State of Minnesota
Minnesota Pollution Control Agency

MINNESOTA DECISION DOCUMENT

Pursuant to the Minnesota Environmental Response and Liability Act (MERLA), Minn. Stat. § 115B.01 to 115B.24 (2026).

I. SITE DESCRIPTION

Main Street Solvent Plume
317/321 Main Street
Biwabik, MN 55708

II. STATEMENT OF PURPOSE

This Minnesota Decision Document (MDD) presents the selected remedial action and cleanup levels for the Main Street Solvent Plume (Site) and summarizes the facts and determinations made by the Minnesota Pollution Control Agency (MPCA) staff in approving the recommended response action alternative.

The response actions were designed to reduce the contaminant concentrations in accessible soils to levels that are protective of human health.

The MPCA Commissioner or their delegate has determined that the response actions set forth in this MDD are reasonable and necessary to protect the public health and welfare and the environment from the release and threatened release of hazardous substances and/or pollutants and contaminants from the Site.

III. DESCRIPTION OF PROBLEM

A. Site History

In October 2001 and February 2002, during an investigation of three petroleum leak sites located in the general vicinity of 317/321 Main Street, the MPCA identified the chlorinated volatile organic compound (CVOC) tetrachloroethylene (PCE) in groundwater at concentrations up to 530 micrograms per liter (µg/L). While no definitive release location was identified, impacts to groundwater appeared to originate at or near 317/321 Main Street. A Responsible Party was not identified for the release. The Site was listed on the Minnesota Permanent List of Priorities (PLP) in 2013 and assigned Site ID SR0001281.

Prior uses of 317/321 Main Street included a photoshop, hardware and furniture store, and an auto garage. The property is currently occupied with a multi-tenant commercial building housing a grocery store and the Biwabik City Hall. A parking lot is located east of the building.

B. Remedial Investigation

The MPCA Site Assessment and Site Remediation Programs conducted a limited Phase I environmental site investigation in 2009 and conducted a subsurface investigation from 2012 to 2013 to identify potential sources of CVOC contamination. The subsurface investigation included multiple probes and soil gas points for the collection of groundwater, soil, and soil vapor. Additional site investigations were completed in fiscal years 2014 and 2015 to further evaluate the extent of CVOC impacts to soil, soil vapor, and indoor air.

In response to lower groundwater elevations caused by dewatering conducted at nearby mining operations, the MPCA installed deeper monitoring wells at the Site from 2016 through 2023. The current monitoring well network has been sampled annually or biannually since 2016.

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i. Soil Analytical Data for Superfund Contaminants of Concern

Twenty-six soil samples were collected from seven borings advanced in 2012 (SB-1 through SB-6 and SB-8) and five borings advanced in 2015 (GP-1 through GP-5). Soil borings were located within the parking lot east of 317/321 Main Street, except for one soil boring (SB-8), which was located south of Main Street. Analytical results did not identify CVOC concentrations above applicable soil reference values (SRVs).

ii. Groundwater Analytical Data

Four temporary wells were constructed in 2012 to delineate groundwater impacts to the south and east (downgradient) of 317/321 Main Street. Results were consistent with the petroleum leak site investigations taken previously on nearby properties and indicated the surficial aquifer was impacted with CVOCs.

In 2015 and 2016, five permanent monitoring wells (MW-1, MW-2, MW-2D, MW-3, MW-4) were installed; however, only MW-2D was screened below the water table. It was later determined that dewatering activities at nearby mining operations caused lower groundwater elevations than those identified during the petroleum investigations in the early 2000s. The depth to groundwater changed from approximately 40 feet below ground surface (bgs) during the petroleum investigation timeframe to approximately 50 to 60 feet bgs after the dewatering activities. The dry monitoring wells (MW-1, MW-2, MW-3, MW-4) remain present onsite and will be sealed and abandoned following site closure. The monitoring well network was expanded in 2018 (MW-5D, MW-6D), 2019 (MW-7D), and 2023 (MW-8D) with a deeper network of wells.

Groundwater generally flows to the south or southeast towards Embarrass Lake.

