. Drilling muds make it easier to drill through rock by keeping the drill bit lubricated. They are also used to make paint, bricks, ceramics, glass, and rubber. Barium sulfate is sometimes used by doctors to perform medical tests and to take x-rays of the gastrointestinal tract.

**Benzene** is a natural part of crude oil and gasoline. It evaporates quickly, dissolves lightly in water, and is highly flammable. It is in the top 20 chemicals for production volume in the U.S. It is used to help make plastics, resins, nylon, rubber, lubricants, dyes, detergents, drugs and pesticides. Breathing very high levels can result in death, while high levels can cause drowsiness, dizziness, headaches, tremors, and unconsciousness. Ingestion of high levels can cause vomiting, dizziness, convulsions, rapid heart rate and death. The major affect of benzene from long term exposure is on the blood. It causes harmful effects on bone marrow, and can cause a decrease in red blood cells leading to anemia and immune system issues. Benzene is a known human carcinogen.
**Cadmium** is a natural element in the earth's crust. All soils and rocks contain some cadmium. Most cadmium used in the U.S. is extracted during production of metals like zinc, lead and copper. It does not corrode easily and is used primarily in batteries, pigments, metal coatings and plastics. Breathing high levels can severely damage the lungs. Ingesting high levels severely irritates the stomach, leading to vomiting and diarrhea. Long-term exposure to lower levels can lead to a build up in the kidneys and subsequent kidney disease. Other long-term effects are lung damage and fragile bones. Cadmium is a known human carcinogen.

**Chromium** is an odorless and tasteless naturally occurring element found in rocks, animals, plants and soils. It can be liquid, solid or gas. The most common forms are chromium (0), also known as elemental chromium, used for steel-making, chromium (III), also known as trivalent chromium, and chromium (VI), also known as hexavalent chromium, used for chrome plating, dyes, pigments, leather tanning and wood preserving. Chromium (III) is an essential nutrient that helps the body use sugar, protein and fat. Breathing high levels of chromium (VI) can cause irritation to the lining of the nose, nose ulcers and breathing problems. Ingestion of chromium (VI) can cause irritation and ulcers in the stomach and small intestine, and anemia. Damage to the male reproductive system has been seen in animals exposed to chromium (VI). In workers, inhalation has been shown to cause lung cancer. U.S. EPA has determined that chromium (VI) compounds are a known human carcinogen.

**Cobalt** is a naturally occurring element found in rocks, soil, water, plants, and animals. It is used to produce alloys used in the manufacture of aircraft engines, magnets, grinding and cutting tools, artificial hip and knee joints. Cobalt compounds are also used to color glass, ceramics and paints, and used as a drier for porcelain enamel and paints. Radicative cobalt is used for commercial and medical purposes. $^{60}$Co (read as cobalt sixty) is used for sterilizing medical equipment and consumer products, radiation therapy for treating cancer patients, manufacturing plastics, and irradiating food. $^{57}$Co is used in medical and scientific research. It takes about 5.27 years for half of $^{60}$Co to go off its radiation and about 272 days for $^{67}$Co; this is called the half-life.

**Copper** is a reddish material that occurs naturally in the environment, in rocks, soil, water, and at low levels in air, and is an essential element in plants and animals. Copper is used to make wire, plumbing pipes and sheet metal, and is combined with other metals to make brass and bronze pipes and faucets. Long-term exposure to copper dust can irritate the nose, mouth and eyes, and cause headaches, dizziness, nausea and diarrhea. Ingestion of high levels can cause nausea, diarrhea, vomiting and stomach issues. Very high levels can cause kidney and liver damage, and even death. U.S. EPA has not classified copper as a human carcinogen because there are no adequate human or animal cancer studies.

**Di-n-butyl-phthalate** is a manufactured chemical that does not occur naturally. It is an odorless and oily liquid that is colorless to faint yellow in color. It is slightly soluble in water and does not evaporate easily. Di-n-phthalate is used to make plastics more flexible and is also in carpet backings, paints, glue, insect repellents, hair spray, nail polish, and rocket fuel.

**Lead** is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Lead can be found in all parts of the environment, but much of it comes from human activities including the burning of fossil fuels, mining and manufacturing. Lead is used in the production of batteries, ammunition, metal products (solder and pipes), and devices to shield X-rays, and was a common additive to gasoline in the U.S. until it was banned in 1996. The effects of lead are the same whether exposure is through ingestion or inhalation. It affects almost every organ in the body, though the main target is the nervous system. Long term exposure can result in decreased nervous system functionality, and it may cause weakness in fingers, wrists and ankles. Exposure to high levels can severely damage the brain and kidneys, and ultimately cause death. U.S. EPA has determined that lead is a probable human carcinogen.
**Manganese** is a naturally occurring metal that is found in many types of rocks. Pure manganese is silver-colored, but does not occur naturally. It combines with other substances such as oxygen, sulfur, or chlorine. Manganese can also be combined with carbon to make organic manganese compounds. Common organic manganese compounds include pesticides, such as maneb or mancozeb, and methylcyclopentadienyl manganese tricarbonyl (MMT), a fuel additive in some gasoline. Manganese is an essential trace element and is necessary for good health. Manganese can be found in several food items, including grains and cereals, and is found in high amounts in other foods, such as tea.

**Mercury** is a naturally occurring metal which has several forms. The metallic mercury is a shiny, silver-white, odorless liquid. If heated, it is an odorless, colorless gas. Metallic mercury is used to produce chlorine gas and caustic soda, and is also used in thermometers, dental fillings, and batteries. The nervous system is very sensitive to all forms of mercury. High level exposure to metallic, organic and inorganic mercury can permanently damage the brain, kidneys and developing fetuses. Effects on brain functioning may result in irritability, tremors, vision or hearing changes, and memory problems. There are inadequate human cancer data available for all forms of mercury. U.S. EPA has determined that mercury chloride and methylmercury are possible human carcinogens.

**Methane** is a naturally occurring chemical compound with the chemical formula CH4. It is the simplest alkane, and the principal component of natural gas (about 87% by volume). It is flammable over a narrow range of concentrations (5–15%) in air. Methane is not toxic; however, it is extremely flammable and may form explosive mixtures with air. Methane is also an asphyxiant and may displace oxygen in an enclosed space. The concentration of methane where asphyxiation risk becomes significant is much higher than the 5–15% concentration that forms flammable or explosive mixtures. When structures are built on or near landfills, methane off-gas can penetrate the buildings' interiors and expose occupants to significant levels of methane.

**Polychlorinated Biphenyls** (PCBs) are mixtures of up to 209 individual chlorinated compounds (known as congeners). There are no known natural sources of PCBs. Historically, PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they don’t burn easily and are effective insulators. PCB manufacturing was stopped in the U.S. in 1977 because of evidence that they build up in the environment and can cause harmful health effects. Studies in exposed workers have shown changes in blood and urine that may indicate liver damage. Animals ingesting large amounts of PCBs for short periods had liver damage and some died. Animals ingesting smaller amounts over several weeks or months developed anemia; skin conditions; and liver, stomach, and thyroid gland injuries. U.S. EPA has determined that PCBs are a probable human carcinogen.

**Selenium** is a naturally occurring mineral element found in most rocks and soil. Most processed selenium is used in the electronics industry. But it is also used in the glass industry; as a component of pigments in plastics, paints, enamels, inks and rubber; in the preparation of pharmaceuticals; in pesticide formulations; in rubber products; and as a constituent of fungicides. Short-term exposure to high concentrations may cause nausea, diarrhea and vomiting. Chronic oral exposure to high concentrations of selenium compounds can produce selenosis, with symptoms such as hair loss, nail brittleness and neurological abnormalities. U.S. EPA has determined that one specific form of selenium, selenium sulfide, is a probable human carcinogen.

**Tetrachloroethylene** (PERC or PCE) is a manufactured chemical that is widely used for dry cleaning of fabrics and for metal degreasing. It is a non-flammable liquid at room temperature and readily evaporates into the air. High concentrations of PERC can cause dizziness, headache, sleepiness, confusion, nausea, unconsciousness and death. The health effects of inhaling and ingesting low levels of PERC are not known. Results of animal studies involving high levels of PERC show that it can cause liver and kidney damage. The U.S. Department of Health and Human Services has determined that PERC may reasonably be anticipated to be a carcinogen.
**Vinyl Chloride** is a colorless gas that burns easily and that is not stable at high temperatures. It is a manufactured substance that does not occur naturally. It can be formed when other substances such as trichloroethane, trichloroethylene, and tetrachloroethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC), which is used to make a variety of plastic products including pipes, wire and cable coatings, and packaging materials. Breathing very high levels can cause you to pass out, while extremely high levels can cause death. Studies in workers who have breathed vinyl chloride over many years showed an increased risk of liver, brain and lung cancer, and some cancers of the blood. The U.S. Department of Health and Human Services has determined that vinyl chloride is a known human carcinogen.

**Zinc**, a bluish-gray shiny metal, is one of the most common elements in the earth's crust. It is found in air, soil, water and in all foods. Zinc has many commercial uses as coatings to prevent rust, in dry cell batteries, and mixed with other metals to make alloys like brass and bronze. Zinc combines with other elements to form zinc compounds including zinc chloride, zinc oxide, zinc sulfate and zinc sulfide. Zinc compounds are widely used in industry to make paint, rubber, dyes, wood preservatives, and ointments. Zinc is an essential element in our diet, but generally becomes harmful at levels 10-15 times the amount needed for good health. The ingestion of large doses in a short period can cause stomach cramps, nausea, and vomiting. Taken longer term, it can cause anemia. Inhaling large amounts of zinc can cause a specific short-term disease called metal fume fever. Long-term effects of breathing zinc are unknown. Based on incomplete information from human and animal studies, U.S. EPA has determined that zinc is not classifiable as to its human carcinogenicity.
APPENDIX A
Glossary of Terms
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Action Level</strong></td>
<td>A concentration for a contaminant of concern that has been determined by regulation or through a risk assessment to be protective of human health or ecological receptors. This concentration value could be based on a preliminary remediation goal (PRG); a drinking water maximum contaminant level (MCL); or a background concentration (background).</td>
</tr>
<tr>
<td><strong>Adsorb</strong></td>
<td>The adhesion in an extremely thin layer of molecules (as of gases, solutes, or liquids) to the surfaces of solid bodies or liquids with which they are in contact.</td>
</tr>
<tr>
<td><strong>Aquifer</strong></td>
<td>An underground geological formation capable of holding and yielding water.</td>
</tr>
<tr>
<td><strong>ARARs</strong></td>
<td>Applicable or relevant and appropriate requirements. Those rules that strictly apply to remedial activities at the site or those rules whose requirements would help achieve the remedial goals for the site.</td>
</tr>
<tr>
<td><strong>Baseline Risk Assessment</strong></td>
<td>An evaluation of the risks to humans and the environment posed by a site in the absence of any remedial action, which also determines the extent of cleanup needed to reduce potential risk levels to within acceptable ranges.</td>
</tr>
<tr>
<td><strong>Carcinogen</strong></td>
<td>A chemical that causes cancer.</td>
</tr>
<tr>
<td><strong>Contaminants of Concern (COCs)</strong></td>
<td>Chemicals identified at the site that are present in concentrations that may be harmful to human health or the environment.</td>
</tr>
<tr>
<td><strong>Decision Document</strong></td>
<td>A statement issued by the Ohio EPA giving the director's selected remedy for a site and the reasons for its selection.</td>
</tr>
<tr>
<td><strong>Ecological Receptor</strong></td>
<td>Animals or plant life exposed or potentially exposed to chemicals released from a site.</td>
</tr>
<tr>
<td><strong>Environmental Covenant</strong></td>
<td>A servitude arising under an environmental response action that imposes activity and use limitations and that meets the requirements established in ORC Section 5301.82.</td>
</tr>
<tr>
<td><strong>Exposure Pathway</strong></td>
<td>Route by which a chemical is transported from the site to a human or ecological receptor.</td>
</tr>
<tr>
<td><strong>Feasibility Study</strong></td>
<td>A study conducted to ensure that appropriate remedial alternatives are developed and evaluated such that relevant information concerning the remedial action options can be presented to a decision-maker and an appropriate remedy selected.</td>
</tr>
<tr>
<td><strong>Final Cleanup Levels</strong></td>
<td>Final cleanup levels identified in the Decision Document along with the RAOs and performance standards.</td>
</tr>
<tr>
<td>Hazardous Substance</td>
<td>A chemical that may cause harm to humans or the environment.</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Hazardous Waste</td>
<td>A waste product listed or defined by RCRA that may cause harm to humans or the environment.</td>
</tr>
<tr>
<td>Human Receptor</td>
<td>A person/population exposed to chemicals released at a site.</td>
</tr>
<tr>
<td>Leachate</td>
<td>Water contaminated by contact with landfill wastes.</td>
</tr>
<tr>
<td>Maximum Contaminant Level (MCL)</td>
<td>The highest level of a contaminant that is allowed in a public drinking water supply. The level is established by U.S. EPA and incorporated into OAC 3745-81-11 and 3745-81-12.</td>
</tr>
<tr>
<td>NCP</td>
<td>National Oil and Hazardous Substances Pollution Contingency Plan, codified at 40 C.F.R. Part 300 (1990), as amended. A framework for remediation of hazardous substance sites specified in CERCLA.</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>Operation and maintenance. Long-term measures taken at a site, after the initial remedial actions, to assure that a remedy remains protective of human health and the environment.</td>
</tr>
<tr>
<td>Performance Standard</td>
<td>Measures by which Ohio EPA determines if RAOs are met.</td>
</tr>
<tr>
<td>Remediation Levels (RLs)</td>
<td>Initial clean-up levels that (1) are protective of human health and the environment and (2) comply with ARARs. They are developed early in the process (scoping) based on readily available information and are modified to reflect the results of the baseline risk assessment. They are also used during the analysis of remedial alternatives in the RI/FS.</td>
</tr>
<tr>
<td>Present Worth Cost</td>
<td>Estimated current cost, or value, of the future remedial costs to be expended, typically discounted at the current market rate. Provides a solid basis for comparing costs of each of the remedial alternatives.</td>
</tr>
<tr>
<td>Remedial Action Objectives (RAOs)</td>
<td>Specific goals of the remedy for reducing risks posed by the site.</td>
</tr>
<tr>
<td>Remedial Investigation</td>
<td>A study conducted to collect information necessary to adequately characterize the site for the purpose of developing and evaluating effective remedial alternatives.</td>
</tr>
<tr>
<td>Response to Comments</td>
<td>A summary of all comments received concerning the Preferred Plan and Ohio EPA response to the comments.</td>
</tr>
<tr>
<td>Site</td>
<td>A site is defined as the property which is being investigated and wherever the contamination from the property has come to be located. A &quot;site&quot; is not limited by property boundaries but includes wherever the waste from the property has migrated or been placed.</td>
</tr>
<tr>
<td>Water Quality Criteria</td>
<td>Chemical, physical and biological standards that define whether a body of surface water is unacceptably contaminated. These standards are intended to ensure that a body of water is safe for fishing, swimming and as a drinking water source. These standards can be found in OAC Chapter 3745-1.</td>
</tr>
</tbody>
</table>
APPENDIX B
Primary Contaminants of Concern
A total of 19 primary contaminants of concern (COCs) have been identified that pose the greatest potential risk to human health and the environment at this site. Details from the Agency for Toxic Substances and Disease Registry (ATSDR Toxicological Profiles) are provided below on each primary COC (except for the information on methane).

**Aluminum** is the most abundant metal in the earth's crust. It is always found combined with other elements such as oxygen, silicon, and fluorine. Aluminum as the metal is obtained from aluminum-containing minerals. Small amounts of aluminum can be found dissolved in water. Aluminum metal is light in weight and silvery-white in appearance. Aluminum is used for beverage cans, pots and pans, airplanes, siding and roofing, and foil. Aluminum is often mixed with small amounts of other metals to form aluminum alloys, which are stronger and harder. Aluminum compounds have many different uses, for example, as alums in water-treatment and alumina in abrasives and furnace linings. They are also found in consumer products such as antacids, astringents, buffered aspirin, food additives, and antiperspirants.

**Antimony** is a silvery-white metal that is found in the earth's crust. Antimony ores are mined and then mixed with other metals to form antimony alloys or combined with oxygen to form antimony oxide. Little antimony is currently mined in the United States. It is brought into this country from other countries for processing. However, there are companies in the United States that produce antimony as a by-product of smelting lead and other metals. Antimony isn't used alone because it breaks easily, but when mixed into alloys, it is used in lead storage batteries, solder, sheet and pipe metal, bearings, castings, and pewter. Antimony oxide is added to textiles and plastics to prevent them from catching fire. It is also used in paints, ceramics, and fireworks, and as enamels for plastics, metal, and glass.

