FINAL DECISION

for

Proposed Soil, Soil Gas and Groundwater Cleanup

Prairie Ronde Realty
(Former National Copper Products)
Dowagiac, MI

EPA I.D. No. MID 005 068 507

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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July 2015

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INTRODUCTION

The U.S. Environmental Protection Agency (EPA), Region 5, presents this Final Decision, which identifies the final remedies selected for the Prairie Ronde Realty facility in Dowagiac, Michigan pursuant to the Resource Conservation and Recovery Act (RCRA) Section 3008(h). Included in this Final Decision is a summary of the final selected remedies, interim remedial measures taken at the facility, the investigations completed, and the public participation activities. Additional details relating to the facility conditions, the measures taken and all the alternatives considered are available in the Statement of Basis (Attachment I) issued by EPA in May 2015. Prior to issuing this Final Decision, EPA presented the Statement of Basis to the public and stakeholders for review and comment from May 7, 2015 – June 22, 2015. EPA did not receive any comments on the proposed remedy presented in the Statement of Basis and presents the final selected remedies in this document.

SELECTED REMEDIES

EPA is selecting the following remedies to address contamination at the Prairie Ronde Realty (PRR) facility. Additional detail on each remedy can be found in the *Summary of Alternatives* section of the Statement of Basis, on page 27.

1) *Groundwater Pump and Treat*: The existing groundwater pump and treat system that has been in operation since 1985 will remain in operation for the purpose of maintaining an inward groundwater gradient and treatment of contamination until such time when intermediate remedial groundwater goals are achieved and sustained. The inward gradient will contain the existing chlorinated solvents groundwater plume and prevent further migration while continued extraction and treatment of the chlorinated solvents occur. The intermediate groundwater remedial goal is the Michigan Part 201[1] Groundwater/Surface Water Interface (GSI) standard developed to prevent groundwater contamination from creating unacceptable impacts when it migrates to surface waters. Long-term groundwater remedial goals are the EPA

[1] http://www7.dleg.state.mi.us/orr/AdminCode.aspx?AdminCode=Department&Dpt=EQ&Level_1=Remediation+and+Redevelopment+Division

Maximum Contaminant Levels (MCLs)[2]. For additional details regarding the groundwater contamination and screening levels, see the *Investigation Results Section* of the Statement of Basis.

2) *Enhanced Reductive Dechlorination (ERD)*: The on-going pilot study involving anaerobic biodegradation of contamination in the groundwater will be expanded as a full-scale final remedy. The successful pilot study has included an ERD mixture of lactates, fatty acids, a phosphate buffer, and zero-valent iron that can successfully treat and reduce the concentrations of trichloroethene (TCE) and its degradation by-products contained in the facility's groundwater through a combination of dechlorination and bioremediation. The ERD is designed to help achieve long-term groundwater remedial goals.

3) *Bioaugmentation (as needed)*: As a component of the ERD technology, the native bacterial colonies responsible for the reduction of contamination, called Dehalococcoides (DHC), will be monitored. These are the naturally-occurring organisms responsible for the bioremediation of the chlorinated solvents. Their presence is necessary to complete the reactions that reduce the contaminants. When necessary, bioaugmentation (the addition of native bacterial cultures required to increase the rate of degradation of contamination) will be conducted as part of the ERD to enhance or repopulate the bacteria.

4) *On-Site & Off-Site Sub-slab Depressurization Systems (SSDS)*: The current SSDS installed under the commercial building located on-site will continue to operate until soil gas remedial goals are achieved to protect workers from potential vapor intrusion and demonstrate sufficient mass reduction protective of human health and cross-media contamination. The long-term goal of the SSDS is to remediate the vadose zone soils beneath the building until they no longer serve as an unacceptable source to either groundwater or soil gas. Until such time, the SSDS will continue to serve as an effective vapor barrier to protect indoor air. The system will be subject to optimization measures, including potential expansions, as it is evaluated through time. The SSDS currently in place at one downgradient residence will continue to operate. Although the soil gas investigations have not demonstrated indoor air impacts in the off-site residential properties, EPA is proposing SSDSs be installed at 10 residential properties as a component of a protective final remedy. The soil gas within the residential area continues to demonstrate high concentrations of TCE. This proposed remedy protects residents from the contaminated soil gas should the vapor intrusion pathway become complete in the future.

