# U.S. Environmental Protection Agency Rockwell International Wheel & Trim Site

### Grenada, Mississippi

#### **Frequently Asked Questions**

#### Introduction

This fact sheet provides answers to commonly asked questions about the Rockwell International Wheel & Trim Superfund site (the Site). The U.S. Environmental Protection Agency (EPA) listed the Site on the Superfund National Priorities List (NPL) in 2018. The EPA is working to comprehensively assess and cleanup the Site.

The questions and answers presented are organized into sections, as follows:

- Site Overview
- History and Current Status
- Risk Assessment
- Vapor Intrusion

A glossary of terms is presented at the end.

If you have a question that is not answered in this document, we encourage you to reach out to one of the Site contacts (see box, right). The community has declined to form a Community Advisory

Group (CAG) at this time. The community can notify one of the Site contacts if additional conversation on formation of the CAG is requested. No public meetings are currently scheduled. A public meeting may be scheduled upon community request and public interest where questions can be asked of the Technical Advisor (TA).

#### **Site Overview**

#### How did contamination happen?

Chemicals used at the facility during wheel cover manufacturing operations, mainly trichloroethylene (TCE), were historically disposed in ways that contaminated the soil and groundwater. The facility was constructed in 1961 and contamination was first identified in 1989.

#### What is the current status of the TCE? Can I come into contact with it?

The use of TCE at the facility ended in 1992. Currently, people are not coming in contact with TCE from the Site. TCE remains present in soil underneath the facility and in groundwater underneath the Site. TCE had previously been found in Riverdale Creek. The Mississippi Department of Environmental Quality (MDEQ) placed a contact advisory to inform people they should not be near the affected portions of the creek. Recent

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sampling results from the creek did not find TCE present, but the advisory is still in effect. TCE can vaporize from the soil and groundwater and move into buildings located above the contamination. This previously caused unacceptable levels of TCE in the facility's indoor air. In 2017, the EPA required Meritor, the potentially responsible party (PRP), to install a specialized system (called a "sub-slab depressurization system") to stop the TCE from entering the facility. Indoor air in nearby homes has been tested repeatedly. The EPA has not found TCE in the indoor air above levels that would require further action in any home.

#### What is the EPA doing now?

The EPA is overseeing activities to begin treating contaminated groundwater. The EPA is also working to identify any areas where contamination remains in place to finalize a cleanup plan for the Site. Figure 1 (next page) shows the areas of known contamination outlined in green and areas needing additional investigation in pink.

#### **History and Current Status**

#### When did cleanup start? What agencies were involved and why?

Facility owners started site cleanup under the direction of MDEQ in 1990 because of concerns about contaminant releases from the on-site landfill. Between 1991 and 1993, at the direction of MDEQ, the facility owners began investigating other areas where contaminants may have been released (known as "source areas") from the facility. In 1995, the EPA began overseeing cleanup under the federal Resource Conservation and Recovery Act (RCRA). RCRA is the federal law that governs hazardous waste at operating facilities. In December 2017, the EPA transferred oversight of the Site to its Superfund program to comprehensively address contamination at the facility and beyond the facility's boundary. The EPA listed the Site on the Superfund NPL in 2018 and continues to coordinate cleanup activities with MDEQ. The PRP continues to clean up a wetland area east of the facility (known as the "Moose Lodge Road Area") under MDEQ's state voluntary cleanup program in coordination with the EPA. The PRP has continued work on improving the permeable reactive barrier and comprehensive groundwater monitoring at the facility to prevent contaminated groundwater from entering Riverdale Creek.

#### How did the Site get on the EPA's National Priority List (NPL)?

The EPA evaluated the Site using the Hazardous Ranking System (HRS), which ranks a site based on the potential for a site to pose a threat to human health or the environment. The HRS assigns scores to different exposure pathways such as exposure to groundwater, surface water, soil, outdoor air and indoor air. The scores assigned are based on three factors: 1) the chance that the site released hazardous substances into the environment; 2) the toxicity and amount of waste released; and 3) if people or sensitive environments are affected by the release. The scores for each pathway are combined to determine the overall site score. The EPA determined that the Rockwell site should be included on the NPL due to the potential for site contamination to enter indoor air at the site facility at unacceptable levels. Adding the site to the NPL allows EPA to conduct a full assessment of the risks to people and the environment and act to clean up the Site.

