



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7

11201 Renner Boulevard
Lenexa, Kansas 66219

MAY 18 2015

ACTION MEMORANDUM

SUBJECT: Request for a Time-Critical Removal Action and 12-Month Emergency Exemption for the PCE Chestnut Street Site, Atlantic, Cass County, Iowa

FROM: *Kenneth S. Buchholz*
Susan Fisher, On-Scene Coordinator
Emergency Response and Removal North Branch

THRU: *Kenneth S. Buchholz*
Kenneth S. Buchholz, Chief
Emergency Response and Removal North Branch

TO: Robert W. Jackson, Acting Director
Superfund Division

Site ID: B7A4 (RV001)

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of funding, and an emergency exemption from the 12-month statutory limit on removal, for a time-critical removal action for the PCE Chestnut Street Site (Site), Atlantic, Cass County, Iowa.

The contaminants of concern at the Site are tetrachloroethene (PCE) and its degradation products. These contaminants are hazardous substances as defined by Section §101(14) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and are designated as hazardous substances in 40 C.F.R. § 302.4.

The suspected source of contamination are former dry cleaning operations located on Chestnut Street, including 317 Chestnut Street, 500 Chestnut Street and 320 Chestnut Street, Atlantic, Iowa. The EPA conducted vapor intrusion sampling adjacent to and in the vicinity of the suspected source areas, and has documented PCE-contaminated soil gas in the subslab as high as 2,300,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and PCE in the indoor air as high as 550 $\mu\text{g}/\text{m}^3$. These levels present an immediate human health risk and exceed the established indoor air and subslab soil gas screening and removal action levels for PCE.

The levels of PCE vapors found in buildings at the Site present a significant health threat due to the inhalation hazards. Therefore, vapor mitigation systems should be installed in these buildings as soon as possible. Further assessment activity at the Site is warranted to assess the extent of contamination of PCE and its degradation products in vapor form, soil, and groundwater.

B7A4

40486425

2.0



Superfund

The Regional Screening Levels for chemical contaminants at Superfund sites contains a value for the soil-to-groundwater leaching pathway for PCE. This value is based on Dilution Attenuation Factors (DAF). A DAF of 0.060 milligrams per kilogram, or 60 µg/kg, has been recommended by the EPA for this Site. The Maximum Contaminant Level (MCL) for drinking water is 5 µg/L.

Under the authority of section 104(a) of CERCLA, 42 U.S.C. § 9604(a), and section 302.4 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 302.415(b)(2), the removal action proposed will address immediate threats to public health, welfare and the environment posed by the Site through the following actions:

- Conduct additional sampling of subslab soil gas and indoor air.
- Conduct soil and groundwater collection and analysis at locations in the investigation area. Based on the results of these analyses, it may be necessary to address source areas with measures which could include soil removal or treatment, or other activities.
- Install vapor mitigation systems in buildings containing either indoor air or subslab soil gas PCE and/or TCE vapor concentrations exceeding the site-specific removal action levels (RALs) for soil gas contaminants. Site-specific action levels were prepared by the EPA's toxicologists to address direct exposure to potentially harmful PCE and/or TCE vapors. Initially, mitigation systems will be installed in structures exceeding the RALs. Additional systems may be installed depending on sample results.
- Monitor the effectiveness of the vapor mitigation systems by conducting verification indoor and subslab soil gas vapor air sampling following the installation of the systems.

The above actions could take longer than 12 months to complete; therefore this action memorandum also includes a request for an exemption from the 12-month statutory limit. There are no nationally significant or precedent-setting issues associated with the Site. This Site is not on the National Priorities List (NPL).