Groundwater contaminants of concern (COCs) at the Site are PCE, and its degradation product, trichloroethylene (TCE). The COC concentrations above Minnesota Department of Health (MDH) health risk limits (HRLs) were initially detected at monitoring well MW-2D (source well) in 2015 and to a lesser extent, at MW-5D (upgradient well), in 2018. The three downgradient monitoring wells, MW-6D, MW-7D, and MW-8D have no recorded exceedances of HRLs in groundwater.

Review of cumulative data from 2015 to 2025 indicates the groundwater plume is stable laterally; however, an increasing trend has been observed in MW-2D (source well) during the same time period. Notably, the maximum concentrations of PCE and TCE at MW-2D are less than those observed during the petroleum investigations in the early 2000s from a shallow monitoring well (MW99-3S) constructed at the same location. The increasing trend at MW-2D may be a result of lower groundwater elevations allowing CVOCs to leach from impacted soils and migrate vertically into the lower portion of the aquifer screened by the deeper monitoring well.

iii. Vapor Intrusion Assessment

The contaminant types present, along with land use and zoning in the immediate area (commercial and mixed use) around the Site, indicate vapor intrusion risks are low.

A passive soil gas survey was completed in February 2012. The results did not identify a significant source area, but two low-level soil gas detections corresponded to the higher groundwater concentrations identified east of City Hall. Six soil gas samples were collected in March 2012 and five sub-slab points were installed in January 2013. No exceedances of the MPCA's vapor intrusion screening values (ISVs) were identified from the soil gas or sub-slab samples.

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A second passive soil gas survey was completed in May 2015. Similar to the 2012 soil gas survey, no source area was conclusively identified. Indoor air sampling was completed within the grocery store and City Hall (317/321 Main Street), former sports café (301 Main Street), and Fire Hall (105 3rd Avenue North) to evaluate risk of vapor intrusion. Seven additional vapor probes were advanced in April 2015. Soil vapor and indoor air results did not exceed ISVs during the 2015 investigations.

The vapor investigation expanded in November 2018 to include sub-slab soil gas sampling at the Biwabik Pub (217 Main Street) and American Bank (221 Main Street) in addition to fourteen soil vapor probes. Soil vapor probes did not exceed ISVs; however, one sub-slab soil gas location at 217 Main Street exceeded ISV criteria for PCE in May 2019. The exceedance was confirmed during a November 2020 sampling event, and the property owner was notified of the exceedance and the need to install active vapor mitigation for the commercial building.

Four soil vapor probes were completed in June 2020 along Main Street, between 2nd and 4th Avenue, to assess potential soil vapor migration along a utility corridor. The probes were below ISV criteria.

Nine soil vapor probes were completed in June 2022 as a second seasonal (non-heating) event to complete the delineation of the soil vapor area of concern. The probes were below ISV criteria, and the vapor area of concern was considered fully delineated.

IV. DOCUMENTS REVIEWED

The MPCA based its remedial action decision on the files, records and proceedings of the MPCA including, but not limited to, the following formal reports. These Site Documents describe the Site conditions and characteristics, evaluated selected alternatives, and describe the effectiveness and cost analysis of various response actions for the Site:

03/13/2009	Limited Phase I Environmental Site Assessment
09/01/2013	Assessment Report
10/02/2014	Fiscal Year 2015 Technical Memorandum
06/15/2015	Investigation Report
05/31/2017	Fiscal Year 2017 Site Investigation and Hydrogeologic Investigation
06/30/2022	Fiscal Year 2022 Soil Vapor Investigation Activities
06/30/2023	Annual Monitoring Report
06/30/2025	Annual Monitoring Report

V. DESCRIPTION OF RESPONSE ACTIONS ALREADY COMPLETED

There have been no response actions implemented for this Site.

VI. EVALUATION OF RESPONSE ACTION ALTERNATIVES

The MPCA has determined that no action/natural attenuation is an appropriate and feasible response action that will be protective of human health and the environment at the Site.