#### What has been cleaned up under RCRA?

Between 1994 and 2017, the facility completed cleanup activities at different source areas. These included collecting and removing the waste, groundwater and soil treatment, soil excavations and work to clean up the contamination of Riverdale Creek. These activities are included in detail in Figure 2 and Table 1 (next pages).



#### Figure 1: Area of Known Groundwater Contamination and Area of Current Investigation

#### Figure 2: Map Showing Where RCRA Cleanup Occurred<sup>1</sup>



<sup>&</sup>lt;sup>1</sup> Figure from the Comprehensive Study Area Groundwater Investigation Report. Grenada, Mississippi. Prepared for Meritor, Inc. March 2018

#### **Table 1: Historical Cleanup Activities Under RCRA**

| RCRA Area                                                                         | Date                                  | Cleanup Activity                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Former Landfill - (also referred<br>to as solid waste management<br>unit (SWMU) 3 | 1990 - 1994                           | Waste was excavated and disposed off-site, remaining soils were treated using soil vapor extraction (SVE) and used as backfill.                                                                                                                                                    |
| Process Sewer – SWMU 15                                                           | 1993                                  | Pipe between Chromium Destruction Sump and Wet Well properly abandoned. <sup>2</sup>                                                                                                                                                                                               |
| Former Above-Ground TCE<br>Storage Tank - Area of Concern<br>(AOC) A              | 1993-1996                             | Replaced tank in 1980s. TCE not used since 1992. Dense non-aqueous phase<br>liquid (DNAPL) was removed by a recovery system from 1993 to 1996. After<br>1996, DNAPL removed manually until 2006. Potential alternatives to address<br>remaining contamination are being evaluated. |
| Former Underground Toluene<br>Storage Tank - AOC B                                | 1993-1995                             | An automated recovery system operated to remove toluene from the area<br>and then it was removed manually. It is not possible to remove using a<br>vacuum due to low concentrations on the clay later at the water table (tank<br>was removed in 1988).                            |
| Equalization Lagoon - SWMU 2                                                      | 1994                                  | Closed by draining, collecting the sludge and covering it. The groundwater is monitored around the closed lagoon.                                                                                                                                                                  |
| Moose Lodge Remediation Area<br>Groundwater Contamination<br>(shallow zone)       | 1996-2012                             | 1996 bench test using in situ-chemical oxidation (ISCO). This involves injecting different types of salts (potassium permanganate in 2009/2010 and sodium permanganate in 2012) <sup>3</sup> to breakdown contamination in groundwater.                                            |
| Wet Well - SWMU 12                                                                | 1999, 2000,<br>2005, 2010<br>and 2015 | Cleaned and routinely maintained on a five-year cleaning schedule to remove wastewater from the process sewers (underground piping to transport wastes to the wet well).                                                                                                           |
| Chrome destruction sump -<br>SWMU 14                                              | 2002                                  | Removed all waste, backfilled and covered with concrete.                                                                                                                                                                                                                           |
| Wastewater Treatment Plant<br>(WWTP) - SWMU 13                                    | 2003                                  | No longer operational, no releases detected.                                                                                                                                                                                                                                       |
| Chrome Plating Line - SWMU 27                                                     | 2003                                  | Closed in place (under the building).                                                                                                                                                                                                                                              |
| Outfall ditch - SWMU 7                                                            | 2004                                  | Ditch was cleared and lined to separate it from shallow groundwater prior to installing the Permeable Reactive Barrier (PRB).                                                                                                                                                      |
| Site-wide Groundwater                                                             | 2004-2005                             | Installed a PRB that extends from about 5 feet above the water table to 50 to 60 feet below the ground surface to prevent discharge of contaminated groundwater to Riverdale Creek. The wall contains zero-valent iron (ZVI) to treat groundwater before it enters the creek.      |
| Moose Lodge Remediation Area<br>Soil Contamination                                | 2006                                  | Buffing compound and contaminated soils removed for off-site disposal                                                                                                                                                                                                              |
| Sludge Lagoon - SWMU4                                                             | 2010                                  | Sludge was collected and covered with a multilayer cap and groundwater monitoring is occurring.                                                                                                                                                                                    |
| Site-wide Groundwater                                                             | 2016-2017                             | Improved the effectiveness of the PRB. Installed enhanced reductive dechlorination (ERD) zone at the south end of the PRB to treat impacted groundwater using nutrients to breakdown contamination that may be bypassing the southern end of the PRB.                              |

<sup>&</sup>lt;sup>2</sup> Other sewer lines run beneath the building where further investigation is impractical while the facility is still in operation.

