FAIRFIELD COAL GASIFICATION PLANT
(Fairfield, Iowa)

GENERAL DESCRIPTION

The site is located in the center of the SE 1/4 of Section 26, T72N, R10W, Jefferson County, Iowa. The 0.5-acre site occupies all of Lot 5 in Block 1 of the Southwestern Addition to Fairfield and that part of South Seventh Street between Burlington and Washington Avenues and is owned by Alliant Energy Corporation. The site was entered on the Registry in August 1989. The EPA placed the site on the National Priorities List in August 1990.

SITE CLASSIFICATION

In 2000 this site was reclassified "d" Site Properly Closed, Requires Continued Management.

TYPE AND QUANTITY OF HAZARDOUS WASTE

A coal gasification plant was operated at the site from 1878 until 1950, when the plant was closed and the equipment removed. During its operation, coal tar, iron oxide wastes, and associated coal gasification wastes were generated at the plant. Unknown quantities of these wastes were disposed of at the site, contaminating the soil and the surficial aquifer. Iowa Electric contracted a field investigation of the site during 1985-1986. The EPA began investigating the site in 1986. Groundwater samples collected from monitoring wells at the site indicate the presence of several hazardous substances. The contaminants identified in groundwater include Benzene, Toluene, Xylenes, Styrene, Ethylbenzene, 2,4-Dimethylphenol, Phenanthrene, Anthracene, Pyrene, Chrysene, Benzo(a)anthracen,, Benzo(a)pyrene, Naphthalene, Fluorene.

SUMMARY OF PUBLIC HEALTH AND ENVIRONMENTAL CONCERS

The site is located within Fairfield, Iowa. Most city residents obtain their drinking water from a municipal system that has deep wells and storage lakes located northeast of the city. An unnamed stream accepts the surface runoff from the site. It discharges into Cedar Creek 2.9 miles southwest of the site.

SUMMARY OF ASSESSMENT, MONITORING OR REMEDIAL ACTIONS

The EPA is the lead agency at the site.

In 1990 the EPA issued a Record of Decision that included excavation of coal tar and contaminated soil and for treatment of contaminated ground water. A ground water treatment pilot study was completed in 1992. And remedial action began in 1993.

Alliant Energy conducted source (coal tar) and contaminated soil removal at the Fairfield Coal Gasification site from 1993 to 1995. Ground water treatment has been conducted from 1990 to 2001. Monitoring has determined that contaminated groundwater has not migrated beyond the property boundary. The ground water treatment system was shut down in 2001 to conduct a one-year monitored natural attenuation (MNA) study. Two additional monitoring wells were installed to track the results of the study and will be sampled quarterly.

Institutional controls will be implemented to prevent the use of groundwater in the affected area that include deed restrictions and environmental easements to be administered by IDNR. The department will continue to coordinate with the EPA to assure proper cleanup.

2003: The Monitored Natural Attenuation study was extended for two more years, with quarterly ground water monitoring conducted in February, May and August of 2003.

2004: An annual report will be submitted to EPA, a Monitoring Natural Attenuation report will be prepared to document and evaluate this remedial approach for the period between September 2002 and August 2003. Four quarterly MNA ground water sampling events were conducted.

2005: A Monitoring/Natural Attenuation report was submitted that documents and evaluates the effectiveness of this remedial approach for the period from November 2003 to August 2004. The report recommended additional five-year MNA study, which is under review by EPA. One monitoring event was conducted. Based on the data collected to date, a revised approach to ground water management will be developed and proposed in 2006.

2006: A Technical Impracticability Evaluation Report was submitted for the site and to propose that EPA invoke a TI waiver for the site. This report also recommended that the ROD be amended to incorporate this waiver and that the ground water remedy be modified. EPA and IDNR are reviewing the report to determine if the conclusions are valid and that the recommendations will continue to protect human health and the environment. The site will be undergoing its next 5-year review in 2007.

2007: Completion of EPA Five Year Review. Vapor Intrusion Investigation Work Plan and Annual Report were approved.

2008: Vapor Intrusion Report submitted for EPA review and approval and the annual ground water monitoring was completed.

2009: Annual ground water monitoring report completed and draft environmental covenant prepared

In 2010, the following activities were completed in association with the Fairfield MGP site:

- Annual ground water monitoring was conducted in August 2010, and the annual ground water monitoring report was prepared.
- Quarterly monitoring of dense non-aqueous phase liquid levels in site monitoring and extraction wells was conducted.
- Monthly status reports were prepared for Region 7 EPA.
- Additional documentation support was provided to Region 7 EPA in support of a technical impracticability waiver.
- The draft environmental covenant was prepared.

In 2011 the following activities were completed in association with the Fairfield MGP site

- Quarterly DNAPL monitoring was conducted.
- Annual ground water monitoring was conducted.
- The revised technical impracticability evaluation report was transmitted to IDNR and EPA.
- The annual ground water monitoring report was prepared.
- The environmental covenant was drafted.

