



Minnesota
Pollution
Control
Agency

Statement of Basis: Stewart Lumber Corrective Action

Metro District,
Site Remediation
Section

Geographic/Hennepin County/#27.04/July 2001

This Minnesota Pollution Control Agency (MPCA) fact sheet describes the proposed corrective action for soil and ground-water contamination at the Stewart Lumber Company in northeast Minneapolis. The MPCA will accept public comments on the plan before making a final decision. The 45-day comment period begins June 23, 2001, and ends September 5, 2001.

In 1968, Stewart Lumber began a process using a boron solution to produce fire-retardant wood. This process still is performed at Stewart in the North Treatment Plant area.

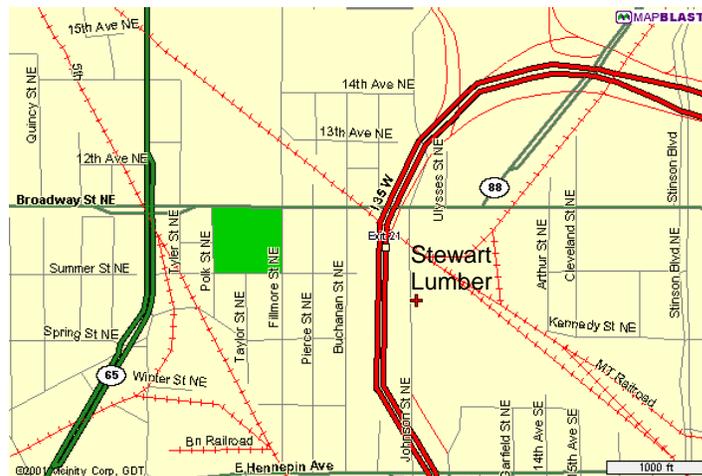
In 1962, Stewart added a treatment process using a chromated copper arsenate (CCA) solution. This process was conducted in the South Treatment Plant area. Treatment with the CAA solution was discontinued in 1989.

What is the history of this site?

The Stewart Lumber Company site has operated as a lumber yard and building material supplier since 1919. In 1958, Stewart began wood treatment operations. The early wood treatment process employed a dip tank located in the Truck/Service Garage. Pressure treatment of the wood was started in 1959 in an area called the South Treatment Plant. Both of these processes used pentachlorophenol (PCP) to protect wood from insect damage. Stewart Lumber stopped using PCP in 1977.

Where is the facility located?

The Stewart Lumber Company is located at 421 Johnson Street Northeast in Minneapolis. The company sits on a nine-acre site in an area zoned light industrial/commercial. The closest residential neighborhood is 700 feet from the site. Although there are many private industrial and commercial wells in the area, drinking water is supplied by the city of Minneapolis.





How was contamination discovered?

In 1992, the U.S. Environmental Protection Agency (EPA) conducted an inspection at Stewart as part of EPA's investigation of facilities permitted under the Resource Conservation and Recovery Act (RCRA), the law that regulates facilities that use, treat or store hazardous chemicals. EPA issued a report detailing the file review and limited sampling results, which indicated that certain waste-management areas at the site required further investigation by Stewart.

In 1993, Stewart Lumber entered into a voluntary Corrective Action Agreement with the MPCA for the investigation and remediation of contamination at their Minneapolis facility.

What are the contaminants of concern?

Wood is treated with chemicals to prevent it from rotting and being damaged by insects. Telephone poles, railroad ties, landscape timbers, and other products are made with treated wood.

- PCP can cause health problems involving the liver, kidneys, blood, lungs, nervous system, immune system, and gastrointestinal tract. The EPA has classified it as a possible carcinogen.
- Chromium is a toxic metal, contained in the wood-treating chemical CCA. One form of chromium, chromium-6, is more toxic than other forms. EPA has classified chromium-6 as a known cancer-causing agent.
- Arsenic is another component of CCA, and it is also a known carcinogen. It is toxic to human health.

While these chemicals have known health effects, they also are tied up in soil and ground water. People must be exposed before they can be harmed. Because the contaminants are located in an industrial area, where exposure to soil is limited and ground-water supplies are not used for drinking or cooking, the average person's likely exposure to chemicals at Stewart Lumber is low.

Which areas were investigated?

