
WOLF PROPERTY REMEDIATION REPORT

I. Executive Summary

The Wolf property was owned by Joe Bors originally. It is located east of where Mr. Bors conducted his farm operation. This farm area was contaminated with PCBs as a result of a transformer salvaging operation he ran there from 1979 until 1984.

The Environmental Protection Agency (EPA) investigated the farm area in 1988. OMNI Environmental performed a partial site assessment for Mrs. Bors and confirmed contamination over 20,000 square feet of the farm site.

The Bors property was subdivided and portions outside the contaminated farm area were sold to Wayne Walters. Tax information shows that this transaction occurred in 1991. In 1995, Mrs. Wolf and her husband purchased parcel 903, (formerly the residence of Mr. and Mrs. Bors which contains the house and surrounding yard) from the Walters.

In 1998 the Companies which had formerly sold transformers to Mr. Bors voluntarily agreed to perform a cleanup of the property to the standard specified in the DEQ Generic Remedy. A list of these Companies can be found in Appendix C of this report. Portland General Electric (PGE) agreed to coordinate the cleanup of the property for the other involved Companies, and to also complete a more comprehensive characterization of the Bors site. This was to include a further study of the adjacent property belonging to Helen Wolf.

Further characterization of the Helen Wolf's house and property began in the spring of 1998. PCB in concentrations at and below 5.4 parts per million (ppm) were found in the driveway area of the Wolf house. In September 2000, once a site access agreement had been agreed to between PGE and Mrs. Wolf, this area was remediated to meet the DEQ Generic Remedy residential cleanup standard of 1.2 ppm PCB. Contaminated soils and other debris (wood) were disposed at the Columbia Ridge Landfill in Arlington, Oregon in September 2000.

PGE collected soil samples after the contaminated soil was removed. The analysis of soil samples indicated that PCBs were not present above the cleanup action level of 1.2 ppm.

No further action is anticipated for the Wolf portion of the Bors site. Cleanup has also been completed on the rest of the Bors farm site.

II Introduction

The Bors property was originally a farm used for grass growth and raising of livestock, primarily swine. In 1979, the farmer who owned the land, Mr. Joe Bors, began taking in used transformers and light fixtures in order to salvage valuable components from this equipment. In the process of this salvage operation, several areas of the property were contaminated, primarily by PCBs, that were present in the transformer oil.

As a consequence of this salvaging operation, the residence part of the property was contaminated with very low levels of PCBs. The low level contamination was found to be concentrated in areas where vehicles or persons may have tracked oil from the transformer salvaging area back to the house.

Mrs. Helen Wolf is the current owner of the house and yard once occupied by the Bors family. For this reason, the portion of the Bors Site owned and occupied by Helen Wolf is referred to as the Wolf Property for purposes of this report.

III. PCB Generic Remedy

The primary contaminant of concern at the Bors site is PCBs. Since no salvaging of transformers was performed on the Wolf portion of the property, the only contaminant of concern would be PCBs tracked from the salvaging operation portion of the property to the residence. The PCBs are associated with mineral oil. PCB concentrations were found to be low (below the 1.2 ppm residential cleanup standard described in the DEQ Generic Remedy) throughout the Wolf property, with the exception of the driveway.

Since the primary contaminant of concern was PCBs and the risk assessment used in the generic remedy was directly applicable to the Bors site, the application of this remedy to govern the remediation of this land was acceptable. A separate risk assessment was conducted by Bridgewater Group, Inc. in order to demonstrate that the PCB Generic Remedy was also applicable to sites with currently occupied residences (see Appendix B). This assessment confirmed that although the indoor inhalation of vapors and particulates may be higher than the incremental risk posed by outdoor vapor inhalation, the increased risk is not significant enough to result in a change to the residential, risk-based protective level of 1.2 ppm.

IV. BACKGROUND

A. Site Description

The Wolf Property is located at 18247 South Grasle Road, Oregon City, OR 97045. See Figure 1. This property is a former farm site residence with approximately 2 acres of land. The Bors Site is located directly west of the Wolf Property. The surrounding properties are residential homes and farms.