5) *Monitored Natural Attenuation (MNA)*: Groundwater MNA will augment the engineered remedies described above in order to achieve the long-term remedial groundwater goals, MCLs. The MNA program will evaluate whether natural processes will lead to sufficient further reductions of chlorinated solvents after the highest levels of contamination have been removed through extraction and/or treatment. MNA will consist of specific monitoring parameters conducted on a

[2] http://water.epa.gov/drink/contaminants/

regular basis, as defined in the Corrective Action Monitoring Plan (CAMP). The CAMP is a multi-media monitoring program with various points of compliance and potential receptors of interest. It will be implemented to monitor the progress of remediation and confirm the attainment of remedial goals. Parameters may include, but are not limited to: constituent concentrations, geochemical indicators, microbial communities, and microbial functional genes. These types of parameters will demonstrate the rate and success of MNA. The CAMP will be submitted as part of the remedy implementation work plan.

6) *Institutional Controls (ICs)*: The existing deed restriction on the PRR property will be maintained and upgraded as necessary to ensure the facility's land use remains commercial or industrial in the future and groundwater is prohibited for potable use (*see* Attachment 3 of attached Statement of Basis). Off-site properties within the City of Dowagiac are currently protected by an Ordinance that prohibits the use of groundwater wells for new construction. A new or revised Ordinance will be pursued that would restrict groundwater use within a restricted zone near the PRR property consistent with MDEQ guidance. EPA will require a re-certification process at regular intervals to ensure ICs are being appropriately applied and maintained.

7) *Financial Assurance*: Prairie Ronde Realty must demonstrate a financial ability to complete the proposed remedy and long-term monitoring by securing an appropriate financial instrument.

8) *Five-year Remedy Reviews*: The Agency proposes five-year remedy reviews as a means to update the conceptual site model and determine whether or not remedial actions are obtaining the stated remedial goals. These reviews provide information and data for necessary system adjustments to account for remedy efficacy and efficiency of the corrective measures.

FACILITY BACKGROUND

The Prairie Ronde Realty (PRR) site is a former copper tubing facility located in Dowagiac, Michigan. Dowagiac is located in Cass County, in the southwestern portion of the State of Michigan. PRR is subject to corrective action because they are the owner of a facility that operated under interim status subject to Section 3005(e) of RCRA. As such, the facility managed certain wastes or constituents that are hazardous pursuant to Sections 1004(5) and 3001 of RCRA and 40 C.F.R Part 261. Whenever EPA determines that there is or has been a release of hazardous waste into the environment from a facility authorized to operate under section 3005(e) of this subtitle, the EPA may issue an order requiring corrective action or such other response measure as deemed necessary to protect human health or the environment. EPA issued an Administrative Order on Consent on June 2, 2006. Pursuant to that Order, the selected final remedies presented in this document will protect human health and the environment.

A full description of the facility's history, hydrogeological and ecological settings can be found in the attached Statement of Basis, pages 5-7.

INTERIM REMEDIAL MEASURES

Interim measures have been implemented at the Facility to mitigate risks and reduce further migration of contamination. These actions have been consistent with the long-term remedial strategy at the site and are consistent with the selected final remedies presented in this document. Interim measures have included: contaminated soil excavation and off-site disposal, a groundwater pump and treat system, soil vapor extraction and air sparging, sub-slab depressurization systems, and enhanced reductive de-chlorination pilot studies. These interim measures have collectively removed an estimated 6,642 cubic yards of metals-contaminated soil and 225,890 pounds of TCE from groundwater and soil. Details of each interim measure can be found in the attached Statement of Basis, pages 7-10.

INVESTIGATION

The facility investigations included data collection from soil, soil gas, indoor air, groundwater, surface water, and sediment. Samples were collected from both on-site and off-site. Sampling data obtained during the facility investigations were first compared to screening criteria to determine if contaminants of concern were present at concentrations necessitating evaluation. Those contaminants detected at or above the applicable screening criteria were then evaluated in two ways: a human health risk assessment, used to help identify where risks to people might be unacceptable, and an ecological risk assessment, used to help identify where risks to wildlife or other ecological receptors might be unacceptable. Where risks are identified as potentially unacceptable to either current or potential future receptors, a risk management decision is required to mitigate or eliminate that risk in accordance with the criteria below.