II. SITE CONDITIONS AND BACKGROUND

Site Name:	PCE Chestnut Street
Site ID#:	B7A4
CERCLIS ID#:	IAN000703467
CERCLIS Sequence #:	RV001
Site Location:	Atlantic, Cass County, Iowa
Lat/Long:	41.407861 degrees (°) north/95.012939° west
Potentially Responsible Party:	PRP search ongoing
NPL Status:	Non-NPL
Removal Category:	Time-Critical
Nationally Significant:	No

A. Site Description

1. Removal site evaluation

During a vapor intrusion assessment conducted in March 2015 by the EPA for the PCE Former Dry Cleaners Site, the EPA discovered another former dry cleaner site (PCE Chestnut Street) to the west of the PCE Former Dry Cleaners Site. Vapor intrusion sampling revealed concentrations of PCE in the subslab soil gas as high as 2,300,000 $\mu\text{g}/\text{m}^3$ and 550 $\mu\text{g}/\text{m}^3$ of PCE in the indoor air. To date a total of three properties have been sampled in the area of the PCE Chestnut Street Site. All three properties show PCE contamination above the RALs. As part of this action, the EPA will be conducting a removal assessment of the Site, including sampling groundwater, soil, and vapor intrusion. The EPA will also be installing vapor mitigation systems in structures having contaminant concentrations in excess of the RALs. Below is a table showing the March 2015 vapor intrusion sampling results.

Address	Sample Date	Indoor Air or Sub Slab	Sample Number	PCE $\mu\text{g}/\text{m}^3$	TCE $\mu\text{g}/\text{m}^3$	Business / Residence
315 Chestnut	3/30/2015	SS	6763-10	2,300,000	ND	R
315 Chestnut	3/30/2015	IA	6763-11	550	ND	R
319 Chestnut	3/30/2015	IA	6763-14	180	ND	B
312 Chestnut	3/30/2015	SS	6763-15	9,200	ND	B
312 Chestnut	3/30/2015	IA	6763-16	2.5	ND	B

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

ND = non detect

 = above EPA action levels

The PCE Chestnut Street Site was entered into the Comprehensive Environmental Response, Compensation, and Liability System (CERCLIS) in May 2015, with the Identification Number IAN000703467.

2. Physical location

The Site is located at, and in the area of, 317 Chestnut Street, Atlantic, Iowa. The approximate coordinates of the Site are latitude 41.407861° north/95.012939° west. The city of Atlantic has a population of 7,008 (U.S. Census Bureau 2012) and is located in Cass County, Iowa, approximately 45 miles northeast of Council Bluffs and 75 miles west of Des Moines.

The Site is located in downtown Atlantic, Iowa, where there is a mix of commercial and residential. The buildings at 315 and 319 Chestnut are part commercial space and part residential. The building at 312 Chestnut is commercial, but sensitive populations such as children and women of child-bearing age frequent the building. The 317 Chestnut building is now used as a children's toy and book store, a location frequented by children and women of child-bearing age. None of the current businesses appear to use the contaminants in their processes.

3. Site characteristics

From approximately 1946 to 1991 the Albertsons Dry Cleaners operated at 317 Chestnut Street. The exact dates of operation are unknown, but the Albertsons Dry Cleaners was listed in the Atlantic City directories from approximately 1946 to 1991. From 1962 to 1964, Albertsons advertised Whirlpool coin-operated dry cleaning machines. Dry cleaning operations typically used solvents such as PCE in their operations. Today the location is a children's toy and book store.

From approximately 1991 to 2012 the Cass County Cleaners, a laundry and dry cleaning service, operated at 500 Chestnut Street. The exact dates of operation are unknown. As of April 2015 the building is vacant. At this time not much is known about the Cass County Cleaners, but the business registered with the state of Iowa as a limited liability company in 1998. The owner of the building when the dry cleaners was in operation appears to still own the building.

Quality Cleaners located at 320 Chestnut Street was listed in the Atlantic City directories from beginning in 1991. It is believed that Quality Cleaners caught on fire in 1995, burning that building and the adjacent building to the ground. The property was sold in March 1996 and the new building is currently a retail store.

Currently the Site is not fully or partially owned by any federal agency. Furthermore, it does not appear that the City of Atlantic, Iowa, has been an owner of this Site.

This is the first removal action at this Site.