B. Site History

The site history is a combination of information from the OMNI report ("Progress Report on Bors Farm Soil Evaluation Project" dated April 1989) and observations and information from PGE.

Prior to 1977, all activities on the Bors farm property were related solely to farming, including the raising of crops and livestock. The most recent agricultural enterprise was the raising of swine. Figure 2 illustrates the farm structures as they were utilized during this period.

Beginning in about 1979, Mr. Joe Bors (deceased) began dismantling transformers on the site for the purpose of recovering valuable components, primarily copper wire. The salvage activity took place on the Bors property located to the west of Mrs. Wolf's property. Salvage activity required draining and disposal of dielectric fluids (mineral oil), disassembly of the unit to allow removal of the windings, and disposal of unmarketable components such as transformer cases, ceramic insulators, and wires. Some of the unmarketable materials were buried on site. Because the windings are coated with insulating material which is difficult to remove mechanically, the core insulation was removed by open burning. Typical insulation materials were kraft paper coated with varnish. The copper recovered from the burning operations was then sold for its scrap value. There was evidence that street light fixtures were also salvaged on the site.

Mr. Joe Bors conducted the recycling activity on the farmyard portion of the Bors property. His wife, son, neighbors, and EPA officials familiar with the property have provided a limited amount of information regarding on-site activities.

C. Current Site Operations

The original Bors home is currently owned and occupied by Mrs. Helen Wolf. There is a newer home on the west end of the Bors site that is occupied by the Walters family at 18235 S. Grasle road. The remaining land is not being used and it consists of farm buildings, an open field and a few cedar and pine trees along the south property line.

D. Environment

1. Geology and Hydrology

Regional Geology and Hydro geology was obtained from the Ecology and Environment Inc., Technical Assistance Team site Assessment Final Report for Bors property, Oregon city, Oregon, TDD T10-8902-011, June 1989.

In the area of the site, the relatively flat uplands are created by a cap rock basaltic unit referred to as the Boring Lava which, when not deeply weathered, protects underlying sediments from extensive erosion. The Boring Lava originated from local vents during the late Pliocene to Pleistocene time. The lava erupted onto an irregular topographic paleosurface resulting in a variable depositional thickness, approaching 500 feet in some areas. The lava is mainly basaltic with the upper surfaces commonly scoriaceous. The Boring Lava is underlain in the study area by an indurated, thin bedded, silt stone and clay stone formation known as the Sandy River Mudstone and is estimated at 500 to 700 feet in thickness.

Groundwater yielding intervals are variable and discontinuous. Localized perched zones supply adequate domestic supplies in many areas (USGS 1983). Water well drill logs often refer to the formation as blue, gray or brown clays. Locally, the Sandy River Mudstone contains thin beds of sandstone and conglomerate which yield adequate domestic and small irrigation water supplies in some areas. The predominant aquifer drilled for water supply purposes in the study area is the Sandy River Mudstone (USGS 1983).

A State of Oregon Water Well Report for a domestic well drilled approximately 0.2 mile south of the site (Irvin H. Wiebe residence, 18427 Grasle Road) reported the following stratigraphy: top soil, 0 to 4 feet below ground surface (b.g.s.); clay (brown), 4 to 43 b.g.s. feet; basalt, 43 to 184 feet b.g.s.; clays (brown, tan, gray, and blue) 184 to 313 feet b.g.s.; sand (medium to coarse), 313 to 320 b.g.s. feet, and shale (green), 320 to 330 feet b.g.s.

The well was perforated from 311 to 330 feet b.g.s. and tested at 17.5 gallons per minute with 76 feet of draw down after 1 hour. Static water level was

reported at 254 feet b.g.s. on November 3, 1967. The basalt interval reported represents the Boring Lava. The clays, sand and shale are interpreted as the Sandy River Mudstone.

Near surface soil conditions were established at the Bors Property site by backhoe trench excavations conducted by the technical assistance team during this site assessment. The seven trenches, excavated to 4 feet b.g.s., exposed predominantly brown to dark brown, silt and silty clay, with minor sand and gravel. No groundwater was encountered.

