

# Health Consultation

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E.I. DU PONT DE NEMOURS & CO., INC.  
COUNTY ROAD X-23 SITE

LEE COUNTY, IOWA

EPA FACILITY ID: IAD980685804

SEPTEMBER 25, 2007

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Agency for Toxic Substances and Disease Registry  
Division of Health Assessment and Consultation  
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.

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HEALTH CONSULTATION

E.I. DU PONT DE NEMOURS & COM., INC. COUNTY ROAD X-23 SITE

LEE COUNTY, IOWA

EPA FACILITY ID: IAD980685804

Prepared By:

Iowa Department of Public Health  
Under a Cooperative Agreement with the  
U.S. Department of Health and Human Services  
Agency for Toxic Substances and Disease Registry

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## **Purpose**

The U.S. Environmental Protection Agency (EPA) is completing a third five-year review of the E. I. du Pont de Nemours & Co., Inc., County Road X-23 Superfund site in Lee County, Iowa. The site is also known as the Baier and McCarl subsites. The EPA is inviting public comment on whether the current site remedy continues to be protective of public health and the environment. The Iowa Department of Public Health in cooperation with the Agency for Toxic Substances and Disease Registry (ATSDR) prepared this health consultation to review the current status of the Baier and McCarl subsites and to provide an evaluation of the public health status of these subsites. The information in this health consultation was current at the time of writing. Data that emerges later could alter this document's conclusions and recommendations.

## **Background**

The DuPont County Road X-23 site, consisting of the Baier and McCarl subsites, is located in rural Lee County, Iowa, approximately 3.5 miles south of the town of West Point. The two subsites are located 0.75 miles apart, in Township 68 North and Range 5 West. The Baier subsite is located in the southwest quarter of Section 28, and the McCarl subsite is located in the southwest quarter of Section 22 (see Figure 1 on page 5). The Baier subsite encompasses approximately 3.5 acres and is accessible by County Road X-23. The McCarl subsite encompasses approximately 1.25 acres located in a largely undeveloped, wooded area.

Between April 1949 and November 1953, wastes generated at DuPont's paint manufacturing facility located in Fort Madison, Iowa, were deposited at waste disposal areas at the Baier and McCarl subsites. An estimated 48,000 to 72,000 55-gallon drums of waste were disposed at the two subsites. In addition to drummed wastes, paint waste was placed in trenches and burned. An estimate of the volume of material burned indicated that 4,500 to 7,000 tons of ash was present at the subsites. The Baier subsite was the primary disposal area; however, in inclement weather, when the Baier subsite was not accessible, wastes were disposed at the McCarl subsite (1).

The subsites were identified as sources of volatile organic compounds (VOCs) and metals contamination during initial EPA investigations conducted between 1983 and 1986. As a result of site contamination identified in soil and groundwater, the DuPont County Road X-23 site was proposed for inclusion on the National Priorities List (NPL) in June 1988 and the listing became final in August 1990.

Prior to remedial activities contamination in soil consisted primarily of metals, including lead, cadmium, chromium, and selenium, and organic compounds, including toluene, methylbenzene, total xylene, and naphthalene. Remedial investigation data from both subsites indicated that the aerial extent of lead contamination in soil defined the surface area of contamination and that lead contamination rapidly attenuated with depth, decreasing to the background level of 350 milligrams/kilogram (mg/kg) at four feet below ground surface (bgs) (1).

Total xylenes, ethylbenzene, and selenium were the primary contaminants in the shallow groundwater at the Baier subsite. Selenium, lead, arsenic, barium, cadmium, and chromium

were the contaminants found in the shallow groundwater at the McCarl subsite. Deep monitoring wells at both of the subsites were not found to be impacted by site-related contaminants (1). The Baseline Risk Assessment completed by EPA concluded that no exposure to contaminated groundwater would occur due to the low groundwater yield from the contaminated zone. As a result, no groundwater remedial activities were planned at both subsites.

Prior to the start of remedial construction activities, surface debris from both subsites was accumulated, characterized, and disposed at a hazardous waste landfill. Contaminated soil was excavated from the McCarl subsite and transported to the Baier subsite, where it was stockpiled within the area of contamination awaiting treatment. The McCarl subsite was then backfilled with clean soil and covered with six inches of topsoil. The site was graded, fertilized, and seeded (1).

Remedial activities at the Baier subsite began with construction of a disposal trench. Contaminated soil was excavated from the Baier subsite and also placed in the trench. Stabilization of the excavated soil was achieved by mixing the contaminated soil with water and approximately 20 percent Type 1 Portland cement. The stabilization process was completed directly in the disposal trench. A three-foot thick layer of compacted clay followed by a one foot thick layer of topsoil was placed over the treated material. After placement of the topsoil, the disposal trench area was graded, fertilized, and seeded (1).