**Arsenic** is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic can combine with oxygen, chlorine and sulfur to form inorganic arsenic compounds. The main use of inorganic arsenic compounds is to preserve wood. Organic arsenic compounds are used primarily as pesticides. Breathing high levels of inorganic arsenic can cause throat and lung irritation. Ingesting high levels of arsenic can result in death, while at lower levels it can result in nausea, decreased red and white blood cell production, and damage to blood vessels. Skin contact can cause redness and swelling. Arsenic is a known human carcinogen.

**Barium** is a silvery-white metal which exists in nature only in ores containing mixtures of elements. It combines with other chemicals such as sulfur or carbon and oxygen to form barium compounds. Barium compounds are used by the oil and gas industries to make drilling muds. Drilling muds make it easier to drill through rock by keeping the drill bit lubricated. They are also used to make paint, bricks, ceramics, glass, and rubber. Barium sulfate is sometimes used by doctors to perform medical tests and to take x-rays of the gastrointestinal tract.

**Benzene** is a natural part of crude oil and gasoline. It evaporates quickly, dissolves lightly in water, and is highly flammable. It is in the top 20 chemicals for production volume in the U.S. It is used to help make plastics, resins, nylon, rubber, lubricants, dyes, detergents, drugs and pesticides. Breathing very high levels can result in death, while high levels can cause drowsiness, dizziness, headaches, tremors, and unconsciousness. Ingestion of high levels can cause vomiting, dizziness, convulsions, rapid heart rate and death. The major effect of benzene from long term exposure is on the blood. It causes harmful effects on bone marrow, and can cause a decrease in red blood cells leading to anemia and immune system issues. Benzene is a known human carcinogen.
Cadmium is a natural element in the earth's crust. All soils and rocks contain some cadmium. Most cadmium used in the U.S. is extracted during production of metals like zinc, lead and copper. It does not corrode easily and is used primarily in batteries, pigments, metal coatings and plastics. Breathing high levels can severely damage the lungs. Ingesting high levels severely irritates the stomach, leading to vomiting and diarrhea. Long-term exposure to lower levels can lead to a build up in the kidneys and subsequent kidney disease. Other long-term effects are lung damage and fragile bones. Cadmium is a known human carcinogen.

Chromium is an odorless and tasteless naturally occurring element found in rocks, animals, plants and soils. It can be liquid, solid or gas. The most common forms are chromium (0), also known as elemental chromium, used for steel-making, chromium (III), also known as trivalent chromium, and chromium (VI), also known as hexavalent chromium, used for chrome plating, dyes, pigments, leather tanning and wood preserving. Chromium (III) is an essential nutrient that helps the body use sugar, protein and fat. Breathing high levels of chromium (VI) can cause irritation to the lining of the nose, nose ulcers and breathing problems. Ingestion of chromium (VI) can cause irritation and ulcers in the stomach and small intestine, and anemia. Damage to the male reproductive system has been seen in animals exposed to chromium (VI). In workers, inhalation has been shown to cause lung cancer. U.S. EPA has determined that chromium (VI) compounds are a known human carcinogen.

Cobalt is a naturally occurring element found in rocks, soil, water, plants, and animals. It is used to produce alloys used in the manufacture of aircraft engines, magnets, grinding and cutting tools, artificial hip and knee joints. Cobalt compounds are also used to color glass, ceramics and paints, and used as a drier for porcelain enamel and paints. Radioactive cobalt is used for commercial and medical purposes. 60Co (read as cobalt sixty) is used for sterilizing medical equipment and consumer products, radiation therapy for treating cancer patients, manufacturing plastics, and irradiating food. 57Co is used in medical and scientific research. It takes about 5.27 years for half of 60Co to give off its radiation and about 272 days for 57Co; this is called the half-life.

Copper is a reddish material that occurs naturally in the environment, in rocks, soil, water, and at low levels in air, and is an essential element in plants and animals. Copper is used to make wire, plumbing pipes and sheet metal, and is combined with other metals to make brass and bronze pipes and faucets. Long-term exposure to copper dust can irritate the nose, mouth and eyes, and cause headaches, dizziness, nausea and diarrhea. Ingestion of high levels can cause nausea, diarrhea, vomiting and stomach issues. Very high levels can cause kidney and liver damage, and even death. U.S. EPA has not classified copper as a human carcinogen because there are no adequate human or animal cancer studies.

Di-n-butyl-phthalate is a manufactured chemical that does not occur naturally. It is an odorless and oily liquid that is colorless to faint yellow in color. It is slightly soluble in water and does not evaporate easily. Di-n-phthalate is used to make plastics more flexible and is also in carpet backings, paints, glue, insect repellents, hair spray, nail polish, and rocket fuel.

Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Lead can be found in all parts of the environment, but much of it comes from human activities including the burning of fossil fuels, mining and manufacturing. Lead is used in the production of batteries, ammunition, metal products (solder and pipes), and devices to shield X-rays, and was a common additive to gasoline in the U.S. until it was banned in 1995. The effects of lead are the same whether exposure is through ingestion or inhalation. It affects almost every organ in the body, though the main target is the nervous system. Long term exposure can result in decreased nervous system functionality, and it may cause weakness in fingers, wrists and ankles. Exposure to high levels can severely damage the brain and kidneys, and ultimately cause death. U.S. EPA has determined that lead is a probable human carcinogen.
Manganese is a naturally occurring metal that is found in many types of rocks. Pure manganese is silver-colored, but does not occur naturally. It combines with other substances such as oxygen, sulfur, or chlorine. Manganese can also be combined with carbon to make organic manganese compounds. Common organic manganese compounds include pesticides, such as maneb or mancozeb, and methylcyclopentadienyl manganese tricarbonyl (MMT), a fuel additive in some gasoline. Manganese is an essential trace element and is necessary for good health. Manganese can be found in several food items, including grains and cereals, and is found in high amounts in other foods, such as tea.

Mercury is a naturally occurring metal which has several forms. The metallic mercury is a shiny, silver-white odorless liquid. If heated, it is an odorless, colorless gas. Metallic mercury is used to produce chlorine gas and caustic soda, and is also used in thermometers, dental fillings, and batteries. The nervous system is very sensitive to all forms of mercury. High level exposure to metallic, organic and inorganic mercury can permanently damage the brain, kidneys and developing fetuses. Effects on brain functioning may result in irritability, tremors, vision or hearing changes, and memory problems. There are inadequate human cancer data available for all forms of mercury. U.S. EPA has determined that mercury chloride and methylmercury are possible human carcinogens.

Methane is a naturally occurring chemical compound with the chemical formula CH4. It is the simplest alkane, and the principal component of natural gas (about 87% by volume). It is flammable over a narrow range of concentrations (5–15%) in air. Methane is not toxic; however, it is extremely flammable and may form explosive mixtures with air. Methane is also an asphyxiant and may displace oxygen in an enclosed space. The concentration of methane where asphyxiation risk becomes significant is much higher than the 5–15% concentration that forms flammable or explosive mixtures. When structures are built on or near landfills, methane off-gas can penetrate the buildings' interiors and expose occupants to significant levels of methane.

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APPENDIX C
Public Hearing Transcript
BEFORE THE OHIO ENVIRONMENTAL PROTECTION AGENCY

IN RE:

JACKSON COUNTY LANDFILL
PREFERRED PLAN.

Public hearing held before Ms. Darla Peelle, Public Involvement Coordinator for Ohio EPA's Public Interest Center, taken before Diane L. Schad, Court Reporter, at Jackson City Council Chambers, 199 Portsmouth Street, Jackson, Ohio 45640; commencing on Thursday, April 9, 2015, at 6:00 p.m.
<table>
<thead>
<tr>
<th>WITNESS</th>
<th>PAGE</th>
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</thead>
<tbody>
<tr>
<td>WILLIAM MARTIN</td>
<td>8</td>
</tr>
</tbody>
</table>
PROCEDINGS

MS. PEELIE: The purpose of this public hearing is to accept comments on the official record regarding a draft plan to reduce toxic contamination at the former Jackson County Landfill located at 1841 Smith Bridge Road in Jackson.

The site began operations in 1970 accepting municipal solid waste and more than 5,000 drums of industrial waste. The landfill stopped accepting waste in 1987, but was never properly closed. As a result, rainwater and snow melt have mingled with industrial waste at the site. The resulting contaminated water is called leachate. The leachate contains volatile and semi-volatile compounds and metals at levels that need to be addressed.

The Goodyear Tire and Rubber Company is responsible for designing, implementing and monitoring the landfill to ensure people's health and the environment are protected. Goodyear has offered an engineering solution which Ohio EPA has evaluated to ensure contamination does not leave the site, which is what Dustin just shared.

Ohio EPA published a public notice to
announce the hearing and public comment period

regarding the application in newspapers in the area.

The notice was also issued in Ohio EPA's Weekly Review,
which is a publication that lists, by county, all
Agency activities and actions taking place in the State
of Ohio.

Written and oral comments received as a part
of the official record are reviewed by Ohio EPA prior
to a final action of the Director. To be included in
the official record, written comments must be received
by Ohio EPA by the close of business April 17, 2015.
Comments received after this date will be considered as
time and circumstances permit but will not be a part of
the official record for this hearing.

Written comments can be filed with us today
or submitted to Dustin Tschudy, Site Coordinator, Ohio
EPA, Southeast District Office, 2195 Front Street in
Logan, Ohio 43138. You may also email comments to
Dustin at dustin.tschudy@epa.ohio.gov, or fax it to
area code 740-365-6490.

I've read this quickly because the
information is also found in the agenda and the
presentation handout.

It's important for you to know that all
comments received in writing to the Agency, all written
comments submitted this evening, or all verbal comments
given here this evening are given the same
consideration.

If you have exhibits and refer to them in
your testimony, please submit those to ensure that your
testimony is complete.

A court reporter, Diane, from Fraley, Cooper
in Columbus is here to make a stenographic record of	onight's proceedings.

Questions and comments made at the public
hearing will be responded to in a document known as a
Response to Comments. It's essentially a formal
question and answer I will call it.

The Director, after taking into consideration
recommendations of program staff and comments from the
public, may approve or deny the preferred plan. Once a
final decision is made by the Director, the decision,
along with the Response to Comments, will be made
available to anyone who requests a copy, and that
includes anyone who's signed in this evening:

Final actions of the Director are appealable
to the Environmental Review Appeals Commission, also
known as ERAC. The board is separate from Ohio EPA and
reviews cases in accordance with Ohio's environmental laws and rules. Any ERAC decision is appealable to the Franklin County Court of Appeals. Any order of the Court of Appeals is appealable to the Supreme Court of Ohio.

Each individual may testify once and speak for five minutes, so please use your time wisely. And also please be respectful of others whether you agree with their comments or not.

There is no cross-examination of the speaker or Ohio EPA representatives during a public hearing. They're here to listen. This affords you an opportunity to provide input.

We may ask clarifying questions of the speaker just to make sure that we understand what your comments are if there's some question.

If you have a question that was not responded to during the Q and A session, please ask it at this time on the record and we will address your concerns in writing in the Response to Comments.

So I'm going to now receive testimony. And the first name on the list, and this is in the order in which you signed in, is Ron Clark.

MR. CLARK: Pass.
MS. PEELEE: All right, Shawn Sexton.
MR. Sexton: Pass.
MS. PEELEE: All right, Will Sexton.
MR. Sexton: Pass.
MS. PEELEE: Kevin Aston.
MR. ASTON: I don't have any comments at this time.
MS. PEELEE: Okay, Gary Radabaugh.
MR. RADABAUGH: Pass.
MS. PEELEE: All right, Wendy Stewart.
MS. STEWART: I'll pass.
MS. PEELEE: All right, Ron Queen.
MR. QUEEN: Pass.
MS. PEELEE: All right, Bill Martin.
If you'll come up, Mr. Martin, and state and spell your name for the record so that the stenographer can get it.
---
MR. MARTIN: My name is William Martin. My last name is spelled M-A-R-T-I-N. My family is a landowner somewhat south of the affected property. I'm also a taxpayer and I have an intense interest in the Lake Katherine Nature Preserve which is close by, and the fact that the hazardous waste is seeping into a
creek near that state nature preserve horrifies me.

I have had occasion in the past to take some interest in these issues decades ago. Phil remembers. He and I were allies in that fight.

I think of a hazardous waste landfill, and this is a hazardous waste landfill make no mistake, as being a structure which is supposed to have impervious walls, bottom, top, sides so that whatever is inside can't get out. That's the whole idea. And I kind of think of it -- I used this image before -- as a ravioli. The walls are the crust and what's inside is poisonous; it's not supposed to get out.

Now, if you put that ravioli in a saucer half filled with water that represents the water table; then you take a sprinkling can and you sprinkle rain over that ravioli and then you do that for 5, 10, 15, 25 years, that's the stakes in which you're dealing with here.

The problem as I see it is -- we already know that this ravioli is leaking at the tops and around the sides. My Lord, thousands and thousands of gallons of leachate is filtering through. We know it's filtering through because the crud inside is coming out with it.

One of my problems is in this particular case people
talk about the cap of the landfill. Well, what about
the floor of the landfill? What about the clay liner
that was put in before they put in the waste? Is that
clay liner impervious? I doubt it very much.

One of our neighbors asked a good question:
Where is the water table? Is that water table high
enough so that ravioli is actually sitting in the water
in the saucer? And if it is, if the bottom of the
landfill is sodden, it doesn't make a lot of
difference what they do with the cap at the top, it
leaks out at the bottom.

The design of this plan -- and I commend the
EPA for its work in this case. I found the plan to be
well-written, thorough, thoughtful. It was a very
impressive piece of work by you and I'm sure the
engineers working for Goodyear. But there was one
alternative that I thought was missing.

What they did was they laid out several
alternatives and then they graded those alternatives.

One of the alternatives was do nothing;
Another alternative was just to do a simple cover;
Another alternative was do a simple cover with an
impervious membrane below it kind of like a raincoat
and so on. But they didn't say dig up the drums and
carry them away to an approved hazardous waste landfill.

I was wondering where that alternative was.

I didn't see it.

I'm in the Historical Society. Now we hear the stories about the marvelous things you can do with subsurface imaging. There are very sophisticated metal detectors, which we are told these are drums. I would think that the landfill might have some records as to where in the landfill those drums were placed. If not, you can do subsurface imaging and have a pretty good chance of finding out where those drums are.

You can pay attention to where your contamination was found and get some idea of where that contamination came from within the broad expanse of that landfill, and then you poke a hole in the thing, you find the drums, you get them out of there and you take them out someplace.

The report in its evaluation said with respect to every one of these alternatives it was not going to affect the nature and extent of the toxicity of the material in the landfill. It wasn't going to change it, just kind of cover it up.

Why not get rid of it? That was not an
alternative. My comment is why wasn't that an
alternative? Why wasn't it considered seriously?
It seems to me if you had taken one or two
drums out a day over the last 30 years, hells bells,
you could have finished the job ten times by now.
That's a guess.

So I think that's a serious defect in your
analysis and one that should be addressed. I think
what you're trying to do is reframe the discussion by
listing your alternatives. I think there's one
alternative, obvious alternative that you missed.

There are some. -- Oh, I should ask on the
record for your comment how deep is the shallowest
water table? Does it wash the bottom of that landfill?
There was some specific things that you're
going to let Goodyear out of. One of them was they
weren't going to have to do preconstruction
permeability testing for the soil because they were
going to use soil that's on-site to do this new cover.

Why in the world wouldn't you require them to
do permeability studies of all the soil that's going to
be used for cover? There's no assurance that that soil
is impermeable. Certainly none was mentioned in the
report.
Also, you're going to reduce the thickness of
the cap protection layer from 30 inches to 24 inches.
The 30 inches is the so-called freeze
protection requirement, and you said we'll just go to
24 because the average soil temperatures in the area of
the Jackson County Landfill do not warrant a 30-inch.
The average temperatures are irrelevant. You
don't ask average floods. You ask what's the most
serious flood in the 100 years. You ask what's the
deepest freeze you can get that can tear up the
permeability of those soils in that cap.
So it should be a 30-inch cover if you're
going to have a cover. I would like that point
addressed in your responses, please.
Also, why not require the dual cover, which
is Alternative 4?
Dual cover basically means you put down a
layer of clay and then you put down the plastic
raincoat cover, then you put more clay over it. And
those two layers of clay I think are what they referred
to as the dual cover. It gives you a little bit extra
protection against the rainwater.
Why not do that? It doesn't cost all that
much. It costs a little bit more but not that much
more. I would think you'd get more benefit than the
cost is.

