



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7  
901 NORTH 5TH STREET  
KANSAS CITY, KANSAS 66101

APR 07 2011

**ACTION MEMORANDUM**

**SUBJECT:** Request for Approval and Funding for a Removal Action and 12-Month  
Emergency Exemption at the General Motors Sioux City Site  
Sioux City, Iowa

**FROM:** Nancy Swyers, Remedial Project Manager  
Iowa/Nebraska Remedial Branch

**THRU:** Pradip Dalal, Chief  
Iowa/Nebraska Remedial Branch

**TO:** Cecilia Tapia, Director  
Superfund Division

Site ID: 07TZRV00

**I. PURPOSE**

The purpose of this Action Memorandum is to request approval and funding of the proposed time-critical removal action for the General Motors Sioux City site (the "Site"), located adjacent to the Missouri River in Sioux City, Iowa. The general objective of the action is to prevent the contamination of the Sioux City drinking water supply with chlorinated volatile organic compounds (CVOCs) from the Site. This will be achieved by operating and maintaining the system of pumps used to prevent the migration of contaminated groundwater to the downgradient city wellfield (the Riverfront wellfield).

An emergency exemption from the 12-month limitation on response imposed by section 104(c)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is also being sought in this Action Memorandum.

**II. SITE CONDITIONS AND BACKGROUND**

The CERCLA ID number for this site is IA000686899. This will be a time-critical removal action.

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## **A. Site Description**

### **1. Removal site evaluation**

In 1965, Zenith purchased the parcels making up the Site and constructed a radio manufacturing facility. There were no industrial facilities on the Site before this time. Zenith constructed six underground storage tanks to store acetone; isopropanol; white gas; lacquer thinner; 1,1, 1-trichloroethane (1, 1, 1-TCA); and gasoline.

In 1980, General Motors (GM) purchased the Site and began testing throttle-body injection fuel systems at the Site. As part of its operations, GM used an aboveground Stoddard solvent tank farm, but did not use Zenith's underground storage tanks. In 1984, GM removed the underground storage tanks. GM stopped production at the Site in 1993 and removed the tank farm in 1994. The chemicals known to be used on-site by Zenith and GM do not coincide with the chemicals making up the groundwater contamination, except for the 1,1,1-TCA.

In 1993, the Site underwent Phases I and II assessment by GM in preparation for its sale. These assessments identified the existence of CVOCs on-site, which GM then reported to the Iowa Department of Natural Resources (IDNR). After completing a preliminary assessment, the Environmental Protection Agency (EPA) deferred the Site to IDNR for cleanup oversight in 1996. Under IDNR, a remedial investigation and feasibility study were completed. These investigations revealed levels of CVOCs in the groundwater above the EPA-established maximum contaminant levels (MCLs) for drinking water. They also revealed an area of contaminated soil that could be the source for the groundwater contamination. The soil contamination was not found at levels that pose a risk to human health from direct exposure.

In 2001, a state Record of Decision (ROD) was signed. In accordance with the state ROD, GM operated Municipal Well 3 (MW-3), and constructed a hydraulic capture system (HCS) and a butane biostimulation system. These systems were operational by the end of 2006. The HCS is a series of pumps designed to keep contamination from migrating off-site. MW-3 is pumped to waste and intercepts contamination off-site before it reaches the rest of the Riverfront wellfield. It was formerly used as a municipal drinking water well but was disconnected from the water supply when it was found to be contaminated. The butane biostimulation system was meant to bioremediate contaminated soil and groundwater on-site. A butane biostimulation pilot study for groundwater in the source area was initiated and showed some concentration reductions. However, the pilot study was not conducted for the source area soils and ended when GM declared bankruptcy.

In 2009, GM declared bankruptcy and sold its assets to General Motors, LLC, a separate and independent entity. At this point, GM became Motors Liquidation Company (MLC), which is responsible for settling the company's liability. MLC reached a settlement with the Department of Justice for the liability associated with the Site for \$6.5 million to be disbursed as soon as the bankruptcy order is filed. The state was unable to ensure use of the funds for the cleanup, so the money will be administered by EPA.

Problems at the Site stem from the imminent failure of MW-3 and operation of the HCS at less than the designed capacity, resulting in inadequate contaminant containment.

MW-3 is 40 years old and was rehabilitated in 2006 to increase its production from 400 gallons per minute (gpm) to 500 gpm. Since that time, the production of MW-3 has declined to less than 100 gpm in January 2011. The city has indicated that rehabilitation of the well might increase its production for a short while, but that the well is at the end of its functional life and needs to be replaced. Rehabilitation of the well may allow for containment of the contamination long enough to design and install a replacement well as part of a future response action.