The human health risk assessment used the cleanup criteria for soil and groundwater developed by the MDEQ pursuant to Part 201 (soil and groundwater) and Part 31 (surface water) of Public Act 451 of 1994 (as amended) as screening criteria. These criteria incorporate toxicity assessments developed by the EPA in the Integrated Risk Information System and by the MDEQ. The human health risk evaluation was based on an excess lifetime cancer risk of 1 in 100,000, or $1x10^5$, and a hazard quotient of 1 for non-carcinogenic compounds, as set forth in the regulations[3]. The Part 201 criteria include available Maximum Contaminant Levels (MCLs) from the Federal Safe Drinking Water Act.

Risks associated with inhalation of residential and industrial indoor air were evaluated after the human health risk assessment was completed. The indoor air risks were screened using the EPA's Regional Screening Levels (RSLs). The RSLs also use EPA's toxicity assessments from IRIS, an excess lifetime cancer risk of 1×10^{-5} for carcinogens, and a hazard quotient of 1 for non-carcinogenic chemicals.

The ecological risk assessment used Soils Screening Levels (SSLs) established by EPA. EPA Region 5 Ecological Screening Levels (ESLs) were used if SSLs were not available. The ecological screening levels for surface water are the lower of the State of Michigan's Part 31 Water Quality Values or EPA Region 5's ESLs. The Water Quality Values are developed by the State under authority of the Federal Clean Water Act and Part 31 of Michigan Public Act 451 of

[3] http://www.epa.gov/epawaste/hazard/correctiveaction/resources/guidance/anpr.htm

1994, as amended. The State develops water quality values for protection of aquatic life (chronic toxicity), wildlife and human health. The values for protection of wildlife and aquatic life were used as ecological screening levels for the ecological risk assessments.

The attached Statement of Basis summarizes the investigation data, the human health risk assessment approach and conclusions, and the ecological risk assessment approach and conclusions, pages 10-25. The risk management decisions made as a result of those assessments are the final selected remedies presented in this document and are designed to be protective of human health and the environment.

SCOPE OF CORRECTIVE ACTION

The proposed final remedies and associated remedial goals are designed to protect human health and the environment by mitigating risk to current and potential future receptors. Additional detail regarding the remedial goals can be found in the attached Statement of Basis on pages 25-27, but in general the remedial strategy is designed to accomplish the following:

- Protect downgradient surface water bodies by assuring that the points of compliance, established by EPA, meet the GSI criteria through the operation of the existing pump and treat system.
- Address the contamination in deeper source areas by using in-situ mechanisms, such as ERD and bioaugmentation, to treat VOCs.
- Address the contamination in the shallower source areas that present vapor intrusion risks through the operation of SSDSs at the on-site building and nearby residences.
- Protect current and potential future receptors from exposures to groundwater or soil that present unacceptable risks through institutional controls.

PUBLIC PARTICIPATION ACTIVITIES

Detailed summaries of each remedial alternative was presented and evaluated using EPA's threshold and balancing criteria on pages 34-39 of the attached Statement of Basis. The proposed remedies presented in the Statement of Basis were available for comment during the public comment period. Prior to the public comment period, EPA provided the community and stakeholders with a fact sheet to inform them of the proposed remedy within the Statement of Basis. An availability session was also hosted by EPA at the facility for community members to discuss the proposed remedy. The public comment period took place from May 7 – June 22, 2015.

EPA did not receive any comments or questions regarding the proposed remedy during the public comment period. The proposed remedy will be implemented as the final remedy as accepted by stakeholders.

The EPA administrative record is available at the following locations (please call for hours):

U.S. EPA, Region 5
7th Floor Record Center
77 West Jackson Blvd.
Chicago, IL 60604
(312) 886-4253

Dowagiac District Library
211 Commercial St.
Dowagiac, MI
(269) 782-3826

DECLARATION

Based on the information in this Final Decision and the Administrative Record compiled for this corrective action site, the EPA has determined that the selected remedies at the Prairie Ronde Realty site are appropriate and will be protective of human health and the environment.

Date: July 9, 2015

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U.S. Environmental Protection Agency,
Region 5