The site achieved construction completion status when the preliminary close out report was signed on September 29, 1993. The EPA and the State of Iowa determined that all remedial construction activities, including the implementation of institutional controls, were performed according to the specifications. Institutional controls implemented at the site included restrictions to limit land and groundwater utilization at both subsites. The final close out report for the site was signed on August 1, 1994, and the site was deleted from the National Priority List (NPL) on September 25, 1995 (1).

### **Monitoring and Maintenance of the Site**

One year of quarterly groundwater sampling of the shallow and deep water bearing zones at the McCarl subsite began in September 1992 and was conducted annually through September 1996. One year of quarterly groundwater sampling of the shallow and deep water bearing zones at the Baier subsite began in September 1993 and was conducted annually through September 1996. Groundwater monitoring was conducted biennially, in 1998 and 2000. Based upon the recommendations made during the second five-year review, groundwater monitoring at the Baier subsite continued biennially, in 2003, 2004, and 2006. Groundwater monitoring at the McCarl subsite was discontinued and both shallow and deep monitoring wells were properly abandoned in July 2003.

The latest groundwater monitoring was completed in September 2006 at the Baier subsite. Both shallow (water level at 23 to 53 feet below ground surface) and deep (water level at 76 to 114 feet below ground surface) groundwater monitoring wells were sampled and the groundwater was analyzed for metals. The results of the groundwater monitoring were compared to federal drinking water standards. The federal drinking water standard for selenium, the maximum

contaminant level or MCL, was exceeded in two of the shallow groundwater monitoring wells during the September 2006 sampling event. Metals above a federal drinking water standard were not detected in any of the deep groundwater monitoring wells during the September 2006 sampling event. Because the detection limit of thallium is above the MCL, it is unknown whether the levels of thallium are above or below the MCL; however, because there is no current exposure pathway, there is currently no health risk associated with the levels of selenium or thallium that may be present in the groundwater. Results from the groundwater monitoring completed in September 2006 are shown in Appendix 1.

Inspections of the McCarl and Baier subsites have been completed since remedial activities were completed at both subsites. Site inspections have been completed every 4 months at both subsites. The condition of the ground cover and drainage structures at each subsite are inspected along with the condition of the subsite fencing. The last inspection was completed by Dupont personnel on March 29, 2007 (Appendix 2). The inspection report indicated that the vegetative cover on both subsites was well established and in good condition. The inspection report also indicated that there were no erosion problems at both subsites. The inspection report indicated that there was some minor damage to the fence along the west side of the Baier subsite due to some fallen tree branches and limbs. The inspection report indicated that repairs to the fence were expected to be completed within two weeks of the inspection. The inspection report indicated that the fence at the McCarl site was in good condition.

### **Contaminants of Concern**

The contaminants of concern at the site at the time the subsites were listed on the NPL were volatile organic compounds (VOCs) and heavy metal contamination of the soil and groundwater. It was determined that exposure to soil at both subsites presented significant human health risks associated with a future land use scenario involving residential exposures.

### **Exposure Pathways**

Exposure to contaminants of concern is determined by examining human exposure pathways. An exposure pathway has five parts:

1. a source of contamination,
2. an environmental medium such as air, water, or soil that can hold or move the contamination,
3. a point at which people come in contact with a contaminated medium, such as in drinking water or in surface soil,
4. an exposure route, such as drinking water from a well or eating contaminated soil on homegrown vegetables, and
5. a population who could come in contact with the contaminants.

An exposure pathway is eliminated if at least one on the five parts is missing and will not occur in the future. For a completed pathway, all five parts must exist and exposure to a contaminant must have occurred, is occurring, or will occur.

There are currently no completed exposure pathways to materials deposited within both the McCarl and Baier subsites. All contaminated material has been removed from the McCarl subsite. The constructed caps at both subsites continue to function as designed. The vegetative cover at both subsites is reported to be in good condition. Exposure to any soil that may have elevated levels of contaminated has been eliminated at both subsites.

Current groundwater monitoring at the Baier subsite indicated that metals within the deep groundwater monitoring wells are not currently detected above federal drinking water standards. According to EPA, the installation of wells for potable uses is currently prohibited by an environmental covenant placed upon both subsite properties (1).

## **Community Health Concerns**

The community was given opportunity to comment on the site during the 5-year review process. No comments from the public or local community have been received as of the writing of this health consultation.