<sup>&</sup>lt;sup>3</sup> 2018 Comprehensive Study Area Groundwater Investigation Report indicates that details on the performance of the initial ISCO injection have been documented in a series of Quarterly Groundwater Monitoring Reports submitted to MDEQ from the First Quarter 2010 to present.

#### What is being done now that it is a Superfund site?

The EPA is conducting two types of Superfund response actions, short-term removal actions and longterm remedial actions. Removal actions are conducted when there is an immediate threat to human health or the environment. Remedial actions focus on the remaining contaminated parts of the Site that do not pose an urgent threat to public health or the environment. In general, remedial actions are more complex and take more time to select, design and carry out.

#### What removal actions are occurring at the Site?

There are two types of removal actions: time-critical removal action (TCRA) and a non-time-critical removal action (NTCRA), both of which are currently occurring at the Site.

• TCRA:

The EPA conducted a TCRA in December 2017 to restart the sub-slab depressurization system (Figure 3) at the facility to prevent vapors from below ground from entering the facility. This system will remain in place until the concentrations of contamination in the building air have been shown to be consistently below health-based risk levels for workers even when the system is not operating. This will likely require source material removal from under the facility.

• NTCRA:

The EPA and the PRP signed a legal agreement for a NTCRA in April 2019. Meritor is investigating different options to reduce the spread of contaminated groundwater at the Site. A pilot (test) system to pump



Figure 3: Sub-slab Depressurization System

and treat the contaminated groundwater is being installed as part of the investigation. The system is expected to begin operating in the Spring or Summer of 2020. The results from two months of operation will be incorporated into the Engineering Evaluation and Cost Analysis (EE/CA) Report. The EE/CA report will describe the effectiveness, feasibility and costs of each cleanup option. The EPA will choose the preferred cleanup option from the EE/CA and ask the public for input on this plan. The EPA considers all information/comments received before finalizing a cleanup decision. The EPA would need to sign a new agreement with Meritor to execute the cleanup action.

#### What remedial actions are occurring at the Site?

The EPA has started the remedial process to determine a long-term remedy (cleanup) for the Site. Currently we are in the investigation phase, called the Remedial Investigation (RI). During this phase more data is collected and evaluated for different areas of the Site, referred to as Operable Units (OUs). Operable Unit means an individual action that includes phased steps toward addressing all the site contamination. The EPA prioritized RI activities in the Eastern Heights community by establishing OU1, to address the pathways of exposure in this community. Additional individual OUs will be broken out from the larger Site to allow for a faster targeted cleanup. Next, a Feasibility Study (FS) is prepared. It identifies possible long-term remedial actions. The EPA expects the OU1 RI will be completed this year and will be followed by the FS. The EPA will publish a Proposed Plan describing the preferred cleanup option and ask the public for input on this plan. The final cleanup action selected will be more fully documented in a Record of Decision (ROD). The cleanup then moves to the design phase and is then implemented. The EPA will follow a similar process for other portions of the Site, until the entire Site has been fully addressed.

#### When EPA is sampling what are you looking for and how do you know where to sample?

The purpose of sampling is to identify where facility-related contamination is present. Sampling usually occurs in phases starting where contaminants may have been released from a facility based on its operations and disposal practices. Once the original source of contamination is found, more samples are collected to see how far the contamination has spread. Sampling continues until the boundary of the contamination is known.

#### How do you know what to analyze for in the samples?

The samples are analyzed for contaminants that were known or suspected to be released from the facility's operations. The facility generated a variety of wastes that included paint waste, solvents such as TCE, sludge and electroplating waste containing metals and waste oil among other wastes. To ensure no contaminant was overlooked, the EPA initially analyzes samples for all 126 priority pollutants which includes heavy metals and specific organic (carbon-containing) chemicals. Based on the initial results, follow-up sampling usually focuses on a shorter list to include those contaminants that were detected.