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

Analytical results from samples collected by the EPA in March 2015 indicate that hazardous substances have been released into the environment at the Site. The contaminants are hazardous substances as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and are designated as hazardous substances in 40 C.F.R. § 302.4. PCE vapors have been detected in subslab and indoor air samples at certain structures at the Site at levels that exceed the EPA's RALs and screening levels. Concentrations of PCE as high as 2,300,000 $\mu\text{g}/\text{m}^3$ have been found in the subslab soil gas and PCE as high as 550 $\mu\text{g}/\text{m}^3$ in indoor air in one structure.

The suspected sources of contamination are former dry cleaning operations located on Chestnut Street, including 317 Chestnut Street, 500 Chestnut Street and 320 Chestnut Streets Atlantic, Iowa. The exact quantity of contaminants is unknown at this time.

5. National Priority List (NPL) status

The Site is currently not listed on the NPL.

6. Maps, pictures and other graphic representations

Figure 1: Site Location Map

B. Other Actions to Date

1. Previous actions

See subparagraph II.A.1 above, "Removal site evaluation."

2. Current actions

No further actions have been taken since the removal assessment.

C. State and Local Authorities' Roles

1. State and local actions to date

There have not been any state or local actions to date. The documented PCE-contaminated vapor at the Site poses an immediate risk to public health or welfare or the environment. Assistance in responding to this release is unavailable from state or local authorities, and will not be provided on a timely basis.

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

A. Threats to Public Health or Welfare

Where the EPA determines, based on the factors set forth in 40 C.F.R. § 300.415(b)(2), that there is a threat to public health or welfare or the environment, the lead agency may take any appropriate removal action to abate, prevent, minimize, stabilize, mitigate or eliminate the release or threat of release. The factors in 40 C.F.R. § 300.415(b)(2) that apply to this Site are:

300.415(b)(2)(i) – Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

PCE has been detected in the subslab air at a structure at the Site at concentrations as high as 2,300,000 $\mu\text{g}/\text{m}^3$ and in indoor air as high as 550 $\mu\text{g}/\text{m}^3$. PCE-contaminated vapors present an actual threat as an inhalation hazard when above RALs and screening levels. PCE is potentially in the groundwater and presents a potential threat to the environment.

Vapor intrusion occurs when vapors emanating from contaminated soil and/or groundwater migrate through the vadose zone into overlying structures and into the indoor air. When chemicals are spilled on the ground, they frequently seep into the soil and make their way into the groundwater. Volatile organic compounds, including PCE and TCE, produce vapors that travel through soil. These vapors can enter buildings through cracks in the foundation, or a basement with a dirt floor or concrete slab or crawl space.

PCE is a man-made chemical that is widely used for dry cleaning clothes and for metaldegreasing. It evaporates easily into the air and has a sharp, sweet odor. Exposure to PCE vapors at very high concentrations (particularly in closed, poorly ventilated areas) can cause dizziness, headaches,

drowsiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death. PCE has been shown to cause liver tumors in mice and kidney tumors in rats. It has been determined that PCE is a Class 2A carcinogen via inhalation based on long-term exposure.

TCE is used for metal degreasing, and is a degradation product of PCE. The Agency for Toxic Substances and Disease Registry reports that inhalation exposure to TCE at very high concentrations may affect the central nervous system, with symptoms such as dizziness, headaches, confusion, euphoria, facial numbness, and weakness. Recent studies have linked TCE with fetal structural heart malformations associated with exposure during the prenatal period.

300.415(b)(2)(v) – Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or to be released.

The degree of volatility of a compound is directly proportional to the temperature. During hot summer months, organic compounds volatilize to a greater degree which would lead to increased vapor intrusion problems at the Site. Also, during the summer months, dry conditions can create fractures in the subsurface materials beneath structures creating conduits for vapor intrusion. Alternatively, periods of heavy rainfall can elevate the shallow groundwater table, bringing it closer to the ground surface and potentially resulting in increased vapor intrusion.

300.415(b)(2)(vii) – The availability of other appropriate federal or state response mechanisms to respond to the release.

There are no known appropriate federal or state response mechanisms available to conduct an appropriate response at the Site.