Three areas of concern have been identified at Stewart:

- The South Treatment Plant;
- The North Treatment Plant; and
- The Dip Tank/Garage Area.

The South Treatment Plant lumber was pressure-treated in cylinders located in Building 1, using PCP and CCA. Treated lumber was left in the cylinder to drip, then transferred via rail cars to an unpaved area north and east of the building. Testing indicates that PCP continued to drip in this area.

Extensive soil and ground-water contamination was identified in the South Treatment Plant area. Shallow ground water flows west to southwest and has affected the basement walls of a neighboring property. (This problem has been resolved.) PCP contamination in shallow ground water is found at levels as high as 86,500 parts per billion (ppb). (The Minnesota Department of Health's Health Risk Limit or HRL for PCP in ground water is 3 ppb.) Beneath the shallow aquifer, the Platteville Limestone has been contaminated at significantly lower levels; the highest PCP concentration detected is 6 ppb.

Significant soil contamination has been found as deep as 25 feet below ground surface (851 ppm). PCP contamination of surface soils ranges from small amounts to as much as 22,000 ppm. Contamination is mostly PCP, however CCA contamination is evident in some shallow soils. Copper as high as 1,300 ppm, chromium as high as 1,600 ppm and arsenic as high as 1,100 ppm have been identified at less than three feet below ground surface.

The North Treatment Plant is an area where CCA treatment and then, later, a borax treatment were conducted in pressurized treatment vessels. A small area, approximately 150 feet by 50 feet, of soil with elevated levels of arsenic, chromium and boron was discovered.

Arsenic concentrations are as high as 271 ppm in surface soils, chromium concentrations as high as 751 ppm and boron at 283 ppm.

Ground water is contaminated with elevated levels of chromium and boron, but below concentrations that are harmful for human consumption. However, arsenic levels in one well were above the federal Maximum Concentration Limit for drinking water.

The Dip Tank Area is west of the South Treatment Plant. Contamination resulted from PCP wood treatment in an open dip tank in the garage. Soils are not contaminated at levels of concern beneath the building. However, concentrations increase with depth. Ground-water contamination beneath the dip-tank building are probably the result of past leaks or spills during the dipping operation.



In shallow ground water, concentrations are as high as 15,400 ppb. A deep well in the Platteville Limestone aquifer shows low concentrations at 11 ppb. Ground water flow is controlled by the Minnesota Department of Transportation’s (MnDOT) dewatering system, installed to prevent water from collecting under I-35W.

A recovery well in this area has been used to remove ground-water contamination from the shallow ground water. Stewart Lumber conducted a pilot test using chemical compounds to encourage PCP to break down into less hazardous components through biological processes.

What is the proposed plan?

A corrective-measures study contains reviews of several different remedies, and indicates the one that is proposed. According to federal criteria, the remedy must:

- protect human health and the environment;
- attain clean-up standards; control the source of the releases; comply with waste-management standards; provide long-term effectiveness;
- reduce the amount of waste;
- provide short-term effectiveness;
- be easy to implement and
- be cost-effective.

The South Treatment Plant

Because soils are contaminated through the shale and to great depth, excavation and off-site disposal of the soil make cleanup technically challenging and cost-prohibitive. In addition, the impacts are largely confined in clay-like soils that don’t allow ground-water contaminants to move very easily.

Stewart Lumber has incorporated site clean-up goals into construction activities. A new building will act as a cap over the contaminated soils. The building will provide a barrier for direct human contact with the soil and will also minimize the leaching of the chemicals through the contaminated soil to further degrade ground water. Residual soil contamination will be sampled and this information will be included on a deed restriction that will prevent disturbance of the contamination in the future.

Further evaluation is necessary to determine if off site ground-water migration is controlled in this area. The MPCA and Stewart have not been successful in locating

and gaining permission to place additional off-site monitoring wells to track plume migration. Active pumping from removal well RW-2 or other gradient control measures may be necessary to prevent off-site ground water migration.

The North Treatment Plant

The proposed remedy includes removal of soils contaminated with levels above the industrial exposure criteria. Soil removal in this area will be difficult due to three large above-ground storage tanks. The excavation will proceed as close to the tanks as is safely possible. Residual soil contamination will be sampled, and this information will be included on a deed restriction that will prevent disturbance of the contamination in the future. Ground water in this area is captured by the MnDOT dewatering system.