VII. ESTABLISHMENT OF RESPONSE ACTION OBJECTIVES

A. Site Risk Exposure Pathways

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i. Soil

Analytical results did not identify CVOC concentrations above soil reference values. Due to the absence of impacted soil, no risk of exposure is present at the Site.

ii. Groundwater

A groundwater receptor survey for the Site was completed as part of an annual monitoring report dated June 30, 2019. The receptor survey included a review of registered wells located within one-half mile of the Site by searching the Minnesota Well Index database. Additionally, a well-receptor survey was mailed or handed out to residential and commercial properties located within one-half mile of the Site, with a focus on properties located within 500 feet. The receptor survey asked if a specific property had a well and/or used public water. Of the 162 letters sent or provided within the survey area, 42 were returned.

No groundwater receptors were identified from the online review of registered wells or from the well-receptor survey. Due to the absence of receptors (no wells within or near the plume) and the availability of municipal water supply, there is no known risk of exposure to contaminated drinking water. Furthermore, data indicates the existing groundwater plume is stable and the extent and magnitude have been delineated.

iii. Soil Vapor

Soil vapor investigations identified one commercial property (217 Main Street) where elevated soil gas concentrations were present below the building. The MPCA could not conclusively determine if the vapor exceedance at 217 Main Street was related to the release at or near 317/321 Main Street due to the location and magnitude of the exceedance; however, in a letter dated February 1, 2021, the property owner was notified of the exceedance and the need to mitigate the commercial building.

No other vapor intrusion pathways were identified, and the vapor area of concern has been adequately defined.

B. Response Action Objectives

Response action objectives are developed by the MPCA to minimize human exposure risk through Applicable or Relevant and Appropriate Requirements (ARARs). The ARARs are based on soil, soil vapor, and groundwater analytical data collected during Site investigations. The primary ARAR considered by the MPCA in selecting a response action for the Site is:

- Minnesota Department of Health (MDH) Health Risk Limits (HRLs).

The MPCA also considered:

- MPCA Soil Reference Values (SRVs).
- MPCA Soil Vapor Intrusion Screening Values (ISVs)

The objectives for natural attenuation at the Site are:

- Prevent exposure of CVOC contaminated groundwater above HRLs by ensuring the contaminant groundwater plume has stabilized or is shrinking and will not impact drinking water supplies.
- Prevent or mitigate exposure of CVOC vapors to residential and commercial building occupants.

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VIII. DESCRIPTION OF SELECTED RESPONSE ACTIONS

The MPCA has determined that no action/natural attenuation is the appropriate response action for the Site. To implement the selected response action, the MPCA will seal and abandon the monitoring well network at the Site. The selected response action meets the response action objectives by relying on natural attenuation to degrade the COCs. Natural attenuation is a proven method that can meet ARARs for Site COCs and is often used when a concentrated source area has not been identified. The owner of the building at 217 Main Street has been notified of the exceedance at 217 Main Street, their responsibility to address the vapor intrusion risk at that property, and the need for installation of a vapor mitigation system. The response action will not disrupt the Site or neighboring properties and is protective of human health and the environment.

IX. RESPONSIVENESS SUMMARY

Pursuant to Minn. Stat. § 115B.17, subd. 2b (2026), the MPCA issued a public notice regarding the proposed response action. The notice was published in the Mesabi Tribune newspaper on June 5, 2026, and comments were accepted until July 6, 2026.

X. STATUTORY DETERMINATIONS

The selected response actions are consistent with the Minnesota Environmental Response and Liability Act, Minn. Stat. §§ 115B.01 to 115B.24 (MERLA) and are not inconsistent with the Federal Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S. Code § 9601(5) et seq (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR, pt. 300.

By typing/signing my name below I have determined the selected response actions are protective of public health and welfare and the environment.

Director, Remediation Division

Signature: _____

(This document has been electronically signed.)