IV. ENDANGERMENT DETERMINATION

The actual and threatened release of hazardous substances at and from the Site, if not addressed by implementing the removal action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

As discussed above, PCE-contaminated vapors have been found at the Site above RALs and screening levels, presenting an inhalation hazard according to EPA toxicologists.

V. EXEMPTION FROM STATUTORY LIMITS

Emergency Exemption

The NCP at 40 C.F.R. 300.415(b) (2) authorizes the EPA to consider time-critical response actions at those facilities that pose an imminent threat to human health or the environment. A PCE vapor plume has been documented at this Site, and as a result there is an immediate risk to public health and welfare. Buildings located above the PCE vapor plume may be frequented by residents and others who are breathing air containing PCE, and potentially TCE, vapors. Therefore vapor mitigation systems should be installed immediately in residential and business buildings which show PCE and/or TCE above RALs in indoor air and/or subslab soil gas.

Continued response actions are immediately required to prevent, limit, and mitigate an emergency. The EPA subslab soil gas and indoor air sampling results indicate that PCE vapors are currently migrating into homes and businesses at unacceptable levels, and these vapors have the potential to impact schools and daycares.

PCE has been detected as high as 2,300,000 $\mu\text{g}/\text{m}^3$ in subslab soil gas and 550 $\mu\text{g}/\text{m}^3$ in indoor air samples, which are levels that EPA toxicologists consider to present a significant health threat and an inhalation hazard. The EPA has confirmed that two properties exceed the established PCE subslab screening levels. An immediate threat exists at two businesses with residences attached where ambient air exceeds the established PCE RALs. Assistance from the state and local governments cannot be provided on a timely basis. Currently, assessment activities are ongoing at the Site, and at this time a PRP has not been identified. Because the response actions needed at the site are time-critical, mitigation systems should be immediately installed in buildings with vapor intrusion greater than the RALs or subslab soil gas screening levels.

12-Month Exemption

Continued response actions are projected to go beyond the 12-month statutory limitation due to the fact that additional assessment is needed at the Site. An exemption to the 12-month limit is requested based on the emergency exemption. The proposed removal meets the criteria for appropriateness in that the immediate installation of vapor mitigation systems and further air, groundwater and soil sampling are necessary to prevent a foreseeable threat to the health of building residents and others who may be breathing vapors the EPA toxicologists have determined are harmful to human health. At this time, only three buildings have been sampled, but due to the high levels found in them, there are more that need to be sampled for vapor intrusion. Further, groundwater and soil sampling is needed to assess the extent of contamination.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

EPA subslab soil gas and indoor air sampling results indicate that PCE vapors are migrating into residences and businesses, with the possibility of also impacting schools and daycares. Vapors that are migrating into buildings are at levels that the EPA toxicologists consider a significant health threat because they are considered an inhalation hazard. The Site RALs were calculated as follows:

	Screening Levels		Removal Action Levels	
	Subslab		Indoor Air	
	PCE $\mu\text{g}/\text{m}^3$	TCE $\mu\text{g}/\text{m}^3$	PCE $\mu\text{g}/\text{m}^3$	TCE $\mu\text{g}/\text{m}^3$
Residential	420	21	42	2.1
Industrial	1,800	88	180	8.8

$\mu\text{g}/\text{m}^3$ = microgram per cubic meter

The following actions will be taken to mitigate threats posed by the presence of PCE or its degradation products at levels above the RALs in indoor air and/or subslab soil gas vapor at the Site.

INSTALLATION OF VAPOR MITIGATION SYSTEMS

- Design and install vapor mitigation systems in affected structures. This action will eliminate direct exposure to solvent vapors. Mitigation may include:
 - installation of a subslab soil gas depressurization system or crawl space depressurization system;
 - sealing cracks in walls and floors of the basements;
 - sealing or fixing drains or other preferential pathways (e.g., utilities); and/or
 - sealing basement dirt floors.
- Develop and implement a vapor mitigation system performance sample plan to confirm that the EPA indoor health standards are achieved following the installation of vapor mitigation systems.
- Verify the effectiveness of the vapor mitigation systems by sampling indoor air following the installation of the systems.

