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 (2017).

I. SITE DESCRIPTION

Bulinski Point Superfund Site
West Shagawa Road
Ely, Minnesota 55731

II. STATEMENT OF PURPOSE

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

The MPCA Commissioner or his 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

The site consists of six residential properties located near the city of Ely on the southern portion of a peninsula on Shagawa Lake known as Bulinski Point.

In May of 2002, tetrachloroethene (PCE) was detected in groundwater samples collected from 1933 and 1925 West Shagawa Road private wells. The samples were collected as part of a leaking underground storage tank investigation for a petroleum release. During follow up sampling, 1936 West Shagawa Road was also found to have PCE in its well. Trichloroethene (TCE) was not detected in the initial sampling events, but has since been detected in the wells at 1925 and 1933 West Shagawa Road. All three residential wells were fitted with granular activated carbon (GAC) filtration systems in 2003.

Minnesota Pollution Control Agency staff conducted investigations in 2002 and 2003 to determine the source of the PCE in the groundwater. Former property owners at 1936 West Shagawa Road had discovered plastic barrels labeled “perchloroethylene” and containing a tarry residue in a wooded low-lying area near the property. The barrels were reportedly left there after the former owners, who operated a dry cleaning facility in Ely, sold the property. The barrels and other debris were removed by the former owners and hauled to a landfill.

Since the GAC installations in 2003, the MPCA has been monitoring the drinking water wells and operating and maintaining the GAC filters at the above three properties. In addition, the drinking water well located at 1932 West Shagawa Road has been sampled at least once annually since 2012 and the residences at 1950 and 1951 West Shagawa Road have been sampled in 2013 and 2018. Treated water concentrations

have remained below Minnesota Department of Health (MDH) drinking water standards and laboratory reporting limits since GAC systems were installed. Contaminants have also not been detected at the three residences without GACs. Vapor intrusion investigations were conducted at the 1925, 1932, and 1936 properties during at least two seasons. The property at 1933 West Shagawa Road has had one seasonal sampling event due to rescinded access. The sampling results do not show a vapor intrusion risk.

The site was listed on the Permanent List of Priorities (PLP)/ State Superfund list in February, 2014.

a. Remedial Investigation

I. Soil Analytical Data for Superfund Contaminants of Concern

PCE impacts to the soil were primarily limited to the source area at the junction of West Shagawa Road and the driveway to the residence at 1936 West Shagawa Road. Soil samples were collected from the source and surrounding area in 2005 to the bedrock at depths of 4 to 37 feet. The concentrations of PCE detected in the soil samples were below the MPCAs Soil Reference Value (SRVs).

II. Groundwater Analytical Data

Since 2003, the residences which utilize GAC systems have had untreated water concentrations of PCE at a range of less than 1 microgram per liter (µg/L) to 125 µg/L. TCE in untreated water has been detected at concentrations ranging from 0.74 µg/L to 8.6 µg/L in the wells at 1925 and 1933 West Shagawa Road. Benzene has also recently been detected in untreated water at 1933 West Shagawa Road at concentrations ranging from 2.1 µg/L to 7.7 µg/L. Contaminants have not been detected in the treated water samples or the residential well samples at 1932, 1950, and 1951 West Shagawa Road which do not have GAC filters.

II. Vapor Intrusion Assessment

Sub-slab soil vapor has been tested for two seasons at the residences located at 1925 and 1932 West Shagawa Road and the results do not indicate a vapor intrusion risk. The residence at 1933 West Shagawa Road has had one sampling round of sub-slab soil gas samples collected in November 2013 with results that also do not indicate a risk from the contaminants of concern.

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:

- Limited Phase II Investigation, dated June 17, 2003, prepared by Terracon
- Gore-Sorber Screening Survey, dated February 5, 2004, prepared by Terracon
- Source Area Investigation, dated June 17, 2005, prepared by Terracon
- Potable Well and GAC System Sampling reports, 2003-2018, prepared by Bay West
- Residential Water/GAC System Sampling and Site Data Review, dated June 27, 2012, prepared by Bay West
- GAC System and Soil Vapor Sampling Results reports, 2013-2017, prepared by Bay West

- Water Supply Alternatives Analysis, dated March 14, 2017, prepared by Bay West

V. DESCRIPTION OF RESPONSE ACTIONS ALREADY COMPLETED

Initial investigations began at the Site in 2002 to 2003. Three areas were identified and investigated for soil and groundwater contamination: a former dump area at 1936 West Shagawa Road, a former green house, and a former construction company property. Soil probes were advanced to the bedrock at depths ranging from 4 to 37 feet. Soil and groundwater samples were collected from all three areas during multiple investigations; the investigations confirmed that the PCE impacts were primarily limited to the source area at the junction of West Shagawa Road and the driveway at 1936 West Shagawa Road. The results also confirmed the absence of detectable PCE at other locations throughout the Site.

