



U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF INSPECTOR GENERAL

Catalyst for Improving the Environment

Evaluation Report

Independent Ground Water Sampling Generally Confirms EPA's Data at Wheeler Pit Superfund Site in Wisconsin

Report No. 10-P-0218

September 8, 2010



Report Contributors:

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Abbreviations

DEHP	Di(2-ethylhexyl) phthalate
EPA	U.S. Environmental Protection Agency
NPL	National Priorities List
OIG	Office of Inspector General

Cover photo: Fence surrounding site boundary at the Wheeler Pit Superfund Site as of May 2008. (EPA OIG photo)



At a Glance

Catalyst for Improving the Environment

Why We Did This Review

The Office of Inspector General (OIG) is testing long-term monitoring results at Superfund sites the U.S. Environmental Protection Agency (EPA) has deleted from the National Priorities List. Wheeler Pit, located near Janesville, Wisconsin, is one of eight sites being reviewed. In May 2008, the OIG obtained Site ground water samples and a sample from a nearby residential well and conducted a site inspection.

Background

Wheeler Pit received paint sludge and coal ash from an automobile assembly plant. Site wastes were consolidated and capped. The Site was added to the National Priorities List in 1984 and deleted in 2004 when EPA determined that clean-up goals had been achieved.

For further information, contact our Office of Congressional, Public Affairs and Management at (202) 566-2391.

To view the full report, click on the following link:
www.epa.gov/oig/reports/2010/20100908-10-P-0218.pdf

Independent Ground Water Sampling Generally Confirms EPA's Data at Wheeler Pit Superfund Site in Wisconsin

What We Found

With minimal exceptions, our independent sampling results at the Wheeler Pit Superfund Site were consistent with the sampling results that EPA Region 5 has obtained historically. Among 135 contaminants that OIG compared, 8 were different from the region's results for some wells. The differences found among the eight contaminants do not have adverse implications for Site protectiveness, because there are either no applicable standards or the levels of the contaminants were below applicable standards. Our site inspection showed the Site was properly maintained and secured.

Our analysis of site data identified three contaminants – di(2-ethylhexyl) phthalate (DEHP), nickel, and nitrate – that exceeded safe drinking water standards in some wells. Because the OIG found excess levels of DEHP and nitrate in one residential well, OIG notified the resident in coordination with Region 5. Site records support Region 5's assertions that exceedances of nickel and nitrate do not have adverse implications for Site protectiveness, because these contaminants either do not originate from the Site or are contained by the Site remedy.

In addition to the OIG's detection of DEHP in one residential well, DEHP has a history of detection below the limit in some of the Site's ground water monitoring wells. The responsible party's contractor at Wheeler Pit has asserted that the presence of DEHP is due to sampling or laboratory contamination and the region has consistently accepted the explanation, but there is no documentation to support that DEHP is not site related. Therefore, it is unclear whether excess levels of DEHP found in one residential well have implications for Site protectiveness.

What We Recommend

We recommend that EPA Region 5 conduct additional sampling on the residential well with excess DEHP to verify the Region's assertion that DEHP is originating from the sampling process. Region 5 reviewed our draft report, concurred with our findings and recommendation, and proposed an acceptable corrective action.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

September 8, 2010

MEMORANDUM

SUBJECT: Independent Ground Water Sampling Generally Confirms
EPA's Data at Wheeler Pit Superfund Site in Wisconsin
Report No. 10-P-0218

FROM: Arthur A. Elkins, Jr.
Inspector General

A handwritten signature in black ink, appearing to read "Arthur A. Elkins, Jr.", is written over the typed name.

TO: Susan Hedman
Region 5 Administrator

This is our report on the subject evaluation conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains the findings from our sampling at the Wheeler Pit Superfund Site and corrective actions the OIG recommends. EPA Region 5 concurred with and provided corrective action for the recommendation of the draft report. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established resolution procedures.

