



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

STATEMENT OF BASIS

GENERAL ELECTRIC TRANSPORTATION
(GENERAL ELECTRIC ERIE)
2901 E. Lake Rd.
Erie, Pennsylvania

EPA ID NO. PAD 005 033 055

Prepared by
Office of PA Remediation
Land and Chemicals Division
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Section 1: Introduction

The United States Environmental Protection Agency (EPA) has prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for the General Electric Transportation facility located in Erie, Pennsylvania (hereinafter referred to as the Facility). EPA's proposed remedy for the Facility consists of natural attenuation with: 1) groundwater monitoring, 2) land and groundwater use restrictions, 3) protective health and safety procedures to eliminate exposures during potential excavation activities, and 4) compliance with a Pennsylvania Department of Environmental Protection (PADEP) post-closure permit. This SB highlights key information relied upon by EPA in proposing its remedy for the Facility.

The Facility is subject to EPA's Corrective Action Program under the Solid Waste Disposal Act, as amended, commonly referred to as the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Sections 6901 *et seq.* The Corrective Action Program requires that owners and/or operators of facilities subject to certain provisions of RCRA investigate and address releases of hazardous waste and hazardous constituents, usually in the form of soil or groundwater contamination, that have occurred at or from their property. The Commonwealth of Pennsylvania is not authorized to implement the Corrective Action Program under Section 3006 of RCRA. Therefore, EPA retains primary authority in the Commonwealth for the Corrective Action Program.

EPA is providing a 30-day public comment period on this SB. EPA may modify its proposed remedy based on comments received during this period. EPA will announce its selection of a final remedy for the Facility in a Final Decision and Response to Comments (Final Decision) after the public comment period has ended.

Information on the Corrective Action Program as well as a fact sheet for the Facility can be found by navigating <http://www.epa.gov/reg3wcmd/correctiveaction.htm>. The Administrative Record (AR) for the Facility contains all documents, including data and quality assurance information, on which EPA's proposed remedy is based. See Section VIII, Public Participation, for information on how you may review the AR.

Section 2: Facility Background

The General Electric Company (GE) owns and operates the Facility which is located at 2901 East Lake Road in Lawrence Park Township outside of Erie, Pennsylvania. The Facility has been used for manufacturing diesel and electric locomotives, motorized wheels for off-highway construction vehicles, propulsion equipment for mass transit, and drives for oil and gas well drilling rigs. Figure 1 is the site location map for the GE Facility.

The Facility processes include metalworking, fabricating and finishing. The Facility also operates an on-site industrial Wastewater Treatment Plant.

The Facility covers approximately 350 acres and includes 4 million square feet of manufacturing floor space in 16 major and several ancillary buildings. The north border of the Facility property is approximately 2,500 feet from the south shore of Lake Erie. The Facility is bordered on its eastern side by Four Mile Creek, which runs north to Lake Erie and on its southern side by commercial railroad lines. Residential areas border the Facility to the west. Figure 2 shows the Facility layout.

Section 3: Summary of Environmental Investigations

3.1 Environmental Investigations

A RCRA Facility Assessment (RFA) was performed in 1986. The RFA identified twenty-nine (29) Solid Waste Management Units (SWMUs). An Environmental Indicator (EI) Inspection was performed and a Final EI Report was submitted in December 2002. The EI was performed to determine whether or not human exposures and groundwater releases are controlled. EPA reviewed the EI Report which summarized EPA, PADEP, and Facility file information, and as a result scheduled a site visit and meeting on October 19, 2008 to discuss areas that may need to be investigated to satisfy Corrective Action obligations. On January 7, 2009, GE submitted a response to address SWMUs and other areas of concern as a result of the meeting. EPA determined no further action was required at SWMUs 3, 4, and 6-29. The following SWMUs were determined to require further investigation: SWMU 1 – Waste Disposal Area NW Corner, SWMU 2- Waste Disposal Area NE Corner, and SWMU 5- Open Pit Burning Area. In addition, EPA identified site-wide groundwater as an Area of Concern (AOC) due to the history of industrial use and minor spills indicated in the EI Report.

A wastewater treatment sludge landfill called the In-Plant Landfill is identified as SWMU 6. Operation of SWMU 6 began in 1978 and ceased in September 1987. The In-Plant Landfill is approximately one-half acre in size and has a holding capacity of 2,400 cubic yards. Operation of this landfill was permitted under the authorized Pennsylvania RCRA program. Groundwater monitoring has been on-going since closure as part of the bi-annual post closure requirements pursuant to a Post-Closure Permit issued by PADEP on December 10, 2012. This SWMU will continue to be addressed by Pennsylvania under its authorized RCRA program.