Investigations into the source groundwater plume indicated that due to the geology at the Site and the depth of the groundwater contamination in bedrock, remediation of the groundwater plume was not practicable. Granular Activated Carbon treatment of the impacted wells is the response action chosen to address the groundwater contamination.

A receptor survey was conducted in May 2012 of properties within 500 feet of the identified source area. The survey included an evaluation of the exposure pathways of surface soil, groundwater, soil gas, and surface water. The wells located at 1950 and 1951 West Shagawa Road were determined to be within 500 feet and were subsequently sampled. Soil vapor intrusion into residences was also determined to be a risk and was also subsequently sampled. Risk to surface water quality of Shagawa Lake was determined to be low.

The residences at Bulinski Point utilize groundwater wells for drinking water and therefore are at risk for ingestion of the contaminated groundwater without the use of GAC systems. The GAC systems effectively remove the groundwater contaminants in the three residences where they are utilized. Although not all residential wells on Bulinski Point have been tested, the two farthest down-gradient wells at 1950 and 1951 West Shagawa have not had detections of contaminants to-date.

VI. ESTABLISHMENT OF RESPONSE ACTION OBJECTIVES AND CLEANUP LEVELS

The objective at the Site is to limit residential exposure to impacted groundwater and to provide a whole-house potable water source with contaminant concentrations which do not exceed the Health Risk Limits (HRLs) and Health Based Values (HBVs) established by the Minnesota Department of Health (MDH).

VII. SUMMARY OF RESONSE ACTION ALTERNATIVES

The March 2017 Water Supply Alternative Analysis identified and evaluated alternative water supply sources that would limit residential exposure to impacted groundwater and provide a whole-house potable water supply source (i.e., for drinking, cooling, and sanitation purposes). A potable water supply is defined as water with contaminant concentrations which do not exceed the HRLs and HBVs established by the MDH. The alternatives were given a composite score using the following four criteria: effectiveness, constructability/feasibility, community acceptance, and cost.

Response action alternatives evaluated were based on the following primary scenarios:

1. Installation of a community well

This alternative was deemed to be as effective as the current GAC systems yet less feasible and more expensive. This alternative would require the installation of a bedrock well at a depth of at least 325

feet at a location up gradient of the Site. Hydro fracking technology would be required to install the well and associated water service line trenches. This alternative scored higher than the GAC alternative in community acceptance. This alternative was rejected because its overall composite score was lower than the GAC alternative score.

2. Installation of a Public Water Service.
This alternative scored most effective for providing a whole-house potable water supply because the water source would be outside of the known impacted aquifer area; however, it proved to be the most costly alternative as specialty equipment and techniques, as discussed above, would be required. This alternative scored the highest in community acceptance but was rejected because its overall composite score ranked lower than the GAC alternative score.

3. Continued GAC Treatment of Residential Wells

Continued GAC treatment of residential wells has demonstrated to be effective at providing a whole-house potable water supply. Laboratory analysis of samples collected from the GAC systems has confirmed that the systems are treating the potable water to levels below the established HRLs and HBVs and below laboratory detection limits. This alternative was accepted because it is the most feasible, least costly alternative which provides safe potable water to residents.

Summary of Remedial Action Alternatives:

Remedial Action Alternative	Effectiveness	Constructability/ Feasibility	Community Acceptance	Cost	Total Score
Installation of a Community Well	4	4	2.6	3	14
Installation of a Public Drinking Water Source	5	4	4.4	1	14
Continued GAC Treatment of Residential Wells	4	5	1.8	4	15

VIII. DESCRIPTION OF SELECTED RESPONSE ACTIONS

The MPCA has reviewed the Water Supply Alternatives Analysis report and has determined that continued GAC treatment of residential wells is the most feasible and lowest cost way to meet the response action objectives.

IX. RESPONSIVENESS SUMMARY

Pursuant to Minn. Stat. § 115B.17, subd. 2b (2017), the MPCA published the draft MDD for a 30 day public comment period between October 5, 2018 and November 5, 2018. Notices of the public comment period were published in the Timberjay and Ely Echo newspapers, on the MPCA's Public Notices webpage, and through the MPCA's GovDelivery email subscription service. Comments received during the public comment period are addressed in the Responsiveness Summary included as Attachment 1.

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.C. § 9601 *et seq* (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300. I have determined the selected response actions are protective of public health and welfare and the environment.