And, again, I don't think the taxpayers
should be paying any of this. It's somebody else's
drums, somebody else's hazardous waste. They ought to,
be responsible for it.

MS; PEELLE: Please wrap up, sir.

MR. MARTIN: My last question is -- and then
I'll wrap up, ma'am -- what financial responsibility
requirement is there to assure performance in the
future? Is there a bond? Will there be a bond
required as part of this? There may well be. I just
don't know. Thank you.

MS. PEELLE: All right. Thank you, sir.

next is Phil. Phil, would you like an
opportunity?

MR. ZITO: No. He said what I needed to say.

MS. PEELLE: Okay. And Agnes Martin?

MS. MARTIN: I'll pass. I was just going to
donate my time to Bill.

MR. MARTIN: I ran out.

MS. PEELLE: All right. Anybody else wish to
provide testimony before we close?

MR. ZITO: The only thing I would like to
ask --

MS. PERELIE: You can't ask except on the record, sir. Otherwise you can ask after, just in the informal. There are rules --

MR. KITTO: That's all right. I'll ask you again.

MS. PERELIE: All right. No one else? My son is an auctioneer so I always say going once, going twice?

All right. The time is now 7:03. Seeing there are no further requests to present testimony, I want to remind you that the comments will be accepted through the close of business April 17, 2015. The time is now 7:03 and this hearing is adjourned. And thank you very much for being here. We really do appreciate it.

Off the record.

Thereupon, on Thursday, April 9, 2015, at 7:03 p.m. the hearing was adjourned.
CERTIFICATE

I do hereby certify that the foregoing is a true and correct transcript of the proceedings taken by me in this matter before the Ohio EPA, on Thursday, April 9, 2015.

DIANE L. SCHAD,
COURT REPORTER.
APPENDIX D
Written Public Comments
Comments: Preferred Plan for the Remediation of the Jackson County Landfill

Dustin,

The following are my comments, questions, and concerns regarding the Preferred Plan for the Remediation of the Jackson County Landfill, City of Jackson, Jackson County, Ohio:

1. The Preferred Plan (PP) discusses groundwater (and other environmental media) contamination at the site, but given that the wastes have been present at the site for over 30 years and leaking/leaching into the groundwater and soils without any controls in place, more discussion (and possibly investigation) is warranted so that the residents are made aware of the full extent of the contaminated groundwater plume, soils, and local streams. Explain the full extent of contamination to environmental media and offsite properties. How far would one have to be from the site so that the total cancer risk and total hazard index are not exceeded for groundwater use and soil exposure; how far has the contamination been spread to unacceptable levels? Based on the answers to these questions, if additional hazards are present in adjacent properties, none of the preferred alternatives are adequate because they don't address all of the contamination created by the wastes in the landfill. What is going to be done to remediate offsite properties?

2. What are the acceptable rates for natural attenuation of the contaminates in groundwater? What if the rates are not met? The PP should address this.

3. A 40 mil geomembrane liner is not sufficient enough to prevent tearing and destruction of the liner during construction. A 60 mil (or preferably 80 mil liner) is more suited for use especially because the local soils are going to be used and will contain very large rocks, etc. that will tear the liner.

4. The typical compaction rate for soils is 1 x 10-7 cm/sec; however, the PP goes even further to make allowance for "as low of a permeability as can be reasonably achieved". The compaction rate should be 10-7, without exception.

5. How often will the Ohio EPA monitor the site to ensure that all systems are being maintained, especially the leachate collection system (trucking of leachate for offsite treatment) to ensure that the responsible party is removing the leachate properly?

6. The only remedy, which was not considered as a part of this PP, that meets all of the evaluation criteria is to remove the waste. Why was this not considered and evaluated?

7. Goodyear was approved for an exemption request to OAC 3745-27-06(D). There are many requirements in this rule - what requirements are being exempted and why?

8. A soil gas collection system is discussed in Section 6.3 of the PP, but there is no soil gas collection layer as a part of the selected alternative. Shouldn't this be added to the alternative?

Thank you.

Sincerely,
Wendy Stewart
April 17, 2015

Via Certified Mail, Return Receipt Requested
Via email to Dustin.Tschudy@epa.ohio.gov

Mr. Dustin Tschudy
Site Coordinator
Ohio Environmental Protection Agency
Southeast District Office
2195 Front Street
Logan, OH 43138

Re: Comments on Preferred Plan, Jackson County Landfill, 1841 Smith Bridge Road, Jackson, Ohio

The Goodyear Tire and Rubber Company ("Goodyear") respectfully submits comments on the Ohio Environmental Protection Agency's ("Ohio EPA" or "Agency") Preferred Plan for the Jackson County Landfill ("Site") located at 1841 Smith Bridge Road, Jackson, Jackson County, Ohio. Over the past decade, Goodyear has cooperated with the Agency by conducting and funding substantial work at the Site.

As explained more fully below, Goodyear is concerned that the Preferred Plan is deficient in a number of areas, including (1) its inappropriate focus on Goodyear as the only generator when the Site accepted mixed waste from a multitude of parties over a 17 year period, and (2) technical concerns with the preferred remedial alternative and the inaccurate application of the Agency-approved exemption request regarding landfill cover specifications. Goodyear requests that these issues be addressed in the Decision Document for the Site. In submitting these comments, Goodyear reserves all rights under law with respect to the Site.

Discussion

The following comments are organized by section number of the Preferred Plan.

2.1 Site History

In the Site History section of the Preferred Plan, Table 1, Ohio EPA acknowledges that the Site was an operational landfill from approximately April 1970 until September 1987. The Site History, however, does not accurately depict the nature of the waste that was disposed of at the
Site or the large number of generators, arrangers, and transporters whose waste was disposed of at the Site. In the Decision Document, the Site History section should be amended as follows:

- Table 1: Owners, Operators and/or Disposers – The title of this table should be revised to “Owners and Operators” and the table row listing Goodyear should be deleted; unless the Decision Document lists all waste generators, it should not include Goodyear in a manner that suggests Goodyear was the sole “disposer” at the Site.
- Section 2.1: The first paragraph directly below Table 1 should be deleted and replaced with the following:

  During its operation between April 1970 and September 1987, the Jackson County Landfill accepted “industrial waste” and/or “other waste” as defined in Ohio Revised Code (ORC) § 6111.01 (C) and (D), and/or “hazardous wastes” as defined in ORC § 3734.01(D), and/or “hazardous substances” as defined in Section 101(14) of the Comprehensive Environmental Response, Compensation & Liability Act / Superfund Amendment and Reauthorization Act (CERCLA/SARA) (Ohio EPA, August 2005). Wastes disposed of at the Jackson County Landfill included municipal waste and drummed materials, including: acetone, polyester resin mixture, cyclohexanone, dichloromethane, isobutyl alcohol, methyl ethyl ketone, methyl isobutyl ketone, toluene, xylene, and waste styrene mixture. Foundry sand containing certain metals (including arsenic, barium, cadmium, lead and mercury) that OSCO Industries, Inc. sent to the Site was also used as daily cover at the Site and was disposed of in a staging area on the Sexton property of the Site.

According to records provided by Goodyear in response to Ohio EPA information requests, between approximately 1974 and 1980, the owner/operator of Jackson County Landfill accepted and disposed of approximately 5,772 drums that contained contaminants from Goodyear. The landfill permanently ceased accepting waste in approximately September 1987. However, the landfill was not properly closed, nor was the minimal cap which was placed on the waste, maintained. As a result, there have been releases of hazardous wastes occurring since at least 1996. In 1996, Ohio EPA found elevated concentrations of ammonia, iron, nickel, and lead above water quality criteria in leachate originating at the landfill. In addition, three volatile organic compounds (VOCs) – benzene, xylene, and 1,2,4-trimethylbenzene were found. The benzene was detected above both the screening criteria and its maximum contaminant level (MCL). The detection of these compounds and metals indicated that constituents were being released into the environment from the landfill.  

2.3.1 Risks to Human Health

Section 2.3.1 describes the Human Health Risk Assessment that was performed for the Site. It should be noted that the Residential Use scenario is not a realistic complete exposure pathway at the Site. There is not currently a residential receptor, and because an institutional control will be placed on the landfill cap area of the Site, there will not be a future residential receptor. The
Decision Document and selected remedy should not be based in whole or in part on the residential use considerations from the risk assessment.

2.3.2 Risks to Ecological Receptors

Section 2.3.2 describes the Ecological Risk Assessment (ERA) that was conducted at the Site to assess potential impacts of contaminants of concern (COCs) on ecological receptors at and surrounding the Site. At the April 9, 2014 public meeting, a question was posed about potential impacts to Salt Lick Creek from leachate generated at the Site. It should be noted that in 2004 a biological and water quality survey of Salt Lick Creek was conducted, and the resulting Ohio EPA report concluded that "[]leachate associated with the Jackson County Landfill is not having a negative influence on fish and macroinvertebrate communities of Salt Lick Creek." Page 1, *Biological and Water Quality Study of Salt Lick Creek, Jackson County Landfill, Ohio* (Ohio EPA, Division of Surface Water, February 25, 2005).

The list of COCs posing a potential risk to ecological receptors in the Preferred Plan is also misleading and should be clarified in the Decision Document, as the current description conflicts with the findings and conclusions of the approved ERA.

For example, the Preferred Plan lists cyclohexane as a potential risk to ecological receptors in both soils and surface water. Cyclohexane, however, is listed as a contaminant of potential ecological concern (COPEC) in the ERA only because there was no screening level to which to compare concentrations. In addition, cyclohexane was only detected in 7 of the 63 soil samples analyzed and 8 of the 16 seep samples analyzed. Section 5.0 of the ERA ("Conclusions"), does not list cyclohexane as a COPEC.

Similarly, the Preferred Plan lists xylene as a potential risk to ecological receptors, but xylene was only detected in 3 of the 16 leachate seep samples above the COPEC screening level. Section 4.17 of the ERA ("Discussion") concluded that "since there were only three detections of xylene that were above the promulgated OMZA [Outside Mixing Zone Average] and no detection of xylenes above the OMZM [Outside Mixing Zone Maximum], the concentrations of xylenes detected in the leachate seeps do not appear to pose a significant risk to site aquatic life."

The Decision Document should clearly state that the ERA did not find these COPECs to pose a significant risk to ecological receptors at or near the Site.

6.0 Ohio EPA's Preferred Remedial Alternative

Although the Hydrologic Evaluation of Landfill Performance (HELP) model concluded that less leachate would be generated if a geosynthetic gas venting/leachate collection layer was not installed as a cap component, a remedial design engineer should perform a thorough evaluation of the feasibility of eliminating this component of the ccap to ensure that hydraulic pressure does not develop beneath the geomembrane liner which could result in liner failure.
6.1  Landfill Cover (and other sections of Preferred Plan)

Section 6.1 of the Preferred Plan states the "existing soil will be reworked and compacted..." (Emphasis added). Pursuant to ORC 3734.02(G), however, the Agency’s July 6, 2012 Director’s Final Findings and Orders ("3734.02(G) DFFO") approved an exemption from OAC 3745-27-08(D)(21)(g)(i)-(iv) (regarding re-compacted soil barriers). Paragraph 8(d) of 3734.02(G) DFFO concluded that "[a] re-compacted soil barrier would not be placed on the landfill; therefore, adherence to the specifications in (D)(21)(g)(i)-(iv) is not warranted." In the Decision Document, this language should be corrected to delete reference to a requirement to compact existing soil as part of the remedy.

In describing the components of the cap system for the preferred remedy, the first bullet in Section 6.1 of the Preferred Plan also states a "recompacted soil layer (soil already on site with additional soil added if needed to achieve minimum of 18 inch base) to serve as a bedding and low permeability layer..." However, Paragraph 8(a) of the 3734.02(G) DFFO approved "an exemption from the requirement to construct an eighteen-inch thick soil barrier in order to allow the use of existing re-graded soil cover as the soil barrier with the intent to achieve an average of at least 18 inches of soil cover over the entire landfill." Emphasis added. The Decision Document should include the correct cover requirements pursuant to the 3734.02(G) DFFO.

Finally, the fourth and fifth bullets in Section 6.1 state that the landfill cap will include a "24 inch thick protective cover soil layer" and a "6 inch think topsoil layer (using existing topsoil and supplemented with additional soil as required)." The 3734.02(G) DFFO, however, found that the minimum cap thickness of 30 inches in OAC 3745-27-08(D)(26)(b) was not required because the average soil temperatures in the area of the Site do not warrant a thirty-inch thick cap protection layer for freeze protection. Pursuant to OAC 3745-27-08(D)(26)(d), the top soil layer is considered a part of the protective cover (i.e. the cap protection layer should "have sufficient fertility in the uppermost portion to support vegetation"). Thus, it is important that the Decision Document confirms that the 6 inch thick topsoil layer is included in the 24 inch protective cover. If not, the selected remedy protective cover is not consistent with the less than 30 inch protective cover as approved in the 3734.02(G) DFFO.

For Ohio EPA’s reference, a copy of the 3734.02(G) request and DFFO are attached as Appendix 1 and 2 of these comments.

Conclusion

Goodyear requests that Ohio EPA make the necessary corrections and modifications in the Decision Document for the Site. These changes are necessary to accurately reflect the history of the Site, the current and future risks at and near the Site, and the approved cap remedy in the Agency’s 3734.02(G) DFFO.
Thank you for your attention to these issues.

Sincerely,

Jeff Sussman
Senior Manager, Global Remediation and End of Life Tires
The Goodyear Tire and Rubber Company

Enclosures

cc: Heidi Goldstein, Thompson Hine LLP
    Joel Eagle, Thompson Hine LLP
    Ron Clark, Goodyear
December 8, 2014

Ms. Chris Osborne
Site Coordinator
Environmental Response and Revitalization
Ohio Environmental Protection Agency, SEDO
2105 Front Street
Logan, Ohio 43138

Re: Goodyear Tire & Rubber Company ORC 3734.02(G) Exemption Request for the Jackson County Landfill Cap.

Dear Ms. Osborne:

Pursuant to Ohio Revised Code § 3734.02(G), the Goodyear Tire & Rubber Company ("Goodyear") requests that the Director of Ohio EPA grant an exemption from several requirements related to the dual layer low permeability cap that Goodyear understands will be proposed as one of the capping alternatives to be presented in the Preferred Plan for the Remediation of the Jackson County Landfill, located at 1841 Smith Bridge Road (County Road 60), Jackson County, Ohio.

Goodyear respectfully submits that for the reasons set forth in this request, the OAC 3745-27-08 capping requirements applicable to new solid waste landfills are not warranted for the Jackson County Landfill which has not accepted waste for over 12 years. As an alternative to those requirements, Goodyear would propose the construction of a landfill cap using the existing soil cover with the addition of a flexible membrane liner (FML). It is Goodyear's position that this approach is equally protective of human health and the environment as the dual layer low permeability cap.

OAC 3745-27-08(1) "Design, Construction, and Testing Specifications" provides the specifications for design of all engineered components of a currently operational sanitary landfill. By this letter, Goodyear is requesting that the Director grant an exemption pursuant to Ohio Revised Code § 3734.02(G) from several specifications outlined in OAC 3745-27-0801(21) and (20). Listed below are the design requirements set forth in those sections, along with information in support of Goodyear's exemption request.
OAC 3745-27-08(D)(21):

For cap soil barrier layers, design and construction of a recompacted soil barrier layer in the composite cap system shall comply with the following:

(ii) Be at least one of the following:

(i) Eighteen inches thick.

(ii) A geosynthetic clay liner that complies with paragraph (D)(9) of this rule with an engineered subsurface, constructed in accordance with paragraph (D)(22) of this rule.

Goodyear requests an exemption from the requirement to construct an eighteen-inch soil barrier in order to allow use of the existing regraded soil cover as the soil barrier.

The Jackson County Landfill accepted solid wastes from approximately 1970 to 1999. The landfill ceased accepting waste in 1999 and has remained dormant for 13 years. Consequently, Goodyear proposes to use the existing silty-clay soil cover as an alternative to a new 18 inches thick recompacted clay layer. Goodyear contends that this alternative provides equivalent protection of human health, safety, and the environment as the dual layer low permeability cap.

At Goodyear’s request, Parsons conducted an investigation of the existing landfill soil cover as part of the Remedial Investigation of the landfill and issued a final report dated April 2009. This investigation reported that more than 60% of the landfill has a soil cover of 24 inches or greater, and an average cover thickness of over 25 inches. Only one of the 22 borings installed to measure cover thickness had a cover depth of less than 18 inches. Goodyear proposes to regrade the existing soil cover in order to achieve an average of at least eighteen inches of soil cover over the entire landfill. This cover will be amended if necessary with a granular material or a geotextile underlay to protect the FMI placed on top of the existing soil cover.