Date: _____

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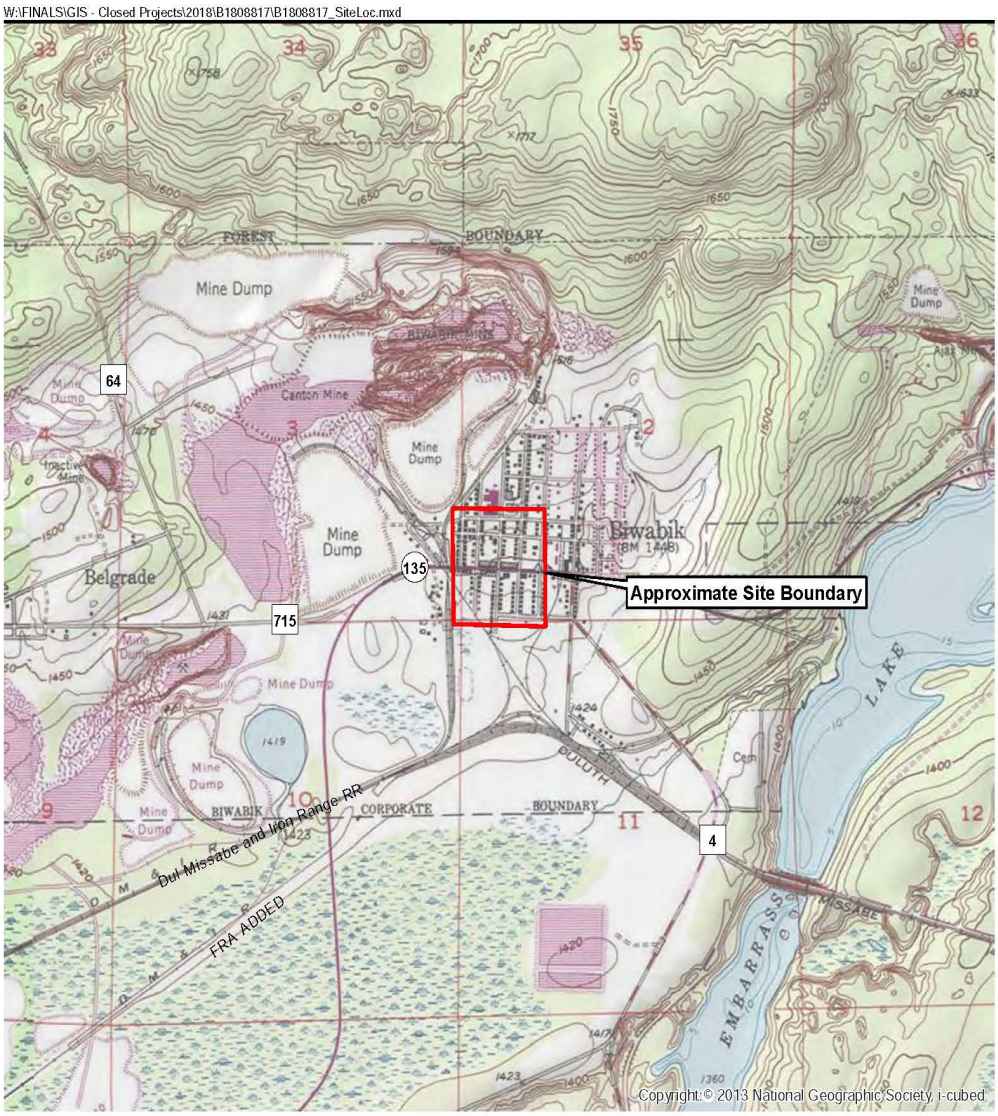
ATTACHMENT 1

Site Location Map



Approximate Site Boundary

Data Source:
USGS Quadrangle

N

0 1,000 2,000
Feet

BRAUN INTERTEC
The Science You Build On.
11001 Hampshire Avenue S.
Minneapolis, MN 55438
952.995.2000
braunintertec.com

Project No:	B1808817
Drawing No:	B1808817_SiteLoc
Drawn By:	FER
Date Drawn:	2/18/2019
Checked By:	STJ
Last Modified:	6/24/2019

Main Street Solvent Plume - SR1281

Main Street

Biwabik, Minnesota

Site Location Map

Figure 1

ATTACHMENT 2

Soil Vapor and Groundwater Investigation Locations

BRAUN INTERTEC
The Science You Build On.

11001 Hampshire Avenue S
Minneapolis, MN 55438
952.995.2000
braunintertec.com

Drawing Information

Project No:	B1808817.05
Drawing No:	B1808817.05
Drawn By:	SL
Drawn Drawn:	6/14/2023
Checked By:	BJ
Last Modified:	6/15/2023

Project Information

Main Street Solvent Plume & Biwabik Laundry Sites

Main Street

Biwabik, Minnesota

Investigation Locations

Figure 2