



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 E CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

September 30, 2026

Misty Siedschlaw
SD Department of Transportation
700 Broadway
Pierre, SD 57501

Re: No Further Action designation for DANR File #91.317: pertaining to TCE and petroleum contamination at the abandoned railroad roundhouse, Mitchell, South Dakota.

Dear Ms. Siedschlaw:

The Department of Agriculture and Natural Resources (DANR) has reviewed the available information regarding the above referenced case and determined that remaining contamination does not pose a current risk to human health or additional risk to the environment. As a result of this determination, DANR is assigning this case a No Further Action designation.

Please note, if future problems arise from the remaining contamination, the South Dakota Department of Transportation may be responsible for conducting additional assessment or remediation. The No Further Action designation will be recorded in DANR's release database and can be found at <https://apps.sd.gov/NR421interactiveMap>.

Thank you for your cooperation in protecting the ground water resources of South Dakota. If you have questions or concerns about this site's No Further Action designation, please contact Hanna Kollbaum of my staff at (605) 773-3296.

Sincerely,

Hunter Roberts
Secretary

cc: Jeff Bathke, Davison County Emergency Manager
Karen Wegleitner, Davison County Deputy Emergency Manager
Karla Engle, SD DOT



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MEMORANDUM

To: Terry Florentz, P.E., Administrator
Inspection, Compliance, and Remediation

From: Hanna Kollbaum, Environmental Scientist I
Inspection, Compliance, and Remediation

Date: September 30, 2026

Subject: No Further Action recommendation, pertaining to TCE and petroleum contamination at the abandoned railroad roundhouse, Mitchell, South Dakota. Department of Agriculture and Natural Resources Environmental Event #91.317.

[Handwritten signatures and dates: Terry Florentz 9/28/26, Hanna Kollbaum 9/28/26]

Site History

The release site is located near the abandoned Mitchell Railroad Roundhouse. A city park and Dry Run Creek are located south of the site. A railroad right-of-way is located north of the site. Dry Run Creek is located less than 0.1 miles south of the release site. There are no drinking water wells near the site. There are several previously known releases of petroleum and no previously known releases of chlorinated solvents within 0.5 miles of the release site.

The State of South Dakota purchased the property in 1981 from the Chicago, Milwaukee and St. Paul Railroad and sold the property to BNSF Railroad in 2005. At the time of this memo, the property is owned by Ringneck & Western Railroad. The original roundhouse drainage system was a series of sewer lines and manholes that discharged to a slough area upgradient of Dry Run Creek. In 1972, a locomotive tank car was buried on-site to serve as the tank in an oil-water separator system. The Roundhouse building was demolished in 1984. In 1991, the presence of chlorinated solvents and petroleum were detected in groundwater. The South Dakota Department of Transportation (DOT) was determined to be the responsible party. The DOT performed remediation and several rounds of assessment and monitoring at the site.

Tank Removal

The tank car/oil-water separator was removed in September 1991. An estimated 7,293 gallons of material remaining in the tank were considered hazardous waste. The contents were pumped out and transported out of state for disposal. Sample analysis of the material indicated that solvents used for degreasing equipment had been disposed of in the tank. During the removal, it was discovered the tank was connected to a manhole and storm sewer. Precipitation and more hazardous waste flowed from the sewer into the tank increasing the volume of waste requiring disposal. There was no visible evidence of contamination in the soil during tank excavation and soil vapor concentrations were not detected during field screening. There was no evidence of pitting or leakage on the tank, however, a pipe leading into the tank had multiple small holes. Soil was not excavated at this

time and because of groundwater intrusion in the excavated area; no soil samples were collected.

Assessment and Remedial Activities

Several assessments were performed between 1991 to 2015 to determine contaminant plume size and migration. Initial efforts focused on petroleum as the primary contaminant before chlorinated solvents were detected. Following their detection in the samples taken from the tank material, Trichloroethylene (TCE), Trichloroethane (TCA), and their degradation compounds became the primary concerns due to the elevated concentrations identified in groundwater at the site. Only relatively low concentrations of petroleum were found. Twenty-eight soil borings were advanced with nineteen being finished as groundwater monitoring wells over a period of several years to delineate the contaminant plume and track its migration on and off-site. Three monitoring wells were finished in the underlying bedrock aquifer. Several assessment and remedial activities were completed at the site including the excavation of contaminated soil from the former location of the tank, the removal of contaminated material from underground structures, and phytoremediation utilizing Poplar trees.