Since declaring bankruptcy, GM has not maintained the HCS and it is possible that equipment needs to be repaired or replaced. Also, the HCS is experiencing biofouling of its wells. The resulting decrease in production has necessitated that 2 of the 11 wells be shut down. The system is not functioning as designed and may be allowing contamination to migrate off-site.

## **2. Physical location**

The Site is located at 1805 Zenith Drive, in Sioux City, Iowa (see Attachment 1). It is in the valley of the Missouri River between a steep loess bluff to the north and I-29 and the Missouri River to the south. Surrounding land use is commercial to the east and undeveloped to the south and west. A Sioux City municipal wellfield of six water supply wells, called the Riverfront wellfield, is located along the Missouri River southeast of the Site. This wellfield supplies most of the drinking water for the city of Sioux City.

According to a 2008 U.S. Census estimate, the population of Sioux City is 82,807.

A review of ecological risks was performed for the remedial investigation. It was concluded that the ecological risks at the Site are low.

## **3. Site characteristics**

The Site consists of 26 acres in the Sioux City Tri-View Industrial area and includes a 221,000-square-foot, single-story metal and masonry building connected to a 19,000-square-foot, two-story office building. Approximately half of the Site is paved and the other half is covered by vegetation. It is currently being used as office and warehouse space for the headquarters of Bomgaars, a home improvement and hardware store, with stores in Iowa, Colorado, Nebraska, Minnesota, South Dakota, and Wyoming. The building is being leased by Bomgaars from Confluent Enterprises, LLC, a real-estate holding company.

The Site has not been owned by any federal or state entity, and there have been no previous removal actions at the Site.

**4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant**

**Maximum Groundwater Concentrations of Contaminants**

Contaminant of Concern	Volume	Concentration* (ppb) (well no.)	Benchmark (ppb)	Citation	Contaminant of Concern
Tetrachloroethylene (PCE)		115 (AC-115)	70	RAL	Tetrachloroethylene (PCE)
1,1,1 - Trichloroethane (1,1,1 -TCA)	10 gallons	13,500 (AC-226)	1,000	RAL	1,1,1 -Trichloroethane (1,1,1 -TCA)
Trichloroethylene (TCE)	29 gallons	1,380 (AC-155)	300	RAL	Trichloroethylene (TCE)
1,1 -Dichloroethane (1,1 -DCA)	176 gallons	11,100 (AC-223)	140	Iowa Standard	1,1 -Dichloroethane (1,1 -DCA)
Cis 1,2-Dichloroethylene (C1,2-DCE)	127 gallons	1,070 (AC-220)	400	RAL	Cis 1,2-Dichloroethylene (C1,2-DCE)
1,1,2- Trichloroethane (1,1,2-TCA)		220 (AC-155)	5	Iowa Standard	1,1,2-Trichloroethane (1,1,2-TCA)
Trans 1,2-Dichloroethylene (T1,2-DCE)		30 (AC-155)	600	RAL	Trans 1,2-Dichloroethylene (T1,2-DCE)
1,2-Dichloroethane (1,2-DCA)		3 (AC-222)	40	RAL	1,2-Dichloroethane (1,2-DCA)
1,1-Dichloroethylene (1,1-DCE)	17 gallons	830 (AC-223)	70	RAL	1,1-Dichloroethylene (1,1-DCE)
Vinyl Chloride (VC)		12 (AC-220)	2	RAL	Vinyl Chloride (VC)

\*Maximum concentration found in the April 2009 sampling event

All of the above contaminants of concern are listed as CERCLA hazardous substances in Table 4 and Appendix A of 40 CFR § 302.4. These are therefore hazardous substances as defined by CERCLA at section 101(14), 42 U.S.C. § 9601(14).

As of the most recent round of groundwater sampling in April 2009, eight of the ten contaminants have been detected in the Site groundwater at levels above screening levels. Screening levels for the Site are either EPA-established removal action levels (RALs) for drinking water sites or Iowa standards for a protected groundwater source where RALs are unavailable. The RALs for drinking water are used to determine the point at which the health risk is so great at a contaminated site that EPA will need to provide an alternative water supply to the affected population.

## **5. National Priority List status**

This Site is not on the National Priority List (NPL). A preliminary Hazard Ranking System rating is being determined for the Site.

## **6. Maps, pictures, and other graphic representations**

See Attachment 1 for a map of the Site.