#### How did the TCE groundwater contamination happen?

TCE was released to the ground where it traveled down through the soil and dissolved in the groundwater. The groundwater in this area generally flows towards Riverdale Creek and as it flows it carries the dissolved TCE with it slowly spreading out through the soil (like a sponge). The size of the groundwater contamination area, or plume, can grow if the source of contamination is not addressed, otherwise it shrinks by natural breakdown over time. The groundwater contamination area gets smaller faster if the source is cleaned up. Currently TCE releases to the ground have been documented to have occurred at the Facility and at the former disposal areas.

#### What is a conceptual site model?

The conceptual site model (CSM) is an important tool used by the EPA to understand the story of how the site has become contaminated and how the contamination moves in the surrounding environment and potentially exposes people or wildlife. The CSM usually is written in a cartoon-like presentation (Figure 4) that identifies:

- Contaminant sources areas at the facility or waste disposal locations that may have released contaminants to the soil, groundwater, surface water, or air
- Migration pathways describes the way contaminants move from a spill or release to nearby receptors
- Receptors are the people or wildlife that could come in contact with the contamination
- Exposure pathways describes the way that a contaminant can enter bodies of people or wildlife (e.g., ingestion, skin contact, or breathing contaminated air).

The CSM for the site provides the EPA with a research-based picture to see where sampling is needed and

where remedial action may be required. As data is collected, the CSM is updated to help the EPA narrow in on where remedial decisions need to be made.



Figure 4: Example of a CSM

#### **Risk Assessment**

#### What is a risk assessment?

A process used to identify hazards that have the potential to cause harm. For a cleanup to occur, the risk assessment must identify unacceptable risk. Risk is calculated using guidance documents along with site and community-specific information. The risk assessment is part of the RI and FS Reports.

#### Where are the hazards at the Site?

Contaminated groundwater is between 25 and 60 feet below ground surface. Subsurface soil is contaminated on the facility property. The EPA continues to investigate whether other contaminated areas exist.

#### Why am I currently safe from the contamination?

The EPA evaluated whether a person, such as a resident or worker, could come in contact with any unacceptable levels of contamination at the Site. This could be through direct contact such as touching something contaminated, eating something contaminated (dirt), drinking contaminated water or inhaling contaminated vapors. Soils were sampled across the southern half of the Eastern Heights community and did not identify any soil contamination from the site. The groundwater below Eastern Heights has unacceptable levels of contamination. The EPA has not found TCE in indoor air above levels that require further action in any home. The groundwater is 25-60 feet below ground surface and no one is coming in contact with it. Grenada County Public Water Authority supplies water to all homes in Eastern Heights. That means that the water used from the pipes in your home, comes from Grenada County Public Water

Authority and is treated and tested to ensure it is safe to drink. The drinking water is required to be regularly tested, and the sources supplying the Eastern Heights neighborhood have not had a health-based violation in years. The EPA prepared a fact sheet in June 2016 for the community that answers this question in more detail and is located at: <u>https://www.epa.gov/grenadacleanup/information-about-your-tap-water-eastern-heights-grenada-mississippi</u>

## What is the difference between EPA's risk assessment and the Agency for Toxic Substances and Disease Registry's (ATSDR) public health assessment?

The EPA's risk assessment focuses on current and potential future exposure to site contamination to determine where cleanup is needed. It considers all contaminated media (e.g., soil, water, air etc.).

ATSDR's public health assessment focuses on current site-specific exposure conditions, specific community health concerns, and available health data. The public health assessment identifies possible harmful exposure to contamination and recommends actions needed to protect current public health. ATSDR also evaluates public health data to determine if rates of disease or death are higher in a site community.

#### Can vegetables grown in my garden take up TCE?

Gardening in soils overlying the TCE-contaminated groundwater is not a concern because plant uptake of nutrients occurs through watering, and the water source is not the TCE-contaminated groundwater. Any TCE in soil vapors overlying shallow groundwater will rapidly volatilize and will not be available for uptake by plants. In addition, Eastern Heights tap water meets safe drinking water standards for human consumption. Soil contamination related to the Site is limited to the industrial facility where contaminants were released or spilled, so gardening with tap water and soil should not be adversely affected by site contamination.

#### **Vapor Intrusion**

#### What is vapor intrusion?

The movement of vapors from any source below ground surface (deep soil, groundwater, waste) into a building above. Figure 5 shows how contamination can move into indoor air through vapor intrusion.