The principal drivers for remedial action at the Jackson County Landfill are the generation and uncontrolled migration of leachate and the prevention of direct contact with buried waste materials. Goodyear conducted an evaluation of the generation of leachate, or water percolation rates, through different landfill cap designs proposed in the Jackson County Landfill Feasibility Study. The evaluation, using the Hydrologic Evaluation of Landfill Performance (HELP) Model, determined the dual layer cap design (Alternative 2A in the ES) would allow approximately 0.36 cubic feet/year to percolate through the landfill cap, resulting in a 99.99% efficiency in reducing water percolation into the landfill. Likewise, the HELP Model determined the percolation reduction efficiency of the single FMI cap design (Alternative 3A in the ES) was a comparable 99.97%. Goodyear believes that the addition of a secondary clay liner below the FMI would not significantly reduce the volume of water that will percolate through the cap and generate leachate. Goodyear contends that the existing soil cover in conjunction with a FMI liner will provide protection equivalent to a dual liner from water percolation.
through the cap. Appendix A provides a copy of the HELP calculations and summary of results.

The alternative landfill cap proposed by Goodyear is protective of human health and the environment:

(b) Be free of debris, foreign material, and deleterious material.

No exemption is requested for this specification.

(c) Not be comprised of solid waste.

No exemption is requested for this specification.

(d) Be placed above all areas of waste placement.

There may be constraints (e.g., slope along western landfill boundary) that make it impractical for the placement of the agreed upon cap over all areas of waste placement. These constraints will need to be evaluated during the remedial design of the landfill cap.

(e) Not have any abrupt changes in grade that may result in damage to the geosynthetics.

No exemption is requested for this specification.

(f) Have pre-construction testing of the borrow soils performed on representative samples and the results submitted to the appropriate Ohio EPA district office no later than seven days prior to the intended use of the material in the construction of the cap soil barrier layer. The pre-construction testing shall determine the following:

(i) The maximum dry density and optimum moisture content according to ASTM D698-00a (standard proctor), or ASTM D1557-98 (modified proctor) at a frequency of no less than once for every one thousand five hundred cubic yards.

(ii) The grain size distribution according to ASTM D422-63 (sieve and hydrometer) at a frequency of no less than once for every one thousand five hundred cubic yards.

(iii) The recompressed laboratory permeability using ASTM D5584-00e1 (falling head) at a frequency of no less than once for every ten thousand cubic yards.

Goodyear proposes to use the existing soil cover for the landfill's soil barrier. Consequently, borrow soils should not be needed. In the event borrow soils are needed, the testing specified in paragraphs (i) and (ii) will be performed on borrow soils. Testing
of the recompacted soils, i.e. paragraph (iii), will not be performed, as the borrow soils will only be used to supplement the existing soil cover.

(g) Be constructed in lifts to achieve uniform compaction. Each lift shall:

(i) Be constructed of soil in accordance with the following:
   (a) With loose lifts of eight inches or less.
   (b) With a maximum soil size of three inches or half the lift thickness, whichever is less.
   (c) With one hundred percent of the particles having a maximum dimension not greater than two inches.
   (d) With not more than ten percent of the particles, by weight, having a dimension greater than 0.75 inches.
   (e) With at least fifty percent of the particles, by weight, passing through the 200-mesh screen.
   (f) Alternative soil specifications may be used provided that it is demonstrated to the satisfaction of the director or his authorized representative that the materials and techniques will result in each lift having a maximum permeability of 1 x 10^-6 cm/sec.

(ii) Be compacted to at least ninety-five percent of the maximum dry density as determined by ASTM D698-00 (standard proctor) or at least ninety percent of the maximum dry density as determined by ASTM D1557-00 (modified proctor) or an alternative compaction specification approved by the director.

(iii) Be placed with a minimum soil moisture content that shall not be less than the optimum moisture content determined by ASTM D698-00 (standard proctor), or ASTM D1557-00 (modified proctor) or an alternative moisture content specification approved by the director.

(iv) Have a maximum permeability of one times ten to the negative six centimeters per second (1 x 10^-6 cm/sec).

Goodyear requests an exemption from these requirements as the regraded existing soil cover will be used for the soil barrier. A recompacted soil barrier will not be placed on the landfill; therefore adherence to the above specifications is not warranted.

(f) Be adequately protected from damage due to desiccation, freeze/thaw cycles, wet/dry cycles, and the intrusion of objects during construction of the cap system.

No exemption is requested for this specification.

(i) Have quality control testing of the constructed lifts performed to determine the density and moisture content according to ASTM D2922-81 and ASTM D3017-81 (nuclear methods), ASTM D1556-80 (sand cone), ASTM D2167-84 (rubber balloon) or other methods acceptable to the director or his authorized representative at a frequency of no less than five tests per acre per lift. The locations of the individual tests shall
be adequately spaced to represent the constructed area. Any penetrations shall be repaired using bentonite.

Goodyear requests an exception from these requirements as the regraded existing soil cover will be used. As an alternative, construction quality controls will be developed in the remedial design for approval by the Ohio EPA.

OAC 3745-27-08(D)(26):

For cap protection layers: a cap protection layer shall comply with the following:

(a) Be placed above the cap drainage layer.

No exemption is requested to this specification.

(b) Be a minimum of thirty-six inches thick for facilities located in the northern tier of counties in Ohio (Williams, Fulton, Lucas, Ottawa, Erie, Lorain, Cuyahoga, Lake, Geauga, and Ashtabula counties) and thirty inches thick for facilities located elsewhere in Ohio. The thickness of the drainage layer may be used to satisfy the thickness requirement of the cap protection layer.

Goodyear submits that the Jackson County Landfill does not require a thirty-six-inch-thick cap protection layer. Goodyear proposes, as an alternative to the requirements of this section, that the 24 inch cap protection layer installed at the Green II (Hocking County) landfill be accepted as the basis for the exemption request submitted herein. The Ohio Agricultural Research and Development Center (OARDC) maintains a weather station in Jackson, Ohio. The Jackson OARDC weather station records soil temperatures at 2 inches and 4 inches below the ground surface (BGS). A review of the soil temperature data at 4 inches BGS found that the soil temperature was below 32 degrees Fahrenheit less than 11 days per year on average since 2006, with a maximum of 33 consecutive days occurring in 2007. The lowest recorded temperature since 2006 at four inches BGS was −1.8 degrees Fahrenheit. Based on this information, a 30-inch cover is not necessary for stress protection of the FML.

(c) Have a maximum projected erosion rate of five tons per acre per year.

No exemption is requested to this specification.

(d) Have sufficient fertility in the uppermost portion to support vegetation.

No exemption is requested to this specification.

(e) Be constructed as follows:
(ii) With best management practices for erosion control.
(iii) In a manner that healthy grasses or other vegetation shall form a complete and dense vegetative cover within one year of placement.

No exemption is requested to this specification.

Goodyear believes that an alternative cover using a reggraded existing cover, a geotextile underlay or equivalent liner protective layer, a 40 mil HDPE geomembrane, a geosynthetic drainage net, eighteen inches of soil cover, and six inches top soil cover would be as protective of human health, safety, and the environment as the dual layer cap outlined in OAC 3745-27-08. For the reasons presented in this submittal, Goodyear respectfully requests that the Director grant the exemption described herein from the requirement of OAC 3745-27-08(1)(C)(1)(a) with respect to the dual layer landfill cap.

Should the Ohio EPA have any questions regarding this request, please contact Ron Clark at 330-668-1600.

Yours truly,

[Signature]
David L. Chapman
Director, EHS Sustainability
The Goodyear Tire & Rubber Company
1444 East Market Street, Dept 1081
Akron, Ohio 44316

Cc: Steve Bordenkircher
    Jeff Sutphin
    Ron Clark
    Emily Huggins, Thompson Hine
BEFORE THE

OHIO ENVIRONMENTAL PROTECTION AGENCY

In the matter of:

The Goodyear Tire & Rubber Company
1144 East Market Street
Akron, Ohio 44316

Respondent

For the Site known as:

Jackson County Landfill
1841 Smith Bridge Road
Liberty Township, Jackson County, Ohio

Director's Final
Findings and Orders

I. JURISDICTION

These Director's Final Findings and Orders ("Orders") are issued to The Goodyear Tire & Rubber Company ("Goodyear"), pursuant to the authority vested in the Director of Ohio EPA under Ohio Revised Code ("ORC") § 3734.02(G) and Ohio Administrative Code ("OAC") Rule 3745-27-03(B).

II. PARTIES BOUND

These Orders shall apply to and be binding upon Goodyear and its successors in interest liable under Ohio law. No change in ownership of Goodyear or of the Jackson County Landfill shall in any way alter Goodyear's obligations under these Orders.
III. DEFINITIONS

Unless otherwise expressly provided herein, all terms used in these Orders shall have the same meaning as defined in ORC Chapter 3734.

IV. FINDINGS

The Director of Ohio EPA has determined the following findings:

1. The Jackson County Landfill Site ("Site") is located within the southeast quarter of Section 13, Liberty Township, Jackson County, Ohio at 1841 Smith Bridge Road (County Road 60). The Site encompasses approximately 24 acres, including the Jackson County Landfill, and is adjacent to a commercial business and a hunting club as well as the Lake Katharine Nature Preserve and Salt Lick Creek.

2. The Jackson County Landfill operated from April 1970 to at least August 1987, when the landfill ceased acceptance of waste. Sanitation Commercial Services (SCS) is the current owner of the Site. Gregory J. Fields owned, operated, and controlled SCS.

3. During its operation, the Jackson County Landfill accepted "industrial waste" and/or "other waste" as defined in ORC § 6111.01(C) and (D), and/or "hazardous wastes" as defined in ORC § 3734.01(J), and/or "hazardous substances" as defined in § 101(14) the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. 9601(14). Wastes disposed of at the Site included municipal waste and drummed materials, including: acetone, polyester resin mixture, cyclohexancne, dichloromethane, isobutyl alcohol, methyl ethyl ketone (MEK), methyl isobutyl ketone, toluene, xylene and waste styrene mixture. Goodyear stated the company disposed of approximately 5772 drums of waste material between 1974 and 1980 at the Jackson County Landfill.

4. On August 1 and 2, 1984, Ohio EPA conducted a preliminary assessment (PA) at the Site and prepared an addendum to the PA. In June and August 2003, Ohio EPA collected samples from leachate seeps. Benzene, arsenic and lead were detected in excess of the applicable Maximum Contaminant Levels (MCLs) as set forth in OAC Chapter 3745-81 and aluminum, iron, nickel, zinc and ammonia were detected in excess of the water quality standard.

5. Because of their quantity, concentration, physical or chemical concentrations, benzene, arsenic, lead, aluminum, iron, nickel, zinc and ammonia found at the
Site are "hazardous waste" as defined in ORC §3734.01(J), or "industrial waste" or "other wastes" as defined under ORC § 5111.01(C) and (D).

6. On August 16, 2005, Director’s Final Findings and Orders were issued to Goodyear and the owners of the Jackson County Landfill property, to conduct a Remedial Investigation (RI) to define the nature and extent of contamination at the Site, and a Feasibility Study (FS) to develop and evaluate remedial alternative(s) for cleanup of the Site.

7. Ohio EPA approved the RI Report on April 29, 2009, and approved the FS Report on June 15, 2010. Within the FS report, only one capping alternative fully complied with all applicable solid waste rules. The remaining alternatives all required that an exemption be requested from one or more specific rules.

8. In a letter dated December 8, 2011, Goodyear submitted a request for an exemption, pursuant to ORC 3734.02(G), from several of the requirements, OAC Rules 3745-27-08(D)(21) and (26), associated with the construction of a dual layer, low permeability cap on the Jackson County Landfill. More specifically:

   a) OAC rule 3745-27-08(D)(21)(a)(i) requires that the re-compacted soil barrier layer in the composite cap system be at least eighteen (18) inches thick, or include a geosynthetic clay liner that complies with paragraph (D)(9) of the rule with an engineered sub-base, constructed in accordance with paragraph (D)(22) of the rule. Goodyear requested an exemption from the requirement to construct an eighteen-inch thick soil barrier in order to allow the use of existing re-graded soil cover as the soil barrier with the intent to achieve an average of at least 18 inches of soil cover over the entire landfill.

   b) OAC rule 3745-27-08(D)(21)(d) requires that the soil cap be placed above all areas of waste placement. Goodyear stated that there may be constraints such as the slope along the western landfill boundary which will make it impracticable for the agreed upon cap to be placed in some areas. The actual constraints will need to be determined during the remedial design of the landfill cap.

   c) OAC rule 3745-27-08(D)(21)(f)(iii) requires that pre-construction testing of the borrow soils include performing a recompacted laboratory permeability using ASTM D5084-00e1 (falling head) as a frequency of no less than once for every ten thousand cubic yards. Goodyear proposes to use the existing soil cover for the landfill's borrow soil, consequently borrow soils should not be needed. If borrow soils are needed, Goodyear will perform
the tests specified in (D)(21)(f)(i) and (ii) but not in (iii) as the borrow soils, if needed, will only be used to supplement the existing soil cover.

d) OAC rule 3745-27-08(D)(21)(g)(i-iv) requires that the re-compact soil barrier layer in the composite cap system be constructed in lifts and to certain specifications, and be compacted to certain specifications. Goodyear requested an exemption from these requirements as the re-graded existing soil cover would be used for the soil barrier. A re-compact soil barrier would not be placed on the landfill; therefore, adherence to the specifications in (D)(21)(g)(i-iv) is not warranted.

e) OAC rule 3745-27-08(D)(21)(i) requires quality control testing of the constructed lifts be performed to determine the density and moisture content according to certain specifications. Goodyear requested an exemption from these requirements as the re-graded existing soil cover would be used for the soil barrier. As an alternative, Goodyear would develop construction quality controls, for Ohio EPA approval, during remedial design.

f) OAC rule 3745-27-08(D)(26)(b) requires that cap protection layers be a minimum of thirty (30) inches thick for facilities located in the area of the Jackson County Landfill. Goodyear requested an exemption from this requirement, as the average soil temperatures in the area of Jackson County Landfill do not warrant a thirty-inch thick cap protection layer for freeze protection.

9. The Director has determined that issuance of an exemption to allow the proposed alternative cap system, as further described in the December 8, 2011 exemption request, is expected to provide an adequate physical barrier between the waste mass and direct contact, and is unlikely to adversely affect the public health or safety of the environment.

V. ORDERS

The Director hereby issues the following Orders:

1. Pursuant to ORC § 3734.02(G) and OAC Rule 3745-27-03(B), Goodyear is hereby exempted from the requirements in OAC rules 3745-27-08(D)(21) and (26), as described in the Findings above, for the cap system at the Jackson County Landfill, provided that Goodyear implements the remedy selected in the Decision Document for the Site.
2. Nothing in these Orders shall be construed to authorize any waiver from the requirements of any applicable federal or state laws or regulations except as specified herein. These Orders shall not be interpreted to release Goodyear from responsibility under ORC chapters 3704, 3734 or 6111, the Federal Clean Water Act, the Resource Conservation and Recovery Act, or the Comprehensive Environmental Response, Compensation and Liability Act, or from other applicable requirements for remediating conditions resulting from any release from contaminants to the environment.

VI. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to these Orders shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations. These Orders do not waive or compromise the applicability and enforcement of any other statutes or regulations applicable to Goodyear, any other person, firm partnership or corporation, and/or the Site.

VII. RESERVATION OF RIGHTS

Nothing contained herein shall be construed to prevent Ohio EPA from exercising its lawful authority to require Goodyear to perform additional activities pursuant to ORC 3734 or 6111 or any other applicable law in the future. Nothing herein shall restrict the right of Goodyear to raise any administrative, legal, or equitable claim or defense with respect to such further actions that Ohio EPA may seek to require of Goodyear.

VIII. EFFECTIVE DATE

The effective date of these Orders shall be the date these Orders are entered into the Journal of the Director of Ohio EPA.

IT IS SO ORDERED:

OHIO ENVIRONMENTAL PROTECTION AGENCY

Scott J. Nally, Director

Date

JUL 06 2012
APPENDIX E
Figures
APPENDIX B

RD/RA SOW
APPENDIX A

STATE OF OHIO
MODEL STATEMENT OF WORK FOR
THE REMEDIAL DESIGN AND REMEDIAL ACTION
AT

[Site Name]
[Site Address]

1.0  PURPOSE

The purpose of this Remedial Design/Remedial Action Statement of Work (RD/RA SOW) is to define the procedures the Respondent(s) shall follow in designing and implementing the selected remedy for the [Site Name] Site as described in this SOW and the Director’s Final Findings and Orders (Orders) to which it is attached. The Division of Emergency and Remedial Response (DERR) documented the selection of a remedy for the site in a Decision Document dated [Date]. The intent of the remedy is to protect the public health and/or the environment from the actual or potential adverse effects of the contaminants discovered at and related to the site. Further guidance for performing the RD/RA work tasks may be found in the U.S. EPA Superfund Remedial Design and Remedial Action Guidance document (OSWER Directive 9355.0-4A). All applicable regulatory requirements pertaining to the selected remedy and RD/RA activities shall be followed.