### **B. Other Actions to Date**

#### **1. Previous actions**

IDNR has overseen the remediation of the Site through a CERCLA-like process. However, the remediation goals set in the state ROD have not been met. The following is a summary of actions at the Site:

<b>Description of Event</b>	<b>Date</b>
Phase I Environmental Site Assessment	June 1993
Phase II Environmental Site Assessment	September 1993
Interim Site Assessment	October 1994
EPA Preliminary Assessment Report	November 1994
Site Investigation	May 1996
IDNR/GM Consent Order for SI	June 1996
EPA State Deferral of Site to IDNR	July 1996
IDNR/GM Consent Order for RI/FS and ROD	June 1997
Remedial Investigation Report	December 1998
Feasibility Study Report	May 2000
State ROD Signed	June 2001
Butane Biostimulation Pilot Study Report	March 2003
IDNR/GM Consent Order for RD/RA	July 2004
Butane Biostimulation System On-Line	April 2006
HCS On-Line	December 2006
GM Declares Bankruptcy	June 2009

#### **2. Current actions**

MLC is currently paying its contractor to run the HCS. It is anticipated that MLC will cease funding of the HCS operation at the end of March 2011. Sampling of groundwater monitoring wells and operation of the butane biostimulation were stopped in 2009 when GM declared bankruptcy.

The city of Sioux City is running MW-3. MW-3 is producing less than 100 gpm, down from a high of 1,000 gpm.

### **C. State and Local Authorities' Roles**

#### **1. State and local actions to date**

Since the state deferral agreement in 1996, IDNR has been responsible for oversight of GM's cleanup of the Site following a CERCLA-like process. When GM declared bankruptcy, the state and city were involved with negotiating the bankruptcy settlement for the Site.

#### **2. Potential for continued state/local response**

The state and city government will likely not play a role in the proposed removal action. However, EPA is coordinating possible state and city involvement with maintenance of the groundwater remediation, groundwater sampling/monitoring, and other related tasks.

### **III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES**

Site conditions meet the criteria for response action under 40 CFR § 300.415(b)(2) of the National Contingency Plan (NCP) under the following criteria:

***Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminant [40 CFR § 300.415(b)(2)(i)]***

On-site soil and groundwater are contaminated with CVOCs. Vapors and gases from contaminated groundwater and soil have the potential to seep into indoor buildings and cause health problems. The groundwater contamination has migrated off-site. Exposure to groundwater contaminated with CVOCs has the potential to cause health concerns through ingestion and dermal contact. This can occur either through exposure to contaminated groundwater from private wells or public water supply wells. The city does not have an ordinance in this area to prevent installation of private wells.

***Actual or potential contamination of drinking water supplies or sensitive ecosystems [40 CFR § 300.415(b)(2)(ii)]***

Sampling of monitoring wells at the Site indicates that the groundwater in the area is contaminated with CVOCs at levels which threaten the town's drinking water supply. The contaminant plume is upgradient of the city's drinking water wellfield. One of the city's wells has already been impacted and has been disconnected from the water supply. This well is currently used as an extraction well to intercept contaminated groundwater before it is pulled into the drinking water wellfield. When MLC transfers the amount of the bankruptcy settlement to EPA, it will no longer be responsible for running the system of pumps keeping contamination from reaching the Riverfront wellfield.

***The availability of other appropriate federal or state response mechanisms to respond to the release [40 CFR § 300.415(b)(2)(viii)]***

The MLC bankruptcy has been resolved. When MLC transfers the amount of the bankruptcy settlement to EPA it will no longer be responsible for any response actions for the Site. IDNR has referred the Site back to EPA for action. No other responsible parties have been identified for the Site. There are no other state or federal authorities that are able to take the necessary immediate actions.

***Other situations or factors that may pose threats to public health or welfare of the United States or the environment [40 CFR § 300.415(b)(2)(ii)]***

The extent of groundwater contamination has not yet been fully determined. Thus, the full extent of the impact to the drinking water supply is unknown at this time.

**IV. ENDANGERMENT DETERMINATION**

Actual or threatened releases of hazardous substances from this Site may present an imminent and substantial endangerment to public health, or welfare, or the environment based on the presence of CVOCs in municipal drinking water wells at levels exceeding RALs/state standards.

**V. EXEMPTION FROM STATUTORY LIMITS**

**12-Month Emergency Exemption**

Emergency Exemption: Immediate actions are necessary to prevent contamination of the Sioux City, Iowa, drinking water supply. If the proposed time-critical removal action is not approved, the city's water supply will be at immediate risk of contamination with CVOCs within a few months. At that point in time, 82,807 people may be exposed to CVOCs at levels which pose an unacceptable health risk.