## **Conclusions**

The current status of the E. I. du Pont de Nemours & Co., Inc., County Road X-23 Superfund site has been reviewed to evaluate the long-term effectiveness of the remediation. The IDPH reviewed the site information and exposure pathways and concluded that the site poses no public health hazard at the present time and is not expected to in the future as long as the integrity of the cap is maintained and exposure to site groundwater is restricted.

## **Recommendations**

- The EPA and E. I. du Pont de Nemours & Co. should maintain and enforce restricted site access and existing environmental covenant.
- Maintenance of the cap at each subsite should be continued.
- Continued monitoring of the groundwater at the Baier subsite should be continued.

## **Public Health Action Plan**

- IDPH will review results of site inspections and groundwater monitoring at the next 5-year review.
- IDPH will respond to any community concerns that may arise.



Figure 1: Site Map



## **References**

1. U.S. Environmental Protection Agency, Third Superfund Five-Year Review Report for the E. I. du Pont de Nemours & Co., Inc. County Road X-23 Site

## **Preparers of the Report**

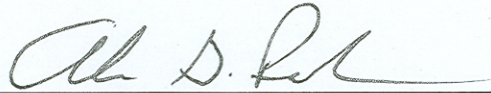
### **Author**

Stuart Schmitz, P.E. and Sara Colboth  
Hazardous Waste Site Health Assessment Program  
Iowa Department of Public Health



## CERTIFICATION

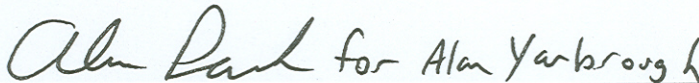
The Iowa Department of Public Health, Hazardous Waste Site Health Assessment Program, has prepared this health consultation for the E. I. du Pont de Nemours & Co., Inc., County Road X-23 Superfund site under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). The document is in accordance with approved methodology and procedures existing when the health consultation was being prepared. Editorial review was completed by the cooperative agreement partner.



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Technical Project Officer, CAT, CAPEB, DHAC, ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this health consultation and concurs with its findings.



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Team Lead, CAT, CAPEB, DHAC, ATSDR

## Appendix 1 – Recent Groundwater Monitoring at the Baier Subsite

### GW Concentrations: 2006

Zone	Shallow										Deep				Screening Criteria
	BRA-1S	BRA-2S	BRA-3S	BRA-4S	BRA-5S	BRA-1D	BRA-2D	BRA-3D	BRA-4D						
ALUMINIUM	0.104 J	1.3	3.9	8.41	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	0.334	0.05 <sup>(1)</sup>				
ANTIMONY	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035	0.006				
ARSENIC	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	0.01				
BARIUM	0.0562 J	0.167 J	0.0876 J	0.187 J	0.0319 J	0.0884 J	0.115 J	0.129 J	0.0726 J	2					
BERYLLIUM	<0.000062	0.00012 J	0.00032 J	0.00026 J	0.00018 J	<0.000062	<0.000062	<0.000062	0.0001 J	0.004					
CADMIUM	<0.00088	<0.00088	<0.00088	<0.00088	<0.00088	<0.00088	<0.00088	<0.00088	<0.00088	0.005					
CALCIUM	162	213	239	76.5	269	80.2	86.4	86.4	187	---					
CHROMIUM	<0.00091	0.0037 J	0.0037 J	0.0125	<0.00091	<0.00091	<0.00091	<0.00091	0.0016 J	0.1					
COBALT	<0.001	0.0032 J	0.0166 J	0.0059 J	0.0049 J	<0.001	0.0012 J	0.0035 J	0.0066 J	---					
COPPER	0.0027 J	0.0043 J	0.0066 J	0.012 J	0.0016 J	0.00091 J	0.00065 J	0.00074 J	0.0018 J	1.3 <sup>(2)</sup>					
IRON	0.201	2.15	4.32	8.42	0.0591 J	0.0122 J	0.593	0.131	1.55	0.3 <sup>(1)</sup>					
LEAD	<0.004	<0.004	<0.004	0.0104	<0.004	<0.004	<0.004	<0.004	<0.004	0.015 <sup>(2)</sup>					
MAGNESIUM	57	85.3	96.8	26.3	99.9	29	33.9	29.4	78.2	---					
MANGANESE	0.0345 J	0.231 J	1.18 J	1.62 J	1.22 J	0.0406 J	0.248 J	0.499 J	1.74 J	0.05 <sup>(1)</sup>					
MERCURY	<0.00013	<0.00013	<0.00013	<0.00013	<0.00013	<0.00013	<0.00013	<0.00013	<0.00013	0.002					
NICKEL	0.0018 J	0.0076 J	0.017 J	0.017 J	0.022 J	<0.0017	0.002 J	0.0046 J	0.007 J	---					
POTASSIUM	1.97 J	3.34 J	2.63 J	2.42 J	3.04 J	2.84 J	3 J	2.75 J	3.93 J	---					
SELENIUM	0.149	0.0518	0.0082 J	<0.0062	<0.0062	<0.0062	<0.0062	<0.0062	<0.0062	0.05					
SILVER	<0.00062	<0.00062	<0.00062	<0.00062	<0.00062	<0.00062	<0.00062	<0.00062	<0.00062	0.1 <sup>(1)</sup>					
SODIUM	39.9	38.3	49.3	19.8	48.5	46.1	48.9	46.2	60	---					
THALLIUM	<0.0079	<0.0079	<0.0079	<0.0079	<0.0079	<0.0079	<0.0079	<0.0079	<0.0079	0.002					
VANADIUM	0.0016 J	0.0047 J	0.0081 J	0.017 J	<0.00085	<0.00085	<0.00085	<0.00085	0.0018 J	---					
ZINC	0.0047 J	0.0054 J	0.0141 J	0.0576 J	0.003 J	0.0025 J	<0.0019	0.0031 J	<0.0019	5 <sup>(1)</sup>					