Table 1. Cleanup Criteria for the North Treatment Plant

Metal	Soil Clean-up Goal, ppm
Arsenic	25
Chromium	100,000
Boron	23,000

The Dip Tank Area

Measures for controlling surface water run-off were accomplished by the company as soon as Stewart Lumber determined that the neighboring business was being affected. The measures have been successful.

Contaminated ground water in this area is captured by the MNDOT dewatering system that was placed to lower the water table for I-35W. This dewatering system is 30 feet below ground surface near Stewart Lumber and is placed in the Platteville Limestone. The dewatering system pulls area ground water into a 6-inch diameter pipe and discharges the water into the Mississippi River via a 13-foot storm water pipe. Stewart Lumber has sampled the discharge water before it enters the river and has not found detectable levels of PCP.

Since off-site movement of ground water is controlled by the dewatering system, on-site ground water corrective actions on the west side of the site do not appear to be necessary at this time. Monitoring will be conducted to confirm this is the appropriate remedy. Stewart Lumber will be responsible for any future permits associated with their discharge.

Long Term Monitoring and Institutional Controls

Ground-water monitoring at the site will be conducted to monitor surface-water impacts and ground-water flow direction and concentration changes over time. Long-term monitoring will continue until the Minnesota Department of Health's health risk limit (HRL) for PCP in ground water is attained. This concentration is 3 ppb.

Table 2. Remedy Evaluation Criteria and Comments

Evaluation Criteria	Comment
Protection of human health and the environment	Soils will be removed from direct human contact either by excavation (NTP) or by a building (STP). A restrictive covenant will ensure future use remains the same. Off-site ground water movement is controlled by the MnDOT dewatering system. A receptor survey that identified nearby ground water users indicates that water is not used for drinking or cooking.
Attain clean-up standards	The investigation defined the extent of contamination, and receptors will be protected from direct contact with the chemicals.
Control source	Future leaching of PCP is limited by placement of the new building. Ground water is controlled by the MnDOT system or other containment measures.
Comply with standards for waste management	Waste removed from the facility will be sent to a secure landfill permitted to receive this type of waste.
Long-term reliability	The restrictive covenant will ensure that future use of the site protects human health and the environment. Long-term monitoring and maintenance is necessary to ensure that conditions don't change.
Reduction of toxicity, mobility or volume of waste.	Some CCA contamination will be removed at the North Treatment Plant. The PCP contamination at the South Treatment Plant will be consolidated and covered under the new building.
Long-term reliability	The restrictive covenant will ensure that future use of the site protects human health and the environment by preventing future development that may disturb the waste or change the circumstances. Long-term monitoring and maintenance is necessary.
Reduction of toxicity, mobility or volume of waste.	Some PCP and CCA contamination will be removed. The remaining waste will be consolidated under the new building.
Short-term effectiveness	Run-off problems that bring waste to neighboring businesses are controlled.
Implementability	On-site construction workers will need to employ safety measures during construction activities.
Cost	On-site containment is a viable, cost-effective method of managing risk at Stewart Lumber.

Contaminated soils left in place, either at the North Treatment Plant or at the South Treatment Plant, will be identified on the property deed. An agreement (called a restrictive covenant) will ensure that future site activities will not disturb contaminated soils without notification to the MPCA. The proposed remedy meets or exceeds the nine criteria set out in EPA guidance.

How can I comment on the proposed remedy?

As part of the corrective-action process, the MPCA provides an opportunity for the public to comment on the proposed remedy. The MPCA staff will be accepting public comments on the proposed remedy from June 23, 2001, through September 5, 2001 at 4:30 p.m. You may submit written comments on the proposed remedy to the MPCA at the address listed below.

After the MPCA staff has reviewed public comments, the MPCA will prepare a response that containing a brief summary of public comments, explain the rationale for making or not making revisions based on comments, and describe the newly selected remedy, if applicable.

Where do I get more information?

Various reports are available at the Northeast Public Library, 2200 Central Avenue N.E. or from the MPCA files, 520 Lafayette Road N., St. Paul. Those interested in additional information should contact:

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