On July 2, 2009, GE submitted a Preliminary Corrective Action Investigation (PCAI) Work Plan to evaluate SWMUs 1, 2, and 5 and the AOC. EPA approved the PCAI Work Plan on July 17, 2009. A Preliminary Corrective Action Investigation Report (CAIR) was submitted in November 2009. Groundwater concentrations were initially screened against EPA Region III Screening Levels (RSL) for tapwater and soil concentrations were screened against EPA RSLs for residential and industrial use. Groundwater and soil results showed that constituents were present in soil and groundwater at isolated locations above EPA RSLs. These findings prompted

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additional soil and groundwater sampling activities to determine the extent of these exceedances. Results from the Preliminary CAIR and three subsequent Supplemental CAIRs completed and submitted in 2010, 2011, and 2012, respectively, are summarized below:

CAIR	Results	Proposed work
2009 Preliminary	Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Polychlorinated Biphenyls (PCBs), and metals were identified in soil and groundwater in SWMUs 1 and 2, and in soils in SWMU 5. No groundwater samples could be taken at SWMU 5 during the PCAI because wells placed near that SWMU were dry. See table 1 for specific compounds, exceedances, and locations.	Further soil and groundwater sampling activities proposed to determine extent of constituents above RSLs.
2010 First Supplemental	VOCs, SVOCs, and metals similar to those found during the PCAI were identified in newly installed soil and groundwater sampling locations in SWMUs 1, 2, and 5. PCBs were not identified in any samples. Arsenic was observed to be ubiquitous and within naturally occurring levels in Pennsylvania.	Further soil and groundwater sampling activities proposed to determine extent of constituents above RSLs as well as identify if constituents are in SWMU 5 groundwater. Establish background concentrations.
2011 Second Supplemental	No VOCs, SVOCs, or metals were detected in soils from SWMUs 1, 2, or 5 above Industrial RSLs, therefore, impacts have been delineated and no further soil characterization was necessary.	Further groundwater sampling activities proposed to address a lack of seasonal data.
2012 Third Supplemental	Additional VOCs and SVOCs were identified in SWMU 5 groundwater. See table 2 for specific additional compounds and their exceedances.	A one-year groundwater monitoring program to establish representative groundwater concentrations.

3.1.2 Human Health Risk Assessment and Evaluation of Exposure Pathways

A Groundwater Usage Evaluation Report (GUER) and Risk Assessment Report (RAR) were prepared and included as part of the Fourth Supplemental CAIR submitted in January 2015.

The GUER concluded that the Facility and residences and commercial buildings within approximately 0.5 miles to the east, west, and north of the Facility, are provided potable water by the Erie Water Works; no downgradient, or cross-gradient properties to the north, east, or west within 0.5 miles have water wells on their properties, and local ordinances are in place that prohibit the installation of water supply wells in the future.

The RAR concluded that the only potential unacceptable exposure that exists at the Facility is the direct contact exposure to groundwater by adults who perform construction or utility work at SWMU 5. It was therefore recommended that health and safety procedures be implemented to eliminate exposures and that excavation activities be conducted in accordance with the Facility soil excavation policy. The RAR was evaluated with the assumptions that residential use of the Facility as well as use of the groundwater will be prevented by an environmental covenant, and that groundwater is not used as a potable water supply at the Facility or surrounding area.

The Fourth Supplemental CAIR concluded that no further action was necessary for groundwater in SWMUs 1 and 2 when evaluated using PADEP's Non-Residential Non-Use (NRNU) Aquifers Medium-Specific Concentration (MSC) standards which were identified as an appropriate alternative standard considering the GUER findings. Further conclusions were that no further characterization was necessary for soils.

Calculated risks for vapor intrusion for the occupants of buildings in SWMU 5 presented in the RAR are within the EPA's and PADEP's range of acceptable risk and less than EPA and PADEP's hazard benchmark. GE proposed the installation of one additional well between well MW5-2 and an existing building and a one-year monitoring program to further evaluate the extent of groundwater impacts in SWMU 5.

3.2 Final Corrective Action Investigation Report

In September 2016, the Final Supplemental CAIR (Final CAIR) was submitted to EPA. In addition to the well that was installed to monitor groundwater near MW5-2, GE also evaluated groundwater trends for natural attenuation as an appropriate remedy. GE also reevaluated all soil and groundwater data in comparison with updated PADEP standards (MSCs) published in August 2016. EPA approved the Final CAIR on October 31, 2016.