In 2012 the following activities were completed in association with the Fairfield MGP site

- The 2011 Annual site ground water monitoring report

- Completion of the fourth Five Year Review Report
- Site Optimization Review Study was completed. An Optimization Review Study is a systematic site review by a team of independent technical experts, to identify opportunities to improve remedy protectiveness, effectiveness and cost efficiency, and to facilitate progress toward completion of site work. Installation of deep wells recommended in optimization study (these wells will be installed and sampled in December 2012)
- Continued Quarterly DNAPL monitoring that may be revised to annual DNAPL monitoring going forward based on the conclusions of the optimization study

2013: the following activities were completed in association with the Fairfield MGP site

- The 2012 annual site groundwater monitoring report was prepared.
- Two deep monitoring wells were installed based on the recommendations of the 2012 Optimization Study.
- Annual groundwater and DNAPL monitoring was conducted.
- Preparation of the 2013 annual site groundwater monitoring report began.
- The environmental covenant was drafted.

2014: the following activities were completed.

- 2013 Annual Groundwater Monitoring Report was completed
- Waste Management Technical memorandum for Substation improvements
- An Environmental Covenant is being prepared for site use restrictions

2015: the following activities were completed

- The 2014 Groundwater Monitoring Report was prepared.
- Deep monitoring well MW-18 was abandoned and replaced.
- Annual groundwater and DNAPL monitoring was conducted.

2016: The following activities were completed

- The 2015 Groundwater Monitoring Report was prepared and submitted for EPA approval.

2017: The following site management activities were completed

- Phase I and Phase II Soil Management Plans and Directional Drilling plan were developed for soil during a major remodeling of the substation that is located on the north side of the site
- The 2016 Groundwater Monitoring Report was submitted to EPA for approval
- The Five Year Review was completed in September 2017
- Supporting documentation for the development of an Environmental Covenant was received

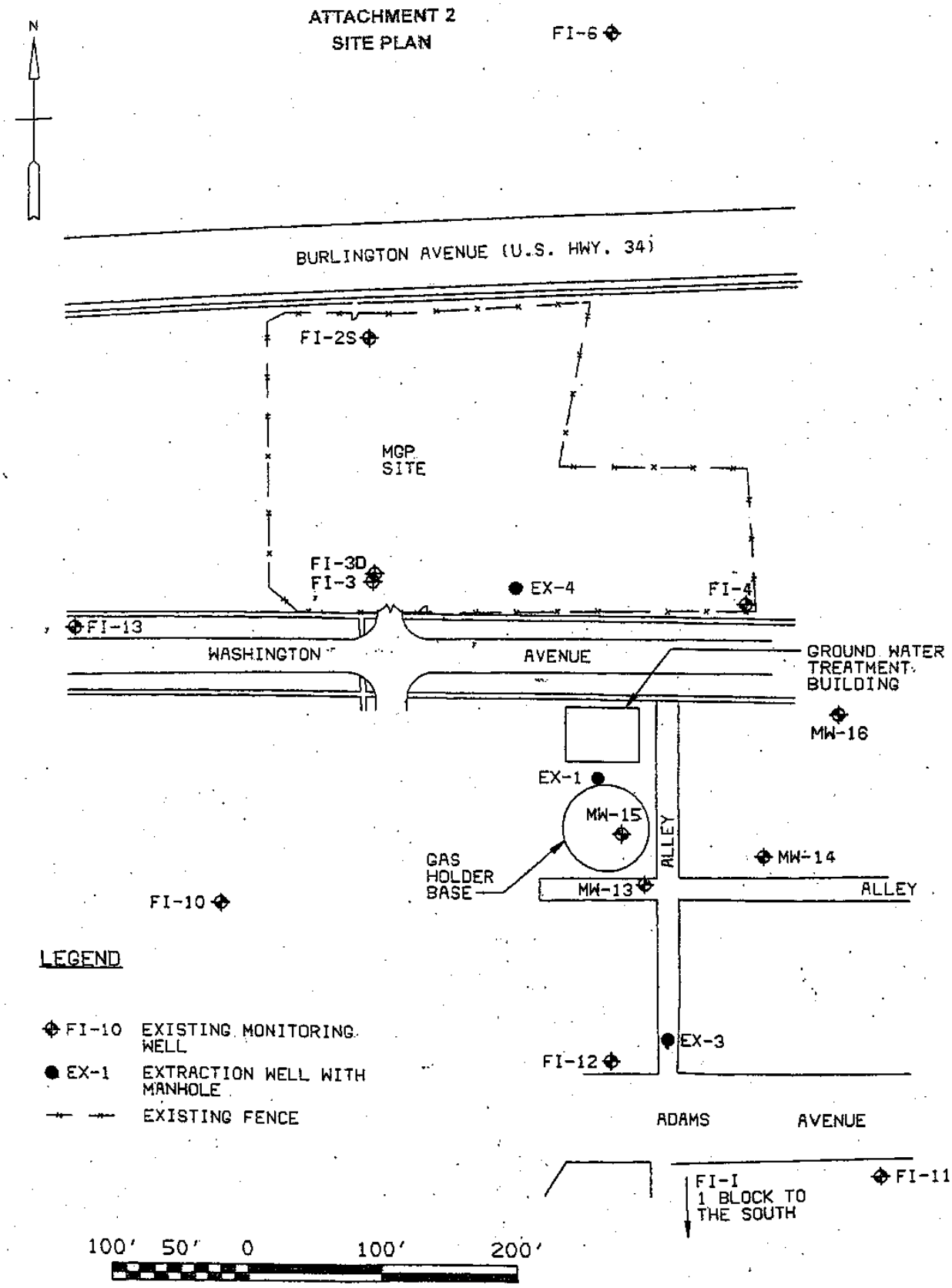
2018: The following activities were completed