Several manholes, cast iron sewer lines, and a sump were discovered on the property during the tank removal and initial assessment activities. The sewer lines and some of the manholes were used to drain the roundhouse until the oil-water separator was installed in 1972. Liquid and solid waste were observed in these structures. The waste material found in the manholes was analyzed and determined to be heavily contaminated with TCE, lead, and petroleum. In 1994, approximately 12,656 pounds of waste material were removed from manholes and the sump. The sewer lines could not be accessed at this time but were observed to contain similar material to what was removed from the manholes. Some of the waste was treated on site and determined to be free of contaminants following analytical testing. The remaining waste was transported out of state and incinerated. A concrete slurry was pumped into the sump and one of the manholes to prevent future accumulation of groundwater. During the demolition of the roundhouse, debris and soil had been deposited over a slough, located between MW9 and MW17. Groundwater samples collected from MW9 consistently identified elevated concentrations of TCE and its degradation compounds. In 2010, three soil borings were advanced in the former slough area and a soil sample was collected from each between eight and fourteen feet of depth. Analysis of the soil samples did not identify TCE, its degradation compounds, or petroleum contamination.

In-situ remediation methods were assessed for site and contaminant suitability in the 1990's by Special Resource Management. A pilot study for soil vapor extraction and air sparging was completed in 1994. Results of the pilot study indicated the low permeability of the site soils would prevent the system from reducing the TCE contamination to below state groundwater quality standards. Due to the potential for the soil to be labeled hazardous waste, the cost of soil disposal was a concern. A soil treatability assessment was completed in 1995 to evaluate the aerobic and anaerobic remediation capacity of the soil. While the assessment identified the presence of microorganisms capable of degrading TCE, under field conditions, aerobic degradation would be minimal and anaerobic degradation was unlikely. Additional testing indicated the primary mechanism for TCE removal from soil at the Mitchell Roundhouse was volatilization. Ex-situ venting of excavated soil was identified as a potentially successful method to reduce TCE concentrations in the soil to levels acceptable for typical disposal facilities.

No monitoring, assessment, or cleanup activities were performed on the site from 1999-2012. In 2006, DANR issued a letter requiring DOT to assess the migration of the contamination and perform monitoring and cleanup activities. The property was sold to BNSF in 2005 and obtaining access to the site was repeatedly denied, prohibiting DOT from completing the required activities for several years. In October 2007, DOT contracted GeoTek Engineering & Testing Services (GeoTek) to collect samples from Dry Run Creek and the monitoring wells located outside of BNSF property. Many of the older monitoring wells were not able to be located and might have been destroyed in the intervening years.

GeoTek suggested phytoremediation as an alternative to previously assessed remedial methods. In November 2012, three tree core samples were collected from cottonwood trees in Dry Run Creek Park and analyzed for TCE. All three samples had detectable levels of TCE. After gaining approval from the City of Mitchell, approximately 215 hybrid poplar trees were planted in the Park, downgradient of the release site, in May 2013. In August 2013, approximately half of the trees were observed to be doing well and were expected to survive.

BNSF granted access to the site in June 2013, and eighteen soil borings were advanced in the location of the former tank. Composite samples were collected and analyzed for TCE to determine soil disposal options. Analytical results were below the EPA Regional Screening Level for industrial soil (EPA RSL) and below the Toxicity Characteristics Leaching Procedure regulatory limit of 0.5 parts per million for all samples. Remedial excavation was conducted in September 2015, and was overseen by GeoTek. No visual or olfactory evidence of petroleum contamination was encountered during the excavation. Abandoned pipes and manhole structures associated with the previous oil-water separator and roundhouse drainage systems were discovered and removed. Excavation reached a maximum depth of approximately fourteen feet, and the excavated area was backfilled with clean material. Approximately 605 tons of soil were properly disposed at the Southern Missouri Landfill. Three soil samples and one sediment sample from the pipes were collected during the excavation. Analysis of the soil samples did not detect TCE or its degradation compounds. TCE was detected in the sediment sample from the pipes below the EPA RSL. It is likely that pipes containing contaminated sediment remain on the property.

