

Letter Health Consultation

Evaluation of Indoor Air Sampling Results for Vapor Intrusion

ORDNANCE PRODUCTS, INC.

NORTH EAST, CECIL COUNTY, MARYLAND

EPA FACILITY ID: MDD982364341

JULY 8, 2013

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

You May Contact ATSDR TOLL FREE at
1-800-CDC-INFO

or

Visit our Home Page at: <http://www.atsdr.cdc.gov>

LETTER HEALTH CONSULTATION

Evaluation of Indoor Air Sampling Results for Vapor Intrusion

ORDNANCE PRODUCTS, INC.

NORTH EAST, CECIL COUNTY, MARYLAND

EPA FACILITY ID: MDD982364341

Prepared By

U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations
Eastern Branch



Agency for Toxic Substances
and Disease Registry
Atlanta GA 30333

July 8, 2013

Francisco J. Cruz
On Scene Coordinator
Removal Response Program (Mail Code 3HS31)
U.S. Environmental Protection Agency, Region 3
1450 Arch Street
Philadelphia, PA 19103-2029

Dear Mr. Cruz:

Thank you for consulting with the Agency for Toxic Substances and Disease Registry (ATSDR) regarding public health aspects of the U.S. Environmental Protection Agency's (EPA's) sampling results and activities at the Ordnance Products, Incorporated site in North East, Maryland. I am writing to provide ATSDR's opinion on the efforts taken by EPA to address the short-term threat posed by TCE based on the results of recent indoor air sampling at homes near the site.

Summary

ATSDR agrees that mitigation was necessary to reduce harmful exposures. On the basis of the most recent indoor air sampling data from each home, *continuing harmful exposures from vapor intrusion of TCE are unlikely*.

To confirm that indoor air TCE concentrations remain consistently below levels of health concern, ATSDR recommends an additional round of sampling at the mitigated homes and one other home that had TCE detected in 2009.

ATSDR also recommends a plan for inspection and maintenance of the vapor mitigation systems to ensure they continue to operate as designed. This plan should be followed throughout remedial actions at the site.

Background

The Ordnance Products, Incorporated site ("the site") is a former manufacturing facility for grenade fuses, detonators, and related devices. The site has been listed on the National Priorities List (NPL) since 1993. Onsite groundwater and soil are contaminated with perchlorate and chlorinated volatile organic compounds (VOCs), primarily trichloroethylene (TCE). Nearby wells impacted by the contamination are

being treated and monitored by EPA to ensure safety of drinking water, and remedial work on the site is ongoing.¹

In July 2009, a vapor intrusion investigation at several homes near the site identified two homes with concentrations of TCE in indoor air ranging from 8.6 to 97 µg/m³ (see summary in Table 1).² Indoor air criteria existing at that time did not categorize the levels as a threat by EPA, but new EPA criteria published in 2012 categorized the levels as an immediate threat to the residents living in the homes.¹ Therefore, in April 2012 EPA's Removal Program installed vapor mitigation systems in the two homes.¹

After installation of the mitigation systems, indoor air samples were collected from the two homes.³ As shown in Table 1, one home had no TCE detected in indoor air. The other home still had TCE concentrations higher than screening criteria, though the concentration was reduced from the 2009 sampling. Inspection of the home with TCE remaining in indoor air revealed several containers holding various VOCs.⁴ These were removed from the home, and in April 2013 another round of indoor sampling was performed. Results indicate the TCE levels in the home ranged from non-detect to 2.0 µg/m³.⁵

Table 1. Summary of Indoor Air Sampling at Homes Near the Ordnance Products, Inc. Site, North East, Maryland

Home	Indoor Air TCE Concentration in µg/m ³			EPA Reference Concentration and ATSDR Intermediate/Chronic Minimal Risk Level in µg/m ³
	2009 Vapor Intrusion Study*	Feb. 2013 After Installation of Mitigation System†	April 2013 After Removal of Potential VOC Sources‡	
"01"	Not Detected (ND)	Not Applicable (N/A)	N/A	2
"04"	ND	N/A	N/A	2
"45"	ND – 1.3	N/A	N/A	2
"46"	8.6 – 13	ND	N/A	2
"47"	64 – 97	1.4 – 3.2	ND – 2.0	2
"48"	ND	N/A	N/A	2

