

**BEFORE THE DEPARTMENT OF  
NATURAL RESOURCES AND CONSERVATION  
OF THE STATE OF MONTANA**

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**PETITION FOR CONTROLLED  
GROUNDWATER AREA NO. 76LJ  
30111620 BY FLATHEAD CITY – COUNTY  
BOARD OF HEALTH** ) **DETERMINATION TO PROCEED WITH  
RULEMAKING ON PETITION FOR  
CONTROLLED GROUNDWATER AREA**

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On June 27, 2017, Flathead City – County Board of Health (Flathead County’s public health agency) (Petitioner) submitted Petition for Controlled Groundwater Area No. 76LJ 30111620 (the Petition) to the Kalispell Water Resources Office of the Department of Natural Resources and Conservation (Department or DNRC) for the designation/modification of the Burlington Northern Santa Fe Railway Company (BNSF) Somers Controlled Groundwater Area (CGWA).

The Petitioner proposes to revise the permanent CGWA boundary and add more restrictive groundwater withdrawals for the BNSF Somers site, a former tie treating plant, for water quality concerns. The site is in northwestern Montana in the unincorporated town of Somers, Flathead County.

The original CGWA was approved by a DNRC hearing examiner on May 9, 2003, pursuant to §§ 85-2-506 and 85-2-507, MCA (repealed). *Order Designating Controlled Groundwater Area, In the matter of the BNSF Somers Site Petition No. 76LJ-30005258 for Designation of a Controlled Groundwater Area* (May 9, 2003) (2003 Order). The purpose of the original CGWA approved by the DNRC in 2003, was to restrict groundwater withdrawals from the alluvial aquifer for any purpose other than remediation to protect human health. Data collected since the original CGWA designation show exceedance levels of constituents of concern (COC).

At the time, a controlled groundwater area was established by an administrative order issued by the Department following notice and a public hearing. §§ 85-2-506 and 85-2-507, MCA (2003). The 2003 Order provided that “when groundwater within the controlled area has been restored to

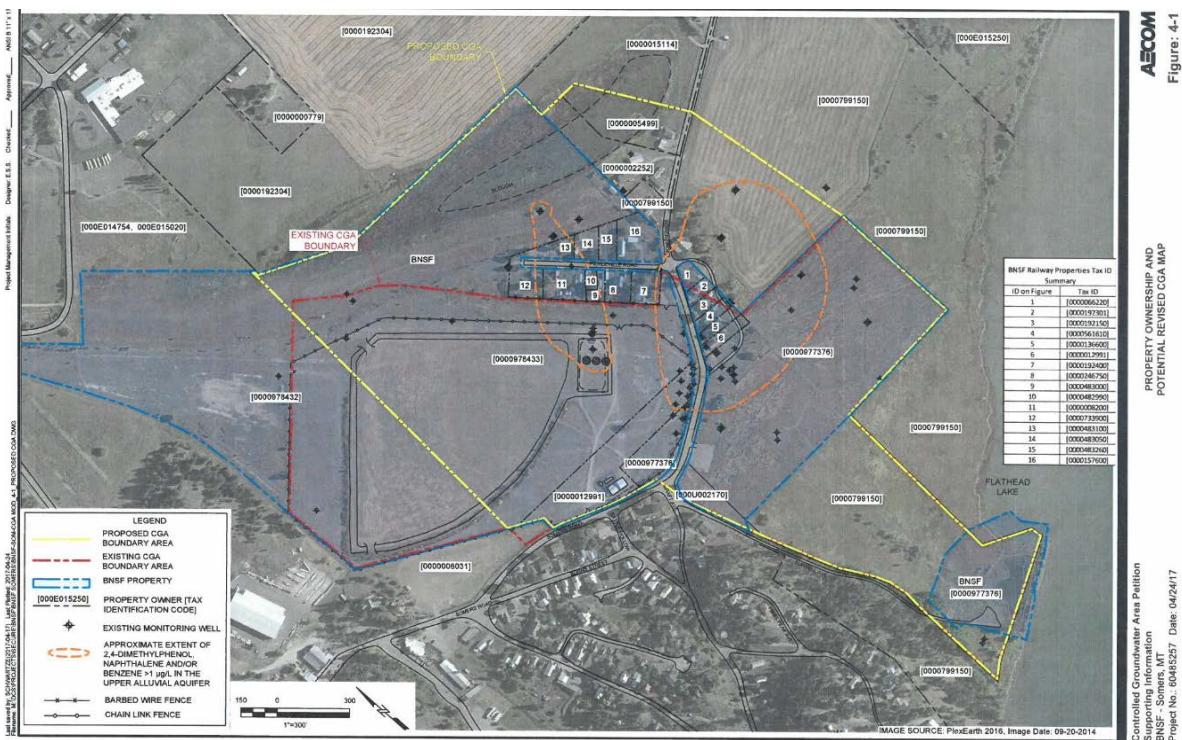
acceptable conditions procedures may be initiated to revoke or modify the controlled groundwater designation.”