2. Topography and Climate

The topography in the area of Bors Property is that of a well dissected broad upland cut by steep erosional valleys. The on-site structures are located on a small plateau area with a slope of approximately 1 to 3 %. West of the structures, the topography trends in a westerly direction with a slope of approximately 5 to 7%. Approximately 75% of the drainage from the site would flow in a westerly direction. Drainage from the rest of the site would flow east (USGS 1961).

The Wolf residence is relatively flat, with a slight slope towards the east and Gracie Road.

The fifteen year annual average precipitation for the area is 52 inches (BPA Weather Office). Using the evaporation data from the North Willamette Experiment Station in Aurora (42.4 inches per year), the net precipitation for the area is approximately 9.6 inches per year (OSU).

3. Surface Water

There are no surface water features visible on the Wolf property.

4. Land Use

The surrounding area for several miles is primarily rural residential and small farm sites.

E. Regulatory Issues

1. Underground Storage Tanks (USTs) - There are no registered USTs on the Wolf property. One unregistered UST was removed from the Bors farmyard as part of the site remediation in 1998.
2. Water Quality - There are no surface waters present except during heavy rains.
3. No groundwater was observed during the excavation of test pits by EPA, OMNI and PGE on the Bors site to the west of the Wolf's property. PGE excavated to a depth of 11 feet in the burial pit on the Bors site. There is a well between the Wolf's house and the salvage area. A well log report for Township 3S, range 2E, Section 1 where the Wolf residence is located shows no wells listed on the Wolf property (see Appendix D). The Wolf's house water supply comes from the Claremont Water System. When EPA interviewed Mrs. Bors in 1989, she stated that the well on her property had not been used in some time because it had developed a "dog leg".
4. RCRA - There are no RCRA concerns on the Wolf property.
4. Air Quality - There are no air quality issues at the site.
5. Solid Waste - There are no known solid waste issues at the site.
6. Spills - There are no recorded or reported spills at this site. It is assumed that PCB in the soil was caused by foot and/or vehicle traffic from the salvage operation to the west.
7. TSCA (Toxic Substances Control Act)- TSCA regulations govern the use, handling and disposal of PCBs. These rules are administered by the EPA. EPA conducted a TSCA inspection of the Bors property in 1988. Results of the inspection are located in the DEQ Environmental Cleanup Site Index (ECSI) database, file #901 for the Bors Property. See Appendix E.

Site Investigations

1. In 1977 DEQ inspected the property and discovered that Joe Bors was salvaging copper from transformers on his farm property. No samples were taken.
2. U.S. EPA – in 1987 EPA Oregon Operations Office visited the farm property in response to a complaint from neighbors regarding the past usage of the farm for salvaging transformers, and discussed with Mrs. Bors the potential hazards at the Bors Farm site
3. U. S. EPA - In 1988, the EPA, conducted a TSCA inspection of the Bors site. A composite soil sample from the area where Mr. Bors burned transformers (behind pigpens) was collected. The sample contained 69 ppm PCB. The EPA did not collect any samples from the Wolf property. EPA recommended to Mrs. Bors that an expanded analysis of the site be performed.
4. OMNI Environmental Services - In 1988, OMNI Environmental Services, was hired by Henrica Bors to further assess the PCB contamination on the Bors site. During the OMNI investigation a single surface soil sample was taken from the driveway adjacent to what is now the Wolf residence. The sample result was 7 ppm PCB. PCBs were detected in the samples taken by OMNI of the Bors farmyard to the west.
- 5 U.S. EPA - In April and May 1989, the EPA had Ecology and Environment investigate the Bors Site. In May 1989, the EPA collected 26 grab soil samples from the surface and to a maximum depth of four feet below ground surface. PCBs were detected in these samples. Again, there were no samples taken from the property which later was purchased by Helen Wolf.