µg/m³ = micrograms per cubic meter
 * Tetra Tech. Residential Vapor Intrusion Study (Round 3) Letter Report, Ordnance Products Site. Prepared for U.S. Environmental Protection Agency Region 3. King of Prussia (PA); September 2009.
 † Weston Solutions, Inc. Final Trip Report, Post-Removal Action Vapor Intrusion Sampling at Residences Near the Ordnance Products Site, North East, Maryland. Prepared for U.S. Environmental Protection Agency, Region III, Hazardous Site Cleanup Division. West Chester (PA); April 2013.
 ‡ Memo from Colleen Walling of EPA to Francisco Cruz of EPA RE: Region III Data QA Review (Organic Data Validation Report for the Ordnance Products Site for Case/DAS# R34170, SDF# COAA9). June 4, 2013. Provided via E-mail from Francisco Cruz to Lora Werner and Karl Markiewicz of ATSDR on Thursday, June 13, 2013 1:59 pm.
 Shaded blocks indicate detections above Reference Concentration and intermediate/ chronic Minimal Risk Level.

¹ U.S. Environmental Protection Agency. POLREP #1 and Special Bulletin, Ordnance Products, Incorporated Superfund Site. Francisco J. Cruz, June 14, 2012.

² Tetra Tech. Residential Vapor Intrusion Study (Round 3) Letter Report, Ordnance Products Site. Prepared for U.S. Environmental Protection Agency Region 3. King of Prussia (PA); September 2009.

³ Weston Solutions, Inc. Final Trip Report, Post-Removal Action Vapor Intrusion Sampling at Residences Near the Ordnance Products Site, North East, Maryland. Prepared for U.S. Environmental Protection Agency, Region III, Hazardous Site Cleanup Division. West Chester (PA); April 2013.

⁴ E-mail from Francisco Cruz of EPA to Karl Markiewicz of ATSDR RE: Ordnance Products. Tuesday, May 28, 2013 2:38 pm.

⁵ Memo from Colleen Walling of EPA to Francisco Cruz of EPA RE: Region III Data QA Review (Organic Data Validation Report for the Ordnance Products Site for Case/DAS# R34170, SDF# COAA9). June 4, 2013. Provided via E-mail from Francisco Cruz to Lora Werner and Karl Markiewicz of ATSDR on Thursday, June 13, 2013 1:59 pm.

Evaluation, Conclusions, and Recommendations

EPA's Reference Concentration(RfC) of 2 µg/m³ was adopted by ATSDR as its intermediate and chronic Inhalation Minimal Risk Level (MRL) in January 2013.⁶ The RfC and MRL represent a level below which no harmful non-cancer health effects would be expected, and consider conservative exposure assumptions.

The high levels of TCE detected in 2009 in two homes indicated that exposure mitigation was necessary. However, after mitigation of one home and after mitigation and removal of additional potential VOC sources from the other home, indoor air TCE concentrations are at or below the RfC/MRL. On the basis of these data, *continuing harmful exposures from vapor intrusion of TCE are unlikely*.

This conclusion is based on a single final sampling event for each home, and some of the detections were at or just below the RfC/MRL. To confirm the finding that TCE concentrations are low over time, ATSDR recommends an additional round of sampling at the mitigated homes ("46" and "47") and at another home where TCE was detected in 2009 ("45").

ATSDR also recommends a plan for inspection and maintenance of the vapor mitigation systems to ensure they continue to operate as designed. This plan should be followed throughout remedial actions at the site.

Thank you for including ATSDR in your site work. If you have any questions or concerns, please feel free to contact me at (770) 488-0768 or JDyken@cdc.gov. You can also contact Dr. Karl Markiewicz in our Philadelphia office at (215) 814-3149.

Sincerely,

[signed]

Jill J. Dyken, PhD, PE
Environmental Health Scientist
Eastern Branch
Division of Community Health Investigations

⁶ Agency for Toxic Substances and Disease Registry. Addendum to the Toxicological Profile for Trichloroethylene. Atlanta, GA: U.S. Department of Health and Human Services; January 2013. Available at: http://www.atsdr.cdc.gov/ToxProfiles/tce_addendum.pdf.