The Petition requests revisions to the 2003 CGWA to prevent exposure to COCs in groundwater where the September 1989 Record of Decision (ROD) (USEPA, 1989) remedial goals for the site are exceeded, to prevent groundwater withdrawals in the alluvial aquifer that may induce or alter migration of COCs, and/or prevent installation of groundwater wells into the bedrock aquifer that may induce COC impacts from the alluvial aquifer into the bedrock aquifer. The Petition also seeks to modify the boundaries set forth in the 2003 Order, removing approximately 11 acres from the southwest corner of the existing CGWA and adding approximately 30 acres to the northern boundary of the existing CGWA, including approximately 17 acres owned by BNSF and 13 owned by private parties. This will increase the total acres subject to groundwater restrictions from 67 acres to 86.

The statutory procedure for designation or modification of a controlled groundwater area underwent significant amendments in 2009. The process for designation or modification of a controlled groundwater area is now made in a rulemaking process. See § 85-2-506, MCA. Considering the original language regarding modification contained in the 2003 Order, the fact that the Petition proposes placing additional restrictions on groundwater use, and the significant amendments to the process for designation of a controlled groundwater area, if adopted, the proposed rule will revoke the 2003 Order and replace it entirely.

The Department determined the Petition to be correct and complete on December 22, 2017. On February 20, 2018, the Department informed the Petitioner that it would proceed under § 85-2-506(4)(a)(ii), MCA, which allows the Department to study the information presented in the Petition for a period not to exceed 90 days before denying or proceeding with said Petition.

## BNSF CGWA Site Boundaries



Department Hydrogeologist Russell Levens was assigned by the Department to review the information provided in the Petition and issued a Memorandum of his findings and opinions, dated August 18, 2017. Mr. Levens was of the opinion that the information provided by the Petitioner demonstrated that existing COC plumes in the alluvial aquifer show evidence of concerns about the suitability of groundwater for human consumption. Modeling provided showed a potential for the spread of contaminants and a public health risk if wells are allowed to be drilled into the underlying bedrock aquifer.

### **FINDINGS**

1. BNSF Railway Company and its predecessors operated a railroad tie treating plant at Somers from 1901 through 1986. Wood preservatives used at the site consisted of creosote, zinc chloride and chromated zinc chloride. (AECOM 2013a)
2. A remedial investigation and feasibility study, and subsequent ROD (USEPA, 1989) identified COCs at the site included total polycyclic aromatic hydrocarbons (TPAH), carcinogenic polycyclic aromatic hydrocarbons (CPAH), and total phenolic compounds.

Remedial goals also were assigned in the ROD for naphthalene, acenaphthene, flouranthene, benzene and zinc. Undissolved non-aqueous phase liquids (NAPL) and dissolved contaminants originated with unknown timing over the 85 years of operation from two main sources: the former Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) lagoon source area and the former aboveground storage tanks (ASTs) source area. (AECOM 2013a)

3. Contaminant remediation actions conducted at the Somers site include groundwater recovery and treatment from 1993 through 2007, a biosparge pilot test in 2015 and 2016, and manual recovery of NAPL through pumping and use of sorbent socks beginning in 2011. Semi-annual groundwater monitoring has been conducted at the site to measure and document groundwater elevation, flow direction, and concentrations of dissolved compounds. Additional investigations of site conditions and extent of dissolved compounds in groundwater have been completed or are ongoing. (AECOM2013a)
4. A groundwater plume comprised of polycyclic aromatic hydrocarbons PAH, phenolic constituents, and benzene extends from the CERCLA lagoon source in a northeasterly to easterly direction. A second groundwater plume of PAH and benzene with phenol constituents below ROD cleanup levels extends north from the AST area. (AECOM2013a)
5. The Petition states that the plumes are stable overall under non-pumping conditions and concentrated near source areas where NAPL remains as intermittent and disconnected small lenses and stringers up to 60 feet beneath the two source areas in the alluvial aquifer. A Focused Feasibility Study (FFS) is being prepared to evaluate remedial action goals and objectives, and available redial action methods, and to identity the most appropriate methods to address the remaining impacts at the site. (AECOM2013a and GSI 2015)
6. The Petition focuses on the extent of contamination of the existing plumes in the alluvial aquifer. The heterogeneity of the alluvial aquifer has significant effects on groundwater flow and COC distribution and NAPL migration.
7. The Petition includes details of modeling to simulate groundwater flow and contaminant transport in the alluvial aquifer under pumping conditions in order to support development of a revised CGWA horizontal or surface boundary. A groundwater model was used to simulate 30-year particle traces resulting from hypothetical pumping at rates of 1 gallon per minute (gpm), 5 gpm and 10 gpm from the alluvial aquifer. (AECOM 2013a)