Kathryn Sather — 12/13/18

Kathryn Sather
Director
Remediation Division

Date

Attachment 1

RESPONSIVENESS SUMMARY

The purpose of this document is to summarize and respond to public comments received in response to the MPCA's Draft Minnesota Decision Document (MDD) for the Bulinski Point Superfund site. The public comment period for the MDD was from October 5, 2018 to November 5, 2018. The following comments/questions were received in email and by phone during the public comment period:

1. Comment: Have the investigation and remedy decision considered trichloroethylene (TCE) as well as tetrachloroethylene (PCE)? The MDD does not mention TCE.

MPCA response: In an email response, it was stated that TCE has been detected in some of the pre-filtered samples in homes above the Minnesota Department of Health's Health Risk Limits (HRLs), but at considerably lower concentrations than PCE. The main contaminant of concern at the site is PCE, but it was noted in the response that the MDD should be revised to mention all contaminants that are detected above the drinking water standards at the site. The MDD has been revised to include discussion of the contaminants TCE and benzene.

2. Comment: During a phone conversation the caller asked general questions about the site history and actions taken to-date, what the results of the Water Supply Alternatives Analysis in 2017 were, and if there were any new decisions for the site release. The caller also requested that the draft MDD be sent to them via email.

MPCA response: An overview of the site history and investigations was given and the results of the Water Supply Alternatives Analysis were discussed. The decision stated in the MDD was discussed and a draft MDD was sent via email.

3. Comment: During a phone conversation the caller wanted to know in general what the public notice was in regards to. He was unaware that the contaminants of concern were PCE and TCE and primarily had concerns regarding copper mining.

MPCA response: An overview of the site and contaminants TCE and PCE was given. It was stated that the public notice was not in regards to copper mining.

4. Comment: An email was received: "Thanks for the opportunity to comment on this project. We have a seasonal home in Ely and we regularly use Shagawa Lake to swim our dog, fish, hunt and swim. I appreciate your efforts to address this issue and I fully support these initial steps you are taking to work towards cleaning this up and provide support to those people that are affected.

   I do have some questions however that I would like for you to address.

   1. Will this spill ultimately contaminate Shagawa Lake?
   2. If it does contaminate the lake, will there be impacts to fish and other wildlife? As a result of this spill, could there be fish consumption advisories?
   3. Why has it taken this long to get to the point that excavating and removing the contaminated soil is being considered? 16 years since the initial discovery of the barrels seems like a long time to get to this point."

MPCA response by email on October 16, 2018:
"The groundwater at the site is anticipated to flow into Shagawa Lake. In 2012, the MPCA's environmental contractor conducted a receptor survey which included evaluating the risk to other wells on Bulinski Point as well as surface water risk. Their conclusion was that due to the concentrations of PCE and TCE in the groundwater, the risk to Shagawa Lake is low. However, we are currently reevaluating the risk to Shagawa Lake. I can email you when we have that evaluation, and of course it will be part of the public record through our records department.

During the initial investigations at the site begun in 2003, soil samples were taken throughout the site and source area; significant soil contamination was not discovered, likely because it had either been removed with the debris removed by former residents or also likely because these contaminants move fast through soil into groundwater. Due to the low to non-detect concentrations in the soils and the shallow depth to bedrock, we did not conduct an excavation. No new investigations have been done looking into soil concentrations. What we have looked into recently was *soil gas* – which we found not to pose a risk for vapor intrusion into homes within the source area.

We have drafted the Minnesota Decision Document in response to the Water Supply Alternatives Analysis, which evaluated other ways to supply potable water to the impacted residents. The water supply alternatives were evaluated in response to requests from the residents. Our decision, based on the report, is to remain with the GAC treatment of impacted wells, as it has provided potable water with no detections of the contaminants since the treatment has begun."

MPCA follow-up response by email on December 11, 2018:
The MPCA has evaluated the surface water risk to Shagawa Lake by reviewing what is known of the groundwater plume and surface water quality standards that would apply. The source area for the groundwater contamination is approximately 600 feet up gradient of the shoreline. The well with the highest concentrations at the site is situated down gradient of the source area halfway between the source and shoreline. The concentrations of PCE and TCE in the most impacted well in 2018 were 44 micrograms per liter (µg/L) and 8.6 µg/L, respectively. The well directly adjoining the impacted well had concentrations of PCE and TCE in 2018 of 4.7 µg/L and 4.7 µg/L, respectively. The MPCA has determined that the surface water risk to Shagawa Lake from the groundwater plume is low due to the following:

- The relatively low concentrations detected in the impacted well up gradient from the lake;
- The distance of the most impacted well to the lake;
- The apparent drop in concentrations from the most impacted well to the side-adjoining well 100 feet away;
- The other adjoining wells located on Bulinski Point have not had detections of the contaminants or the detections have been below the surface water quality standards; and
- The size of Shagawa Lake and the likely dilution occurring of the groundwater plume.