Remaining Contamination

Soil Samples

Soil samples were collected from soil borings at regular depth intervals. The samples were scanned for volatile organic compounds with a photoionization detector. Samples with the greatest detections or from the greatest depth were sent for laboratory analysis. The samples were not consistently tested for the same analytes. Initial testing focused on petroleum. Following the discovery of chlorinated solvent contamination, sampling efforts focused on TCE and various degradation compounds. The results of these analyses were compared to the EPA RSL for TCE at 1.9 parts per million and the South Dakota DANR petroleum trigger level at 500 parts per million. Reports predating this memorandum use the EPA RSL for industrial soil from 2012 – this was reduced in later publications of the EPA RSL. Some soil borings were completed as monitoring wells. Only two soil samples from the initial assessment, collected from soil borings in the former location of the underground tank, exceed the current EPA RSL. Soil samples were collected from three soil borings advanced in the former slough area, GSB1, GSB2, and GSB3. TCE was not detected during laboratory

analysis of these samples. Table 1 shows the soil sample analytical results for Total Petroleum Hydrocarbons (TPH) and TCE for each soil boring.

Table 1. Analytical results of soil samples.

Location	Date	TPH – Waste Oil	TPH - Gasoline	TPH - Diesel	TCE
SB1	03/04/1991	<10			
SB2/MW2	03/04/1991	<10			
SB3/MW3	03/04/1991	<10			
SB4	03/04/1991	<10			
SB5/MW5	03/04/1991	<10			
SB6	07/08/1991	<10	365	1,780	
SB7/MW7	07/08/1991	<10	<10	<10	
SB9/MW9	05/14/1992				0.3
SB10/MW10	05/14/1992				0.6
SB11/MW11	05/14/1992				<0.2
SB12/MW12	05/14/1992				<0.2
SB14/MW14	06/30/1992				<0.4
SB15/MW15	06/30/1992				0.4
SB16	06/30/1992				12.7
MW17	08/10/1993				<0.2
MW18	08/10/1993				<0.4
SB19	08/12/1993				<0.4
SB20	08/12/1993				14
MW21	06/02/1994				0.60
MW22	04/28/2010			13	<0.20
MW23	04/28/2010			5,290	<0.20
MW24	04/28/2010			<10	<0.20
MW25	08/08/2012				<0.20
MW26	08/09/2012			22	<0.20
MW27	08/09/2012				<0.20
GSB1	04/28/2010				ND
GSB2	04/28/2010				ND
GSB3	04/28/2010				ND

All results are reported in parts per million (ppm). Bold values indicate the results exceed EPA Regional Screening Level for industrial soil (1.9 ppm for TCE) or South Dakota DANR petroleum trigger level (500 ppm for TPH). ND is non-detect.

Groundwater Samples

Quarterly groundwater monitoring was conducted from 1992 to 1994 and semi-annual monitoring was conducted from 1994 to 1999. Samples were collected inconsistently after 1999 and the locations of many of the monitoring wells were lost. Monitoring wells were located on-site and off-site with depths ranging from less than fifteen feet to greater than fifty feet. The groundwater gradient was consistently south to southeast. Downgradient wells showed increasing concentrations of TCE over the monitoring period indicating migration of the contaminant plume towards and past Dry Run Creek. The greatest concentration of TCE was consistently identified in the closest downgradient monitoring well to the former location of the tank, MW2. The concentration of TCE found in groundwater samples from this well decreased following removal of contaminated materials in a nearby manhole (Table 2).

A sample from this well was analyzed for the presence of heavy metals and BTEX resulting in no detections. TCE is denser than water and tends to settle at the base of aquifers. Groundwater samples collected from the bedrock aquifer underlying the site did not identify the presence of TCE. Table 2 shows the first and last groundwater sample analytical results for TCE.

Table 2. Analytical results of groundwater samples.