The Ohio EPA shall provide oversight of the Respondent’s activities throughout the RD/RA. The Respondent’s shall support the Ohio EPA’s initiatives and conduct of activities related to the implementation of oversight activities.

2.0  DESCRIPTION OF THE REMEDIAL ACTION/ PERFORMANCE STANDARDS

Performance standards and specifications of the major components of the remedial action to be designed and implemented by the Respondent(s) are described below. Performance standards shall include cleanup standards, standards of control, quality criteria, and other requirements, criteria or limitations as established in the Decision Document, this SOW and the Orders to which it is attached.
List each component of the remedy as an individual subsection, i.e. 2.1 Security Fence, 2.2 RCRA Compliant Cap, etc. Each component should be described in sufficient detail so that an assessment can be made of the adequacy of the component. Cleanup standards should be provided for each environmental medium of concern. When appropriate, points of compliance for the cited standards should be specified. Contingencies should also be provided for actions to be taken in the event that cleanup standards cannot be achieved.

OR

See Appendix A, Decision Document, for description of the remedial action components and associated performance standards.

3.0 **SCOPE OF THE REMEDIAL DESIGN AND REMEDIAL ACTION**

The Remedial Design/Remedial Action (RD/RA) shall consist of seven principal tasks described below. Each task shall be completed and required documentation shall be submitted in accordance with the schedules established in the Orders and in the RD/RA Work Plan approved by Ohio EPA. All work related to this SOW shall be performed by the Respondent(s) in a manner consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) as amended, 42 USC 9601, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300 (1990), and other applicable federal and state rules and regulations.

**Task Summary**

3.1 Task I: RD/RA Work Plan
   3.1.1 Site Access
   3.1.2 Pre-Design Studies Plan
   3.1.3 Regulatory Compliance Plan
   3.1.4 Natural Resource Damage Assessment

3.2 Task II: Pre-Design Studies

3.3 Task III: Remedial Design
   3.3.1 General Requirements for Plans and Specifications
   3.3.2 Design Phases
   3.3.3 Estimated Cost for Remedial Action
   3.3.4 Remedial Action Implementation Plan
   3.3.5 Community Relations Support

3.4 Task IV: Remedial Action Construction
   3.4.1 Preconstruction Inspection and Conference
   3.4.2 Design Changes During Construction
   3.4.3 Remedial Action Construction Completion and Acceptance
3.4.4 Community Relations Support

3.5 Task V: Five-Year Reviews

3.6 Task VI: Operation and Maintenance/Performance Monitoring
3.6.1 Reporting During Operation and Maintenance
3.6.2 Completion of Remedial Action Report

3.7 Task VII: Reporting Requirements
3.7.1 Monthly Progress Reports during RD and RA Construction
3.7.2 Summary of Reports and Submittals

3.1 TASK I: RD/RA WORK PLAN

The Respondent(s) shall submit a work plan for the Remedial Design and Remedial Action (RD/RA) to the Ohio EPA for review and approval, which presents the overall strategy for performing the design, construction, operation, maintenance and monitoring of the Remedial Action (RA). The work plan shall provide a detailed discussion of the specific tasks necessary to implement the selected remedy, including a description of the technical approach, personnel requirements, plans, specifications, permit requirements and other reports described in this SOW.

The work plan shall document the responsibilities and authority of all organizations and key personnel involved with the development and implementation of the RD/RA. The qualifications of key personnel directing the RD/RA tasks, including contractor personnel, shall be described.

The work plan shall include schedules fixed in real time for the development of the (RD) and implementation of the RA, including milestones for the submittal of the document packages for Ohio EPA review and meetings for discussion of the submittals. The RD/RA Work Plan must be reviewed and approved by the Ohio EPA prior to initiation of field activities or proceeding with the RD.

Specific requirements to be addressed by the RD/RA Work Plan are described in the following sections.

3.1.1 Site Access

All site access agreements necessary to implement the RD and RA shall be obtained by the Respondent(s) prior to the initiation of any activities to be conducted under the Work Plan. Site access agreements shall extend for the duration of all remedial activities and shall include allowances for all operation and maintenance considerations and State oversight activities. The work plan shall describe the activities necessary to satisfy these requirements.
3.1.2 Pre-Design Studies Plan

The Respondent(s) shall develop a plan to complete the following pre-design studies, which are required to design and fully implement the remedial action.

[Describe any pre-design studies required to support the RD/RA.]

The Pre-Design Studies Plan (PDSP), as a component of the RD/RA Work Plan, will identify and describe, in detail, activities necessary to conduct the pre-design studies identified above. The plan shall include sufficient sampling, testing, and analyses to develop quantitative performance, cost and design data for the selected remedy.

At the discretion of the Site Coordinator for the Ohio EPA, the PDSP may be submitted for review and comment under separate cover from the work plan in accordance with the schedule established in the Orders. The PDSP must be approved by the Ohio EPA prior to initiation of associated field activities or treatability studies.

The Pre-Design Studies Plan shall include, as necessary, a Field Sampling Plan (FSP), a Quality Assurance Project Plan (QAPP) and a Health and Safety Plan (HSP). Section 4.0 of this SOW describes the required content of supporting plans such as the Field Sampling Plans, Quality Assurance Project Plans and Health and Safety Plans.

Prior to development of the Pre-Design Studies Plan, there shall be a meeting of the Site Coordinator for the Ohio EPA and the Project Manager representing the Respondent(s) to discuss scope, objectives, quality assurance and quality control issues, resources, reporting, communication channels, schedule, and roles of personnel involved. Other personnel representing the Respondent(s) and Ohio EPA, who may be needed to fully discuss the issues involved, should also participate in this meeting. Guidance documents to be consulted in developing the Pre-Design Studies Plan include U.S. EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies (EPA/540/G-89/004, October 1988) and Guide for Conducting Treatability Studies Under CERCLA (EPA/540/2-89/058, December 1989), as well as others listed in Appendix A, attached to this SOW.

The pre-design studies will be conducted as described under Task II.
3.1.3 Regulatory Compliance Plan

It shall be the responsibility of the Respondent(s) to ensure compliance with all applicable regulatory state and federal requirements for the RD/RA activities to be conducted at the site. The Respondent(s) shall develop a plan to identify and to satisfy all applicable state and federal laws and regulations for the RD/RA. The plan will include the following information:

1) Permitting authorities
2) Permits required to conduct RD/RA activities
3) Time required by the permitting agency(s) to process permit applications
4) Identification of all necessary forms
5) Schedule for submittal of applications
6) All monitoring and/or compliance testing requirements

The Respondent(s) shall identify in the plan any inconsistencies between any regulatory requirements or permits that may affect any of the work required. The plan shall also include an analysis of the possible effects such inconsistencies may have on the remedial action, recommendations, and supporting rationale for the recommendations. The Regulatory Compliance Plan shall be submitted to the Ohio EPA as part of the RD/RA Work Plan.

3.1.4 Natural Resource Damage Assessment

If natural resources are or may be injured as a result of a release, the Respondent(s) shall ensure that the trustees of the effected natural resources are notified. The trustees will initiate appropriate actions and provide input into the RD/RA in order to minimize or mitigate natural resource damages in accordance with the NCP and 43 CFR part 11. Trustees define "injury" as "a measurable adverse change, either long- or short-term, in the chemical or physical quality of a natural resource resulting either directly or indirectly from exposure to a discharge of oil or release of a hazardous substance. The Respondent(s) shall make available to the trustees all necessary information and documentation needed to assess actual or potential natural resource injuries.

3.2 TASK II: PRE-DESIGN STUDIES

The Respondent(s) shall schedule and detail the work necessary to accomplish the pre-design studies described in the Pre-Design Studies Plan submitted with the RD/RA Work Plan. The requirements of this section shall apply to studies undertaken to refine the understanding of the nature and extent of contamination at the site, as well as to bench and pilot scale treatability studies.

For any such studies required, the Respondent(s) shall furnish all services, including necessary field work, materials, supplies, labor, equipment, supervision, and data
interpretation. Sufficient sampling, testing, and analyses shall be performed to provide the technical data necessary to support the remedial design effort with the goal of optimizing the required treatment and/or disposal operations and systems. The Respondent(s) shall submit a draft Pre-Design Studies report for Ohio EPA's review and comment when the investigation and/or testing required by the Pre-Design Studies Plan is complete. The draft report shall present investigation/testing data and results along with an analysis of the implications those results have on the RD/RA, including a cost analysis, when appropriate. The draft report shall be submitted prior to the preliminary design submittal in accordance with the schedule specified in the Orders and approved RD/RA Work Plan. After making any required corrections or modifications based on Ohio EPA comments, the Respondent(s) shall submit the final report with the Preliminary Design Report, unless otherwise specified in the approved RD/RA Work Plan.

3.2.1. Reporting Requirements for Groundwater data.

The Respondent(s) shall submit all groundwater data and monitoring well construction data. The Respondent(s) shall implement a groundwater monitoring program as identified in the RD workplan or as required by Ohio EPA. Respondent(s) shall submit all groundwater data and monitoring well construction data on a 3.5 inch diskette using the most current version of the U.S. EPA developed Ground Water Information Tracking System (GRITS) database software. GRITS is free software, and can be obtained by calling EPA office of Research and Development (ORD), at 513-569-7562, ask for Document # EPA/625/11-91/002. Respondent(s) shall submit one copy of each round of sampling data on printed paper in addition to the diskette format. The printed copy will be the official copy of the data.

3.3 TASK III: REMEDIAL DESIGN

The Respondent(s) shall prepare and submit to the Ohio EPA, in accordance with the schedule set forth in the compliance schedule of the Orders, construction plans, specifications and supporting plans to implement the remedial action at the Site as defined in the Purpose and Description of the Remedial Action sections of this SOW, the Decision Document, and/or the Orders.

3.3.1 General Requirements for Plans and Specifications

The construction plans and specifications shall comply with the standards and requirements outlined below. All design documents shall be clear, comprehensive and organized. Supporting data and documentation sufficient to define the functional aspects of the remedial action shall be provided. Taken as a whole, the design documents shall demonstrate that the remedial action will be capable of meeting all objectives of the Decision Document, including any performance standards.
The plans and specifications shall include the following:

1) Discussion of the design strategy and design basis including:
   a. Compliance with requirements of the Decision Document and the
      Orders and all applicable regulatory requirements;
   b. Minimization of environmental and public health impacts;

2) Discussion of the technical factors of importance including:
   a. Use of currently accepted environmental control measures and
      technologies;
   b. The constructability of the design;
   c. Use of currently accepted construction practices and techniques;

3) Description of the assumptions made and detailed justification for those
   assumptions;

4) Discussion of possible sources of error and possible operation and
   maintenance problems;

5) Detailed drawings of the proposed design including, as appropriate:
   a. Qualitative flow sheets;
   b. Quantitative flow sheets;

6) Tables listing equipment and specifications;

7) Tables giving material and energy balances;

8) Appendices including:
   a. Sample calculations (one example presented and clearly explained for
      significant or unique calculations);
   b. Derivation of equations essential to understanding the report;
   c. Results of laboratory tests, field tests and any additional studies.

3.3.2 Design Phases

The Respondent(s) shall meet when necessary with Ohio EPA representatives to
discuss design issues. The design shall be developed and submitted in the phases
outlined below to facilitate progression toward an acceptable and functional design.

Submittals shall be made in accordance with the compliance schedule in the Orders,
and the schedule in the approved RD/RA Work Plan.
A Preliminary Design, which reflects the design effort at approximately 30% completion, shall be submitted to the Ohio EPA for review and comment. At this stage of the design process, the Respondent(s) shall have verified existing conditions at the site that may influence the design and implementation of the selected RA. The Preliminary Design shall demonstrate that the basic technical requirements of the remedial action and any permits required have been addressed. The Preliminary Design shall be reviewed to determine if the final design will provide an operable and usable RA that will be in compliance with all permitting requirements and response objectives. The Preliminary Design submittal shall include the following elements, at a minimum:

- Preliminary plans, drawings and sketches, including design calculations;
- Results of treatability studies and additional field sampling;
- Design assumptions and parameters, including design restrictions, process performance criteria, appropriate unit processes for treatment systems, and expected removal or treatment efficiencies for both the process and waste (concentration and volume);
- Proposed cleanup verification methods, including compliance with applicable laws and regulations;
- Outline of design specifications;
- Proposed sitting/locations of processes/construction activity;
- Expected long-term operation and monitoring requirements;
- Real estate and easement requirements;
- Preliminary construction schedule, including contracting strategy.

The supporting data and documentation necessary to define the functional aspects of the RA shall be submitted with the Preliminary Design. The technical specifications shall be outlined in a manner that anticipates the scope of the final specifications. The Respondent(s) shall include design calculations with the Preliminary Design completed to the same degree as the design they support.

If the Pre-Design Studies Report required under Task II have not been submitted prior to submission of the Preliminary Design, it shall be submitted with the Preliminary Design. Any revisions or amendments to the Preliminary Design required by the Ohio EPA shall be incorporated into the subsequent design phase.
3.3.2.2 Intermediate Design

Complex project designs necessitate preparation and Ohio EPA review of design documents between the preliminary and prefinal design phases. The Respondent(s) shall submit intermediate design plans and specifications to the Ohio EPA for review and comment when the design is approximately 60% complete in accordance with the schedule in the approved RD/RA Work Plan. All plans, specifications, design analyses and design calculations submitted to the Ohio EPA shall reflect the same degree of completion. The Respondent(s) shall ensure that any required revisions or amendments resulting from the Ohio EPA’s review of the Preliminary Design are incorporated into the Intermediate Design.

The Intermediate Design submittal shall include the following components:

- Design Plans and Specifications;
- Draft Construction Quality Assurance Plan;
- Draft Performance Standard Verification Plan;
- Draft Operation and Maintenance Plan;
- Health and Safety Plan.

The design shall include a Construction Quality Assurance Plan, a Performance Standard Verification Plan, an Operation and Maintenance Plan, and a Health and Safety Plan. The Performance Verification Plan shall include a Field Sampling Plan and a Quality Assurance Project Plan, as necessary. Section 4.0 of this SOW describes the required content of the supporting plans. The final Pre-Design Studies Report shall also be included, if it has not already been submitted. Revisions or amendments to the Intermediate Design required by Ohio EPA shall be incorporated into the Prefinal Design.

3.3.2.3 Prefinal Design

The Respondent(s) shall submit a Prefinal Design for Ohio EPA review in accordance with the schedule in the approved RD/RA Work Plan when the design effort is at least 90% complete. The Respondent(s) shall ensure that any modifications required by the Ohio EPA’s prior review of related Pre-design Studies Reports, technical memoranda, the Preliminary and Intermediate Designs, and the QAPP and HSP are incorporated into the Prefinal Design submittal. The Prefinal Design submittal shall consist of the following components, at a minimum:
• Design Plans and Specifications;
• Construction Quality Assurance Plan;
• Performance Standard Verification Plan;
• Operation and Maintenance Plan;
• Remedial Action Implementation Plan;
• Cost Estimate;
• Health and Safety Plan.

General correlation between drawings and technical specifications is a basic requirement of any set of working construction plans and specifications. Before submitting the remedial design specifications with the Prefinal Design, the Respondent(s) shall: (1) Coordinate and cross-check the specifications and drawings; (2) Complete the proofing of the edited specifications and required cross-checking of all drawings and specifications.

The Respondent(s) shall prepare and include in the technical specifications governing any treatment systems; contractor requirements for providing appropriate service visits by qualified personnel to supervise the installation, adjustment, startup and operation of the treatment systems; and appropriate training on operational procedures once startup has been successfully accomplished.

The Ohio EPA will provide written comments to the Respondent(s) indicating any required revisions to the Prefinal Design. Comments may be provided as a narrative report and/or markings on design plan sheets. Revisions to the plans and specifications required by Ohio EPA shall be incorporated into the Final Design. At the discretion of the Site Coordinator, the Respondent(s) shall also return to Ohio EPA all marked-up prints as evidence that the plans have been completely checked. The Prefinal Design submittal may serve as the Final Design, if Ohio EPA has no further comments and notifies the Respondent(s) that the Prefinal Design has been approved as the Final Design.