The EPA will require the property owner to sign an access agreement prior to installation which states that the owner will be responsible for providing electricity to the inline vapor exhaust fan. The fans in the ventilation system will be covered by a manufacturer's warranty. Any operation and maintenance of the system after the manufacturer's warranty period is over will be the responsibility of the property owner.

In addition to installing the mitigation systems, this action will include follow-up indoor air and subslab soil gas sampling in buildings where systems were installed, as well as sampling in any additional buildings at the Site where vapor intrusion may be occurring. It may be necessary to install barrier systems at some properties to optimize the performance of the vapor mitigation system (i.e., floor sealant, poly sheeting, etc.).

The Off-Site Rule (40 C.F.R. § 300.440) applies to the off-site transfer of any hazardous substance, pollutant, or contaminant. The off-site transfer of any hazardous substance, pollutant or contaminant during this removal action will be conducted in accordance with the Off-Site Rule.

2. Contribution to remedial performance

If the Site is listed on the NPL, the remedial process (remedial investigation/feasibility study and remedial design/remedial action) will commence. In the event that the Site is listed on the NPL, it is expected that the removal action provided for herein will contribute to remedial performance, and will not adversely affect any future remedial performance for the Site.

3. Applicable or Relevant and Appropriate Requirements (ARARs)

Section 300.415(j) of the NCP provides that removal actions shall, to the extent practicable considering the exigencies of the situation, attain ARARs under federal environmental or state environmental facility siting laws.

Federal

- 40 C.F.R. Part 268: RCRA Land Disposal Restrictions.
- 40 C.F.R. Part 261: Identification and Listing of Hazardous Wastes.
- 40 C.F.R. Part 262: Standards Applicable to Generators of Hazardous Waste.
- 40 C.F.R. Part 263: Standards Applicable to Transporters of Hazardous Waste.
- 49 U.S.C. § 5101 et seq.: Federal Hazardous Materials Transportation Law and/or 49 C.F.R. Parts 107, 171-177.
- 29 C.F.R. Part 1910: Occupational Safety and Health Standards.
- Subtitle D of RCRA, section 1008, section 4001, et seq., 42 U.S.C. § 6941, et seq., State or Regional Solid Waste Plans and implementing federal and state regulations.
- 40 C.F.R. Part 63: National Emission Standards for Hazardous Air Pollutants.

State

The EPA will address state ARARs during this action. A letter has been sent to the state requesting that ARARs be identified for the Site. ARARs proposed by the Iowa Department of Natural Resources will be evaluated by the EPA, and state-identified ARARs will be complied with to the maximum extent practicable.

4. Project Schedule

This time-critical removal action will begin upon approval of this Action Memorandum. It is anticipated that this removal action will be completed by 2017.

B. Estimated Costs

The costs associated with this removal action are estimated as follows:

Extramural Costs	\$200,000
Contingency (20 percent)	<u>40,000</u>
Removal Project Ceiling	\$240,000

EPA direct and indirect costs, although cost recoverable, do not count toward the Removal Ceiling for this removal action. Refer to the enforcement section for a breakout of these costs.

VII. ENFORCEMENT

See the Confidential Enforcement Addendum for this Site. 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 \$428,783.

Direct Extramural Costs	\$240,000
Direct Intramural Costs	45,456
EPA Indirect Costs (50.21 percent of all costs)	<u>143,327</u>
Total Project Costs	\$428,783

Direct costs include direct extramural 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 a 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 total costs from this estimate will affect the United States' right to cost recovery.

VIII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

The actions proposed herein for the Site should be initiated immediately. Should these actions be delayed, the potential threats to human health and the environment will continue and adverse risk effects may increase.

IX. OUTSTANDING POLICY ISSUES

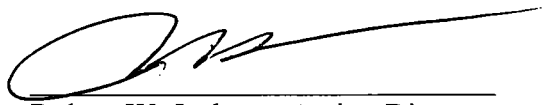
None.