Location	Initial Sampling	TCE	Final Sampling	TCE
MW2	5/11/1992	21.5	8/20/2012	12.1
MW3	5/11/1992	<0.001	6/17/1994	0.0013
MW5	5/11/1992	<0.001	6/28/1994	<0.001
MW7	7/08/1991	0.12	8/20/2012	1.44
MW9	5/14/1992	1.18	5/26/2010	1.86
MW10	5/14/1992	1.39	8/10/1993	1.06
MW11	5/14/1992	0.0021	6/17/1994	0.0012
MW12	5/14/1992	0.0348	8/10/1993	0.038
MW14	6/30/1992	<0.001	8/20/2012	<0.001
MW15	6/30/1992	1.55	5/26/2010	1.25
MW17	8/10/1993	0.51	8/20/2012	0.0017
MW18	8/10/1993	0.0013	10/26/2007	0.00078
MW21	6/17/1994	0.006	12/07/1999	0.0072
MW22	5/26/2010	<0.001	8/20/2012	<0.001
MW23	5/26/2010	<0.001	8/20/2012	<0.001
MW24	5/26/2010	<0.001	8/20/2012	<0.001
MW25	8/20/2012	<0.001	Sampled once	
MW26	8/20/2012	<0.001	Sampled once	
MW27	8/20/2012	<0.001	Sampled once	

All results are reported in ppm. Bold values indicate the results exceed South Dakota Groundwater Quality Standards (0.005 ppm for TCE).

Surface Water Samples

Dry Run Creek is a key potential receptor for this release. Surface water samples were collected from the Creek at different locations upstream, downstream, and adjacent to the site to determine the extent of contaminant transport from groundwater to surface water. Samples were not collected at the same locations throughout the assessment period or as a part of the routine monitoring efforts. The samples never exceeded the South Dakota Groundwater Quality Standard for TPH and a petroleum sheen was never reported in the Creek. TCE was detected in samples collected in October 2007 well below the South Dakota Groundwater Quality Standard of 0.005 parts per million (Table 3). The concentration of TCE in surface water is likely influenced by seasonal hydrologic and weather conditions. Table 3 includes the first and last sampling dates and the samples with the greatest detection of TCE.

Table 3. Analytical results of surface water samples from Dry Run Creek.

Location	Date	TPH as Fuel Oil	TCE (ppm)
Furthest Upstream	10/26/2007	<0.12	0.00038
Upstream	6/30/1992		<0.001
Upstream	10/26/2007	ND	0.00025
Upstream	8/20/2012		<0.001
Midstream	10/26/2007	ND	0.00025
Midstream	8/20/2012		<0.001
Downstream	6/30/1992		<0.001
Downstream	10/26/2007	<0.10	0.00018
Downstream	8/20/2012		<0.001

All results are reported in ppm. Bold values indicate the results exceed South Dakota Groundwater Quality Standards (0.005 ppm for TCE, 10 ppm for TPH). ND is non-detect.

Sediment Samples

Sediment samples were collected from Dry Run Creek upstream and downstream of the site several times to determine the potential for continuous release of contaminants from the sediment reservoir to surface water. The samples were not collected from the same locations throughout the assessment or as a part of the routine monitoring efforts.

Sediment samples identified TPH as waste oil and TPH as fuel oil in exceedance of the South Dakota Groundwater Quality Standard for TPH both upstream and downstream of the site. TCE was not detected in sediment samples in exceedance of the South Dakota Groundwater Quality Standard for TCE (Table 4). The analytical results suggest there is a petroleum source upstream of the site.

Table 4. Analytical results of sediment samples from Dry Run Creek.

Location	Date	TPH - Fuel Oil	TPH - Waste Oil	TCE
Up Upstream	10/26/2007	81		<1
Upstream	12/30/1994		80	ND
Upstream	08/03/1995	1020	81	ND
Upstream	12/07/1999		670	
Upstream	12/07/1999		990	
Upstream	10/26/2007	<1		<1
Upstream	5/26/2010	27		ND
Upstream	5/26/2010	49		ND
Midstream	10/26/2007	<1		<1
Downstream	12/07/1999		320	
Downstream	12/07/1999		320	
Downstream	12/07/1999		700	
Downstream	10/26/2007	181		<1

All results are reported in ppm. Bold values indicate the results exceed South Dakota Groundwater Quality Standards (0.005 ppm for TCE, 10 ppm for TPH). ND is non-detect.

Recommendations

The site is an industrial area with limited access and there are no plans for redevelopment, reducing the risk of human exposure. There are no groundwater wells in use on, or near the

site, and surface water sample results never exceeded South Dakota Groundwater Quality Standards for TCE. The source of the contamination has been removed and properly disposed. DANR considers it unlikely there will be further harm to the environment or harm to human health as a result of this release. Therefore, I recommend any remaining contamination be allowed to naturally attenuate and DANR case 91.317 be given "No Further Action" status.