3.3.2.4 Final Design

Following incorporation of any required modifications resulting from the Ohio EPA's review of the Prefinal Design submittal, the Respondent(s) shall submit to the Ohio EPA the Final Design which is 100% complete in accordance with the approved schedule described in the RD/RA Workplan. The Final Design submittal shall include all the components of the Prefinal Design and each of those components shall be complete. At the discretion
of the Site Coordinator, any marked-up prints or drawings, which the Ohio EPA may have provided by way of comments on previous design submittals shall be returned to the Ohio EPA, if they have not already been returned.

The Respondent(s) shall make corrections or changes based on Ohio EPA comments on the Final Design submittals. The revised Final Design shall then be submitted in their entirety to the Ohio EPA for approval as the completed Final Design. Upon approval of the Site Coordinator, final corrections may be made by submitting corrected pages to the Final Design design documents. The quality of the Final Design submittal should be such that the Respondent(s) would be able to include them in a bid package and invite contractors to submit bids for the construction project.

3.3.3 Estimated Cost of the Remedial Action

The Respondent(s) shall refine the cost estimate developed in the Feasibility Study to reflect the detailed plans and specifications being developed for the RA. The cost estimate shall include both capital and operation and maintenance costs for the entire project. To the degree possible, cost estimates for operation and maintenance of any treatment system shall be based on the entire anticipated duration of the system's operation. The final estimate shall be based on the final approved plans and specifications. It shall include any changes required by the Ohio EPA during Final Design review, and reflect current prices for labor, material and equipment.

The refined cost estimate shall be submitted by the Respondent(s) with the Prefinal Design and the final cost estimate shall be included with the Final Design submittal.

3.3.4 Remedial Action Implementation Plan

The Respondent(s) shall develop a Remedial Action Implementation Plan (RAIP) to help coordinate implementation of the various components of the RA. It shall include a schedule for the RA that identifies timing for initiation and completion of all critical path tasks. The Respondent(s) shall specifically identify dates for completion of the project and major interim milestones in conformance with the approved RD/RA Workplan schedule. The Remedial Action Implementation Plan is a management tool which should address the following topics:

1) Activities necessary to fully implement each of the components of the RA;
2) How these activities will be coordinated to facilitate construction/implementation in accordance with the approved schedule;
3) Potential major scheduling problems or delays, which may impact overall schedule;
4) Lines of communication for discussing and resolving problems, should they arise;
5) Common and/or anticipated remedies to overcome potential problems and delays.

The Remedial Action Implementation Plan shall be submitted with the Prefinal Design for review and comment by the Ohio EPA. The final plan and RA project schedule shall be submitted with the Final Design for review and approval.

3.3.5 Community Relations Support

A community relations program will be implemented by the Ohio EPA. The Respondent(s) shall cooperate with the Ohio EPA in community relations efforts. Cooperation may include participation in preparation of all appropriate information disseminated to the public, and in public meetings that may be held or sponsored by the Ohio EPA concerning the Site.

3.4 TASK IV: REMEDIAL ACTION CONSTRUCTION

Following approval of the Final Design submittal by the Ohio EPA, the Respondent(s) shall implement the designed remedial action(s) at the Site in accordance with the plans, specifications, Construction Quality Assurance Plan, Performance Standard Verification Plan, Health and Safety Plan, Remedial Action Implementation Plan, Quality Assurance Project Plan, and Field Sampling Plan approved with the final design. Implementation shall include the activities described in the following sections.

3.4.1 Preconstruction Inspection and Conference

The Respondent(s) shall participate in a preconstruction inspection and conference with the Ohio EPA to accomplish the following:

- Review methods for documenting and reporting inspection data;
- Review methods for distributing and storing documents and reports;
- Review work area security and safety protocol;
- Discuss any appropriate modifications to the Construction Quality Assurance Plan to ensure that site specific considerations are addressed. The final CQAP shall be submitted to the Ohio EPA at this time, if it has not already been submitted;
- Introduce key construction contractor, engineering and project management personnel and review roles during construction activities;
- Conduct a site walk-around to verify that the design criteria, plans, and specifications are understood and to review material and equipment storage locations.
The Respondent(s) shall schedule the preconstruction inspection and conference to be held within 10 days of the award of the construction contract. The preconstruction inspection and conference shall be documented by a designated person and minutes shall be transmitted to all parties by the Respondent(s) to all parties in attendance.

3.4.2 Design Changes During Construction

During construction, unforeseen site conditions, changes in estimated quantities of required construction materials and other problems associated with the project are likely to develop. Such changing conditions may require either major or minor changes to the approved final design. Certain design changes will require approval of the Ohio EPA prior to implementation to ensure that the intent and scope of the remedial action is maintained. Changes, which could alter the intent or scope of the RA, may require a revision to the Decision Document and a public comment period. Changes to the remedial design which require Ohio EPA written approval prior to implementation include:

- Those that involve the deletion or addition of a major component of the approved remedy (e.g. changing one treatment system for another; deleting any designed layer of a multi-layer cap);
- Those that result in a less effective treatment for wastes associated with the site;
- Any changes that may result in an increase of the exposure to chemicals of concern and/or risk to human health or the environment as compared to the goals for the completed remedial action as stated in the Orders and this SOW;
- Those that result in a significant delay in the completion of the RA;
- Any other changes that alter or are outside of the scope or intent of the approved remedial design.

Ohio EPA shall be notified of other changes made during construction through daily inspection reports and monthly progress reports.

3.4.3 Remedial Action Construction Completion and Acceptance

As the construction of the remedial action nears completion, the following activities and reporting shall be completed by the Respondent(s) to ensure proper project completion, approval, closeout and transition to the operation and maintenance/monitoring phase.
3.4.3.1 Prefinal Construction Conference

Within seven days of making a preliminary determination that construction is complete, the Respondent(s) shall provide written notification to the Ohio EPA and a prefinal construction conference shall be held with the construction contractor(s) to discuss procedures and requirements for project completion and closeout. The Respondent(s) shall have responsibility for making arrangements for the conference. Participants should include the Project Manager for the Respondent(s), the Site Coordinator for the Ohio EPA, all contractors involved with construction of the remedial action(s) and the remedial design agent (person(s) designed the remedy), if requested.

A list of suggested items to be covered at the conference includes, but is not limited to the following:

- Final Operation and Maintenance (O&M) Plan submission, if it has not been submitted already;
- Cleanup responsibilities;
- Demobilization activities;
- Security requirements for project transfer;
- Prefinal inspection schedule;
- Operator training.

The prefinal conference shall be documented by a designated person and minutes shall be transmitted to all parties in attendance by the Respondent(s).

3.4.3.2 Prefinal Inspection

Following the prefinal construction conference, a prefinal inspection of the project will be conducted. The prefinal inspection will be led by the Ohio EPA with assistance from the party with primary responsibility for construction inspection, if requested.

The prefinal inspection will consist of a walk-through inspection of the entire site. The completed site work will be inspected to determine whether the project is complete and consistent with the contract documents and the approved RD/RA Work Plan. Any outstanding deficient or incomplete construction items should be identified and noted during the inspection.

When the RA includes construction of a treatment system, the facility start-up and "shakedown" shall have been completed as part of the RA. "Shakedown" is considered to be the initial operational period following start-up during which adjustments are made to ensure that the performance standards for the system are reliably being achieved. The contractor shall have certified
that the equipment has performed to meet the purpose and intent of the contract specifications. Retesting shall have been successfully completed where deficiencies were revealed. Such shakedown may take several months. Determination of remedy effectiveness for other types of remedial actions will be based on the Performance Standard Verification Plan (PSVP).

If construction of major components of a remedial action is performed in distinct phases or under separate contracts due to the complex scope of the site remedy, it may be appropriate to conduct the prefinal inspections of those components separately. The approved RAIP should identify those projects and components, which should be handled in that manner.

Upon completion of the prefinal inspection, an inspection report shall be prepared by the Respondent(s) and submitted to Ohio EPA with the minutes from the prefinal conference. A copy of the report will be provided to all parties in attendance at the inspection. The report will outline the outstanding construction items, actions required to resolve those items, completion date for those items and a date for the final inspection. Ohio EPA will review the inspection report and notify the Respondent(s) of any disagreements with it.

3.4.3.3 Final Inspection

Within seven days following completion of any outstanding construction items, the Respondent(s) shall provide written notification to the Ohio EPA and schedule a final inspection. A final inspection will be conducted by the Ohio EPA with assistance from the party having primary responsibility for construction inspection, if requested.

The final inspection will consist of a walk-through inspection of the project site focusing on the outstanding construction items identified during the prefinal inspection. The Prefinal Inspection Report shall be used as a checklist. The contractor’s demobilization activities shall have been completed, except for equipment and materials required to complete the outstanding construction items. If any items remain deficient or incomplete, the inspection shall be considered a prefinal inspection requiring another prefinal inspection report and final inspection.

As with the prefinal inspection, it may be appropriate to conduct final inspections of major components of a remedial action separately. Such projects and components should be identified in the approved Remedial Action Implementation Plan.
3.4.3.4 Construction Completion Report and Certification

Upon satisfactory completion of the final inspection, a Construction Completion Report shall be prepared by the Respondent(s) and submitted to the Ohio EPA within 30 days after the final inspection. The report shall include the following elements:

1) A brief description of the outstanding construction items from the prefinal inspection and an indication that the items were satisfactorily resolved;

2) A synopsis of the work defined in the approved RD/RA Work Plan and the Final Design and certification that this work was performed;

3) An explanation of any changes to the work defined in the approved RD/RA Work Plan and Final Design, including as-built drawings of the constructed RA facilities, and why the changes were necessary or beneficial for the project;

4) Certification that the constructed RA or component of the RA is operational and functional.

The construction completion report will be reviewed by the Ohio EPA. If Ohio EPA's review indicates that corrections or amendments to the report are necessary, comments will be provided to the Respondent(s). The Respondent(s) shall submit a revised construction completion report based on Ohio EPA comments to the Ohio EPA within 30 days of receipt of those comments. Upon determination by the Ohio EPA that the report is acceptable, written notice of Ohio EPA's approval of the construction completion report will be provided to the Respondent(s).

3.4.4 Community Relations Support

The Respondent(s) shall provide support for Ohio EPA's community relations program during remedial action implementation as described in Section 3.3.5.

3.5 TASK V: FIVE-YEAR REVIEWS

At sites where contaminants will remain at levels that will not permit unrestricted use of the site, a review will be conducted no less frequently than once every five years to ensure that the remedy continues to be protective of human health and the environment. This is known as the 'five-year review'. The Respondent(s) shall complete Five-Year Review Reports no less often than every five years after the initiation of the remedial action or until contaminant levels allow for unrestricted use of the site. Further guidance for performing five-year review work tasks may be found in the U.S. EPA OSWER Directive 9355.7-02,
Structure and Components of Five-Year Reviews:

The more specific purpose of the reviews is two-fold: (1) to confirm that the remedial action as specified in the Decision Document and as implemented continues to be effective in protecting human health and the environment (e.g., the remedy is operating and functioning as designed, institutional controls are in place and are protective); and (2) to evaluate whether original cleanup levels remain protective of human health and the environment. A further objective is to evaluate the scope of operation and maintenance, the frequency of repairs, changes in monitoring indicators, costs at the site, and how each of these relates to protectiveness.

Fifteen months prior to the due date for completion of a five-year review, the Respondent(s) shall meet with Ohio EPA to discuss the requirements of the five-year review. The review must be completed within five years following the initiation of the remedial action. The scope and level of review will depend on conditions at the site. The scoping effort should include a determination by the Site Coordinator and Respondent(s) as to whether available monitoring data and other documentation will be sufficient to perform the five-year review or whether a field sampling effort will be a necessary component of the review. Within three months of the meeting, the Respondent(s) shall develop and submit a workplan to Ohio EPA that shall describe, at a minimum, the following activities and documentation:

1. **Document Review**
   a. **Background Information**
      1. Decision Document
      2. Decision Document Summary
      3. Administrative or Judicial Order for RD/RA
      4. Completion of Remedial Action Report
   b. **Design Review**
   c. **Maintenance and Monitoring**
      1. O&M Manual
      2. O&M Reports
      3. Groundwater Monitoring Plan
      4. Monitoring Data and Information

2. **Standards Review**
   a. Specific performance standards required by Decision Document
   b. **Changing Standards**
      1. Laws and Regulations applicable to conditions and activities at the site
   c. **Risk Assessment**
      1. As summarized in the Decision Document
      2. Review for changes in exposure pathways not previously evaluated
3. Interviews
   a. Background Information
      1. Previous Staff Management
      2. Nearest Neighbors, Respondent(s)
   b. Local Considerations
      1. State Contacts
      2. Local Government Contacts
   c. Operational Problems
      1. Plant Superintendent
      2. O&M Contractors

4. Site Inspection/Technology Review
   a. Performance and Compliance
      1. Visual Inspection
   b. Offsite Considerations
   c. Recommendations

5. Report
   a. Background
      1. Introduction
      2. Remedial Objectives
      3. Review of Applicable Laws and Regulations
   b. Site Conditions
      1. Summary of Site Visit
      2. Areas of Noncompliance
   c. Risk Assessment
   d. Recommendations
      1. Technology Recommendations
      2. Statement on Protectiveness
      3. Timing and Scope of Next Review
      4. Implementation Requirements

If sampling and analysis of environmental samples is required under the five-year review, the Respondent(s) are required to prepare and submit with the workplan other supporting plans. Supporting plans may include a Quality Assurance Project Plan, Field Sampling Plan and Health and Safety Plan. The purpose and content of these supporting plans are discussed in Section 4 of this SOW. The Five-Year Review Workplan must be reviewed and approved by the Ohio EPA prior to initiation of field activities or proceeding with the five-year review.

The Five-Year Review Report will be reviewed by the Ohio EPA. If Ohio EPA's review indicates that corrections or amendments to the report are necessary, comments will be provided to the Respondent(s). The Respondent(s) shall submit a revised Five-Year Review Report based on Ohio EPA comments to the Ohio EPA within 30 days of receipt of those comments.
3.6 TASK VI: OPERATION AND MAINTENANCE/PERFORMANCE MONITORING

The Respondent(s) shall implement performance monitoring and operation and maintenance procedures as required by the approved Performance Standard Verification Plan and approved Operation and Monitoring (O&M) Plan for the RA once it is demonstrated that the RA components are operational and functional.

3.6.1 Reporting During Operation and Maintenance

3.6.1.1 Operation and Maintenance Sampling and Analysis Data

Unless otherwise specified in the approved O&M Plan, sampling, analysis, and system performance data for any treatment system or other engineering systems required to be monitored during the O&M Phase shall be submitted by the Respondent(s) to the Ohio EPA on a monthly basis. These monthly submittals will form the basis for the annual progress report described below in Section 3.6.1.2

3.6.1.2 Progress Reports During Operation and Maintenance

The Respondent(s) shall prepare and submit annual progress reports during the operation and maintenance/performance monitoring phase of the RA. When appropriate, the RD/RA Work Plan shall specify progress reports during O&M to be submitted more frequently.

The O&M progress reports shall contain the same information as required for the monthly progress reports for the RD and RA construction phases, as specified in Section 3.6.1 of this SOW. It shall also include an evaluation of the effectiveness of any treatment and engineering systems in meeting the cleanup standards, performance standards and other goals of the RA as defined in the Orders, this SOW, the RD/RA Work Plan and the approved Final Design.

3.6.2 Completion of Remedial Action Report

At the completion of the remedial action, the Respondent(s) shall submit a Completion of Remedial Action Report to the Ohio EPA. The RA shall be considered complete when the all of the goals, performance standards and cleanup standards for the RA as stated in the Decision Document, this SOW, and the approved Final Design (including changes approved during construction) have been met. The report shall document that the project is consistent with the design specifications, and that the RA was performed to meet or exceed all required goals, cleanup standards and performance standards. The report shall include, but not be
limited to the following elements:

1) Synopsis of the remedial action and certification of the design and construction;
2) Listing of the cleanup and performance standards as established in the Decision Document and the Orders, any amendments to those standards with an explanation for adopting the amendments;
3) Summary and explanation of any changes to the approved plans and specifications. An explanation of why the changes were necessary should be included and, where necessary, Ohio EPA approval of the changes should be documented;
4) Summary of operation of treatment systems including monitoring data, indicating that the remedial action met or exceeded the performance standards or cleanup criteria;
5) Explanation of any monitoring and maintenance activities to be undertaken at the site in the future as outlined in Section 3.0 of this RD/RA SOW.