V. SITE CHARACTERIZATION

Beginning in the spring of 1998, PGE began its own site characterization for purposes of beginning the remediation of the Bors site. All sampling methods are described in the workplan in Appendix A. For ease of analysis, the site was split into separate sections for purposes of sampling according to the function the area served during the transformer salvage operation. The sections pertaining to the Wolf property are:

Area 1: The driveway into the Wolf's property

Area 2: The Wolf's property, which includes the house exterior and immediate yard

Area 3: The Wolf residence (interior)

a. Area 1 Driveway Characterization

Eighteen characterization samples were taken on the driveway area of the Wolf's property in October of 1998. These samples were taken because of the 7 ppm PCB result which Omni Environmental obtained during their site evaluation for Mrs. Bors in 1988. The driveway was also the most likely area to have been contaminated by the salvage activity on the farm to the west because of the potential for Mr. Bors to track contaminants on vehicle tires or on his shoes between the salvage area and his home. Three of the sixteen samples were also analyzed for Hydrocarbon Identification (HCID).

At the request of Mrs. Wolf, one sample was taken at 18" depth along the fence, which borders the driveway because soil was stockpiled in that location during the Wolf's house remodel. In December 1998, again at the behest of Mrs. Wolf, two additional samples were taken in the driveway area closer to her back door (samples 1-18 and 1-19). See Figure 4. The sample results for the driveway area characterization are in Table 1 Following:

TABLE 1

SAMPLE ID	PCB CONTENT (ppm)	HCID
Area 1-1	1.8	
Area 1-2	4.0	oil
Area 1-3	5.1	
Area 1-4	1.1	
Area 1-5	0.81	
Area 1-6	0.35	Non-detect (ND)*
Area 1-7	0.48	
Area 1-8	0.47	
Area 1-9	0.24	
Area 1-10	0.66	
Area 1-11	0.77	
Area 1-12	0.27	
Area 1-13	0.34	
Area 1-15	0.81	ND
Area 1-16	0.48	
Area 1-17	0.33	
Area 1-18	0.37	
Area 1-19	0.65	
Area 1-fence 18"	0.07	
Area 1-3.5	5.4	
Area 1-4.5	1.7	

* HCID detection limit= 20 ppm gasoline region; 50 ppm diesel region; 100 ppm oil region

b. Area 2 Wolf Property (other than driveway) Characterization

Samples on this portion of the property were initially taken to identify contamination, if any, on the property outside of the normal paths taken between the salvage area and the residence. The reasonably likely transport mechanisms include airborne deposition and tracking. The first set of samples was taken along the Wolf side of the fence along the border of the Bors transformer salvage area and the property owned by the Mrs. Wolf. Other samples were taken at the request of Mrs. Wolf and/or her attorneys, based on suspicions of contamination. Table 2 documents sample locations and test results for the Wolf property outside the driveway area. See Figure 5.

TABLE 2

SAMPLE ID	LOCATION	PCB CONTENT (PPM)
Area 2-Wolf1	East of fence between Bors and Wolf properties	0.34
Area 2-Wolf2	East of fence between Bors and Wolf properties	0.74
Area 2-Wolf3	East of fence between Bors and Wolf properties	0.29
Area 2-Wolf4	East of fence between Bors and Wolf properties	0.85
Area 2-Wolf5	East of fence between Bors and Wolf properties	0.30
Area 2-shed	Under the floorboards of shed where Mrs. Wolf's son saw stain	0.34
Wolf BB1	Old blackberry area (low growth grass area)	0.17
Wolf BB2	Old blackberry area (low growth grass area)	0.20
Wolf Step	Wood sample from step into shop	ND
Wolf Path 1	Discrete sample from beneath stepping stone between shop and house	0.79
Wolf Path 2	Discrete sample from beneath stepping stone between shop and house	0.11
Wolf Front door	Soil sample by front door into house	0.14
Wolf back door	Soil sample by back door of house	0.44

c. Wolf Residence Indoor Characterization

In response to a concern that PCBs may have been present on dusts transported by wind or tracked by people into the wolf residence, a separate sampling and analysis plan (SAP) was developed by Bridgewater Group Inc. to characterize the interior of the Wolf residence. In addition to this, Bridgewater also analyzed the applicability of the PCB Generic Remedy to the interior of the Wolf residence. Results demonstrated that the Generic Remedy did apply. This analysis is located in Appendix B. The Sampling and Analysis plan are located in Appendix A.