All units are mg/L. B: Blank Contamination (1): Secondary Drinking Water Standard

Shade: Result > MCL CRDL: Contract Required Detection Limit (2): Action Level

J: Estimated Concentration

Screening Criteria: Federal Maximum Contaminant Levels (MCLs) unless specified



Appendix 2 – Latest Inspection Report

CON 12-15  
Doc #10278



DuPont Performance Coatings  
801-35th Street  
Fort Madison, IA 52627

Mar. 30, 2007

Ms. Diana L. Engeman  
Remedial Project Manager  
U.S. EPA Region VII  
Iowa/Nebraska Remedial Branch  
Superfund Division  
901 North 5<sup>th</sup> St.  
Kansas City, Kansas 66101

RE: Inspection and Maintenance Plan Report for E.I. du Pont  
de Nemours and Company, (DuPont Lee County X-23) Baier  
and McCarl Site, Lee County, Iowa for Mar. 29, 2007.

Dear Ms. Engeman:

I have attached a copy of the Mar. 29, 2007 report, as required  
by the Inspection and Maintenance Plan.

If you have any questions, please call the writer at 319-  
376-5238.

A handwritten signature in cursive script that reads "Ray Krogmeier".

Ray Krogmeier  
Environmental Resource

CC: LMM, HKR - Plant  
Kim Johnson CRG, Charlotte  
James B. Allen, Wilm  
Bob Drustrup, IADNR

INSP03292007EPA.doc

05331 APR 10 07 AM 9:11

Mar. 30, 2007

**Baier Site (DuPont Lee County X23)  
Site Inspection Report:**

**Date of Inspection: Mar. 29, 2007**

**Inspection Personnel: Ray Krogmeier, DuPont, Fort Madison**

**Weather: Dry, Overcast, 65 degrees**

**Description of Cover Conditions -**

Vegetation well established over entire site.

Erosion Areas: All areas in good condition.

**Description of Natural Drainages -**

No erosion evident in any drainage areas.

**Roadway to Site -**

Good condition

**Description of Security Fences -**

Gate was closed, and locked. Discovered several tree branches/limbs had fallen on the fence on the west side of the site, causing some minor damage to the fence. A local contractor has been contacted to clear tree limbs and tighten the fence wire. Expect repairs to be completed within two weeks. All other fences appear to be in good condition.

**Monitoring Wells -**

All locked, painted and in good condition. Wells 3s and 3d still appear to have heaved up a little.

**Repair and Maintenance - Action Plan**  
Fence to be repaired as described above.

**Schedule for Next Inspection - July 2007**

Mar. 30, 2007

**McCarl site (DuPont Lee County X-23)  
Site Inspection Report:**

**Date of Inspection: Mar 29, 2007**

**Inspection Personnel: Ray Krogmeier, DuPont, Fort Madison**

**Weather: Dry, Overcast, 65 degrees**

**Description of Cover Conditions -**

Vegetation - thick and well established over entire site.

Weeds - not a problem.

**Description of Drainage Channels -**

Sediment Accumulation - None

Vegetation - Well established

Erosion: No areas of concern

**Description of Security Fences -**

Gate is in good condition and is secure. Fence on south side in good condition. There is no fence on the west, north, or east side.

**Monitoring Wells -**

All wells have been closed per well closure plan

**Schedule for Repairs and Maintenance -**

None required at this time

**Schedule for Next Inspection - July 2007**