3.7 TASK VII: REPORTING REQUIREMENTS

The Respondent(s) shall prepare and submit work plans, design plans, specifications, and reports as set forth in Tasks I through V of this SOW to document the design, construction, operation, maintenance, and performance monitoring of the remedial action. Monthly progress reports shall be prepared, as described below, to enable the Ohio EPA to track project progress.

3.7.1 Monthly Progress Reports during RD and RA Construction

The Respondent(s) shall at a minimum provide the Ohio EPA with monthly progress reports during the design and construction phases of the remedial action containing the information listed below. When appropriate, the RD/RA Work Plan shall specify progress reports to be submitted more frequently.

1) A description of the work performed during the reporting period and estimate of the percentage of the RD/RA completed
2) Summaries of all findings and sampling during the reporting period
3) Summaries of all changes made in the RD/RA during the reporting period, indicating consultation with Ohio EPA and approval by the Ohio EPA of those changes, when necessary
4) Summaries of all contacts with representatives of the local community, public interest groups or government agencies during the reporting period
5) Summaries of all problems or potential problems encountered during the reporting period, including those which delay or threaten to delay completion of project milestones with respect to the approved work plan schedule or RAIP schedule
6) Summaries of actions taken and being taken to rectify problems
7) Summaries of actions taken to achieve and maintain cleanup standards and
performance standards
8) Changes in personnel during the reporting period
9) Projected work for the next reporting period.
10) Copies of daily reports, inspection reports, sampling data, laboratory/
monitoring data, etc.

3.7.2 Summary of Reports and Submittals

A summary of the information reporting requirements contained in this RD/RA SOW is presented below:

- Draft RD/RA Work Plan
  Health and Safety Plan (HSP)
  Regulatory Compliance Plan
- Final RD/RA Work Plan
  HSP
  Regulatory Compliance Plan
- Draft Pre-Design Studies Plan
  Quality Assurance Project Plan (QAPP)
  Field Sampling Plan (FSP)
- Final Pre-Design Studies Plan
  QAPP
  FSP
- Pre-Design Studies Reports - Draft
- Preliminary Design Documents
- Pre-Design Studies Reports - Final
- Intermediate Design Documents
  Draft Construction Quality Assurance Plan (CQAP)
  Draft Performance Standard Verification Plan (PSVP)
  Draft O & M Plan
  Health and Safety Plan
- Prefinal Design Documents
  CQAP
  PSVP
  O & M Plan
  Draft Remedial Action Implementation Plan (RAIP)
  Health and Safety Plan
- Final Design Documents
  CQAP
  PSVP
  O & M Plan
  Draft RAIP
  Health and Safety Plan
- Preconstruction Inspection and Conference Report
- Monthly Progress Reports During RD/RA
4.0 CONTENT OF SUPPORTING PLANS

The documents listed in this section shall be prepared and submitted as outlined in Section 3.0 of this SOW to support the activities necessary to design and fully implement the RA. These supporting documents include a Quality Assurance Project Plan (QAPP), a Field Sampling Plan (FSP), a Health and Safety Plan (HSP), a Construction Quality Assurance Plan (CQAP) and a Performance Standard Verification Plan (PSVP). The following sections describe the required contents of each of these supporting documents.

4.1 QUALITY ASSURANCE PROJECT PLAN

The Respondent(s) shall prepare a site-specific Quality Assurance Project Plan (QAPP) to cover sample analysis and data handling based on guidance provided by the Ohio EPA. Refer to the list of Ohio EPA and U.S. EPA guidance documents in Appendix B attached to the Orders.

A QAPP shall be developed for any sampling and analysis activities to be conducted as predesign studies and submitted with the Pre-Design Studies Plan for Ohio EPA review and approval.

During the remedial design phase the Respondent(s) shall review all remedial design information and modify or amend the QAPP developed for the Pre-Design Studies Plan, as necessary, to address the sampling and analysis activities to be conducted during implementation of the Remedial Action, including activities covered by the PSVP and O&M Plan. An amended QAPP shall be submitted with the Intermediate Design documents for review and comment by Ohio EPA. A final Quality Assurance Project Plan, which incorporates comments made by the Ohio EPA, shall be submitted for approval with the Final Design documents. Upon agreement of the Site Coordinator, the Respondent(s) may submit only the amended portions of the QAPP developed for the PDSP with the Intermediate, Pre-Final and Final Design documents.

The Respondent(s) shall schedule and attend a pre-QAPP meeting with representatives of Ohio EPA to discuss the scope and format of the QAPP. For sites where the Site Coordinator and Project Manager agree that a pre-QAPP meeting is not needed, this meeting may be omitted. The QAPP shall, at a minimum, include:
1. Data Collection Strategy - The strategy section of the QAPP shall include but not be limited to the following:
   a. Description of the types and intended uses for the data, relevance to remediation or restoration goals, and the necessary level of precision, accuracy, and statistical validity for these intended uses;
   b. Description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data;
   c. Description of the rationale used to assure that the data accurately and precisely represent a characteristic of a population, variation of physical or chemical parameters throughout the Site, a process condition or an environmental condition. Factors which shall be considered and discussed include, but are not limited to:
      i) Environmental conditions at the time of sampling;
      ii) Sampling design (including number, location and distribution);
      iii) Representativeness of selected media, exposure pathways, or receptors; and
      iv) Representativeness of selected analytical parameters.
   d. Description of the measures to be taken to assure that the following data sets can be compared quantitatively or qualitatively to each other:
      i) RD/RA data collected by the Respondent over some time period;
      ii) RD/RA data generated by an outside laboratory or consultant employed by the Respondent versus data collected by the Respondent, and;
      iii) Data generated by separate consultants or laboratories over some time period not necessarily related to the RD/RA effort.
      iv) Data generated by Ohio EPA or by an outside laboratory or consultant employed by Ohio EPA;
   e. Details relating to the schedule and information to be provided in quality assurance reports. These reports should include but not be limited to:
      i) Periodic assessment of measurement data accuracy, precision and completeness;
      ii) Results of performance audits;
      iii) Results of system audits;
      iv) Significant quality assurance problems and recommended solutions; and
      v) Resolutions of previously stated problems.

2. Sample Analysis - The Sample Analysis section of the Quality Assurance Project Plan shall specify the following:
a. Chain-of-custody procedures, including:
   i) Identification of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment and verify the data entered onto the sample custody records;
   ii) Provision for a laboratory sample custody log consisting of serially numbered lab-tracking report sheets; and
   iii) Specification of laboratory sample custody procedures for sample handling, storage and dispersement for analysis.

b. Sample storage procedures and storage times;
c. Sample preparation methods;
d. Analytical procedures, including:
   i) Scope and application of the procedure;
   ii) Sample matrix;
   iii) Potential interferences;
   iv) Precision and accuracy of the methodology;
   v) Method detection limits;
   vi) Special analytical services required to ensure contract required detection limits do not exceed known toxicity criteria; and
   vii) Verification and reporting of tentatively identified compounds.

e. Calibration procedures and frequency;
f. Data reduction, validation and reporting;
g. Internal quality control checks, laboratory performance and systems audits and frequency, including:
   i) Method blank(s);
   ii) Laboratory control sample(s);
   iii) Calibration check sample(s);
   iv) Replicate sample(s);
   v) Matrix-spiked sample(s);
   vi) "Blind" quality control sample(s);
   vii) Control charts;
   viii) Surrogate samples;
   ix) Zero and span gases; and
   x) Reagent quality control checks.

h. Preventative maintenance procedures and schedules;
i. Corrective action (for laboratory problems); and
j. Turnaround time.

3. Modeling - The Modeling section of the Quality Assurance Project Plan shall apply to all models used to predict or describe fate, transport or transformation of contaminants in the environment and shall discuss:
   a. Model assumptions and operating conditions;
   b. Input parameters; and
   c. Verification and calibration procedures.

4. In Situ or Laboratory Toxicity Tests - The Toxicity Test section of the Quality
Assurance Project Plan shall apply to all tests or bioassays used to predict or describe impacts of contaminants on a population, community, or ecosystem level.

5. Data Record - The QAPP shall also provide the format to be used to present the raw data and the conclusions of the investigation, as described in a, b, and c below:

a. The data record shall include the following:
   i) Unique sample or field measurement code;
   ii) Sampling or field measurement location and sample or measurement type;
   iii) Sampling or field measurement raw data;
   iv) Laboratory analysis ID number;
   v) Property or component measured; and
   vi) Result of analysis (e.g., concentration).

b. Tabular Displays - The following data shall be presented in tabular displays:
   i) Unsorted (raw) data;
   ii) Results for each medium, organism, or for each constituent measured;
   iii) Data reduction for statistical analysis;
   iv) Sorting of data by potential stratification factors (e.g., location, soil layer, topography, vegetation form);
   v) Summary data (i.e., mean, standard deviation, min/max values, and sample number); and
   vi) Comparisons with background or reference data.

c. Graphical Displays - The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):
   i) Display sampling locations and sampling grid;
   ii) Indicate boundaries of sampling area, and areas where more data are required;
   iii) Display levels of contamination at each sampling location or location from which organism was taken;
   iv) Display geographical extent of contamination;
   v) Display contamination levels, averages and maxima;
   vi) Illustrate changes in concentration in relation to distance from the source, time, depth or other parameters;
   vii) Indicate features affecting intramedia transport and show potential receptors;
   viii) Compare nature and extent of contamination with results of ecological or biological sampling or measurements; and
   ix) Display comparisons with background or reference analyses or measurements.
4.2 FIELD SAMPLING PLAN

1. Sampling - The Sampling section of the Field Sampling Plan shall discuss:
   a. Sufficient preliminary sampling to ensure the proper planning of items
      b. through c. below;
   b. Selecting appropriate sampling locations, depths, vegetation strata,
      organism age, etc. and documenting relevance of sample for intended
      biological toxicity tests or analyses;
   c. Providing a sufficient number of samples to meet statistical or other
      data useability objectives;
   d. Measuring all necessary ancillary data such as ambient conditions,
      baseline monitoring, etc.;
   e. Determining environmental conditions under which sampling should
      be conducted;
   f. Determining which media, pathways, or receptors are to be sampled
      (e.g., ground water, air, soil, sediment, biota, etc.);
   g. Determining which parameters are to be measured and where;
   h. Selecting the frequency and length of sampling period;
   i. Selecting the sample design (e.g., composites, grabs, random,
      repeated, etc.);
   j. Selecting the number, location, media or organisms for determining
      background conditions or reference conditions (refer to Risk
      Assessment Guidance for Superfund: Volume I - Human Health
      Evaluation Manual (Part A), Interim Final, EPA/540/1-89/002,
      December 1989);
   k. Measures to be taken to prevent contamination of the sampling
      equipment and cross contamination between sampling points;
   l. Documenting field sampling operations and procedures, including:
      i) Documentation of procedures for preparation of reagents or
         supplies which become an integral part of the sample (e.g.,
         filters and adsorbing reagents);
      ii) Procedures and forms for recording the exact location and
          specific considerations associated with sample acquisition;
      iii) Documentation of specific sample preservation method;
      iv) Calibration of field devices;
      v) Collection of replicate and field duplicate samples;
      vi) Submission of field-biased and equipment blanks, where
          appropriate;
      vii) Potential interferences present at the site or facility;
      viii) Construction materials and techniques associated with
            monitoring wells and piezometers;
      ix) Field equipment listing and sample containers;
      x) Sampling order; and
      xi) Decontamination procedures.
m. Selecting appropriate sample containers;
n. Sample preservation; and
o. Chain-of-custody, including:
i) Standardized field tracking reporting forms to establish sample custody in the field prior to and during shipment;
ii) Sample sealing, storing and shipping procedures to protect the integrity of the sample; and,
iii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

2. Field Measurements - The Field Measurements section of the Field Sampling Plan shall discuss:
a. Selecting appropriate field measurement locations, depths, organism age etc.;
b. Providing a sufficient number of field measurements that meet statistical or data useability objectives;
c. Measuring all necessary ancillary data such as ambient or baseline environmental conditions;
d. Determining conditions under which field measurement should be conducted;
e. Determining which media, pathways, or receptors are to be addressed by appropriate field measurements (e.g., ground water, air, soil, sediment, biota, etc.);
f. Determining which physical, chemical, or biological parameters are to be measured and where;
g. Selecting the frequency and duration of field measurement; and
h. Documenting field measurement operations and procedures, including:
i) Procedures and forms for recording raw data and the exact location, time and Site specific considerations associated with the data acquisition;
ii) Calibration of field devices;
iii) Collection of replicate measurements;
iv) Submission of field-biased blanks, where appropriate;
v) Potential interferences present at the Site;
vi) Construction materials and techniques associated with monitoring wells and piezometers used to collect field data;
vii) Field equipment listing;
viii) Order in which field measurements were made; and
ix) Decontamination procedures; and
i) Selecting the number, location, media, and organisms for determining background or reference conditions.
4.3 SITE HEALTH AND SAFETY PLAN

The Respondent(s) shall submit a Health and Safety Plan (HSP) to the Ohio EPA with the RD/RA Work Plan for any on-site activities taking place during the design phase. The Respondent(s) shall review the remedial design information and modify the HSP developed for the RD/RA Work Plan, as necessary, to address the activities to be conducted on the site during implementation of the Remedial Action. It shall be designed to protect on-site personnel and area residents from physical, chemical and other hazards posed by the construction, operation and maintenance activities of the Remedial Action.

The Respondent(s) shall prepare a site HSP which is designed to protect on-site personnel and area residents from physical, chemical and all other hazards posed by RD/RA activities. The HSP shall address the following topics:

1. Major elements of the Health and Safety Plan shall include:
   a. Facility or site description including availability of resources such as roads, water supply, electricity and telephone service;
   b. Description of the known hazards and an evaluation of the risks associated with the incident and with each activity conducted;
   c. Listing of key personnel (including the site safety and health officer) and alternates responsible for site safety, response operations, and for protection of public health;
   d. Delineation of work area, including a map;
   e. Description of levels of protection to be worn by personnel in the work area;
   f. Description of the medical monitoring program for on-site responders;
   g. Description of standard operating procedures established to assure the proper use and maintenance of personal protective equipment;
   h. The establishment of procedures to control site access;
   i. Description of decontamination procedures for personnel and equipment;
   j. Establishment of site emergency procedures;
   k. Availability of emergency medical care for injuries and toxicological problems;
   l. Description of requirements for an environmental monitoring program. (This should include a description of the frequency and type of air and personnel monitoring, environmental sampling techniques and a description of the calibration and maintenance of the instrumentation used.);
   m. Specification of any routine and special training required for responders; and
   n. Establishment of procedures for protecting workers from weather related problems.
2. The Health and Safety Plan shall be consistent with:
   a. NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);
   b. CERCLA Sections 104(f) and 111(c)(6)
   c. EPA Order 1440.3 -- Respiratory Protection;
   d. EPA Order 1440.2 -- Health and Safety Requirements for Employees Engaged in Field Activities;
   e. EPA Occupational Health and Safety Manual;
   f. EPA Interim Standard Operating Safety Procedures and other EPA guidance as developed by EPA;
   g. OSHA regulations particularly in 29 CFR 1910 and 1926;
   h. State and local regulations; and
   i. Site or facility conditions.

4.4 CONSTRUCTION QUALITY ASSURANCE PLAN

The Respondent(s) shall develop a Construction Quality Assurance Plan (CQAP) based on the plans and specifications and performance standards for the RA. The CQAP is a site specific document that shall specify procedures to ensure that the completed remedial action work meets or exceeds all design criteria and specifications. A draft CQAP shall be submitted with the Intermediate Design submittal for review and comment by the Ohio EPA. Subsequent drafts shall be submitted with the Prefinal and Final Design submittals that incorporate comments made by the Ohio EPA. Certain aspects of the CQAP, for example personnel names and qualifications, may not be known at the time of design approval. A complete and final CQAP shall be submitted to Ohio EPA for approval prior to the start of construction. At a minimum, the CQAP shall address the elements listed below.

4.4.1 Responsibility and Authority

The responsibility and authority of all organizations (i.e. technical consultants; construction firms, etc.) and key personnel involved in the construction of the remedial action(s) shall be described fully in the CQAP. The Respondent(s) shall provide a copy of the approved CQAP to each organization with responsibility and authority for implementing the CQAP. The Respondent(s) shall also identify a CQA officer and the necessary supporting inspection staff.