The estimated cost of this report – calculated by multiplying the project's staff days by the applicable daily full cost billing rates in effect at the time, then adding in the contractor costs – is \$359,852.

Action Required

Your office has provided a complete and acceptable corrective action. Therefore, your office is not required to submit a 90-day response to this report. Your office should appropriately update the Management Audit Tracking System to provide information on the completion of the September 15, 2011, sampling activities. If your office believes it necessary to modify the agreed-to corrective plan, it should consult with OIG in advance. We have no objections to the further release of this report to the public. This report will be available at <http://www.epa.gov/oig>.

If you or your staff have any questions regarding this report, please contact Wade Najjum, Assistant Inspector General, at (202) 566-0832 or najjum.wade@epa.gov; or Carolyn Copper, Director for Program Evaluation, Hazardous Waste Issues, at (202) 566-0829 or copper.carolyn@epa.gov.

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Purpose

The Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA) is evaluating long-term monitoring at Superfund sites deleted from the National Priorities List (NPL). This evaluation is to determine whether EPA has valid and reliable data on the conditions of these sites. Wheeler Pit Superfund Site is one of eight sites being reviewed. At Wheeler Pit, we collected ground water samples and conducted a site inspection. We compared our results to past results reported by EPA Region 5.

Background

Wheeler Pit Superfund Site is located in rural La Prairie Township, approximately 1.5 miles east of the City of Janesville, Wisconsin. The Site covers 3.82 acres within a larger abandoned sand and gravel pit. Adjacent to the Site to the northeast is a small asphalt plant that is still in operation. The surrounding land use is primarily agricultural. Wheeler Pit received an estimated 22.3 million gallons of paint sludge, residue from the part hanger stripping system, clarifier sludges, and coal ash disposed by an automotive manufacturer from 1960 to 1974.

The Site was placed on the Superfund NPL in 1984. In 1990, EPA issued a Record of Decision describing the clean-up goals and actions to be taken. In 1992, the responsible party conducted remedial actions, which included placing a Resource Conservation and Recovery Act Subtitle D cap over the waste. In addition, a long-term monitoring program was established to evaluate performance of the remedy and the state of natural attenuation. EPA deleted Wheeler Pit from the NPL in April 2004, signifying that clean-up goals had been achieved.

Using data and information obtained from the long-term monitoring program, Region 5 must evaluate the Site at least once every 5 years to determine if it is protective of human health and the environment. The results of this determination are reported in a publicly released Five-Year Review report. In years when Region 5 conducts a review, all 15 Site ground water monitoring wells and 2 residential wells are sampled. During those years not involving a review, the Region annually samples 4 of the 15 wells. Region 5 has completed three reviews, the most recent in 2007.

Noteworthy Achievements

Region 5's remedial construction activities included the following:

- Consolidating 36,400 cubic yards of material including waste
- Installing a clay cap over the waste and consolidated material
- Installing a fence around the entire site
- Constructing an access road, retention basin, and perimeter drainage swale
- Installing new monitoring wells and abandonment of older wells

The remedy was designed to eliminate or reduce migration of contaminants to the ground water and to reduce the risks associated with exposure to the contaminated materials. Institutional

controls were established to limit access and restrict future land use of the Site. The remedy also included monitoring ground water for natural attenuation, maintaining and monitoring effective institutional controls, and site remedy components.

Scope and Methodology

We conducted our work in accordance with generally accepted government auditing standards. Those standards require that we plan and perform evaluations to obtain sufficient and appropriate evidence to provide a reasonable basis for our findings and conclusions based on our objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our objectives. We reviewed relevant guidance and key historical documents, including past sampling results and decision documents such as the Record of Decision, Five-Year Reviews, operation and maintenance reports, and State regulations. We also interviewed the remedial project managers from EPA Region 5 and the State project managers from the Wisconsin Department of Natural Resources.

We conducted our work in two phases. During the first phase, from April to September 2008, we conducted a site visit, collected ground water samples, and performed data validation on the sample results. During the second phase of our work, from September 2009 to July 2010, we analyzed and compared OIG's data to Region 5's sampling data and prepared the report.