Included in the Final CAIR was an updated RAR for SWMU 5 to include data from the newly installed monitoring well in SWMU 5, as well as more recent data from existing wells in SWMU 5, including MW5-2. The RAR concluded that analytical data confirmed vapor intrusion is not a concern at the existing building near MW 5-2 and that total calculated risks for the commercial/industrial worker in SWMU 5 are acceptable. The calculated excess lifetime cancer

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risk for commercial/industrial worker exposure in indoor air as a result of subsurface vapor intrusion from groundwater was within the EPA and PADEP acceptable risk range of 1×10^{-4} to 1×10^{-6} and the hazard index was less than the EPA and PADEP target of 1.

Also, the calculated excess lifetime cancer risk to potential direct contact exposures to groundwater by adults who perform construction or utility work at SWMU 5 is within EPA's acceptable risk range of 10^{-4} to 10^{-6} for Corrective Action. The RAR conclusions were made with the assumptions that residential use of the Facility, as well as use of the groundwater, will be prevented by an environmental covenant, excavation activities will be conducted in accordance with the Facility soil excavation policy, and groundwater is not used as a potable water supply at the Facility or surrounding area.

GE concluded that no further soil investigation is necessary. Additionally, groundwater exceedances are limited to the MW5-2 area and data trends showed the constituents are stable or decreasing. GE proposed to develop and implement a groundwater monitoring program as well as draft an environmental covenant for EPA approval.

3.3 EPA Assessment

The soil and groundwater sampling results discussed in the previous sections were initially compared to EPA's Residential and Industrial Soil RSLs as well as the Tapwater RSLs. Several soil and groundwater constituents were identified in exceedance of these RSLs.

However, the aquifer under the Facility is not a current or potential source of drinking water. Groundwater is not a current or potential source of drinking water because the observed depth to groundwater is less than 5 feet below the ground surface, the aquifer has low permeability in the shale bedrock, and is documented to be high in salinity and natural gas. Furthermore, groundwater is not used at the Facility for drinking water and no downgradient users of off-site groundwater exist. The Facility and surrounding residences are provided potable water by the Erie Water Works, and local ordinances are in place that prohibit the installation of water supply wells. Therefore, EPA has determined that the PADEP NRNU MSCs for groundwater are protective of human health and the environment for the constituents at this Facility given that the aquifer is not a potential source of drinking water.

For groundwater, based on the results of the CA investigations, EPA determined that only localized groundwater in one well in SWMU 5 (MW 5-2) has sustained levels of constituents exceeding PADEP NRNU MSCs. Specifically, groundwater in MW5-2 has exceedances of 1,2-dichloroethane, cis-1,2-dichloroethene, trichloroethene, and vinyl chloride. Data trend graphs of these constituents confirm that natural attenuation is occurring. See Graph 1.

For soils, EPA determined that arsenic levels identified on-site are within the range of naturally occurring levels in Pennsylvania, and, as such, are not associated with Facility operations.

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EPA screened all remaining identified constituents that exceeded EPA's RSLs against the most conservative risk of 10^{-6} . EPA evaluated all soil data and determined that all VOCs, SVOCs, and PCBs are within EPA's acceptable risk range of 10^{-4} to 10^{-6} for Corrective Action. Regarding metals, only individual lead samples in SWMU 2 (6,240 mg/kg) and SWMU 5 (4,260 mg/kg) exhibited exceedances of EPA's Industrial use RSL (IRSL) of 800 mg/kg. Both of these sample locations are greater than 2 cm and considered subsurface soils by EPA. Consistent with EPA's Soil Screening Guidance, EPA evaluated the highest average lead concentrations over the potential exposure area. EPA determined that the average lead concentrations are below the IRSL.

Section 4: Corrective Action Objectives

EPA's Corrective Action Objectives for the specific environmental media at the Facility are the following:

1. Groundwater

EPA expects the final remedies to return usable groundwater to its maximum beneficial use within a timeframe that is reasonable given the particular circumstances of the project. For projects where aquifers are either currently used for water supply or have the potential to be used for water supply, EPA will use the National Primary Drinking Water Standard Maximum Contaminant Levels (MCLs) promulgated pursuant to Section 42 U.S.C. §§ 300f et seq. of the Safe Drinking Water Act and codified at 40 CFR Part 141.

Groundwater in one interior well (MW 5-2) will continue to be monitored as the concentrations naturally attenuate and PADEP's NRNU aquifer standards listed in table 3 are achieved for each constituent listed.