The Wolf residence had been extensively remodeled in 1996 and 1997. Interior and exterior walls, floors, and ceilings were completely removed and replaced. The old plumbing and electrical systems, along with the old coal fired furnace, were also replaced. Given this extensive a remodel, any historic accumulation of dust present prior to the remodel was not be expected to remain in the house

The most likely surfaces to contain dusts/dirt accumulating since the remodel would be floors, windowsills, furnace vents and walls adjacent to light switches. Accordingly, wipe samples were taken in these areas to characterize the existence and extent of PCB contamination within the house. Wipe samples indicate how much PCB in micrograms exists per 100 square centimeters of sample area. See Figure 6. No PCBs were detected inside the house. Sample locations and results from these tests are in Table 3 following.

TABLE 3

Sample ID	Location	PCB Content (ug/100 cm2)
1-furnvent-001	Furnace vent main floor	Non detect (ND)
1-entry-001	Plastic floor covering in entryway	ND
1-ltswitch-001	Light switch area at base of stairway	ND
1-backdoor-001	Back door to garage at toddler level	ND
1-Ravent-001	2 nd story air vent return	ND
1-Ravent-002	Living room air vent return	ND
1-entry-002	Floor linoleum/vinyl at front entry	ND

VI. REMEDY IMPLEMENTATION

A. Remedial Action Objectives

The Remedial Action Plan submitted with the Bors site file Review to the DEQ documented the proposed remedy for the Bors site. See Appendix A.

The PCB Generic Remedy was applicable to this site for the following reasons:

- PCBs were the only significant contaminant of concern
- PCBs were present only in soils and posed no unacceptable ecological risks to the site
- There were no PCB hot spots ($> \text{ or } = 22 \text{ ppm}$)

The remedial action objective for the Wolf property site is the risk-based protection level for residential land use, 1.2 ppm.

The only area requiring remediation to attain residential standards was the main driveway area, because some of the samples exceed the 1.2 ppm limit. All other areas of the property and the house interior met the residential risk-based standard for PCBs.

B. Implementation

Soil excavation was performed in the driveway on September 26, 2000. Eight cleanup confirmation samples were taken after the excavation was complete. All sample results showed that residential risk-based cleanup standards were met. In addition to the soil and gravel removed from the driveway, a small shed was removed at the request of Mrs. Wolf.

Approximately 200 cubic yards of soil and debris were disposed of at the Columbia Ridge Landfill in Arlington, Oregon. Copies of disposal receipts are in Appendix F. The driveway was backfilled with crushed rock and then compacted. Cleanup confirmation sample results are presented in Table 4 following. Sample locations and final PCB results appear in Figure 7.

TABLE 4

Sample ID	Result (ppm)*
000926-Wolf 0	Non detect (ND)
000926-Wolf1	Non detect (ND)
000926-Wolf2	Non detect (ND)
000926-Wolf3	Non detect (ND)
000926-Wolf3.5	0.073
000926-Wolf4	Non detect (ND)
000926-Wolf4.5	Non detect (ND)
000926-Wolf5	Non detect (ND)

* detection limit is 0.067 ppm

VIII. Conclusions and Recommendations

The Wolf property has been cleaned up to residential cleanup levels in all areas of suspected contamination.

Based on the results of the remediation performed in the fall of 2000 and documented in this report, no further action is required to make this property meet the generic remedy applied to this site. PGE requests that DEQ issue a No further Action decision for the site.

Appendices

- A: Sampling and Analysis Plan/ Remediation Action Plan
- B Applicability of Generic Remedy to the Wolf Residence
- C: Parties selling equipment to Mr. Bors
- D: Well Log Report
- E: ECSI Listing
- F: Disposal Receipt
- G: Sample Data – Laboratory