## What are <u>other</u> ways chemicals can get into my house or workplace?

Some chemicals are released from indoor sources. These include household solvents, cleaning products, gasoline and dry cleaning, to name a few. Chemicals can also come in from outdoor air, such as exhaust from a garage or carport vent. All these other sources can complicate the evaluation of vapor intrusion.

#### How can you reduce vapor intrusion?



Figure 5: Movement of soil and groundwater vapors to indoor air

A mitigation system can be installed to prevent vapors from entering a building from below ground sources and vent to outside and/or treat the vapors. This is the reason the system was installed at the facility. The EPA has not found TCE in the indoor air above levels that would require further action in any home.

#### Glossary of Terms

- Agency for Toxic Substances and Disease Registry (ATSDR) A federal health agency that protects communities from harmful health effects related to natural and man-made hazardous substances.
- Chromium A heavy metal used in the electroplating operations. There are two types, hexavalent and trivalent chromium. Hexavalent chromium is toxic if inhaled or ingested, while trivalent chromium is a trace mineral that is essential to human nutrition. Hexavalent chromium has been shown to cause cancer if inhaled at unacceptable levels.
- Dense Non-Aqueous Phase Liquid (DNAPL) A liquid contaminant that is heavier than water and does not dissolve easily in water. Since DNAPLs are heavier than water, they will sink to the bottom of the water column.
- Engineering Evaluation and Cost Analysis (EE/CA) A report that is completed for all NTCRAs. The EE/CA identifies the objectives of the removal action and evaluates the different options to satisfy these objectives. The recommended option is based on how effective it is, how quickly it can be started and costs.
- Enhanced Reductive Dechlorination (ERD) Injection of nutrients into the subsurface to encourage breakdown of contaminants by naturally occurring bacteria (biodegradation). Substances may include molasses or vegetable oil or additional bacteria.
- In-situ Chemical Oxidation Injection of a chemical oxidant such as potassium permanganate or sodium permanganate into the groundwater to break down trichloroethylene (TCE).
- Mississippi Department of Environmental Quality (MDEQ) The state regulatory agency responsible for protecting the state's air, land and water.
- National Priorities List (NPL) EPA's list of hazardous waste sites in the United States eligible for long-term cleanup financed under the federal Superfund program.
- Natural Attenuation A process of contamination naturally breaking down under natural conditions.
- Non-Time-Critical Removal Action (NTCRA) EPA's short-term response to a release requiring action that can start later than 6 months after the determination that a response is needed.
- Permeable Reactive Barrier (PRB) A subsurface wall that cleans up water as it flows through it. The reactive materials that make up the wall either trap harmful contaminants or make them less harmful.
- Potassium and sodium permanganate Salts used to create a reaction (oxidation) that breaks down TCE.
- Resource Conservation and Recovery Act (RCRA) The nation's primary law governing the generation, transportation, treatment, storage and disposal of hazardous and nonhazardous solid waste at operational facilities.
- Risk Assessment A process used to: identify hazards that have the potential to cause harm; and analyze and evaluate the risk associated with that hazard.

#### **Glossary of Terms (continued)**

- Soil Vapor Extraction (SVE) A treatment process that removes volatile organic vapors from the below ground soils through a vacuum process followed by treatment above ground before being released to the air.
- Sub-slab depressurization system A system below a building's foundation designed to draw up TCE vapors out of the ground through an enclosed pipe, into a carbon filter that treats the air and then releases the treated air to the outside.
- Superfund EPA's Superfund program is responsible for cleaning up some of the nation's most contaminated land and responding to environmental emergencies, oil spills and natural disasters.
- Time-Critical Removal Action (TCRA) EPA's short-term response to a release requiring action within 6 months after the determination that a response is needed.
- Toluene Used as a solvent during wheel cover manufacturing and chrome plating operations and has been shown to have non-cancerous health effect on people.
- Trichloroethylene (TCE) Used as a solvent during wheel cover manufacturing and chrome plating operations and has been shown to be cause cancer in people.
- U.S. Environmental Protection Agency (EPA) A federal agency with a mission to protect human health and the environment.
- Vinyl chloride A breakdown product (daughter product) of TCE that has been shown to cause cancer in people.

Zero-Valent Iron (ZVI) – Injection of iron into the subsurface to remove the chlorine from the TCE to form less toxic TCE breakdown products (daughter products) such as ethene and ethane.