We acquired a qualified environmental contractor to take ground water samples and conduct a limited site inspection. In May 2008, our contractor collected nine Site ground water samples and a sample from a nearby residential well. The samples were analyzed using EPA-approved methods for volatile organic compounds, semivolatile organic compounds, metals, and inorganic nonmetals. A limited site inspection was conducted by OIG staff and the contractor. OIG staff members were present during the contractor's inspection and sampling to ensure that proper sampling and site inspection quality assurance protocols were followed.

We compared our sampling data to Region 5's historic sampling data to determine whether the region has been obtaining valid and reliable data on the conditions at the Site. We also analyzed our results in the context of the National Primary Drinking Water standards and Wisconsin ground water quality standards. The Record of Decision establishes that applicable or relevant and appropriate requirements for ground water are both federal and State standards. Wisconsin's Enforcement Standards are the enforceable standards, because they pertain to ground water quality. The federal Maximum Contaminant Levels are the drinking water standards for the residential well we sampled.

To accomplish the comparisons between OIG's and the Region's sampling data, we compared our sampling results to the Region's 2002 and 2007 historical sampling data. OIG sampling results that were greater than 2 standard deviations above the average regional historical concentrations were considered different. Our review did not include an evaluation of the reasons for these differences. However, where we observed differences, we determined whether the OIG data indicated that there was an adverse implication for Site protectiveness.

A draft of this report was sent to the Region 5 Administrator for official comment. Region 5's comments on the draft report are in Appendix A.

Sampling Results

With minimal exceptions, OIG's independent sampling results at the Wheeler Pit Superfund Site were consistent with the sampling data that EPA Region 5 has obtained historically. We compared OIG results for 135 compounds in each of the 10 wells we sampled and found that 127 of the contaminants had historic data similar to OIG data. The following 8 contaminants were found to be different in one or more of the 10 wells we sampled: barium, calcium, chemical oxygen, iron, magnesium, sodium, sulfate, and zinc. However, these differences do not have adverse implications for Site protectiveness. Calcium, chemical oxygen, magnesium, and sodium have no standards. Iron, sulfate, barium, and zinc were below the applicable, or most conservative, federal or State standards.

Comparison of OIG results to applicable standards showed three compounds that exceeded the standards: di(2-ethylhexyl) phthalate (DEHP), nitrate, and nickel. Elevated levels of DEHP and nitrate were found in a residential well. In coordination with Region 5, OIG notified the resident by letter of the DEHP and nitrate exceedances and referred the resident to Region 5 for health or Site-related questions.

The responsible party's contractor has also detected DEHP in past sampling actions. When DEHP was detected, the responsible party's contractors attributed it to a residue from the sampling procedures (i.e., field blank contamination or laboratory contamination). DEHP is commonly used in the manufacture of plastics. The responsible party's contractor has asserted that DEHP contamination originated from plastic materials used in the environmental sampling and analysis process, and the region has consistently accepted the explanation. However, there is no documentation to support the contention that DEHP is not site related and is exclusively an artifact of environmental sampling. Therefore, it is not clear what impact DEHP has on Site protectiveness.

A Site manager stated that the nitrate levels are not originating from the Site but instead are due to agricultural impacts in the area. He further noted that nitrate concentrations in one of the Site background monitoring wells also exceeded ground water standards. The background monitoring well is located up-gradient from the Site and represents ground water conditions that exist before ground water passes through the Site. These conditions are consistent with an offsite source for the nitrate.

OIG sample results showed nickel exceeded State standards in two onsite monitoring wells and elevated nickel levels were also found in Region 5's 2002 and 2007 samples from the same wells. Region 5 managers stated that because the nickel was found only in onsite wells, the nickel had no impact on the Site's protectiveness because it was being contained by the Site remedy. The regional remedial project manager also added that EPA would be conducting a human health risk assessment on nickel in the future.