Because the aquifer under the Facility is not a current or potential source of drinking water, as discussed in Section 3 above, EPA has determined that the PADEP NRNU MSCs for groundwater are protective of human health and the environment for the constituents at this Facility. As such, EPA's Corrective Action Objective for Facility groundwater is to meet PADEP NRNU MSCs for groundwater, as shown in Table 3, and as long as contaminants remain in the groundwater above those standards monitor and control exposure to the hazardous constituents remaining in the groundwater.

2. Soil

Given that the current and reasonably anticipated future use of Facility is industrial and that Facility SWMU soils have met EPA's RSL for industrial use, EPA's Corrective Action Objective for soil is:

- a. Prohibit future residential use based on industrial cleanup levels and current and future use risk exposure assumptions.

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Section 5: Proposed Remedy

EPA's proposed remedy is to require the Facility to:

1. Implement land and groundwater use restrictions equivalent to those evaluated as part of the RAR in order to eliminate exposure pathways, including: a groundwater use restriction and restricting the Facility to non-residential use,
2. Implement protective health and safety procedures to eliminate exposures during excavation activities,
3. Monitor groundwater as concentrations in one well (MW 5-2) until the standards in Table 3 are met, and
4. Continue to comply with the PADEP Post-Closure Permit requirements for SWMU 6.

Section 6: Evaluation of Proposed Remedy

This section provides a description of the criteria EPA used to evaluate the proposed remedy consistent with EPA guidance. The criteria are applied in two phases. In the first phase, EPA evaluates three decision threshold criteria as general goals. In the second phase, for those remedies which meet the threshold criteria, EPA then evaluates seven balancing criteria.

Threshold Criteria	Evaluation
1) Protect human health and the environment	EPA's proposed remedy for the Facility protects human health and the environment by controlling potential unacceptable risks through the implementation and maintenance of land and groundwater use restrictions at the Facility, groundwater monitoring of MW 5-2 and SWMU 6, and health and safety procedures for excavation activities.
2) Achieve media cleanup objectives	EPA's proposed remedy will meet the media cleanup objectives based on assumptions regarding current and reasonably anticipated land and water resource use(s). The remedy proposed in this SB is based on the current and future anticipated land use at the Facility as industrial.
3) Remediating the Source of Releases	In all proposed remedies, EPA seeks to eliminate or reduce further releases of hazardous wastes and hazardous constituents that may pose a threat to human health and the environment and the Facility meets this objective. Waste disposal in SWMUs 1 and 2 ceased in 1980 and 1979, respectively. Soil sample results from SWMUs 1 and 2 indicate there is no source and therefore, no need to eliminate

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	or reduce further releases. SWMU 5 was closed in 1955 and waste disposal associated with this SWMU was moved to a former Waste Solvent Incinerator (SWMU 3). Data trend graphs of the constituents in SWMU 5 confirm that natural attenuation is occurring which reduces hazardous constituents that may pose a threat to human health and the environment.
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Balancing Criteria	Evaluation
4) Long-term effectiveness	Groundwater at the Facility is not a current or potential source of drinking water, and no down gradient users of off-site groundwater exist. Therefore, the proposed long term effectiveness of the remedy for the Facility will be maintained by the continuation of the groundwater monitoring program and implementation of land and groundwater use controls.
5) Reduction of toxicity, mobility, or volume of the Hazardous Constituents	The reduction of toxicity, mobility and volume of hazardous constituents will continue by natural attenuation at the Facility. Reduction has already been achieved, as demonstrated by the data from the groundwater monitoring and soils.
6) Short-term effectiveness	EPA's proposed remedy does not involve any activities, such as construction or excavation, that would pose short-term risks to workers, residents, and the environment. EPA anticipates that the land and groundwater use restrictions will be fully implemented shortly after the issuance of a Final Decision.
7) Implementability	EPA's proposed remedy is readily implementable. EPA does not anticipate any regulatory constraints in implementing its proposed remedy. EPA proposes to implement the land and groundwater use restrictions through an enforceable mechanism such as an Environmental Covenant.
8) Cost	EPA's proposed decision is cost effective. The costs associated with this proposed remedy are minimal (estimated cost of \$10,200 per year). The costs to record an environmental covenant in the chain of title to the Facility property are minimal.
9) Community Acceptance	EPA will evaluate community acceptance of the proposed remedy during the public comment period, and it will be described in the Final Decision and Response to Comments.
10) State/Support Agency Acceptance	EPA will evaluate State acceptance of the proposed remedy during the public comment period and respond to comments in the Final Decision and Response to Comments.