4.4.2 Construction Quality Assurance Personnel Qualifications

The qualifications of the Construction Quality Assurance officer and supporting inspection personnel shall be presented in the CQAP to demonstrate that they possess the training and experience necessary to fulfill their identified responsibilities.
4.4.3 Inspection Activities

The observations and tests that will be used to monitor the construction and/or installation of the components of the remedial action shall be described in the CQAP. The plan shall include scope and frequency of each type of inspection. Inspections shall verify compliance with the design, applicable requirements of state and federal law and performance standards. Inspections shall also ensure compliance with all health and safety standards and procedures. The CQAP shall include provisions for conducting the preconstruction, prefinal and final inspections and associated meetings as described in Section 5.4 of this SOW.

4.4.4 Sampling Requirements

The sampling activities necessary to ensure that the design specifications and performance standards are achieved shall be presented in the CQAP. The description of these activities shall include sample sizes, sample locations, frequency of sampling, testing to be performed, acceptance and rejection criteria, and plans for correcting problems as addressed in the design specifications.

4.4.5 Documentation

Reporting requirements for CQA activities shall be described in detail in the CQAP. This shall include such items as daily summary reports, meeting reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports and final documentation. Provisions for the storage of all records shall be presented in the CQAP.

4.5 PERFORMANCE STANDARD VERIFICATION PLAN

A Performance Standard Verification Plan (PSVP) shall be prepared to consolidate information for required testing, sampling and analyses to ensure that both short-term and long term performance standards for the RA are met. Performance standards may include clean-up standards for contaminated environmental media as well as the measurement of the effectiveness of engineering controls or other controls used to control migration of or exposure to contaminants. For example, the containment of a plume of contaminated ground water by pumping wells would be a performance standard requiring verification. The PSVP should describe the measurements to be taken, such as water levels in monitoring wells and piezometers, along with any analyses to be conducted on the data obtained, such as ground water modeling, to verify that the plume is contained. The PSVP shall include a FSP and a QAPP for any sampling and analyses to be conducted.

The Draft PSVP shall be submitted with the Intermediate Design for review and comment by the Ohio EPA. The final PSVP, which fully addresses comments made by the Ohio EPA must be submitted with and approved as part of the Final Design.
4.6 OPERATION AND MAINTENANCE PLAN

The Respondent(s) shall prepare an Operation and Maintenance Plan (O&M Plan) to cover long term operation and maintenance of the RA. Operation and maintenance for all components of the remedial action, shall begin after it is demonstrated that those components are operational and functional. The plan, at a minimum, shall be composed of the elements listed below.

1. Normal Operation and Maintenance
   a. Description of tasks for operation
   b. Description of tasks for maintenance
   c. Description of prescribed treatment or operating conditions
   d. Schedules showing the frequency of each O&M task

2. Potential Operating Problems
   a. Description and analysis of potential operating problems
   b. Sources of information regarding potential operating problems
   c. Description of means of detecting problems in the operating systems
   d. Common remedies for operating problems

3. Routine Monitoring and Laboratory Testing
   a. Description of monitoring tasks
   b. Description of required laboratory tests and interpretation of test results
   c. Required QA/QC procedures to be followed
   d. Schedule of monitoring frequency and provisions to discontinue, if appropriate

Note: Information on monitoring and testing that is presented in the PSVP should be referenced, as appropriate, but should not be duplicated in the O&M Plan.

4. Alternative O&M
   a. Description of alternate procedures to prevent undue hazard, should systems fail
   b. Analysis of the vulnerability and additional resources requirements should a failure occur

5. Safety Plan
   a. Description of safety procedures, necessary equipment, etc. for site personnel
   b. Description of safety tasks required in the event of systems failure (may be linked to the Site Safety Plan developed for the RD/RA)
6. Equipment
   a. Description of equipment necessary to the O&M Plan
   b. Description of installation of monitoring components
   c. Description of maintenance of site equipment
   d. Replacement schedule for equipment and installed components

7. Annual O&M Budget
   a. Costs for personnel
   b. Costs for preventative and corrective maintenance
   c. Costs of equipment and supplies, etc.
   d. Costs of any contractual obligations (e.g., lab expenses)
   e. Costs of operation (e.g., energy, other utilities, etc.)

8. Records and Reporting Mechanisms Required
   a. Daily operating logs
   b. Laboratory records
   c. Records for operating costs
   d. Mechanism for reporting emergencies
   e. Personnel and maintenance records
   f. Monthly/semi-annual reports to Ohio EPA

The Respondent(s) shall submit a draft O&M Plan to the Ohio EPA for review and comment with the Intermediate Design submittal. Subsequent drafts of the O&M Plan shall be submitted with the Prefinal and Final Design submittals, which reflect the refined plans and specifications of those submittals and any comments made by the Ohio EPA. The final O&M Plan shall be submitted by the Respondent(s) prior to or at the completion of construction of the remedial action and shall incorporate any modifications or corrections required by the Ohio EPA.
APPENDIX C

LIST OF RELEVANT GUIDANCE DOCUMENTS
Ohio EPA Division of Environmental Response and Revitalization (DERR)

General Guidance Document and Reference List to Support Remedial Response Program Statements of Work and Orders

Purpose and Use

This document provides an evolving "working list" of primary guidance documents and references which may be added as needed to the core guidance lists established for RI/FS and RD/RA statements of work (SOW) and orders. This general list of guidance and references is periodically updated by Ohio EPA. It is not to be used as an attachment to Remedial Response orders. Ohio EPA recognizes that some remedial response sites may have conditions or circumstances that are not fully addressed by the documents in this working list of general guidance documents and references. Accordingly, Remedial Response orders should be supported as necessary by current guidance, professional publications, research and U.S. EPA and Ohio EPA policy directives. For sites where activities are conducted in response to an administrative or judicial order, the list of selected reference documents will be attached to the order as an appendix and will govern the work conducted. Ohio EPA reserves the right to modify this list as needed to fully and appropriately address site conditions.

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Updated 09/12/2016; NOTE: web links are not regularly maintained.
Ohio EPA DERR Remedial Response Program
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Ohio EPA Guidance

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*Ohio Rapid Assessment for Wetlands Version 5.0 (Final)*, Ohio EPA Division of Surface Water, February 2001

*Integrated Wetland Assessment Program, Part 4: Vegetation Index of Biotic Integrity (VIBI) and Tiered Aquatic Life Uses (TAI Us) for Ohio Wetlands*, Ohio Environmental Protection Agency Division of Surface Water Wetland Ecology Group, Ohio EPA Technical Report WET/2004-4, 2004


**U.S. EPA & Other Guidance**

*Wetlands*, U.S. EPA webpage (includes information on Clean Water Act Section 404 regulations and federal, state and local government programs)

Ohio EPA DERR Remedial Response Program
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APPENDIX D

ENVIRONMENTAL COVENANT TEMPLATE
ENVIRONMENTAL COVENANT

This Environmental Covenant is entered into by [name all Owners of the Property and Holders] and the Ohio Environmental Protection Agency ("Ohio EPA") pursuant to Ohio Revised Code ("ORC") §§ 5301.80 to 5301.92 for the purpose of subjecting the Property described herein ("the Property") to the activity and use limitations set forth herein.

This Environmental Covenant requires current and future Property owners to meet certain requirements, including, but not limited to:

- Comply with the activity and use limitations given by paragraph 5 that: [Plain language summary of the activity and use limitations in paragraph 5].
- Provide an annual compliance report to Ohio EPA by [enter Day Month] of each year, as required by paragraph 9, describing that the Property continues to be used in compliance with the activity and use limitations.
- Give notice to new property owners (also known as "transferees") upon conveyance, as required by paragraph 10, of the activity and use limitations and the recorded location of this Environmental Covenant.
- Notify Ohio EPA within 10 days of each conveyance, as required by paragraph 10, of the property that was conveyed and new owner's contact information.

WHEREAS, the Property is owned by [name of Owner], who resides or is located at [address or location of owner].

WHEREAS, the remedy for the Property includes the activity and use limitations set forth in this Environmental Covenant.

WHEREAS, the activity and use limitations protect against exposure to the [hazardous substances / petroleum / hazardous substances and petroleum] in [soil / ground water / soil and ground water, or describe other affected media] on or underlying the Property.

[WHEREAS, the Property is the subject to an operation and maintenance (O&M) agreement that provides for a central management entity to oversee engineering controls to maintain site protectiveness.]
Now therefore, [name of each Owner and Holder other than Owner, if any] and Ohio EPA agree to the following:

1. **Environmental Covenant.** This instrument is an environmental covenant developed and executed pursuant to ORC §§ 5301.80 to 5301.92.

2. **Property.** This Environmental Covenant concerns an approximately [number] acre tract of real property located at [Address of Property], in [County], Ohio, and more particularly described in [Attachment #] attached hereto and incorporated by reference herein ("Property").

3. **Owner.** This Property is owned by [Owner Name] ("Owner"), [with a place of business located] at [Address of Owner].

4. **Holder.** Pursuant to ORC § 5301.81, the holder of this Environmental Covenant ("Holder") is the Owner listed above [and if applicable [Name of other Holder not the Owner], [with place of business located] at [Address of other Holder].

5. **Activity and Use Limitations.** As part of the remedial action described in the Decision Document, Owner[s] hereby impose[s] and agree[s] to comply with the following activity and use limitations: [Determine the activity and use limitations appropriate for the Property. Several types of restrictions may be appropriate as part of a remedial action, interim action, or closure plan where cleanup to an unrestricted land use is infeasible. These include: land use restrictions; ground water restrictions; disturbance restrictions; and construction restrictions. Each type of restriction must be considered on a site-specific basis to determine which restriction or combination of restrictions is suitable for the particular circumstances of the site or facility. Evaluate the possible use restrictions based on the nature of contamination, the type of affected media and the potential exposures. The restriction categories include: land use, ground water, disturbance and construction.

6. **Running with the Land.** This Environmental Covenant shall be binding upon the Owner, during the time that the Owner owns the Property or any portion thereof, and upon all assigns and successors in interest, including any Transferee, and shall run with the land, pursuant to ORC § 5301.85, subject to amendment or termination as set forth herein. The term "Transferee," as used in this Environmental Covenant, shall mean any future owner of any interest in the Property or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees.
7. Compliance Enforcement. Compliance with this Environmental Covenant may be enforced pursuant to ORC § 5301.91 and other applicable law. Failure to timely enforce compliance with this Environmental Covenant or the activity and use limitations contained herein by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party’s right to take action to enforce against any non-compliance. Nothing in this Environmental Covenant shall restrict the Director of Ohio EPA from exercising any authority under applicable law.

8. Rights of Access. Owner hereby grants to Ohio EPA’s authorized representatives [include, as applicable, name of local government and any Holders other than Owner, etc.; see ORC §§ 5301.82(A)(6) and 5301.91(A)] the right of access to the Property for implementation or enforcement of this Environmental Covenant and shall require such access as a condition of any transfer of the Property or any portion thereof.

9. Compliance Reporting. Owner or Transferee, if applicable, shall annually submit to Ohio EPA [include, as applicable, name of local government, any "Holders" other than Owner] written documentation verifying that the activity and use limitations set forth herein remain in place and are being complied with. Documentation shall be due to Ohio EPA on May 1st of each year beginning the year after the effective date of this Environmental Covenant, unless otherwise directed by Ohio EPA.

10. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion thereof shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. The notice shall be substantially in the following form:

THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT, RECORDED IN THE DEED OR OFFICIAL RECORDS OF [name of County Recorder’s Office] ON ____________, 201__, IN [DOCUMENT ____, or BOOK ____, PAGE ____]. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS:

[List or summarize the type of activity and use limitations in Paragraph 5 of the environmental covenant (i.e., a limitation to commercial or industrial land uses, a prohibition on ground water extraction and use, and a limitation on building occupancy — remedy or demonstration obligation).]

Owner or Transferee, if applicable, shall notify Ohio EPA [and "Holders" other than the Owner, if any] within [ten (10)] days after each conveyance of an interest in the
Property or any portion thereof. The notice shall include the name, address, and telephone number of the Transferee, a copy of the deed or other documentation evidencing the conveyance, and a survey map that shows the boundaries of the property being transferred.

11. **Representations and Warranties.** Owner hereby represents and warrants to the other signatories hereto:

A. that the Owner is the sole owner of the Property;

B. that the Owner holds fee simple title to the Property and that the Owner conducted a current title search that shows that the Property [choose one: is subject to [or] is not subject to any] interests or encumbrances that conflict with the activity and use limitations set forth in this Environmental Covenant;

   [If other interests or encumbrances on the Property conflict with the activity and use limitations set forth in this Environmental Covenant, add the following provision as a separate subparagraph:

   To the extent that any other interests in or encumbrances on the Property conflict with the activity and use limitations set forth in this Environmental Covenant, the persons who own such interests or hold such encumbrances have agreed to subordinate such interests or encumbrances to the Environmental Covenant, pursuant to ORC § 5301.86, and the subordination agreement(s) (attached as [Attachment #] to this Environmental Covenant; [or] recorded at [name of County Recorder’s Office]).]

C. that the Owner has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all obligations hereunder;

D. that this Environmental Covenant will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Owner is a party or by which Owner may be bound or affected;
E. that the Owner has identified all other persons that own an interest in or hold an encumbrance on the Property, and, if applicable, notified such persons of the Owner's intention to enter into this Environmental Covenant.

12. Amendment or Termination. This Environmental Covenant may be amended or terminated by consent of all of the following: the Owner, or a Transferee, if applicable; ["Holders" other than Owner, if any;] and the Director of the Ohio EPA, pursuant to ORC §§ 5301.82 and 5301.90 and other applicable law. The term, "Amendment," as used in this Environmental Covenant, shall mean any changes to the Environmental Covenant, including the activity and use limitations set forth herein, or the elimination of one or more activity and use limitations so long as there is at least one limitation remaining. The term, "Termination," as used in this Environmental Covenant, shall mean the elimination of all activity and use limitations set forth herein and all other obligations under this Environmental Covenant.

This Environmental Covenant may be amended or terminated only by a written instrument duly executed by the Director of Ohio EPA and by the Owner or Transferee, if applicable, of the Property or any portion thereof [. and "Holders" or their assignees, if any]. Within thirty (30) days of signature by all requisite parties on any amendment or termination of this Environmental Covenant, the Owner or Transferee, if applicable, shall file such instrument for recording with the [name of County Recorder's Office], and shall provide a file- and date-stamped copy of the recorded instrument to Ohio EPA [and "Holders" or their assignees, if any].

13. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

14. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Ohio.

15. Recordation. Within [thirty (30)] days after the date of the final required signature, Owner shall file this Environmental Covenant for recording, in the same manner as a deed to the Property, with the [name of County Recorder's Office].

16. Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Property with the [name of County Recorder's Office].
17. **Distribution of Environmental Covenant.** Owner shall distribute a file- and date-stamped copy of the recorded Environmental Covenant to: Ohio EPA [include name other parties to the Environmental Covenant, if any] and [include the appropriate governmental entity applicable to property: City / County / Township].

18. **Notice.** Unless otherwise notified in writing by any party hereto or Ohio EPA, any document or communication required by this Environmental Covenant shall be submitted to:

**As to Ohio EPA:**

Ohio EPA – Central Office  
Division of Environmental Response and Revitalization  
50 West Town Street  
Columbus, Ohio 43216  
Attn.: DERR Records Management Officer

Or, send electronically to: records@epa.ohio.gov

**And**

Ohio EPA - [applicable district office]  
[District office address]  
Attn.: DERR Site Coordinator for [Site Name]

**As to Owner:**

[Name, title, or position]  
[Address]

**As to Holder:**

[Name, title, or position]  
[Address]  
The undersigned represents and certifies that the undersigned is authorized to execute this Environmental Covenant.
IT IS SO AGREED:

[OWNER NAME]

________________________
Signature of Owner

________________________
Printed Name and Title

State of ____________  )
County of ____________  ) ss:

Before me, a notary public, in and for said county and state, personally appeared ______________________, a duly authorized representative of the Owner, who acknowledged to me the execution of the foregoing instrument on behalf of the Owner.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal this ________ day of _________________, 20__.

________________________
Notary Public
[HOLDER NAME]

Signature of Holder

Printed Name and Title

State of ___________  )
County of ___________ )

ss:

Before me, a notary public, in and for said county and state, personally appeared ______________________, a duly authorized representative of the Holder, who acknowledged to me the execution of the foregoing instrument on behalf of the Holder.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal this ______ day of ____________________, 201__.

Notary Public
OHIO ENVIRONMENTAL PROTECTION AGENCY

Craig W. Butler, Director

State of Ohio            ss:
County of Franklin

Before me, a notary public, in and for Franklin County, Ohio, personally appeared Craig W. Butler, the Director of Ohio EPA, who acknowledged to me that he did execute the foregoing instrument on behalf of Ohio EPA.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal this ______ day of ______________, 201__.

__________________________
Notary Public
APPENDIX E

SITE MAP