- **The Five Year Review Report was submitted and approved and the remedy determined to be protective**
- **The 2017 Annual Monitoring Report was approved by EPA**
- **The Vapor Intrusion Investigation Work Plan was submitted for approval by EPA**

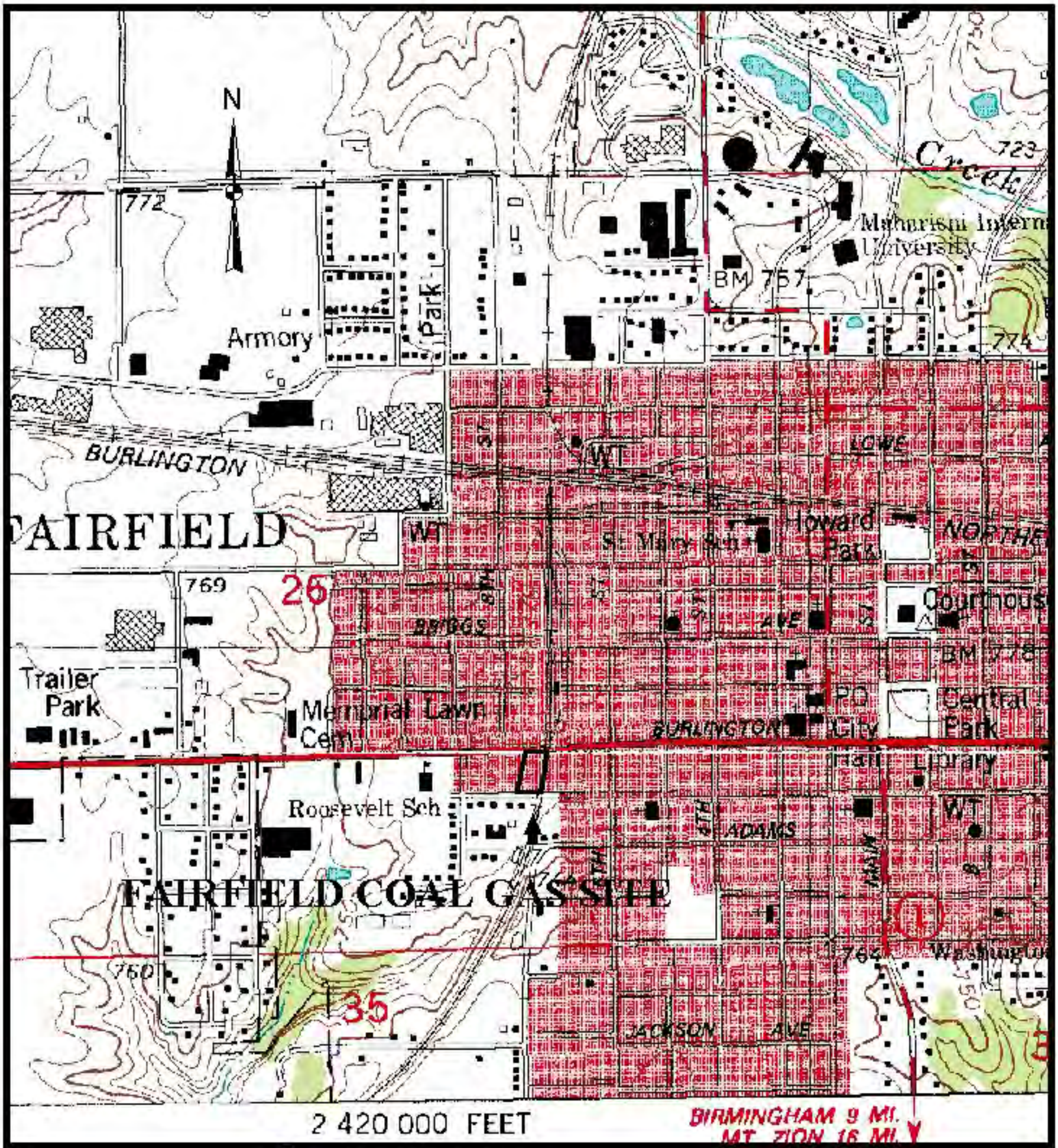
2019:

- **The Vapor Intrusion Investigation Work Plan was completed and approved by EPA**
- **Summary Report of Remedial Activities, conceptual site model, hydrogeology and soil contamination was completed**
- **Monthly Status reports were submitted tracking site progress**

ATTACHMENT 2
SITE PLAN



(Fairfield Coal Gas)



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