Section 7: Financial Assurance

EPA has evaluated whether financial assurance for corrective action is necessary to implement EPA's proposed remedy at the Facility. Given that EPA's proposed remedy does not require any further engineering actions to remediate contamination at this time and given that the costs of implementing institutional controls at the Facility will be de minimis, EPA is proposing that no financial assurance be required.

Section 8: Public Participation

Interested persons are invited to comment on EPA's proposed remedy. The public comment period will last 30 calendar days from the date that notice is published in a local newspaper. Comments may be submitted by mail, fax, e-mail, or phone to Mr. Kevin Bilash at the address listed below.

A public meeting will be held upon request. Requests for a public meeting should be made to Mr. Kevin Bilash at the address listed below. A meeting will not be scheduled unless one is requested.

The Administrative Record contains all the information considered by EPA for the proposed remedy at this Facility. The Administrative Record is available at the following location:

U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103
Contact: Mr. Kevin Bilash (3LC30)
Phone: (215) 814-2796
Fax: (215) 814-3113
Email: bilash.kevin@epa.gov

Section 9: Signature

Date: _____

Catherine Libertz, Director
Land and Chemicals Division
US EPA, Region III

Attachments:

Figure 1: Location Map
Figure 2: Map of Facility

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RCRA Facility Assessment of General Electric Company- Erie Plant, A.T. Kearney, Inc. August 25, 1986

Final Environmental Indicator Inspection Report, Foster Wheeler Environmental Corporation – December 2002

RCRA Corrective Action 2020 Site Visit (Supplemental GE info for closed SWMUs), GE Transportation – January 7, 2009

Preliminary Corrective Action Investigation Report, Arcadis - November 2009

Supplemental Corrective Action Investigation Report, Michael Baker, Jr., Inc., September 2010

Second Supplemental Corrective Action Investigation Report, Arcadis - December 2011

Third Supplemental Corrective Action Investigation Report, Arcadis - June 2012

Fourth Supplemental Corrective Action Investigation Report, Arcadis - January 2015

Final Corrective Action Investigation Report, Arcadis - September 2016

Attachments

Figure 1

Figure 2

Tables

Table 1

2009 Preliminary Corrective Action Investigation Report Results			
	SWMU 1	SWMU 2	SWMU 5
RS= residential soil IS=Industrial Soil GW= groundwater	RSL Exceedances	RSL Exceedances	RSL Exceedances
VOCs			
Chloroform			RS, IS
1,1-dichloroethane	GW		
Trichloroethene			RS, IS
Tetrachloroethene		GW	
Vinyl Chloride			RS
SVOCs			
benzo(a)anthracene	RS, GW	RS, IS, GW	
benzo(a)pyrene	RS, IS, GW	RS, IS, GW	RS, IS
benzo(b)fluoranthene	RS, GW	RS, IS, GW	
benzo(k)fluoranthene		GW	
bis(2-ethylhexyl)phthalate	GW		
dibenzo(a,h)anthracene	RS, IS, GW	RS, IS, GW	
Ideno(1,2,3-cd)pyrene	RS, GW	RS, IS, GW	
PCBs			
Aroclor-1254			RS, IS
Aroclor-1260	RS, IS	RS	RS, IS
Metals			
Arsenic	RS, IS	RS, IS	RS, IS
Cadmium	GW		
Cobalt	GW	RS, GW	
Iron	GW		
Lead			RS, IS
Manganese	GW	GW	

Table 2

2010-2012 Supplemental Corrective Action Investigation Report Results	
GW= groundwater	SWMU 5
Additional Compounds	RSL Exceedances
VOCs	
1,1,2-trichloroethane	GW
1,1-dichloroethane	GW
1,2-dichloroethane	GW
1,2-dichloropropane	GW
Benzene	GW
Carbon Tetrachloride	GW
Chloroform	GW
Cis-1,2-dichloroethene	GW
Ethylbenzene	GW
Methylene chloride	GW
Tetrachloroethene	GW
Toluene	GW
Trichloroethene	GW
Vinyl Chloride	GW
Xylenes	GW
SVOCs	
Naphthalene	GW
Metals	
Arsenic	GW
Iron	GW
Manganese	GW

Table 3

Groundwater Cleanup Goals	
Standards are ug/L	SWMU 5 (MW 5-2)
VOCs	
1,2-dichloroethane	50
Cis-1,2-dichloroethene	700
Trichloroethene	50
Vinyl Chloride	20