X. RECOMMENDATION

This decision document represents the selected removal action for the PCE Chestnut Street Site in Atlantic, Iowa, developed in accordance with CERCLA, 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 criteria for a removal action, as set forth in 40 C.F.R. § 300.415(b), and I recommend your approval of the proposed removal action and emergency exemption. The removal ceiling, if approved, will be \$240,000. This amount comes from the Regional Removal Advice of Allowance.

Approved:



Robert W. Jackson, Acting Director
Superfund Division

5-18-15

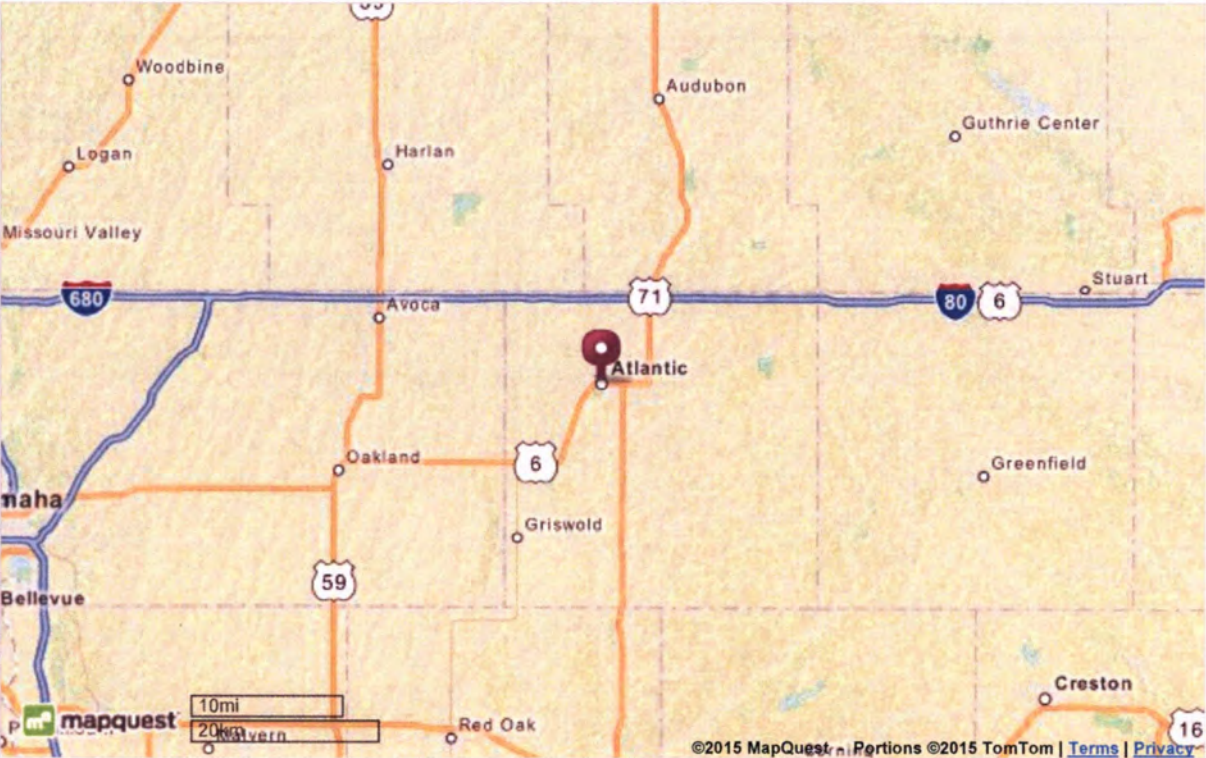
Date

Attachments: Site Location Map



Map of:
317 Chestnut St
Atlantic, IA 50022-1064

Notes



©2015 MapQuest, Inc. Use of directions and maps is subject to the MapQuest Terms of Use. We make no guarantee of the accuracy of their content, road conditions or route usability. You assume all risk of use. [View Terms of Use](#)