Recommendation

We recommend that the Region 5 Regional Administrator:

1. Conduct additional sampling on the residential well with excess DEHP to verify the Region's assertion that DEHP is originating from the sampling process.

EPA Region 5 Response and OIG Evaluation

The EPA Region 5 Administrator reviewed our draft report and concurred with our findings and recommendation. Region 5 proposed additional sampling of the residential well to be completed by September 15, 2011. OIG accepts this corrective action.

Status of Recommendations and Potential Monetary Benefits

RECOMMENDATIONS						POTENTIAL MONETARY BENEFITS (in \$000s)	
Rec. No.	Page No.	Subject	Status ¹	Action Official	Planned Completion Date	Claimed Amount	Agreed To Amount
1	4	Conduct additional sampling on the residential well with excess DEHP to verify the Region's assertion that DEHP is originating from the sampling process.	O	Regional Administrator, Region 5	9/15/2011		

¹ O = recommendation is open with agreed-to corrective actions pending
 C = recommendation is closed with all agreed-to actions completed
 U = recommendation is undecided with resolution efforts in progress

Appendix A

EPA Region 5 Response to Draft Report

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION 5
 77 WEST JACKSON BOULEVARD
 CHICAGO, IL 60604-3590

August 12, 2010

MEMORANDUM

Subject: Response to Office of Inspector General's Draft Evaluation Report: Independent Groundwater Sampling Generally Confirms EPA's Data at Wheeler Pit Superfund Site in Wisconsin
 Project No. 2008-547

From: Susan Hedman /s/
 Regional Administrator

To: Carolyn Copper
 Director of Hazardous Waste Issues
 Office of Program Evaluation

The purpose of this memorandum is to provide the United States Environmental Protection Agency (EPA) Region 5's response to the Office of Inspector General's (OIG) Draft Evaluation Report entitled "Independent Groundwater Sampling Generally Confirms EPA's Data at Wheeler Pit Superfund Site in Wisconsin" (Project No. 2008-547), dated July 28, 2010. Region 5 concurs with the findings and recommendation in the draft evaluation report. Our responses are as follows:

Factual Accuracy

Region 5 reviewed the draft evaluation report for factual accuracy and found the report to be accurate in comparison with the September 1990 Wheeler Pit Record of Decision (EPA Region 5, 1990), other technical documents utilized and interviews conducted by OIG that are cited.

Concurrence with Findings and Recommendation

Region 5 concurs with the findings and recommendation in the draft evaluation report. OIG's Draft Evaluation Report included a recommendation to conduct additional sampling on the residential well with excess di(2-ethylhexyl) phthalate (DEHP) to verify the Region's assertion that DEHP is originating from the sampling process. Region 5 plans to conduct additional sampling on the residential well with excess DEHP in the near future by using an EPA Region 5 Superfund Technical Assistance Team (STAT) contractor. Region 5 will notify OIG, once the additional sampling is completed.

Planned Schedule for Recommendation

Region 5 plans to complete the sampling on the residential well with excess DEHP at Wheeler Pit by September 15, 2011.

Please contact me at (312) 886-3000 or hedman.susan@epa.gov; or Karen Mason-Smith, Remedial Project Manager at (312) 886-6150 or mason-smith.karen@epa.gov, if you have any questions.

Cc: P. Milligan, OIG

Appendix B

Distribution

Office of the Administrator
Assistant Administrator, Office of Solid Waste and Emergency Response
Regional Administrator, Region 5
Principal Deputy Assistant Administrator, Office of Solid Waste and Emergency Response
Director, Office of Superfund Remediation and Technology Innovation, Office of Solid Waste
and Emergency Response
Agency Follow-up Official (the CFO)
Agency Follow-up Coordinator
General Counsel
Associate Administrator for Congressional and Intergovernmental Relations
Associate Administrator for External Affairs and Environmental Education
Audit Follow-up Coordinator, Office of Solid Waste and Emergency Response
Audit Follow-up Coordinator, Region 5
Inspector General