8. The Petition acknowledges the possibility that COCs could migrate down into the bedrock is remote; however, restrictions are requested based on the possibility that COCs could be pulled into the bedrock aquifer during well drilling through the overlying alluvium. Another concern in support of establishing restrictions on bedrock wells is the potential that COCs could migrate downward along poorly constructed wells. Thus, vertical boundaries of the revised CGWA site would include no wells in the alluvial or bedrock aquifers except for remediation and monitoring purposes. (AECOM2013a)
9. The 2003 Order found that the original petition “provided sufficient data showing that water quality standards for the zinc and compounds found in PAH have been exceeded in samples taken from the alluvial aquifer.” (2003 Order 3, ¶ 8.) The 2003 Order further states that information provided in the original petition and presented at the hearing demonstrated that water in the underlying contaminant plume in the alluvial aquifer is not suitable as a domestic water source. (2003 Order 4, ¶ 12)
10. The Petition provides maps of COC plumes defined by the extent of 2,4-Dimethylphenal, Napthalene, and/or Benzene combined > 1µg/1 for the alluvial aquifer measured in October 2016.
11. Together, past and current monitoring provides credible evidence of concerns about the suitability of groundwater for human consumption within the alluvial aquifer of the proposed modified CGWA. Evidence of groundwater contamination presented in the Petition demonstrates the public health risk related to elevated concentrations of COCs. Modeling provides further understanding of public health risk and potential for spread of contaminants if wells are allowed within the proposed modified CGWA in the alluvial aquifer as well as the bedrock aquifer.
12. Ongoing remedial activities will reduce the potential for exposure to COCs and ultimately should lead to improvements that may warrant shrinking the proposed modified CGWA boundary. Ongoing remedial activities include NAPL recovery, biosparge treatment, and preparation of the FFS Report. Continuing groundwater monitoring will provide early warning of any unforeseen changes in plume behavior and allow evaluation of the need for additional remedies or changes to the CGWA boundary.
13. The 2003 Order found that groundwater withdrawals from the alluvial aquifer within the proposed boundary may cause contaminant migration. The potential contaminant migration

is assessed further in the current Petition from information on contaminants of concern, aquifer characteristics and modeling of observed plume extent as well as potential pumping effects on plume behavior. The current Petition acknowledges that the possibility that COCs could migrate down into bedrock is remote; however, restrictions are requested based on the possibility that COCs could be pulled into the bedrock aquifer during well drilling through the overlying alluvium or migration downward along poorly constructed wells.

14. , the Department finds that a preponderance of the evidence demonstrates the current or projected groundwater withdrawals will induce or alter contaminant migration exceeding relevant water quality standards. § 85-2-506(5)(c), MCA.
15. The current Petition provides maps of COC plumes defined by the extent of 2,4-Dimethylphenol, Napthalene, and/or Benzene combined > 1µg/l for the alluvial aquifer measured in October 2016. Together, past and current monitoring provides credible evidence of concerns about the suitability of groundwater for human consumption within the alluvial aquifer of the proposed CGWA.
16. Based upon groundwater sampling data presented in the Petition, the Department finds that the preponderance of the evidence demonstrates that current or projected groundwater withdrawals in the proposed controlled groundwater area have impaired or will impair groundwater quality necessary for water right holders to reasonably exercise their water rights based on relevant water quality standards. § 85-2-506(5)(d), MCA.
17. Based upon groundwater sampling data presented in the Petition, the Department finds that the preponderance of the evidence demonstrates that groundwater within the proposed controlled groundwater area is not suited for beneficial use. § 85-2-506(5)(e), MCA.
18. Based upon groundwater sampling data presented in the Petition, the Department finds that a preponderance of the evidence demonstrates the public health risk related to elevated concentrations of COCs. Modeling provides further understanding of public health risk and potential for spread of contaminants if wells are allowed within the CGWA. § 85-2-506(5)(f) MCA.

The Department determines that it will proceed with the Petition for Controlled Groundwater Area and initiate rule making proceedings for the proposed modified CGWA.

## **RULEMAKING TIMELINE**

The Department will provide the petitioners with a draft copy of the Administrative Rule with this draft determination to proceed. The Petitioner has until June 5, 2018 to provide any comments. The Department will then finalize the rules and proceed with formal rulemaking proceedings in accordance with Title 2, Chapter 4, part 3, MCA. Any comments provided on the draft rule does not preclude the petitioner from submitting comments during the comment period provided for in the formal proceedings.

DATED this 21st day of May, 2018.

/Original signed by Kathy Olsen/  
Kathy Olsen, Regional Manager  
Kalispell Regional Office  
Department of Natural Resources and Conservation