State and local authorities will not be able to address this threat on a timely basis. The threat to human health was being adequately addressed by GM prior to its declaration of bankruptcy. However, since the bankruptcy, GM has not been maintaining the systems preventing contamination of the city's water supply. The actions EPA will take upon the transfer of the bankruptcy settlement amount will allow EPA to prevent the contamination of the Sioux City water supply. It is essential that EPA take over operation and maintenance of the contamination containment systems, including the HCS and MW-3. It is anticipated that timely response actions will continue to be required without interruption beyond the statutory 12-month period in order to prevent further unacceptable exposures.

Neither the state nor city government has access to resources to address the scope of this groundwater issue.

## **VI. PROPOSED ACTIONS AND ESTIMATED COSTS**

### **A. Proposed Actions**

#### **1. Proposed action description**

EPA will take over the operation of the HCS and MW-3. EPA contractors will restore the HCS to its designed pumping capacity by rehabilitation of wells and repair or replacement of HCS equipment as necessary.

The role of MW-3 as an interceptor well will be restored through rehabilitation of the well. If production capacity of the well cannot be restored through rehabilitation, EPA will explore other options for short-term containment of the off-site contamination such as a series of temporary wells or other means to intercept off-site contamination.

#### **2. Contribution to remedial performance**

Performance of this removal action will contribute to the overall remediation of the Site by preventing expansion of the contaminant plume and preventing CVOCs from entering the city's drinking water. EPA will evaluate the effectiveness of this response action to prevent contamination from reaching the municipal drinking water system and determine if additional, long-range remedial action is necessary in the future.

#### **3. Engineering evaluation/cost analysis**

Not applicable.

#### **4. Applicable or relevant and appropriate requirements**

The National Oil and Hazardous Substances Pollution Contingency Plan at 40 CFR 300.415 requires that removal actions shall, to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements (ARARs) under federal environmental, state environmental, or facility siting laws.

##### **Federal:**

Action to achieve compliance with MCLs (40 CFR 141).

##### **State:**

A letter has been sent to IDNR requesting a list of state ARARs that may apply to this action.



## **5. Project schedule**

This action can begin immediately upon approval of this Action Memorandum and will coincide with the transfer of the settlement money from MLC.

### **B. Estimated Costs**

Extramural Costs	\$464,429
Extramural Costs Contingency (20%)	<u>92,886</u>
Removal Project Ceiling	\$557,315

## **VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

If the proposed removal action is not approved, CVOCs from the Site will enter the city's drinking water potentially putting the population of Sioux City at risk for health problems related to CVOC exposure. Unless EPA is ready to take action at the Site immediately upon the transfer of the funds, the systems preventing the migration of CVOCs to the Riverfront wellfield will be turned off. According to the 2003 groundwater model developed by GM's contractors, contamination will reach the city's drinking water wells in less than a year if this occurs. The city does not treat its drinking water for VOCs so any contamination entering the municipal drinking water system will remain in the water for residents to shower in, eat, and drink.

## **VIII. OUTSTANDING POLICY ISSUES**

None.

## **IX. ENFORCEMENT**

See attached Confidential Enforcement Addendum for this Site (Attachment II). For NCP consistency purposes, it is not a part of this Action Memorandum.

The total EPA costs for this removal action, based on full cost-accounting practices, are estimated to be \$918,729.

Direct Extramural Costs	\$557,315
Direct Intramural Costs	100,000
EPA Indirect Costs (\$657,315 x 39.77%)	<u>261,414</u>
TOTAL PROJECT COSTS	\$918,729

Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs consistent with the full cost-accounting methodology effective October 2, 2000. These estimates do not include prejudgment interest, do not take into account other enforcement costs including Department of Justice costs, and may be adjusted during the course of the removal action. The estimates are for illustrative purposes only, and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

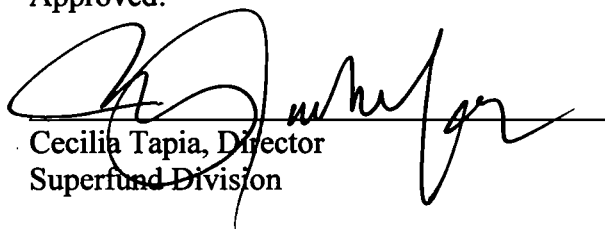
## **X. RECOMMENDATION**

This decision document represents the selected removal action for the Site developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site. Conditions at the Site meet the NCP section 300.415(b) criteria for a removal and the CERCLA section 104(c) emergency exemption from the 12-month limitation.

The total removal project ceiling, if approved, will be \$557,315. This amount will be funded by the special account established to receive the GM bankruptcy settlement.

It is recommended that you approve the proposed removal action.

Approved:

  
Cecilia Tapia, Director  
Superfund Division

4-7-11  
Date

Attachments

